



National  
Construction  
Code

**Volume Three**

Plumbing Code of Australia



Australian  
Building  
Codes Board

**2022**

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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 | -          |

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| Spec no. | Title   | References   |                  |
|----------|---|--|------------------|
|          |   | Vols. One, Two and Housing Provisions  | Vol. Three       |
| 18       | Class 2 and 3 buildings not more than 25 m in effective height                      | E1D4; S17C2; S23C1; S23C3  | -                |
| 19       | Fire control centres  | E1D14  | -                |
| 20       | Smoke detection and alarm systems   | E2D3; E2D5; E2D7; E2D8; E2D9; E2D11; E2D13; E2D14; E2D15; E2D16; E2D17; E2D18; E2D19; E2D20; S5C19; S5C22; S17C8; S18C3; S21C7; S21C8; S22C3 | -                |
| 21       | Smoke exhaust systems   | C3D13; E2D10; E2D14; E2D15; E2D16; E2D17; E2D18; E2D19; E2D20; S20C6; S20C8  | -                |
| 22       | Smoke-and-heat vents  | E2D10; E2D14; E2D15; E2D16; E2D17; E2D18; E2D19; E2D20; S20C8  | -                |
| 23       | Residential fire safety systems   | S18C3; S18C4   | -                |
| 24       | Lift installations  | E3D2   | -                |
| 25       | Photoluminescent exit signs   | E4D8   | -                |
| 26       | Waterproofing and water resistance requirements for building elements in wet areas  | F1D6   | -                |
| 27       | Accessible adult change facilities  | F4D12; S15C1   | -                |
| 28       | Sound insulation for building elements  | F5D3; F5D4   | -                |
| 29       | Impact sound — Test of equivalence  | F5D4; S28C2  | -                |
| 30       | Installation of boilers and pressure vessels  | G2D2   | -                |
| 31       | Fire and smoke control in buildings containing atriums                              | G3D4; G3D8; S14C2  | -                |
| 32       | Construction of proscenium walls  | C2D11; I1D3  | -                |
| 33       | Additional requirements   | J1V1; J1V2; J1V3; J1V5   | -                |
| 34       | Modelling parameters  | J1V3; S35C1  | -                |
| 35       | Modelling profiles  | S34C3  | -                |
| 36       | Material properties   | J4D3   | -                |
| 37       | Calculation of U-Value and solar admittance   | J3D9; J3D13; J4D3; J4D6  | -                |
| 38       | Spandrel panel thermal performance  | S37C3; S37C4   | -                |
| 39       | Sub-floor thermal performance   | J4D3   | -                |
| 40       | Lighting and power control devices  | J7D3; J7D4; J7D5; J7D6; J7D7   | -                |
| 41       | Cross-connection hazards  | -  | B5D2; B5D3; B5D4 |
| 42       | House energy rating software  | H6D2   | -                |
| 43       | Bushfire protection for certain Class 9 buildings                                   | G5D4   | -                |
| 44       | Calculation of heating load limit, cooling load limit and thermal energy load limit | J1P2; H6P1   | -                |
| 45       | Modelling profiles for J1V5   | J1V5   | -                |

## 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   |

### List of amendments - NCC 2022 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 2022 edition of NCC Volume Three.

The notes provide a description of major changes made from the previous edition of Volume Three. If additional information is required to assist in understanding, interpreting or applying the provisions of the 2022 edition of Volume Three, reference should be made to the Guide to 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 2022 Volume Three

| Reference                                 | Changes and commentary   |
|---|--|
| <b>General</b>                            |  |
| Throughout                                | An Introduction to this Part has been added to introduce the intent and purpose of every Part of the NCC.  |
| Throughout                                | The Objectives and Functional Statements have been relocated into NCC Volume One.  |
| Throughout                                | A number of provisions have been amended, restructured, deleted and relocated as part of the initiative to provide a consistent NCC structure and improve NCC usability. |
| <b>Section A - Governing requirements</b> |  |
| A1G1                                      | A new clause has been added to specify the scope of NCC Volume One.  |
| A1G2                                      | A new clause has been added to specify the scope of NCC Volume Two.  |
| A1G3                                      | A new clause has been added to specify the scope of NCC Volume Three.  |
| A2G2(4)(b)                                | The existing clause has been amended to remove unnecessary duplication.  |
| A5G3                                      | A Note has been included to outline transitional arrangements for the 2022 new numbering system and documentary evidence.  |
| A5G4                                      | A new clause has been added to limit lead content in copper alloy plumbing products in contact with drinking water.  |
| A5G9                                      | A new clause has been added to require a NatHERS certificate be issued for the house energy rating software output where house energy rating software is required.       |
| A6G1                                      | The limitation statement has been amended to include a Class 9b early childhood centre.  |
| Specification 1                           | Schedule 5 in NCC 2019 Amendment 1 has been relocated into new Specification 1 and 2.  |
| Specification 2                           | Schedule 5 in NCC 2019 Amendment 1 has been relocated into new Specification 1 and 2.  |
| Specification 3                           | Schedule 6 in NCC 2019 Amendment 1 has been relocated into new Specification 3.  |
| <b>Part B1 - Cold water services</b>      |  |
| B1F3                                      | A new Functional Statement for residential fire sprinkler equipment has been inserted.   |

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| Reference | Changes and commentary   |
|-----------|--|
| B1P2      | The existing clause has been amended and now contains a quantified level of performance for pipework water velocity.   |
| B1P3      | The existing clause has been amended as a standalone Performance Requirement for Access and isolation as a consequence of new quantified Performance Requirements B1P2, B1P4 and B1P5.   |
| B1P4      | The existing clause has been amended and now contains quantified levels of performance for water efficiency.   |
| B1P5      | The existing clause has been amended and now contains quantified levels of performance for pressure.   |
| B1P6      | The existing clause has been amended as a standalone Performance Requirement for Uncontrolled discharge as a consequence of new quantified Performance Requirements B1P2, B1P4 and B1P5. |
| B1D2      | Sanitary flushing has been amended to Water efficiency and contains new provisions for Water efficiency.   |
| B1D4      | A new provision for Bushfire prone areas has been inserted.  |
| B1D5      | A new clause for Cold water fire sprinkler systems has been inserted.  |
| B1D6      | A new clause for Top-up lines has been inserted.   |

### Part B2 - Heated water services

|       |  |
|-------|--|
| B2P2  | The existing Performance Requirement has been amended to Scald prevention and now includes point of discharge.   |
| B2P3  | The existing Performance Requirement has been amended and now contains quantified levels of performance for heated water pipework water Velocity.        |
| B2P4  | The existing Performance Requirement has been amended as a standalone Performance Requirement for Access and isolation.                                  |
| B2P5  | The existing Performance Requirement has been amended and now contains a quantified level of performance for Pressure relief and temperature limitation. |
| B2P6  | The existing Performance Requirement has been amended and now contains a quantified level of performance for Legionella control.                         |
| B2P8  | The existing Performance Requirement has been amended as a standalone requirement for Temperature.   |
| B2P9  | The existing Performance Requirement has been amended and now contains quantified levels of performance for Pressure.                                    |
| B2P10 | The existing Performance Requirement has been amended as a standalone Performance Requirement for Uncontrolled discharge.                                |
| B2P11 | A new Performance Requirement for Water efficiency has been inserted.  |
| B2D2  | New subclauses have been added for solar, gas and electric water heaters.  |

## Preface

| Reference                                     | Changes and commentary  |
|---|---|
| B2D4  | The title has been amended to Water efficiency and now includes minimum requirements for WELS ratings.  |
| B2D9  | The existing clause has been amended as a consequence of relocating exemptions for solar heated water supply to B2D11   |
| B2D10   | A new clause has been inserted for Bushfire prone areas.  |
| B2D11   | The existing clause has been amended as a standalone clause for Solar heated water.   |
| <b>Part B3 - Non-drinking water services</b>  |   |
| B3P1  | The title of the Performance Requirement has been amended to Non-drinking water.  |
| B3P3  | The title of the Performance Requirement has been amended to Velocity and now contains a quantified level of performance for non-drinking water pipework water velocities.                                |
| B3P4  | The existing Performance Requirement has been amended as a standalone Performance Requirement for Access and isolation as a consequence of new quantified Performance Requirements B3P3, B3P5 and B3P7.   |
| B3P5  | The existing Performance Requirement has been amended as a standalone Performance Requirement and now contains quantified levels of performance for pressure.   |
| B3P6  | The existing Performance Requirement has been amended as a standalone Performance Requirement for Uncontrolled discharge as a consequence of new quantified Performance Requirements B3P3, B3P5 and B3P7. |
| B3P7  | A new Performance Requirement for Water efficiency in non-drinking water has been inserted.   |
| B3D4  | A new clause has been inserted for Bushfire prone areas.  |
| B3D5  | A new clause has been inserted for Water efficiency.  |
| <b>Part B4 - Fire-fighting water services</b> |   |
| B4P1  | The title of the Performance Requirement has been amended to Flow rate and pressure and now contains quantified levels of performance for water supply flow and pressures.                                |
| B4P2  | The existing Performance Requirement has been amended as a standalone Performance Requirement for Access and isolation.   |
| B4P3  | A new Performance Requirement for Fire-fighting water storage has been inserted.  |
| B4P4  | The existing Performance Requirement has been amended as a standalone Performance Requirement for Uncontrolled discharge.   |
| B4D2  | The existing clause has been amended as a consequence of new clauses for Fire-fighting water services B4D3, B4D4, B4D5 and B4D6.  |
| B4D3  | A new clause has been inserted for Fire sprinkler systems.  |
| B4D4  | A new clause has been inserted for Fire hydrants.   |
| B4D5  | A new clause has been inserted for Fire hose reels.   |

## Preface

| Reference                                 | Changes and commentary  |
|---|---|
| B4D6                                      | A new clause has been inserted for Bushfire prone areas.  |
| <b>Part B5 - Cross-connection control</b> |   |
| B5P1                                      | The application of the Performance Requirement has been amended to include Rainwater services.  |
| B5V1                                      | A new Verification Method, Determination of individual and zone hazard ratings, has been inserted as an option to verify compliance with B5P1.                  |
| B5D5                                      | A new clause has been inserted for an Unprotected water service.  |
| <b>Part B6 - Rainwater services</b>       |   |
| Part B6 2019                              | Part B6 Rainwater harvesting and use has been divided into two parts, Part B6 Rainwater services and Part B7 Rainwater storage.                                 |
| B6P1                                      | The existing Performance Requirement has been amended as a standalone quantified Performance Requirement for pressure of a rainwater service.                   |
| B6P2                                      | The existing Performance Requirement has been amended as a standalone quantified Performance Requirement for pipework water velocity.                           |
| B6P3                                      | The existing Performance Requirement has been amended as a standalone quantified Performance Requirement for Water efficiency.                                  |
| B6P4                                      | The existing Performance Requirement has been amended as a standalone Performance Requirement for Access and isolation.   |
| B6P5                                      | The existing Performance Requirement has been amended as a standalone Performance Requirement for Identification.   |
| B6P6                                      | The existing Performance Requirement has been amended as a standalone Performance Requirement for Uncontrolled discharge.                                       |
| B6D2                                      | The title has been amended to General requirements and includes requirement for Rainwater service, previously located in B6.5 of NCC 2019 Volume Three.         |
| B6D3                                      | The existing clause has been amended as a standalone Performance Requirement Identification.  |
| B6D4                                      | A new clause has been inserted for Water efficiency.  |
| B6D5                                      | A new clause has been inserted for Access and isolation.  |
| B6D6                                      | A new clause has been inserted for Bushfire prone areas.  |
| <b>Part B7 - Rainwater storage</b>        |   |
| Part B7                                   | A new Part B7 'Rainwater storage has been added.  |
| B7P1                                      | The existing Performance Requirement has been inserted as a new Performance Requirement for Contamination control to reflect the relevant provisions of BP6.1.  |
| B7P2                                      | The existing Performance Requirement has been inserted as a new Performance Requirement for Uncontrolled discharge to reflect the relevant provisions of BP6.2. |
| B7P3                                      | The existing Performance Requirement has been inserted as a new Performance Requirement for Access and isolation to reflect the relevant provisions of BP6.2.   |

## Preface

| Reference | Changes and commentary  |
|-----------|---|
| B7P4      | The existing Performance Requirement has been inserted as a new Performance Requirement for Identification to reflect the relevant provisions of BP6.4. |
| B7D2      | The existing clause has been inserted as a new clause Collection of rainwater to reflect the relevant provisions of B6.2.                               |
| B7D3      | The existing clause has been inserted as a new clause Identification to reflect the relevant provisions of B6.5.  |

### Specification 41

|       |   |
|-------|---|
| S41C2 | The existing clause has been amended to remove sub-clause relating to the definition of an Irrigation system, as this has been consolidated into Schedule 1.      |
| S41C3 | The existing clause has been amended to remove requirements relating to Fire-fighting water services and a new provision has been added for pipework and outlets. |
| S41C4 | The existing clause has been amended to reflect updated requirements for components that need Individual protection.  |
| S41C5 | The existing clause has been amended to reflect updated requirements for components that need Zone protection.  |
| S41C6 | The existing clause has been amended to reflect updated requirements for components that need Containment protection and restructured to improve clarity.         |
| S41C7 | The existing clause has been amended to improve clarity.  |

### Part C1 - Sanitary plumbing systems

|      |   |
|------|---|
| C1P1 | The existing Performance Requirement has been amended and now contains a quantified level of performance for Disposal.  |
| C1P2 | The existing Performance Requirement has been amended and now contains a quantified level of performance for Access.  |
| C1P3 | The existing Performance Requirement has been amended and now contains quantified levels of performance for Water efficiency.                                     |
| C1P4 | The existing Performance Requirement has been amended and now contains a quantified level of performance for Uncontrolled discharge.                              |
| C1P5 | The existing Performance Requirement has been amended and now contains quantified levels of performance for Ventilation.  |
| C1P6 | The existing Performance Requirement has been amended and now contains quantified levels of performance for Contamination.  |
| C1P7 | The existing Performance Requirement has been amended and now contains a quantified level of performance for Damage.  |
| C1V1 | A new Determination of Sanitary plumbing wastewater flowrates verification method has been inserted as a means of verifying compliance with C1P3 for pipe sizing. |
| C1V2 | A new System 1 - Common discharge design verification method has been inserted as a means of verifying compliance with C1P5 for pipe sizing.                      |

## Preface

| Reference                                      | Changes and commentary  |
|--|---|
| C1V3   | A new System 2 - Common discharge pipe capacity verification method has been inserted as a means of verifying compliance with C1P5 for pipe sizing.   |
| C1V4   | A new System 3 - Branch design verification method has been inserted as a means of verifying compliance with C1P5 for pipe sizing.  |
| C1V5   | A new Stack design verification method has been inserted as a means of verifying compliance with C1P5 for pipe sizing.  |
| C1D3   | The existing clause has been amended for clarity.   |
| C1D4   | A new clause for Bushfire prone areas has been inserted.  |
| C1D5   | A new clause for Water efficiency has been inserted.  |
| <b>Part C2 - Sanitary drainage systems</b>     |   |
| C2P1   | The title of the Performance Requirement has been amended to Disposal as a consequence of relocating previous requirements into standalone Performance Requirements C2P3, C2P4 C2P5, C2P6 and C2P7.   |
| C2P3   | The existing Performance Requirement has been amended as a standalone Performance Requirement for Access.   |
| C2P4   | The existing Performance Requirement has been amended and now contains a new quantified performance requirement for Ventilation to avoid hydraulic load imbalance.                                    |
| C2P5   | The existing Performance Requirement has been amended as a standalone performance requirement and include additional requirements for Contamination.  |
| C2P6   | The existing Performance Requirement has been amended as a standalone performance requirement for Uncontrolled discharge.   |
| C2P7   | The existing Performance Requirement has been amended as a standalone performance requirement for Damage.   |
| C2V3   | A new Determination of sanitary drainage wastewater flowrates verification method has been inserted as a means of verifying compliance with C2P1 for pipe sizing.                                     |
| C2D3   | The existing clause has been amended to require pumped discharge from a swimming pool to be connected to the sanitary drainage system.  |
| C2D4   | The existing clause has been amended for clarity.   |
| C2D5   | A new provision for Bushfire prone areas has been inserted.   |
| <b>Part C3 - On-site wastewater management</b> |   |
| Part C3  | A new Part has been inserted containing provisions for On-site wastewater management. This includes a new Objective, Functional Statement, Performance Requirements and Deemed-to-Satisfy Provisions. |
| <b>Part D1 - Excessive noise</b>               |   |
| D1D2   | A new provision has been inserted to include compliance with B6D2.  |
| <b>Referenced documents</b>                    |   |

## Preface

| Reference            | Changes and commentary   |
|----------------------|--|
| AS/NZS 1170.2        | The 2021 edition of AS/NZS 1170 Part 2 ‘Structural design actions — Wind actions’ has been referenced.   |
| AS 1288              | The 2021 edition of AS 1288 ‘Glass in buildings — Selection and installation’ has been referenced.   |
| AS 1397              | The 2021 edition of AS 1397 ‘Continuous hot-dip metallic coated steel sheet and strip — Coatings of zinc and zinc alloyed with aluminium and magnesium’ has been referenced. A note has been included to outline transitional arrangements.  |
| AS 1530 Parts 1 to 4 | The notes to AS 1530 Parts 1 to 4 have been deleted.   |
| AS 1530.8.1          | 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.  |
| AS/NZS 1546.1        | The 2008 edition of AS/NZS 1546 Part 1 ‘On-site domestic wastewater treatment units — Septic tanks’ has been referenced.   |
| AS/NZS 1546.2        | The 2008 edition of AS/NZS 1546 Part 2 ‘On-site domestic wastewater treatment units — Waterless composting toilets’ has been referenced.   |
| AS 1546.3            | Amdt 1 of the 2017 edition of AS 1546 Part 3 ‘On-site domestic wastewater treatment units — Secondary treatment systems (incorporating amendment 1)’ has been referenced.  |
| AS 1546.4            | The 2016 edition of AS 1546 Part 4 ‘On-site domestic wastewater treatment units — Domestic greywater treatment systems’ has been referenced.   |
| AS/NZS 1547          | The 2012 edition of AS/NZS 1547 ‘On-site domestic wastewater management’ has been referenced.  |
| AS/NZS 1562.2        | The 1999 edition of AS/NZS 1562 Part 2 ‘Design and installation of sheet roof and wall cladding — Corrugated fibre-reinforced cement’ has been deleted.  |
| AS 1562.3            | The 2006 edition of AS 1562 Part 3 ‘Design and installation of sheet roof and wall cladding — Plastic’ has been referenced.  |
| AS 1670.1            | Amdt 1 of the 2018 edition AS 1670 Part 1 ‘Fire detection, warning, control and intercom systems — System design, installation and commissioning — Fire (incorporating amendment 1)’ has been referenced. Notes to AS 1670 have been amended to outline transitional arrangements.                                   |
| AS 1670.3            | Amdt 1 of the 2018 edition AS 1670 Part 3 ‘Fire detection, warning, control and intercom systems — System design, installation and commissioning — Fire alarm monitoring (incorporating amendment 1)’ has been referenced. Notes to AS 1670 have been amended to outline transitional arrangements.                  |
| AS 1670.4            | Amdt 1 of the 2018 edition AS 1670 Part 4 ‘Fire detection, warning, control and intercom systems — System design, installation and commissioning — Emergency warning and intercom systems (incorporating amendment 1)’ has been referenced. Notes to AS 1670 have been amended to outline transitional arrangements. |

## Preface

| Reference     | Changes and commentary  |
|---------------|---|
| AS 1684.2     | The 2021 edition of AS 1684 Part 2 'Residential timber-framed construction — Non-cyclonic areas' has been referenced.   |
| AS 1684.3     | The 2021 edition of AS 1684 Part 3 'Residential timber-framed construction — Cyclonic areas' has been referenced.   |
| AS/NZS 1720.4 | The 2019 edition of AS/NZS 1720 Part 4 'Timber structures — Fire resistance for structural adequacy of timber elements' has been referenced.  |
| AS 1720.5     | Amdt 1 of the 2015 edition of AS 1720 Part 5 'Timber structures — Nailplated timber roof trusses (incorporating amendment 1)' has been referenced.  |
| AS/NZS 1859.4 | The note to AS/NZS 1859.4 has been deleted.   |
| AS 2047       | Note to AS 2047 has been updated to reflect transitional arrangements.  |
| AS 2118.1     | Amdt 2 of the 2017 edition of AS 2118 Part 1 'Automatic fire sprinkler systems — General systems (incorporating amendments 1 and 2)' has been referenced.                                       |
| AS 2118.4     | The 2012 edition of AS 2118 Part 4 'Automatic fire sprinkler systems – Sprinkler protection for accommodation buildings not exceeding four storeys in height'.                                  |
| AS 2118.5     | The 2008 edition of AS 2118 Part 5 'Automatic fire sprinkler systems — Home fire sprinkler systems' has been referenced.  |
| AS 2118.6     | The 2012 edition of AS 2118 Part 6 'Automatic fire sprinkler systems – Combined sprinkler and hydrant systems in multistorey buildings'.  |
| AS/NZS 2293.1 | Amdt 1 of the 2018 edition of AS/NZS 2293 Part 1 'Emergency lighting and exit signs for buildings — System design, installation and operation (incorporating amendment 1)' has been referenced. |
| AS 2312.1     | The 2014 edition of AS 2312 Part 1 'Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings — Paint coatings' has been referenced.          |
| AS/NZS 2312.2 | The 2014 edition of AS/NZS 2312 Part 2 'Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings — Hot dip galvanizing' has been referenced. |
| AS/NZS 2327   | Amdt 1 of the 2017 edition of AS/NZS 2327 'Composite steel structures — composite steel-concrete construction in buildings (incorporating amendment 1)' has been referenced.                    |
| AS 2419.1     | The 2021 edition of AS 2419 Part 1 'Fire hydrant installations — System design, installation and commissioning' has been referenced.  |
| AS 2441       | The 2005 edition of AS 2441 'Installation of fire hose reels (incorporating amendment 1)' has been referenced.  |
| AS 2699.1     | The 2020 edition of AS 2699 Part 1 'Built-in components for masonry construction — Wall ties' has been referenced. A note has been included to outline transitional arrangements.               |

## Preface

| Reference     | Changes and commentary   |
|---------------|--|
| AS 2699.3     | The 2020 edition of AS 2699 Part 3 ‘Built-in components for masonry construction — Lintels and shelf angles (durability requirements)’ has been referenced. A note has been included to outline transitional arrangements. |
| AS/NZS 3500.0 | The 2021 edition of AS 3500 Part 0 ‘Plumbing and drainage — Glossary of terms’ has been referenced.  |
| AS/NZS 3500.1 | The 2021 edition of AS 3500 Part 1 ‘Plumbing and drainage — Water services’ has been referenced.   |
| AS/NZS 3500.2 | Amdt 1 of the 2021 edition of AS 3500 Part 2 ‘Plumbing and drainage — Sanitary plumbing and drainage (incorporating amendment 1)’ has been referenced.   |
| AS/NZS 3500.3 | The 2021 edition of AS 3500 Part 3 ‘Plumbing and drainage — Stormwater drainage’ has been referenced. A note has been included to outline transitional arrangements.   |
| AS/NZS 3500.4 | The 2021 edition of AS 3500 Part 4 ‘Plumbing and drainage — Heated water services’ has been referenced.  |
| AS 3600       | Amdt 2 of the 2018 edition of AS 3600 ‘Concrete structures (incorporating amendments 1 and 2)’ has been referenced.  |
| AS 3740       | The 2021 edition of AS 3740 ‘Waterproofing of domestic wet areas’ has been referenced.   |
| AS 3959       | Amdts 1 and 2 of the 2018 edition of AS 3959 ‘Construction of buildings in bushfire-prone areas (incorporating amendments 1 and 2)’ has been referenced.   |
| AS 4055       | The 2021 edition of AS 4055 ‘Wind loads for housing’ has been referenced.  |
| AS 4072.1     | The note to AS 4072 Part 1 has been deleted.   |
| AS 4100       | The 2020 edition of AS 4100 ‘Steel structures’ has been referenced.  |
| AS 4200.1     | Amdt 1 of the 2017 edition of AS 4200 Part 1 ‘Pliable building membranes and underlays — Materials (incorporating amendment 1)’ has been referenced.   |
| AS 4200.2     | Amdts 1 and 2 of the 2017 edition of AS 4200 Part 2 ‘Pliable building membranes and underlays — Installation requirements (incorporating amendments 1 and 2)’ has been referenced.   |
| AS/NZS 4234   | The 2021 edition of AS/NZS 4234 ‘Heated water systems — Calculation of energy consumption’ has been referenced.  |
| AS 4254.1     | The 2021 edition of AS 4254 Part 1 ‘Ductwork for air-handling systems in buildings — Flexible duct’ has been referenced.   |
| AS/NZS 4256.1 | The 1994 edition of AS/NZS 4256 Part 1 ‘Plastic roof and wall cladding materials — General requirements’ has been deleted.   |
| AS/NZS 4256.2 | The 1994 edition of AS/NZS 4256 Part 2 ‘Plastic roof and wall cladding materials — Unplasticized polyvinyl chloride (uPVC) building sheets’ has been deleted.  |
| AS/NZS 4256.3 | The 1994 edition of AS/NZS 4256 Part 3 ‘Plastic roof and wall cladding materials — Glass fibre reinforced polyester (GRP)’ has been deleted.   |

## Preface

| Reference            | Changes and commentary  |
|----------------------|---|
| AS/NZS 4256.5        | The 1996 edition of AS/NZS 4256 Part 5 'Plastic roof and wall cladding materials — Polycarbonate' has been deleted.   |
| AS 4773.2            | Amdt 1 of the 2015 edition of AS 4773 Part 2 'Masonry in small buildings — Construction' has been referenced.   |
| AS/NZS 4858          | The 2004 edition of AS/NZS 4858 'Wet area membranes' has been referenced.   |
| AS 5146.3            | The 2018 edition of AS 5146 Part 3 'Reinforced Autoclaved Aerated Concrete — Construction' has been reinforced referenced.  |
| AS 5216              | The 2021 edition of AS 5216 'Design of post-installed and cast-in fastenings in concrete' has been referenced.  |
| AS/NZS 5601.1        | The 2013 edition of AS/NZS 5601 Part 1 'Gas installations — General installations' has been referenced.   |
| AIRAH-DA07           | The 2021 edition of AIRAH-DA07 'Criteria for moisture control design analysis in buildings' has been referenced.  |
| ASTM E903            | The 2012 edition of ASTM E903 'Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres' has been deleted.             |
| ASTM E96             | The 2016 edition of ASTM E96 'Standard Test Methods for Water Vapor Transmission of Materials' has been referenced.   |
| ABCB                 | The 2022 version of the ABCB 'Fire Safety Verification Method' Standard has been referenced.  |
| ABCB                 | The 2022 version of the ABCB 'Housing Provisions' Standard has been referenced.   |
| ABCB                 | The 2022 version of the ABCB 'Livable Housing Design' Standard has been referenced.   |
| ABCB                 | The 2022 version of the ABCB 'Standard for NatHERS Heating and Cooling Load Limits' has been referenced.  |
| ABCB                 | The 2022 version of the ABCB 'Standard for Whole-of-home Efficiency Factors' has been referenced.   |
| FPAA101D             | The 2021 edition of FPAA101D 'Automatic Fire Sprinkler System Design and Installation — Drinking Water Supply' has been referenced.   |
| FPAA101H             | Amdt 1 of the 2018 edition of FPAA101H 'Automatic Fire Sprinkler System Design and Installation — Hydrant Water Supply (incorporating amendment 1)' has been referenced.        |
| NASH Standard        | The 2021 edition of NASH Standard 'Steel Framed Construction in Bushfire Areas' has been referenced.  |
| NSF/ANSI/CAN 372     | The 2020 edition of NSF/ANS/CAN 372 'Drinking Water System Components — Lead Content' has been referenced.  |
| <b>Schedule 1</b>    |   |
| Schedule 1           | Schedule 1 has been amended as part of the initiative to improve readability of the NCC.  |
| Schedule 1           | Definitions includes Abbreviations, Symbols and Glossary. States & Territory Appendices (formerly located in Schedule 1) have been incorporated into Schedule 3 to Schedule 11. |
| <b>Abbreviations</b> |   |

## Preface

| Reference     | Changes and commentary   |
|---------------|--|
| Abbreviations | Acrylic conformal coating (ACC) has been added.  |
| Abbreviations | Acrylic latex (ACL) has been added.  |
| Abbreviations | Australian Institute of Refrigeration, Air conditioning and Heating (AIRAH) has been added.        |
| Abbreviations | American National Standards Institute (ANSI) has been added.                                       |
| Abbreviations | American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) has been added. |
| Abbreviations | National Standard of Canada (CAN) has been added.  |
| Abbreviations | Chartered Institution of Building Services Engineers (CIBSE) has been added.                       |
| Abbreviations | Flame zone (FZ) has been added.  |
| Abbreviations | Greenhouse and Energy Minimum Standards (GEMS) has been added.                                     |
| Abbreviations | Hot dip galvanising (HDG) has been added.  |
| Abbreviations | Inorganic zinc silicate (IZS) has been added.  |
| Abbreviations | NATA has been amended to include reference to Australia.   |
| Abbreviations | National Sanitation Foundation (NSF) has been added.   |
| Abbreviations | Polyurethane (PUR) has been added.   |

### Symbols

|         |  |
|---------|--|
| Symbols | $\mu\text{g}/\text{N.s}$ has been added. |
| Symbols | $f'_c$ has been added.                   |
| Symbols | $f'_y$ has been added.                   |
| Symbols | $G$ has been added.                      |
| Symbols | $\text{N/m}$ has been added.             |
| Symbols | $Q$ has been added.                      |
| Symbols | ULS has been added.                      |

### Glossary / Definitions

|          |  |
|----------|--|
| Glossary | A defined term, 'Above ground rainwater tank', has been added.   |
| Glossary | A defined term, 'Annual exceedance probability', has been added as a consequence of amendments to Part 7.4 Gutters and downpipes of the ABCB Housing Provisions.   |
| Glossary | A defined term, 'Assumed cooling thermostat set point' has been added as a consequence of quantification in J1P2 and H6P1.   |
| Glossary | The defined term, 'Average recurrence interval', has been deleted as a consequence of amendments to Part 7.4 Gutters and downpipes of the ABCB Housing Provisions. |
| Glossary | A defined term, 'Bond breaker', has been added as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions.   |
| Glossary | A defined term, 'Building complexity criteria', has been added.  |
| Glossary | A defined term, 'Buried rainwater tank', has been added as a consequence of amendments to Specification 41 of Volume Three.  |

## Preface

| Reference | Changes and commentary   |
|-----------|--|
| Glossary  | A defined term, ‘Cooling degree hours’ has been added as a consequence of quantification in J1P2 and H6P1.   |
| Glossary  | A defined term, ‘Daily outdoor temperature range’ has been added as a consequence of quantification in J1P2 and H6P1.  |
| Glossary  | A defined term, ‘Dehumidification gram hours’, has been added as a consequence of quantification in J1P2 and H6P1.   |
| Glossary  | A defined term, ‘Design bushfire’, has been added as a consequence of amendments to Part G5.   |
| Glossary  | The defined term, ‘Domestic services’, has been amended to include on-site renewable energy equipment as a result of quantification in J1P3 and H6P2.                  |
| Glossary  | A defined term, ‘Drainage flange’, has been added as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions.  |
| Glossary  | A defined term, ‘Drainage riser’, has been added as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions.   |
| Glossary  | A defined term, ‘Efficacy’, has been added as a consequence of including quantified Performance Requirement for automatic warning for occupants.                       |
| Glossary  | A defined term, ‘Energy value’, has been added as a consequence of quantification in J1P3 and H6P2.  |
| Glossary  | A defined term, ‘Engaged pier’, has been added as a consequence of amendments to Section 5 of the ABCB Housing Provisions.   |
| Glossary  | A defined term, ‘Fire actions’, has been added as a consequence of amendments to Part G5.  |
| Glossary  | The defined term, ‘Flashing’, has been amended to clarify perimeter and vertical flashings as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions. |
| Glossary  | The defined term, ‘Floor area’, for Volume One, has been amended on account of the new defined term ‘Volume’.  |
| Glossary  | A defined term, ‘Floor waste’, has been added as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions.  |
| Glossary  | The defined term, ‘Glazing’, has been amended as a consequence of the updates to the energy efficiency Deemed-to-Satisfy provisions for Class 2 buildings.             |
| Glossary  | A defined term, ‘Heating degree hours’, has been added as a consequence of quantification in J1P2 and H6P1.  |
| Glossary  | A defined term, ‘Hob’, has been added as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions.  |
| Glossary  | A defined term, ‘Irrigation system’, has been added as a consequence of amendments to S41C2 in Volume Three.   |
| Glossary  | A defined term, ‘Lateral support’, has been added as a consequence of amendments to Part 5.3 of the ABCB Housing Provisions.   |

## Preface

| Reference | Changes and commentary  |
|-----------|---|
| Glossary  | A defined term, 'Main water heater' has been added as a consequence of including new whole-of-home energy efficiency requirements.  |
| Glossary  | A defined term, 'Main space conditioning' has been added as a consequence of including new whole-of-home energy efficiency requirements.                                      |
| Glossary  | A defined term, 'Maximum retained water level', has been added as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions.                                    |
| Glossary  | A defined term, 'Membrane', has been added as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions.  |
| Glossary  | The defined term, 'NABERS Energy for Offices' has been amended to be 'NABERS Energy' to reflect its use for multiple building classifications.                                |
| Glossary  | The defined term, 'Performance-based design brief' has been amended for clarity.  |
| Glossary  | The defined term, 'Point of connection', has been amended for clarity.  |
| Glossary  | A defined term, 'Preformed shower base', has been added as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions.   |
| Glossary  | A defined term, 'Primary insulation layer', has been added as a consequence of amendments to Condensation management provisions.  |
| Glossary  | The defined term 'Rainwater harvesting system' has been amended to 'Rainwater service' and 'Rainwater storage' as a consequence of amendments to Part B6 of Volume Three.     |
| Glossary  | The defined term 'Reference building' has been amended to remove reference to Thermal comfort levels and as a consequence of the introduction of J1V5.                        |
| Glossary  | A defined term, 'Reliability', has been added as a consequence of including quantified Performance Requirements for automatic warning for occupants.                          |
| Glossary  | A defined term, 'Screed', has been added as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions.  |
| Glossary  | The defined term, 'Shower area', has been amended to clarify enclosed and unenclosed shower areas as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions. |
| Glossary  | A defined term, 'Shower screen', has been added as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions.   |
| Glossary  | A defined term, 'Thermal energy load', has been added as a consequence of quantification in J1P2 and H6P1.  |
| Glossary  | The defined term 'Total R-Value' in the ABCB Housing Provisions has been amended to align with Volume One.  |
| Glossary  | The defined term 'Total System U-Value' in the ABCB Housing Provisions has been amended to align with Volume One.   |

## Preface

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| Reference | Changes and commentary   |
|-----------|--|
| Glossary  | A defined term ‘Unprotected water service’, has been added as a consequence of introducing a new provision for unprotected water service – B5D5 of Volume Three. |
| Glossary  | A defined term, ‘Vapour permeance’, has been added as a consequence of amendments to the condensation management provisions.                                     |
| Glossary  | A defined term, ‘Volume’, has been added to clarify the volume space with respect to a building, fire compartment and atrium.                                    |
| Glossary  | A defined term, ‘Waterproofing system’, has been added as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions.                               |
| Glossary  | A defined term, ‘Water stop’, has been added as a consequence of amendments to Part 10.2 of the ABCB Housing Provisions.   |
| Glossary  | A defined term, ‘Weighted average’, has been added as a consequence of amendments to A5G4.   |
| Glossary  | A defined term, ‘Wetted surface area’, has been added to provide clarification for the defined term ‘Weighted average’.  |

### 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
- 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

## Governing requirements

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|       |                                   |
|-------|-----------------------------------|
| 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                             |

## Governing requirements

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|       |  |
|-------|--|
|       | 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

[New for 2022]

NCC Volume One contains the requirements for—

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

##### A1G2      Scope of NCC Volume Two

[New for 2022]

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

[New for 2022]

- (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

[2019: A1.0]

- (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.

## Governing requirements

- (2) Words in italics must be interpreted in accordance with—
- definitions provided in Schedule 1, unless the contrary intention appears; and
  - additional definitions in State or Territory appendices, as appropriate.
- (3) The NCC must be interpreted and applied in accordance with the following:
- A reference to a building is a reference to an entire building or part of a building (as the case requires).
  - 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).
  - A reference in a *Performance Requirement* to “the degree necessary” means—
    - that consideration of all the criteria referred to in the *Performance Requirement* will determine the outcome appropriate to the circumstances; and
    - that in certain cases it may not be necessary to incorporate any specific measures to meet the relevant *Performance Requirement*.
  - An “Application” statement is mandatory and is provided to specify where and when a requirement or provision applies.
  - 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.
  - An “Exemption” statement is mandatory and is provided to specify where or when a requirement or provision does not need to be complied with.
  - A “Note” is part of a provision or requirement and provides additional mandatory instructions.
  - Figures in the NCC—
    - are used to illustrate specific issues referenced in the associated text; and
    - are not to be construed as containing all design information that is *required* for that particular building element or situation.
  - 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:
- Classes 1a and 1b are sub-classifications of Class 1.
  - Classes 7a and 7b are sub-classifications of Class 7.
  - Classes 9a, 9b and 9c are sub-classifications of Class 9.
  - 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

## Governing requirements

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.

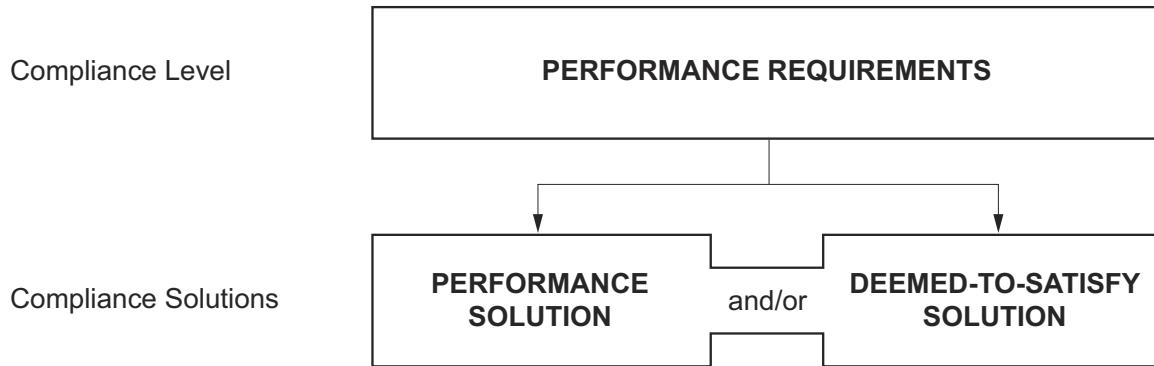
#### Governing Requirements

##### A2G1      Compliance

[2019: A2.0, A2.1]

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

Figure A2G1:      NCC compliance structure



##### A2G2      Performance Solution

[2019: A2.2]

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

## Governing requirements

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- (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*.

VIC A2G2(5)

## A2G3 Deemed-to-Satisfy Solution

[2019: A2.3]

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

## A2G4 A combination of solutions

[2019: A2.4]

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

## Governing requirements

### *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](http://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

## Governing requirements

*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](http://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

[2019: A3.0]

- (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. A secondary referenced document is one referenced in a primary referenced document. Other referenced documents are referenced by secondary and subsequently referenced documents.

#### Governing Requirements

##### A4G1      Referenced documents

[2019: A4.0]

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

##### TAS A4G1(3)

- (3) Where a new edition, issue or amendment of a primary referenced document is not listed in Schedule 2, the new edition, issue or amendment is not referenced for the purpose of the NCC.
- (4) Any document referenced in a primary referenced document is known as a secondary referenced document.
- (5) A reference in a primary referenced document to a secondary or other referenced document is a reference to the document as it existed at the time of publication of the primary referenced document.

#### Applications

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

#### Exemptions

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

##### A4G2      Differences between referenced documents and the NCC

[2019: A4.1]

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

#### Applications

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

## Governing requirements

A4G3

### Adoption of referenced documents

[2019: A4.2]

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

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

#### Applications

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

#### Explanatory Information

Schedule 2 is only mandatory to *Deemed-to-Satisfy Provisions*, Specifications and *Verification Methods*. However, referenced documents are only applicable to the NCC provision that references the document.

A proponent undertaking a *Performance Solution* can use any element or edition of any document, if they help satisfy the *Performance Requirements*. They do not need to use the documents listed in Schedule 2.

Schedule 2 lists the specific edition of the Standard or other document adopted, including any amendments considered appropriate for Schedule 2, the *Deemed-to-Satisfy Provisions*, Specifications or *Verification Methods*. Other editions of (or amendments to) the referenced document are not adopted and have no standing under the NCC.

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

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.

### Part A5 Documentation of design and construction

#### Introduction to this Part

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

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

#### Governing Requirements

##### A5G1 Suitability

[2019: A5.0]

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

#### Explanatory Information

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

This means that—

- all people involved with construction must work 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).

## Governing requirements

A5G2

### Evidence of suitability – Volumes One, Two and Three

[2019: A5.1]

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

#### Explanatory Information

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

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

A5G3

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

[2019: A5.2]

- (1) Subject to A5G5, A5G6, 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).

## Governing requirements

### 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, 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, then A5G3 may be used to provide evidence to show that the FRL has been determined in accordance with [Specification 1](#) and [2](#).

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

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

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

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

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

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

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

## Governing requirements

A5G4

### Evidence of suitability – Volume Three (PCA)

[2019: A5.3]

- (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.

## Governing requirements

### 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 September 2025 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

## Governing requirements

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.

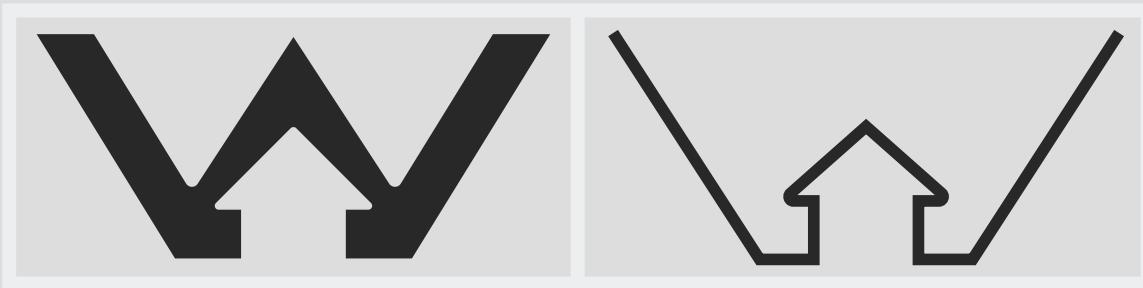
The *WaterMark Certification Scheme* is governed by the WaterMark Scheme Rules, which are available for download from the ABCB website at: [www.abcb.gov.au](http://www.abcb.gov.au). These rules set out the requirements for risk assessments, evaluation, certification, and the drafting of WaterMark Technical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

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

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

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

Figure A5G4 (explanatory): WaterMark Certification Scheme Trademarks



## A5G5

### Fire-resistance of building elements

[2019: A5.4]

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

## A5G6

### Fire hazard properties

[2019: A5.5]

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

- (a) For *average specific extinction area*, *critical radiant flux* and *Flammability Index*, as defined in Specification 1.
- (b) For *Smoke-Developed Index* and *Spread-of-Flame Index*, in accordance with Specification 3.

## Governing requirements

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- (c) For a material's *group number* or *smoke growth rate index* (SMOGRA<sub>RC</sub>), in accordance with S7C4(2).

### A5G7 Resistance to the incipient spread of fire

[2019: A5.6]

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

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

### A5G8 Labelling of Aluminium Composite Panels

[2019: A5.7]

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

### A5G9 NatHERS

[New for 2022]

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

[2019: A6.0]

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

#### Exemptions

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

#### Limitations

Exemption (1) does not apply where the minor use of a building is a laboratory, 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.

## Governing requirements

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

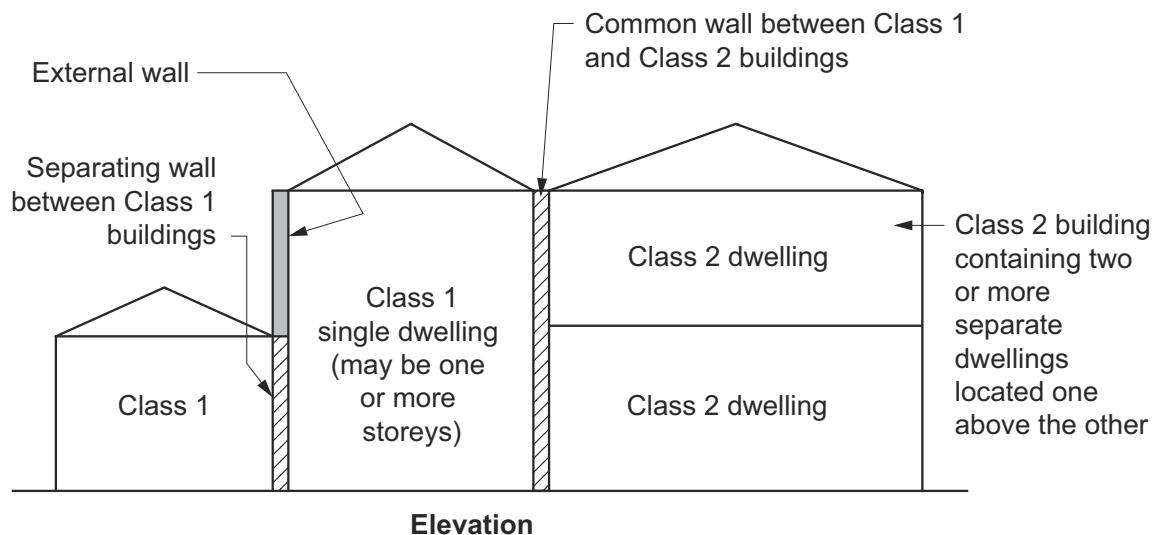
[2019: A6.1]

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

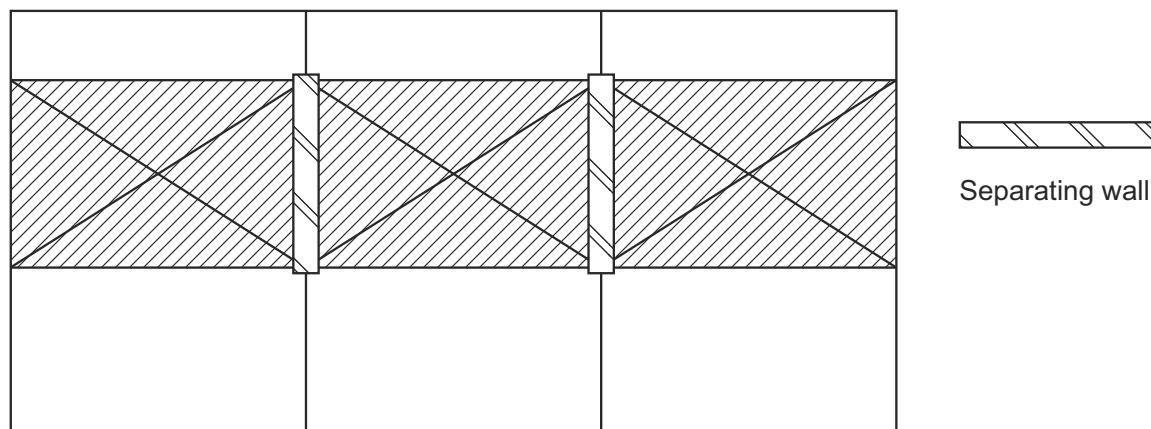
## Governing requirements

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

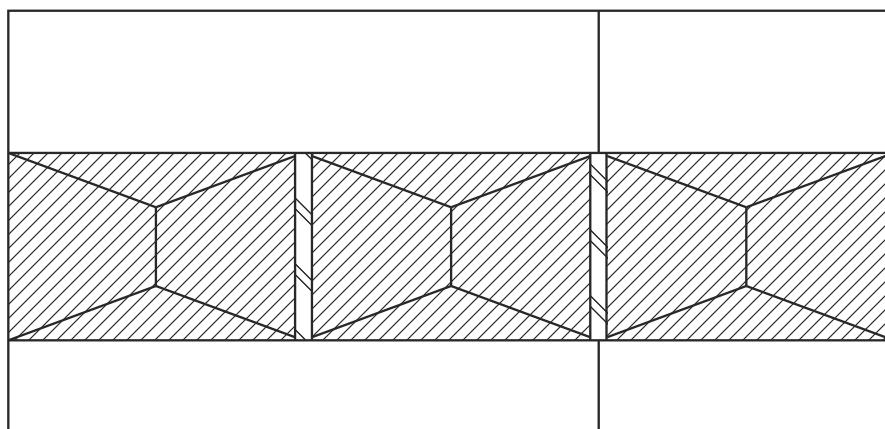
**Figure A6G2a:** Identification of Class 1 buildings



**Figure A6G2b:** Typical Class 1 building configurations



(a) 3 Class 1 buildings on 3 separate allotments

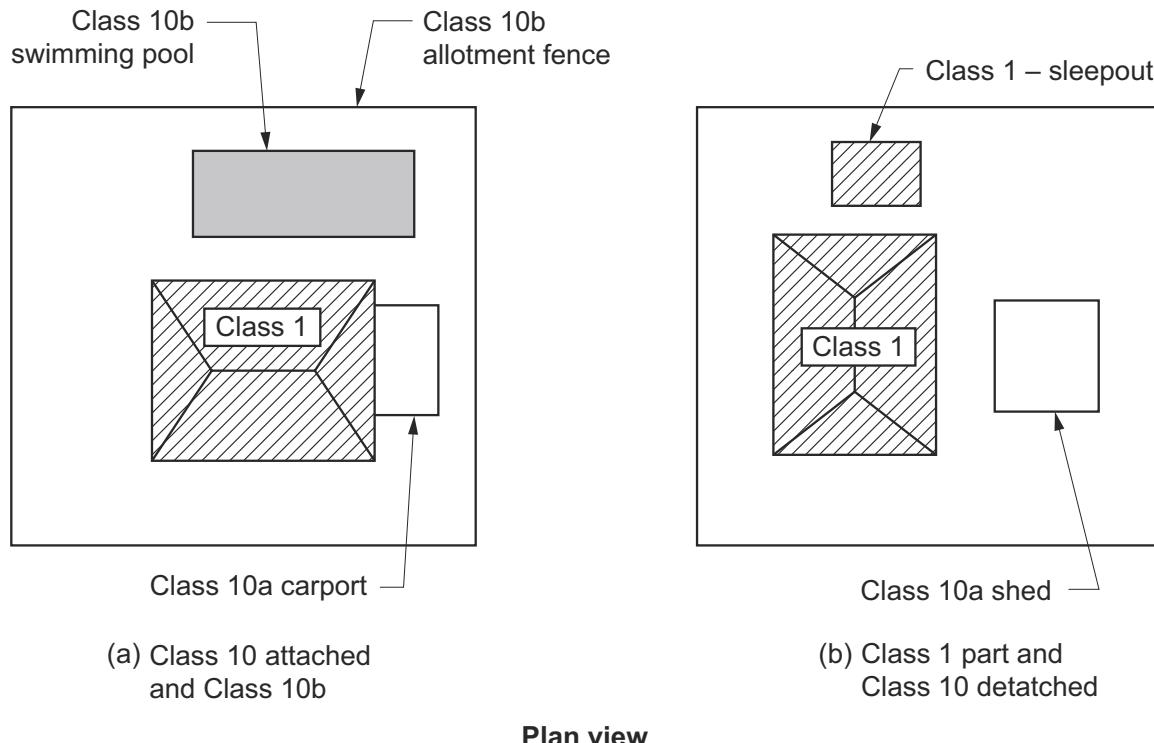


(b) 3 Class 1 buildings on 2 separate allotments

**Plan view**

## Governing requirements

**Figure A6G2c: Domestic allotment — classification of buildings and structures**



### Notes

Figures A6G2a, A6G2b and A6G2c illustrates 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 1b building described in A6G2(2)(a), a Class 1b building described in A6G2(2)(b) does not have any *floor area* limitation. Therefore, if 4 or more single dwellings are located on the one allotment and used for short-term holiday accommodation, each single dwelling would be classified as a Class 1b building regardless of the *floor area* of each dwelling or the combined *floor area* of all of the dwellings.

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

## Governing requirements

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

### A6G3

### Class 2 buildings

[2019: A6.2]

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

#### Explanatory Information

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

Such buildings must not be otherwise classified as a Class 1 or Class 3 building or Class 4 part. See [Explanatory Figure A6G3a](#) for a typical configuration of Class 1 and Class 2 buildings.

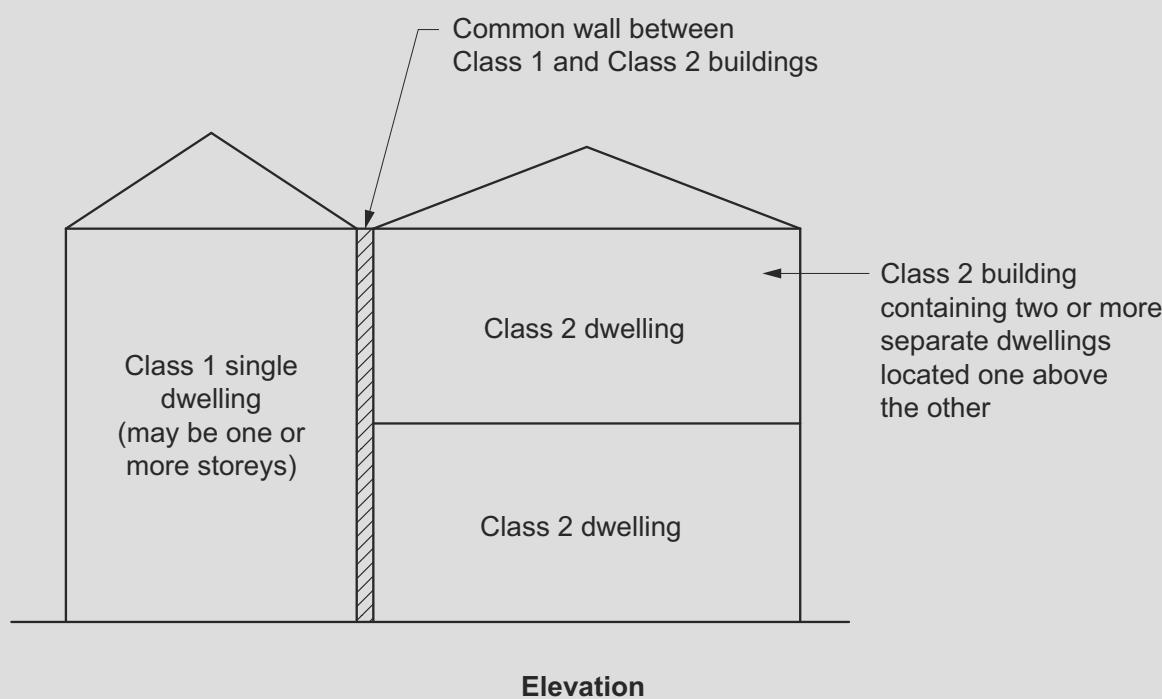
Where a sole-occupancy residential unit is located above another sole-occupancy residential unit, the building containing the units can be either a Class 2 or a Class 3 building, depending on the other circumstances of the building proposal.

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

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

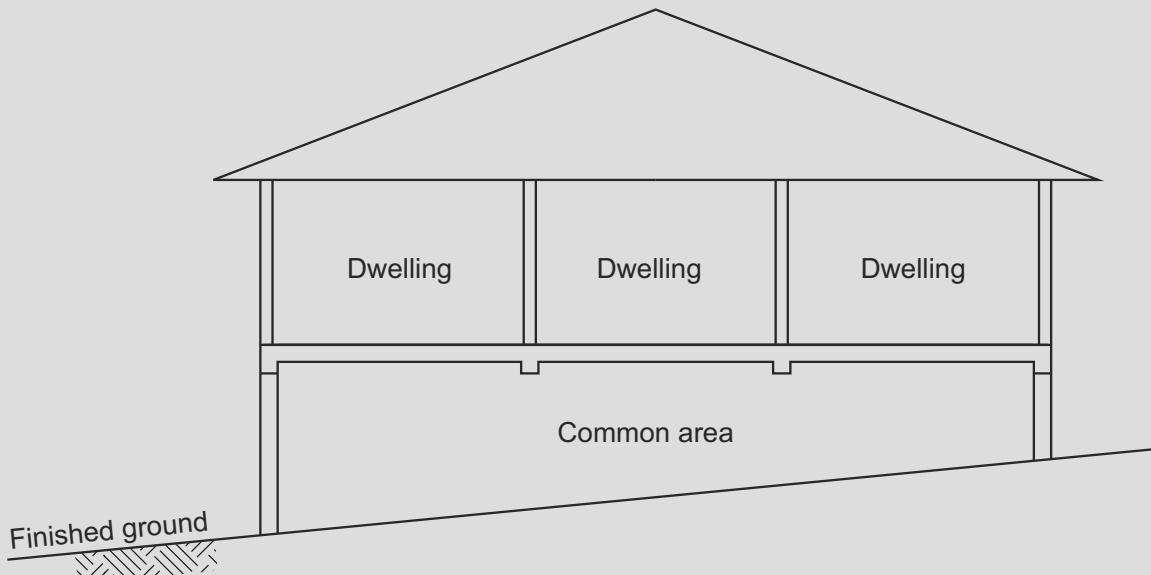
When two or more dwellings are attached to another class, they cannot be Class 4 parts, as any building can only contain one Class 4 dwelling.

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



## Governing requirements

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



### A6G4

### Class 3 buildings

[2019: A6.3]

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

#### Limitations

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

#### Explanatory Information

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

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

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

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

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

Class 3 buildings include—

- the residential parts of hotels and motels; and
- hotel or motel caretakers', managers' or owners' flats, noting that under certain circumstances such dwellings could

## Governing requirements

- 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

[2019: A6.4]

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

[2019: A6.5]

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

[2019: A6.6]

- (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*.

## Governing requirements

### 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

[2019: A6.7]

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

### Explanatory Information

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

## A6G9

### Class 8 buildings

[2019: A6.8]

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

### Explanatory Information

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

For example—

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

## Governing requirements

A6G10

### Class 9 buildings

[2019: A6.9]

- (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.

## Governing requirements

A6G11

### Class 10 buildings and structures

[2019: A6.10]

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

#### Explanatory Information

Class 10a buildings are non-habitable buildings. See [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.

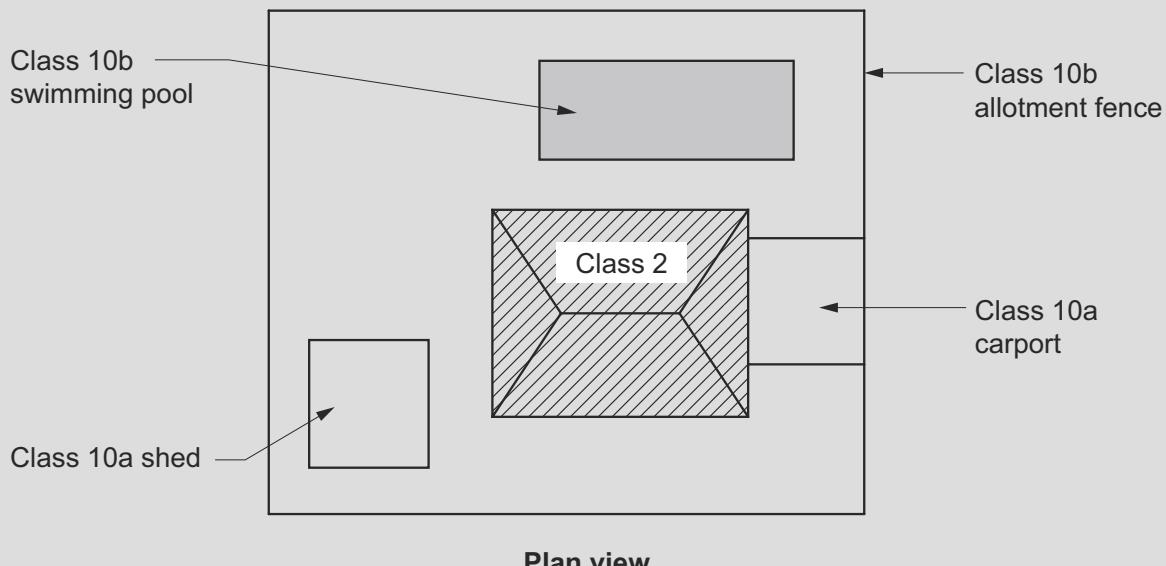
Typical outbuilding classifications include the following:

- 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**



## Governing requirements

A6G12

### Multiple classifications

[2019: A6.11]

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

#### Applications

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

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

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

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

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

#### 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

## Governing requirements

the criteria in the definition of *farm shed* or *farm building* have been met, the associated *Deemed-to-Satisfy Provisions* in NCC Volume One Part I3 may apply.

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

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

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

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

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

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

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

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

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

### Part A7      United buildings

#### Introduction to this Part

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

#### Governing Requirements

##### A7G1      United buildings

[2019: A7.0]

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

#### Applications

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

##### A7G2      Alterations in a united building

[2019: A7.1]

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

#### Explanatory Information

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

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

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

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

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

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

#### Explanatory Information: Multiple allotments or ownership

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

#### Explanatory Information: Example of connection by bridge

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

The first is a united building:

## Governing requirements

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

[2019: Sch. 5: 1]

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

#### S1C2

#### Rating

[2019: Sch. 5: 2]

A building element meets the requirements of this Specification if—

- (a) it is listed in, and complies with Tables S1C2a, 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<br>20  | 90/90/90<br>- | 120/120/1<br>- | 180/180/1<br>80 | 240/240/2<br>40 |
| Ashlar           | -   | -             | -              | -               | 300             |
| Calcium silicate | See clause S1C2(d)(iv)                                |               |                |                 |                 |
| Concrete         |   |               |                |                 |                 |
| Fired clay       |   |               |                |                 |                 |

#### Table Notes

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

## Governing requirements

**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- <i>loadbearing</i> walls only) | 50  | 50       | 65          | -           | -           |

### Table Notes

For the purposes of this table, each element must meet the requirements of [Specification 2](#).

**Table S1C2d:** FRLs deemed to be achieved by concrete columns

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

## Governing requirements

| 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 — <i>loadbearing</i>                      | 25  | 40     | 45      | 65      | 90      |
| Concrete cast in-situ — non- <i>loadbearing</i> unplastered     | 35  | 30     | 40      | 50      | 65      |
| Concrete cast in-situ — non- <i>loadbearing</i> plastered 13 mm | 25  | 25     | 30      | 40      | 50      |
| Gypsum cast in-situ   | -   | -      | -       | -       | 50      |

## Governing requirements

| 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      |

## Governing requirements

| 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 <a href="#">S1C2(d)(ii)</a>                |          |             |             |             |
| Reinforced                  |   |          |             |             |             |

## S1C3 FRLs determined by calculation

[2019: Sch. 5: 3]

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

- (a) the building element may vary from the prototype in relation to—
  - (i) length and height if it is a wall; and
  - (ii) height if it is a column; and
  - (iii) span if it is a floor, roof or beam; and
  - (iv) conditions of support; and
  - (v) to a minor degree, cross-section and components; and
- (b) the report must demonstrate by calculation that the building element would achieve the FRL if it is subjected to the regime of the *Standard Fire Test* in relation to—
  - (i) *structural adequacy* (including deflection); and
  - (ii) *integrity*; and
  - (iii) *insulation*; and
- (c) the calculations must take into account—
  - (i) the temperature reached by the components of the prototype and their effects on strength and modulus of elasticity; and

## Governing requirements

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- (ii) appropriate features of the building element such as support, restraint, cross-sectional shape, length, height, span, slenderness ratio, reinforcement, ratio of surface area to mass per unit length, and fire protection; and
- (iii) features of the prototype that influenced its performance in the *Standard Fire Test* although these features may not have been taken into account in the design for dead and live load; and
- (iv) features of the conditions of test, the manner of support and the position of the prototype during the test, that might not be reproduced in the building element if it is exposed to fire; and
- (v) the design load of the building element in comparison with the tested prototype.

### S1C4 Interchangeable materials

[2019: Sch. 5: 4]

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

### S1C5 Columns covered with lightweight construction

[2019: Sch. 5: 5]

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

### S1C6 Non-loadbearing elements

[2019: Sch. 5: 6]

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

### Specification 2

### Descriptions of elements referred to in Specification 1

#### S2C1

#### Scope

[New for 2022]

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

[2019: Sch. 5 (Annex): 1.1]

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

[2019: Sch. 5 (Annex): 1.2]

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

#### S2C4

#### Gypsum-sand mortar and plaster

[2019: Sch. 5 (Annex): 1.3]

Gypsum-sand mortar and gypsum-sand plaster must consist of either—

- not more than 3 parts by volume of sand to 1 part by volume of gypsum; or
- if lime putty is added, not more than 2.5 parts by volume of sand to 1 part by volume of gypsum and not more than 5% of lime putty by volume of the mixed ingredients.

#### S2C5

#### Gypsum-perlite and gypsum-vermiculite plaster

[2019: Sch. 5 (Annex): 1.4]

Gypsum-perlite or gypsum-vermiculite plaster must be applied—

- in either one or 2 coats each in the proportions of 1 m<sup>3</sup> of perlite or vermiculite to 640 kg of gypsum if the *required* thickness of the plaster is not more than 25 mm; and
- in 2 coats if the *required* thickness is more than 25 mm, the first in the proportions of 1 m<sup>3</sup> of perlite or vermiculite to 800 kg of gypsum and the second in the proportions of 1 m<sup>3</sup> of perlite or vermiculite to 530 kg of gypsum.

#### S2C6

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

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

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

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

#### S2C7

#### Plaster reinforcement

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

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

## Governing requirements

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- (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<sup>2</sup>; 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  $\frac{1}{3}$  of the total thickness of the plaster.

### S2C8 Ashlar stone masonry

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

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

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

### S2C9 Dimensions of masonry

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

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

### S2C10 Solid units

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

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

### S2C11 Hollow units

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

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

### S2C12 Equivalent thickness

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

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

### S2C13 Height-to-thickness ratio of certain walls

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

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

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

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**S2C14****Increase in thickness by plastering — walls**

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

If a wall of ashlar, solid gypsum blocks or concrete is plastered on both sides to an equal thickness, the thickness of the wall for the purposes of Tables 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**

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

- (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**

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

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

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

**S2C17****Gypsum-perlite or gypsum-vermiculite plaster or metal lath — columns**

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

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

**S2C18****Gypsum-perlite or gypsum-vermiculite plaster or metal lath — beams**

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

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

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

**S2C19****Exposure of columns**

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

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.

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**S2C20****Exposure of beams**

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

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

**S2C21****Filling of column spaces**

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

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

**S2C22****Hollow terracotta blocks**

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

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

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

**S2C23****Reinforcing for column and beam protection — masonry**

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

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**

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

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**

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

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

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

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## S2C26

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

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

- (1) If a steel column or steel beam is protected with either gypsum-perlite or gypsum-vermiculite plaster sprayed to contour and the construction falls within the limits of [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 10° to the vertical; and
  - (b) “horizontal” includes a surface at not more than 10° to the horizontal; and
  - (c) “underside” means the underside of any horizontal or non-vertical surface.

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

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

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

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

## S2C27

### Measurement of thickness of column and beam protection

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

The thickness of the fire protection to steel columns and steel beams (other than fire protection of gypsum-perlite or gypsum-vermiculite plaster sprayed on metal lath or sprayed to contour) is to be measured from the face or edge of the steel, from the face of a splice plate or from the outer part of a rivet or bolt, whichever is the closest to the outside of the fire-protective construction, except that—

- (a) if the thickness of the fire protection is 40 mm or more, rivet heads may be disregarded; and
- (b) if the thickness of the fire protection is 50 mm or more—
  - (i) any part of a bolt (other than a high-tensile bolt) may be disregarded; and
  - (ii) a column splice plate within 900 mm of the floor may encroach upon the fire protection by up to a 1/4 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 flange.

## Governing requirements

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angles to the web if—

- (i) the column or beam is intended to have an FRL of 240/240/240 or 240/–/–; and
- (ii) the flange projects 65 mm or more from the web; and
- (iii) the thickness of the edge of the flange (inclusive of any splice plate) is not more than 40 mm.

### Specification 3      Fire hazard properties

#### S3C1      Scope

[2019: Sch. 6: 1]

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

#### Assemblies

#### S3C2      General requirement

[2019: Sch. 6: 2.1]

The *fire hazard properties* of assemblies and their ability to screen their core materials as *required* under Specification 7 must be determined by testing in accordance with S3C3 to S3C6.

#### S3C3      Form of test

[2019: Sch. 6: 2.2]

Tests must be carried out in accordance with—

- (a) for the determination of the *Spread-of-Flame Index* and *Smoke-Developed Index* — AS/NZS 1530.3; and
- (b) for the determination of the ability to prevent ignition and to screen its core material from free air — AS 1530.4.

#### S3C4      Test specimens

[2019: Sch. 6: 2.3]

Test specimens must incorporate—

- (a) all types of joints; and
- (b) all types of perforations, recesses or the like for pipes, light switches or other fittings, which are proposed to be used for the member or assembly of members in the building.

#### S3C5      Concession

[2019: Sch. 6: 2.4]

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

#### S3C6      Smaller specimen permitted

[2019: Sch. 6: 2.5]

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

### Section B

### Water services

#### Part B1

#### Cold water services

##### Objectives

B1O1 Objective

##### Functional Statements

B1F1 Cold water supply  
B1F2 Cold water service  
B1F3 Fire sprinkler systems

##### Performance Requirements

B1P1 Cold water supply  
B1P2 Velocity  
B1P3 Access and isolation  
B1P4 Water efficiency  
B1P5 Pressure  
B1P6 Uncontrolled discharge

##### Deemed-to-Satisfy Provisions

B1D1 Deemed-to-Satisfy Provisions  
B1D2 Water efficiency  
B1D3 General requirements  
B1D4 Bushfire prone areas  
B1D5 Cold water fire sprinkler systems  
B1D6 Top-up lines

#### Part B2

#### Heated water services

##### Objectives

B2O1 Objective

##### Functional Statements

B2F1 Heated water supply  
B2F2 Heated water installations  
B2F3 Greenhouse gas emissions

##### Performance Requirements

B2P1 Heated water supply  
B2P2 Scald prevention  
B2P3 Velocity  
B2P4 Access and isolation  
B2P5 Pressure relief and temperature limitation  
B2P6 Legionella control  
B2P7 Energy use and source  
B2P8 Temperature  
B2P9 Pressure  
B2P10 Uncontrolled discharge  
B2P11 Water efficiency

##### Verification Methods

B2V1 Heated water storage temperature

### Deemed-to-Satisfy Provisions

|       |  |
|-------|--|
| B2D1  | Deemed-to-Satisfy Provisions                 |
| B2D2  | Water heater in a heated water supply system |
| B2D3  | Layout of taps                               |
| B2D4  | Water efficiency                             |
| B2D5  | Maximum delivery temperature                 |
| B2D6  | Temperature control devices                  |
| B2D7  | Heated water storage                         |
| B2D8  | Legionella control                           |
| B2D9  | General requirements                         |
| B2D10 | Bushfire prone areas                         |
| B2D11 | Solar heated water                           |

## Part B3

### Non-drinking water services

#### Objectives

|      |           |
|------|-----------|
| B3O1 | Objective |
|------|-----------|

#### Functional Statements

|      |                                  |
|------|----------------------------------|
| B3F1 | Non-drinking water supply        |
| B3F2 | Non-drinking water installations |

#### Performance Requirements

|      |                           |
|------|---------------------------|
| B3P1 | Non-drinking water supply |
| B3P2 | Identification            |
| B3P3 | Velocity                  |
| B3P4 | Access and isolation      |
| B3P5 | Pressure                  |
| B3P6 | Uncontrolled discharge    |
| B3P7 | Water efficiency          |

#### Deemed-to-Satisfy Provisions

|      |                                    |
|------|------------------------------------|
| B3D1 | Deemed-to-Satisfy Provisions       |
| B3D2 | Distribution of non-drinking water |
| B3D3 | General requirements               |
| B3D4 | Bushfire prone areas               |
| B3D5 | Water efficiency                   |

## Part B4

### Fire-fighting water services

#### Objectives

|      |           |
|------|-----------|
| B4O1 | Objective |
|------|-----------|

#### Functional Statements

|      |                            |
|------|----------------------------|
| B4F1 | Fire-fighting water supply |
|------|----------------------------|

#### Performance Requirements

|      |                             |
|------|-----------------------------|
| B4P1 | Flow rate and pressure      |
| B4P2 | Access and isolation        |
| B4P3 | Fire-fighting water storage |
| B4P4 | Uncontrolled discharge      |

#### Deemed-to-Satisfy Provisions

|      |                              |
|------|------------------------------|
| B4D1 | Deemed-to-Satisfy Provisions |
| B4D2 | General requirements         |

|      |                        |
|------|------------------------|
| B4D3 | Fire sprinkler systems |
| B4D4 | Fire hydrants          |
| B4D5 | Fire hose reels        |
| B4D6 | Bushfire prone areas   |

### Part B5

#### Cross-connection control

##### Objectives

|      |           |
|------|-----------|
| B5O1 | Objective |
|------|-----------|

##### Functional Statements

|      |                         |
|------|-------------------------|
| B5F1 | Design and installation |
|------|-------------------------|

##### Performance Requirements

|      |                       |
|------|-----------------------|
| B5P1 | Contamination control |
|------|-----------------------|

##### Verification Methods

|      |   |
|------|---|
| B5V1 | Determination of individual and zone hazard ratings |
|------|---|

##### Deemed-to-Satisfy Provisions

|      |                              |
|------|------------------------------|
| B5D1 | Deemed-to-Satisfy Provisions |
| B5D2 | Drinking water service       |
| B5D3 | Non-drinking water service   |
| B5D4 | Fire-fighting water service  |
| B5D5 | Unprotected water service    |
| B5D6 | Rainwater                    |

### Part B6

#### Rainwater services

##### Objectives

|      |           |
|------|-----------|
| B6O1 | Objective |
|------|-----------|

##### Functional Statements

|      |                   |
|------|-------------------|
| B6F1 | Rainwater service |
|------|-------------------|

##### Performance Requirements

|      |                        |
|------|------------------------|
| B6P1 | Pressure               |
| B6P2 | Velocity               |
| B6P3 | Water efficiency       |
| B6P4 | Access and isolation   |
| B6P5 | Identification         |
| B6P6 | Uncontrolled discharge |

##### Deemed-to-Satisfy Provisions

|      |                              |
|------|------------------------------|
| B6D1 | Deemed-to-Satisfy Provisions |
| B6D2 | General requirements         |
| B6D3 | Identification               |
| B6D4 | Water efficiency             |
| B6D5 | Access and isolation         |
| B6D6 | Bushfire prone areas         |

### Part B7

#### Rainwater storage

##### Objectives

|      |           |
|------|-----------|
| B7O1 | Objective |
|------|-----------|

##### Functional Statements

|      |                   |
|------|-------------------|
| B7F1 | Rainwater storage |
|------|-------------------|

##### Performance Requirements

|      |                        |
|------|------------------------|
| B7P1 | Contamination control  |
| B7P2 | Uncontrolled discharge |
| B7P3 | Access and isolation   |
| B7P4 | Identification         |

### **Deemed-to-Satisfy Provisions**

|      |                              |
|------|------------------------------|
| B7D1 | Deemed-to-Satisfy Provisions |
| B7D2 | Collection of rainwater      |
| B7D3 | Identification               |

## **Specification 41 Cross-connection hazards**

|       |                                     |
|-------|-------------------------------------|
| S41C1 | Scope                               |
| S41C2 | Application                         |
| S41C3 | Protection types and hazard ratings |
| S41C4 | Individual protection               |
| S41C5 | Zone protection                     |
| S41C6 | Containment protection              |
| S41C7 | Fire-fighting water services        |

### 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

[2019: BO1]

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

[2019: BF1.1]

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

##### B1F2 Cold water service

[2019: BF1.2]

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

[New for 2022]

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

#### Performance Requirements

**B1P1****Cold water supply**

[2019: BP1.1]

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**

[2019: BP1.2]

Cold water service pipework must ensure that the pipework water velocity does not exceed 3 metres per second for more than 1% of the time that water is required during the annual peak hour.

**Explanatory Information**

During the hour of heaviest usage expected to occur in a year, cold water service velocity of 3 metres per second must not be exceeded for 99% of the time downstream fixtures are in use.

**B1P3****Access and isolation**

[2019: BP1.2]

- (1) A cold water service must ensure access for maintenance of mechanical components and operational controls.
- (2) A cold water service must ensure the system, appliances and devices can be isolated for testing and maintenance.

**B1P4****Water efficiency**

[2019: BP1.2]

A cold water service must ensure the efficient use of *drinking water* by—

- (a) limiting water usage from—
  - (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

## Water services

- (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 B1P4 may be within a tolerance of—

- (a)  $\pm 0.5$  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)  $\pm 0.2$  litres for a 4.5/3 litre cistern.

### Exemptions

The requirements of B1P4 do not apply to a vacuum *drainage* system.

TAS B1P5

## B1P5 Pressure

[2019: BP1.2]

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.

## B1P6 Uncontrolled discharge

[2019: BP1.2]

A cold water service must avoid failure or *uncontrolled discharge*.

### Deemed-to-Satisfy Provisions

## B1D1 Deemed-to-Satisfy Provisions

[2019: B1.1]

- (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 B1P6 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.

## Water services

B1D2

### Water efficiency

[2019: B1.2]

- (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**

[2019: B1.4]

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

**B1D4 Bushfire prone areas**

[New for 2022]

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

**B1D5 Cold water fire sprinkler systems**

[2019:B4.2]

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; 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**

[2019: B6.3]

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                            |

## Water services

| 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   |
| 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  | [2019: BO2] |
|------|--|-------------|
|      | <p>The Objective of this Part is to—</p> <ul style="list-style-type: none"><li>(a) safeguard people from illness, injury or <i>loss</i> (including <i>loss of amenity</i>) due to the failure of a <i>heated water</i> installation; and</li><li>(b) ensure that a <i>heated water</i> installation is suitable; and</li><li>(c) conserve water; and</li><li>(d) safeguard the environment; and</li><li>(e) reduce greenhouse gas emissions; and</li><li>(f) safeguard public and private infrastructure; and</li><li>(g) ensure that a <i>heated water</i> installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (f).</li></ul> |             |

#### Functional Statements

| B2F1 | Heated water supply  | [2019: BF2.1] |
|------|--|---------------|
|      | <p>Sanitary fixtures, sanitary appliances and supply outlets provided with <i>heated water</i> must have a safe and adequate piped <i>heated water</i> supply.</p>   |               |
| B2F2 | Heated water installations   | [2019: BF2.2] |
|      | <p>The <i>heated water</i> supply must be conveyed through <i>plumbing</i> installations in a way that—</p> <ul style="list-style-type: none"><li>(a) minimises any adverse impact on building occupants, the <i>Network Utility Operator's</i> infrastructure, property and the environment; and</li><li>(b) facilitates the conservation of water.</li></ul> |               |
| B2F3 | Greenhouse gas emissions   | [2019: BF2.3] |
|      | <p>To reduce greenhouse gas emissions, to the degree necessary, a <i>heated water</i> service is to—</p> <ul style="list-style-type: none"><li>(a) be capable of efficiently using energy; and</li><li>(b) obtain its heating energy from—</li></ul>   |               |

## Water services

- (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

[2019: BP2.1]

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

[2019: BP2.2]

*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

[2019: BP2.3]

#### VIC B2P3(1)

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

- (a) 3.0 m/s for more than 1% of the time that water is required during the peak hour in reticulated *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 more than 1% of the time that water is required during the peak hour; and
- (c) 1.0 m/s for the flow and return of a circulatory *heated water* service using other materials for more than 1% 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 and isolation**

[2019: BP2.3]

VIC B2P4(1)

- (1) Access must be available to *heated water* service pipework for maintenance of mechanical components and operational controls.
- (2) *Heated water* service pipework, appliances and devices must be capable of being isolated for testing and maintenance.

**B2P5****Pressure relief and temperature limitation**

[2019: BP2.4]

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**

B2P5(a) has a tolerance of +5% or 14 kPa whichever is the greater.

**B2P6****Legionella control**

[2019: BP2.5]

*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 with high risk occupants.

QLD B2P7

**B2P7****Energy use and source**

[2019: BP2.6]

- (1) A *heated water* service, including any associated distribution system and components, must ensure the efficient use of energy and water.
- (2) Features in B2P7(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.

VIC B2P7(3)

**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.

## Water services

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.

B2P7(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.

### B2P8 Temperature

[2019: BP2.3]

A *heated water* service must ensure that *heated water* is provided at appropriate temperatures for the correct functioning of the fixture or appliance.

TAS B2P9

### B2P9 Pressure

[2019: BP2.3]

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.

### B2P10 Uncontrolled discharge

[2019: BP2.3]

A *heated water* service must avoid failure or *uncontrolled discharge*.

### B2P11 Water efficiency

[New for 2022]

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

[2019: BV2.2]

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.

## Water services

**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

[2019: B2.1]

- (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 *B2P11* 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

[2019: B2.2]

- (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—

## Water services

- (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.

VIC B2D2(5)

**Table B2D2a:** Minimum Small Scale Technology Certificates

| Number of bedrooms in the building | 2022 | 2023 | 2024 | 2025 |
|------------------------------------|------|------|------|------|
| 1 or 2                             | 12   | 11   | 9    | 8    |
| 3 or 4                             | 19   | 17   | 15   | 13   |
| 4 or more                          | 25   | 22   | 19   | 16   |

**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  |

## B2D3 Layout of taps

[2019: B2.3]

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.

**B2D4****Water efficiency**

[2019: B2.4]

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

VIC B2D5

**B2D5****Maximum delivery temperature**

[2019: B2.5]

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, Class 9b, Class 9c or 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.

## Water services

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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*

*VIC B2D6*

### B2D6 Temperature control devices

[2019: B2.6]

- (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

[2019: B2.7]

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

[2019: B2.8]

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

## Water services

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SA B2D9

**B2D9 General requirements**

[2019: B2.9]

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

**B2D10 Bushfire prone areas**

[New for 2022]

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

**B2D11 Solar heated water**

[2019: B2.9]

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   |
| 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   |

## Water services

| Item   | NCC Volume One Class 2 to 9 buildings                       | NCC Volume Two Class 1 and 10 buildings |
|--|---|---|
| Central heating pipework                             | J6 Air-conditioning and ventilation systems                 | H6 Energy efficiency                    |
| 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                          |

## 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

[2019: BO3]

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

[2019: BF3.1]

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

#### B3F2 Non-drinking water installations

[2019: BF3.2]

*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

[2019: BP3.1]

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

**B3P2 Identification**

[2019: BP3.2]

- (1) Pipes, pipe 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**

[2019: BP3.3]

VIC B3P3(1)

*Non-drinking water* service pipework must ensure that pipework water velocity does not exceed 3 m/s for more than 1% of the time that the water is required during the annual 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 and isolation**

[2019: BP3.3]

- (1) A *non-drinking water* service must ensure access for maintenance of mechanical components and operational controls.
- (2) A *non-drinking water* service must ensure the system, appliances and devices can be isolated for testing and maintenance.

**B3P5 Pressure**

[2019: BP3.3]

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.

**B3P6 Uncontrolled discharge**

[2019: BP3.3]

A *non-drinking water* service must avoid failure or *uncontrolled discharge*.

**B3P7 Water efficiency**

[New for 2022]

A *non-drinking water* service must ensure the efficient use of *non-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) 600mm length of a continuous urinal wall; and

## Water services

- (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 B3P7 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 B3P7 do not apply to a vacuum *drainage* system.

## Deemed-to-Satisfy Provisions

### B3D1 Deemed-to-Satisfy Provisions

[2019: B3.1]

- (1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* B3P1 to B3P7 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

[2019: B3.2]

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

[2019: B3.3]

A *non-drinking water* service must be in accordance with Section 9 of 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**

[New for 2022]

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

**B3D5****Water efficiency**

[New for 2022]

- (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)  $\pm 0.5$  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)  $\pm 0.2$  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.

## Water services

**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   | [2019: BO4] |
|------|---|-------------|
|      | <p>The Objective of this Part is to—</p> <ul style="list-style-type: none"><li>(a) safeguard people from illness, injury or <i>loss</i> (including <i>loss</i> of <i>amenity</i>) due to the failure of a fire-fighting water installation; and</li><li>(b) ensure that a fire-fighting water installation is suitable; and</li><li>(c) conserve water and energy; and</li><li>(d) safeguard the environment; and</li><li>(e) safeguard public and private infrastructure; and</li><li>(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).</li></ul> |             |

### Functional Statements

| B4F1   | Fire-fighting water supply | [2019: BF4] |
|--|----------------------------|-------------|
| Fire-fighting equipment must be provided with adequate water for its intended purpose. |                            |             |

### Performance Requirements

| B4P1  | Flow rate and pressure | [2019: BP4.1] |
|---|------------------------|---------------|
| A fire-fighting water service must ensure that the water supply flow and pressures to fire-fighting equipment are to be based on a minimum 95th percentile system performance for the correct functioning of the fire-fighting equipment. |                        |               |
| B4P2  | Access and isolation   | [2019: BP4.1] |
| (1) A fire-fighting water service must ensure access for maintenance of mechanical components and operational controls.   |                        |               |

**Water services**

VIC B4P2(2)

- (2) A fire-fighting water service must ensure the system can be isolated for testing and maintenance.

**B4P3 Fire-fighting water storage**

[New for 2022]

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

**B4P4 Uncontrolled discharge**

[2019: BP4.1]

A fire-fighting water service must avoid failure or *uncontrolled discharge*.

**Deemed-to-Satisfy Provisions****B4D1 Deemed-to-Satisfy Provisions**

[2019: B4.1]

- (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**

[2019: B4.2]

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**

[New for 2022]

- (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 *stories*; 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.

## Water services

### **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**

[New for 2022]

Fire hydrants must be in accordance with AS 2419.1.

### **B4D5 Fire hose reels**

[New for 2022]

Fire hose reels must be in accordance with AS 2441.

### **B4D6 Bushfire prone areas**

[New for 2022]

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   |
| 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 |

**Water services**

| Item  | NCC Volume One Class 2 to 9 buildings | NCC Volume Two Class 1 and 10 buildings |
|---|---------------------------------------|---|
| 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

[2019: B05]

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

[2019: BF5]

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

[2019: BP5.1]

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

[New for 2022]

- (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 a *non-drinking water* service or supply via any potential *cross-connection* between itself and another separate *non-drinking 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 Section 4 of 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 *Hazard Ratings* for situations not listed in Specification 41.
- This *Verification Method* is not intended to enable the lowering of any *Hazard Ratings* already prescribed in Specification 41.

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 <i>carparks</i> 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     |

## Water services

**Table B5V1b:** On-site water services

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

**Table B5V1c:** Drinking water use

| Site condition  | Common examples   | Notes   | Score |
|---|---|---|-------|
| <i>Drinking water</i> use will not involve commercial use of hazardous or toxic substances and the <i>site</i> 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     |
| <i>Drinking water</i> will be used with commercial use hazardous substances, but not Schedule 1 to 4 or Schedule 6 to 8 poisons. <i>Drinking water</i> 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     |
| <i>Drinking water</i> 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 is 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 <i>product</i> or installation presents no possibility of <i>cross-connection</i> 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, <i>swimming pools</i> , spas or commercial kitchens on <i>site</i> or able to be installed. | 0     |

## Water services

| Site condition   | Common examples   | Notes  | Score |
|--|---|--|-------|
| The <i>product</i> or installation presents a potential for a <i>cross-connection</i> between a <i>drinking water</i> 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 <i>product</i> or installation presents a potential for a <i>cross-connection</i> between a <i>drinking water</i> service and a <i>non-drinking water</i> service.   | <i>Drinking water</i> outlets within close proximity to an alternative water source such as a <i>Network Utility Operator drinking water</i> supply, bore or <i>irrigation system</i> . | Potential connection of a <i>drinking water</i> system and a system identified with a <i>Low Hazard</i> .  | 2     |
| The <i>product</i> or installation presents a potential for <i>cross-connection</i> between the <i>drinking water</i> service and a <i>swimming pool</i> , 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 <i>swimming pool</i> make up water connections, soft drink manufacturers.   | Potential connection of a <i>drinking water</i> 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 <i>product</i> or installation presents the potential for <i>cross-connection</i> between the <i>drinking water</i> 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 <i>product</i> or installation has potential for a <i>cross-connection</i> 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 <i>irrigation system</i> with <i>drinking water</i> 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 <i>product</i> or installation presents a <i>cross-connection</i> that will only affect 1 small property (fewer than 10 people).   | Domestic residences                                    | Small site where a <i>cross-connection</i> will affect the <i>drinking water</i> to fewer than 10 people. | 1     |
| The <i>product</i> or installation presents a <i>cross-connection</i> that will affect a moderate size property or multiple small <i>sites</i> within the same property (fewer than 100 people). | Cafes or small restaurants on a single title property. | <i>Cross-connection</i> will potentially affect <i>drinking water</i> to fewer than 100 people.           | 2     |

## Water services

| Site condition  | Common examples   | Notes   | Score |
|---|---|---|-------|
| The <i>product</i> or installation presents a <i>cross-connection</i> that will affect a large property or could allow <i>contaminants</i> to enter other properties. | Tenancies within a shopping complex, connected via water meters without <i>Containment protection</i> . | <i>Cross-connection</i> will affect <i>drinking water</i> 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

[2019: B5.1]

- (1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirement* B5P1 is satisfied by complying with B5D2 to B5D6.
- (2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G4(3) as applicable.

#### B5D2 Drinking water service

[2019: B5.2]

- (1) A hazard exists wherever it is possible for water or *contaminants* to enter a *drinking water* service or supply via any potential *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 an *Individual protection Hazard Rating* or *Zone protection Hazard Rating* in accordance with S41C4 and S41C5 ; 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* supply, appropriate *containment protection* must be selected and installed in accordance with Section 4 of AS/NZS 3500.1.

#### B5D3 Non-drinking water service

[2019: B5.3]

- (1) A hazard exists wherever it is possible for water or *contaminants* to enter a *non-drinking water* service or supply via any potential *cross-connection* between itself and another separate *non-drinking water* service on the same *site*.
- (2) Each hazard must—
  - (a) be assigned a *Containment protection Hazard Rating* in accordance with S41C6; and
  - (b) be isolated from the *non-drinking water* service by appropriate *containment protection* which is selected and installed in accordance with Section 4 of AS/NZS 3500.1.

## Water services

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### **Explanatory Information**

A ‘separate *non-drinking water* service’ means one which draws water from a different source. For example, on a *site* connected to both recycled water and bore water, both may be considered *non-drinking water* services, but are drawn from different sources. Therefore, each would be a ‘separate *non-drinking water* service’.

### **B5D4 Fire-fighting water service**

[2019: B5.4]

Each fire-fighting water service must—

- (a) be assigned a *Hazard Rating* in accordance with S41C7; 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.

### **B5D5 Unprotected water service**

[New for 2022]

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**

[New for 2022]

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 S41C6(1)(b).

*NSW B5D7*

### 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

[2019: BO6]

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

[2019: BF6]

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

[2019: BP6.2]

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

**Water services**

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

**B6P2 Velocity**

[2019: BP6.2]

A *rainwater service* must ensure pipework water velocity does not exceed 3 m/s for more than 1% of the time that the water is required during the normal peak flow.

**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.

**B6P3 Water efficiency**

[2019: BP6.2]

A *rainwater service* must ensure the efficient use of 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; and
  - (iii) other rainwater using fixtures and appliances, to an efficient level; 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)  $\pm 0.5$  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)  $\pm 0.2$  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 and isolation**

[2019: BP6.2]

- (a) A *rainwater service* must ensure access for maintenance of mechanical components and operational controls.
- (b) A *rainwater service* must ensure the system, appliances and devices can be isolated for testing and maintenance.

**B6P5 Identification**

[2019: BP6.4]

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

**B6P6 Uncontrolled discharge**

[2019: BP6.2]

A *rainwater service* must avoid the likelihood of failure and *uncontrolled discharge*.

VIC B6P7

**Deemed-to-Satisfy Provisions****B6D1 Deemed-to-Satisfy Provisions**

[2019: B6.1]

VIC B6D1(1)

- (1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* B6P1 to B6P6 are satisfied by complying with B6D2 to B6D6.
- (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

VIC B6D2

**B6D2 General requirements**

[2019: B6.5]

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

**B6D3 Identification**

[2019: B6.5]

Identification of rainwater pipework and outlets must be in accordance with Section 15 of AS/NZS 3500.1.

**B6D4 Water efficiency**

[New for 2022]

- (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)  $\pm 0.5$  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)  $\pm 0.2$  litres for a 4.5/3 litre cistern.

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### 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 and isolation

[New for 2022]

- (1) Access for maintenance of mechanical components and operational controls must be provided in accordance with AS/NZS 3500.1.
- (2) Isolation of appliances and *backflow prevention devices* for testing and maintenance must be provided in accordance with AS/NZS 3500.1.

## B6D6 Bushfire prone areas

[New for 2022]

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

### 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

[2019: B06]

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

[2019: BF6]

*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

##### B7P1 Contamination control

[2019: BP6.1]

*VIC B7P1(1)*

- (1) Stored rainwater must reduce the likelihood of contamination.

*VIC B7P1(2)*

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

**B7P2 Uncontrolled discharge**

[2019: BP6.2]

*Rainwater storage* must avoid the likelihood of failure or *uncontrolled discharge*.

**B7P3 Access and isolation**

[2019: BP6.2]

- (1) *Rainwater storage* must allow access for cleaning and maintenance.
- (2) *Rainwater storage* must allow for the system to be isolated.

VIC B7P4

**B7P4 Identification**

[2019: BP6.4]

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

**Exemptions**

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

**Deemed-to-Satisfy Provisions****B7D1 Deemed-to-Satisfy Provisions**

[2019: B6.1]

VIC B7D1(1)

- (1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* B7P1 and B7P4 are satisfied by complying with B7D2 and B7D3.
- (2) Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G4(3) as applicable.

**Notes**

There are no *Deemed-to-Satisfy Solutions* for B7P2 and B7P3.

TAS B7D2

**B7D2 Collection of rainwater**

[2019: B6.2]

*Rainwater storage* must only collect roof water.

**Explanatory Information**

The Environmental Health 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.

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VIC B7D3

**B7D3 Identification**

[2019: B6.5]

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.

VIC B7D4

**Specification 41****Cross-connection hazards****S41C1****Scope**

[2019: BS5.1.1]

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

**Explanatory Information**

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

Where a situation arises which is not listed in this Specification, the appropriate *Hazard Rating* may be determined as a *Performance Solution*, such as a *Performance Solution* developed using *Verification Method B5V1*.

**S41C2****Application**

[2019: BS5.1.2]

The *Hazard Ratings* prescribed in this Specification must be used for selecting the required *backflow prevention device*, for the purposes of compliance with the *Deemed-to-Satisfy Provisions*.

**S41C3****Protection types and hazard ratings**

[2019: BS5.1.3]

- (1) *Cross-connection* hazards within the *site* must be rated in accordance with—
  - (a) S41C4 for *individual protection* at the point of each individual hazard; or
  - (b) S41C5 for *zone protection* at the point where a group of hazards can be isolated.
- (2) The hazard posed by the *site* to the *Network Utility Operator's drinking water* supply must be rated for *containment protection* in accordance with S41C6.

VIC S41C3(3)

- (3) Pipework and outlets supplied by a *drinking water* source downstream of an *individual protection backflow prevention device* are considered to convey *drinking water* from an *unprotected water service*.

**S41C4****Individual protection**

[2019: BS5.1.4]

- (1) 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 connections over domestic fixtures.
  - (j) Haemodialysis machines in *Class 1*, *Class 2* and *Class 10* buildings.

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- (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).
- (2) The following are *Medium Hazard* for the purpose of *individual protection*:
- (a) Chemical dispensers (low toxicity).
  - (b) Dental consoles.

### VIC S41C4(3)

- (3) 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 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 tanks.
  - (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).

#### Explanatory Information: Clean-in-place systems

For the purposes of S41C4(1)(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

For the purposes of S41C4(3)(f), the *high hazard backflow prevention device* can be part of the toilet douche seat or installed separately.

## S41C5

## Zone protection

[2019: BS5.1.5]

- (1) 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.
- (2) The following are *Medium Hazard* for the purpose of *zone protection*:
  - (a) Type C *irrigation systems*.
  - (b) Beauty spas and foot salons.
- (3) 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.

VIC S41C6

## S41C6

## Containment protection

[2019: BS5.1.6]

- (1) 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.

## Water services

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- (b) Premises served by a rainwater harvesting system, not including any rainwater storage tanks that are *buried tanks*.
  - (c) A water service where there are no *non-drinking water* services within the property.
- (2) 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 water service.
- (3) 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.

### Applications

- (a) *Medium Hazard* properties for the purpose of *containment protection* include the following—
  - (i) Caravan parks.
  - (ii) Food and beverage processing plants.
  - (iii) Marinas.
  - (iv) Premises that are connected to a grey water re-use system or a reticulated and disinfected reclaimed water system.
  - (v) Public *swimming pools*.
- (b) *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 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.

## Water services

### Exemptions

- (1) Clause (1)(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.
- (2) Clause (2)(b)(i) does not apply to a *non-drinking water* service provided to the property by a *Network Utility Operator*.

### Explanatory Information

- Clause (2)(a); *building Classes 3, 4, 5, 6, and 7b* 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.
- Clause (3)(b) and (3)(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.
- In some jurisdictions, regulations issued under water supply legislation, and/or rules set by a *Network Utility Operator*, may prescribe *containment protection* which differs from this Specification. If this occurs then those regulations and/or rules should be followed in place of this Specification. This Specification only applies for the purposes of compliance with Volume Three of the NCC. It is not intended to limit or extend the application of other regulations.

## S41C7

## Fire-fighting water services

[2019: BS5.1.7]

- (1) 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.
  - (d) Fire-fighting water storage tanks.
- (2) Any fire-fighting water services not referred to in (1) are *Medium Hazard*.

### Notes

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.

### 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 1 - Common discharge design

C1V3 System 2 - Common discharge design

C1V4 System 3 - Branch design

C1V5 Stack design

##### 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

### **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   | [2019: CO1] |
|------|---|-------------|
|      | <p>The Objective of this Part is to—</p> <ul style="list-style-type: none"><li>(a) safeguard people from illness, injury or <i>loss</i> (including <i>loss of amenity</i>) due to the failure of a sanitary <i>plumbing</i> installation; and</li><li>(b) ensure that a sanitary <i>plumbing</i> installation is suitable; and</li><li>(c) conserve water and energy; and</li><li>(d) safeguard the environment; and</li><li>(e) safeguard public and private infrastructure; and</li><li>(f) ensure that a sanitary <i>plumbing</i> installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).</li></ul> |             |

#### Functional Statements

| C1F1 | Disposal system  | [2019: CF1] |
|------|--|-------------|
|      | <p>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 <i>Network Utility Operator's</i> infrastructure.</p> |             |

#### Performance Requirements

| C1P1 | Disposal  | [2019: CP1.1] |
|------|---|---------------|
|      | <p>A sanitary <i>plumbing</i> system must ensure sewage or sullage is transferred to a sanitary <i>drainage</i> system or an <i>approved disposal system</i>.</p> |               |

#### Explanatory Information: Non-flushing (waterless) urinals

Where a non-flushing (waterless) urinal is to be installed to a sanitary *plumbing* system comprising 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.

## Sanitary plumbing and drainage systems

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**C1P2****Access**

[2019: CP1.1]

A sanitary *plumbing* system must ensure access for maintenance of mechanical components, operational controls and for clearing *blockages*.

**C1P3****Water efficiency**

[2019: CP1.1]

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)  $\pm 0.5$  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)  $\pm 0.2$  litres for a 4.5/3 litre cistern.

### **Exemptions**

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

**C1P4****Uncontrolled discharge**

[2019: CP1.1]

A sanitary *plumbing* system must avoid *blockage* or *uncontrolled discharge*.

**C1P5****Ventilation**

[2019: CP1.1]

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 annual peak hour that when any fixture discharges, air pressure at any trap seal exceeds  $\pm 375$  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.

## Sanitary plumbing and drainage systems

**C1P6****Contamination**

[2019: CP1.1]

A sanitary *plumbing* system must avoid—

- (a) entry of water, sewerage and sullage from the system into buildings; and
- (b) entry of foul gases from the system into buildings, such that—
  - (i) at pressures of up to  $\pm 375$  Pa, water trap seals will not be reduced to depths less than 70 mm for trap seals in pressurised rooms and 25 mm for all other applications; or
  - (ii) an *equivalent* level of safety to human health is achieved as a system complying to (i); and
- (c) entry of *surface water*, subsurface water and stormwater into the system.

**C1P7****Damage**

[2019: CP1.1]

A sanitary *plumbing* system must avoid damage from superimposed loads, ground movement or root penetration.

### Verification Methods

**C1V1****Determination of sanitary plumbing wastewater flowrates**

[New for 2022]

- (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:

$$Q_{Total} = K \sqrt{\sum DU} + Q_{Other}$$

- (3) In the equation shown at (2)—
  - (a)  $Q_{Total}$  = the probable simultaneous wastewater flowrate for that pipework section (l/s); and
  - (b)  $Q_{Other}$  = the sum of any other wastewater flowrates such as pumped discharges (l/s); and
  - (c)  $K$  = 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**

| Fixture usage  | NCC building classes                                     | Frequency factor (K) |
|--|--|----------------------|
| Intermittent use e.g. dwelling, guesthouse or office     | Class 1, Class 2, Class 3 or Class 4                     | 0.5                  |
| Frequent use e.g. hospital, restaurant or hotel          | Class 5, Class 6, Class 7, Class 8, Class 9a or Class 9c | 0.7                  |
| Congested use e.g. open to general public, <i>school</i> | Class 9b   | 1.0                  |
| Special use e.g. laboratory                              | Not applicable   | 1.2                  |

## Sanitary plumbing and drainage systems

**Table C1V1b:** Discharge units

| Fixture                      | System 1 | System 2 | System 3 |
|------------------------------|----------|----------|----------|
| Basin                        | 0.5      | 0.3      | 0.3      |
| Shower                       | 0.6      | 0.4      | 0.4      |
| Urinal                       | 0.8      | 0.5      | 0.4      |
| Bath                         | 0.8      | 0.6      | 1.3      |
| Kitchen sink                 | 0.8      | 0.6      | 1.3      |
| Water closet                 | 2.0      | 1.8      | 1.2      |
| Washing machine - up to 6 kg | 0.8      | 0.6      | 0.6      |
| Domestic dishwasher          | 0.8      | 0.6      | 0.2      |

### Explanatory Information

System types referred to in Table C1V1b are as follows:

- System 1 - A sanitary *plumbing* system where branch discharge pipes are designed with a filling degree of 50%.
- System 2 - A sanitary *plumbing* system where branch discharge pipes are designed with a filling degree of 70%.
- System 3 - A sanitary *plumbing* system where branch discharge pipes are designed with a filing degree of 100%.
- Systems 1 and 2 are similar to the fully vented modified system and System 3 is similar to the single stack system detailed in AS/NZS 3500.2.
- Filling degree is defined as the ratio between the height of fluid in a pipe (h) and the diameter of the pipe (D), or  $h/D$ .

## C1V2 System 1 - Common discharge design

[New for 2022]

- (1) Compliance with C1P5 for pipe sizing is verified for each common discharge branch when—
  - (a) pipework is in accordance with (2); and
  - (b) ventilation is in accordance with (3).
- (2) Each unvented common discharge pipe within the system must have—
  - (a) a pipe length from trap weir to stack less than 4 m; and
  - (b) no more than three 90° bends, excluding the first bend after the trap outlet; and
  - (c) no vertical drops of greater than 45° inclination between the trap weir and the stack greater than 1 m; and
  - (d) a gradient greater than 1.00%; and
  - (e) a pipe size in accordance with Table C1V2.
- (3) Each vented common discharge pipe within the system must have—
  - (a) a pipe length from trap weir to the stack of less than 10 m; and
  - (b) no vertical drops of greater than 45° inclination, between the trap weir and the stack greater than 3 m; and
  - (c) a gradient greater than 0.50%; and
  - (d) a pipe size in accordance with Table C1V2; and
  - (e) a group vent sized in accordance with Table C1V2; and
  - (f) each group vent either—
    - (i) terminates to atmosphere or interconnects with another vent in accordance with AS/NZS 3500.2; or
    - (ii) terminates at an air admittance valve with a minimum airflow rate equal to the wastewater design flowrate.

## Sanitary plumbing and drainage systems

### Limitations

Water closets must only be connected to a DN 80 or DN 100 discharge pipe.

**Table C1V2:** Common discharge pipe capacity

| Common discharge pipe size - Nominal diameter (DN) | Unvented capacity $Q_{\text{Total}}$ - Litres per second (l/s) | Vented capacity $Q_{\text{Total}}$ - Litres per second (l/s) | Group vent - Nominal diameter (DN) |
|--|--|--|------------------------------------|
| 40   | 0.50   | N/A  | N/A                                |
| 50   | 0.80   | 0.75   | 40                                 |
| 65   | 1.00   | 1.50   | 40                                 |
| 80   | 2.00   | 3.00   | 50                                 |
| 100  | 2.50   | 3.75   | 65                                 |

## C1V3 System 2 - Common discharge design

[New for 2022]

- (1) Compliance with C1P5 relating to pipe sizing is verified for each common discharge branch when—
  - (a) pipework is in accordance with (2); and
  - (b) ventilation is provided in accordance with (3).
- (2) Each unvented common discharge pipe within the system must have—
  - (a) a pipe length from trap weir to stack less than 10 m; and
  - (b) no more than one 90° bend, excluding the first bend after the trap outlet; and
  - (c) no vertical drops of greater than 45° inclination between the trap weir and the stack, greater than—
    - (i) 1 m, where a water closet is connected to the branch; or
    - (ii) 3 m, where no water closets are connected to the branch; and
  - (d) a gradient greater than 1.50%; and
  - (e) a pipe size in accordance with Table C1V3.
- (3) Each vented common discharge pipe within the system has—
  - (a) no vertical drops of greater than 45° inclination between the trap weir and the stack greater than 3 m; and
  - (b) a gradient greater than 1.50%; and
  - (c) a pipe size in accordance with Table C1V3; and
  - (d) a group vent sized in accordance with Table C1V3; and
  - (e) each group vent either—
    - (i) terminates to atmosphere or interconnects with another vent in accordance with AS/NZS 3500.2; or
    - (ii) terminates to an air admittance valve with a minimum airflow rate equal to 2 times the wastewater design flowrate.

### Limitations

- (1) Water closets must only be connected to a DN 80 or DN 100 discharge pipe.
- (2) No more than one water closet can be connected to a DN 80 discharge pipe.

**Table C1V3:** System 2 - Common discharge pipe capacity

| Common discharge pipe - Nominal diameter (DN) | Unvented capacity $Q_{\text{Total}}$ - Litres per second (l/s) | Vented capacity $Q_{\text{Total}}$ - Litres per second (l/s) | Group vent - Nominal diameter (DN) |
|---|--|--|------------------------------------|
| 40  | 0.50   | 0.75   | 32                                 |

## Sanitary plumbing and drainage systems

| Common discharge pipe - Nominal diameter (DN) | Unvented capacity $Q_{\text{Total}}$ - Litres per second (l/s) | Vented capacity $Q_{\text{Total}}$ - Litres per second (l/s) | Group vent - Nominal diameter (DN) |
|---|--|--|------------------------------------|
| 50  | 1.00   | 1.50   | 32                                 |
| 65  | 1.50   | 2.25   | 40                                 |
| 80  | 2.25   | 3.40   | 40                                 |
| 100   | 2.50   | 3.75   | 50                                 |

### C1V4 System 3 - Branch design

[New for 2022]

- (1) Compliance with C1P5 relating to pipe sizing is verified for each discharge branch when—
  - (a) each unvented fixture, or combination of fixtures, connects independently to the stack in accordance with Table C1V4a; and
  - (b) each vented fixture, or combination of fixtures, connects to the stack in accordance with Table C1V4b.
- (2) Ventilation requirements must be in accordance with the following:
  - (a) Each trap vent must be—
    - (i) not less than DN 50, where the connection of the vent to the branch is liable to *blockage* due to splashing or submergence; or
    - (ii) DN 32, where the connection of the vent to the branch is not liable to *blockage* due to splashing or submergence.
  - (b) Each trap vent connects within 750 mm of the fixture it serves.
  - (c) Each trap vent must—
    - (i) terminate at atmosphere or interconnect with another vent in accordance with AS/NZS 3500.2; or
    - (ii) connect to a common trap vent at least 40 mm in diameter; or
    - (iii) connect to the stack above the flood level of the highest fixture; or
    - (iv) terminate to an air admittance valve with a minimum airflow rate equal to 2 times the wastewater design flowrate.
- (3) Each branch connection must use a sweep or 45° junction where the branch is—
  - (a) an equal diameter to the stack; and
  - (b) the stack is DN 80 or larger.

Table C1V4a: System 3 - Unvented fixture connections

| Fixture               | Waste Nominal Diameter (DN) | Maximum length, in metres (m) | Minimum gradient (%) | Maximum gradient (%) | Maximum number of bends | Maximum vertical drop, in metres (m) |
|-----------------------|-----------------------------|-------------------------------|----------------------|----------------------|-------------------------|--------------------------------------|
| Basin                 | 32                          | 1.7                           | 2.2                  | 2.2                  | 0                       | 0                                    |
| Basin                 | 32                          | 1.1                           | 4.4                  | 4.4                  | 0                       | 0                                    |
| Basin                 | 32                          | 0.7                           | 8.7                  | 8.7                  | 0                       | 0                                    |
| Basin                 | 40                          | 3                             | 1.8                  | 4.4                  | 2                       | 0                                    |
| Basin group ≤4 basins | 50                          | 4                             | 1.8                  | 4.4                  | 0                       | 0                                    |
| Bidet                 | 32                          | 1.7                           | 2.2                  | 2.2                  | 0                       | 0                                    |
| Bidet                 | 32                          | 1.1                           | 4.4                  | 4.4                  | 0                       | 0                                    |
| Bidet                 | 32                          | 0.7                           | 8.7                  | 8.7                  | 0                       | 0                                    |
| Bidet                 | 40                          | 3                             | 1.8                  | 4.4                  | 2                       | 0                                    |
| Shower                | 40                          | No limit                      | 1.8                  | 9                    | No limit                | 1.5                                  |

## Sanitary plumbing and drainage systems

| Fixture                                       | Waste Nominal Diameter (DN) | Maximum length, in metres (m) | Minimum gradient (%) | Maximum gradient (%) | Maximum number of bends | Maximum vertical drop, in metres (m) |
|---|-----------------------------|-------------------------------|----------------------|----------------------|-------------------------|--------------------------------------|
| Bath  | 40                          | No limit                      | 1.8                  | 9                    | No limit                | 1.5                                  |
| Single urinal                                 | 40                          | 3                             | 1.8                  | 9                    | No limit                | 1.5                                  |
| Slab urinal                                   | 65                          | 3                             | 1.8                  | 9                    | No limit                | 1.5                                  |
| Sink - kitchen                                | 40                          | No limit                      | 1.8                  | 9                    | No limit                | 1.5                                  |
| Trough - laundry                              | 40                          | 3                             | 1.8                  | 9                    | No limit                | 1.5                                  |
| Domestic dishwasher                           | 40                          | 3                             | 1.8                  | 4.4                  | No limit                | 1.5                                  |
| Domestic clothes washing machine - up to 6 kg | 40                          | 3                             | 1.8                  | 4.4                  | No limit                | 1.5                                  |
| Water closet                                  | 80                          | No limit                      | 1.8                  | No limit             | No limit                | 1.5                                  |
| Water closet                                  | 100                         | No limit                      | 1.8                  | No limit             | No limit                | 1.5                                  |
| Water closet group ≤8 water closets           | 100                         | 15                            | 0.9                  | 9                    | 2                       | 1.5                                  |
| Food waste disposal unit                      | 40                          | 3                             | 13.5                 | No limit             | No limit                | 1.5                                  |
| Sanitary napkin disposal unit                 | 40                          | 3                             | 5.4                  | No limit             | No limit                | 1.5                                  |
| <i>Floor waste gully</i>                      | 50                          | No limit                      | 1.8                  | No limit             | No limit                | 1.5                                  |
| <i>Floor waste gully</i>                      | 80                          | No limit                      | 1.8                  | No limit             | No limit                | 1.5                                  |
| <i>Floor waste gully</i>                      | 100                         | No limit                      | 1.8                  | No limit             | No limit                | 1.5                                  |

**Table C1V4b:** System 3 - Vented fixture connections

| Fixture                | Waste Nominal Diameter (DN) | Maximum length, in metres (m) | Minimum gradient (%) | Maximum gradient (%) | Maximum number of bends | Maximum vertical drop, in metres (m) |
|------------------------|-----------------------------|-------------------------------|----------------------|----------------------|-------------------------|--------------------------------------|
| Basin                  | 32                          | 3                             | 1.8                  | No limit             | 2                       | 3                                    |
| Basin                  | 40                          | 3                             | 1.8                  | No limit             | No limit                | 3                                    |
| Basin group ≤5 basins  | 50                          | 7                             | 1.8                  | 4.4                  | No limit                | No limit                             |
| Basin group ≤10 basins | 50                          | 10                            | 1.8                  | 4.4                  | No limit                | No limit                             |
| Bidet                  | 32                          | 3                             | 1.8                  | No limit             | 2                       | 3                                    |
| Bidet                  | 40                          | 3                             | 1.8                  | No limit             | No limit                | 3                                    |
| Shower                 | 40                          | No limit                      | 1.8                  | No limit             | No limit                | No limit                             |
| Bath                   | 40                          | No limit                      | 1.8                  | No limit             | No limit                | No limit                             |
| Single urinal          | 40                          | 3                             | 1.8                  | No limit             | No limit                | 3                                    |
| >1 Single urinal       | 50                          | No limit                      | 1.8                  | No limit             | No limit                | No limit                             |

## Sanitary plumbing and drainage systems

| Fixture                                       | Waste Nominal Diameter (DN) | Maximum length, in metres (m) | Minimum gradient (%) | Maximum gradient (%) | Maximum number of bends | Maximum vertical drop, in metres (m) |
|---|-----------------------------|-------------------------------|----------------------|----------------------|-------------------------|--------------------------------------|
| Trough urinal                                 | 50                          | 3                             | 1.8                  | No limit             | No limit                | 3                                    |
| Slab urinal                                   | 65                          | 3                             | 1.8                  | No limit             | No limit                | 3                                    |
| Sink - kitchen                                | 40                          | No limit                      | 1.8                  | No limit             | No limit                | No limit                             |
| Trough - laundry                              | 40                          | 3                             | 1.8                  | No limit             | No limit                | No limit                             |
| Domestic dishwasher                           | 40                          | No limit                      | 1.8                  | No limit             | No limit                | No limit                             |
| Domestic clothes washing machine (up to 6 kg) | 40                          | No limit                      | 1.8                  | No limit             | No limit                | No limit                             |
| Water closet                                  | 80                          | No limit                      | 1.8                  | No limit             | No limit                | No limit                             |
| Water closet                                  | 100                         | No limit                      | 1.8                  | No limit             | No limit                | No limit                             |
| Water closet group ≤8                         | 100                         | 15                            | 0.9                  | No limit             | No limit                | No limit                             |
| Food waste disposal unit                      | 40                          | 3                             | 13.5                 | No limit             | No limit                | 3                                    |
| Sanitary napkin disposal unit                 | 40                          | 3                             | 5.4                  | No limit             | No limit                | 3                                    |
| <i>Floor waste gully</i>                      | 50                          | No limit                      | 1.8                  | No limit             | No limit                | No limit                             |
| <i>Floor waste gully</i>                      | 80                          | No limit                      | 1.8                  | No limit             | No limit                | No limit                             |
| <i>Floor waste gully</i>                      | 100                         | No limit                      | 1.8                  | No limit             | No limit                | No limit                             |
| Small potato peeler                           | 40                          | 3                             | 13.5                 | No limit             | No limit                | 3                                    |

### Limitations

- (1) The maximum number of bends permitted is measured from the fixture trap weir to the connection to the stack, excluding the first bend after the trap weir.
- (2) The maximum pipe length is measured from the fixture trap weir to the connection to the stack.
- (3) A slab urinal must not cater for more than 7 people. Additional waste outlets may be required for longer urinals.
- (4) Where a water closet is connected, sweep or 45° junctions must be used to connect to the stack.
- (5) Bottle and resealing traps are not permitted for food waste disposal units or sanitary napkin disposal units.

## C1V5

### Stack design

[New for 2022]

- (1) Compliance with C1P5 relating to pipe sizing is verified for the stack system when—
  - (a) each stack has a pipe size in accordance with (2); and
  - (b) ventilation is provided in accordance with (3).
- (2) Each stack must have a pipe size in accordance with—
  - (a) Table C1V5a, where a separate relief vent is not provided; or

## Sanitary plumbing and drainage systems

- (b) Table C1V5b, where a separate relief vent is provided.
- (3) Ventilation must comply with the following:
- (a) Each stack vent must terminate either to—
    - (i) the atmosphere or interconnect with another vent in accordance with AS/NZS 3500.2; or
    - (ii) an air admittance valve with a minimum airflow rate equal to 8 times the wastewater design flowrate.
  - (b) Each stack vent must be sized in accordance with—
    - (i) Clause 8.5.4 of AS/NZS 3500.2 for stack vents; or
    - (ii) Clause 8.5.3 of AS/NZS 3500.2 for relief vents.
  - (c) Each relief vent must interconnect with the stack vent at each floor.

### Applications

- (1) Water closets must be connected to a DN 80 or DN 100 discharge pipe.
- (2) Water closets must not be connected to DN 80 where a C1V2 System 1 or C1V4 System 3 is used.

**Table C1V5a: Stack capacity without a relief vent**

| Stack Nominal Diameter (DN) | Capacity with square or 88° junction,<br>in litres per second (l/s) | Capacity with sweep or 45° junction,<br>in litres per second (l/s) |
|-----------------------------|---|--|
| 65                          | 0.5   | 0.7  |
| 80                          | 2.0   | 2.5  |
| 100                         | 4.0   | 5.2  |
| 150                         | 9.5   | 12.4   |

**Table C1V5b: Stack capacity with a relief vent**

| Stack Nominal Diameter (DN) | Capacity with square or 88° junction,<br>in litres per second (l/s) | Capacity with sweep or 45° junction,<br>in litres per second (l/s) |
|-----------------------------|---|--|
| 65                          | 0.7   | 0.9  |
| 80                          | 2.6   | 3.4  |
| 100                         | 5.6   | 7.3  |
| 150                         | 12.4  | 18.3   |

### Deemed-to-Satisfy Provisions

#### C1D1 Deemed-to-Satisfy Provisions

[2019: C1.1]

- (1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirement C1P1 to C1P7* is satisfied by complying with C1D2 and 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

[2019: C1.2]

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.

## Sanitary plumbing and drainage systems

SA C1D3

VIC C1D3

**C1D3**

### **General requirements**

[2019: C1.3]

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

**C1D4**

### **Bushfire prone areas**

[New for 2022]

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

**C1D5**

### **Water efficiency**

[New for 2022]

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)  $\pm 0.5$  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)  $\pm 0.2$  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                            |

## Sanitary plumbing and drainage systems

| 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 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   | [2019: CO2] |
|------|---|-------------|
|      | <p>The Objective of this Part is to—</p> <ul style="list-style-type: none"><li>(a) safeguard people from illness, injury or <i>loss</i> (including <i>loss of amenity</i>) due to the failure of a sanitary <i>drainage</i> installation; and</li><li>(b) ensure that a sanitary <i>drainage</i> installation is suitable; and</li><li>(c) conserve water and energy; and</li><li>(d) safeguard the environment; and</li><li>(e) safeguard public and private infrastructure; and</li><li>(f) safeguard people from illness caused by the discharge of <i>swimming pool</i> waste water; and</li><li>(g) protect <i>other property</i> from damage caused by the discharge of <i>swimming pool</i> waste water; and</li><li>(h) ensure that a sanitary <i>drainage</i> installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (g).</li></ul> |             |

#### Functional Statements

| C2F1 | Disposal system  | [2019: CF2.1] |
|------|--|---------------|
|      | <p>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 <i>Network Utility Operator's</i> infrastructure.</p> |               |
| C2F2 | Swimming pool wastewater disposal  | [2019: CF2.2] |
|      | <p>Adequate means for the disposal of <i>swimming pool</i> water and <i>drainage</i> is to be provided for each <i>swimming pool</i>.</p>  |               |

#### Performance Requirements

| C2P1 | Disposal   | [2019: CP2.1] |
|------|--|---------------|
|      | <p>A sanitary <i>drainage</i> system must ensure sewage is transferred from a sanitary <i>plumbing</i> system to an <i>approved disposal system</i>.</p> |               |

## Sanitary plumbing and drainage systems

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NT C2P2

**C2P2 Swimming pool drainage**

[2019: CP2.2]

A *swimming pool* must have adequate means of draining the pool in a manner that will not—

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

**C2P3 Access**

[2019: CP2.1]

A sanitary *drainage* system must ensure there is access for maintenance and clearing a *blockage*.

**C2P4 Ventilation**

[2019: CP2.1]

- (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 annual peak hour that when any fixture discharges, air pressure at any trap seal exceeds  $\pm 375$  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**

[2019:CP2.1]

- (1) A sanitary *drainage* system must ensure protection against internal contamination.
- (2) A sanitary *drainage* system must avoid the entry of water, foul air and gases from the system into buildings.
- (3) A sanitary *drainage* system must avoid the entry of *surface water*, sub-surface water and stormwater into the system.

**C2P6 Uncontrolled discharge**

[2019: CP2.1]

A sanitary *drainage* system must avoid *blockage* and *uncontrolled discharge*.

**C2P7 Damage**

[2019: CP2.1]

- (1) A sanitary *drainage* system must avoid damage from root penetration, superimposed loads or ground movement.
- (2) A sanitary *drainage* system must avoid damage to existing buildings or *siteworks*.
- (3) A sanitary *drainage* system must avoid damage to the *Network Utility Operator's* sewerage system or other *approved disposal system*.

**Notes**

There are no *Deemed-to-Satisfy Provisions* for sanitary *drainage* systems to address ground movement.

VIC C2P8

## Sanitary plumbing and drainage systems

### Verification Methods

#### C2V1 Velocity and liquid-to-air ratio

[2019: CV2.1]

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.

VIC C2V2

#### C2V2 Pressure testing

[2019: CV2.2]

Compliance with C2P1 is achieved if the sanitary *drainage* system passes one or more of the pressure tests set out in Section 15 of AS/NZS 3500.2.

#### C2V3 Determination of sanitary drainage wastewater flowrates

[New for 2022]

- (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:

$$Q_{Total} = K\sqrt{\sum DU} + Q_{Other}$$

- (3) In the equation shown at (2):
  - (a)  $Q_{Total}$  = the probable simultaneous wastewater flowrate for that pipework section (l/s).
  - (b)  $Q_{Other}$  = 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).

#### Explanatory Information

System types referred to in Table C2V3b are as follows:

- System 1 - A sanitary *drainage* system where branch discharge pipes are designed with a filling degree of 50%.

## Sanitary plumbing and drainage systems

- System 2 - A sanitary *drainage* system where branch discharge pipes are designed with a filling degree of 70%.
- System 3 - A sanitary *drainage* system where branch discharge pipes are designed with a filling degree of 100%.
- Systems 1 and 2 are similar to the fully vented modified system and System 3 is similar to the single stack system, as detailed in AS/NZS 3500.2.
- Filling degree is defined as the ratio between the height of fluid in a pipe (h) and the diameter of the pipe (D), or  $h/D$ .

**Table C2V3a:** Frequency factors

| Fixture usage  | NCC building class                                       | Frequency factor (K) |
|--|--|----------------------|
| Intermittent use e.g. dwelling, guesthouse or office         | Class 1, Class 2, Class 3 or Class 4                     | 0.5                  |
| Frequent use e.g. hospital, restaurant or hotel              | Class 5, Class 6, Class 7, Class 8, Class 9a or Class 9c | 0.7                  |
| Congested use e.g. open to the general public, <i>school</i> | Class 9b   | 1.0                  |
| Special use e.g. laboratory                                  | Not applicable   | 1.2                  |

**Table C2V3b:** Discharge units

| Fixture                      | System 1 - Discharge Units (DU) | System 2 - Discharge Units (DU) | System 3 - Discharge Units (DU) |
|------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Basin                        | 0.5                             | 0.3                             | 0.3                             |
| Shower                       | 0.6                             | 0.4                             | 0.4                             |
| Urinal                       | 0.8                             | 0.5                             | 0.4                             |
| Bath                         | 0.8                             | 0.6                             | 1.3                             |
| Kitchen sink                 | 0.8                             | 0.6                             | 1.3                             |
| Water closet                 | 2.0                             | 1.8                             | 1.2                             |
| Washing machine - Up to 6 kg | 0.8                             | 0.6                             | 0.6                             |
| Domestic dishwasher          | 0.8                             | 0.6                             | 0.2                             |

### Deemed-to-Satisfy Provisions

#### C2D1 Deemed-to-Satisfy Provisions

[2019: C2.1]

- (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

[2019: C2.2]

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.

## Sanitary plumbing and drainage systems

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### C2D3 Swimming pool drainage

[2019: C2.3]

Pumped discharge from a *swimming pool* must connect to the sanitary *drainage* system in accordance with AS/NZS 3500.2.

*NSW C2D4*

*SA C2D4*

*VIC C2D4*

### C2D4 General requirements

[2019: C2.4]

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

*TAS C2D4(2)*

### C2D5 Bushfire prone areas

[New for 2022]

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   | [New for 2022] |
|------|---|----------------|
|      | <p>The Objective of this Part is to—</p> <ul style="list-style-type: none"><li>(a) safeguard people from illness, injury or <i>loss</i> (including <i>loss of amenity</i>) due to the failure of an <i>on-site wastewater management system</i> installation; and</li><li>(b) ensure that an <i>on-site wastewater management system</i> installation is suitable; and</li><li>(c) conserve water and energy; and</li><li>(d) safeguard the environment; and</li><li>(e) safeguard public and private infrastructure; and</li><li>(f) ensure that an <i>on-site wastewater management system</i> installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy Objectives (a) to (e).</li></ul> |                |

#### Functional Statements

| C3F1  | On-site wastewater management | [New for 2022] |
|---|-------------------------------|----------------|
| <p><i>On-site wastewater management systems</i> 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.</p> |                               |                |

#### Performance Requirements

| C3P1   | Health impacts | [New for 2022] |
|--|----------------|----------------|
| <p>VIC C3P1(1)</p> <p><i>On-site wastewater management systems</i> must protect public health by ensuring that—</p> <ul style="list-style-type: none"><li>(a) risks associated with the discharge of treated wastewater and/or the end product from a composting toilet to the environment are minimised; and</li><li>(b) foul air and gasses are prevented from accumulating within or entering into buildings; and</li><li>(c) the likelihood of contamination of the <i>drinking water</i> supply is avoided.</li></ul> |                |                |
|  |                |                |

## Sanitary plumbing and drainage systems

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### 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

[New for 2022]

*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

[New for 2022]

*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

[New for 2022]

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

VIC C3P5

### C3P5 General requirements

[New for 2022]

*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.

VIC C3P6

### C3P6 Land application systems

[New for 2022]

(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

## Sanitary plumbing and drainage systems

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- (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—
- (a) avoid the likelihood of the creation of unpleasant odours or the accumulation of offensive matter; and
  - (b) avoid the likelihood of stormwater run-off entering the system; and
  - (c) avoid the likelihood of root penetration or ingress of ground water entering the system; and
  - (d) avoid the likelihood of unintended or *uncontrolled discharge*; and
  - (e) avoid the likelihood of *blockage* and leakage; and
  - (f) avoid the likelihood of damage from superimposed loads or ground movement.

VIC C3P7

### C3P7 Access for maintenance

[New for 2022]

- (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

[New for 2022]

*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

[New for 2022]

*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

[New for 2022]

- (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.

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## Sanitary plumbing and drainage systems

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SA C3D2

C3D2

### Septic tanks

[New for 2022]

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

SA C3D3

C3D3

### Composting toilets

[New for 2022]

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

SA C3D4

C3D4

### Secondary treatment systems

[New for 2022]

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

SA C3D5

C3D5

### Domestic grey water treatment systems

[New for 2022]

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

SA C3D6

TAS C3D6

C3D6

### Land application systems

[New for 2022]

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

SA C3D7

C3D7

### Common effluent drainage systems

[New for 2022]

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  | [2019: DO1] |
|------|--|-------------|
|      | <p>The Objective of this Part is to—</p> <ul style="list-style-type: none"><li>(a) safeguard people from illness, injury or <i>loss</i> (including <i>loss of amenity</i>) due to excessive noise of a <i>plumbing</i> and <i>drainage</i> system; and</li><li>(b) ensure that a <i>plumbing</i> and <i>drainage</i> system installation throughout its serviceable life will continue to satisfy the requirements of Objective (a).</li></ul> |             |

#### Functional Statements

| D1F1 | Excessive noise   | [2019: DF1] |
|------|---|-------------|
|      | <p>VIC D1F1(1)</p> <p>A <i>plumbing</i> and <i>drainage</i> system must operate in a way that avoids the likelihood of excessive noise of any part of the <i>plumbing</i> and <i>drainage</i> system, and minimises any adverse impact on building occupants.</p> |             |

#### Performance Requirements

| D1P1 | Undue noise  | [2019: DP1.1] |
|------|--|---------------|
|      | <p>A <i>plumbing</i> and <i>drainage</i> system must not create undue noise.</p> |               |
| D1P2 | Excessive noise  | [2019: DP1.2] |

(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.

## Excessive noise

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### 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

[2019: D1.1]

*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

[2019: D1.2]

*VIC D1D2(1)*

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

[2019: D1.3]

- (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

## Excessive noise

- 
- (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

[2019: EO1]

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

[2019: EF1]

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

[2019: EP1.1]

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

[2019: E1.1]

- (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.

## Facilities and ancillary additions

### E1D2

#### General requirements

[2019: E1.2]

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 (2009) 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**

## Definitions

### Abbreviations

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

## Definitions

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| Abbreviation         | Definitions   |
|----------------------|---|
| <b>NABERS</b>        | National Australian Built Environment Rating System                   |
| <b>NASH</b>          | National Association of Steel-Framed Housing                          |
| <b>NATA</b>          | National Association of Testing Authorities Australia                 |
| <b>NatHERS</b>       | Nationwide House Energy Rating Scheme                                 |
| <b>NCC</b>           | National Construction Code  |
| <b>NSF</b>           | National Sanitation Foundation  |
| <b>PBDB</b>          | Performance-based design brief  |
| <b>PCA</b>           | Plumbing Code of Australia  |
| <b>PMV</b>           | Predicted Mean Vote   |
| <b>ppm</b>           | parts per million   |
| <b>PUR</b>           | Polyurethane  |
| <b>PVC</b>           | Polyvinyl chloride  |
| <b>RC</b>            | Robustness check  |
| <b>RSET</b>          | Required Safe Egress Time   |
| <b>R<sub>w</sub></b> | Weighted sound reduction index  |
| <b>SF</b>            | Smouldering fire  |
| <b>SHGC</b>          | Solar Heat Gain Coefficient   |
| <b>SL</b>            | Square mesh   |
| <b>SS</b>            | Structural stability and other property                               |
| <b>STC</b>           | Sound Transmission Class  |
| <b>TM</b>            | Trench mesh   |
| <b>UF</b>            | Unexpected catastrophic failure                                       |
| <b>UPVC</b>          | Unplasticized polyvinyl chloride                                      |
| <b>UT</b>            | Fire in normally unoccupied room threatening occupants of other rooms |
| <b>U-Value</b>       | Thermal transmittance   |
| <b>VS</b>            | Vertical fire spread involving external cladding or external openings |
| <b>WC</b>            | Water closet  |

## Definitions

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### 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                               |
| 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 <sup>2</sup>      | Joules per second square metre                             |
| K                       | Kelvin(s)  |
| kg                      | kilogram(s)  |
| kg/m                    | kilogram(s) per metre                                      |
| kg/m <sup>2</sup>       | kilogram(s) per square metre                               |
| kg/m <sup>3</sup>       | kilogram(s) per cubic metre                                |
| kJ/m <sup>2</sup> .hour | kilojoules per square metre hour                           |
| km                      | kilometre(s)   |
| kPa                     | kilopascal(s)  |
| kW/m <sup>2</sup>       | kilowatt(s) per square metre                               |
| kW <sub>heating</sub>   | 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 <sup>2</sup>      | litre(s) per second square metre                           |
| Lumens/W                | Lumens per Watt  |
| lx                      | lux  |
| m                       | metre(s)   |
| m/s                     | metre(s) per second  |
| m <sup>2</sup>          | square metre(s)  |
| m <sup>2</sup> .K/W     | square metre Kelvin(s) per Watt                            |
| m <sup>3</sup>          | cubic metre(s)   |
| m <sup>3</sup> /hour    | cubic metre(s) per hour                                    |
| m <sup>3</sup> /s       | cubic metre(s) per second                                  |
| mcd/m <sup>2</sup>      | millicandolas per square metre                             |
| min                     | minute(s)  |

## Definitions

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| Symbols                              | Definitions  |
|--------------------------------------|--|
| <b>MJ/hour</b>                       | Megajoules per hour                                    |
| <b>MJ/m<sup>2</sup>.annum</b>        | Megajoules per square metre annum                      |
| <b>mm</b>                            | millimetre(s)  |
| <b>mm<sup>2</sup></b>                | square millimetre(s)                                   |
| <b>MW</b>                            | megawatt(s)  |
| <b>N</b>                             | newton(s)  |
| <b>N/m</b>                           | Newton(s) per metre                                    |
| <b>Pa</b>                            | pascal(s)  |
| <b>Pa/m</b>                          | pascal(s) per metre                                    |
| <b>Q</b>                             | Imposed load   |
| <b>s</b>                             | second(s)  |
| <b>ULS</b>                           | Ultimate limit state                                   |
| <b>V</b>                             | Volt(s)  |
| <b>W</b>                             | Watt(s)  |
| <b>W<sub>input power</sub></b>       | Watts of input power                                   |
| <b>Wr/W<sub>input power</sub></b>    | Watts of thermal refrigeration per watt of input power |
| <b>W/kW<sub>rej</sub></b>            | Watts per kilowatt of heat rejected                    |
| <b>Wm<sup>-1</sup>K<sup>-1</sup></b> | Watts per metre degree Kelvin                          |
| <b>W/m<sup>2</sup></b>               | Watts per square metre                                 |
| <b>°south</b>                        | degree south   |
| <b>%</b>                             | percent  |
| <b>&gt;</b>                          | greater than   |
| <b>&lt;</b>                          | less than  |
| <b>≤</b>                             | less than or equal to                                  |
| <b>≥</b>                             | 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 laying horizontally; and
- resting — a person laying horizontally or sitting upright on the bed; and
- leisure activities, such as reading a book — a person sitting upright on the bed, with enough space to stretch their arms vertically; and
- dressing/changing clothes — a person standing with enough space to stretch their arms vertically.

**Administering body:** The body responsible for administering the *WaterMark Certification Scheme*.

**Aged care building:** A Class 9c building for residential accommodation of aged persons who, due to varying degrees of incapacity associated with the ageing process, are provided with *personal care services* and 24 hour staff assistance to evacuate the building during an emergency.

*NSW 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.

**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

## Definitions

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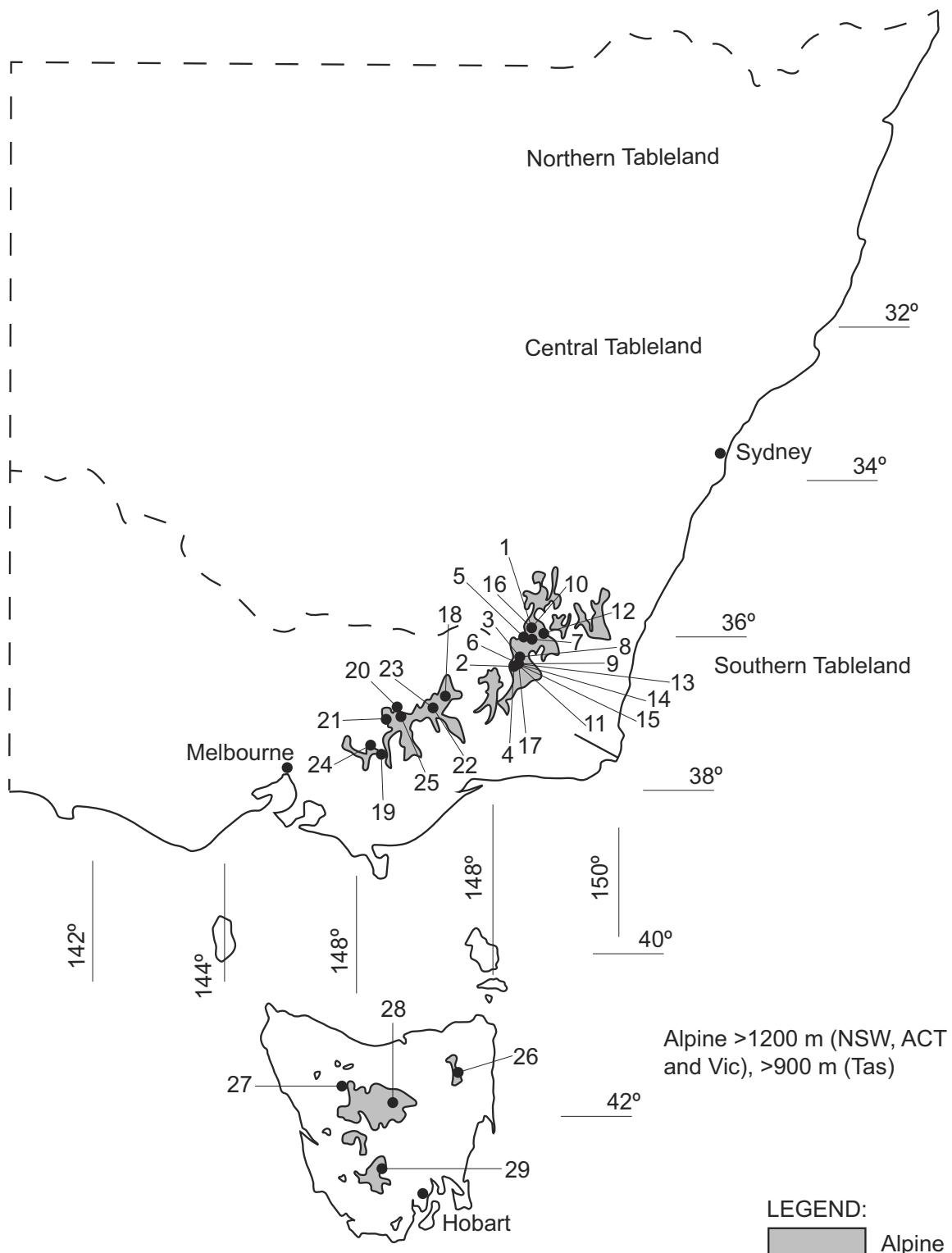
- (b) in New South Wales, the ACT or Victoria more than 1200 m above the Australian Height Datum; and
- (c) in Tasmania more than 900 m above the Australian Height Datum.

**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             |

## Definitions

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

## Definitions

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 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—

## Definitions

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- (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.

## Definitions

- (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 <i>building complexity criteria</i> : (a) (Attributes), (b) (Class 2), (c) (Occupant numbers) or (d) (Occupant characteristics)  |
| Medium                    | The building meets two of the following <i>building complexity criteria</i> : (a) (Attributes), (b) (Class 2), (c) (Occupant numbers) or (d) (Occupant characteristics)   |
| High                      | The building meets three of the following <i>building complexity criteria</i> : (a) (Attributes), (b) (Class 2), (c) (Occupant numbers) or (d) (Occupant characteristics)   |
| Very high                 | The building meets all of the following <i>building complexity criteria</i> : (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 in masonry veneer construction, a void between a leaf of masonry and the supporting frame.

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

*SA Cell type silo*

*TAS Centre-based care class 4 facility*

*TAS Centre-based care class 5 facility*

**Certificate of Accreditation:** A certificate issued by a State or Territory accreditation authority stating that the properties and performance of a building material or method of construction or design fulfil specific requirements of the NCC.

**Certificate of Conformity:** A certificate issued under the ABCB scheme for products and systems certification stating that the properties and performance of a building material or method of construction or design fulfil specific requirements of the NCC.

**Certification body:** A person or organisation operating in the field of material, product, form of construction or design

## Definitions

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certification that has been accredited by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ), and is accredited for a purpose other than as part of the CodeMark Australia Certification Scheme or *WaterMark Certification Scheme*.

**Characteristic:** The occupant data to be used in the modelling of access solutions which define how an occupant interacts with a building, i.e. occupant movement speeds, turning ability, reach capability, perception of luminance contrast and hearing threshold.

*VIC Children's service*

**Clad frame:** Timber or metal frame construction with exterior timber or sheet wall cladding that is not sensitive to minor movement and includes substructure masonry walls up to 1.5 m high.

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

**Table 3: Climate zones for thermal design**

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

## Definitions

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

## Definitions

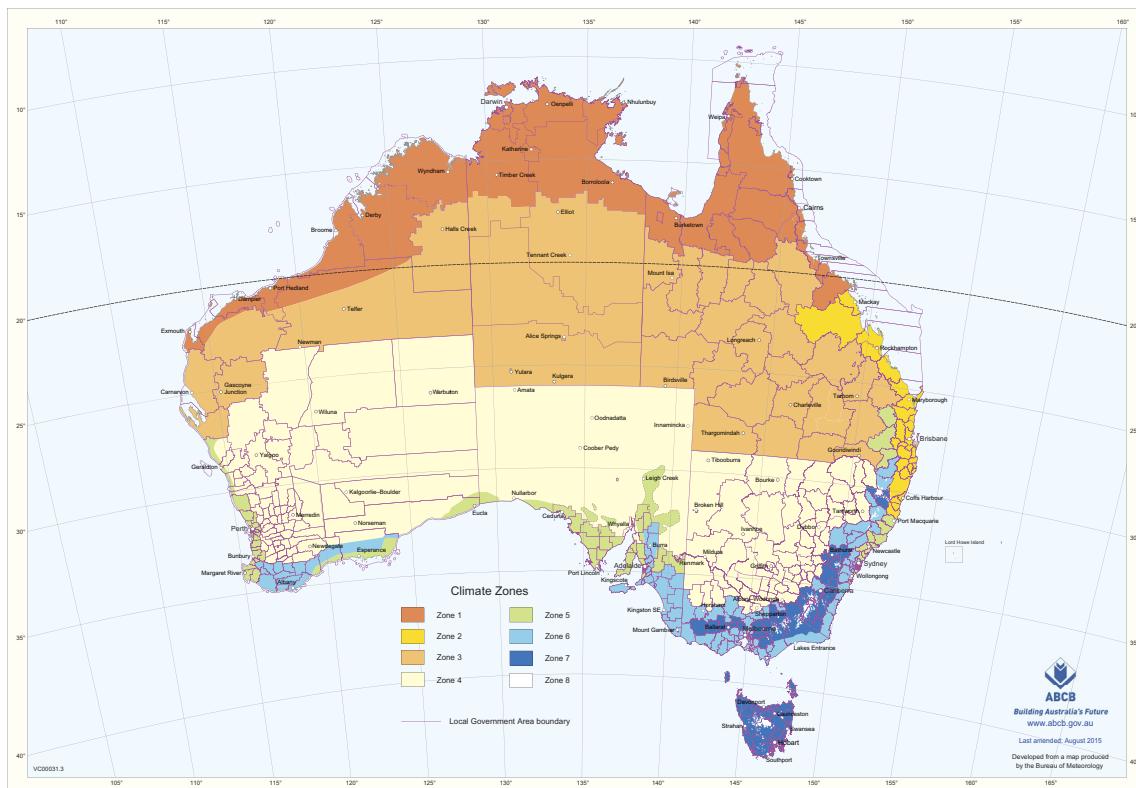
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| State | Location        | <i>Climate zone</i> |
|-------|-----------------|---------------------|
| SA    | Renmark         | 5                   |
| SA    | Tarcoola        | 4                   |
| SA    | Victor Harbour  | 6                  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

## Definitions

| State | Location           | Climate zone |
|-------|--------------------|--------------|
| 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](http://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

## Definitions

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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](http://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*.

**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.

*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 moisture on the surface of a building element or material as a result of moist air coming into contact with a surface which is at a lower temperature.

**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, 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*

**Controlled fill:** Material that has been placed and compacted in layers with compaction equipment (such as a vibrating plate) within a defined moisture range to a defined density requirement.

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

**Cooling load:** The calculated amount of energy removed from the cooled spaces of the building annually by artificial means to maintain the desired temperatures in those spaces.

**Critical radiant flux (CRF):** The critical heat flux at extinguishment (CHF in kW/m<sup>2</sup>) as determined by AS ISO 9239.1.

**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*.

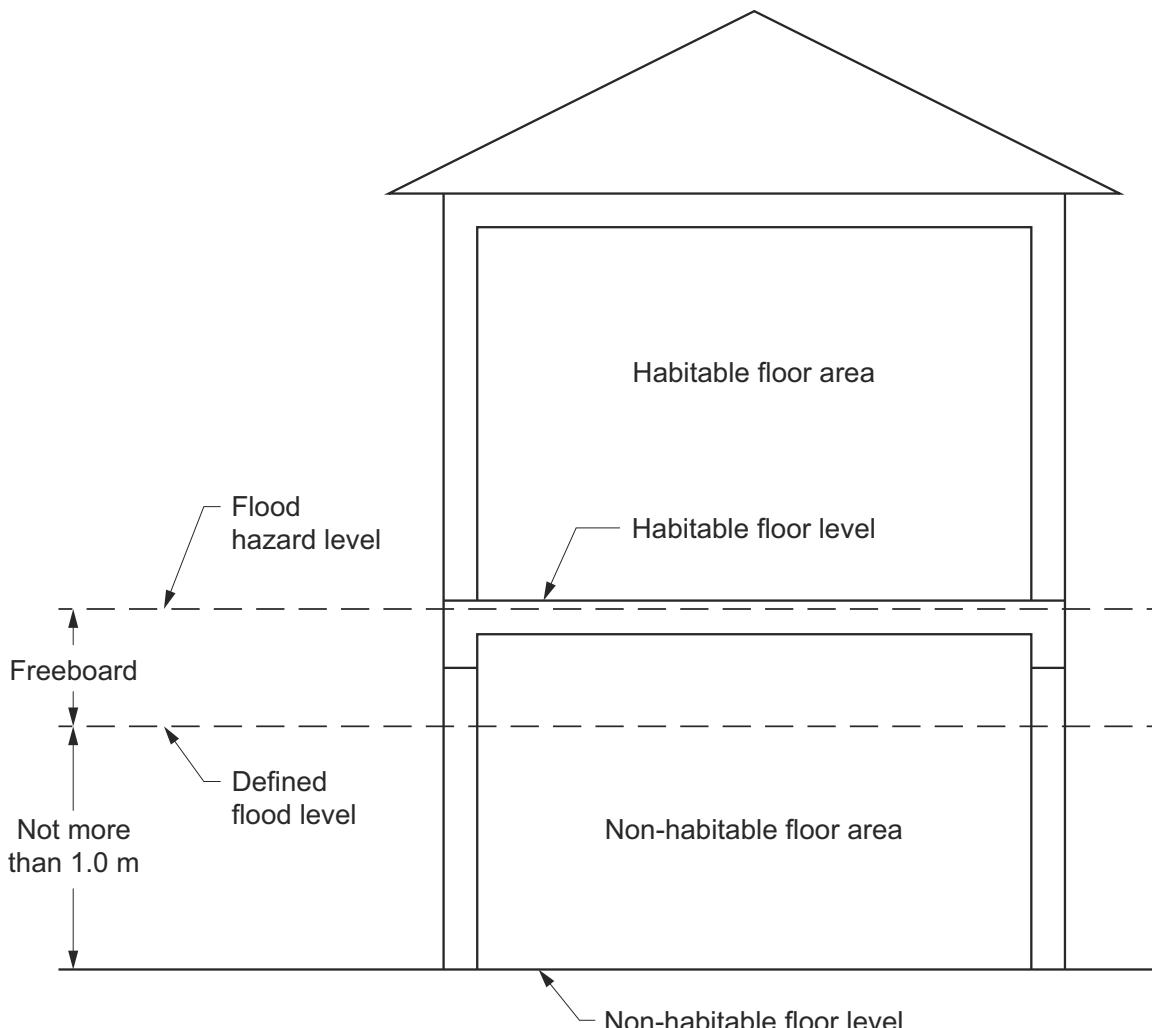
## Definitions

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

**Defined flood event (DFE):** The flood event selected for the management of flood hazard for the location of specific development as determined by the *appropriate authority*.

**Defined flood level (DFL):** The flood level associated with a *defined flood event* relative to a specified datum (see Figure 3).

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



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

### NSW Designated bushfire prone area

**Designated bushfire prone area:** Land which has been designated under a power of legislation as being subject, or likely to be subject, to bushfires.

**Design bushfire:** The characteristics of a bushfire, its initiation, spread and development, which arises from weather conditions, topography and fuel (vegetation) in a given setting, used to determine *fire actions*.

**Design fire:** The quantitative description of a representation of a fire within the *design scenario*.

**Design scenario:** The specific scenario of which the sequence of events is quantified and a *fire safety engineering* analysis is conducted against.

### WA Design wind speed

**Design wind speed:** The design gust wind speed for the area where the building is located, calculated in accordance with AS/NZS 1170.2 or AS 4055 (see Table 4 for wind classes).

## Definitions

Table 4: Wind classes

| Non-cyclonic Region A and B  | Cyclonic Region C and D  |
|--|--|
| N1, N2, N3   | C1   |
| N4, N5, N6 (these wind classes are covered in the 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.

**Drinking water:** Water intended primarily for human consumption but which has other domestic uses.

### Explanatory Information

See also the Australian Drinking Water Guidelines produced by the National Health and Medical Research Council.

*TAS Early childhood centre*

*VIC Early childhood centre*

**Early childhood centre:** Any premises or part thereof providing or intending to provide a centre-based education and care service within the meaning of the Education and Care Services National Law Act 2010 (Vic), the Education and Care Services National Regulations and centre-based services that are licensed or approved under State and Territory children's services law, but excludes education and care primarily provided to school aged children in outside school

## Definitions

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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 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) a non-*conditioned space* including—
    - (A) the floor of a rooftop plant room, lift-machine room or the like; and
    - (B) the floor above a *carpark* or warehouse; and
    - (C) the *common wall* with a *carpark*, warehouse or the like; or
- (b) Part H6 in NCC Volume Two and Section 13 of the ABCB Housing Provisions, the parts of a building's *fabric* that separate artificially heated or cooled spaces from—
  - (i) the exterior of the building; or
  - (ii) other spaces that are not artificially heated or cooled.

**Equivalent:** Equivalent to the level of health, safety and amenity provided by the *Deemed-to-Satisfy Provisions*.

**Evacuation route:** The continuous path of travel (including *exits*, *public corridors* and the like) from any part of a building, including within a *sole-occupancy unit* in a Class 2 or 3 building or Class 4 part, to a *safe place*.

**Evacuation time:** The time calculated from when the emergency starts for the occupants of the building to evacuate to a *safe place*.

**Exit:** Means—

- (a) Any, or any combination of the following if they provide egress to a road or *open space*:
  - (i) An internal or external stairway.
  - (ii) A ramp.
  - (iii) A *fire-isolated passageway*.
  - (iv) A doorway opening to a road or *open space*; or
- (b) A *horizontal exit* or a *fire-isolated passageway* leading to a *horizontal exit*.

*TAS Expert judgement*

**Expert judgement:** The judgement of an expert who has the qualifications and experience to determine whether a *Performance Solution* or *Deemed-to-Satisfy Solution* complies with the *Performance Requirements*.

### Explanatory Information

Contemporary and relevant qualifications and/or experience are necessary to determine whether a *Performance*

## Definitions

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**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 m<sup>2</sup> 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 m<sup>2</sup>.

**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 m<sup>2</sup> but not more than 2000 m<sup>2</sup>.

**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

## Definitions

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(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) *Average specific extinction area, critical radiant flux* and *Flammability Index*, determined as defined in Schedule 1.

(b) *Smoke-Developed Index, smoke development rate* and *Spread-of-Flame Index*, determined in accordance with Specification 3.

(c) *Group number* and *smoke growth rate index* (SMOGRA<sub>RC</sub>), determined in accordance with Specification 7.

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

**Fire-isolated passageway:** A corridor, hallway or the like, of *fire-resisting construction*, which provides egress to or from a *fire-isolated stairway* or *fire-isolated ramp* or to a road or *open space*.

**Fire-isolated ramp:** A ramp within a *fire-resisting* enclosure which provides egress from a *storey*.

**Fire-isolated stairway:** A stairway within a *fire-resisting shaft* and includes the floor and roof or top enclosing structure.

**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-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

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- (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—

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

- save life, protect property and preserve the environment and heritage from destructive fire; and
- quantify the hazards and risk of fire and its effects; and
- mitigate fire damage by proper design, construction, arrangement and use of buildings, materials, structures, industrial processes and transportation systems; and
- 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—

- warn people of an emergency; or
- provide for safe evacuation; or
- restrict the spread of fire; or
- extinguish a fire,

and includes both active and passive systems.

**Fire-source feature:** Any one or more of the following:

- The far boundary of a road, river, lake or the like adjoining the allotment.
- A side or rear boundary of the allotment.
- An *external wall* of another building on the allotment which is not a Class 10 building.

**Fire wall:** A wall with an appropriate resistance to the spread of fire that divides a *storey* or building into *fire compartments*.

**Fixed wired:** For the purposes of Specification 23, a system of electrical wiring (either AC or DC), in which cables are fixed or supported in position.

**Flammability Index:** The index number as determined by AS 1530.2.

### VIC Flashing

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

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

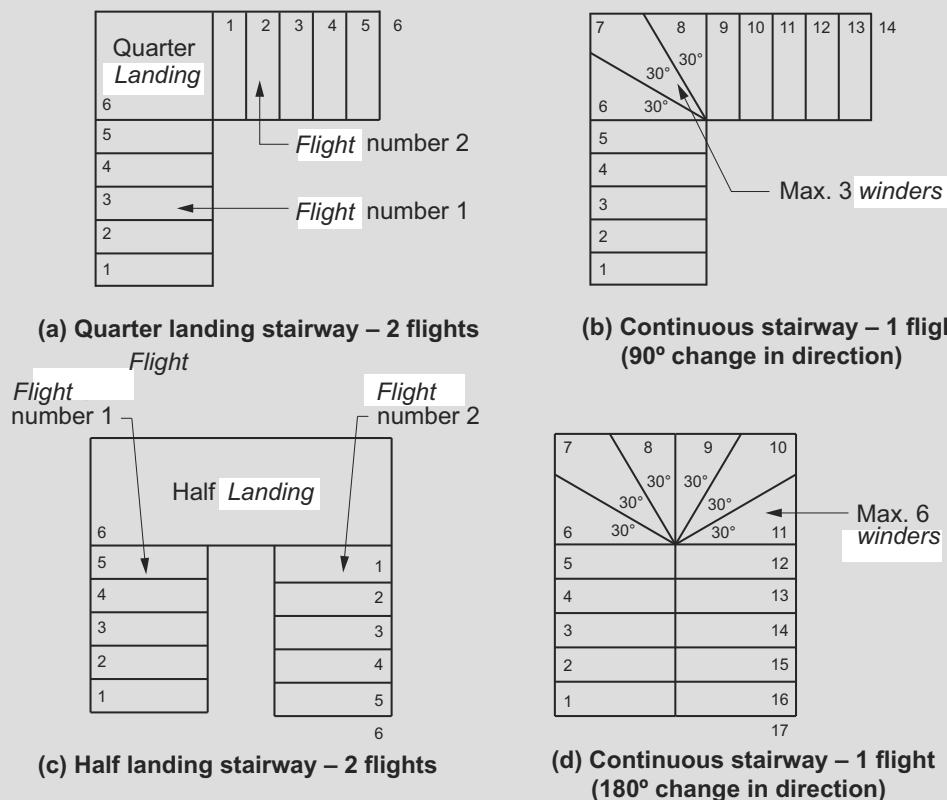
## Definitions

### 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**



### 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—

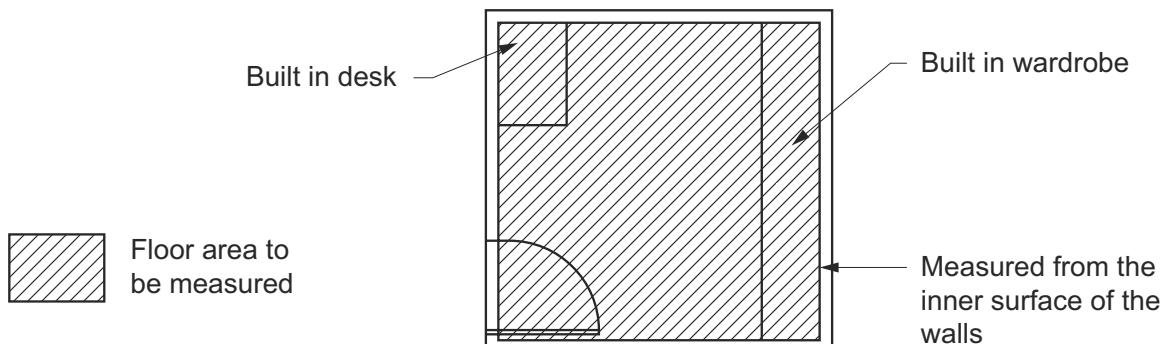
- (1) Volume One—
  - (a) in relation to a building — the total area of all *storeys*; and
  - (b) in relation to a *storey* — the area of all floors of that *storey* measured over the enclosing walls, and includes—
    - (i) the area of a *mezzanine* within the *storey*, measured within the finished 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

## Definitions

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

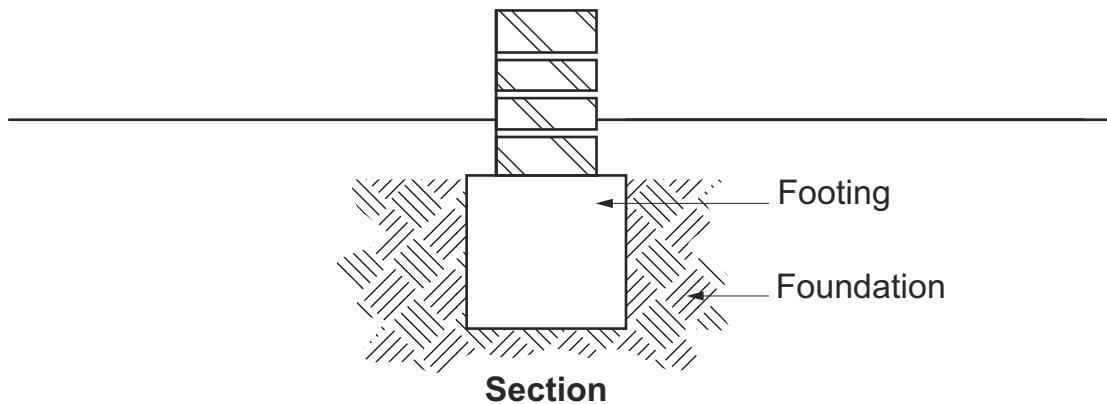


**Floor waste:** A grated inlet within a graded floor intended to drain the floor surface.

*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<sub>2</sub> 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—

## Definitions

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- (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 greater than 20% of the peak occupancy.

**House energy rating software:** For the purposes of—

- (a) Volume One, 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).

## Definitions

### 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<sup>2</sup>.

### 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.

**JAS-ANZ:** The Joint Accreditation System of Australia and New Zealand.

**Lamp power density:** The total of the maximum power rating of the lamps in a space, other than those that are plugged into socket outlets for intermittent use such as floor standing lamps, desk lamps or work station lamps, divided by the area of the space, and expressed in W/m<sup>2</sup>.

### 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

## Definitions

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.

## Definitions

### 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.

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

*NSW Minimum lateral clearance*

**Mixed construction:** A building consisting of more than one form of construction, particularly in double-storey buildings.

**Mould:** A fungal growth that can be produced from conditions such as dampness, darkness, or poor ventilation.

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

**Network Utility Operator:** A person who—

- (a) undertakes the piped distribution of *drinking water* or *non-drinking water* for supply; or
- (b) is the operator of a sewerage system or a stormwater *drainage* system.

### Explanatory Information

A Network Utility Operator in most States and Territories is the water and sewerage authority licensed to supply water and receive sewage and/or stormwater. The authority operates or proposes to operate a network that undertakes the distribution of water for supply and undertakes to receive sewage and/or stormwater drainage. This authority may be a licensed utility, local government body or council.

**Non-combustible:** Applied to—

- (a) a material — means not deemed *combustible* as determined by 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*.

**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

## Definitions

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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*.

*VIC On-site wastewater management system*

**On-site wastewater management system:** A system that receives and/or treats wastewater generated and discharges the resulting effluent to an *approved disposal system* or re-use system.

**Open-deck carpark:** A carpark in which all parts of the parking *storeys* are cross-ventilated by permanent unobstructed openings in not fewer than 2 opposite or approximately opposite sides, and—

- (a) each side that provides ventilation is not less than  $\frac{1}{6}$  of the area of any other side; and
- (b) the openings are not less than  $\frac{1}{2}$  of the wall area of the side concerned.

**Open space:** A space on the allotment, or a roof or similar part of a building adequately protected from fire, open to the sky and connected directly with a public road.

**Open spectator stand:** A tiered stand substantially open at the front.

**Other property:** All or any of the following—

- (a) any building on the same or an adjoining allotment; and
- (b) any adjoining allotment; and
- (c) a road.

**Outdoor air:** Air outside the building.

**Outdoor air economy cycle:** A mode of operation of an *air-conditioning* system that, when the *outdoor air* thermodynamic properties are favourable, increases the quantity of *outdoor air* used to condition the space.

**Outfall:** That part of the disposal system receiving *surface water* from the *drainage* system and may include a natural water course, kerb and channel, or soakage system.

**Overflow 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

## Definitions

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- (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.

### 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

## Definitions

Acts, Regulations and codes that apply within the *Network Utility Operator's* licensed area and/or jurisdiction.

### WA Potable water

**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, prefabricated *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—

## Definitions

- (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 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 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*.

**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

## Definitions

- (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.

## Definitions

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**Riser:** The height between consecutive treads and between each *landing* and continuous tread.

*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<sup>2</sup>.K/W.

**Safe place:** Either—

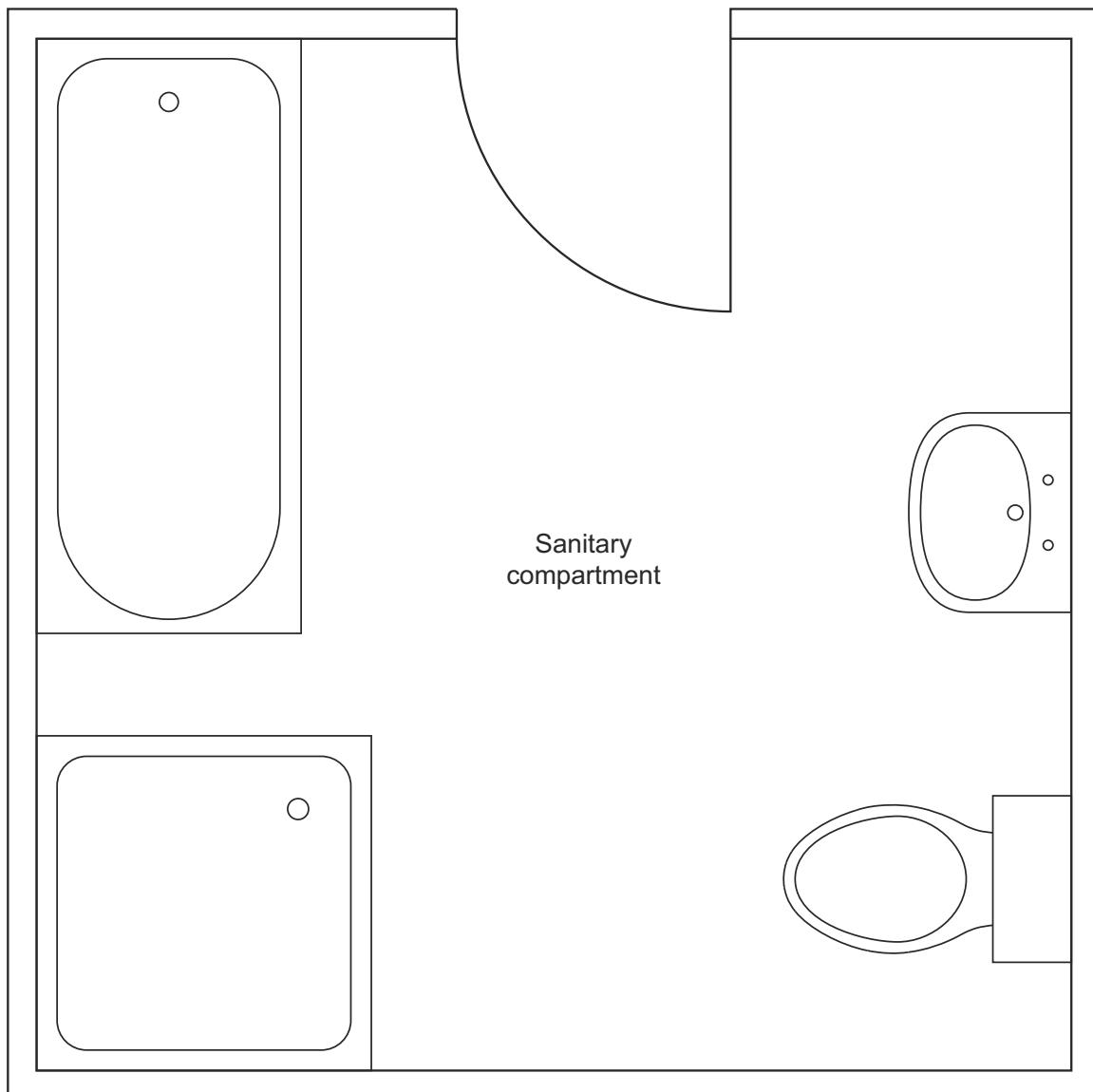
- (a) a place of safety within a building—
  - (i) which is not under threat from a fire; and
  - (ii) from which people must be able to safely disperse after escaping the effects of an emergency to a road or *open space*; or
- (b) a road or *open space*.

**Sanitary compartment:** A room or space containing a closet pan or urinal (see Figures 6a and 6b).

## Definitions

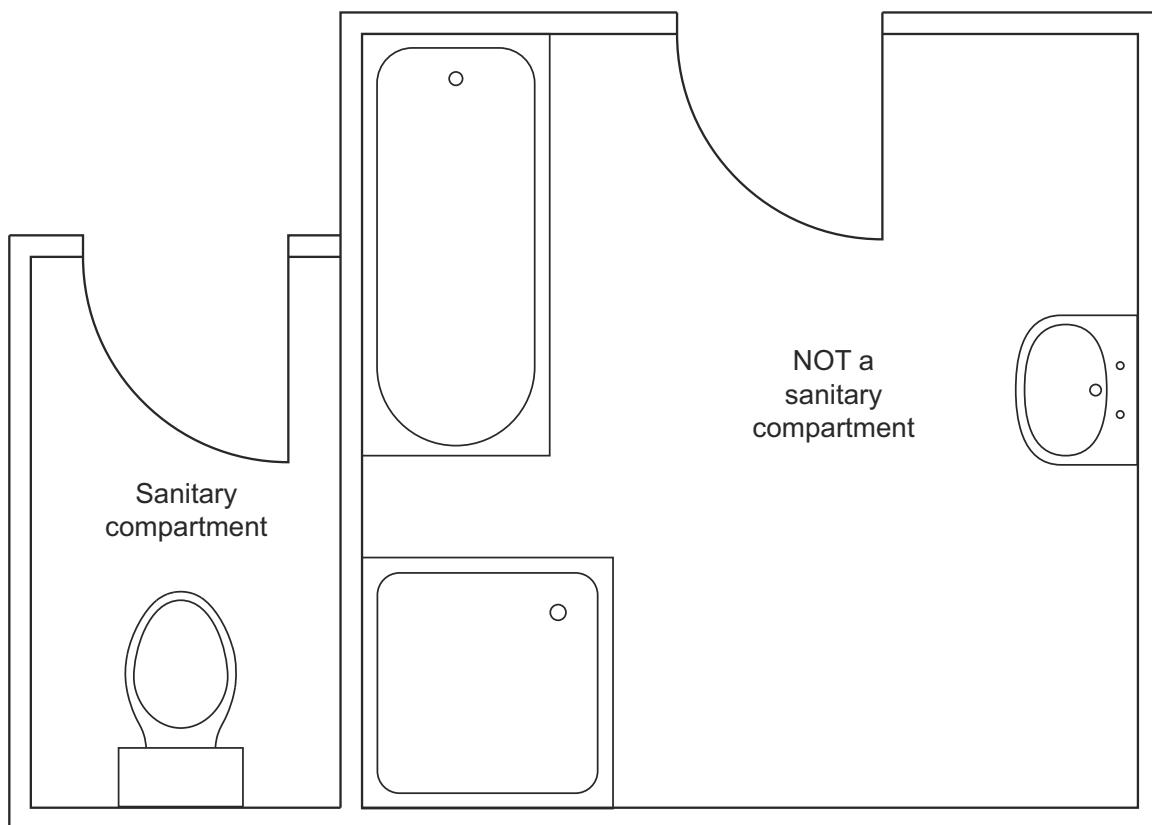
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Figure 6a: Identification of a sanitary compartment (diagram a)



## Definitions

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*

**Screeed:** 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.

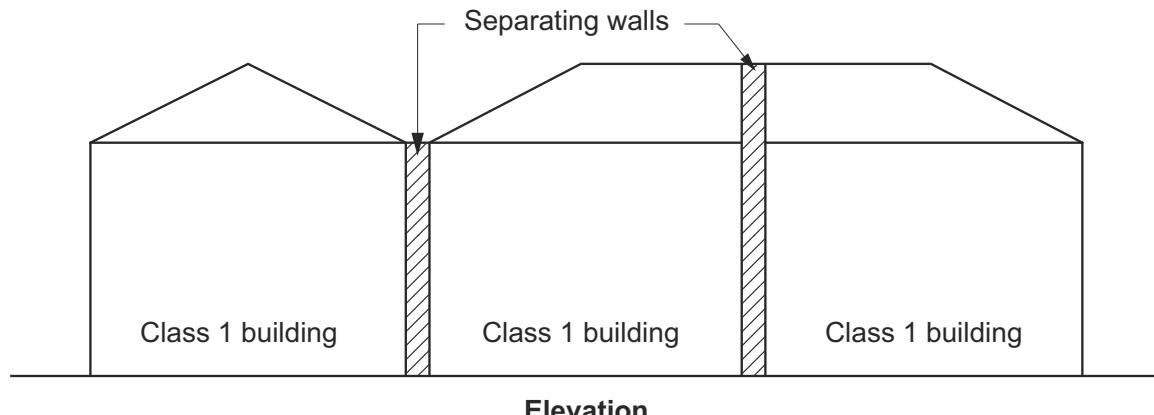
**Sensible heat gain:** The heat gained which causes a change in temperature.

**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).

## Definitions

Figure 7: Separating wall



### 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.

**Small-sized, low-speed automatic lift:** A restricted use power-operated device for the infrequent raising or lowering of people with limited mobility on a platform that is controlled automatically but has the capability of being electrically isolated by a key-lockable control.

**Smoke-and-heat vent:** A vent, located in or near the roof for smoke and hot gases to escape if there is a fire in the building.

**Smoke-Developed Index:** The index number for smoke as determined by AS/NZS 1530.3.

## Definitions

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

**Smoke growth rate index (SMOGRA<sub>RC</sub>):** 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.

**Sole-occupancy unit:** A room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes—

- (a) a dwelling; or
- (b) a room or suite of rooms in a Class 3 building which includes sleeping facilities; or
- (c) a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or
- (d) a room or suite of associated rooms in a Class 9c building, which includes sleeping facilities and any area for the exclusive use of a resident.

*NSW Spa pool*

**Spandrel panel:** For the purposes of Section J, means the opaque part of a façade in curtain wall construction which is commonly adjacent to, and integrated with, *glazing*.

*NSW Special fire protection purpose*

**Spiral stairway:** A stairway with a circular plan, winding around a central post with steps that radiate from a common centre or several radii (see Figures 11.2.2d and 11.2.2e in the ABCB Housing Provisions).

**Spread-of-Flame Index:** The index number for spread of flame as determined by AS/NZS 1530.3.

**Sprinkler alarm switch:** For the purposes of Specification 23, a device capable of sending an electrical signal to activate an alarm when a residential sprinkler head is activated (e.g. a flow switch).

**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.

*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.

**Surface water:** All naturally occurring water, other than sub-surface water, which results from rainfall on or around the *site* or water flowing onto the *site*.

**Swimming pool:** Any excavation or structure containing water and principally used, or that is designed, manufactured or adapted to be principally used for swimming, wading, paddling, or the like, including a bathing or wading pool, or spa.

**Tapered tread:** A stair tread with a walking area that grows smaller towards one end.

*NSW Temporary structure*

*TAS Temporary structure*

## Definitions

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**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*.

**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<sup>2</sup>.K/W.

**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<sup>-2</sup>K<sup>-1</sup>.

**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.

## Definitions

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**Wall-glazing construction:** For the purposes of Section J in Volume One, the combination of wall and *glazing* components comprising the *envelope* of a building, excluding—

- (a) *display glazing*; and
- (b) opaque non-glazed openings such as doors, vents, penetrations and shutters.

**Ward area:** That part of a *patient care area* for resident patients and may contain areas for accommodation, sleeping, associated living and nursing facilities.

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

**WaterMark Certification Scheme:** The ABCB scheme for certifying and authorising *plumbing* and *drainage products*.

**WaterMark Conformity Assessment Body (WMCAB):** A conformity assessment body registered with and accredited by the *JAS-ANZ* to conduct evaluations leading to *product* certification and contracted with the *administering body* to issue the *WaterMark Licence*.

**WaterMark Licence:** A licence issued by a *WaterMark Conformity Assessment Body*.

**WaterMark Schedule of Excluded Products:** The list maintained by the *administering body* of *products* excluded from the *WaterMark Certification Scheme*.

**WaterMark Schedule of Products:** The list maintained by the *administering body* of *products* included in the *WaterMark Certification Scheme*, and the specifications to which the *products* can be certified.

### Explanatory Information

The *WaterMark Schedule of Products* and the *WaterMark Schedule of Excluded Products* can be viewed on the ABCB website at [www.abcb.gov.au](http://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/NZS ISO 717 Part 1 | 2004 | 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     | 2004 | 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   | B1D3, B1D4, Spec 4, F3V1, 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        | 2007 | Structural design actions — Earthquake actions in Australia (incorporating amendments 1 and 2)   | B1D3                                 | H1D4, H1D5, H1D6, H1D9 | 2.2.3                                       | N/A          |
| AS 1191               | 2002 | Acoustics — Method for laboratory measurement of airborne sound transmission insulation of building elements   | Spec 29                              | N/A                    | N/A   | N/A          |
| AS 1273               | 1991 | Unplasticized PVC (UPVC) downpipe and fittings for rainwater   | N/A                                  | N/A                    | 7.4.2                                       | N/A          |
| AS 1288               | 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          |

## Referenced documents

| 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 (See Note 10)                                  | N/A  | N/A        | 7.2.2              | N/A              |
| AS 1428 Part 1                | 2009 | Design for access and mobility — General requirements for access — New building work (incorporating amendments 1 and 2)  | D3D11, D3D16, D3D22, D4D2, D4D3, D4D4, D4D7, D4D10, D4D11, D4D13, Spec 16, E3D10, 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                | 1994 | Methods for fire tests on building materials, components and structures — Combustibility test for materials  | Schedule 1   | Schedule 1 | Schedule 1         | 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)                                 | Schedule 1   | Schedule 1 | Schedule 1         | 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                                 | Schedule 1, Spec 3  | Schedule 1, Spec 3        | Schedule 1         | 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 | 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 2)  | B1D4, F3D2, F3D5  | H1D7                      | N/A                | N/A                |
| AS 1562 Part 3     | 2006 | Design and installation of sheet roof and wall cladding — Plastic   | B1D4, F3D2  | 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                       | N/A                | N/A                |
| AS/NZS 1664 Part 1 | 1997 | Aluminium structures — Limit state design (incorporating amendment 1)   | B1D4  | N/A                       | 2.2.4              | N/A                |
| AS/NZS 1664 Part 2 | 1997 | Aluminium structures — Allowable stress design (incorporating amendment 1)  | B1D4  | N/A                       | 2.2.4              | N/A                |

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| 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     | 2012 | The use of ventilation and air conditioning in buildings — Mechanical ventilation in buildings (incorporating amendments 1 and 2)   | E2D12, F6V1, F6D6, F6D11, F6D12, F8D4, J6D4  | H4V3, H4D7 | 10.8.2  | N/A          |
| AS 1668 Part 4     | 2012 | The use of ventilation and air conditioning in buildings — Natural ventilation of buildings   | F6D11  | N/A        | N/A   | N/A          |
| AS 1670 Part 1     | 2018 | Fire detection, warning, control and intercom systems — System design, installation and commissioning — Fire (incorporating amendment 1) (See Note 3)                                   | 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     | 2018 | Fire detection, warning, control and intercom systems — System design, installation and commissioning — Fire alarm monitoring (incorporating amendment 1) (See Note 3)                  | Spec 20, Spec 23   | N/A        | N/A   | N/A          |
| AS 1670 Part 4     | 2018 | Fire detection, warning, control and intercom systems — System design, installation and commissioning — Emergency warning and intercom systems (incorporating amendment 1) (See Note 3) | 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   | B1D4, B1D5, F1D8   | 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          |

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| AS 1684 Part 3     | 2021 | Residential timber-framed construction — Cyclonic areas   | B1D4, B1D5, F1D8 | 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     | 2010 | Residential timber-framed construction — Simplified — Non-cyclonic areas (incorporating amendment 1)                    | B1D4, B1D5, F1D8 | 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       | H1V1, 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     | 2012 | Swimming pool safety — Safety barriers for swimming pools   | G1D2, G1D4       | H7D2       | N/A   | N/A          |
| AS 1926 Part 2     | 2007 | Swimming pool safety — Location of safety barriers for swimming pools (incorporating amendments 1 and 2)                | G1D2             | H7D2       | N/A   | N/A          |
| AS 1926 Part 3     | 2010 | Swimming pool safety — Water recirculation systems (incorporating amendment 1)  | G1D2             | H7D2       | N/A   | N/A          |

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| AS 2047            | 2014          | Windows and external glazed doors in buildings (incorporating amendments 1 and 2) (See Note 4)  | B1D4, F3V1, F3D4, J5D5     | H1D8, H2V1 | 13.4.4             | N/A          |
| AS 2049            | 2002          | Roof tiles (incorporating amendment 1)  | F3D2                       | H1D7       | N/A                | N/A          |
| AS 2050            | 2018          | Installation of roof tiles  | B1D4, F3D2                 | 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     | 2012          | Automatic fire sprinkler systems — Combined sprinkler and hydrant systems in multistorey buildings  | 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/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          |
| 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       |

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| 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   | 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 (See Note 9)  | 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) (See Note 9) | 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  | 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 8)   | 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         |
| AS/NZS 3500 Part 1 | 2018 | Plumbing and drainage — Water services   | N/A                        | N/A        | N/A  | B5D6         |

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| AS/NZS 3500 Part 1   | 2021 | Plumbing and drainage — Water services  | N/A                        | N/A                        | N/A  | B1D3, B1D5, B1D6, B3D3, B5V1, B5D2, B5D3, B5D4, Spec 41, B6D2, B6D3, B6D5, B7D3, |
| AS/NZS 3500 Part 2   | 2021 | Plumbing and drainage — Sanitary plumbing and drainage (incorporating amendment 1)  | N/A                        | N/A                        | N/A  | C1D3, C1V1, C1V2, C1V3, C1V4, C1V5, C2V2, C2D3, C2D4, C3D7                       |
| AS/NZS 3500 Part 3   | 2021 | Plumbing and drainage — Stormwater drainage (See Note 11)   | F1D3                       | H2D2, H2D6                 | 7.4.3  | N/A  |
| AS/NZS 3500 Part 4   | 2021 | Plumbing and drainage — Heated water services (incorporating amendment 1)   | N/A                        | N/A                        | N/A  | B2D2, B2D6, B2D7, B2D8, B2D9, B2D11  |
| AS 3600              | 2018 | Concrete structures (incorporating amendments 1 and 2)  | B1V1, B1D4, Spec 1         | H1V1, 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, F3D5, 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              | 2014 | Smoke alarms using scattered light, transmitted light or ionization (incorporating amendment 1 and 2) (See Note 5)  | Spec 20                    | N/A                        | 9.5.1  | N/A  |
| AS/NZS 3823 Part 1.2 | 2012 | Performance of electrical appliances — Air conditioners and heat pumps — Ducted air conditioners and air-to-air heat pumps — Testing and rating for performance | Spec 33, J6D12             | N/A                        | N/A  | N/A  |

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| AS 3959        | 2018 | Construction of buildings in bushfire-prone areas (incorporating amendments 1 and 2)  | C2D14, F8D5, G5D2, G5D3, Spec 43 | H7D4                   | 10.8.3                                  | B1D4, B2D10, B3D4, C1D4, C2D5 |
| AS/NZS 4020    | 2018 | Testing of products for use in contact with drinking water (See Note 6)   | A5G4                             | A5G4                   | N/A                                     | A5G4                          |
| AS 4055        | 2021 | Wind loads for housing  | Schedule 1                       | H1D6, H1D8, Schedule 1 | 2.2.3, Schedule 1                       | Schedule 1                    |
| AS 4072 Part 1 | 2005 | Components for the protection of openings in fire-resistant separating elements — Service penetrations and control joints (incorporating amendment 1) | C4D15, C4D16                     | N/A                    | 9.3.2                                   | N/A                           |
| AS 4100        | 2020 | Steel structures  | B1D4, Spec 1                     | H1D6, Spec 1           | 4.2.13, 5.6.7                           | Spec 1                        |
| AS 4200 Part 1 | 2017 | Pliable building membranes and underlays — Materials (incorporating amendment 1)  | F3D3, 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)   | F3D3, 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   | F3V1                             | 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 7)   | 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, F3D2                       | 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                        |

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| AS 4654 Part 1     | 2012 | Waterproofing membranes for external above-ground use — Materials   | F1D5                         | H2D8       | N/A                    | N/A          |
| AS 4654 Part 2     | 2012 | Waterproofing membranes for external above-ground use — Design and installation                                 | C2D14, F1D4, F1D5            | H2D8       | N/A                    | N/A          |
| AS 4678            | 2002 | Earth-retaining structures  | N/A                          | H1D3       | N/A                    | N/A          |
| AS 4773 Part 1     | 2015 | Masonry in small buildings — Design (incorporating amendment 1)   | N/A                          | H1D5, H2D4 | 5.6.3, 12.4.3          | N/A          |
| AS 4773 Part 2     | 2015 | Masonry in small buildings — Construction (incorporating amendment 1)   | N/A                          | H1D5, H2D4 | 5.6.3, 12.4.3          | N/A          |
| AS/NZS 4859 Part 1 | 2018 | Thermal insulation materials for buildings — General criteria and technical provisions                          | 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/NZS 4858        | 2004 | Wet area membranes  | N/A                          | N/A        | 10.2.8                 | 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, F3D5                   | 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/NZS 5601 Part 1 | 2013 | Gas installations — General installations   | J1V4                         | H6V3       | N/A                    | N/A          |
| AS 5637 Part 1     | 2015 | Determination of fire hazard properties — Wall and ceiling linings  | Spec 7, Schedule 1           | Schedule 1 | Schedule 1             | Schedule 1   |
| AS ISO 9239 Part 1 | 2003 | Reaction to fire tests for floorings — Determination of the burning behaviour using a radiant heat source       | Schedule 1                   | Schedule 1 | Schedule 1             | 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          |
| AIRAH-DA07         | 2021 | Criteria for moisture control design analysis in buildings  | F8V1                         | H4V5       | N/A                    | N/A          |

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| 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, J1V5       | 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 | Schedule 1         | Schedule 1   |
| 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, J6D11               | N/A        | N/A                | N/A          |
| ABCB                     | 2022 | Fire Safety Verification Method  | C1V4                         | N/A        | N/A                | N/A          |
| ABCB                     | 2022 | Housing Provisions Standard  | N/A                          | Throughout | Throughout         | N/A          |
| ABCB                     | 2022 | Livable Housing Design   | 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          |

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| 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/Annex II, point 2 | 2012 | Eco-design requirements for glandless standalone circulators and glandless circulators integrated in products | J6D8   | N/A        | N/A                | N/A                    |
| 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 |

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| 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   |
| 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, F1D8   | 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   | 2020  | Drinking Water System Components - Lead Content  | 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         |
| TN 61                | N/A   | Cement Concrete and Aggregates Australia — Technical note — Articulated walling  | N/A  | H1D4       | N/A  | N/A          |

| No.                 | Date | Title   | Volume One | Volume Two | Housing Provisions | Volume Three |
|---------------------|------|---|------------|------------|--------------------|--------------|
| WMK NOD<br>2021/4.2 | 2021 | WaterMark Notice of Direction 2021/4.2<br>Certification transition arrangements for lead free plumbing products | A5G4       | A5G4       | N/A                | A5G4         |

**Table Notes**

- (1) For AS/NZS 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) Reports based on AS/NZS ISO 717.1 relating to tests carried out after the NCC reference date for AS/NZS ISO 717.1—2004 must relate to the amended Standard.
- (2) For AS 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.
- (3) For AS 1670.1, AS 1670.3 and AS 1670.4, notwithstanding A4G1(5), until the adoption of NCC 2025 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.
- (4) 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.
- (5) For AS 3786:
  - (a) Tests carried out under AS 3786—2014 Amendment 1 remain valid.
  - (b) Reports based on AS 3786 relating to tests carried out after the NCC reference date for AS 3786—2014 Amendment 2 must relate to the amended Standard.
- (6) Test reports based on the 2005 edition of AS/NZS 4020 will continue to be accepted until 1 May 2024. Test reports prepared after the NCC reference date for the 2018 edition of AS/NZS 4020 must be based on the 2018 edition.
- (7) 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.

- (8) 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.
- (9) For AS 2699 Parts 1 and 3:
  - (a) For AS 2699.1, the 2000 edition has been retained for a transitional period ending on 30 April 2025.
  - (b) For AS 2699.3, the 2002 edition has been retained for a transitional period ending on 30 April 2025.
- (10) For AS 1397, the 2011 edition has been retained for a transitional period ending on 31 August 2023.
- (11) For AS/NZS 3500.3, the 2018 edition has been retained for a transitional period ending on 31 August 2023.

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*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 and Aged Care

#### **Relevant Legislation**

Aged Care Act 1997

### 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 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 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 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 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 2000

#### **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 and the Arts

### **Relevant Legislation**

Airports Act 1996

Airports Regulations 1997

Airports (Building Control) Regulations 1996

Airports (Control of On-Airport Activities) Regulations 1997

Airports (Environmental Protection) Regulations 1997

Airports (Protection of Airspace) Regulations 1996

## **9. Jervis Bay Territory**

### **Administering Agency**

Department of Infrastructure, Transport, Regional Development, Communications 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 2000

## **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 2000

**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 2000

**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 2000

**15. Commonwealth funding for building work**

**Administering Agency**

Department of Employment and Workplace Relations

Australian Building and Construction Commission (ABCC)

Office of the Federal Safety Commissioner (OFSC)

**Relevant Legislation**

Building and Construction Industry (Improving Productivity) Act 2016 (BCIIP Act) (See Notes 1, 2 and 3)

- Code for the Tendering and Performance of Building Work 2016 (Building Code 2016)
- Building and Construction (Improving Productivity) (Accreditation Scheme) Rules 2019 (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**

Building and Construction Industry (Improving Productivity) Act 2016 (BCIIP Act) (See Notes 1, 2 and 3)

Building and Construction (Improving Productivity) (Accreditation Scheme) Rules 2019

Building and Construction Industry (Improving Productivity) (Federal Safety Officers) General Directions 2017

### **Notes**

- (1) The BCIIP Act is concerned with the regulation of Workplace Relations in the building industry, it also establishes the Australian Building and Construction Commission (ABCC) (as the workplace relations regulator for the industry) and the Office of the Federal Safety Commissioner (OFSC).
- (2) The BCIIP Act legislates additional requirements for those building contractors undertaking Commonwealth funded building work through the Building Code 2016, regulated by the ABCC, and the Work Health and Safety Accreditation Scheme (WHS Accreditation Scheme), administered by the OFSC. Of direct relevance to the NCC: Provisions in BCIIP 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.
- (3) The Australian Government has committed to abolish the ABCC and the Building Code 2016. To achieve this, the Government has introduced the Fair Work Legislation Amendment (Secure Jobs, Better Pay) Bill 2022 (the Bill) which would repeal provisions of the BCIIP Act that provide for the ABCC and the Building Code 2016. The Bill would also retain provisions of the BCIIP Act that provide for the OFSC and the WHS Accreditation Scheme in a renamed Act, the Federal Safety Commissioner Act 2022. Builders undertaking Commonwealth-funded building work would still be required to comply with the NCC.

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.

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

Environment, Planning and Sustainable Development Directorate

Chief Minister, Treasury and Economic Development Directorate (regulator)

### Relevant Legislation

[Water and Sewerage Act 2000](#)

## 2. Building

### Administering Agency

Environment, Planning and Sustainable Development Directorate

Chief Minister, Treasury and Economic Development Directorate (regulator)

### Relevant Legislation

[Building Act 2004](#)

## 3. Health

### Administering Agency

ACT Health Directorate

Canberra Health Services

### Relevant Legislation

[Health Act 1993](#)

## 4. Environment

### Administering Agency

Environment, Planning and Sustainable Development Directorate

### Relevant Legislation

[Environment Protection Act 1997](#)

## 5. Gas

### Administering Agency

Environment, Planning and Sustainable Development Directorate

Chief Minister, Treasury and Economic Development Directorate (regulator)

**Relevant Legislation**

Gas Safety Act 2000

**6. Electrical**

**Administering Agency**

Environment, Planning and Sustainable Development Directorate

Chief Minister, Treasury and Economic Development Directorate (regulator)

**Relevant Legislation**

Electricity Safety Act 1971

**7. Utilities**

**Administering Agency**

Environment, Planning and Sustainable Development Directorate

Justice and Community Safety Directorate

Transport Canberra and City Services Directorate

Chief Minister, Treasury and Economic Development Directorate (regulator)

**Relevant Legislation**

Utilities Act 2000

**8. Planning**

**Administering Agency**

Environment, Planning and Sustainable Development Directorate

**Relevant Legislation**

Planning and Development Act 2007

**Schedule 5**

**New South Wales**

**Section A**

**Governing requirements**

|          |                         |
|----------|-------------------------|
| Part A6  | Building classification |
| NSW A6G7 | Class 6 buildings       |

**Section B**

**Water services**

|          |  |
|----------|--|
| Part B1  | Cold water services                          |
| NSW B1D3 | General requirements                         |
| Part B2  | Heated water services                        |
| NSW B2D2 | Water heater in a heated water supply system |
| NSW B2D5 | Maximum delivery temperature                 |
| NSW B2D6 | Temperature control devices                  |
| Part B3  | Non-drinking water services                  |
| NSW B3D3 | General requirements                         |
| Part B5  | Cross-connection control                     |
| NSW B5D6 | Rainwater                                    |
| NSW B5D7 | Cooling tower water service                  |

**NSW Part B4**

**Fire-fighting water services**

**Section C**

**Sanitary plumbing and drainage systems**

|          |                           |
|----------|---------------------------|
| Part C2  | Sanitary drainage systems |
| 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 A6      Building classification

*Delete A6G7 and insert NSW A6G7 as follows:*

#### NSW A6G7      Class 6 buildings

[2019: NSW A6.6]

A Class 6 building is a shop or other building for sale of goods by retail or the supply of services direct to the public, including—

- (a) an eating room, cafe, restaurant, milk or soft drink bar; or
- (b) a dining room, bar, shop or kiosk part of a hotel or motel; or
- (c) a hairdresser's or barber's shop, public laundry, or undertaker's establishment; or
- (d) market or sale room, showroom, or *service station*; or
- (e) *small live music or arts venue*.

## Section B Water services

### Part B1 Cold water services

Delete B1D3 and insert NSW B1D3 as follows:

#### NSW B1D3 General requirements

[2019: NSW B1.4(1)]

A cold water service must be in accordance with AS/NZS 3500.1, with the following additions to clause 5.4.2: (I) 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".

### Part B2 Heated water services

Delete B2D2 and insert NSW B2D2 as follows:

#### NSW B2D2 Water heater in a heated water supply system

This clause has deliberately been left blank.

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 B2D5 and insert NSW B2D5 as follows:

#### NSW B2D5 Maximum delivery temperature

[2019: NSW B2.5(a)(iv)]

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

[2019: NSW B2.6(2)(d), Application 1 and Exemption 1]

- (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—

- (a) all new *heated water* services; or
- (b) 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, heating units in a manifold water heater are replaced.

## Part B3 Non-drinking water services

*Delete B3D3 and insert NSW B3D3 as follows:*

### NSW B3D3 General requirements

[2019: NSW B3.3]

A *non-drinking water* service must be in accordance with AS/NZS 3500.1 with the following additions to clause 10.3—

- (a) 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; and
- (b) 10.3(e): There shall be no connection between treated greywater systems and *drinking water*, rainwater or other sources of supply.

## Part B5 Cross-connection control

*Delete B5D6 and insert NSW B5D6 as follows:*

### NSW B5D6 Rainwater

[New for 2022]

*Drinking water* and *non-drinking water* must:

- (a) be zone protected from *above ground, buried* or *partially buried rainwater tank* in Class 1 buildings, utilising a non-testable device; or
- (b) comply with AS/NZS 3500.1 (2018) Clause 16.4 and Table 16.4 for all other building classes.

### Applications

B5D6 applies to scenarios not covered by S41C6(1)(b).

*Insert NSW B5D7 as follows:*

### NSW B5D7 Cooling tower water service

[2019: NSW B5.501]

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

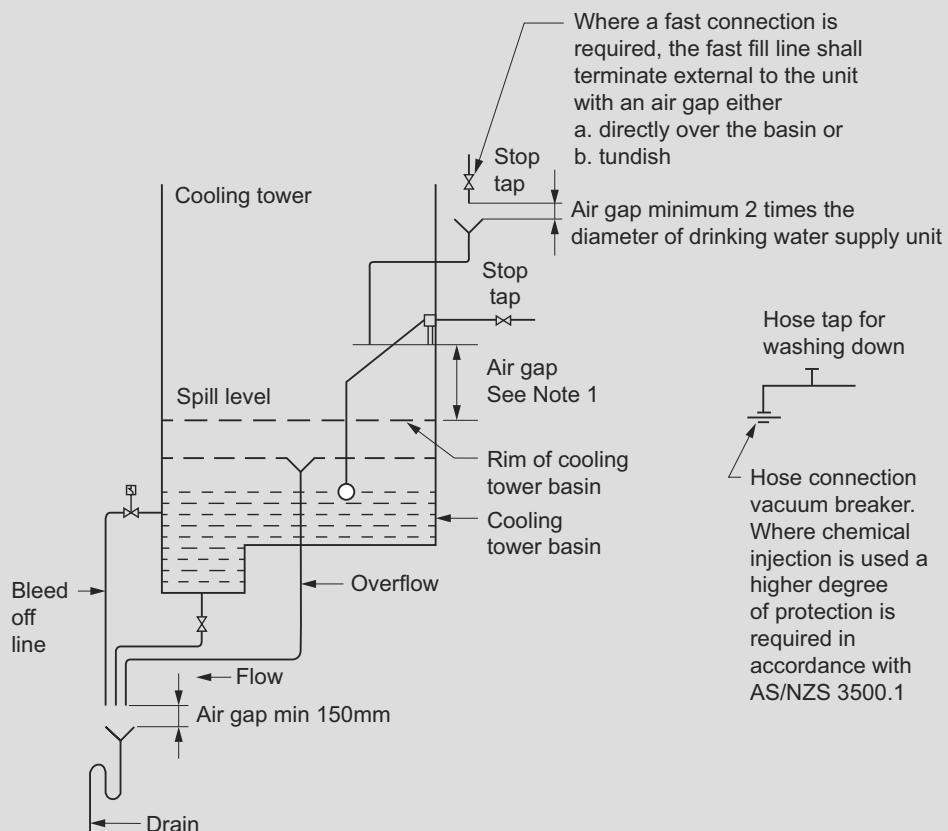
- (c) if a fast fill connection is required, the fast fill line shall terminate externally to the unit, with an air gap over either the basin or a tundish.

### Notes

See NSW Figure B5D7 for typical cooling tower connections.

Insert NSW Figure B5D7 as follows:

**NSW Figure B5D7: Typical cooling tower service**



### Figure Notes

Note 1.

Refer to AS/NZS 3500.1 Part 1 Table 4.6.3.2

## NSW Part B4

## Fire-fighting water services

### Introduction to this Part

Part B4 does not apply in New South Wales.

#### Notes

This Part does not apply in New South Wales as fire-fighting water services are regulated under the Environmental Planning and Assessment Act 1979 and Environmental Planning and Assessment Regulation 2000, which references the Building Code of Australia.

**Section C****Sanitary plumbing and drainage systems****Part C2 Sanitary drainage systems**

Delete C2D4 and insert NSW C2D4 as follows:

**NSW C2D4 General requirements**

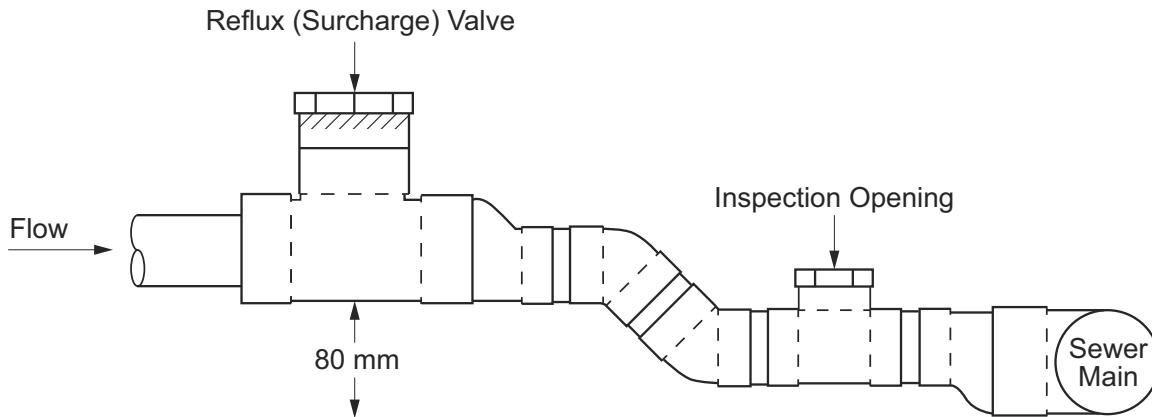
[2019: NSW C2.4]

A sanitary *drainage* system must be in accordance with AS/NZS 3500.2 with the following variations:

- (a) For clause 4.3.1 insert (i) as follows: Must not have DN40 or DN50 traps installed.
- (b) For clause 4.4.1 insert the following as the second paragraph: Boundary trap or inspection shafts cannot terminate within areas of buildings as defined in the NCC as a *habitable room*. See NCC "Definitions" and delete 'but' from (a) and replace with ',' and delete 'excludes' from (b).
- (c) After clause 4.5.2(b) insert (c) as follows: 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.
- (d) Substitute clause 4.5.3 as follows: Where a surcharge is likely to occur and a reflux valve is to be installed, it shall be located in accordance with (i) and (ii) as follows:
  - (i) Where the drain has an inspection shaft or boundary trap, the reflux valve shall be located immediately downstream from and adjacent to the outlet of the shaft or trap.
  - (ii) The invert of the outlet of the reflux valve shall be installed a minimum of 80 mm higher than the invert of the *Network Utility Operator's* system it is connected to. See **NSW Figures C2D4a and C2D4b**.
- (e) After clause 4.7.1(h) insert (i) as follows: At each branch off a main line internal of the building connecting one or more water closets or slop hoppers. In these cases, inspection openings must be raised to finished surface level in an accessible position and sealed with an airtight cover. If access to the under floor area is more than 600 mm above the inspection opening, the riser may be omitted.
- (f) After clause 12.7(g) insert (h) as follows: Sewage management facilities shall be accredited by NSW Health and comply with local government requirements. 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. 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.

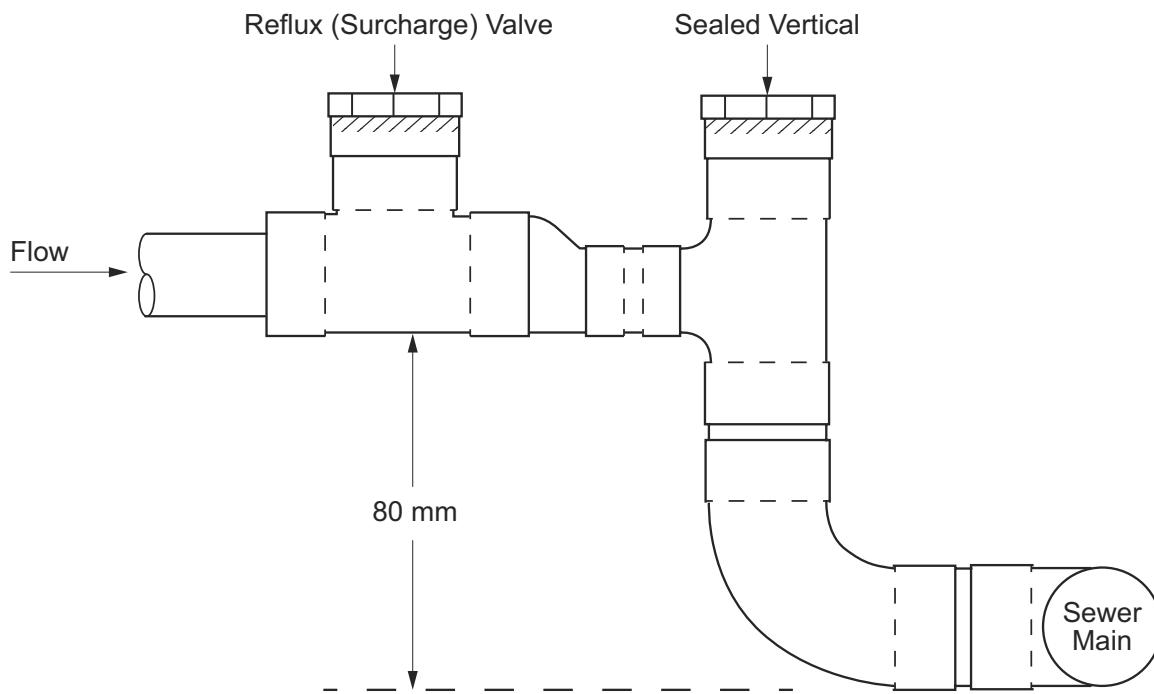
Insert NSW Figure C2D4a as follows:

**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.

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 2005.

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.

**Continental seating:** *Rows* of seating in which the *rows* extend the full width of an *auditorium* without intervening *aisles*.

**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:

- (a) has been designated under legislation; or
- (b) has been identified under an environmental planning instrument, development control plan or in the course of processing and determining a development application,

as land that can support a bushfire or is likely to be subject to bushfire attack.

**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.

**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.

**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.

**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.

**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  | NSW I4D61                           | N/A                                | N/A                |
| AS 1603          | 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)                 | NSW I5D14                           | N/A                                | N/A                |
| AS/NZS 3002      | 2008 | Electrical installations — Shows and carnivals  | 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 G5D3, NSW Schedule 1            | NSW H7D4, 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 G5D3, NSW G5D4, NSW Schedule 1  | NSW Schedule 1, NSW H7D4           | NSW Schedule 1     |
| 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     |

## New South Wales

| No.             | Date | Title                      | Volume One         | Volume Two         | Housing Provisions |
|-----------------|------|----------------------------|--------------------|--------------------|--------------------|
| 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 G1D5           | N/A                | N/A                |

### Table Notes

(1) Heat alarms complying with AS 1603.3 must be a class type A1 or A2.

## 1. Plumbing and Drainage

### Administering Agency

Office of Local Government

### Relevant Legislation

Local Government Act 1993

Local Government (General) Regulation 2021

### Administering Agency

NSW Fair Trading

### Relevant Legislation

Plumbing and Drainage Act 2011

Plumbing and Drainage Regulation 2017

### Approval to Connect to Network Utility Operator's System

Refer to the *Network Utility Operator* for the current Act and Regulation

Hunter Water Act 1991

Sydney Water Act 1994

Water Industry Competition Act (WICA) 2006

## 2. Building

### Administering Agency

Department of Planning and Environment

### Relevant Legislation

Environmental Planning and Assessment Act 1979

Environmental Planning and Assessment Regulation 2000

## 3. Health

### Administering Agency

NSW Ministry of Health

### Relevant Legislation

Public Health Act 2010

Public Health Regulation 2012

## 4. Environment

### Administering Agency

Office of Environment & Heritage

### Relevant Legislation

Protection of the Environment Operations Act 1997

## 5. Gas

### **Administering Agency**

Department of Planning and Environment, Energy, Water and Portfolio Strategy

### **Relevant Legislation**

Gas Supply Act 1996

Gas Supply (Safety and Network Management) Regulation 2013

### **Administering Agency**

NSW Fair Trading

### **Relevant Legislation**

Gas and Electricity (Consumer Safety) Act 2017

Gas and Electricity (Consumer Safety) Regulation 2018

## 6. Electrical

### **Administering Agency**

NSW Fair Trading

### **Relevant Legislation**

Electricity (Consumer Safety) Act 2017

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    |

**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.

## Section D      Excessive noise

### Part D1      Excessive noise

#### D1D1      Deemed-to-Satisfy Provisions

[2019: D1.1]

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 | 2011     | Structural design actions: Wind actions Amdt 1, 2, 3, 4 and 5                              | NT S4C3          | N/A        | N/A                   |
| AS 2047            | 2014     | Windows and external glazed doors in buildings (incorporating amendments 1 and 2) See Note | B1D4, F3V1, F3D4 | 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 4254 Part 1     | 2012     | 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      | 2018     | Thermal insulation materials for buildings — General criteria and technical provisions     | N/A              | N/A        | NT 13.2.2, NT 13.7.4  |
| BCA 2009           | May 2009 | Building Code of Australia   | NT Section J     | N/A        | N/A                   |
| BCA 2019           | May 2009 | 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 Infrastructure, Planning and Logistics

Department of Attorney-General and Justice

**Relevant Legislation**

Building Act

Building Regulations

Plumbers and Drainers Licencing Act

**2. Building**

**Administering Agency**

Department of Infrastructure, Planning and Logistics

**Relevant Legislation**

Building Act

Building Regulations

**3. Health**

**Administering Agency**

Department of Health

**Relevant Legislation**

Public and Environmental Health Act

Public and Environmental Health Regulations

**4. Planning**

**Administering Agency**

Department of Infrastructure, Planning and Logistics

**Relevant Legislation**

Planning Act

**5. Gas**

**Administering Agency**

Department of Attorney-General and Justice (NT WorkSafe)

**Relevant Legislation**

Dangerous Goods Act

## **6. Electrical**

**Administering Agency**

Department of Attorney-General and Justice (NT WorkSafe)

### **Relevant Legislation**

Electrical Workers and Contractors Act

Electricity Reform Act

Electrical Reform (Safety and Technical) Regulations

## **7. Water Supply and Sewage Services**

**Administering Agency**

Power and Water Corporation

### **Relevant Legislation**

Water Supply and Sewerage Services Act

Water Supply and Sewerage Services Regulations

**Schedule 7**

**Queensland**

**Introduction**

**Section B**

**Water services**

|          |  |
|----------|--|
| Part B1  | Cold water services                          |
| B1D2     | Water efficiency                             |
| Part B2  | Heated water services                        |
| QLD B2P7 | 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.

## Section B Water services

### Part B1 Cold water services

#### B1D2 Water efficiency

[2019: B1.2]

*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.

### Part B2 Heated water services

*Delete B2P7 and insert QLD B2P7 as follows:*

#### QLD B2P7 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 |
|----------|---------------|--|---------------|--------------------|--------------------|
| BCA 2009 | May 2009      | Building Code of Australia   | QLD Section J | N/A                | N/A                |
| 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  | N/A           | QLD H7P1, QLD H7D2 | 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 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**

[2019: SA A6.6]

A Class 6 building is a shop or other building for the sale of goods by retail or the supply of services direct to the public, including—

- (a) an eating room, cafe, restaurant, milk or soft drink bar; or
- (b) a dining room, bar, shop or kiosk part of a hotel or motel; or
- (c) a hairdresser's or barber's shop, public laundry, or undertaker's establishment; or
- (d) market or sale room, showroom, or *service station*; or
- (e) a *small arts venue*.

## Section 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

[2019: SA B2.2]

- (1) In an established Class 1 building connected to a reticulated gas supply or a new Class 1 or Class 10 building, a water heater must be one of the following types:
  - (a) A natural gas or LPG water heater, either instantaneous, continuous flow or storage, that has an energy rating of 5 stars or more.
  - (b) A natural gas or LPG boosted solar water heater, with a total tank volume of not more than 700 litres, that is eligible for any number (one or more) of STCs.
  - (c) An electric boosted solar water heater or electric heat pump water heater (air source or solar boosted), with a single tank, that is eligible for the minimum small-scale technology certificates shown in [SA Table B2D2](#).
  - (d) A wood combustion water heater, with no additional heating mechanisms, with a total tank volume of not more than 700 litres.
  - (e) A wood combustion boosted solar water heater, with no additional heating mechanisms, with a total tank volume of not more than 700 litres.
- (2) In an established Class 1 building that is not connected to a reticulated gas supply, a water heater must be one of the following types:
  - (a) A water heater complying with the requirements set out in (1).
  - (b) An electric water heater with a rated hot water delivery of no greater than 250 litres.
  - (c) An electric instantaneous water heater, having a water storage capacity no greater than one litre and total electrical input no greater than 15.0 kW.
- (3) The requirements of (1) and (2) do not apply to any of the following:
  - (a) Water heaters serving buildings other than Class 1.
  - (b) Repairs to water heaters including:
    - (i) Like for like replacements that are the result of manufacturer, supplier or installer warranty arrangements.
    - (ii) Replacement of a single major component of a solar or electric heat pump water heater (for example, a heat pump compressor/evaporator unit, a solar collector, or a storage tank).
  - (c) Secondary electric water heaters of up to 55 litres rated delivery, which do not serve a shower or bath.
  - (d) Temporary electric water heaters of up to 55 litres rated delivery, for a period not exceeding 60 days, pending installation of a complying water heater.
  - (e) An electric or gas vented (gravity fed) water heater, located in a roof space of an established Class 1 building, of no greater than 250 litres rated hot water delivery.
  - (f) A gas water heater installed entirely within a fully enclosed roof space, room or attached garage of an established Class 1 building, providing the water heater has an energy rating of 3 stars or more.

*Insert SA Table B2D2 as follows:*

#### SA Table B2D2: Small-scale technology certificates

| Year | Tank volume of 400 litres or more and not more than 700 litres | Tank volume of more than 220 litres and less than 400 litres | Tank volume of not more than 220 litres |
|------|--|--|---|
| 2022 | 34 in zone 3* and/or 32 in zone 4                              | 24 in zone 3 and/or 23 in zone 4                             | 15 in zone 3 and/or 14 in zone 4        |

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| Year | Tank volume of 400 litres or more and not more than 700 litres | Tank volume of more than 220 litres and less than 400 litres | Tank volume of not more than 220 litres |
|------|--|--|---|
| 2023 | 30 in zone 3 and/or 28 in zone 4                               | 21 in zone 3 and/or 20 in zone 4                             | 13 in zone 3 and/or 12 in zone 4        |
| 2024 | 26 in zone 3 and/or 25 in zone 4                               | 18 in zone 3 and/or 18 in zone 4                             | 11 in zone 3 and/or 11 in zone 4        |
| 2025 | 22 in zone 3 and/or 21 in zone 4                               | 16 in zone 3 and/or 15 in zone 4                             | 10 in zone 3 and/or 9 in zone 4         |

**Table Notes**

\* Zones are defined by the [Clean Energy Regulator](#)

**Explanatory Information: Connection to a reticulated gas supply**

A property is connected to a reticulated gas supply if it has a piped connection to a gas distribution system and this connection is capable of supplying gas to gas equipment and/or appliances.

A property is not connected to a reticulated gas supply if:

- It does not have a piped connection to a gas distribution system; or
- It has a piped connection to a gas distribution system but this connection is not capable of supplying gas to gas equipment and/or appliances (for example, if the supply has been physically disconnected at the meter by the gas network operator).

Reticulated gas includes:

- Reticulated natural gas; or
- Reticulated compressed gas of some other type (including LPG, SNG or TLP gas).

**Explanatory Information: Gas water heaters**

The energy ratings for natural gas and LPG water heaters are available at: [http://www.agasasn.au/product\\_directory](http://www.agasasn.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>

The STC values specified in Section SA B2D2 for either CER Zones 3 or 4 may be used to demonstrate compliance, regardless of the actual zone in which the water heater is to be installed.

Delete B2D5 and insert SA B2D5 as follows:

**SA B2D5 Maximum delivery temperature**

[New for 2022]

- (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.

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- (2) *Heated water* services in buildings constructed after 19 October 1995 shall have temperature control in accordance with 1(a) and (b).
- (3) All new solar water installations (including solar water heater replacements) shall be in accordance with 1(a) and (b).
- (4) 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).
- (5) 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**

[2019: SA B2.9]

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 B5D6 and insert SA B5D6 as follows:*

**SA B5D6 Rainwater**

[2019: SA B1.4(1) and (2)]

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

- (a) After 16.4, insert clause 16.4.1 as follows: 16.4.1 A reduction of the *Hazard Rating* listed in table 16.4 may be

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permitted following a risk assessment of the design and installation of the *rainwater tank* and other environmental factors in accordance with clause 16.4.2.

- (b) After 16.4.1, insert clause 16.4.2 as follows: 16.4.2 For *buried rainwater tanks* and *partially buried rainwater tanks* without connection to a *drinking water* supply or with direct or indirect connections to a *drinking water* supply, a dual-check valve may be used in lieu of a testable device for *Containment protection* and *Zone protection* where it has been determined by risk assessment that—
  - (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**

[2019: SA B1.4(1) and (2)]

A *rainwater service* must comply with Section 15 of AS/NZS 3500.1. Additionally, after Clause 15.3.3(c) insert (d)—

- (d) For Class 1 buildings and extensions or additions to Class 1 buildings the following applies.

Where a water service from a rainwater tank interconnect with a water service from a water main supply, the supply to a fixture, appliance or water outlet shall be maintained by a device/mechanism that facilitates a seamless automatic switching from one water service supply to another and vice versa without the need for 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**

[2019: SA C1.3]

A sanitary *plumbing* system must be in accordance with AS/NZS 3500.2 with the following variations:

- (a) 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 arrestor close to the outlet; and (i) at the upstream end of a trade waste drain connected to a trade waste arrestor and fitted with a wind driven turbine ventilator at the termination.
- (b) 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.
- (a) 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.
- (b) 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.
- (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.
- (e) 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 sewerage system via a disconnector gully.

### **Part C2 Sanitary drainage systems**

*Delete C2D4 and insert SA C2D4 as follows:*

#### **SA C2D4 General requirements**

[New for 2020]

A sanitary *drainage* system must be in accordance with AS/NZS 3500.2 with the following variations:

- (a) 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.
- (b) 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.
- (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.

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- (e) 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 sewerage system via a disconnector gully.

**Part C3                  On-site wastewater management**

*Delete C3D2 and insert SA C3D2 as follows:*

**SA C3D2                  Septic tanks**

[New for 2022]

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**

[New for 2022]

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**

[New for 2022]

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**

[New for 2022]

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**

[New for 2022]

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**

[New for 2022]

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.

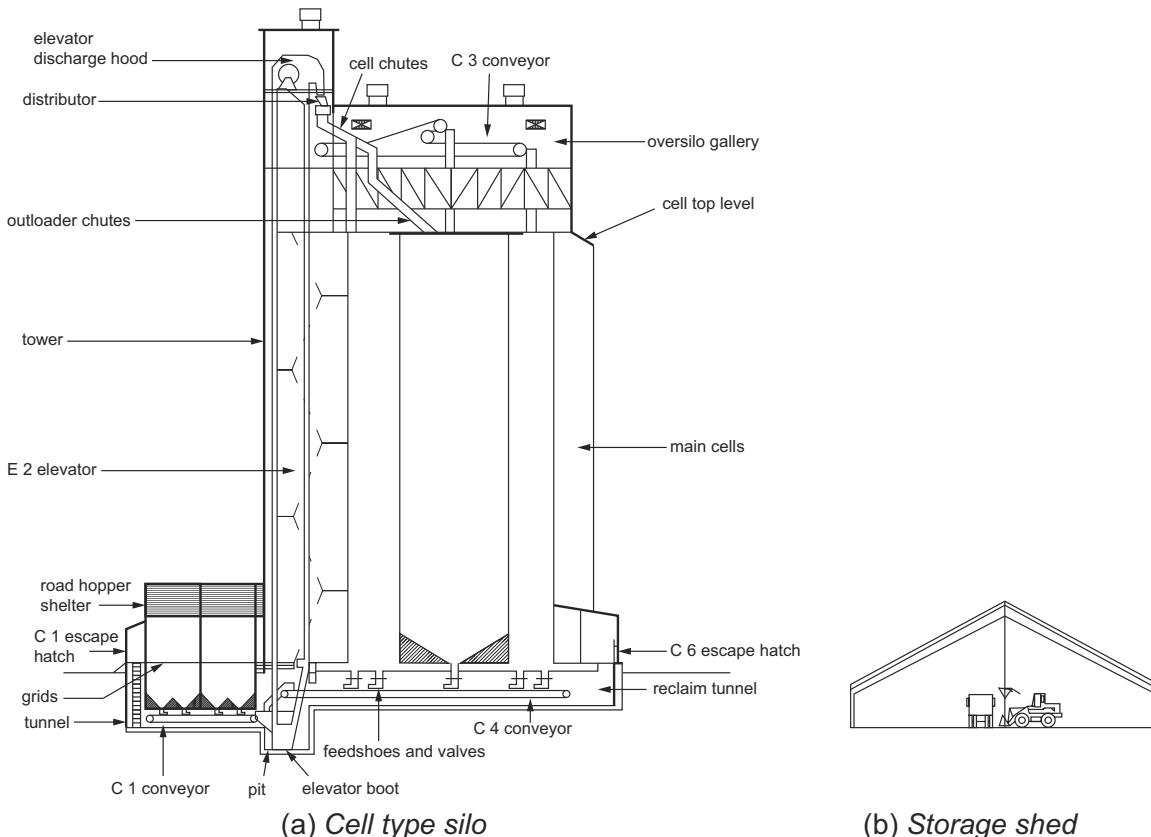
**Brush fence:** A fence or gate that is primarily constructed of Broombrush (*Melalueca Uncinata*).

**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



### 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<sup>2</sup> 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 <sup>2</sup> | 30,000 m <sup>3</sup> |
| Group B        | Buildings used for packing, sorting and/or storage of produce and may include workshops.   | 2,000 m <sup>2</sup> | 12,000 m <sup>3</sup> |
| Group C        | Greenhouses with non-rigid, plastic or fabric covering material.   | 5,000 m <sup>2</sup> | 30,000 m <sup>3</sup> |

**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<sup>2</sup>; 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<br>Amdt 1            | N/A        | N/A        | N/A                | C1D3         |
| AS 1428 Part 1                                    | 2001       | 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          |
| enHealth Council, Department of Health and Ageing | 2004       | Guidance on the use of rainwater tanks   | N/A        | SA H9D5    | 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****Introduction****Section A****Governing requirements**

|         |  |
|---------|--|
| Part A1 | Interpreting the NCC                         |
| A1G4    | Interpretation                               |
| Part A4 | Referenced documents                         |
| A4G1    | Referenced documents                         |
| Part A5 | Documentation of design and construction     |
| A5G4    | Evidence of suitability – Volume Three (PCA) |

**Section B****Water services**

|          |  |
|----------|--|
| Part B1  | Cold water services                          |
| TAS B1P5 | Pressure                                     |
| TAS B1D3 | General requirements                         |
| TAS B1D7 | Cold water storage tanks                     |
| Part B2  | Heated water services                        |
| TAS B2P9 | Pressure                                     |
| TAS B2D2 | Water heater in a heated water supply system |
| TAS B2D6 | Temperature control devices                  |
| Part B7  | Rainwater storage                            |
| TAS B7D2 | Collection of rainwater                      |

**Section C****Sanitary plumbing and drainage systems**

|          |                               |
|----------|-------------------------------|
| Part C2  | Sanitary drainage systems     |
| C2D4     | General requirements          |
| TAS C2D6 | Venting requirements          |
| Part C3  | On-site wastewater management |
| TAS C3P5 | General requirements          |
| TAS C3D6 | Land application systems      |

**TAS Part C4****On-site liquid trade waste systems****Performance Requirements**

|          |  |
|----------|--|
| TAS C4P1 | Health, environment and amenity protection |
| TAS C4P2 | Transferal of liquid trade waste           |
| TAS C4P3 | Design, construction and installation      |

**Deemed-to-Satisfy Provisions**

|           |                      |
|-----------|----------------------|
| TAS C4D1  | Application          |
| TAS C4D2  | General requirements |
| TAS C4D3  | Location             |
| TAS C4D4  | Covers               |
| TAS C4D5  | Materials            |
| TAS C4D6  | Ventilation          |
| TAS C4D7  | Connections          |
| TAS C4D8  | Silt pits            |
| TAS C4D9  | Silt traps           |
| TAS C4D10 | Straining pits       |

|           |  |
|-----------|--|
| TAS C4D11 | Straining traps                                    |
| TAS C4D12 | Grease interceptors                                |
| TAS C4D13 | Portable grease interceptor appliances             |
| TAS C4D14 | Venting of grease traps                            |
| TAS C4D15 | Grease trap installation in multi-storey buildings |
| TAS C4D16 | Oil and petrol interceptors                        |
| TAS C4D17 | Acid neutralising tanks                            |
| TAS C4D18 | Mixing tanks                                       |
| TAS C4D19 | Settling tanks                                     |

## Section E

### TAS Part E2

#### Facilities and ancillary additions

#### Heating, cooling and ventilation systems

##### Objectives

TAS E2O1      Objective

##### Functional Statements

TAS E2F1      Functional statement 1

TAS E2F2      Functional statement 2

##### Performance Requirements

TAS E2P1      Design, construction, installation and maintenance

TAS E2P2      Pressure equipment

TAS E2P3      Microbial control

##### Deemed-to-Satisfy Provisions

TAS E2D1      Application

TAS E2D2      General requirements

### TAS Part E3

#### Stormwater - Roof drainage systems

##### Objectives

TAS E3O1      Objective

##### Functional Statements

TAS E3F1      Functional statements

##### Performance Requirements

TAS E3P1      Roof drainage systems

TAS E3P2      Overflow

TAS E3P3      Watertightness

TAS E3P4      Design, construction and installation

##### Deemed-to-Satisfy Provisions

TAS E3D1      Application

TAS E3D2      General requirements

TAS E3D3      Roofing of liquid trade waste generation areas

### TAS Part E4

#### Stormwater surface and sub-surface drainage systems

##### Objectives

TAS E4O1      Objective

##### Functional Statements

TAS E4F1      Functional statements

##### Performance Requirements

TAS E4P1      Surface drainage systems

TAS E4P2      Subsurface drainage

TAS E4P3              Design, construction and installation

**Deemed-to-Satisfy Provisions**

TAS E4D1              Application

TAS E4D2              General requirements

TAS E4D3              Protection from surface water

**Schedule 1              Definitions**

**Schedule 2              Referenced documents**

**Footnote: Other legislation affecting buildings**

## 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

[2019: A1.0]

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

[2019: A4.0]

Delete A4G1(3) and insert TAS A4G1(3) as follows:

- (3) The following applies:
- (a) All Tasmanian legislative documents referenced within the PCA are taken to be the latest published versions thereof unless noted otherwise.

### Part A5 Documentation of design and construction

#### A5G4 Evidence of suitability – Volume Three (PCA)

[2019: A5.3]

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.

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Products accredited by the Director of Building Control are published in a list available at [www.cbos.tas.gov.au](http://www.cbos.tas.gov.au).

## Section B Water services

### Part B1 Cold water services

*Delete B1P5 and insert TAS B1P5 as follows:*

#### TAS B1P5 Pressure

[2019:BP1.2, TAS Exemption 1]

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

[2019: TAS B1.4(1), (2) and (3)]

- (1) The design, construction, installation, repair, alteration, additions, maintenance and commissioning of cold water services must be in accordance with AS/NZS 3500.1.
- (2) Cold water tanks forming part of a *drinking water* supply must comply with TAS B1D7.
- (3) 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

[2019 TAS B101]

- (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 B2P9 and insert TAS B2P9 as follows:*

### TAS B2P9                  Pressure

[2019:BP2.3, TAS Exemption 1]

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

[2019: TAS B2.2(1)(a) and (d)]

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

[2019: TAS B2.6(d), Application 1 and Exemption 1]

- (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 B7D2 and insert TAS B7D2 as follows:

**TAS B7D2        Collection of rainwater**

[2019:B6.2(2), TAS]

- (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**

[2019: C2.4]

Insert subclause TAS C2D4(2) in clause C2D4 as follows:

- (2) For Tasmanian venting requirements see [TAS C2D6](#).

**TAS C2D6                    Venting requirements**

[2019: TAS H102.1(1) and (3)]

- (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.

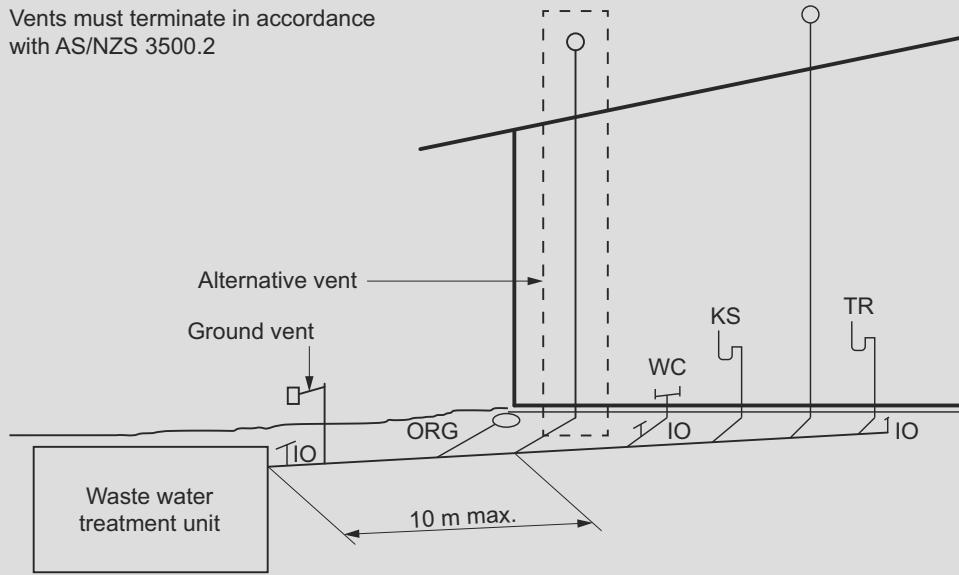
**Explanatory Information**

See [TAS Figure C2D6](#) Alternative venting arrangements

Insert *TAS Figure C2D6 (explanatory)* as follows:

**TAS Figure C2D6 (explanatory):                    Venting requirements**

Vents must terminate in accordance  
with AS/NZS 3500.2



**Part C3            On-site wastewater management**

Delete C3P5 and insert TAS C3P5 as follows:

**TAS C3P5        General requirements**

[New for 2022]

*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**

[2019: HP1.4]

- (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**

[2019: Tas HP2.1]

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**

[2019: Tas HP2.2]

- (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**

[2019: HP2.3]

- (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

[2019: Tas H2.2]

*Performance Requirements* C4P1 to C4P3 are satisfied by complying with C4D2 to C4D19.

#### TAS C4D2 General requirements

[2019: Tas H2.2]

- (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

[2019: H202.2]

- (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**

[2019: H202.2]

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**

[2019: H202.2]

Trade waste appliances must be constructed from materials suitable for the characteristics of the liquid wastes likely to be discharged.

#### **TAS C4D6      Ventilation**

[2019: H202.2]

- (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**

[2019: H202.2]

- (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**

[2019: H202.4a]

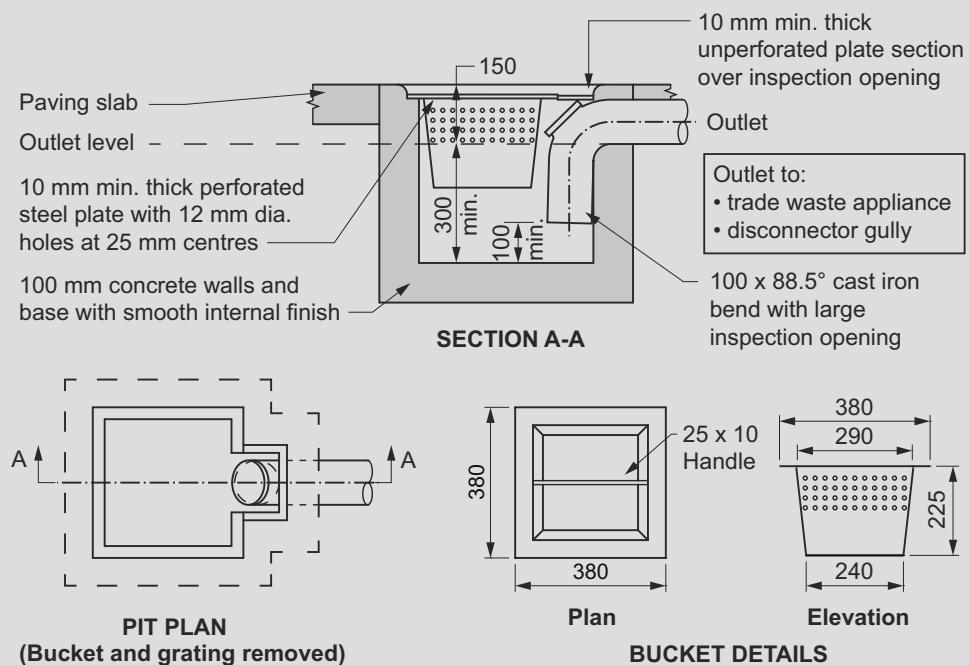
- (1) The silt pit must be connected and authorised by the Permit Authority.
- (2) The silt pit bucket must—
  - (a) be constructed of mild steel plate, minimum 3 mm thick with 4 rows of 10 mm diameter holes at 25 mm centres; and
  - (b) be hot dipped galvanised after fabrication.

**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**

[2019: H202.4b]

- (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.

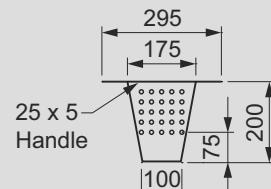
*Insert TAS Figure C4D9 (Explanatory) as follows:*

## TAS Figure C4D9 (Explanatory): Silt traps

Outlet to:  
 • trade waste appliance  
 • direct to drain  
 • direct to stack  
 • disconnector gully



SILT TRAP ASSEMBLY



BUCKET DETAILS

## TAS C4D10 Straining pits

[2019: H202.4c]

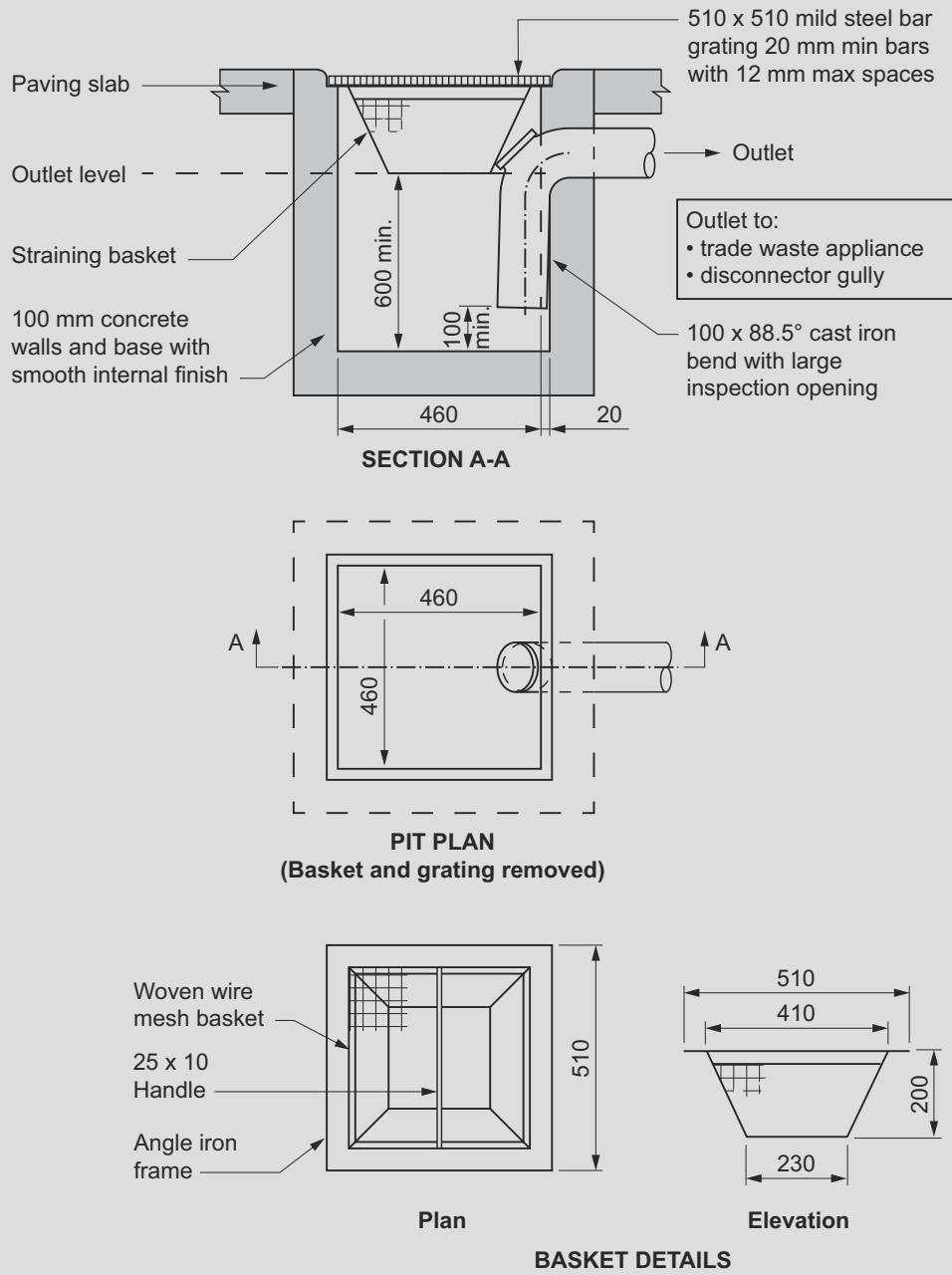
- (1) The straining pit must be connected and authorised by the Permit Authority.
- (2) The straining pit basket must—
  - (a) be constructed of mild steel wire with a minimum diameter of 2.5 mm woven to give 7 mm aperture widths on a 32 mm x 32 mm x 25 mm angle iron frame with mitred corners; or
  - (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

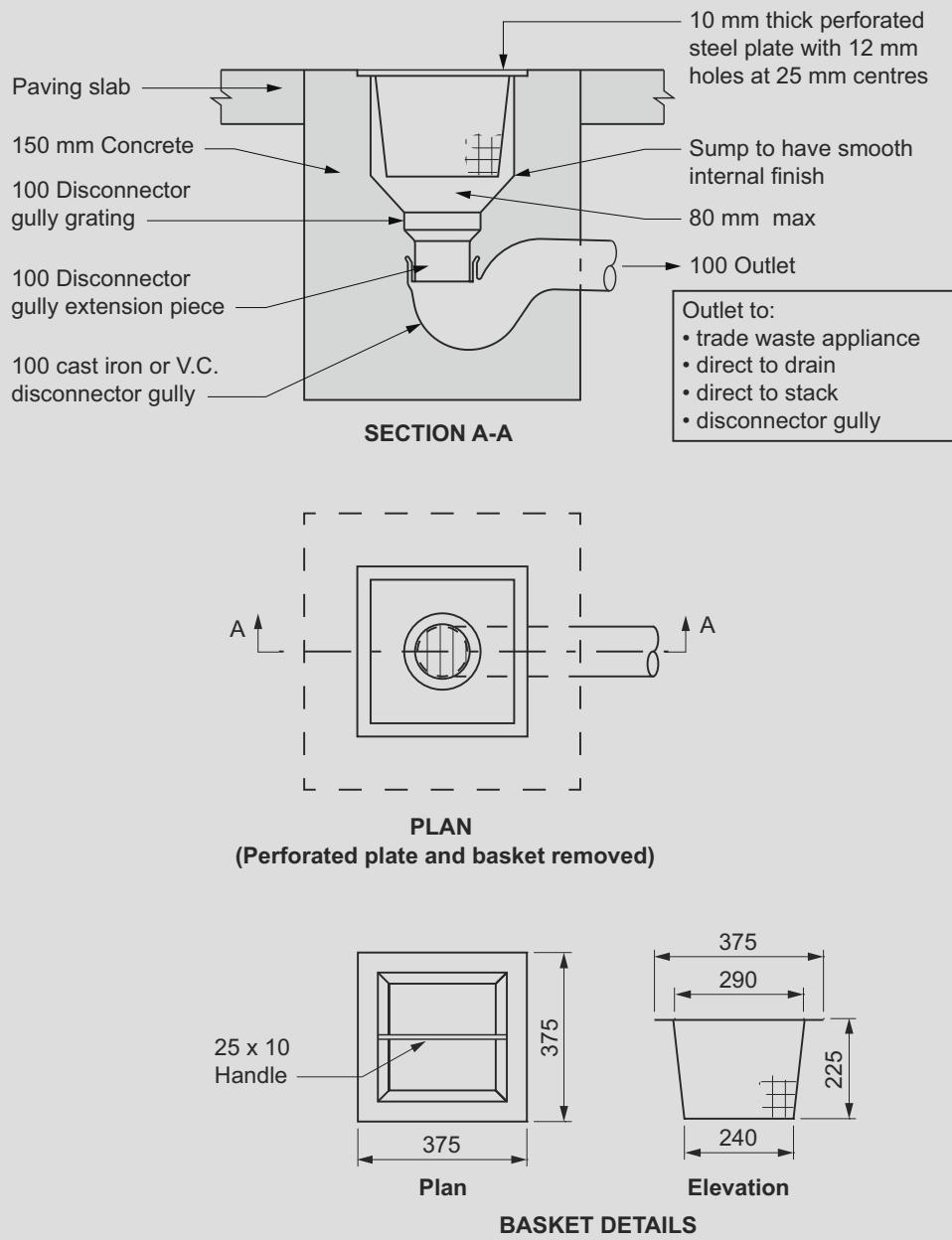
[2019: H202.4d]

- (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****TAS C4D12 Grease interceptors**

[2019: H202.4e]

- (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—

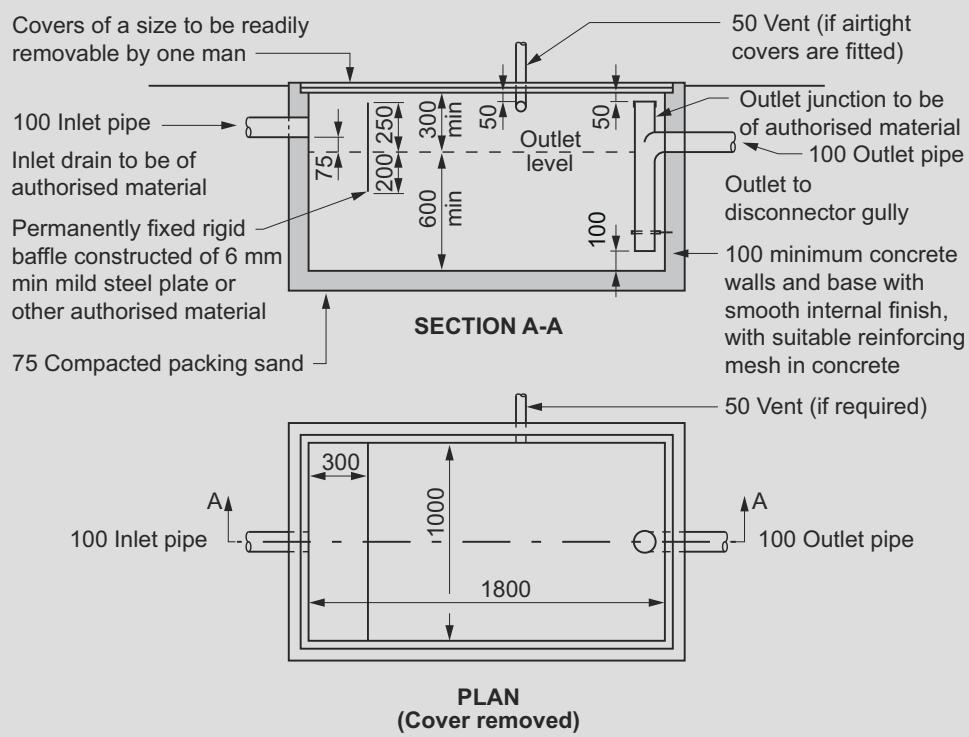
- (a) equivalent to the maximum hourly discharge; and
- (b) no less than 250 litres below the outlet.

### 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

[2019: H202.4f]

- (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—

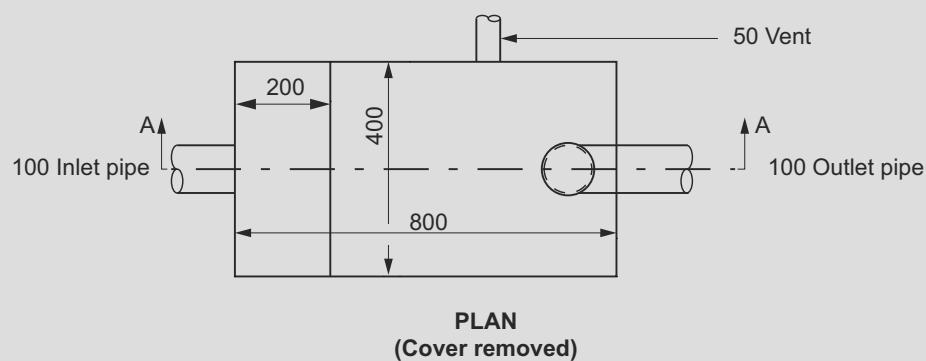
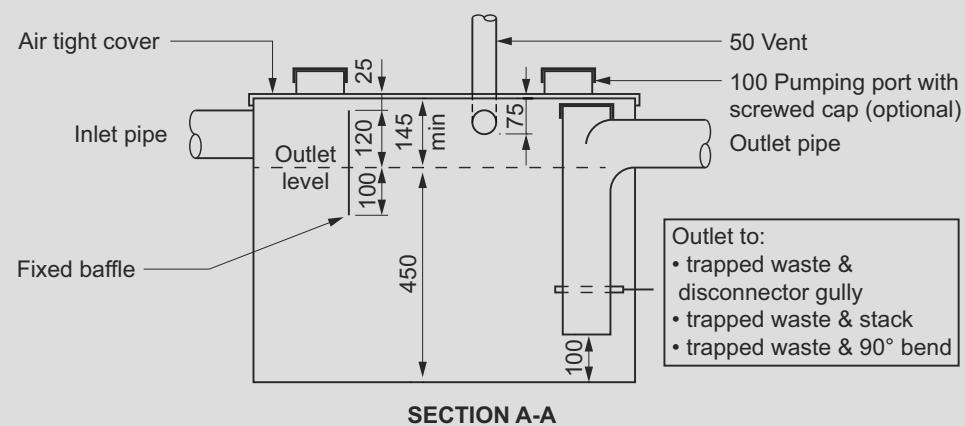
- (a) equivalent to the maximum hourly discharge; and
- (b) no less than 100 litres below the outlet.

### 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**



### TAS C4D14 Venting of grease traps

[2019: H202.4g]

- (1) Grease trap chambers must provide adequate ventilation by providing—

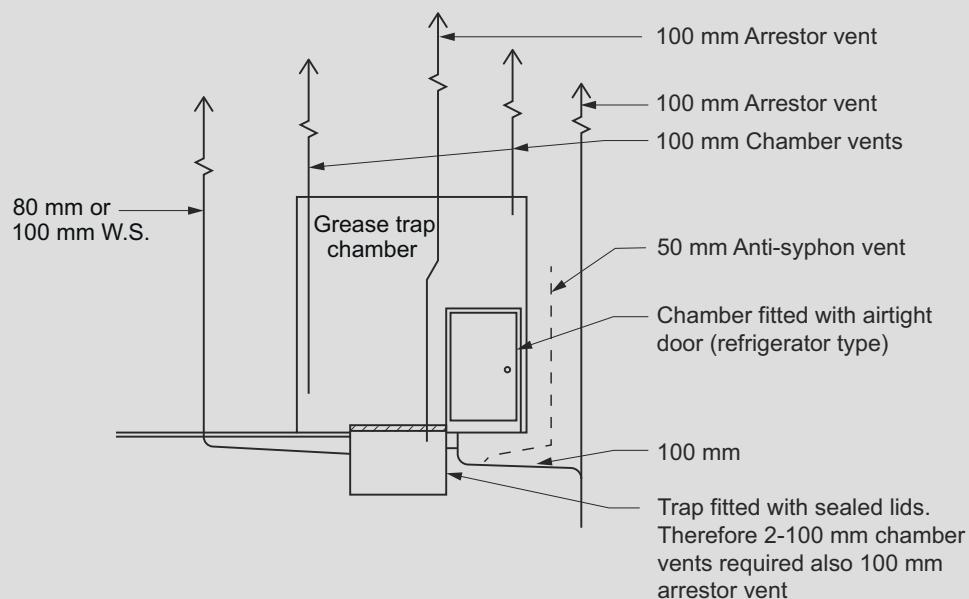
- (a) two DN 100 vents in addition to the ventilation provided for the sanitary *drainage* system; or
  - (b) appropriate mechanical ventilation.
- (2) Anti-siphon vents must be—
- (a) a minimum of DN 50; and
  - (b) connected to the outlet of the grease trap chamber.

#### Explanatory Information

See TAS Figure C4D14a and TAS Figure C4D14b for typical venting arrangement for grease trap chambers.

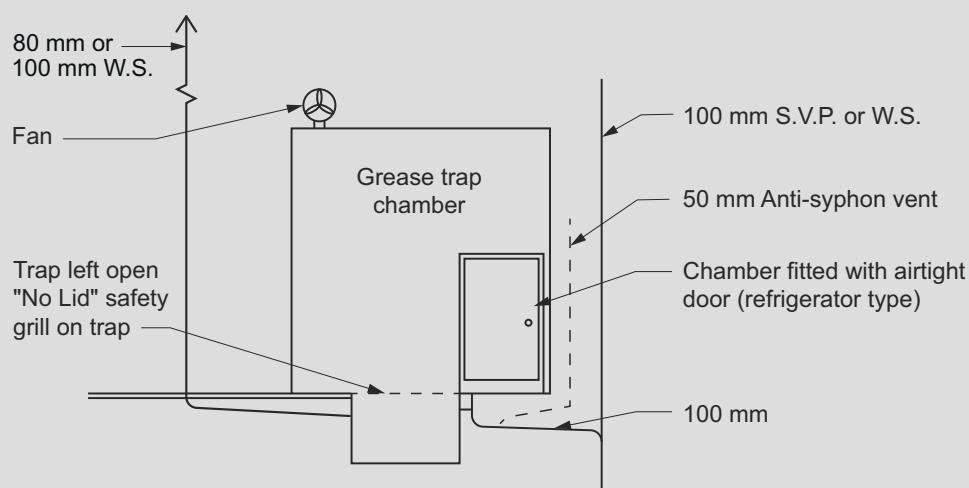
*Insert TAS Figure C4D14a (Explanatory) as follows:*

**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

[2019: H202.4i]

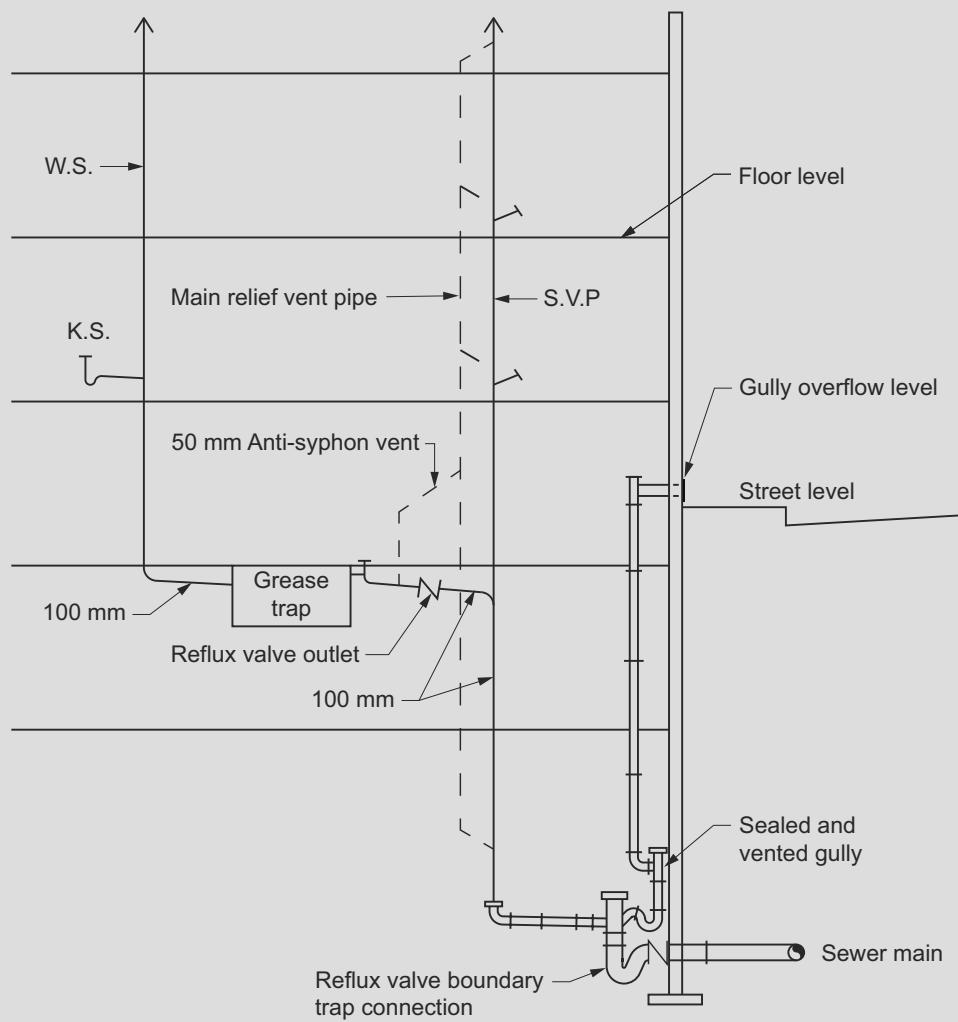
Grease traps in multi-storey buildings must have a reflux valve installed between the outlet and connection to the sanitary plumbing system.

**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**

[2019: H202.4j]

- (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

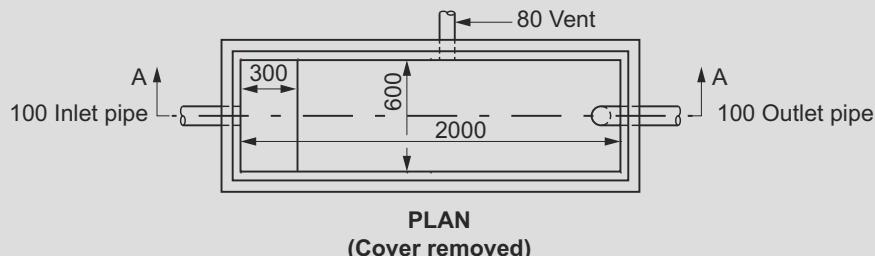
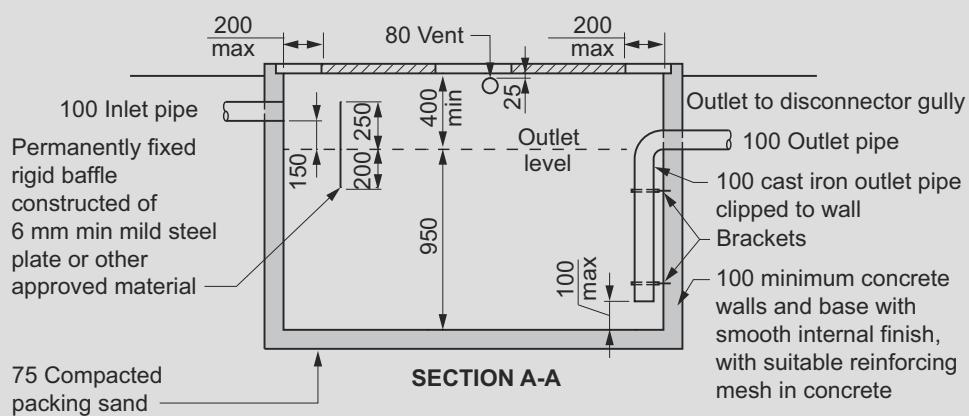
Where the Permit Authority has not specified the capacity of an oil and petrol interceptor in accordance with C4D16(1), it must be no less than 11400 litres, below the outlet.

### 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

[2019: H202.4k]

- (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.

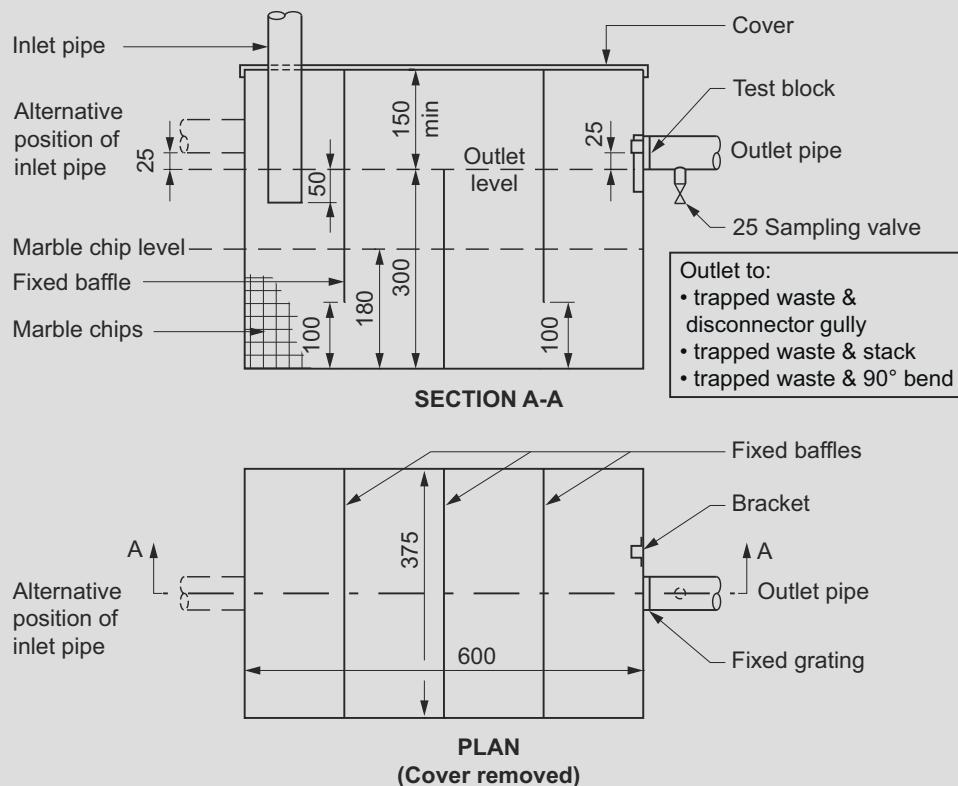
The capacity of an acid neutralising tank as shown in Tas figure C4D17 is the minimum requirement of 27 litres between the marble chip level and the outlet level.

### 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**

[2019: H202.4I]

- (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.

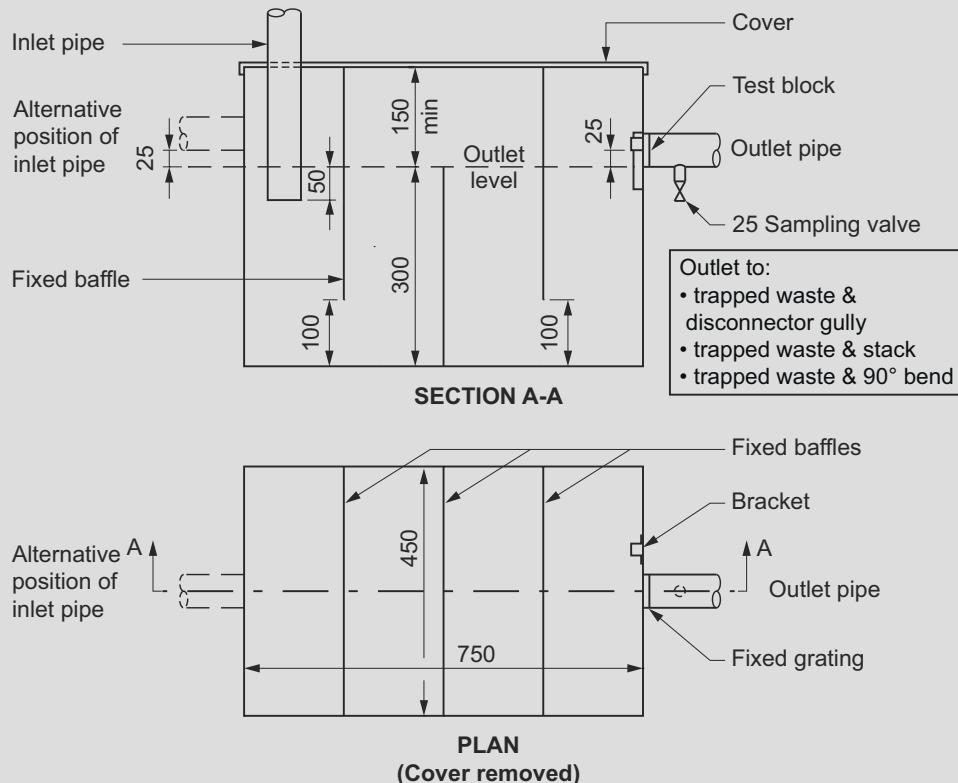
**Explanatory Information**

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

[2019: H202.4m]

- (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 loose fitting grate or screwed cap.

### Exemptions

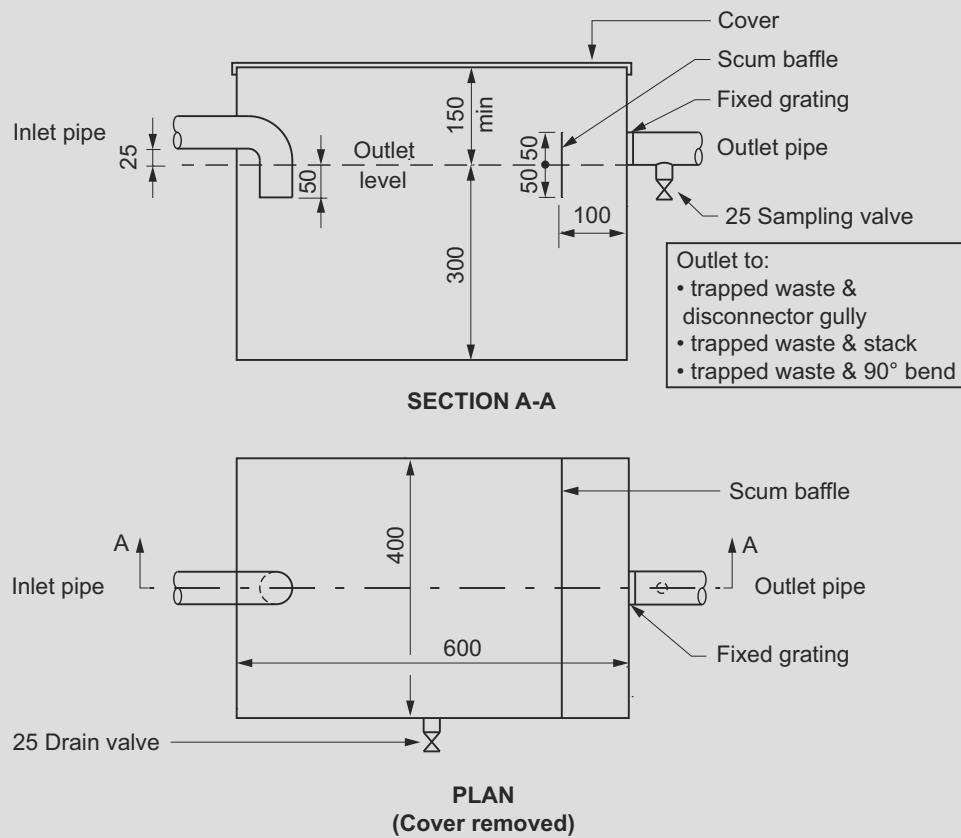
- Where the Permit Authority has not specified the capacity of a settling tank in accordance with C4D19(1), it must be—
- (a) equivalent to the maximum hourly discharge; and
  - (b) no less than 72 litres, below the outlet.

**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**

[2019: GO1]

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**

[2019: GF1.1]

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**

[2019: GF2.2]

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**

[2019: GP1.1]

- (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**

[2019: GP1.2]

Pressure equipment used in mechanical heating, cooling and ventilation systems must avoid the likelihood of explosion, rupture or leakage.

**TAS E2P3 Microbial control**

[2019: GP1.3]

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**

[2019: G1.1]

*Performance Requirement* E2P1 to E2P3 are satisfied by complying with E2D2.

**TAS E2D2 General requirements**

[2019: G1.2]

- (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**

[2019: F01]

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**

[2019: FF01]

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**

[2019: FP1.1]

- (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**

[2019: FP1.2]

A roof drainage system must provide an overflow device suitable for a 1% *annual exceedance probability* rainfall event.

**TAS E3P3 Watertightness**

[2019: FP1.3]

All internal roof drainage components must be *watertight*.

**TAS E3P4 Design, construction and installation**

[2019: FP1.4]

- (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**

[2019: F1.1]

*Performance Requirements* E3P1 to E3P4 are satisfied by complying with E3D2 and E3D3.

**TAS E3D2 General requirements**

[2019: F1.2]

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**

[2019: H201.2]

- (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.

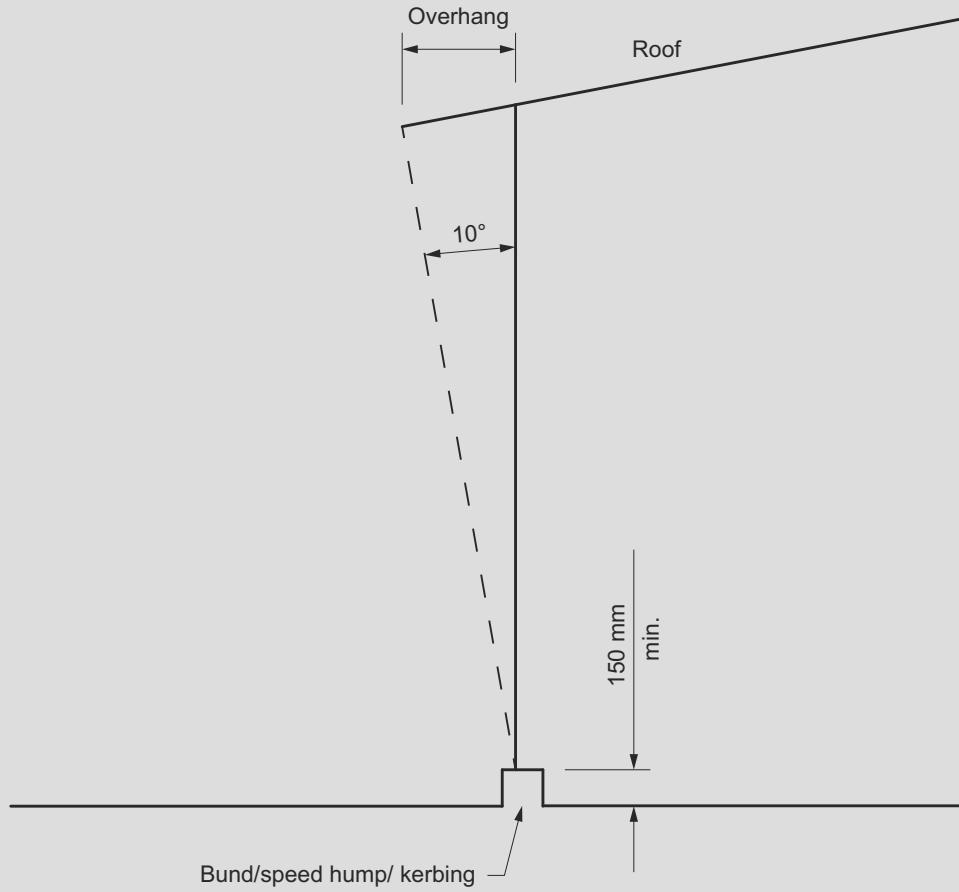
**Explanatory Information**

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**

[2019: FO2]

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**

[2019: DF2.1]

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**

[2019: FP2.1]

- (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**

[2019: FP2.2]

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**

[2019: FP2.3]

- (1) A surface drainage installation must avoid the following:
- Blockage* and *uncontrolled discharge*.
  - Damage from root penetration, superimposed loads or ground movement.
  - Entry of sewage and/or liquid trade waste.
  - Entry of stormwater into a sanitary *drainage*.
  - Damage to the *Network Utility Operator's* drainage system
  - Foul air and gases accumulating in the stormwater system.
  - Loss* to buildings or property.
- (2) A surface drainage installation must ensure the following:
- Access for maintenance and clearing *blockages*.
  - Stormwater is transferred to a *Network Utility Operator's* stormwater system or an *approved disposal system*.

**Deemed-to-Satisfy Provisions****TAS E4D1      Application**

[2019: F2.1]

Performance requirements E4P1 to E4P3 are satisfied by complying with E4D2 and E4D3.

**TAS E4D2      General requirements**

[2019: F2.2]

A surface and subsurface drainage system must comply with—

- AS/NZS 3500.3; or
- Housing provisions 3.3

**TAS E4D3      Protection from surface water**

[2019: H201.2]

Surface water must be prevented from escaping a liquid trade waste generating area through 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      | 2012 | 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                |

## Tasmania

| 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     | 2007 | 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                |

## Tasmania

| 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 Licensing 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 Licensing 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                |

## Tasmania

| 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 |
| A2G2    | Performance Solution    |

**Section B****Water services**

|                  |  |
|------------------|--|
| Part B1          | Cold water services                          |
| VIC B1D3         | General requirements                         |
| Part B2          | Heated water services                        |
| B2P3             | Velocity                                     |
| B2P4             | Access and isolation                         |
| B2P7             | Energy use and source                        |
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| VIC B2D5         | Maximum delivery temperature                 |
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| VIC B3D3         | General requirements                         |
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| B4P2             | Access and isolation                         |
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| Part B6          | Rainwater services                           |
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| VIC B6D2         | General requirements                         |
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| B7D1             | Deemed-to-Satisfy Provisions                 |
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**Section C****Sanitary plumbing and drainage systems**

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|                    | VIC E3O1   | Objective   |
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VIC E4O1              Objective

**Functional Statements**

VIC E4F1              Functional statement

**Performance Requirements**

VIC E4P1              Surface drainage systems

VIC E4P2              Design, construction and installation

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VIC E4D1              Application

VIC E4D2              General requirements

**Schedule 1              Definitions**

**Schedule 2              Referenced documents**

**Footnote: Other legislation affecting buildings**

## **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

#### A2G2      Performance Solution

[2019: A2.2]

*Insert subclause VIC A2G2(5) in clause A2G2 as follows:*

- (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.

## Section B Water services

### Part B1 Cold water services

Delete B1D3 and insert VIC B1D3 as follows:

#### VIC B1D3 General requirements

[2019: VIC B1.4(1), (2) and (3)]

- (1) A cold water service must be in accordance with AS/NZS 3500.1.
- (2) *Drinking water* that is not intentionally heated must be delivered at a temperature of less than 40°C.
- (3) A hose tap must be provided in men's public toilets adjacent to the urinals.

### Part B2 Heated water services

#### B2P3 Velocity

[2019: BP2.3]

Delete B2P3(1) and insert VIC B2P3(1) as follows:

- (1) The water velocity in *heated water* service pipework up to 65 °C must not exceed—
  - (a) 3 m/s for more than 1% 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 more than 1% of the time that water is required during the peak hour; and
  - (c) 1.0 m/s for the flow and return of a circulatory *heated water* service using other materials for more than 1% of the time that the water is required during the peak hour.

#### B2P4 Access and isolation

[2019: BP2.3]

Delete B2P4(1) and insert VIC B2P4(1) as follows:

- (1) Access must be available to the *heated water* service for maintenance of mechanical components and operational controls.

#### B2P7 Energy use and source

[2019: BP2.6]

Insert subclause VIC B2P7(3) in clause B2P7 as follows:

- (3) A solar water heater system installed in a new **Class 1** building to comply with Part 2.6 and Part 3.12 of NCC 2019 Volume Two must comply with the Plumbing Regulations 2018.

#### B2D2 Water heater in a heated water supply system

[2019: B2.2]

Insert subclause VIC B2D2(5) in clause B2D2 as follows:

- (5) A solar water heater system installed in a new **Class 1** building to comply with Part 2.6 and Part 3.12 of NCC 2019 Volume Two must comply with the Plumbing Regulations 2018.

Delete B2D5 and insert VIC B2D5 as follows:

## VIC B2D5 Maximum delivery temperature

[2019: B2.5]

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.

### Applications

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

### Exemptions

B2D5(b) does not apply to the replacement of a water heater unit in the same location where the original installation did not require a temperature control valve.

### 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.

Delete B2D6 and insert VIC B2D6 as follows:

## VIC B2D6 Temperature control devices

[2019: B2.6]

- (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.

- (4) Thermostatic mixing valve work must comply with AS 4032.3 Water Supply - Valves for the control of heated water supply temperatures - Part 3: Requirements for field testing, maintenance or replacement of thermostatic mixing valves, tempering valves and end of line temperature control devices.

### 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.

## Part B3 Non-drinking water services

### B3P3 Velocity

[2019: BP3.3]

Delete B3P3(1) and insert VIC B3P3(1) as follows:

- (1) *Non-drinking water* services must ensure that pipework water velocity does not exceed 3 m/s for more than 1% of the time that the water is required during the annual peak hour.

Delete B3D3 and insert VIC B3D3 as follows:

### VIC B3D3 General requirements

[2019: VIC B3.3]

A *non-drinking water* service must be in accordance with AS/NZS 3500.1, subject to the following:

- (a) Substitute the text of clause 9.7.1(a) as follows: (a) be of a type that has a removable handle.
- (b) Substitute the text of clause 9.7.1(c) as follows: (c) have a non-standard inlet connecting thread and a standard hose connection outlet.

## Part B4 Fire-fighting water services

### B4P2 Access and isolation

[2019: BP4.1]

Delete B4P2(2) and insert VIC B4P2(2) as follows:

- (2) A fire-fighting water service must ensure the system can be isolated for testing and maintenance and have adequate provision for required flow testing (*drainage*).

Delete B4D2 and insert VIC B4D2 as follows:

## VIC B4D2 General requirements

[2019: Vic B4.2]

- (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) When installed in Class 1 or Class 10 buildings and structures, an *automatic* fire sprinkler system must be in accordance with AS 2118.1, AS 2118.4, or AS 2118.5 as appropriate.
- (4) Fire-fighting water service work must be in accordance with—
  - (a) AS/NZS 1530.3,
  - (b) AS 4118.1.1,
  - (c) AS 4118.1.2,
  - (d) AS 4118.1.3,
  - (e) AS 4118.1.4,
  - (f) AS 4118.1.5,
  - (g) AS 4118.1.6,
  - (h) AS 4118.1.7,
  - (i) AS 4118.1.8,
  - (j) AS 2941,
  - (k) AS 2118.2,
  - (l) AS 2118.3,
  - (m) AS 2118.8,
  - (n) AS 2118.10; and
  - (o) AS 1851 as appropriate.

## Part B6 Rainwater services

Insert VIC B6P7 as follows:

### VIC B6P7 Rainwater service

[New for 2022]

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.

## B6D1 Deemed-to-Satisfy Provisions

[2019: B6.1]

Delete B6D1(1) and insert VIC B6D1(1) as follows:

- (1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* B6P1 to B6P7 are satisfied by complying with B6D2 to B6D6.

Delete B6D2 and insert VIC B6D2 as follows:

## VIC B6D2 General requirements

[New for 2022 (2019: Volume Two V2.6.1 and V13.12.0)]

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

### Notes

The Victorian NCC 2019 rainwater tank variation (VIC V2.6.1 and V3.12.0 respectively) remains in effect until 30 September 2023 after which the following takes effect:

A rainwater tank must be installed in a Class 1 building in accordance with the regulations made under the Building Act 1993 (Victoria).

See Part B7 clause B7D4.

## Part B7 Rainwater storage

### B7P1 Contamination control

[2019: BP6.1]

Delete B7P1(1) and insert VIC B7P1(1) as follows:

- (1) *Rainwater storage* must reduce the likelihood of contamination within the *rainwater storage* system, the cold water service and the *Network Utility Operator's drinking water* supply (if connected).

Delete B7P1(2) and insert VIC B7P1(2) as follows:

- (2) *Rainwater storage* must not pose a hazard to public health.

Delete B7P4 and insert VIC B7P4 as follows:

### VIC B7P4 Identification

[2019: BP6.4]

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

## B7D1 Deemed-to-Satisfy Provisions

[2019: B6.1]

Delete B7D1(1) and insert VIC B7D1(1) as follows:

- (1) Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirements* B7P1 to B7P4 are satisfied by complying with B7D2 and B7D4.

Delete B7D3 and insert VIC B7D3 as follows:

### VIC B7D3 Identification

[2019: B6.5]

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

Insert VIC B7D4 as follows:

## VIC B7D4 General requirements

[New for 2022 (2019: Volume Two V2.6.1 and V3.12.0)]

*Rainwater storage* must—

- (a) comply with AS/NZS 3500.1; and
- (b) not have an unprotected *cross-connection* with any *Network Utility Operator's drinking water* service or with any

*non-drinking water* service; and

- (c) comply with Part B1 where any cold water service from a *Network Utility Operator's drinking water* supply connects to a *rainwater storage* system or to a switching device.

#### Notes

The Victorian NCC 2019 rainwater tank variation (VIC V2.6.1 and V3.12.0 respectively) remains in effect until 30 September 2023 after which the following takes effect:

A rainwater tank must be installed in a **Class 1** building in accordance with the regulations made under the Building Act 1993 (Victoria).

## Specification 41 Cross-connection hazards

### S41C3 Protection types and hazard ratings

[2019: BS5.1.3]

Delete S41C3(3) and insert VIC S41C3(3) as follows:

- (3) Pipework and outlets supplied by a *drinking water* source downstream of an *individual protection* or *zone protection backflow prevention device* are considered to convey *drinking water* from an *unprotected water service*.

### S41C4 Individual protection

[2019: BS5.1.4]

Delete S41C4(3) and insert VIC S41C4(3) as follows:

- (3) 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 tanks.
  - (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.*

Delete S41C6 and insert VIC S41C6 as follows:

## VIC S41C6 Containment protection

[2019 BS5.1.6]

- (1) 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 tanks*.
  - (c) Properties with only a *drinking water* service provided by a *Network Utility Operator*.
  - (d) Properties served by a *Network Utility Operator's* recycled water supply.
- (2) 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 water service.
- (3) 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.

### Applications

- (a) *Medium Hazard* properties for the purpose of *containment protection* include the following—
  - (i) Caravan parks.
  - (ii) Food and beverage processing plants.
  - (iii) Marinas.
  - (iv) Premises that are connected to a grey water re-use system or a reticulated and disinfected reclaimed water system.
  - (v) Public *swimming pools*.
- (b) *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 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

- Clause (2)(a); **building classes 3, 4, 5, 6, and 7b** 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.
- Clause (3)(b) and (3)(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.
- In some jurisdictions, regulations issued under water supply legislation, and/or rules set by a **Network Utility Operator**, may prescribe **containment protection** which differs from this Specification. If this occurs then those regulations and/or rules should be followed in place of this Specification. This Specification only applies for the purposes of compliance with Volume Three of the NCC. It is not intended to limit or extend the application of other regulations.

**Section C****Sanitary plumbing and drainage systems****Part C1 Sanitary plumbing systems***Delete C1D3 and insert VIC C1D3 as follows:***VIC C1D3 General requirements**

[2019: VIC C1.3]

A sanitary *plumbing* system must be in accordance with AS/NZS 3500.2 subject to the following:

- (a) For Class 1 buildings, substitute Clause 6.6.2.4.2 as follows:
  - (i) 6.6.2.4.2 New installations: Where a junction is used to make the connection of a DN 100 branch pipe to another DN 100 pipe, the entry level of the branch pipe shall be elevated at an incline of not less than 15° above the horizontal. Where the 15° requirement cannot be achieved, the incline must be as close as possible to 15° to avoid stranding. Where a fixture is connected to a graded discharge pipe, the installation shall also be in accordance with Clause 6.6.2.1.
- (b) After clause 13.9(b), delete the following: Where a bath trap is not accessible, the bath shall discharge untrapped to a floor waste gully (FWG) in accordance with Table 4.6.7.2 and Appendix B.
- (c) After clause 15.1, insert clause 15.1A as follows: When tested, the respective sections of any soil pipe, waste pipe, vent pipe or above-ground drain must be free of leaks when subjected to an air test in accordance with clause 15.3.
- (d) Substitute clause 15.3.3 as follows: When tested, the respective sections of any soil pipe, waste pipe, vent pipe or above ground drain must be free of leaks when subjected to an air test in accordance with clause 15.3.2 over the minimum test duration specified in Table 15.3.2.

**Part C2 Sanitary drainage systems***Insert VIC C2P8 as follows:***VIC C2P8 No point of connection**

[New for 2022]

Where a *point of connection* to a *Network Utility Operator's* sewerage system is not available, an *on-site wastewater management system* must be designed, installed and maintained in accordance with the requirements and agreement of the relevant authority having jurisdiction.*Delete C2V2 and insert VIC C2V2 as follows:***VIC C2V2 Pressure testing**

This clause has deliberately been left blank.

*Delete C2D4 and insert VIC C2D4 as follows:***VIC C2D4 General requirements**

[2019: VIC C2.4(1) to (5)]

- (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): (e) Where an inspection shaft or boundary trap riser in a below ground sanitary *drainage* system is located clear of a building and is not likely to be damaged by vehicular traffic, a light cover must be installed in accordance with clause 4.4.2.1(a) and clause 4.4.2.1(c)(ii) and (iii).
  - (b) insert Clause 4.6.2(d): (d) Have risers installed vertically with no offsets.
  - (c) clause 5.3(c) of AS/NZS 3500.2 is varied so that concrete support used to support drains must be provided to support all bends greater than DN 65 to vertical risers.

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- (d) replace Clause 5.4.2(d) with: 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) Insert Clause 15.1(b) as follows: Testing of a sanitary drainage installation. 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
  - (iv) in cases other than in (a), testing may be carried out by way of—
    - (A) an air test in accordance with clause 15.3; or
    - (B) a vacuum test in accordance with clause 15.4.
- (2) 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.

**Part C3            On-site wastewater management****C3P1            Health impacts**

[New for 2022]

*Delete C3P1(1) and insert VIC C3P1(1) as follows:*

- (1) *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, and
  - (d) it complies with the requirements of the authority having jurisdiction.

*Delete C3P5 and insert VIC C3P5 as follows:***VIC C3P5        General requirements**

[New for 2022]

*On-site wastewater management systems* that facilitate on-site storage, treatment, disposal or re-use of wastewater must be designed, constructed, installed, replaced, repaired, altered and maintained—

- (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) in accordance with the requirements and agreement of the relevant authority having jurisdiction.

*Delete C3P6 and insert VIC C3P6 as follows:***VIC C3P6        Land application systems**

[New for 2022]

- (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; and
  - (d) transfers wastes safely and hygienically.
- (2) *On-site wastewater management systems* and associated land application systems must—
- (a) avoid the likelihood of the creation of unpleasant odours or the accumulation of offensive matter; and
  - (b) avoid the likelihood of stormwater run-off entering the system; and
  - (c) avoid the likelihood of root penetration or ingress of ground water entering the system; and
  - (d) avoid the likelihood of unintended or *uncontrolled discharge*; and
  - (e) avoid the likelihood of *blockage* and leakage; and
  - (f) avoid the likelihood of damage from superimposed loads or ground movement; and
  - (g) avoid the likelihood off effluent and foul air and gasses entering the building.
- (3) The on-site wastewater management system and associated land application system continue to meet the above requirements throughout its serviceable life.

*Delete C3P7 and insert VIC C3P7 as follows:*

## VIC C3P7      Access for maintenance

[New for 2022]

- (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) provide safe access for cleaning, clearing blockages, maintenance, measurement and performance sampling.
- (2) Land application systems must—
- (a) provide safe access, as required, for clearing blockages and maintenance; and
  - (b) incorporate provisions, as required, for effective cleaning.

## 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

[2019: HO1]

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

[2019: HF1.1 and HF1.2]

- (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

[2019: HP1.1]

- (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
    - (a) 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
      - (a) 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—

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- (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 clause 6.9.3 of AS/NZS 3500.2.
- (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.
- (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 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 D      Excessive noise

Part D1      **Excessive noise**

D1F1      **Excessive noise**

[2019: DF1]

Delete D1F1(1) and insert VIC D1F1(1) as follows:

- (1) A *plumbing* and *drainage* system must be designed and installed so as to 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.

D1D2      **Undue noise**

[2019: D1.2]

Delete D1D2(1) and insert VIC D1D2(1) as follows:

- (1) To prevent undue noise, *plumbing* and *drainage* systems must comply with—
- (a) B1D3 for cold water services; or
  - (b) B2D9 for *heated water* services; or
  - (c) B3D3 for *non-drinking water* services; or
  - (d) B4D2 for fire-fighting water services; or
  - (e) B6D2 for *rainwater services*; or
  - (f) B7D4 for *rainwater storage*, or
  - (g) C1D3 for sanitary *plumbing* systems; or
  - (h) C2D4 for sanitary *drainage* systems, or
  - (i) C3D2, C3D3, C3D4, C3D5, C3D6 and C3D7 for *on-site wastewater management systems*, or
  - (j) E3D2 for stormwater *drainage* systems, and
  - (k) E4D2 for surface and sub-surface *drainage* systems.

**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**

[2019: GO1]

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**

[2019: GF1.1]

Mechanical services, plant and equipment used for heating, cooling and/or ventilation of a building must be adequate.

**VIC E2F2      Functional statement 2**

[2019: GF2.2]

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**

[2019: GP1.1]

- (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**

[2019: GP1.2]

Pressure equipment used in mechanical heating, cooling or ventilation systems must avoid the likelihood of explosion, rupture or leakage.

**VIC E2P3 Microbial control**

[2019: GP1.3]

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**

[2019: G1.2]

Performance requirements E2P1 to E2P3 are satisfied by complying with E2D2.

**VIC E2D2 General requirements**

[2019: G1.2]

- (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.

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- (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 for systems 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**

[2019: FO1]

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**

[2019: FF1.1]

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**

[2019: FP1.1]

A roof 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 E3P2      Overflow**

[2019: FP1.1]

A roof drainage system must provide an overflow device to transfer stormwater flows generated by extreme rainfall events.

**VIC E3P3      Watertightness**

[2019: FP1.1]

All internal roof drainage components must be watertight.

**VIC E3P4      Design, construction and installation**

[2019: FP1.4]

- (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**

[2019: F1D1]

*Performance Requirements* E3P1 to E3P4 are satisfied by complying with E3D2.

**VIC E3D2      General requirements**

[2019: F1D2]

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, subject to following:

- (a) Insert Clause 4.9.6.3 Fastening in AS/NZS 3500.3 as follows: Dowpipes to be securely fastened to walls and structures so as to withstand movement due to thermal expansion or weight due to a partial or total blockage, and
- (b) Where there are any conflicts between AS/NZS 3500.3 and SA HB 39, AS/NZS 3500.3 prevails.

VIC Part E4

Stormwater - Surface and sub-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**

[2019: FO2]

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;
- (a) ensure that a stormwater drainage installation is adequate; and
- (b) conserve water and energy; and
- (c) safeguard the environment; and
- (d) safeguard public and private infrastructure; and
- (e) 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**

[2019: FF2.1]

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**

**VIC E4P1      Surface drainage systems**

[2019: FP2.1]

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**

[2019: FP2.2]

(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

[2019: F2D1]

*Performance Requirements* E4P1 to E4P2 are satisfied by complying with E4D2.

#### VIC E4D2 General requirements

[2019: F2D2]

The design, construction, installation, replacement, repair, alteration and maintenance of surface and subsurface *drainage* systems must be in accordance with AS/NZS 3500.3.

## Schedule 1 Definitions

**Children's service:** Has the same meaning as it has under the Children's Services Act 1996, but excludes a service where education and care is primarily provided to school aged children.

**Combustible cladding product:** Means—

- (a) aluminium composite panels (ACPs) with a core of less than 93 per cent 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.

### Early childhood centre

Includes—

- (a) any premises, or part thereof, providing or intending to provide a centre-based education and care service within the meaning of the Education and Care Services National Law Act 2010, and the Education and Care Services National Regulations, excluding a service where education and care is primarily provided to school aged children; and
- (b) a *children's service*.

### 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*.
- (c) Roof flashing: a rigid or flexible material, usually metal, fixed over, against or built into an abutment to form a weathertight joint.

### 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.

### On-site wastewater management system

A system that receives and/or treats wastewater generated and discharges the resulting effluent to—

- (a) an *approved disposal system*; or
- (b) re-use system; or
- (c) land application system.

### 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) any one of the following as defined in the Children's Services Regulations 2020—
  - (i) a limited hours Type 1 service; or
  - (ii) a limited hours Type 2 service; or
  - (iii) a short term Type 1 service; or
  - (iv) a short term Type 2 service; or
- (b) an associated children's service within the meaning of the Children's Services Act 1996 approved to be operated by an approved provider at the same place as an approved education and care service that is required to meet the conditions of a limited hours Type 1 service, a limited hours Type 2 service, a short term Type 1 service, or a short term Type 2 service.

**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 | 2016 | 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                   | N/A        | N/A        | N/A                | VIC E2D2     |
| AS 1324.1      | 2001 | Air filters for use in general ventilation and air conditioning  | 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   | N/A        | N/A        | N/A                | VIC E2D2     |
| AS 1428.1      | 2009 | Design for access and mobility, Part 1: General requirements for access – New building work (incorporating amendments 1 and 2) | VIC I4D5   | 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/NZS 1530.3  | 1999 | Methods for fire tests on building materials, components and structures  | N/A        | N/A        | N/A                | VIC B4D2     |
| AS/NZS 1668.1  | 2015 | The use of ventilation and air conditioning in buildings: Fire and smoke control in buildings                                  | N/A        | N/A        | N/A                | VIC E2D2     |

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| No.       | Date | Title   | Volume One              | Volume Two | Housing Provisions | Volume Three       |
|-----------|------|---|-------------------------|------------|--------------------|--------------------|
| AS 1668.2 | 2012 | The use of ventilation and air conditioning in buildings: Mechanical ventilation in buildings                                   | N/A                     | N/A        | N/A                | VIC E2D2           |
| AS 1851   | 2012 | Routine service of fire protection systems and equipment  | N/A                     | N/A        | N/A                | VIC B4D2           |
| AS 1926.1 | 2012 | Swimming pool safety, Part 1: Safety barriers for swimming pools  | VIC G1D2                | N/A        | N/A                | N/A                |
| AS 1926.2 | 2007 | Swimming pool safety, Part 2: Location of safety barriers for swimming pools (incorporating amendments 1 and 2)                 | VIC G1D2                | N/A        | N/A                | N/A                |
| AS 2118.1 | 2017 | Automatic fire sprinkler systems, Part 1: General systems (incorporating amendment 1)   | VIC S17C2,<br>VIC S18C3 | N/A        | N/A                | VIC B1D5, VIC B4D2 |
| AS 2118.2 | 2021 | Automatic fire sprinkler systems: Wall wetting sprinkler systems  | N/A                     | N/A        | N/A                | VIC B4D2           |
| AS 2118.3 | 2010 | Automatic fire sprinkler systems: Deluge systems  | N/A                     | N/A        | N/A                | VIC B4D2           |
| AS 2118.4 | 2012 | Automatic fire sprinkler systems, Part 4: Sprinkler protection for accommodation buildings not exceeding four storeys in height | VIC S17C2,<br>VIC S18C3 | N/A        | N/A                | VIC B1D5, VIC B4D2 |
| AS 2118.5 | 2008 | Automatic fire sprinkler systems  | N/A                     | N/A        | N/A                | VIC B1D5, VIC B4D2 |
| AS 2118.6 | 2012 | Automatic fire sprinkler systems, Part 6: Combined sprinkler and hydrant systems in multistorey buildings                       | VIC S17C2               | N/A        | N/A                | N/A                |
| AS 2118.8 | 1997 | Automatic fire sprinkler systems: Minor modifications   | N/A                     | N/A        | N/A                | VIC B4D2           |

## Victoria

| No.           | Date | Title   | Volume One | Volume Two | Housing Provisions | Volume Three   |
|---------------|------|---|------------|------------|--------------------|--|
| AS 2118.10    | 1995 | Automatic fire sprinkler systems: Approval documentation  | N/A        | N/A        | N/A                | VIC B4D2   |
| AS 2473.3     | 2007 | Valves for compressed gas cylinders   | N/A        | N/A        | N/A                | VIC E2D2   |
| AS 2568       | 2019 | Purity of medical air produced from on-site compressor systems  | 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   |
| AS/NZS 3500.1 | 2021 | Plumbing and drainage: Water services   | N/A        | N/A        | N/A                | VIC B1D3, VIC B1D5, VIC B3D3, VIC B4D2, VIC B6D2, VIC B7D3, VIC B7D4, VIC E2D2 |
| AS/NZS 3500.2 | 2021 | Plumbing and drainage: Sanitary plumbing and drainage   | N/A        | N/A        | N/A                | VIC C1D3, VIC C2D4, VIC C4P1, VIC E2D2   |
| AS/NZS 3500.3 | 2021 | Plumbing and drainage: Stormwater drainage  | N/A        | N/A        | N/A                | VIC C5D2, VIC C6D2   |
| AS/NZS 3500.4 | 2021 | Plumbing and drainage: Heated water services  | N/A        | N/A        | N/A                | VIC E2D2, VIC B2D6   |
| AS/NZS 3666.1 | 2011 | Air handling and water systems of buildings - Microbial control: Design, installation and commissioning | N/A        | N/A        | N/A                | VIC E2D2   |

## Victoria

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|---------------|------|--|------------|------------|--------------------|--------------|
| AS/NZS 3666.2 | 2011 | Air handling and water systems of buildings - Microbial control: Operation and maintenance | N/A        | N/A        | N/A                | VIC E2D2     |
| AS 4032.3     | 2022 | Water supply - Valves for the control of heated water supply temperatures                  | N/A        | N/A        | N/A                | VIC B2D6     |
| AS 4041       | 2006 | Pressure piping  | N/A        | N/A        | N/A                | VIC E2D2     |
| AS 4118.1.1   | 1996 | Fire sprinkler systems: Components - Sprinklers and sprayers                               | N/A        | N/A        | N/A                | VIC B4D2     |
| AS 4118.1.2   | 1996 | Fire sprinkler systems: Components - Alarm valves (wet)                                    | N/A        | N/A        | N/A                | VIC B4D2     |
| AS 4118.1.3   | 1995 | Fire sprinkler systems: Components - Water motor alarms                                    | N/A        | N/A        | N/A                | VIC B4D2     |
| AS 4118.1.4   | 1994 | Fire sprinkler systems: Components - Valve monitors  | N/A        | N/A        | N/A                | VIC B4D2     |
| AS 4118.1.5   | 1996 | Fire sprinkler systems: Components - Deluge and pre-action valves                          | N/A        | N/A        | N/A                | VIC B4D2     |
| AS 4118.1.6   | 1995 | Fire sprinkler systems: Components - Stop valves and non-return valves                     | N/A        | N/A        | N/A                | VIC B4D2     |
| AS 4118.1.7   | 1996 | Fire sprinkler systems: Components - Alarm valves (dry)                                    | N/A        | N/A        | N/A                | VIC B4D2     |
| AS 4118.1.8   | 1999 | Fire sprinkler systems: Components - Pressure reducing valves                              | N/A        | N/A        | N/A                | VIC B4D2     |
| AS 4254.1     | 2021 | Ductwork for air-handling systems in buildings: Flexible duct                              | N/A        | N/A        | N/A                | VIC E2D2     |
| AS 4254.2     | 2012 | Ductwork for air-handling systems in buildings: Rigid duct                                 | N/A        | N/A        | N/A                | VIC E2D2     |

## Victoria

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| 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   | N/A        | N/A        | N/A                | VIC E2D2     |
| AS/NZS 4859.1 | 2018 | Thermal insulation materials for buildings: General criteria and technical provisions   | 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     |
| AS/NZS 5149.1 | 2016 | Refrigerating systems and heat pumps - Safety and environmental requirements: Definitions, classification and selection criteria        | N/A        | N/A        | N/A                | VIC E2D2     |
| AS/NZS 5149.2 | 2016 | Refrigerating systems and heat pumps - Safety and environmental requirements: 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: Installation site   | N/A        | N/A        | N/A                | VIC E2D2     |
| AS/NZS 5149.4 | 2016 | Refrigerating systems and heat pumps - Safety and environmental requirements: Operation, maintenance, repair and recovery               | N/A        | N/A        | N/A                | VIC E2D2     |
| AS/NZS 5601.1 | 2022 | Gas installations: General installations  | N/A        | N/A        | N/A                | VIC E2D2     |

## Victoria

| No.   | Date | Title   | Volume One              | Volume Two | Housing Provisions | Volume Three |
|---|------|---|-------------------------|------------|--------------------|--------------|
| ABCB Standard for Construction of Buildings in Flood Hazard Areas, Version 2012.3 | 2012 | Standard for Construction of Buildings in Flood Hazard Areas  | VIC B1D6                | N/A        | N/A                |              |
| —   | 2022 | Motorsport Australia Track Operators Guide For Motorsport Race Venues – version 1   | VIC I5D4                | N/A        | N/A                |              |
| FPAA101D  | 2018 | Automatic Fire Sprinkler System Design and Installation—Drinking Water Supply   | VIC S17C2,<br>VIC S18C3 | N/A        | N/A                | B1D5         |
| FPAA101H  | 2018 | Automatic Sprinkler System Design—Hydrant Water Supply  | VIC S17C2,<br>VIC S18C3 | N/A        | N/A                | B4D3         |
| Building Practice Note FS-01  | —    | Victorian Building Authority Practice Note FS-01  | VIC S20C8               | N/A        | N/A                |              |
| SA HB 39  | 2015 | Metal roof and wall cladding installation   | 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     |
| N/A   | 2007 | Australian and New Zealand refrigerant handling code of practice 2007 Part 1 - Self-contained low charge systems                    | N/A                     | N/A        | N/A                | VIC E2D2     |
| N/A   | 2007 | Australian and New Zealand refrigerant handling code of practice 2007 Part 2 - Systems other than Self-contained low charge systems | N/A                     | N/A        | N/A                | VIC E2D2     |
| N/A   | 1993 | The Building Act 1993 (Victoria)  | N/A                     | N/A        | N/A                | B6D2         |
| N/A   | 2018 | Plumbing Regulations  | N/A                     | VIC H6V1   | N/A                | B2P7         |

VIC

## 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. 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

**Schedule 11                    Western Australia**

**Introduction**

**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 Schedule 1 and Schedule 2 that are common and found in all three volumes of the National Construction Code (NCC) but only relate to NCC Volumes One and Two. There are no variations or additions in the PCA for Western Australia. However, Western Australian variations to provisions in the PCA and applicable referenced documents can be found in the Plumbers Licensing and Plumbing Standards Regulations 2000.

## Schedule 1 Definitions

### 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 [WA Table 4](#) for wind classes).

*Insert WA Table 4 as follows:*

**WA Table 4:** Wind classes

| Non-cyclonic Region A  | Cyclonic Region B, C and D   |
|--|--|
| N1, N2, N3   | C1   |
| N4, N5, N6 (these wind classes are covered in the ABCB Housing Provisions <a href="#">Part 2.2</a> ) | C2, C3, C4 (these wind classes are covered in the ABCB Housing Provisions <a href="#">Part 2.2</a> ) |

### 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.

**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.

**Potable water:** Water intended for human consumption supplied by a water services provider.

**Public building:** A Class 6 [licensed premises](#) or 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 1170.2 | 2021 | Structural design actions – Wind actions<br>(See Note 1) | WA B1D3, WA B1D4, Spec 4, WA B2D1, WA B2D2, WA B2D3, F3V1, Schedule 1 | H1D7, H2V1, Schedule 1 | WA 2.2.3, WA 2.3.1, WA 2.3.2, WA 2.3.3, WA 2.3.4, Schedule 1 | Schedule 1   |
| AS/NZS 3500.4 | 2021 | Plumbing and drainage – Heated water services, Amdt 1    | N/A   | WA H9D4                | N/A  | N/A          |
| AS 4055       | 2021 | Wind loads for housing (See Note 2)                      | Schedule 1  | H1D6, H1D8, Schedule 1 | WA 2.2.3, WA 2.3.1, WA 2.3.5, Schedule 1                     | Schedule 1   |

### Table Notes

- (1) For AS/NZS 1170 Part 2, incorporate the changes as set out in [WA Part B2](#) of Volume One and [WA Part 2.3](#) of the ABCB Housing Provisions.
- (2) For AS 4055, incorporate the changes set out in [WA Part 2.3](#) of the ABCB Housing Provisions.

## **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. Planning**

#### **Administering Agency**

Western Australian Planning Commission

#### **Relevant Legislation**

Planning and Development Act 2005

### **2. Building**

#### **Administering Agency**

Department of Mines, Industry Regulation and Safety

#### **Relevant Legislation**

Building Act 2011

### **3. Health**

#### **Administering Agency**

Department of Health

#### **Relevant Legislation**

Health Act 1911

### **4. Child Care**

#### **Administering Agency**

Department of Communities

#### **Relevant Legislation**

Child Care Services Act 2007

### **5. Gas Installations**

#### **Administering Agency**

Department of Mines, Industry Regulation and Safety

#### **Relevant Legislation**

Gas Standards Act 1972

## **6. Environment**

### **Administering Agency**

Environment Protection Authority

### **Relevant Legislation**

Environment Protection Act 1986

## **7. Electrical Installations**

### **Administering Agency**

Department of Mines, Industry Regulation and Safety

### **Relevant Legislation**

Electricity Act 1945

## **8. Water Resource**

### **Administering Agency**

Department of Water

### **Relevant Legislation**

Water Services Act 2012



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