

The background is a teal-colored image featuring several plumbing pipes of different diameters and lengths, some of which are connected to a circular drain with concentric rings. The overall aesthetic is technical and related to construction or plumbing.

National Construction Code Series

2012

VOLUME THREE

Plumbing Code of Australia



CONTENTS AND FEATURES INTRODUCTION

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Introduction

SUPERSEDED
CONTENTS AND FEATURES INTRODUCTION

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ISBN 1-921453-81-9 (Volume One Class 2-9 Buildings)



*The pages of this book are printed on paper derived
from forests promoting sustainable management.*

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INTRODUCTION

THE NATIONAL CONSTRUCTION CODE SERIES

The National Construction Code Series (NCC) is an initiative of the Council of Australian Governments developed to incorporate all on-site construction requirements into a single code. The Plumbing Code of Australia (PCA) is Volume Three of the NCC.

FORMAT

The NCC is published in three volumes:

Volume One:

pertains primarily to Class 2 to 9 buildings.

Volume Two:

pertains primarily to Class 1 and 10 buildings (houses, sheds, carports, etc).

Volume Three:

pertains primarily to *plumbing* and *drainage* associated with all classes of buildings.

All three volumes are drafted in a performance format allowing a choice of *Deemed-to-Satisfy Provisions* or flexibility to develop *Alternative Solutions* based on existing or new innovative buildings, *plumbing* and *drainage products*, systems and designs.

THE PLUMBING CODE OF AUSTRALIA

The PCA is produced and maintained by the Australian Building Codes Board (ABCB) on behalf of the Australian Government and each State and Territory government.

THE AUSTRALIAN BUILDING CODES BOARD

The ABCB is established by agreement between the Australian Government and each State and Territory government. It is a co-operative arrangement between the signatories, local government and the building industry.

The ABCB's mission is to address issues relating to safety, health, amenity and sustainability in the design, construction and performance of buildings. This is achieved through the NCC and the development of effective regulatory systems and appropriate non-regulatory solutions.

The Board comprises—

- (a) a Chair; and
- (b) the head of each Commonwealth, State and Territory department, statutory body, division, or agency that has the relevant administrative responsibility for NCC matters; and
- (c) a representative of the Australian Local Government Association (ALGA); and
- (d) representatives of the building and construction industry, including one representative with plumbing expertise.

The Plumbing Code Committee (PCC) is the peak technical advisory body to the ABCB, with responsibility for technical matters associated with the PCA.

The PCC comprises—

- (a) the General Manager of the ABCB Office; and

- (b) one nominee each of the Australian, State and Territory Government members of the ABCB; and
- (c) representatives of the plumbing and drainage industry.

THE PLUMBING CODE OF AUSTRALIA — CONTENT

GOALS

The goal of the PCA is to enable the achievement of nationally consistent, minimum necessary standards of relevant safety, health, amenity and sustainability objectives efficiently.

The goal is applied so that—

- (a) there is a rigorously tested rationale for the regulation; and
- (b) the regulation is effective and proportional to the issues being addressed such that the regulation will generate benefits to society greater than the costs (that is, net benefits); and
- (c) there is no regulatory or non-regulatory alternative (whether under the responsibility of the Board or not) that would generate higher net benefits; and
- (d) the competitive effects of the regulation have been considered; and the regulation is no more restrictive than necessary in the public interest.

STATE AND TERRITORY VARIATIONS AND ADDITIONS

Each State's and Territory's legislation adopts the PCA subject to the variation or deletion of some of its provisions, or the addition of extra provisions. These variations, deletions and additions are contained in appendices to the PCA.

Flags identifying variations are located within the relevant provisions and at the beginning of relevant Tables. Additional provisions to a Part are identified at the end of that Part.

DEFINITIONS

Words with special meanings are printed in *italics* and are defined in **A1.1**.

LEGISLATIVE ARRANGEMENTS

GENERAL

The PCA is given legal effect by relevant 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 *plumbing* and *drainage* installations, and contains the administrative provisions necessary to give effect to the legislation.

Any provision of the PCA may be overridden by, or subject to, State or Territory legislation. The PCA 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 on-site *plumbing* or *drainage* installation matters.

PCA ADOPTION

The adoption of the PCA is addressed in **Part A0**.

DOCUMENTATION OF DECISIONS

Decisions made under the PCA should be fully documented and copies of all relevant documentation should be retained.

Examples of the kind of documentation which should be prepared and retained include:

- (a) Details of the *Plumbing or Drainage Solution* including all relevant plans and other supporting documentation.

- (b) In cases where an *Alternative Solution* has been proposed—
- (i) details of the relevant *Performance Requirements*; and
 - (ii) the *Assessment Method* or methods used to establish compliance with the relevant *Performance Requirements*; and
 - (iii) details of any *Expert Judgment* relied upon including the extent to which the judgement was relied upon and the qualifications and experience of the expert; and
 - (iv) details of any tests or calculations used to determine compliance with the relevant *Performance Requirements*; and
 - (v) details of any Standards or other information which were relied upon.

STRUCTURE

The PCA has been structured as set out in **A0.3** and shown in **Figure A0.3**. It is the ABCB's intent that the *Objectives* and *Functional Statements* be used as an aid to the interpretation of the PCA and not for determining compliance with the PCA.

FURTHER REVIEW OF THE PLUMBING CODE OF AUSTRALIA

Regular changes are planned to the PCA to improve clarity of provisions, upgrade referenced documents and to reflect the results of research and improved technology.

SECTION **A**

GENERAL PROVISIONS

- A0 Application**
- A1 Interpretation**
- A2 Acceptance of Design and Construction**
- A3 Documents Adopted by Reference**

SECTION A CONTENTS

SECTION A GENERAL PROVISIONS

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PART A0 APPLICATION

A0.1 Adoption

The dates of adoption of the PCA and its amendments will be shown in the “History of Amendments” division in future editions.

A0.2 Scope

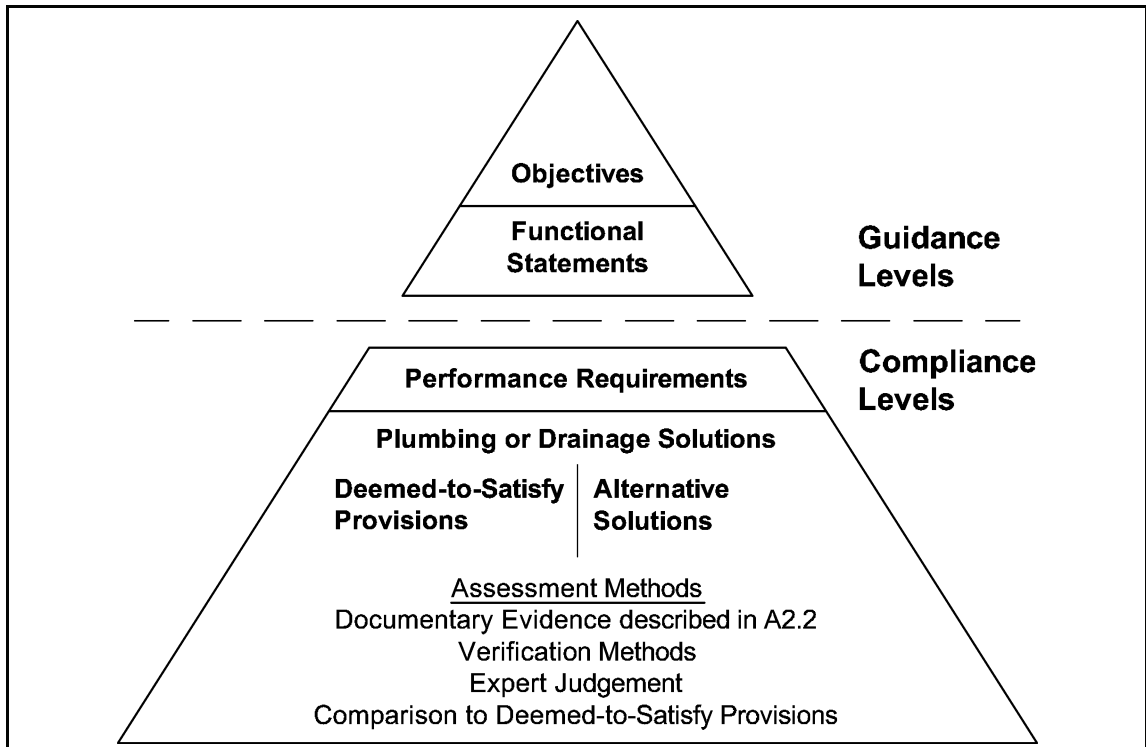
- (a) Sections B to F of the Plumbing Code of Australia contain the technical *Performance Requirements* for the design, construction, installation, replacement, repair, alteration and maintenance of—
 - (i) water services; and
 - (ii) sanitary *plumbing* and *drainage* systems; and
 - (iii) stormwater *drainage* systems; and
 - (iv) heating, ventilation and air conditioning systems; and
 - (v) *on-site wastewater management systems*.
- (b) Section G of the PCA contains the procedures for certification of *plumbing* and *drainage products* for authorised use in new installations, alterations, additions, replacement and repairs to existing installations.

A0.3 Structure

The structure of the PCA comprises the following as shown in **Figure A0.3**:

- (a) The *Objectives*.
- (b) The *Functional Statements*.
- (c) The *Performance Requirements* with which all *Plumbing or Drainage Solutions* must comply.
- (d) The *Plumbing or Drainage Solutions*.

Figure A0.3 — PCA Structure for Plumbing Services and Systems



A0.4 Compliance with Plumbing Code of Australia

A *Plumbing or Drainage Solution* will comply with the PCA if it satisfies the *Performance Requirements*.

A0.5 Meeting the Performance Requirements

Compliance with the *Performance Requirements* can only be achieved by—

- (a) complying with the *Deemed-to-Satisfy Provisions*; or
- (b) formulating an *Alternative Solution* which—
 - (i) complies with the *Performance Requirements*; or
 - (ii) is shown to be at least *equivalent* to the *Deemed-to-Satisfy Provisions*; or
- (c) a combination of (a) and (b).

A0.6 Objectives and Functional Statements

The *Objectives* and the *Functional Statements* may be used as an aid to interpretation.

A0.7 Deemed-to-Satisfy Provisions

A *Plumbing or Drainage Solution* which complies with the *Deemed-to-Satisfy Provisions* is deemed to comply with the *Performance Requirements*.

A0.8 Alternative Solutions

- (a) An *Alternative Solution* must be assessed according to one or more of the *Assessment Methods*.
- (b) An *Alternative Solution* will only comply with the PCA if the *Assessment Methods* used to determine compliance with the *Performance Requirements* have been satisfied.
- (c) The *Performance Requirements* relevant to an *Alternative Solution* must be determined in accordance with **A0.10**.

A0.9 Assessment Methods

The following *Assessment Methods*, or any combination of them, can be used to determine that a *Plumbing or Drainage Solution* complies with the *Performance Requirements*:

- (a) Evidence to support that the use of a material or *product*, the design or the form of construction meets a *Performance Requirement* or a *Deemed-to-Satisfy Provision* as described in **A2.2**.
- (b) *Verification Methods* such as—
 - (i) The *Verification Methods* in the PCA; or
 - (ii) Such other *Verification Methods* as the authority having jurisdiction accepts for determining compliance with the *Performance Requirements*.
- (c) Comparison with the *Deemed-to-Satisfy Provisions*.
- (d) *Expert Judgment*.

A0.10 Relevant Performance Requirements

In order to comply with the provisions of **A1.5** (to comply with Sections A to F inclusive) the following method must be used to determine the *Performance Requirement* or *Performance Requirements* relevant to the *Alternative Solution*:

- (a) Identify the relevant *Deemed-to-Satisfy Provision* of each Section or Part that is to be the subject of the *Alternative Solution*.
- (b) Identify the *Performance Requirements* from the same Sections or Parts that are relevant to the identified *Deemed-to-Satisfy Provisions*.
- (c) Identify *Performance Requirements* from other Sections and Parts that are relevant to any aspects of the *Alternative Solution* proposed or that are affected by the application of the *Deemed-to-Satisfy Provisions*, that are the subject of the *Alternative Solution*.

PART A1 INTERPRETATION

A1.1 Definitions

Note: States and Territories may vary or add to the definitions contained in [A1.1](#) at the relevant State or Territory Appendix.

If a word is not defined in the PCA, the meaning (if any) attributed to it under AS/NZS 3500.0 Glossary of Terms should be used unless the contrary intention appears.

Accessible means having features to enable use by people with a disability.

Adequate means adequate to achieve the particular *Objective* of the PCA.

Administering body means the body responsible for administering the *WaterMark Certification Scheme (WMCS)*.

Alternative Solution means a *Plumbing or Drainage Solution* which complies with the *Performance Requirements* other than by reason of satisfying the *Deemed-to-Satisfy Provisions*.

Amenity means an attribute which contributes to the health, physical independence, comfort and well-being of people.

Approved disposal system means a system for the disposal of sewage, sullage or stormwater approved by an authority having jurisdiction.

Approved User means a person (manufacturer) who entered into an *approved user* agreement with an Approved Certifier for use of the *WaterMark*.

Assessment Method means a method used for determining that a *Plumbing or Drainage Solution* complies with the *Performance Requirements*.

Average recurrence interval applied to rainfall, means the expected or average interval between exceedances of a given intensity.

BCA means the Building Code of Australia.

Blockage means an obstruction within a *drainage* system.

Certification mark means the *WaterMark* trademark.

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

Drainage means any sanitary *drainage*, liquid trade waste *drainage* or stormwater *drainage* system.

Drinking water means water intended primarily for human consumption but which has other domestic uses and which meets the guideline values of the National Water Quality Management Strategy - Australian Drinking Water Guidelines 6.

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

Expert Judgment means the judgment of a person who has the qualifications and experience 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 regulatory authority. Practitioners should seek advice from the authority having jurisdiction for clarification as to what will be accepted.

Functional Statement describes how the *Plumbing or Drainage Solution* achieves the *Objective*.

Heated water means water that has been intentionally heated. It is normally referred to as hot water or warm water.

JAS-ANZ means the Joint Accreditation System of Australia and New Zealand.

Loss means either: physical damage, financial loss or loss of *amenity*.

Network Utility Operator means 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-drinking water means water which is not *drinking water*.

Objective means a statement contained in the PCA which is considered to reflect community expectations.

On-site wastewater management system means a system installed on premises that receives and/or treats wastewater generated on the premises and applies the resulting effluent to an *approved disposal system* or re-use system.

Overflow devices are devices that provide relief to a water service, a sanitary *plumbing and drainage* system or a stormwater system to avoid the likelihood of uncontrolled discharges.

Performance Requirement means a requirement which states the level of performance which a *Plumbing or Drainage Solution* must meet.

Plumbing means any water *plumbing*, roof *plumbing*, sanitary *plumbing* system or heating, ventilation and air-conditioning *plumbing*.

Plumbing or Drainage Solution means a solution which complies with the *Performance Requirements* and is—

- (a) an *Alternative Solution*; or
- (b) a solution which complies with the *Deemed-to-Satisfy Provisions*; or
- (c) a combination of (a) and (b).

Point of connection—

- (a) for a *heated water* service means the point where the water heater connects to the cold water service downstream of the isolation valve; and
- (b) for sewage disposal means the point where the on-site *drainage* system connects to the *Network Utility Operator's* sewerage system or to an *on-site wastewater management system*; and
- (c) for stormwater disposal means the point where the on-site *drainage* system connects to the *Network Utility Operator's* stormwater system or to an *approved disposal system*; and
- (d) for a water service means the point where the service pipe within the premises connects to the *Network Utility Operator's* property service or to an alternative water supply system.

Product means *plumbing* and *drainage* items within the scope of the PCA including but not limited to:

- (a) Materials, fixtures and components used in a *plumbing* or *drainage* installation.
- (b) Appliances and equipment connected to a *plumbing* or *drainage* system.

Professional engineer means 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) a Corporate Member of the Institution of Engineers, Australia; or
 - (ii) eligible to become a Corporate Member of the Institution of Engineers, Australia, and has appropriate experience and competence in the relevant field.

Recognised certification body means a person or organisation appropriately accredited by the *JAS-ANZ* or one that is accepted by the authority having jurisdiction.

Recognised credentials means qualifications and experience in the area of *plumbing* and *drainage* in question recognised by the authority having jurisdiction.

Recognised expert means a person with qualifications and experience in the area of *plumbing* or *drainage* in question recognised by the authority having jurisdiction.

Recognised testing laboratory means a testing laboratory registered with the National Association of Testing Authorities and acceptable to the *WMCAB* as being competent to conduct type tests under the *WaterMark Certification Scheme*.

Specification means a *specification* that is approved by the *administering body*.

Verification Method means a test, inspection, calculation or other method that determines whether a *Plumbing or Drainage Solution* complies with the relevant *Performance Requirement*.

Warranty means a statement by the manufacturer or supplier of a *product* that says that the *product* is suitable for use under specified conditions. The conditions may be limits on water pressure, water temperature or any other operating circumstance.

NOTE: The statement must be included with the product when sold and may be stamped onto the product, printed on the packaging, or included as part of the installation instructions.

WaterMark means the registered certification trademark (see **Figure G1.5.4.1**).

WaterMark Certificate of Conformity (WMCC) means a document issued by the *WMCAB* describing certified *product(s)* in accordance with the *WaterMark Certification Scheme*.

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

WaterMark Certification Scheme (WMCS) means the scheme which provides the method of demonstrating that *plumbing* and *drainage products* comply with the applicable *specification* through the *WaterMark Certificate of Conformity*.

WaterMark Product Database (WMPD) means a database maintained on the internet containing details of certified *products* including reference to the *WaterMark Certification of Conformity (WMCC)*.

Watertight means will not allow water to pass from the inside to the outside of the component or joint and vice versa.

A1.2 Adoption of Standards and other references

Where a *Deemed-to-Satisfy Provision* references a document, rule, *specification* or provision, that adoption does not include a provision—

- (a) specifying or defining the respective rights, responsibilities or obligations as between themselves of any manufacturer, *supplier* or purchaser; or
- (b) specifying the responsibilities of any trades person or other building operative, architect, engineer, authority, or other person or body; or
- (c) requiring the submission for approval of any material, *plumbing* component, form or method of construction, to any person, authority or body other than a person or body empowered under State or Territory legislation to give that approval; or
- (d) specifying that a material, *plumbing* component, form or method of construction must be submitted to any person, authority or body for expression of opinion; or
- (e) permitting a departure from the PCA, rule, *specification* or provision at the sole discretion of the manufacturer or purchaser, or by arrangement or agreement between the manufacturer and purchaser.

A1.3 Referenced Standards, etc

- (a) A reference in a *Deemed-to-Satisfy Provision* to a document under **A1.2** refers to the edition or issue, together with any amendment listed in **Table A3.1** and only so much as is relevant in the context in which the document is quoted.
- (b) Any—
 - (i) reference in a document listed in **Table A3.1** (primary document) to another document (secondary document); and
 - (ii) subsequent references to other documents in secondary documents and those other documents,is a reference to the secondary and other documents as they existed at the time of the primary document listed in **Table A3.1**
- (c) The provisions of (b) do not apply if the secondary referenced document is also a primary referenced document.
- (d) Where the PCA references a document under **A1.2** which is subject to publication of a new edition or amendment not listed under **Table A3.1**, the new edition or amendment need not be complied with in order to comply with the *Deemed-to-Satisfy Provisions*.

A1.4 Differences between referenced documents and the Plumbing Code of Australia

The PCA overrules in any difference arising between it and any Standard, rule, *specification* or provision in a document listed in [Table A3.1](#).

A1.5 Compliance with all Sections of the Plumbing Code of Australia

Subject to [A1.6](#), *plumbing* and *drainage* systems must be so designed, constructed and installed that they comply with the relevant provisions of Sections A to F (inclusive) of the PCA.

A1.6 Application of the Plumbing Code of Australia to a particular State or Territory

For application within a particular State or Territory, the PCA comprises—

- (a) Sections [A](#) to [G](#) (inclusive); and
- (b) the variations, deletions and additions to Sections [A](#) to [G](#) applicable to that State or Territory specified in the relevant Appendix.

A1.7 Language

A reference to a water service, *plumbing* or *drainage* system, or *product* in the PCA is a reference to an entire installation, service, system or *product* or part of an installation, a service, system or *product*, as the case requires.

A1.8 Explanatory Information

These elements of the PCA are non-mandatory. They are used to provide additional guidance on the application of particular Parts and clauses and do not need to be followed to meet the requirements of the PCA.

The ABCB gives no warranty or guarantee that the Explanatory Information is correct or complete. The ABCB shall not be liable for any loss howsoever caused whether due to negligence or otherwise arising from the use of or reliance on the Explanatory Information.

The ABCB recommends that anyone seeking to rely on the Explanatory Information obtain their own independent advice in relation to plumbing or related activities.

PART A2

ACCEPTANCE OF DESIGN AND CONSTRUCTION

A2.1 Suitability of materials and products

- (a) Every part of a *plumbing* or *drainage* installation must be constructed in an appropriate manner to achieve the requirements of the PCA, using materials and *products* that are fit for the purpose for which they are intended.
- (b) Materials or *products* listed in **Table A2.1** which are used in *plumbing* or *drainage* installations must be certified and authorised.
- (c) *Product* Certification and Authorisation must meet the certification and authorisation procedures set out in **Part G** of the PCA - "Materials and Products Certification and Authorisation".
- (d) All materials and *products* intended for use in contact with *drinking water* must comply with AS/NZS 4020 and be certified and authorised in accordance with the PCA.
- (e) Any new or innovative material or *product* must be assessed, certified and authorised, if required, in accordance with **Part G** of the PCA prior to their use in a *plumbing* or *drainage* installation.
- (f) A material or *product* exempted from certification under the PCA is authorised for use in a *plumbing* and *drainage* installation if—
 - (i) it is certified as complying with the appropriate Australian Standard(s); or
 - (ii) if an appropriate Australian Standard does not exist, other evidence of suitability in accordance with **A2.2**.
- (g) A material or *product* used in a fire-fighting water service is authorised for use if it is certified by a recognised body as complying with the relevant Australian Standard(s) for the specific application.
- (h) A material or *product* used in a stormwater installation is authorised for use if it is certified by a recognised body as complying with Section 2 of AS/NZS 3500.3 in accordance with **A2.2**.

A2.2 Evidence of suitability

- (a) Evidence to support that the use of a material, *product*, the design, form of construction or installation meets a *Performance Requirement* or a *Deemed-to-Satisfy Provision* may be in the form of one or a combination of the following:
 - (i) A current *certification mark* issued in compliance with the requirements of **Part G** of the PCA.
 - (ii) A report issued by a *Recognised Expert* showing that the material, *product*, the design, construction and installation has been submitted to the tests listed in a report, and setting out the results of those tests and any other relevant information that demonstrates its suitability for use in the *plumbing* or *drainage* installation.
 - (iii) A certificate from a *professional engineer* or other appropriately qualified person which—
 - (A) certifies that a material, *product*, design, form of construction or installation complies with the requirements of the PCA; and

- (B) sets out the basis on which certification is given and the extent to which relevant *specifications*, rules, codes of practice or other publications have been relied upon.
- (v) Any other form of documentary evidence that correctly describes the properties and performance of the material, form of construction or installation and *adequately* demonstrates its suitability for use in the *plumbing* or *drainage* installation.
- (b) Any copy of documentary evidence submitted must be a complete copy of the original report or document.

Table A2.1 MATERIALS AND PRODUCTS WHICH REQUIRE AUTHORISATION

<i>Product</i> Category	<i>Product</i> Type	Minimum certification level
APPLIANCES AND FIXTURES		
Appliances and fixtures	General	2
Exceptions	Bedpan washer/steriliser	1
	Water filters and water treatment appliances	1
Sanitary Fixtures	General	2
Exceptions	Urinals with remote control flush systems	1
	Water closet pans and suites	1
	Bidets and Bidettes	1
	Cisterns	1
	Small-bore macerator systems	1
Water-using appliances	General	2
Exception	Beverage dispensers and ice makers	1
Water Heaters and Water Heated Storage Tanks	General	1
NON PRESSURISED PIPES, FITTINGS AND ACCESSORIES		
Non pressurised pipes, fittings and accessories	General	2
Exception	PVC-U	1
Vent valves - General	General	2
Pipes and Fittings (non pressure)	General	2

Table A2.1 MATERIALS AND PRODUCTS WHICH REQUIRE AUTHORISATION— continued

Product Category	Product Type	Minimum certification level
Non-Return Reflux valves for Sewerage	General	2
PRESSURISED PIPES, FITTINGS AND ACCESSORIES		
Pressurised pipes, fittings and accessories	General	1
Exception	Shower heads	2
MATERIAL IN CONTACT WITH DRINKING WATER		
Material in contact with <i>drinking water</i>	General	1
Water linings	General	1
WATER SUPPLY VALVES AND VALVE ACCESSORIES		
Water supply valves and valve accessories	General	1
Backflow Prevention Devices	General	1
Control Valves and Taps	General	1
Valves for Pressure and Temperature	General	1
Valve and Tap Accessories	General	1
Fire Protection	General	1
GREYWATER DIVERSION DEVICES (Gravity or pumped discharge)		
Greywater diversion devices (gravity or pumped discharge)	General	2
NOTES:		
1.	For a comprehensive list of <i>product</i> types and applications, <i>specifications</i> and exemptions, see AS 5200.000.	
2.	All materials in contact with <i>drinking water</i> must comply with AS/NZS 4020 (Minimum Certification Level 1).	
3.	Where a <i>product</i> category and the <i>product</i> type have different minimum certification levels, the certification level of the <i>product</i> type is also nominated.	
4.	For <i>products</i> not listed in Table A2.1 or AS 5200.000, the minimum certification level shall be determined in accordance with MP 78 and Part G1 .	
5.	For <i>products</i> which have been authorised but which are not listed, refer to the authority having jurisdiction.	

PART A3 DOCUMENTS ADOPTED BY REFERENCE

A3.1 Schedule of referenced documents

ACT, SA, WA

The Standards and other documents listed in **Table A3.1** are referred to in the PCA.

Table A3.1 SCHEDULE OF REFERENCED DOCUMENTS

Document No.	Date	Title	PCA Clause
AS/NZS 1200	2000	Pressure equipment	E1.2
AS 1271	2003	Safety valves, other valves, liquid level gauges, and other fittings for boilers and unfired pressure vessels Amdt 1	E1.2
AS 1324 Part 1	2001	Air filters for use in general ventilation and air-conditioning Application, performance and construction	E1.2
AS 1345	1995	Identification of the contents of pipes, conduits and ducts	E1.2
AS 1358	2004	Bursting discs and bursting disc devices - Application, selection, installation Amdt 1	E1.2
AS 1428 Part 1	2009	Design for access and mobility General requirements for access – New building work Amdt 1	B1.2, B2.2, C1.2
Part 1	2001	General requirements for access – New building work	B1.2, B2.2, C1.2
Part 2	1992	Enhanced and additional requirements – Buildings and facilities	B1.2, B2.2, C1.2
AS/NZS 1546 Part 1	1998	On-site domestic wastewater treatment units Septic tanks	C2.2, F1.2
Part 2	2001	Waterless composting toilets	C2.2, F1.2
Part 3	2001	Aerated wastewater treatment systems	C2.2, F1.2
AS/NZS 1547	2000	On-site domestic wastewater management	C2.2, F1.2
AS/NZS 1571	1995	Copper – Seamless tubes for air-conditioning and refrigeration	E1.2
AS/NZS 1668		The use of mechanical ventilation and air-conditioning in buildings	

Table A3.1 SCHEDULE OF REFERENCED DOCUMENTS— continued

Document No.	Date	Title	PCA Clause
Part 1	1998	Fire and smoke control in multi-compartment buildings Amdt 1	E1.2
AS 1668 Part 2	1991	The use of mechanical ventilation and air-conditioning in buildings Mechanical ventilation for acceptable indoor air quality	E1.2
AS 2118 Part 1	1999	Automatic fire sprinkler systems General Requirements Amdt 1	B4.2
Part 4	1995	Residential	B4.2
Part 5	1995	Domestic	B4.2
Part 6	1995	Combined sprinklers and hydrant	B4.2
Part 9	1995	Piping support and installation	B4.2
AS 2419 Part 1	2005	Fire hydrant installations System design, installation and commissioning Amdt 1	B4.2 B4.2
AS 2441	2005	Installation of fire hose reels Amdt 1	B4.2
AS/NZS 3500 Part 0	2003	Plumbing and Drainage Glossary of terms	A1.1
Part 1	2003	Water services Amdt 1 Amdt 2	B1.2, B3.2, B4.2, E1.2
Part 2	2003	Sanitary plumbing and drainage Amdt 1 Amdt 2 Amdt 3 Amdt 4	C1.2, C2.2, E1.2, F1.2, F2.2
Part 3	2003	Storm water drainage Amdt 1 Amdt 2	A2.1, D1.2, D2.2
Part 4	2003	Heated water services Amdt 1 Amdt 2	B2.2

Table A3.1 SCHEDULE OF REFERENCED DOCUMENTS— continued

Document No.	Date	Title	PCA Clause
Part 5	2000	Domestic installations Amdt 1 Amdt 2 Amdt 3 Amdt 4	B1.2, B2.2, B3.2, C1.2, C2.2, F1.2
AS/NZS 3666		Air handling and water systems of buildings – Microbial Control	
Part 1	2011	Design, installation and commissioning	E1.2
Part 2	2011	Operation and maintenance	E1.2
Part 3	2000	Performance-based maintenance of cooling water systems	E1.2
AS/NZS 4020	2005	Testing of products in contact with drinking water	A2.1, G1.5
AS 4041	2006	Pressure Piping	E1.2
AS 4118.2.1	1995	Fire Sprinkler Systems - Piping - General Amdt 1	B4.2
AS 4254	1995	Ductwork for air-handling systems in buildings Amdt 1 Amdt 2	E1.2
AS 4426	1997	Thermal insulation of pipework, ductwork and equipment – selection, installation and finish	E1.2
AS 4508	1999	Thermal resistance of insulation for ductwork used in building air conditioning Amdt 1	E1.2
AS 5200		Technical specification for plumbing and drainage products	
Part 000	2006	Part 000: Procedures for certification of plumbing and drainage products	A2.1
AS 5601	2004	Gas Installations	E1.2
BCA		Building Code of Australia	
Volume One	2012	Class 2 to 9 Buildings	B4.2, D1.2, E1.2
Volume Two	2012	Class 1 and Class 10 Buildings – Housing Provisions	D1.2, E1.2
ISO/IEC Guide 67	2004	Conformity assessment – Fundamentals of product certification	G1.5
MP 78	1999	Manual for assessment of risks of plumbing products	G1.5

Table A3.1 SCHEDULE OF REFERENCED DOCUMENTS— continued

Document No.	Date	Title	PCA Clause
National Health and Medical Research Council	2004	National Water Quality Management Strategy - Australian Drinking Water Guidelines Paper 6	A1.1

SECTION

B

WATER SERVICES

- B1 Cold Water Services**
- B2 Heated Water Services**
- B3 Non-Drinking Water Services**
- B4 Fire-Fighting Services**

SECTION B CONTENTS

SECTION B WATER SERVICES

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- Performance Requirements BP1.1 - BP1.4
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PART B1 COLD WATER SERVICES

B1.0 Scope

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of a cold water service of a property that is connected to the *drinking water* supply, from the *point of connection* to the points of discharge.

OBJECTIVE

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 (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 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

BF1.1

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

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.

PERFORMANCE REQUIREMENTS

BP1.1 Cold water service

Installations intended to supply cold water for human consumption, food preparation, food utensil washing or personal hygiene must be connected to a *drinking water* supply.

BP1.2 Cold water service installation

A cold water service must be designed, constructed and installed in such a manner as to—

- (a) avoid the likelihood of contamination of *drinking water* within both the water service and the *Network Utility Operator's* supply; and
- (b) provide water to fixtures and appliances at flow rates and pressures which are *adequate* for the correct functioning of those fixtures and appliances under normal conditions and in a manner that does not create undue noise; and
- (c) avoid the likelihood of leakage or failure including uncontrolled discharges; and
- (d) facilitate the efficient use of *drinking water*; and
- (e) allow *adequate* access for maintenance of mechanical components and operational controls; and
- (f) allow the system, appliances and backflow prevention devices to be isolated for testing and maintenance, where required.

BP1.3 People with a disability

Facilities provided for people with a disability must have cold water supply taps or other operational controls that are *accessible* and *adequate* for their use.

BP1.4 Materials and products

Materials and *products* used in cold water services must meet the requirements of **Part A2**.

VERIFICATION METHOD

BV1 Verification Method

Compliance with **BP1.2** is verified either—

- (a) by calculation by persons or organisations with *recognised credentials* in the design or testing of water service systems; or
- (b) by satisfying the required criteria when tested in accordance with a specified test method endorsed by a *recognised certification body*.

PART B1 COLD WATER SERVICES

Deemed-to-Satisfy Provisions

B1.1 Deemed-to-Satisfy

Performance Requirements **BP1.1** to **BP1.3** are satisfied by complying with **B1.2**.

B1.2 Deemed-to-Satisfy Provisions

ACT B1.2(a)

NSW B1.2(a)

Qld B1.2(a)

SA B1.2(a)

WA B1.2(a)

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of cold water services must be in accordance with AS/NZS 3500.1 or Section 2 of AS/NZS 3500.5 as appropriate.
- (b) Cold water supply taps or other operational controls provided for people with a disability in sanitary facilities must be in accordance with—
 - (i) AS 1428.1 (2001) and AS 1428.2 for all BCA Class 9b and Class 10 public transport buildings; and
 - (ii) AS 1428.1 (2009) for all other buildings.

SA B1.2(c)

Vic B1.2(c), (d)

PART B2 HEATED WATER SERVICES

B2.0 Scope

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of a *heated water* service of a property that is connected to the *drinking water* supply, from the *point of connection* to the points of discharge.

OBJECTIVE

BO2

The *Objective* of this Part is to—

Qld BO2(a)

- (a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to the failure of a *heated water* installation; and
- (b) ensure that a *heated water* installation (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 *heated water* installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy *Objectives (a) to (e)*.

FUNCTIONAL STATEMENTS

BF2.1

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

BF2.2

The *heated water* supply 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.

PERFORMANCE REQUIREMENTS

BP2.1 Heated water service

Installations intended to supply *heated water* for human consumption, food preparation, food utensil washing or personal hygiene must be connected to a *drinking water* supply.

BP2.2 Heated water temperatures

Heated water supplied by a new *heated water* service must be delivered to fixtures and appliances used primarily for personal hygiene at a temperature which reduces the likelihood of scalding.

BP2.3 Heated water service installation

A *heated water* service must be designed, constructed and installed in such a manner as to—

- (a) avoid the likelihood of contamination of *drinking water* within both the on-site installation and the supply; and
- (b) provide *heated water* to fixtures and appliances at flow rates and temperatures which are *adequate* for the correct functioning of those fixtures and appliances under normal conditions and in a manner that does not create undue noise; and
- (c) avoid the likelihood of leakage or failure, including uncontrolled discharges; and
- (d) use energy efficiently and minimise wastage of water; and
- (e) allow *adequate* access for maintenance of mechanical components and operational controls; and
- (f) allow the system, appliances and backflow prevention devices to be isolated for testing and maintenance, where required.

Explanatory information: Energy and water efficient system design

The efficiency of heated water units can be affected by system design.

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 unwanted water and energy wastage.

To improve the efficiency of heated water systems the design should consider factors such as the number of outlets, their purpose and expected typical usage, and the distance between the water heater and each of the outlets served. The heated water unit 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 an additional unit or a flow and return pipe loop may need to be considered.

BP2.4 Pressure Vessels

Pressure vessels used for producing and/or storing *heated water* must be provided with safety devices which—

- (a) relieve excessive pressure during both normal and abnormal conditions; and
- (b) limit temperatures to avoid the likelihood of flash steam production in the event of rupture.

BP2.5 Heated water storage

Heated water must be stored and delivered under conditions which avoid the likelihood of the growth of Legionella bacteria.

BP2.6 People with a disability

Where *heated water* is supplied in facilities provided for people with a disability, supply taps or other operational controls must be *accessible* and *adequate* for their use.

BP2.7 Materials and Products

Materials and *products* used in *heated water* services must meet the requirements of **Part A2**.

VERIFICATION METHOD

BV2

Compliance with **BP2.1** to **BP2.5** is verified either—

- (a) by calculation and certification by persons or organisations with *recognised credentials* in the design or testing of *heated water* service systems; or
- (b) by satisfying the required criteria when tested in accordance with a specified test method endorsed by a *recognised certification body*.

PART B2 HEATED WATER SERVICES

Deemed-to-Satisfy Provisions

B2.1 Deemed-to-Satisfy

Performance Requirements **BP2.1** to **BP2.6** are satisfied by complying with **B2.2**.

B2.2 Deemed-to-Satisfy Provisions

ACT B2.2(a)

NSW B2.2(a)

Qld B2.2(a)

SA B2.2(a)

Vic B2.2(a)

WA B2.2(a)

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a *heated water* service must be in accordance with AS/NZS 3500.4 or Section 3 of AS/NZS 3500.5 as appropriate.
- (b) *Heated water* supply taps or other operational controls provided for people with a disability in sanitary facilities must be in accordance with—
 - (i) AS 1428.1 (2001) and AS 1428.2 for all BCA Class 9b and Class 10 public transport buildings; and
 - (ii) AS 1428.1 (2009) for all other buildings.

PART B3 NON-DRINKING WATER SERVICES

B3.0 Scope

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of a *non-drinking water* service of a property from the *point of connection* to the points of discharge.

OBJECTIVE

B03

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

FUNCTIONAL STATEMENTS

BF3.1

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

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

BP3.1 Non-drinking water service

- (a) A *non-drinking water* supply must only be connected to outlets clearly identified for non-drinking use and must be limited to the uses specified in **B3.2 (a)**.
- (b) A *non-drinking water* service is not to have a cross connection with a *drinking water* service.

BP3.2 Identification

Pipe outlets, fittings, storage and holding tanks that form part of a *non-drinking water* service must be clearly identified.

BP3.3 Non-drinking water service installations

A *non-drinking water* service must be designed, constructed and installed in such a manner as to—

- (a) avoid the likelihood of contamination of *drinking water*; and
- (b) provide *non-drinking water* to fixtures and appliances at flow rates and pressures which are *adequate* for the correct functioning of those fixtures and appliances under normal conditions and, in a manner that does not create undue noise; and
- (c) avoid the likelihood of leakage or failure including uncontrolled discharges; and
- (d) allow *adequate* access for maintenance of mechanical components and operational controls; and
- (e) allow the system, appliances and backflow prevention devices to be isolated for testing and maintenance.

BP3.4 People with a disability

Non-drinking water services provided for people with a disability must have taps or other operational controls that are *accessible*, convenient and *adequate* for their use.

BP3.5 Materials and Products

Materials and *products* used in a *non-drinking water* service must meet the requirements of **Part A2**.

VERIFICATION METHOD

BV3

Compliance with **BP3.1** to **BP3.3** is verified either—

- (a) by calculation and certification by persons or organisations with *recognised credentials* in the design or testing of *non-drinking water* service systems; or

- (b) by satisfying the required criteria when tested in accordance with a specified test method endorsed by a *recognised certification body*.

PART B3 NON-DRINKING WATER SERVICES

Deemed-to-Satisfy Provisions

B3.1 Deemed-to-Satisfy

Performance Requirements **BP3.1** to **BP3.4** are satisfied by complying with **B3.2**.

B3.2 Deemed-to-Satisfy Provisions

- (a) The distribution of *non-drinking water* must be limited to the following uses—
- (i) garden watering; and
 - (ii) toilet and urinal flushing; and
 - (iii) clothes washing; and
 - (iv) vehicle washing; and
 - (v) path/wall washing; and
 - (vi) industrial purposes; and
 - (vii) fire-fighting; and
 - (viii) dust suppression; and.
 - (ix) any other use authorised by the authority having jurisdiction.

Qld B3.2(a)(x), (xi), (xii)

ACT B3.2(b)

NSW B3.2(b)

Qld B3.2(b)

- (b) The design, construction, installation, replacement, repair, alteration and maintenance of a *non-drinking water* service must be in accordance with AS/NZS 3500.1 or Section 2 of AS/NZS 3500.5 as appropriate.
- (c) The design, construction, installation, replacement, repair, alteration and maintenance of a *non-drinking water* fire service must be in accordance with **Part B4**.

Qld B3.101, Qld B3.102

PART B4 FIRE-FIGHTING WATER SERVICES

NSW B4

NT B4

Qld B4

B4.0 Scope

This Part sets out requirements for the design, construction, installation, replacement, repair, alteration and maintenance of 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 hydrant, hose reel, sprinkler services and wall drencher systems.

OBJECTIVE

BO4

The *Objective* of this Part is to—

- (a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to the failure of a fire-fighting water installation; and
- (b) ensure that a fire-fighting water installation (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 fire-fighting water installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy *Objectives (a) to (e)*.

FUNCTIONAL STATEMENT

BF4.1

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

PERFORMANCE REQUIREMENTS

BP4.1 Fire-fighting water service

A fire-fighting water service must be designed, constructed and installed in a manner which—

- (a) avoids the likelihood of contamination of *drinking water*; and
- (b) provides water to the fire-fighting equipment at a flow rate and pressure that is *adequate* for the correct functioning of the equipment; and
- (c) avoids the likelihood of leakage or failure including uncontrolled discharges; and
- (d) provides *adequate* access for maintenance of mechanical components and operational controls; and
- (e) allows the system and backflow prevention devices to be isolated for testing and maintenance.

BP4.2 Materials and Products

Materials and *products* used in fire-fighting water services must meet the requirements of **Part A2**.

VERIFICATION METHOD

BV4

Verification of fire-fighting water service performance may be conducted by a qualified third party certifier and/or the fire-fighting authority having jurisdiction.

PART B4 FIRE-FIGHTING WATER SERVICES

Deemed-to-Satisfy Provisions

B4.1 Deemed-to-Satisfy

Performance Requirement BP4.1 is satisfied by complying with **B4.2**.

B4.2 Deemed-to-Satisfy Provisions

- (a) Fire-fighting water services for buildings and structures to which the *BCA* applies must comply with the requirements of **Part E** of **Volume One** of the *BCA*.
- (b) The installation of a fire-fighting water service must be in accordance with AS/NZS 3500.1.
- (c) The installation of an automatic fire sprinkler system must be in accordance with AS 2118.1, AS 2118.4, AS 2118.5, AS 2118.6, and AS 2118.9 as appropriate.
- (d) Fire hydrant installations must be in accordance with AS 2419.1.
- (e) Installation of fire hose reel systems must be in accordance with AS 2441.
- (f) Piping for fire sprinkler systems must comply with AS 4118.2.1.

SA B4.2(g)

SECTION

C

SANITARY PLUMBING AND DRAINAGE SYSTEMS

C1 Sanitary Plumbing Systems

C2 Sanitary Drainage Systems

SECTION C CONTENTS

SECTION C SANITARY PLUMBING AND DRAINAGE SYSTEMS

Part C1 Sanitary Plumbing Systems

- C1.0 Scope
- Objective CO1
- Functional Statement CF1.1
- Performance Requirements CP1.1 - CP1.3
- Verification Method CV1
- C1.1 Deemed-to-Satisfy
- C1.2 Deemed-to-Satisfy Provisions

Part C2 Sanitary Drainage Systems

- C2.0 Scope
- Objective CO2
- Functional Statement CF2.1
- Performance Requirements CP2.1 - CP2.3
- Verification Method CV2
- C2.1 Deemed-to-Satisfy
- C2.2 Deemed-to-Satisfy Provisions

PART C1 SANITARY PLUMBING SYSTEMS

C1.0 SCOPE

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of a sanitary *plumbing* system of a property including from sanitary fixtures and appliances to an *approved disposal system*.

OBJECTIVE

CO1

The *Objective* of this Part is to—

- (a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to the failure of a sanitary *plumbing* installation; and
- (b) ensure that a sanitary *plumbing* installation (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 sanitary *plumbing* installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy *Objectives (a)* to *(e)*.

FUNCTIONAL STATEMENT

CF1.1

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

PERFORMANCE REQUIREMENTS

CP1.1 Sanitary plumbing systems

A sanitary *plumbing* system must be designed, constructed and installed in such a manner as to—

- (a) convey sewage or sullage to a sanitary *drainage* system or an *approved disposal system* and in a manner that does not create undue noise; and
- (b) avoid the likelihood of *loss* of *amenity* due to *blockage* and leakage; and
- (c) avoid the likelihood of the ingress of inappropriate water, sewage, sullage, foul air and gases from the system into the building; and
- (d) provide *adequate* access for maintenance of mechanical components, operational controls and for clearing *blockages*; and
- (e) avoid the likelihood of damage from superimposed loads, ground movement or root penetration; and
- (f) avoid the likelihood of ingress of surface water, sub-surface water or stormwater into the system; and
- (g) provide for the effective and efficient use of water; and
- (h) provide *adequate* ventilation to avoid hydraulic load imbalance.

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 build-up of Struvite (ammonium magnesium phosphate) inside pipework, potentially causing *blockage* within the sanitary *plumbing* system.

CP1.2 People with a disability

Facilities provided for people with a disability must have sanitary fixtures that are *accessible* and *adequate* for their use.

CP1.3 Materials and Products

Materials and *products* used in sanitary *plumbing* systems must meet the requirements of **Part A2**.

VERIFICATION METHOD

CV1

Compliance with **CP1.1** is verified either—

- (a) by calculation and certification by persons or organisations with *recognised credentials* in the design or testing of sanitary *plumbing* and *drainage* systems; or
- (b) by satisfying the required criteria when tested in accordance with a specified test method endorsed by a *recognised certification body*.

PART C1 SANITARY PLUMBING SYSTEMS

Deemed-to-Satisfy Provisions

C1.1 Deemed-to-Satisfy

Performance Requirements **CP1.1** and **CP1.2** are satisfied by complying with **C1.2**.

C1.2 Deemed-to-Satisfy Provisions

ACT C1.2(a)

NSW C1.2(a)

Qld C1.2(a)

SA C1.2(a)

Vic C1.2(a)

WA C1.2(a)

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *plumbing* system must be in accordance with AS/NZS 3500.2 or Section 4 of AS/NZS 3500.5 as appropriate.
- (b) Sanitary fixtures provided for people with a disability must be in accordance with—
 - (i) AS 1428.1 (2001) and AS 1428.2 for all BCA Class 9b and Class 10 public transport buildings; and
 - (ii) AS 1428.1 (2009) for all other buildings.

WA C1.2(c)

PART C2 SANITARY DRAINAGE SYSTEMS

C2.0 SCOPE

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of a sanitary *drainage* system of a property including from sanitary fixtures and appliances to an *approved disposal system*.

OBJECTIVE

CO2

The *Objective* of this Part is to—

- (a) safeguard people from illness, injury or *loss* (including *loss* of *amenity*) due to the failure of a sanitary *drainage* installation; and
- (b) ensure that a sanitary *drainage* installation (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 sanitary *drainage* installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy *Objectives (a)* to *(e)*.

FUNCTIONAL STATEMENT

CF2.1

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

PERFORMANCE REQUIREMENTS

CP2.1 Sanitary drainage system

A sanitary *drainage* system must be designed constructed and installed in such a manner as to—

- (a) convey sewage from a sanitary *plumbing* system to an *approved disposal system* and in a manner that does not create undue noise;
- (b) avoid the likelihood of *blockage* and leakage; and
- (c) avoid the likelihood of root penetration; and
- (d) provide *adequate* access for maintenance and for clearing *blockages*; and
- (e) provide ventilation to avoid the likelihood of foul air and gases accumulating in the sanitary *drainage* and sewerage systems; and
- (f) avoid the likelihood of damage from superimposed loads or ground movement; and
- (g) avoid the likelihood of ingress of water, foul air and gases from the system into buildings; and
- (h) protect against internal contamination; and
- (i) avoid the likelihood of ingress of surface water, sub-surface water and stormwater into the sewerage system; and
- (j) avoid the likelihood of uncontrolled discharge; and
- (k) avoid the likelihood of damage to existing buildings or site works; and
- (l) avoid the likelihood of damage to the sewerage system or other *approved disposal system*.

CP2.2 No point of connection

Vic CP2.2

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 **Part F1**.

CP2.3 Materials and Products

Materials and *products* used in sanitary *drainage* systems must meet the requirements of **Part A2**.

VERIFICATION METHOD

CV2

Compliance with **CP2.1** is verified either—

- (a) by calculation and certification by persons or organisations with *recognised credentials* in the design or testing of sanitary *plumbing* and *drainage* systems; or
- (b) by satisfying the required criteria when tested in accordance with a specified test method endorsed by a *recognised certification body*.

PART C2 SANITARY DRAINAGE SYSTEMS

Deemed-to-Satisfy Provisions

C2.1 Deemed-to-Satisfy

Performance Requirements **CP2.1** and **CP2.2** are satisfied by complying with **C2.2**.

C2.2 Deemed-to-Satisfy Provisions

ACT C2.2(a)

NSW C2.2(a)

NT C2.2(a)

Qld C2.2(a)

Vic C2.2(a)

WA C2.2(a)

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *drainage* system must be in accordance with AS/NZS 3500.2 or Section 4 of AS/NZS 3500.5 as appropriate.
- (b) Where there is no *point of connection* to a *Network Utility Operator's* sewerage system, the design, construction, installation, replacement, repair, alteration and maintenance of a wastewater treatment system must be in accordance with AS/NZS 1546.1, AS/NZS 1546.2, AS/NZS 1546.3 or AS/NZS 1547 as appropriate.

ACT C2.2(c), (d), (e), (f)

Vic C2.2(c), (d), Vic C2.101

WA C2.2(c)

SECTION

D

STORMWATER DRAINAGE SYSTEMS

D1 Roof Drainage Systems

D2 Surface and Subsurface Drainage Systems

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SECTION D STORMWATER DRAINAGE SYSTEMS

Part D1 Roof Drainage Systems

- D1.0 Scope
- Objective DO1
- Functional Statement DF1.1
- Performance Requirements DP1.1 - DP1.5
- Verification Method DV1
- D1.1 Deemed-to-Satisfy
- D1.2 Deemed-to-Satisfy Provisions

Part D2 Surface and Subsurface Drainage Systems

- D2.0 Scope
- Objective DO2
- Functional Statement DF2.1
- Performance Requirements DP2.1 - DP2.4
- Verification Method DV2
- D2.1 Deemed-to-Satisfy
- D2.2 Deemed-to-Satisfy Provisions

PART D1 ROOF DRAINAGE SYSTEMS

ACT D1

NSW D1

NT D1

Qld D1

SA D1

WA D1

D1.0 Scope

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of a roof *drainage* system.

OBJECTIVE

DO1

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 STATEMENT

DF1.1

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

DP1.1 Roof drainage systems

Roof *drainage* systems must dispose of stormwater flows from rainfall events having an *average recurrence interval* appropriate to the importance of the building and the severity of potential damage to property, *loss* of *amenity*, illness or injury that would result from the failure of such a system.

DP1.2 Overflow devices or measures

The roof *drainage* system must be designed, installed and maintained to dispose of stormwater flows due to extreme rainfall events by the installation and maintenance of *overflow devices* or measures of *adequate* capacity.

DP1.3 Watertightness

All internal roof *drainage* components must be *watertight*.

DP1.4 Roof drainage installation

Roof *drainage* installations must be designed, constructed and installed in such a manner as to—

- (a) convey stormwater to a *point of connection*; and
- (b) avoid the likelihood of *loss* of *amenity* due to *blockages* and leakage; and
- (c) avoid the likelihood of foul air and gases accumulating in the roof *drainage* system; and
- (d) avoid the likelihood of *loss* to buildings and property; and
- (e) avoid the likelihood of uncontrolled discharges; and
- (f) provide *adequate* access for maintenance and clearing of *blockages*.

DP1.5 Materials and Products

Materials and *products* used in stormwater *drainage* systems must meet the requirements of **Part A2**.

VERIFICATION METHOD

DV1

Compliance with **DP1.1** to **DP1.4** is verified either—

- (a) by calculation and certification by persons or organisations with *recognised credentials* in the design or testing of stormwater *drainage* systems; or
- (b) by satisfying the required criteria when tested in accordance with a specified test method endorsed by a *recognised certification body*.

PART D1 ROOF DRAINAGE SYSTEMS

Deemed-to-Satisfy Provisions

D1.1 Deemed-to-Satisfy

Performance Requirements **DP1.1** to **DP1.4** are satisfied by complying with **D1.2**.

D1.2 Deemed-to-Satisfy Provisions

Vic D1.2(a)

The design, construction, installation, replacement, repair, alteration and maintenance of a roof *drainage* system must be in accordance with AS/NZS 3500.3 or for BCA Class 1 and 10 buildings, comply with the *Deemed-to-Satisfy Provisions* of Parts 3.1.2 and 3.5.2 of Volume Two of the *BCA*.

PART D2 SURFACE AND SUBSURFACE DRAINAGE SYSTEMS

ACT D2

NSW D2

NT D2

Qld D2

SA D2

WA D2

D2.0 Scope

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of a surface *drainage* system and subsurface *drainage* system to the *point of connection*.

OBJECTIVE

DO2

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;
- (b) ensure that a stormwater *drainage* installation is *adequate*; and
- (c) conserve water and energy; and
- (d) safeguard the environment; and
- (e) safeguard public and private infrastructure; and
- (f) ensure that a stormwater *drainage* installation is designed and is capable of being maintained so that throughout its serviceable life it will continue to satisfy *Objectives (a) to (e)*.

FUNCTIONAL STATEMENT

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

DP2.1 Surface drainage systems

Surface *drainage* systems must dispose of stormwater flows from rainfall events having an *average recurrence interval* appropriate to the importance of the site and the severity of potential damage to property, *loss* of *amenity*, illness or injury that would result from the failure of such a system.

DP2.2 Subsurface drainage systems

Subsoil *drainage* systems must remove excess groundwater and reduce soil moisture levels without causing *loss* by inappropriately changing soil moisture conditions.

DP2.3 Surface drainage installation

Surface *drainage* installations must be designed, constructed and installed in such a manner as to—

- (a) convey stormwater to a *point of connection*; and
- (b) avoid the likelihood of *blockages*; and
- (c) avoid the likelihood of leakage and penetration by roots; and
- (d) provide *adequate* access for maintenance and clearing of *blockages*; and
- (e) avoid the likelihood of damage to the *Network Utility Operator's drainage* system; and
- (f) avoid the likelihood of damage from superimposed loads or ground movements; and
- (g) avoid the likelihood of ingress of sewage and/or liquid trade waste; and
- (h) avoid the likelihood of ingress of surface water and stormwater into a sanitary *drainage* system; and
- (i) avoid the likelihood of foul air and gases accumulating in the stormwater system; and
- (j) avoid the likelihood of *loss* to buildings or property; and
- (k) avoid the likelihood of uncontrolled discharge.

DP2.4 Materials and Products

Materials and *products* used in stormwater *drainage* systems must meet the requirements of **Part A2**.

VERIFICATION METHOD

DV2

Compliance with **DP2.1** to **DP2.3** is verified either—

- (a) by calculation and certification by persons or organisations with *recognised credentials* in the design or testing of stormwater *drainage* systems; or

- (b) by satisfying the required criteria when tested in accordance with a specified test method endorsed by a *recognised certification body*.

PART D2

SURFACE AND SUBSURFACE DRAINAGE SYSTEMS

Deemed-to-Satisfy Provisions

D2.1 Deemed-to-Satisfy

Performance Requirements **DP2.1** to **DP2.3** are satisfied by complying with **D2.2**.

D2.2 Deemed-to-Satisfy Provisions

The design, construction, installation, replacement, repair, alteration and maintenance of a stormwater *drainage* system must be in accordance with AS/NZS 3500.3.

SECTION

E

HEATING, VENTILATION AND AIR-CONDITIONING

E1 Heating, Ventilation and Air-Conditioning Systems

SECTION E CONTENTS

SECTION E HEATING, VENTILATION AND AIR-CONDITIONING

Part E1 Heating, Ventilation and Air-Conditioning Systems

E1.0 Scope

Objective EO1

Functional Statements EF1.1 - EF1.2

Performance Requirements EP1.1 - EP1.2

Verification Method EV1

E1.1 Deemed-to-Satisfy

E1.2 Deemed-to-Satisfy Provisions

PART E1 HEATING, VENTILATION AND AIR-CONDITIONING SYSTEMS

ACT E1

NSW E1

NT E1

Qld E1

SA E1

WA E1

E1.0 Scope

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of mechanical heating, cooling and ventilation systems.

OBJECTIVE

EO1

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 (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 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

EF1.1

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

EF1.2

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

EP1.1

Mechanical services, plant and equipment for heating, cooling and/or ventilation must be designed constructed, installed and maintained in such a manner as to—

- (a) avoid the likelihood of harmful microbial growth; and
- (b) avoid the likelihood of damage to property and *loss* of *amenity* to the building occupants; and
- (c) be efficient in the use of energy and water; and
- (d) provide *adequate* access for maintenance.

EP1.2 Materials and Products

Materials and *products* used in mechanical heating, cooling and/or ventilation systems must meet the requirements of **Part A2**.

VERIFICATION METHOD

EV1

Compliance with **EP1.1** is verified either:

- (a) by calculation and certification by persons or organisations with *recognised credentials* in the testing of heating, ventilation and air conditioning systems; or
- (b) by satisfying the required criteria when tested in accordance with a specified test method endorsed by a *recognised certification body*.

PART E1 HEATING, VENTILATION AND AIR-CONDITIONING SYSTEMS

Deemed-to-Satisfy Provisions

E1.1 Deemed-to-Satisfy

Performance Requirement EP1.1 is satisfied by complying with **E1.2**.

E1.2 Deemed-to-Satisfy Provisions

- (a) Mechanical ventilation and air-conditioning systems for buildings and structures to which the *BCA* applies must comply with the requirements of the relevant Parts of the *BCA*.
- (b) The design, construction, installation, replacement, repair, alteration and maintenance of mechanical ventilation and air-conditioning equipment systems must be in accordance with AS/NZS 1200, AS 1324.1, AS 1345, AS/NZS 1668.1, AS 1668.2, AS/NZS 3500.1, AS/NZS 3500.2, AS/NZS 3500.4, AS 4254, AS 4426, AS 4508 and AS 5601 as appropriate.
- (c) The design, construction, installation, replacement, repair, alteration and maintenance of pressure equipment and piping must be in accordance with AS/NZS 1200, AS 1271, AS 1358 and AS 4041.
- (d) The design, construction, installation, replacement, repair, alteration and maintenance of copper piping for air-conditioning and refrigeration must be in accordance with AS/NZS 1571.
- (e) Microbial control must be carried out in accordance with AS/NZS 3666.1, AS/NZS 3666.2 and AS/NZS 3666.3 as appropriate.

Vic E1.2(f), (g) and (h)

SECTION **F**

ON-SITE WASTEWATER SYSTEMS

- F1 On-site Wastewater Management Systems**
- F2 On-site Liquid Trade Waste Systems**

SECTION F CONTENTS

SECTION F ON-SITE WASTEWATER SYSTEMS

Part F1 On-site Wastewater Management Systems

- F1.0 Scope
- Objective FO1
- Functional Statement FF1.1
- Performance Requirements FP1.1 - FP1.6
- Verification Method FV1
- F1.1 Deemed-to-Satisfy
- F1.2 Deemed-to-Satisfy Provisions

Part F2 On-site Liquid Trade Waste Systems

- F2.0 Scope
- Objective FO2
- Functional Statements FF2.1 - FF2.2
- Performance Requirements FP2.1 - FP2.5
- Verification Method FV2
- F2.1 Deemed-to-Satisfy
- F2.2 Deemed-to-Satisfy Provisions

PART F1 ON-SITE WASTEWATER MANAGEMENT SYSTEMS

ACT F1

NSW F1

NT F1

Qld F1

SA F1

WA F1

F1.0 Scope

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of an *on-site wastewater management system*.

OBJECTIVE

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

FUNCTIONAL STATEMENT

FF1.1

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

PERFORMANCE REQUIREMENTS

FP1.1

On-site wastewater management systems must be designed, constructed, installed and maintained in such a manner as to—

- (a) protect public health by ensuring that—
 - (i) all discharges comply with the requirements of the authority having jurisdiction; and
 - (ii) risks associated with the discharge of treated wastewater and or the end product from a composting toilet to the environment are minimised; and
- (b) protect the environment by ensuring that—
 - (i) environmental quality objectives set by the authority having jurisdiction are attained; and
 - (ii) surface and ground water are not polluted; and
 - (iii) soil productivity is maintained or enhanced; and
 - (iv) adverse cumulative environmental effects comply with the relevant environmental requirements; and
- (c) minimise the impacts on and maintain and enhance community *amenity* by ensuring that—
 - (i) *on-site wastewater management systems* are managed so as to achieve sustainable long term performance; and
 - (ii) the *on-site wastewater management system* design and its implementation contribute to improving and sustaining aesthetic values within individual properties and groups of properties; and
 - (iii) the requirements of any community resource utilisation programme for the reuse of resources within wastewater are met; and
- (d) meet the requirements of the receiving *Network Utility Operator* for the acceptance of wastewater to sewers, as appropriate.

FP1.2

Wastewater must be discharged according to the requirements and agreement of the authority having jurisdiction.

FP1.3

Wastewater must be conveyed to an *on-site wastewater management system* in a way that—

- (a) transfers wastes safely and hygienically; and
- (b) avoids the likelihood of *blockage* and leakage; and
- (c) avoids the likelihood of foul air and gases entering buildings; and
- (d) provides *adequate* and safe access for maintenance and clearing *blockages*.

FP1.4

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

- (a) with *adequate* treatment and storage capacity for the volume of waste and frequency of disposal; and
- (b) with *adequate* size, strength and rigidity for the nature, flow rates, volume of wastes and/or waste products which must be processed; and
- (c) with *adequate* vehicle access for collection, if required; and
- (d) to avoid the likelihood of contamination of any *drinking water* supplies; and
- (e) to avoid the likelihood of contamination of soils, ground water and waterways; and
- (f) from materials which are impervious both to the waste for which disposal is required and to water; and
- (g) to avoid the likelihood of foul air and gases accumulating within or entering into buildings; and
- (h) to avoid the likelihood of unauthorised access by people; and
- (i) to permit cleaning, maintenance, measurement and performance sampling; and
- (j) to avoid the likelihood of surface water and stormwater entering the system; and
- (k) to avoid the likelihood of uncontrolled discharge; and
- (l) to permit the manufacturer, model, serial number and designed capacity to be reasonably easily identifiable after installation; and
- (m) so that the installation throughout its serviceable life will continue to satisfy the requirements of items (a) to (l).

FP1.5 Land application systems

On-site wastewater management systems and associated land application systems must be designed constructed, installed and maintained in such a manner as to—

- (a) complete the treatment, uptake and absorption of the final effluent within the boundaries of the approved application area; and
- (b) avoid the likelihood of the creation of unpleasant odours or the accumulation of offensive matter; and
- (c) avoid the likelihood of the ingress of effluent, foul air or gases entering buildings; and
- (d) avoid the likelihood of stormwater run-off entering the system; and
- (e) avoid the likelihood of root penetration or ingress of ground water entering the system; and
- (f) protect against internal contamination; and
- (g) provide *adequate* access for maintenance; and
- (h) incorporate *adequate* provisions for effective cleaning; and
- (i) avoid the likelihood of unintended or uncontrolled discharge; and
- (j) avoid the likelihood of *blockage* and leakage; and

- (k) avoid the likelihood of damage from superimposed loads or ground movement; and
- (l) provide ventilation to avoid the likelihood of foul air and gases from accumulating in the system; and
- (m) so that the installation throughout its serviceable life will continue to satisfy the requirements of items (a) to (l).

FP1.6 Materials and Products

- (a) Materials and *products* connected to an *on-site wastewater management system* must meet the requirements of **Part A2**.
- (b) On-site domestic wastewater treatment units must be authorised by the authority having jurisdiction.

VERIFICATION METHOD

FV1

Compliance with **FP1.1** to **FP1.5** is verified either—

- (a) by calculation and certification by persons or organisations with *recognised credentials* in the testing of *on-site domestic wastewater systems*; or
- (b) by satisfying the required criteria when tested in accordance with a specified test method endorsed by a *recognised certification body*.

PART F1 ON-SITE WASTEWATER MANAGEMENT SYSTEMS

Deemed-to-Satisfy Provisions

F1.1 Deemed-to-Satisfy

Performance Requirement FP1.1 – FP1.5 is satisfied by complying with **F1.2** as appropriate.

F1.2 Deemed-to-Satisfy Provisions

- (a) The size determination, design and installation of septic tanks must be in accordance with AS/NZS 1546.1.
- (b) The size determination, design and installation of waterless composting toilets must be in accordance with AS/NZS 1546.2.
- (c) The size determination, design and installation of aerated wastewater treatment systems must be in accordance with AS/NZS 1546.3.
- (d) The design, construction, installation, replacement, repair, alteration and maintenance of all sanitary *plumbing* and *drainage* systems must be in accordance with AS/NZS 3500.2 or Section 4 of AS/NZS 3500.5 as appropriate.
- (e) The size determination, design, construction, installation, replacement, repair, alteration and maintenance of domestic land application systems must be in accordance with AS/NZS 1547.
- (f) The management of domestic *on-site wastewater management systems* and domestic land application systems must be in accordance with AS/NZS 1547.

PART F2 ON-SITE LIQUID TRADE WASTE SYSTEMS

ACT F2

NSW F2

Qld F2

WA F2

F2.0 Scope

This Part sets out the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of a system of a property used for the on-site treatment, conveyance and/or disposal of liquid trade waste.

OBJECTIVE

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 liquid trade waste installation; and
- (b) ensure that a 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 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

FF2.1

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.

FF2.2

On-site liquid trade waste management systems must process liquid 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

FP2.1

An on-site liquid trade waste system must be designed, constructed and installed in such a manner as to—

- (a) protect public health by ensuring that—
 - (i) all discharges comply with the relevant requirements of the authority having jurisdiction; and
 - (ii) risks associated with the discharge of treated liquid trade waste to the environment are minimised; and
- (b) protect the environment by ensuring that—
 - (i) environmental quality objectives set by the authority having jurisdiction are attained; and
 - (ii) surface and ground water are not polluted; and
 - (iii) soil productivity is maintained or enhanced; and
 - (iv) adverse cumulative environmental effects comply with the relevant environmental requirements; and
- (c) minimise the impacts on and maintain and enhance community *amenity* by ensuring that—
 - (i) on-site liquid trade waste systems are managed so as to achieve sustainable long term performance; and
 - (ii) the on-site system design and its implementation contribute to improving and sustaining aesthetic values within individual properties and groups of properties; and
 - (iii) the requirements of any community resource utilisation programme for the reuse of resources within wastewater are met; and
- (d) meet the requirements of the receiving *Network Utility Operator* for the acceptance of liquid trade waste to sewers, as appropriate.

FP2.2

Liquid trade waste must be discharged according to the requirements and agreement of the authority having jurisdiction and the receiving *Network Utility Operator*.

FP2.3

Liquid trade waste must be conveyed to storage containers and within disposal systems in a way that—

- (a) transfers wastes safely and hygienically; and
- (b) avoids the likelihood of *blockage* and leakage; and
- (c) avoids the likelihood of foul air and gases entering buildings; and
- (d) provides *adequate* and safe access for clearing *blockages*.

FP2.4

Facilities for the storage, treatment and/or disposal of liquid trade waste must be designed, constructed and installed—

- (a) with *adequate* treatment and storage capacity for the volume of waste and frequency of disposal; and
- (b) with *adequate* size, strength and rigidity for the nature, flow rates, volume of wastes, by-products and residues which must be processed; and
- (c) with *adequate* vehicle access for collection, if required; and
- (d) with *adequate* structural strength for where pedestrian or vehicular traffic is likely to be encountered; and
- (e) to avoid the likelihood of contamination of any *drinking water* supplies; and
- (f) to avoid the likelihood of contamination of soils, ground water and waterways; and
- (g) from materials which are impervious both to the waste for which disposal is required and to water; and
- (h) to avoid the likelihood of foul air and gases accumulating within or entering into buildings; and
- (i) to avoid the likelihood of unauthorised access by people; and
- (j) to permit cleaning, maintenance, measurement and performance sampling; and
- (k) to avoid the likelihood of surface water and stormwater entering the sewerage system except in cases where a contaminated stormwater discharge of limited volume is accepted by the *Network Utility Operator* as a trade waste; and
- (l) to avoid the likelihood of uncontrolled discharge; and
- (m) to permit the manufacturer, model, serial number and designed capacity to be reasonably easily identifiable after installation; and
- (n) so that the installation throughout its design life will continue to satisfy the requirements of items (a) to (m).

FP2.5

Materials and *products* used in liquid trade waste *drainage* installations must meet the requirements of **Part A2**.

VERIFICATION METHOD

FV2

Compliance with **FP2.1** to **FP2.4** is verified either—

- (a) by calculation and certification by persons or organisations with *recognised credentials* in the design or testing of on-site liquid trade waste systems; or
- (b) by satisfying the required criteria when tested in accordance with a specified test method endorsed by a *recognised certification body*.

PART F2 ON-SITE LIQUID TRADE WASTE SYSTEMS

Deemed-to-Satisfy Provisions

F2.1 Deemed-to-Satisfy

Performance Requirements **FP2.1** to **FP2.4** are satisfied by complying with **F2.2**.

F2.2 Deemed-to-Satisfy Provisions

F2.2.1 General

Where pre-treatment facilities are required, they must comply with the requirements of the authority having jurisdiction, including the receiving *Network Utility Operator* (where relevant) and those responsible for occupational health and safety, dangerous goods management and environmental protection.

F2.2.2 Agreement requirements

Where the written agreement of the authority having jurisdiction and the receiving *Network Utility Operator* is required, the liquid trade waste systems and pre-treatment facilities are to comply with the requirements of the authority having jurisdiction and the receiving *Network Utility Operator*.

F2.2.3 Pre-treatment facilities not required

Where pre-treatment facilities are not required by the authority having jurisdiction or the receiving *Network Utility Operator*, the minimum requirement for **FP2.3** and **FP2.4** is compliance with AS/NZS 3500.2.

SECTION

G

MATERIALS AND PRODUCTS CERTIFICATION AND AUTHORISATION

G1 Certification and Authorisation

SECTION G CONTENTS

SECTION G MATERIALS AND PRODUCTS CERTIFICATION AND AUTHORISATION

Part G1 Certification and Authorisation

- G1.1 Scope
- G1.2 Application
- G1.3 Objective
- G1.4 Authorisation
- G1.5 Certification and Risk Assessment

PART G1**CERTIFICATION AND AUTHORISATION**

*Deemed-to-Satisfy Provisions***G1.1 Scope**

This Part defines the certification and authorisation procedures for *plumbing* and *drainage* materials and *products* so that they may be used or installed in *plumbing* or *drainage* installations.

G1.2 Application

This Part applies to all *plumbing* and *drainage* materials and *products* that require certification under **Part A2**.

The requirement for authorisation and certification is based on the risks arising from the use of the material or *product* in a *plumbing* or *drainage* installation.

The process of risk identification, risk analysis, risk assessment and risk treatment of *plumbing* and *drainage* materials and *products* is set out in MP 78 “Manual for assessment of risks of plumbing products”.

Material and *product* authorisation is achieved through the application of the *WaterMark Certification Scheme (WMCS)* and the listing of the material or *product* on the *WaterMark Product Database (WMPD)*.

G1.3 Objective

The *Objective* of this Part is to establish the requirements for materials and *product* certification and authorisation under **Part A2**—Acceptance of Design and Construction and to—

- (a) provide a process to authorise materials and *products* to enable their use in *plumbing* and *drainage* installations; and
- (b) ensure that *plumbing* and *drainage* materials and *products* are fit for purpose and that their use in a *plumbing* or *drainage* installation is sustainable and does not create significant risks or any likely outcome of—
 - (i) personal illness, *loss*, injury or death;
 - (ii) environmental degradation;
 - (iii) contamination of the water resource;
 - (iv) adverse impact on infrastructure (private and public);
 - (v) contamination of water supplies;
 - (vi) wastage of resources (water and energy);
 - (vii) premature failure of the material or *product*; and
 - (viii) the inability of a material or *product* to function as intended.

*Deemed-to-Satisfy Provisions***G1.4 Authorisation**

A material or *product* that is listed on the *WaterMark Product Database* and is marked in accordance with the **WaterMark Certification Scheme** is recognised by authorities having jurisdiction as being authorised for use in a *plumbing* or *drainage* installation.

G1.5 Certification and Risk Assessment**G1.5.1 General**

The application of this Part is to determine the level of risk and the need for certification under the *WaterMark Certification Scheme (WMCS)*.

The certification process ensures that materials or *products* are manufactured in compliance with the relevant *specification* and is in compliance with the requirements of the *WaterMark Certification Scheme (WMCS)*.

G1.5.2 Materials and products certification

Materials and *products* listed in **Table A2.1** must be certified at the minimum certification level nominated in that Table.

There are two (2) levels of Certification:

WaterMark Level 1 – Requires that *products* comply with a specific Australian or International Standard or other suitable published document and are certified under a program in accordance with the principles of ISO/IEC Guide 67, System 5.

WaterMark Level 2 – Requires that *products* comply with a specific Australian or International Standard or other suitable published document and are certified under a program in accordance with the ISO/IEC Guide 67, System 1b.

Any new or innovative material or *product* that is required to comply with AS/NZS 4020 or is assessed with a consequence score of more than 4 under MP 78 requires Level 1 Certification.

Any new or innovative material or *product* that is assessed with a consequence score in the range of 3 – 4, under MP 78, requires Level 2 Certification.

Any material or *product* with a consequence score of less than 3 does not require certification.

G1.5.3 The process

The certification process is outlined in **Figure G1.5.3**.

Certification of a *plumbing* or *drainage product* or material must be conducted by a *WaterMark Conformity Assessment Body (WMCAB)*.

If the material or *product* attributes coincide with those of a material or *product* listed in **Table A2.1**, certification must be carried out in accordance with **G.1.5.4** and the relevant *specification* in AS 5200.000.

G1.5.3.1 Risk assessment process for materials and products for which there is no appropriate specification

If the material or *product* is not listed in **Table A2.1** or there is no appropriate *specification* the *WMCAB* is to carry out an assessment of the risks associated with its use in accordance with MP 78 and the outcomes of the assessment must be reported to the *administering body*.

Deemed-to-Satisfy Provisions

G1.5.3.2 Consequence score less than 3 (Certification not required)

If the outcome of an assessment carried out in accordance with MP 78 is a consequence score of less than 3, the *WMCAB* is to submit to the *administering body* all pertinent assessment details, including a description of the material or *product* and its consequence score. If no objection to the assessment outcome is received from the *administering body* within 28 days, the material or *product* may be incorporated in a *plumbing* or *drainage* installation without certification.

G1.5.3.3 Consequence score of 3-4 (Certification Level 2)

If the outcome of an assessment in accordance with MP 78 is a consequence score of 3 – 4 and there is no *specification* in place the *WMCAB* is to submit for approval:

- (a) to the *administering body*, a *specification* that accurately describes the physical and functional attributes of the material or *product* and relevant tests related to materials and function; and
- (b) to the *administering body*, proposed installation details related to the *product*.

The documentation required in (a) and (b) above is to be in a generic *product* Standard format, called an Australian Technical Specification (ATS).

Note: The *administering body* may request amendments to the *specification* and/or proposed installation details before accepting approval for the *specification*.

Certification of the material or *product* must be in accordance with Clause G1.5.4.2 and is to be based on the approved *specification* received from the *administering body*.

Certification based on a *specification* listed in AS 5200.000 or an approved *specification* is valid for a period not exceeding 2 years. The *WMCAB* working with and on behalf of the applicant is to actively participate to convert the approved *specification* into an Australian Standard within that period. Failing to do so will result in the certification being withdrawn. In such an event, the *WMCAB* is to remove the material or *product* from the *WaterMark Product Database*. An extension to the certification period may only be granted under extenuating circumstances.

G1.5.3.4 Consequence score of more than 4 (Certification Level 1)

If the outcome of assessment carried out in accordance with MP 78 is a consequence score of more than 4, certification of the material or *product* must be in accordance with Clause G1.5.4.3.

G1.5.4 Certification

G1.5.4.1 Certification Mark

The *WaterMark* is issued by a *WMCAB* subject to material or *product* compliance with the relevant *specification* and the terms and conditions in the certification licence agreed to between the *WMCAB* and the *approved user*.



Certification to *WaterMark Certification Scheme (WMCS)* must not be implied or claimed unless the material or *product* has been duly certified and an appropriate licence issued.

Figure G1.5.4.1 summarises the certification requirements in relation to the consequence score.

MATERIALS AND PRODUCTS CERTIFICATION AND AUTHORISATION

Deemed-to-Satisfy Provisions

Figure G1.5.4.1 — Product Certification

MP 78 Consequence Score	Certification	Minimum Certification Level
Less than 3	None Required	None Required
3 – 4	  Product AS or ATS Licence No.	Level 2 An <i>approved user</i> must meet the requirements of ISO Guide 67 System 1b, provide <i>warranty</i> and comply with licence conditions.
More than 4		Level 1 An <i>approved user</i> must meet the requirements of ISO Guide 67 System 5, provide <i>warranty</i> and comply with licence conditions.

G1.5.4.2 Materials and products with a consequence score of 3 - 4 (Certification Level 2)

For materials and *products* with a consequence score of 3 - 4 to achieve certification to *WaterMark*, they are to be certified as fully complying with the requirements of the *WaterMark Certification Scheme (WMCS)*.

Product testing for certification level 2 must be certified as having been carried out in a *recognised testing laboratory* by the *WMCAB*.

The manufacturer of the material or *product* must be certified by the *WMCAB* as having been carried out in accordance with an approved Quality Assurance Program appropriate for the material or *product*.

The manufacturer must provide a *warranty* on the material or *product* that is clearly visible and comprehensible to the intending purchaser and user.

The *product* is granted Certification to *WaterMark* if all of the above requirements are met.

G1.5.4.3 Materials and products with a consequence score of more than 4 (Certification Level 1)

For materials and *products* with a consequence score of more than 4 to achieve certification to *WaterMark*, they must be certified as fully complying with an approved *specification* through *product* testing.

Full *product* testing for certification level 1 must be certified as having been carried out in a *recognised testing laboratory* by the *WMCAB*.

The manufacture of the material or *product* must be certified by the *WMCAB* as having been carried out in accordance with a Full Quality Assurance Program (as set out in ISO/IEC Guide 67) appropriate for the material or *product*.

In addition, the *approved user* must comply with the conditions of the *WaterMark* licence.

The material or *product* is granted Certification to use the *WaterMark* if all of the above requirements are met.

Deemed-to-Satisfy Provisions

G1.5.4.4 Certification licence

The *WMCAB* issues a licence to the supplier as a consequence of the certification of a *plumbing* or *drainage* material or *product*. The licence contains conditions that must be observed by the *approved user* for the material or *product* to exhibit or be associated with the *WaterMark Certification Scheme* (WMCS).

As soon as practicable after issuing a licence, the *WMCAB* is to—

- (a) register the material or *product* on the *WaterMark Product Database*; and
- (b) provide corresponding advice to the *administering body*.

A licence will be revoked if any of the certification or licence conditions are breached. In such a situation, certification lapses and the *WMCAB* must remove the material or *product* from the *WaterMark Product Database*.

G1.5.5 Product Marking

The *WMCAB* must ensure that a material or *product* that has been accorded a *certification mark* is appropriately marked.

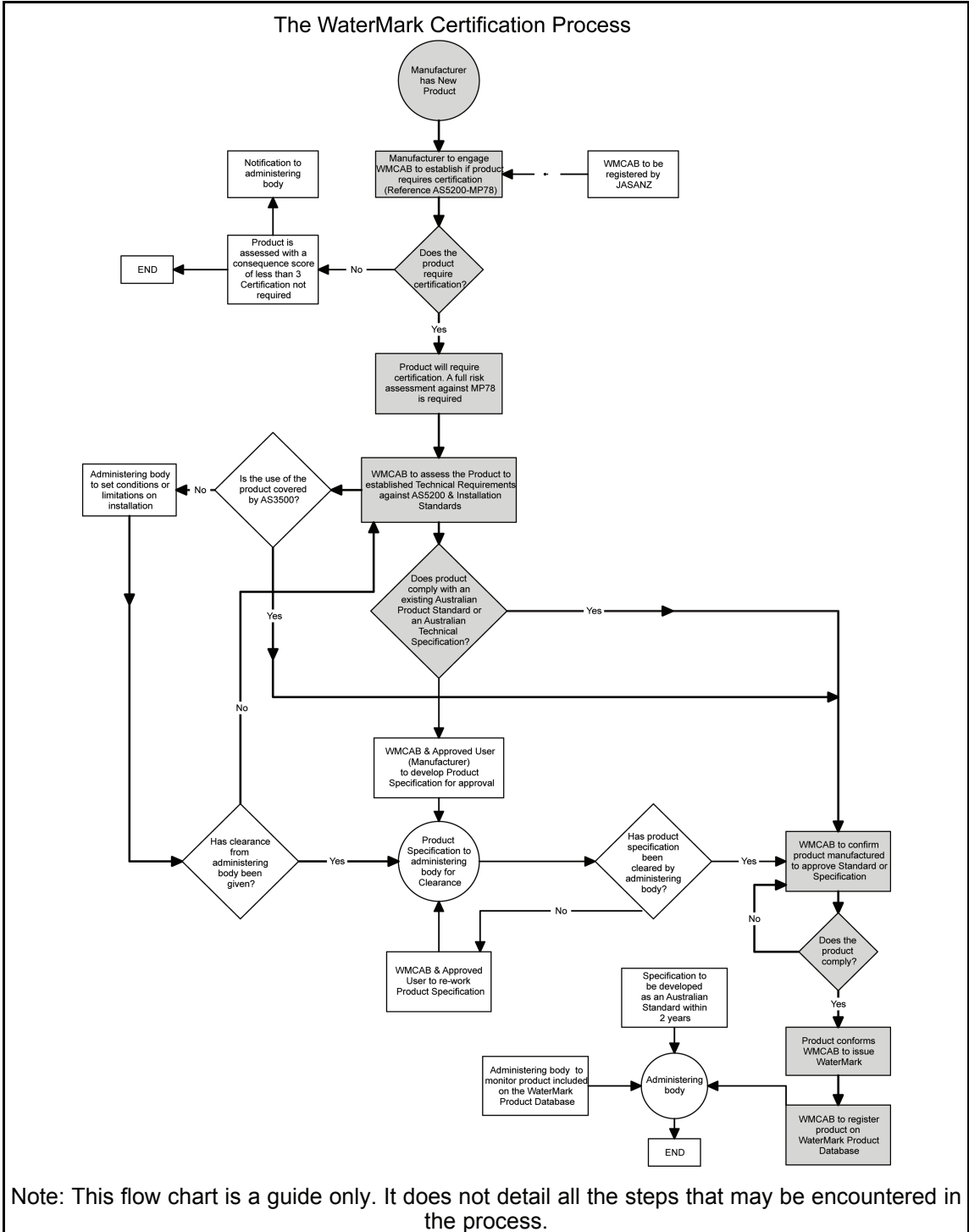
A material or *product* displaying a *certification mark* but without the required *warranty* is not an authorised *product*.

In exceptional cases where the *product* is too small to receive a mark, *suppliers* may make application for an exemption to display the *WaterMark*. The *WMCAB* must make application for exemption to the *administering body*.

WaterMark may only be shown on or be associated with a material or *product* that has been duly certified and the supplier appropriately licensed.

Deemed-to-Satisfy Provisions

Figure G1.5.3 — The Watermark Certification Process



COMMONWEALTH OF AUSTRALIA

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APPENDIX COMMONWEALTH OF AUSTRALIA

AUSTRALIAN CAPITAL TERRITORY

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APPENDIX AUSTRALIAN CAPITAL TERRITORY

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- E HEATING, VENTILATION AND AIR-CONDITIONING**
- F ON-SITE WASTEWATER SYSTEMS**

Footnote: Other Legislation Affecting Buildings

SECTION A GENERAL PROVISIONS

PART A1 INTERPRETATION

ACT A1.1 Definitions

Insert definition for *building* as follows:

Building has the meaning ascribed to it in the *Building Act 2004* dictionary.

Insert definition for *Class* as follows:

Class, of building has the meaning ascribed to it in the *Building Act 2004* dictionary.

Insert definition for *climate zone 3* as follows:

Climate zone 3 means climate zone 3 as set out in the register of solar water heaters kept under the *Renewable Energy (Electricity) Regulations*.

Insert definition for *climate zone 4* as follows:

Climate zone 4 means climate zone 4 as set out in the register of solar water heaters kept under the *Renewable Energy (Electricity) Regulations*.

Insert definition for *fuel-burning equipment* as follows:

Fuel-burning equipment means a furnace, boiler, fireplace, oven, retort, incinerator, internal-combustion engine, chimney or any other apparatus, device, mechanism or structure, in the operation of which combustible material is, or is intended to be, used or that is, or is intended to be, used in relation to the burning of combustible material.

Insert definition for *new Class 1 building* as follows:

New Class 1 building means a Class 1 *building* for which a certificate of occupancy for the whole *building* has not been issued under the *Building Act 2004* (except a *building* completed before 2000), and includes a *building* built to replace demolished premises.

Insert definition for *non-urban land* as follows:

Non-urban land means—

- (a) territory land in 1 of the following zones under the territory plan—
 - (i) broadacre zone;
 - (ii) rural zone
 - (iii) hills, ridges and buffer area zones;
 - (iv) river corridor zone;
 - (v) mountains and bushlands zone;
 - (vi) transport and services zones TS1-TS2; or
- (b) land other than land in an area identified under the national capital plan as—
 - (i) an urban area; or
 - (ii) the Central National Area.

Insert definition for *renewable energy certificate* as follows:

Renewable energy certificate means a certificate issued under the Commonwealth Government's Mandatory Renewable Energy Target Scheme.

Insert definition for *solid fuel-burning equipment* as follows:

Solid fuel-burning equipment means fuel-burning equipment that is designed to burn hard wood, soft wood or briquettes and to which AS 4013 applies.

Insert definition for *WELS standard* as follows:

WELS standard has the definition ascribed to it under the *Water Efficiency Labelling and Standards Act 2005* dictionary.

PART A3 DOCUMENTS ADOPTED BY REFERENCE

A3.1 Schedule of referenced documents

In Table A3.1, insert additional references as follows:

ACT Table A3.1 SCHEDULE OF REFERENCED DOCUMENTS

Document No.	Title	PCA Clause
AS/NZS 2712	Solar and heat pump water heaters – design and construction	ACT B2.3
AS 4013	Domestic solid fuel burning appliance – method for determination of flue gas emission	ACT B2.3
AS 4234	Heated water systems – calculation of energy consumption	ACT B2.3
AS 4552	Gas fired water heaters for hot water supply and/or central heating	ACT B2.3

SECTION B WATER SERVICES

PART B1 COLD WATER SERVICES

Delete B1.2(a) and insert ACT B1.2(a) as follows:

ACT B1.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of cold water services must be in accordance with AS/NZS 3500.1.

PART B2 HEATED WATER SERVICES

Delete B2.2(a) and insert ACT B2.2(a) as follows:

ACT B2.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a *heated water* service must be in accordance with AS/NZS 3500.4.

ACT B2.101 Hot-water system standard

Unless exempted under (e), a water heater in a *heated water* system in a *new Class 1 building* must use as a water heater one of the following—

- (a) a gas water heater that—
 (i) complies with AS 4552; and

- (ii) achieves a minimum energy efficiency rating of 5 stars in accordance with AS 4552; or
- (b) a heat pump water heater that—
 - (i) complies with AS/NZS 4234; and
 - (ii) has been rated in accordance with AS/NZS 4234; and
 - (iii) if the *heated water* system is to be installed in a *new Class 1 building* with 1 or 2 bedrooms—
 - (A) has at least 14 *renewable energy certificates* for *climate zone 4*; and
 - (B) achieves a minimum energy saving of 40% in accordance with the requirements under AS/NZS 4234 for a small system; and
 - (iv) if the *heated water* system is to be installed in a *new Class 1 building* with 3 or 4 bedrooms—
 - (A) has at least 22 *renewable energy certificates* for *climate zone 4*; and
 - (B) achieves a minimum energy saving of 60% in accordance with the requirements under AS/NZS 4234 for a medium system; and
 - (v) if the *heated water* system is to be installed in a *new Class 1 building* with 5 or more bedrooms—
 - (A) has at least 28 *renewable energy certificates* for *climate zone 4*; and
 - (B) achieves a minimum energy saving of 60% in accordance with the requirements under AS/NZS 4234 for a large system; or
- (c) a solar water heater that—
 - (i) complies with AS/NZS 2712; and
 - (ii) has been rated in accordance with AS/NZS 4234; and
 - (iii) if the *heated water* system is to be installed in a *new Class 1 building* with 1 or 2 bedrooms—
 - (A) has at least 14 *renewable energy certificates* for *climate zone 3*; and
 - (B) achieves a minimum energy saving of 40% in accordance with the requirements under AS/NZS 4234 for a small system; and
 - (iv) if the *heated water* system is to be installed in a *new Class 1 building* with 3 or 4 bedrooms—
 - (A) has at least 22 *renewable energy certificates* for *climate zone 3*; and
 - (B) achieves a minimum energy saving of 60% in accordance with the requirements under AS/NZS 4234 for a medium system; and
 - (v) if the *heated water* system is to be installed in a *new Class 1 building* with 5 or more bedrooms—
 - (A) has at least 28 *renewable energy certificates* for *climate zone 3*; and
 - (B) achieves a minimum energy saving of 60% in accordance with the requirements under AS/NZS 4234 for a large system; or
- (d) a water heater determined by the Minister if—

- (i) the greenhouse gas emissions associated with the water heater are not more than the greenhouse gas emissions associated with the operation of any of the water heaters mentioned in (a) to (c); or
 - (ii) the water heater is required to enable the *heated water* system in which it is to be installed to operate effectively and it is not reasonable to require the *heated water* system to be altered in another way.
- (e) A water heater need not comply with (a) to (d) if—
- (i) the water heater—
 - (A) consists of *solid fuel-burning equipment*; and
 - (B) the water heater is installed in a *heated water* system in a *new Class 1 building* located in an area of *non-urban land*; or
 - (ii) is installed for use during construction of the *building* and is removed when the work is completed.

PART B3 NON-DRINKING WATER SERVICES

Delete B3.2(b) and insert ACT B3.2(b) as follows:

ACT B3.2 Deemed-to-Satisfy Provisions

- (b) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *plumbing* system must be in accordance with AS/NZS 3500.1.

SECTION C SANITARY PLUMBING AND DRAINAGE SYSTEMS

PART C1 SANITARY PLUMBING SYSTEMS

Delete C1.2(a) and insert ACT C1.2(a) as follows:

ACT C1.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *plumbing* system must be in accordance with AS/NZS 3500.2.

PART C2 SANITARY DRAINAGE SYSTEMS

Delete C2.2(a) and insert ACT C2.2(a) as follows:

ACT C2.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *drainage* system must be in accordance with
 - (i) AS/NZS 3500.2 except—
 - (A) delete existing clause 4.5.2 and replace with "A reflux valve cannot replace an overflow relief gully (ORG) at any time."
 - (B) Insert the following as clause 4.7 and 4.8
 - (aa) sewer manholes shall be installed at the following location:

- (AA) at the beginning and end of any line DN 150 or larger; and
 - (BB) at any change of direction on a line DN 150 or larger; and
 - (CC) at the junction of two pipes both of which are DN 150 or larger; and
 - (DD) at the confluence of three or more pipes where an pipes is DN 150 or larger; and at intervals of not more than 100 metres on any line that is DN 150 or larger.
- (C) Delete 12.2.3 and replace as follows:
- (a) The multi-unit development requires one complying overflow relief gully as specified in clause 4.6.6.
 - (b) Additional overflow relief from sewerage surcharge. The gully shall comply with clause 4.6.6.6, but have a reduced minimum height of 100 mm.
 - (c) An inspection shaft in accordance with clause 4.4.2, immediately upstream of the junction with the main line of the sanitary drain.
 - (d) An open upstream vent.

After C2.2(b) insert ACT C2.2(c), (d), (e) and (f) as follows:

- (c) The drainage of a dwelling or building on a single parcel of land cannot be combined with a drain of a dwelling or building on another parcel of land. The *drainage* of each dwelling or building must—
 - (i) be separate from another dwelling or building.
 - (ii) Despite (i), the construction occupations registrar may approve a combined *drainage* system, if satisfied that special reasons exist for doing so.
- (d) An interceptor trap and accesshole must—
 - (i) be carried to ground level; and
 - (ii) be fitted at that level with approved cast-iron airtight covers.
- (e) All new property connections shall include an inspection shaft, where the difference in elevation between the drain and sewer tie warrants a graded jump-up, they will rise at 45 degree unless constricted by space or specified to be vertical. The base of the vertical jump-ups shall be located immediately upstream of the inspection opening which must be as close to the property boundary as possible or adjacent to the tie. If located in a driveway, a trafficable lid must be provided over the shaft.
- (f) All vertical jump ups on house *drainage* must be extended to ground level and finished with a removable inspection opening.

SECTION D STORMWATER DRAINAGE SYSTEMS

PART D1 ROOF DRAINAGE SYSTEMS

Part D1 does not apply in the Australian Capital Territory. Roof *drainage* systems are regulated under the ACT *Building Act 2004*.

PART D2 SURFACE AND SUBSURFACE DRAINAGE SYSTEMS

Part D2 does not apply in the Australian Capital Territory. Surface and subsurface *drainage* systems are regulated under the ACT *Building Act 2004*.

SECTION E HEATING, VENTILATION AND AIR-CONDITIONING

PART E1 HEATING, VENTILATION AND AIR-CONDITIONING SYSTEMS

Part E1 does not apply in the Australian Capital Territory. Heating, ventilation and air-conditioning is regulated under the ACT *Building Act 2004*.

SECTION F ON-SITE WASTEWATER SYSTEMS

PART F1 ON-SITE WASTEWATER MANAGEMENT SYSTEMS

Part F1 as listed does not apply in the Australian Capital Territory. On-Site Wastewater Management Systems are regulated under the ACT *Health Act 1993*. The *Water and Sewerage Act 2000* applies for the *plumbing* or *drainage* system.

PART F2 ON-SITE LIQUID TRADE WASTE SYSTEMS

Part F2 as listed does not apply in the Australian Capital Territory. On-Site Liquid Trade Waste Systems are regulated under the ACT *Utilities Act 2000*. The *Water and Sewerage Act 2000* applies for the *plumbing* or *drainage* system.

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

1.1 Administering Agency

Environment and Sustainable Development Directorate

Relevant Legislation

Water and Sewerage Act 2000

2. Building

2.1 Administering Agency

Environment and Sustainable Development Directorate

Relevant Legislation

Building Act 2004

3. Health

3.1 Administering Agency

ACT Health

Relevant Legislation

Health Act 1993

4. Environment

4.1 Administering Agency

Environment ACT

Relevant Legislation

Environment Protection Act 1997

5. Gas

5.1 Administering Agency

Environment and Sustainable Development Directorate

Relevant Legislation

Gas Safety Act 2000

6. Electrical

6.1 Administering Agency

Environment and Sustainable Development Directorate

Relevant Legislation

Electricity Safety Act 1971

NEW SOUTH WALES

APPENDIX CONTENTS

APPENDIX NEW SOUTH WALES

B	WATER SERVICES
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D	STORMWATER DRAINAGE SYSTEMS
E	HEATING, VENTILATION AND AIR-CONDITIONING
F	ON-SITE WASTEWATER SYSTEMS

SECTION B WATER SERVICES

PART B1 COLD WATER SERVICES

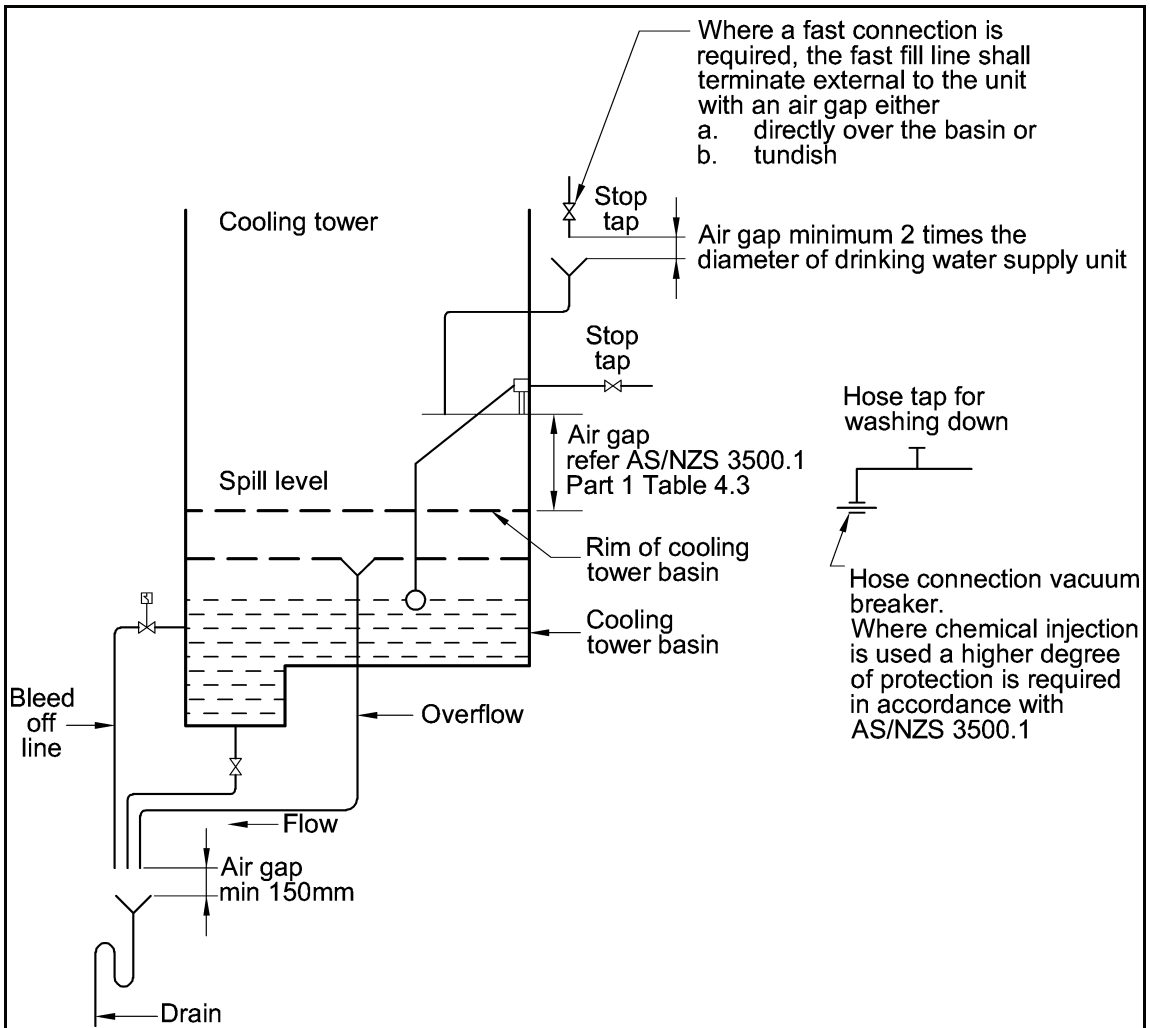
Delete B1.2(a) and insert NSW B1.2(a) as follows:

NSW B1.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of cold water services must be in accordance with:
- (i) AS/NZS 3500.1 with the following additions:
- (A) For clause 5.4.2 add NSW requirement (n): 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".
- (B) After 4.6.3.3 insert 4.7 as follows:
- 4.7 Water systems permanently attached to cooling towers
- Backflow prevention shall be positioned so that:
- (i) Cooling tower air gap must be measured from the rim of the cooling tower basin.
- (ii) If a drinking water service to the cooling tower passes through the basin, the service pipe must be provided with a double wall protection.
- (iii) 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.

NOTE: See **NSW Figure B1.2** Typical Cooling Tower Connections.

NSW Figure B1.2 Typical Cooling Tower Connections



(C) After 14.3.3 (c) insert (d) and (e) as follows:

(d) Single residential dwellings require the following:

- (i) Buried or partly buried rainwater tanks a non-testable dual check valve with atmospheric port is required for containment protection and
- (ii) a non-testable device for zone protection. The network utility operator reserves the right to require greater backflow for containment.

(e) Where rainwater tanks are installed for other than a single residential dwelling approval must be obtained from the water supply network utility operator for containment.

PART B2 HEATED WATER SERVICES

Delete B2.2(a) and insert NSW B2.2(a) as follows:

NSW B2.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a *heated water* service must be in accordance with AS/NZS 3500.4.

PART B3 NON-DRINKING WATER SERVICES

Delete B3.2(b) and insert NSW B3.2(b) as follows:

NSW B3.2 Deemed-to-Satisfy Provisions

- (b) The design, construction, installation, replacement, repair, alteration and maintenance of a *non-drinking water* service must be in accordance with:
- (i) AS/NZS 3500.1 with the following variations:
 - (A) All external taps are to comply with Clause 9.5.2.3 (d) (i) only;
 - (B) After clause 9A.3(c) insert (d) and (e) as follows:
 - (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.
 - (e) There shall be no connection between treated greywater systems and the drinking water, rainwater or other sources of supply.

PART B4 FIREFIGHTING WATER SERVICES

Part B4 does not apply in New South Wales.

SECTION C SANITARY PLUMBING AND DRAINAGE SYSTEMS

PART C1 SANITARY PLUMBING SYSTEMS

Delete C1.2(a) and insert NSW C1.2(a) as follows:

NSW C1.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *plumbing* system must be in accordance with AS/NZS 3500.2.

PART C2 SANITARY DRAINAGE SYSTEMS

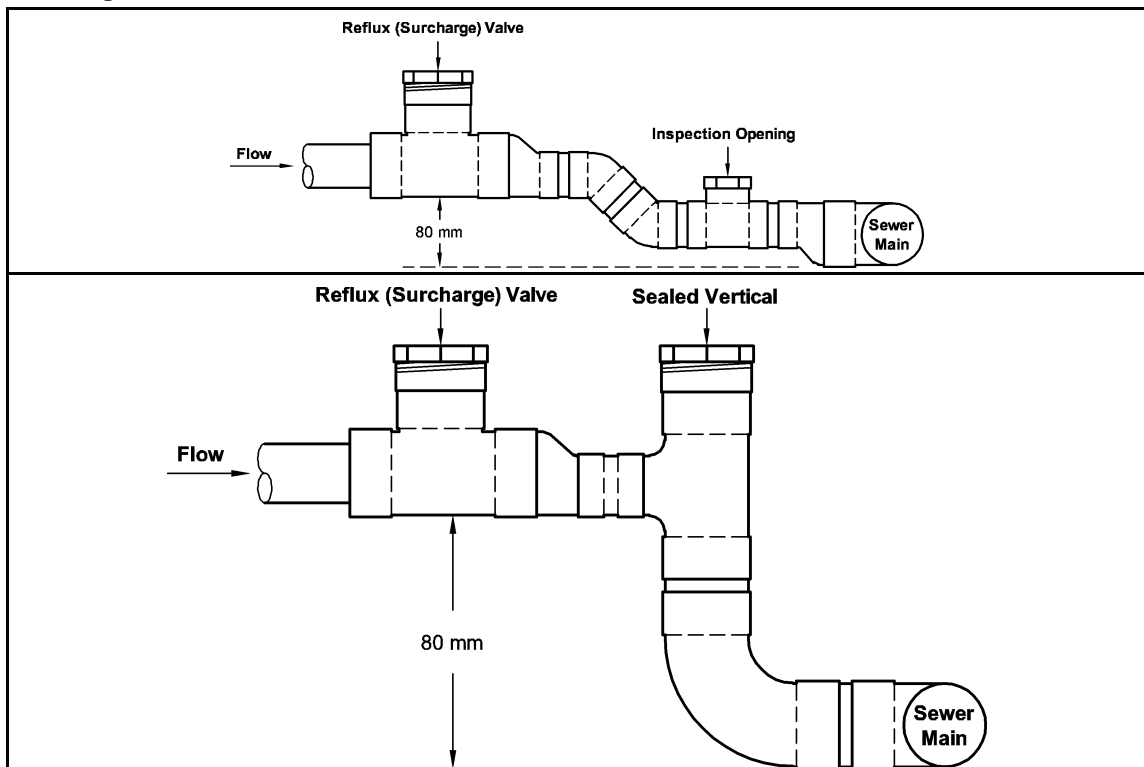
Delete C2.2(a) and insert NSW C2.2(a) as follows:

NSW C2.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *drainage* system must be in accordance with:
- (i) AS/NZS 3500.2 with the following variations:

- (A) For clause 4.2.1 insert the following after note 1:
Minimum vertical height of 1.2 m between the soffit of the Network Utility Operator's sewer and the overflow gully or lowest fixture within the property.
- (B) For clause 4.4.1 insert the following as paragraph 3:
Boundary trap or inspection shafts cannot terminate within buildings as defined in the BCA area referred to as habitable. See BCA "Interpretation" and delete 'excludes' from (b).
- (C) After clause 4.5.2(b) insert (c) as follows:
(c) Soil and waste stacks shall not discharge through a reflux valve except where a reflux valve is installed at the connection to the sewer required with surcharging sewers.
- (D) Delete clause 4.5.3 and replace as follows:
Where a surcharge is likely to occur and a reflux valve is to be installed, it shall be located in accordance with the following:
- (a) 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.
 - (b) 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 Operators system it is connected to. See NSW Figure C2.2 Reflux Valves.

NSW Figure C2.2 Reflux Valves



NOTE: When a reflux valve is installed the valve remains the responsibility of the property owner.

- (E) After clause 4.7.1(h) insert (i) as follows:
- (i) 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 10.7(g) insert (h) as follows:
- (h) Sewage management facilities shall be accredited by NSW Health and comply with local government requirements. Before a connection is made to pump raw sewerage or effluent from a septic tank or holding well to the network utility operators 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.
- (G) After clause 4.3.1(h) insert (i) as follows:
- (i) not have DN 40 or DN 50 traps installed.

SECTION D STORMWATER DRAINAGE SYSTEMS

PART D1 ROOF DRAINAGE SYSTEMS

Part D1 does not apply in New South Wales.

PART D2 SURFACE AND SUBSURFACE DRAINAGE SYSTEMS

Part D2 does not apply in New South Wales.

SECTION E HEATING, VENTILATION AND AIR-CONDITIONING

PART E1 HEATING, VENTILATION AND AIR-CONDITIONING SYSTEMS

Part E1 does not apply in New South Wales.

SECTION F ON-SITE WASTEWATER SYSTEMS

PART F1 ON-SITE WASTE WATER MANAGEMENT SYSTEMS

Part F1 does not apply in New South Wales.

PART F2 ON-SITE LIQUID TRADE WASTE SYSTEMS

Part F2 does not apply in New South Wales.

NORTHERN TERRITORY

APPENDIX CONTENTS

APPENDIX NORTHERN TERRITORY

- B WATER SERVICES**
- C SANITARY PLUMBING AND DRAINAGE SYSTEMS**
- D STORMWATER DRAINAGE SYSTEMS**
- E HEATING, VENTILATION AND AIR-CONDITIONING**
- F ON-SITE WASTEWATER SYSTEMS**

SECTION B WATER SERVICES

PART B4 FIRE-FIGHTING WATER SERVICES

Part B4 does not apply in the Northern Territory.

SECTION C SANITARY PLUMBING AND DRAINAGE SYSTEMS

PART C2 SANITARY DRAINAGE SYSTEMS

Delete C2.2(a) and insert NT C2.2(a) as follows:

NT C2.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *drainage* system must be in accordance with—
- (i) AS/NZS 3500.2 except—
 - (A) replace clause 4.6.6.6 with the following:

A minimum height of 100 mm shall be maintained between the top of the overflow gully riser and the lowest fixture connected to the drain; and
 - (B) replace clause 4.6.6.7 with the following:

The minimum height between the top of the overflow gully riser and the surrounding natural ground surface level shall be 150 mm, except where the gully riser is located in a path or paved area, where it shall be finished at a level so as to prevent the ponding and ingress of water; and
 - (C) inspection openings are only required—
 - (aa) at the connections to the Network Utility Operator sewer main; and
 - (bb) where a new section of drain is to be connected to an existing drain; and
 - (cc) as required by the Regulator; and
 - (D) a domestic swimming pool must not be connected to sewer main; and
 - (E) a swimming pool other than a domestic swimming pool, must not be connected to a sewer main without the approval of the Network Utility Operator; and
 - (F) a clothes washing machine must not discharge into a floor waste gully; or
 - (ii) AS/NZS 3500.5 except—
 - (A) replace clause 4.35.6.6 with the following:

A minimum height of 100 mm shall be maintained between the top of the overflow gully riser and the lowest fixture connected to the drain; and
 - (B) replace clause 4.35.6.7 with the following:

The minimum height between the top of the overflow gully riser and the surrounding natural ground surface level shall be 150 mm, except where the

gully riser is located in a path or paved area, where it shall be finished at a level so as to prevent the ponding and ingress of water; and

- (C) inspection openings are only required—
 - (aa) at the connections to the Network Utility Operator sewer main; and
 - (bb) where a new section of drain is to be connected to an existing drain; and
 - (cc) as required by the Regulator; and
- (D) a domestic swimming pool must not be connected to sewer main; and
- (E) a swimming pool other than a domestic swimming pool, must not be connected to a sewer main without the approval of the Network Utility Operator; and
- (F) a clothes washing machine must not discharge into a floor waste gully.

SECTION D STORMWATER DRAINAGE SYSTEMS

PART D1 ROOF DRAINAGE SYSTEMS

Part D1 does not apply in the Northern Territory.

PART D2 SURFACE AND SUBSURFACE DRAINAGE SYSTEMS

Part D2 does not apply in the Northern Territory.

SECTION E HEATING, VENTILATION AND AIR-CONDITIONING

PART E1 HEATING, VENTILATION AND AIR-CONDITIONING SYSTEMS

Part E1 does not apply in the Northern Territory.

SECTION F ON-SITE WASTEWATER SYSTEMS

PART F1 ON-SITE WASTEWATER MANAGEMENT SYSTEMS

Part F1 does not apply in the Northern Territory.

QUEENSLAND

APPENDIX CONTENTS

APPENDIX QUEENSLAND

- B WATER SERVICES**
- C SANITARY PLUMBING AND DRAINAGE SYSTEMS**
- D STORMWATER DRAINAGE SYSTEMS**
- E HEATING, VENTILATION AND AIR-CONDITIONING**
- F ON-SITE WASTEWATER SYSTEMS**

SECTION B WATER SERVICES

PART B1 COLD WATER SERVICES

Delete B1.2(a) and insert Qld B1.2(a) as follows:

Qld B1.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of cold water services must be in accordance with AS/NZS 3500.1.

PART B2 HEATED WATER SERVICES

Delete BO2(a) and insert Qld BO2 as follows:

Qld BO2 OBJECTIVE

The *Objective* of this Part is to—

- (a) safeguard people from illness and injury as a result of the installation of specific types of hot water systems eg. solar and heat pump.

Delete B2.2(a) and insert Qld B2.2(a) as follows:

Qld B2.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a *heated water* service must be in accordance with AS/NZS 3500.4.

PART B3 NON-DRINKING WATER SERVICES

After B3.2(a)(ix) insert Qld B3.2(a)(x), (xi) and (xii) as follows:

Qld B3.2 Deemed-to-Satisfy Provisions

- (x) manual bucketing of greywater to garden irrigation; and
- (xi) connection of flexible hose to laundry for garden irrigation; and
- (xii) use of certified greywater diversion devices (with Local Government approval).

Delete B3.2(b) and insert Qld B3.2(b) as follows:

- (b) The design, construction, installation, replacement, repair, alteration and maintenance of a *non-drinking water* service must be in accordance with AS/NZS 3500.1.

After B3.2(c) insert Qld B3.101 as follows:

Qld B3.101 Combination wastewater testing parameter for advanced secondary and advanced secondary with nutrient reduction

Advanced secondary quality effluent must meet the following effluent compliance characteristics:

- (a) 90% of the samples taken over the test period must have a BOD₅ less than or equal to 10 g/m³ with no sample greater than 20 g/m³.

- (b) 90% of the samples taken over the test period must have total suspended solids less than or equal to 10 g/m³ with no sample greater than 20 g/m³.
- (c) Where disinfection is provided 90% of the samples taken over the test period must have a thermotolerant coliform count (determined by either the most probable number or membrane filter technique) not exceeding 10 organisms per 100 mL with no sample exceeding 200 organisms per 100 mL.
- (d) Where chlorination is the disinfection process, the total chlorine concentration must be greater than or equal to 0.5 g/m³ and less than 2.0 g/m³ in four out of five samples taken.
- (e) Where the manufacturer has included nitrogen and/or phosphorus reduction in the treatment process, the effluent compliance criteria must be able to meet in addition to the above the following nutrient criteria:
 - (i) 90% of the samples, with 95% confidence limits taken over the test period shall have a total nitrogen concentration less than or equal to 10 mg/L.
 - (ii) 90% of the samples, with 95% confidence limits taken over the test period shall have a total phosphorus concentration less than or equal to 5 mg/L.

If the nitrogen and phosphorus concentrations do not meet the criteria nominated in (e) above, the manufacturer can request that recognition be given to the actual nitrogen and/or phosphorus concentration determined in the above evaluation by the Department of Infrastructure and Planning.

After Qld B3.101 insert Qld B3.102 as follows:

Qld B3.102 Irrigation

For lots which have a Class 1 or Class 2 building, in areas serviced by a water service provider, outdoor irrigation systems must comply with Queensland Water Commission guidelines for an efficient irrigation system - 'Efficient Irrigation for Water Conservation' when—

- (a) connected to a water service; or
- (b) connected to a rainwater tank where the rainwater tank has a continuity of supply from a water service through either—
 - (i) a trickle top-up system; or
 - (ii) an automatic switching device where the offtake is located downstream of the automatic switching device.

PART B4 FIRE-FIGHTING WATER SERVICES

Part B4 does not apply in Queensland. Fire-fighting water services are required under the Queensland *Building Act 1975*.

SECTION C SANITARY PLUMBING AND DRAINAGE SYSTEMS

PART C1 SANITARY PLUMBING SYSTEMS

Delete C1.2(a) and insert Qld C1.2(a) as follows:

Qld C1.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *plumbing* system must be in accordance with AS/NZS 3500.2.

PART C2 SANITARY DRAINAGE SYSTEMS

Delete C2.2(a) and insert Qld C2.2(a) as follows:

Qld C2.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *drainage* system must be in accordance with AS/NZS 3500.2.

SECTION D STORMWATER DRAINAGE SYSTEMS

PART D1 ROOF DRAINAGE SYSTEMS

Part D1 does not apply in Queensland. Roof *drainage* is regulated under the Queensland *Building Act 1975*.

PART D2 SURFACE AND SUBSURFACE DRAINAGE SYSTEMS

Part D2 does not apply in Queensland. Surface and subsurface *drainage* systems are regulated under the Queensland *Building Act 1975*.

SECTION E HEATING, VENTILATION AND AIR-CONDITIONING

PART E1 HEATING, VENTILATION AND AIR-CONDITIONING SYSTEMS

Part E1 does not apply in Queensland. Heating, ventilation and air-conditioning is regulated under the Queensland *Building Act 1975*.

SECTION F ON-SITE WASTEWATER SYSTEMS

PART F1 ON-SITE WASTEWATER MANAGEMENT SYSTEMS

Part F1 does not apply in Queensland.

PART F2 ON-SITE LIQUID TRADE WASTE SYSTEMS

Part F2 does not apply in Queensland.

SOUTH AUSTRALIA

APPENDIX CONTENTS

APPENDIX SOUTH AUSTRALIA

- A GENERAL PROVISIONS**
- B WATER SERVICES**
- C SANITARY PLUMBING AND DRAINAGE SYSTEMS**
- D STORMWATER DRAINAGE SYSTEMS**
- E HEATING, VENTILATION AND AIR-CONDITIONING**
- F ON-SITE WASTEWATER SYSTEMS**

Footnote: Other Legislation Affecting Buildings

Section A GENERAL PROVISIONS

PART A3 DOCUMENTS ADOPTED BY REFERENCE

A3.1 Schedule of referenced documents

In Table A3.1, insert additional references as follows:

SA Table A3.1 SCHEDULE OF REFERENCED DOCUMENTS

Document No.	Date	Title	PCA Clause
AS/NZS 1260	2009	PVC-U pipes and fittings for drain, waste, and vent applications Amdt 1	SA C1.2

SECTION B WATER SERVICES

PART B1 COLD WATER SERVICES

Delete B1.2(a) and insert SA B1.2(a) as follows:

SA B1.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of cold water services must be in accordance with—
- (i) AS/NZS 3500.1 except—
- (A) insert new clause 14.4.1 as follows:
- A reduction of the hazard ratings listed in table 14.1 may be permitted following a risk assessment of the design and installation of the rainwater tank and other environmental factors in accordance with clause 14.4.1; and
- (B) for buried and partly 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 with atmospheric port (non-testable) may be used in lieu of a testable device for containment and zone protection where it has been determined by risk assessment that—
- (aa) the risk to tank rainwater quality from air pollution is low; and
- (bb) 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
- (cc) 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

- (dd) 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—
 - (AA) location and topography; and
 - (BB) structural integrity of the tank including installation factors such as bedding, embedment, compaction and geotechnical specifications; and
 - (CC) watertightness of tank including all penetrations, connections, access covers and joints; and
 - (DD) ingress of vermin through the overflow e.g. by provision of a reflux valve, self sealing valve, trap check valve; and
 - (EE) the risk assessment results must be submitted to authority having jurisdiction; or
- (ii) AS/NZS 3500.5 Section 2 except—
 - (A) After 2.17.3 insert new clause 2.17.4 as follows:

For buried and partly 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 with atmospheric port (non-testable) may be used in lieu of a testable device for containment and zone protection where it has been determined by risk assessment that

 - (aa) the risk to tank rainwater quality from air pollution is low; and
 - (bb) 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
 - (cc) 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
 - (dd) 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—
 - (AA) location and topography; and
 - (BB) structural integrity of the tank including installation factors such as bedding, embedment, compaction and geotechnical specifications; and
 - (CC) watertightness of tank including all penetrations, connections, access covers and joints; and
 - (DD) ingress of vermin through the overflow e.g. by provision of a reflux valve, self sealing valve, trap check valve; and

- (EE) the risk assessment results must be submitted to authority having jurisdiction.

After B1.2(b) insert SA B1.2 (c) as follows:

- (c) Where a rainwater water service from a rainwater tank is permitted to interconnect with the water service from a water main supply, the following applies to Class 1 buildings and extensions or additions to Class 1 buildings where the roof area is not less than 50m². 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.

PART B2 HEATED WATER SERVICES

Delete B2.2(a) and insert SA B2.2(a) as follows:

SA B2.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a *heated water* service must be in accordance with—
- (i) AS/NZS 3500.4 with the following amendments:
- (A) After 1.9.2(b) insert (c) and (d) as follows:
- (c) 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 not exceed:
- (i) 45°C for childhood centres, primary and secondary schools, nursing homes, and similar facilities for young, aged, sick or disabled persons; and
- (ii) 50°C for all other buildings.
- Advisory note: A duty of care should be exercised by installers to explain to clients the merits of temperature control for hot water delivered to existing sanitary fixtures used primarily for personal hygiene purposes.
- (d) Where a water heater is replaced, it is not mandatory to install a temperature limitation device to control the temperature of water delivered to sanitary fixtures used primarily for personal hygiene purposes, unless
- (i) the replacement water heater is of a solar type; or
- (ii) the heating source is uncontrolled; or
- (iii) such a device was in place prior to the installation of the replaced water heater.
- (B) Delete clause 5.8(c) and replace as follows:
- (c) All new or replacement unvented storage water heaters shall be fitted with new temperature/pressure relief and expansion control valves as shown in Figure 5.7.
- (C) Delete clause 5.12.2.1 and replace as follows:

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; and

(D) Delete clause 5.12.3(e) and replace as follows:

(e) All drain lines shall discharge separately over a gully, tundish or other visible approved outlet.

(ii) Section 3 of AS/NZS 3500.5

(A) After clause 3.4.2 insert 3.4.3 and 3.4.4 as follows:

3.4.3 Where an existing building is altered or extended in such a way that sanitary fixtures used primarily for personal hygiene purposes are installed in a location where, before the alteration or extension, no such fixture existed, the delivery temperature at the fixture shall not exceed:

- (i) 45°C for childhood centres, primary and secondary schools, nursing homes, and similar facilities for young, aged, sick or disabled persons; and
- (ii) 50°C for all other buildings.

Advisory note: A duty of care should be exercised by installers to explain to clients the merits of temperature control for hot water delivered to existing sanitary fixtures used primarily for personal hygiene purposes.

3.4.4 Where a water heater is replaced, it is not mandatory to install a temperature limitation device to control the temperature of water delivered to sanitary fixtures used primarily for personal hygiene purposes, unless

- (i) the replacement water heater is of a solar type; or
- (ii) the heating source is uncontrolled; or
- (iii) such a device was in place prior to the installation of the replaced water heater.

(B) Delete clause 3.18 (c)(i) and replace as follows:

(c)(i) All new or replacement unvented storage water heaters shall be fitted with new temperature/pressure relief and expansion control valves as shown in Figure 5.7.

(C) Delete clause 3.22.2.2(a) and (b) and replace as follows:

- (a) 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; and
- (b) All drain lines shall discharge separately over a gully, tundish or other visible approved outlet.

PART B4 FIRE-FIGHTING WATER SERVICES

After B4.2 (f) insert SA B4.2 (g) as follows:

SA B4.2 Deemed-to-Satisfy Provisions

(g) Fire hydrant or fire sprinkler services shall comply with the following—

- (i) a single spring-loaded check valve shall be provided in the pipework system within 3 m of the property boundary and adjacent to the *point of connection* with the Corporation's water supply. There shall be no branches to other connections prior to the spring-loaded check valve; and
- (ii) where there are two or more fire services interconnected within the property the spring-loaded check valve shall be of an in-line testable type with certified resilient seated gear activated isolating valves installed either side of the check valve to permit maintenance and testing.

SECTION C SANITARY PLUMBING AND DRAINAGE SYSTEMS

PART C1 SANITARY PLUMBING SYSTEMS

Delete C1.2(a) and insert SA C1.2(a) as follows:

SA C1.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *plumbing* system must be in accordance with either—
 - (i) AS/NZS 3500.2 with the following additions:
 - (A) After 4.7.1 (h) insert (i) as follows:
 - (i) Inspection openings indicated in 4.7.1 (b) (d) and (e) shall be raised to ground level or floor surface level. All other inspection openings need not be raised provided they are not below paved, concreted or floors surfaces.
 - (B) Delete 2.4.1(a) and replace as follows:
 - (a) Bends in pipes shall have a throat radius complying with Table 5.6 and Figure B6 of AS/NZS 1260 (2009) and shall be free from wrinkling and flattening.
 - (C) After Clause 11.9(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 4.4 and Appendix D; or
 - (ii) AS/NZS 3500.5 with the following additions:
 - (A) After 4.20.2.1(f) insert (g) as follows:
 - (g) Inspection openings indicated in 4.7.1 (b) (d) and (e) shall be raised to ground level or floor surface level. All other inspection openings need not be raised provided they are not below paved, concreted or floor surfaces; and
 - (B) After 4.4.10 insert 4.4.11 as follows:

4.4.11 Bends in pipes shall have a throat radius complying with Table 5.6 and Figure B6 of AS/NZS 1260 (2009) and shall be free from wrinkling and flattening.

SECTION D STORMWATER DRAINAGE SYSTEMS

PART D1 ROOF DRAINAGE SYSTEMS

Part D1 does not apply in South Australia.

PART D2 SURFACE AND SUBSURFACE DRAINAGE SYSTEMS

Part D2 does not apply in South Australia.

SECTION E HEATING, VENTILATION AND AIR-CONDITIONING

PART E1 HEATING, VENTILATION AND AIR-CONDITIONING SYSTEMS

Part E1 does not apply in South Australia.

SECTION F ON-SITE WASTEWATER SYSTEMS

PART F1 ON-SITE WASTEWATER MANAGEMENT SYSTEMS

Part F1 does not apply in South Australia.

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

1.1 Administering Agency

South Australian Water Corporation

Relevant Legislation

Sewerage Act 1929

Sewerage Regulations 2011

Waterworks Act 1932

Waterworks Regulations 2011

South Australian Water direction to new Water Heater Standards - Direction issued pursuant to regulation 17, Waterworks Regulation 2011-Revised Direction to give effect to the Adoption of Greenhouse Gas and Water Flow Rate Performance Standards for Water Heater Installations serving established Class 1a and 1b buildings or single dwellings in established Class 2 buildings connected to a SA Water supply. For further information on residential water heater requirements: <http://dtei.sa.gov.au/energy/waterheaters/>

2. Building

2.1 Administering Agency

Department of Planning and Local Government

Relevant Legislation

Development Act 1993

Development Regulations 2008

3. Health

3.1 Administering Agency

Health SA

Relevant Legislation

Public and Environmental Health Act 1987

Public and Environmental Health (Waste Control) Regulations 2010 and its prescribed Codes

Public and Environmental Health (Legionella) Regulations 2008

Guidelines for the Control of Legionella

4. Environment

4.1 Administering Agency

Environmental Protection Authority

Relevant Legislation

Environment Protection Act 1993

Environmental Protection Regulations 2009

5. Gas

5.1 Administering Agency

Office of Technical Regulator, Department for Transport, Energy and Infrastructure

Relevant Legislation

Gas Act 1997 and Regulations

AS/NZS 5601- Gas Installations

6. Electrical

6.1 Administering Agency

Office of Technical Regulator, Department for Transport, Energy, and Infrastructure

Relevant Legislation

Electricity Act 1996 and Regulations

Electrical Products Act 2000

AS/NZS 3000 Wiring Rules

TASMANIA

APPENDIX CONTENTS

APPENDIX TASMANIA

A GENERAL PROVISIONS

Footnote: Other Legislation Affecting Buildings

SECTION A GENERAL PROVISIONS

Variations and Additions to the PCA in Tasmania are contained within the Tasmanian Plumbing Code (TPC) http://www.wst.tas.gov.au/industries/plumbing/plumbing_code.

Footnote: OTHER LEGISLATION AFFECTING BUILDINGS

All legislative technical requirements affecting the design, construction or performance of plumbing installations are consolidated into the Building Act 2000 and other legislative instruments under that Act, such as regulations, codes (including the Tasmanian Plumbing Code and the Tasmanian Appendix, Volume One - Appendices of the NCC) and Standards.

VICTORIA

APPENDIX CONTENTS

APPENDIX VICTORIA

- B WATER SERVICES**
- C SANITARY PLUMBING AND DRAINAGE SYSTEMS**
- D STORMWATER DRAINAGE SYSTEMS**
- E HEATING, VENTILATION AND AIR-CONDITIONING**
- Footnote: Other Legislation Affecting Buildings**

SECTION B WATER SERVICES

PART B1 COLD WATER SERVICES

After B1.2(b) insert Vic B1.2(c) and (d) as follows:

Vic B1.2 Deemed-to-Satisfy Provisions

- (c) *Drinking water* that is not intentionally heated must be delivered at a temperature of less than 40 degrees Celsius.
- (d) A hose tap must be provided in men's public toilets adjacent to the urinals.

PART B2 HEATED WATER SERVICES

Delete B2.2(a) and replace with Vic B2.2(a) as follows:

Vic B2.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a *heated water* service must be in accordance with—
 - (i) AS/NZS 3500.4 including the following additions:
 - (A) Insert the following at the end of clause 1.9.2:

In this clause 'heated water installation' means either a heated water reticulation heater and a heated water reticulation system or a heated water reticulation system; and
 - (B) Insert the following after clause 4.3.2.4:

4.3.2.4A Heated Water Service

The provisions of clause 5.3.8 of AS/NZS 3500.1 apply to heated water reticulation; or
 - (ii) Section 3 of AS/NZS 3500.5 as appropriate.

SECTION C SANITARY PLUMBING AND DRAINAGE SYSTEMS

PART C1 SANITARY PLUMBING SYSTEMS

Delete C1.2(a) and replace with Vic C1.2(a) as follows:

Vic C1.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *plumbing* system must be in accordance with —
 - (i) AS/NZS 3500.2, including the following:

After clause 13.1, insert clause 13.1(A) and delete clause 13.3.3 and replace as follows:

13.1(A) 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 13.3.

13.3.3 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 13.3.2 over the minimum test duration specified in Table 13.1; or

(ii) Section 4 of AS/NZS 3500.5 as appropriate.

PART C2 SANITARY DRAINAGE SYSTEMS

Delete CP2.2 and replace with Vic CP2.2 as follows:

Vic CP2.2 No point of connection

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 C2.2(a) and replace with Vic C2.2(a) as follows:

Vic C2.2 Deemed-to-Satisfy Provisions

(a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *drainage* system must be in accordance with—

(i) AS/NZS 3500.2, including the following:

After clause 13.1, insert clause 13.1(A) as follows:

(A) Testing of a sanitary drainage installation—

(aa) if installed at a property provided with *non-drinking water* by the *network utility operator*, may be carried out in accordance with—

(AA) a water test in accordance with clause 13.2; or

(BB) an air test in accordance with clause 13.3; or

(CC) a vacuum test in accordance with clause 13.4.

(bb) in cases other than in (aa), testing must be carried out by way of—

(AA) an air test in accordance with clause 13.3; or

(BB) vacuum test test in accordance with 13.4.

After C2.2(b) insert Vic C2.2 (c) and (d) as follows:

(c) If 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) of AS/NZS 3500.2.

(d) Discharge pipes measuring DN50 or smaller must not be installed in a below ground sanitary *drainage* system, except for discharge pipes connected to floor waste gullies.

Vic PART C2.101 REQUIREMENTS FOR DRAINAGE WORK

Vic C2.101 Requirements for low risk on-site liquid trade waste management practices

- (a) A low risk liquid trade waste appliance must—
 - (i) be located as close as practicable to the fixtures that it serves and if of the portable type must be installed above ground; and
 - (ii) 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
 - (iii) be constructed of materials suitable for the nature of the wastes likely to be discharged through the appliance.
- (b) A low risk liquid trade waste appliance must—
 - (i) if fitted with an airtight cover, be provided with a DN32, DN50 or DN80 sized vent as nominated by the relevant *network utility operator*; and
 - (ii) be provided with the following outlet ventilation—
 - (A) if installed outside a building, a DN100 sized riser off a disconnector gully in accordance with clause 4.6.2 of AS/NZS 3500.2;
 - (B) if not of the portable type and installed inside a building, a DN50 sized vent off a disconnector gully in accordance with clause 4.6.5 of AS/NZS 3500.2; and
 - (C) if of the portable type installed inside a building, a DN50 sized vent off a DN80 sized trap riser in accordance with clause 4.6.5 of AS/NZS 3500.2.
- (c) If a low risk liquid trade waste appliance and outlet vent are interconnected, the interconnection must be in accordance with clause 6.8.3 of AS/NZS 3500.2.
- (d) The outlet from a low risk liquid trade waste appliance must—
 - (i) if of the portable type receiving a hydraulic loading of up to 5 fixture units, be a minimum size of DN50; or
 - (ii) if of the portable type receiving a hydraulic loading of more than 5 fixture units, be a minimum size of DN80; or
 - (iii) in cases other than that in (i) or (ii), be a minimum size of DN100; and
 - (iv) have a separate trap, of the same size as the outlet pipe, installed at its outlet.
- (e) 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.

Note: 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 STORMWATER DRAINAGE SYSTEMS

PART D1 ROOF DRAINAGE SYSTEMS

Delete D1.2(a) and insert Vic 1.2(a) as follows:

Vic D1.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a roof *drainage* system must be in accordance with AS/NZS 3500.3 or Section 5 of AS/NZS 3500.5 as appropriate.

SECTION E HEATING, VENTILATION AND AIR CONDITIONING

PART E1 HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS

After E1.2(e) insert Vic E1.2(f), (g) and (h) as follows:

Vic E1.2 Deemed-to-Satisfy Provisions

- (f) 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—
- (i) an evaporative tray if specified by the manufacturer; or
 - (ii) a sanitary *drainage* system by way of a tundish or self-sealing device, which complies with either clause 4.6.7.8 or clause 11.21 of AS/NZS 3500.2 ; or
 - (iii) a surface water *drainage* system; or
 - (iv) 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; or
 - (v) a stormwater downpipe directly over the connection to the roof gutter; or
 - (vi) directly to the stormwater downpipe below the connection to the roof gutter provided a means of overflow or reverse flow protection is incorporated.
- (g) Drains from a cooling tower must discharge to a sanitary *drainage* system in accordance with any applicable trade waste agreement.
- (h) 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.

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 2008

Gas Safety Act 1997

WESTERN AUSTRALIA

APPENDIX CONTENTS

APPENDIX WESTERN AUSTRALIA

- A GENERAL PROVISIONS**
- B WATER SERVICES**
- C SANITARY PLUMBING AND DRAINAGE SYSTEMS**
- D STORMWATER DRAINAGE SYSTEMS**
- E HEATING, VENTILATION AND AIR-CONDITIONING**
- F ON-SITE WASTEWATER SYSTEMS**

Section A DOCUMENTS ADOPTED BY REFERENCE

PART A3.1 Schedule of referenced documents

Table A3.1

In Table A3.1, insert additional references as follows:

Table WA A3.1 SCHEDULE OF REFERENCED DOCUMENTS			
Document No.	Date	Title	PCA Clause
AS/NZS 1260	2009	PVC-U pipes and fittings for drain, waste, and vent applications Amdt 1	WA C1.2

SECTION B WATER SERVICES

PART B1 COLD WATER SERVICES

Delete B1.2(a) and insert WA B1.2(a) as follows:

WA B1.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of cold water services must be in accordance with—
 - (i) AS/NZS 3500.1 except—
 - (A) Delete clause 3.5.2 Branch Offtakes
 - (ii) Section 2 of AS/NZS 3500.5 except—
 - (A) Delete clause 2.21.2 Branch Offtakes

PART B2 HEATED WATER SERVICES

Delete B2.2(a) and insert WA B2.2(a) as follows:

WA B2.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a *heated water* service must be in accordance with —
 - (i) AS/NZS 3500.4 except—
 - (A) the requirements of clause 1.9.2 apply when a water heater is replaced as follows:
 - (aa) An existing storage, instantaneous or continuous flow water heater is replaced with a water heater of a different capacity or heat source (e.g. 50L to 80L);
 - (bb) An existing instantaneous or continuous flow water heater is replaced with a storage water heater;

- (cc) An existing storage water heater is replaced with an instantaneous or continuous flow water heater;
- (dd) An existing storage, instantaneous or continuous flow water heater is replaced with a solar water heater;
- (ee) An existing solar water heater is replaced with another solar water heater; or
- (ff) A temperature control device is in place and the existing water heater is replaced.
- (B) replace clause 5.5.3 (c) as follows:
 - (c) On a level, stable and impervious base designed and located to avoid ponding and made of—
 - (i) bonded brick or concrete cast in situ, having a thickness of not less than 50 mm; or
 - (ii) pre-cast concrete having a thickness of not less than 40 mm.
- (C) in clause 5.9.1 Table 5.1
For line item "Expansion control valve (Australia)", the asterisk(*) is deleted in the second, third and fourth column and replaced with "Yes"; and
- (D) replace clause 5.12.3 (b) as follows:
 - (b) Each line shall fall continuously from the valve to the approved point of discharge.
- (E) replace clause 5.12.3 (e) as follows:
 - (e) Drain lines from temperature/pressure relief valves and expansion control valves shall terminate at one of the following approved points of discharge:
 - (i) over a tundish with an air gap of 50 mm between the top of the tundish and the termination of the drain line/s;
 - (ii) over a disconnect or overflow relief gully with an air gap of 75 mm between the grate of the gully and the termination of the drain line/s;
 - (iii) over a gravel pit no less than 100 mm in diameter and minimum depth of 250 mm. The air gap between the grate of the gravel pit and the termination of the drain line/s shall be 50 mm;
 - (iv) where authorised, not lower than 200 mm or higher than 300 mm above an unpaved surface.
- (F) in clause 5.12.3 delete (h) as follows:
 - (h) Where discharging over a tundish or gully, drain lines shall have an air gap of a size at least twice the diameter of the drain line.
- (G) in clause 7.3.1 replace the NOTE as follows:
Note: Solar water heaters are considered to have an uncontrolled heat source.
- (ii) Section 3 of AS/NZS 3500.5 except—

- (A) the requirements of clause 3.4.2 apply when a water heater is replaced as follows:
 - (aa) An existing storage, instantaneous or continuous flow water heater is replaced with a water heater of a different capacity or heat source (e.g. 50L to 80L);
 - (bb) An existing instantaneous or continuous flow water heater is replaced with a storage water heater;
 - (cc) An existing storage water heater is replaced with an instantaneous or continuous flow water heater;
 - (dd) An existing storage, instantaneous or continuous flow water heater is replaced with a solar water heater;
 - (ee) An existing solar water heater is replaced with another solar water heater; or
 - (ff) A temperature control device is in place and the existing water heater is replaced.
- (B) in Table 3.3
For line item "Expansion control valve (Australia)", the asterisk(*) is deleted in the second, third and fourth column and replaced with "Yes"; and
- (C) replace clause 3.15.2(c) as follows:
 - (c) On a level, stable and impervious base designed and located to avoid ponding and made of—
 - (i) bonded brick or concrete cast in situ, having a thickness of not less than 50 mm; or
 - (ii) pre-cast concrete having a thickness of not less than 40 mm.
- (D) replace clause 3.22.2.3 (e) as follows:
 - (e) Drain lines from temperature/pressure relief valves and expansion control valves shall terminate at one of the following approved points of discharge:
 - (i) over a tundish with an air gap of 50 mm between the top of the tundish and the termination of the drain line/s;
 - (ii) over a disconnect or overflow relief gully with an air gap of 75 mm between the grate of the gully and the termination of the drain line/s;
 - (iii) over a gravel pit no less than 100 mm in diameter and minimum depth of 250 mm. The air gap between the grate of the gravel pit and the termination of the drain line/s shall be 50 mm;
 - (iv) where authorised, not lower than 200 mm or higher than 300 mm above an unpaved surface.

SECTION C SANITARY PLUMBING AND DRAINAGE SYSTEMS

PART C1 SANITARY PLUMBING SYSTEMS

Delete C1.2(a) and C1.2(c), and insert WA C1.2(a) and WA C1.2(c) as follows:

WA C1.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *plumbing* system must be in accordance with either—
 - (i) AS/NZS 3500.2 except after Clause 11.9(b) delete:
Where a bath trap is not accessible, the bath shall discharge untrapped to a floor waste gully (FWG) in accordance with Table 4.4 and Appendix D; or
 - (ii) Section 4 of AS/NZS 3500.5
- (c) Bends in pipes shall have a throat radius complying with Table 5.6 and Figure B6 of AS/NZS 1260 (2009) and shall be free from wrinkling and flattening.

PART C2 SANITARY DRAINAGE SYSTEMS

Delete C2.2(a) and insert WA C2.2(a) as follows:

WA C2.2 Deemed-to-Satisfy Provisions

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a sanitary *drainage* system must be in accordance with—
 - (i) AS/NZS 3500.2 except—
 - (A) Replace clause 3.18(d) as follows:
 - (d) A DN 100 vacuum sewer system vent shall be connected on the main drain as close as practicable to the inspection shaft riser or further upstream, provided no other fixture is connected between the inspection shaft riser and the vent connection.
 - (B) Replace clause 4.6.2(b) as follows:
 - (b) have each gully riser provided with a grating or cover of a loose, pop-out type to relieve surcharge and allow adequate ventilation to the gully riser; and
 - (C) Replace Table 4.3 with the following:

WA C2.2 -Table 4.3

Fixture	Point of measurement
Floor waste gully	Top surface level of the grate
Other fixtures	Overflow level of the fixture
Greywater diversion devices	Overflow level of the device

- (D) Replace clause 4.7.1 (a), (g) and (h) with the following:

- (a) at the downstream end of any branch drain that exits a building, adjacent to the junction into the main drain;
 - (g) at the upstream and downstream ends of all branch drains that are external to a building;
 - (h) at every change of horizontal direction greater than 45°
- (ii) Section 4 of AS/NZS 3500.5 except—
- (A) Replace clause 4.35.2(d) as follows:
 - (d) have each gully riser provided with a grating or cover of a loose, pop-out type to relieve surcharge and allow adequate ventilation to the gully riser;
 - (B) Replace Table 4.11 with the following:

WA C2.2 -Table 4.11

Fixture	Point of measurement
Floor waste gully	Top surface level of the grate
Other fixtures	Overflow level of the fixture
Greywater diversion devices	Overflow level of the device

- (C) Replace clause 4.20.2.1 (a) and insert (g) and (h) as follows:
 - (a) at the downstream end of any branch drain that exits a building, adjacent to the junction into the main drain;
 - (g) at the upstream and downstream ends of all branch drains that are external to a building; and
 - (h) at every change of horizontal direction greater than 45°.

After C2.2(b), insert WA C2.2(c) as follows:

- (c) Bends in pipes shall have a throat radius and shall be free from wrinkling and flattening.

SECTION D STORMWATER DRAINAGE SYSTEMS

PART D1 ROOF DRAINAGE SYSTEMS

Part D1 does not apply in Western Australia.

PART D2 SURFACE AND SUBSURFACE DRAINAGE SYSTEMS

Part D2 does not apply in Western Australia.

SECTION E HEATING, VENTILATION AND AIR-CONDITIONING

PART E1 HEATING, VENTILATION AND AIR-CONDITIONING

Part E1 does not apply in Western Australia.

SECTION F ON-SITE WASTEWATER SYSTEMS

PART F1 ON-SITE WASTEWATER MANAGEMENT SYSTEMS

Part F1 does not apply in Western Australia.

PART F2 ON-SITE LIQUID TRADE WASTE SYSTEMS

Part F2 does not apply in Western Australia.

LIST OF AMENDMENTS

CONTENTS

LIST OF AMENDMENTS

List of Amendments Volume Three

LIST OF AMENDMENTS - NCC 2012 - VOLUME THREE

This set of notes has been prepared by the Australian Building Codes Board to assist NCC users in identifying changes incorporated in the 2012 edition of Volume Three of the NCC.

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

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

Reference	Changes and Commentary
Introduction	
Amendments have occurred to the introduction pages to align with changes made to the ABCB Inter-government Agreement.	
Section A	
A1.1	The following definitions have been inserted or amended: Expert Judgement New explanatory information has been inserted to provide guidance on acceptance of plumbing or drainage solutions. Network Utility Operator New explanatory information has been inserted to provide examples of Network Utility Operators.
A1.8	A new provision has been inserted to explain the status of explanatory information used in the PCA.
Table A1.3	Table A1.3 has been deleted and replaced with Table A3.1.
Part A3	A new Part A3 - Documents Adopted by Reference has been inserted. Part A3 includes Table A3.1 which replaces Table A1.3.
Table A3.1	The following references have been inserted or amended: AS 1271 Amdt 1 to AS 1271 'Safety valves, other valves, liquid level gauges, and other fittings for boilers, and unfired pressure vessels' has been referenced. AS 1358 Amdt 1 to AS 1358 'Bursting discs and bursting disc devices- Application, selection, installation' has been referenced. AS/NZS 1668.1 Reference to AS 1668 Part 1 'Fire and smoke control in multi-compartment buildings' has been corrected to AS/NZS 1668.1. AS/NZS 3500.2 Amdt 4 to AS/NZS 3500 Part 2 'Sanitary plumbing and drainage' has been referenced. AS/NZS 3500.3 Amdt 2 to AS/NZS 3500 Part 3 'Stormwater drainage' has been referenced. AS/NZS 3666.1 Reference to AS/NZS 3666 'Air handling and water systems of buildings – Microbial Control, Part 1 — Design, installation and commissioning', has been updated to the 2011 edition.

SUPERSEDED
LIST OF AMENDMENTS

Reference	Changes and Commentary
AS/NZS 3666.2	Reference to AS/NZS 3666 'Air handling and water systems of buildings – Microbial Control, Part 2 — Operation and maintenance', has been updated to the 2011 edition.
AS 4118.2.1	Amdt 1 to AS 4118 Part 2 Part 1 'Fire Sprinkler Systems- Piping-General' has been referenced.
AS 4508	Amdt 1 to AS 4508 'Thermal resistance of insulation for ductwork used in building air conditioning' has been referenced.
Section B	
BP2.3 Explanatory information	New explanatory information inserted to provide guidance on achieving energy and water efficient design.
Section C	
C1.0	'Including' has been inserted before 'from sanitary fixtures' to clarify that sanitary fixtures and appliances may not comprise the whole of the sanitary plumbing system.
CF1.1	'Using water-borne waste disposal' has been removed to clarify that other forms of waste disposal are permitted.
CP1.1	'Using water-borne waste disposal' has been removed to clarify that other forms of waste disposal are permitted.
CP1.1 Explanatory information	New explanatory information has been inserted to provide advisory information regarding non-flushing urinal installations.
C2.0	'Including' has been inserted before 'from sanitary fixtures' to clarify that sanitary fixtures and appliances may not comprise the whole of the sanitary drainage system.
CF2.1	'Using water-borne waste disposal' has been removed to clarify that other forms of waste disposal are permitted.
CP2.1	'Using water-borne waste disposal' has been removed to clarify that other forms of waste disposal are permitted.
Section E	
E1.2(b)	Reference to AS 1668.1 has been corrected to AS/NZS 1668.1.
Section F	
FV2	'On-site domestic wastewater systems' has been corrected to 'On-site liquid trade waste systems'.
Australian Capital Territory Appendix	
Table A3.1	New ACT Table A3.1 has been inserted to replace Table A1.3.
Footnote	A Footnote listing other legislation has been inserted.
New South Wales Appendix	
B1.2	The provision has been amended to correct a reference to AS/NZS 3500.1.
B3.2	The provision has been amended to correct a reference to AS/NZS 3500.1.

SUPERSEDED
LIST OF AMENDMENTS

Reference	Changes and Commentary
C2.2	The provision has been amended to correct a reference to AS/NZS 3500.2.
South Australia Appendix	
Table A3.1	New SA Table A3.1 has been inserted to replace Table A1.3. The Table now references AS/NZS 1260 'PVC-U Pipes and fittings for drains, waste, and vent applications'.
B1.2(a)(i)(A)	Reference to clause 14.6.1 of AS/NZS 3500.1 has been corrected to clause 14.4.1 of AS/NZS 3500.1.
B2.2(a)(i)(B)	New variation subclause inserted to require all new and replacement unvented storage water heaters to be installed with expansion valves. The existing variation subclauses have been restructured.
B2.2(a)(ii)(B)	New variation subclause inserted to require all new and replacement unvented storage water heaters to be installed with expansion valves. The existing variation subclauses have been restructured.
B4.2(g)(i)	New provision has been included to require a fire service be installed with a spring-loaded check valve at the point of connection.
B4.2(g)(ii)	New provision has been included to require where there are two or more interconnected fire services, a testable spring-loaded check valve is to be installed.
C1.2(a)(i)(B)	New variation subclause inserted to include compliance with Table 5.6 and Figure B6 of AS/NZS 1260.
C1.2(a)(i)(C)	New variation subclause inserted to remove the requirement that bath traps be accessible.
C1.2(a)(ii)(B)	New variation subclause inserted to include compliance with Table 5.6 and Figure B6 of AS/NZS 1260.
Footnote	A Footnote listing other legislation has been inserted.
Tasmania Appendix	
Section A	The reference to the relevant Tasmanian legislation dealing with plumbing and drainage has been amended to include a website.
Footnote	A Footnote listing other legislation has been inserted.
Victoria Appendix	
C1.2(a)(i)	The application of the testing procedures has been expanded.
C2.2(a)(i)	The application of the testing procedures has been expanded. The existing variation subclauses have been restructured.
E1.2(f)(ii)	Reference to clause 11.22 of AS/NZS 3500.2 has been corrected to clause 11.21 of AS/NZS 3500.2.
Footnote	The Footnote listing other legislation has been updated.
Western Australia Appendix	
Table A3.1	New WA Table A3.1 has been inserted to replace Table A1.3. The Table now references AS/NZS 1260 'PVC-U Pipes and fittings for drains, waste, and vent applications'.

SUPERSEDED
LIST OF AMENDMENTS

Reference	Changes and Commentary
B2.2(a)(i)(C)	Reference to clause 5.9.3 Table 5.1 of AS/NZS 3500.4 has been corrected to clause 5.9.1 Table 5.1 of AS/NZS 3500.4.
B2.2(a)(i)(D)	Amended to require drain lines discharge to an approved point.
B2.2(a)(i)(E)	The amendment expands the termination points for temperature/pressure relief valves to now include a zone above an unpaved surface.
B2.2(a)(i)(F)	New variation subclause has been inserted. Clause 5.12.3(h) of AS/NZS 3500.4 does not apply in Western Australia.
B2.2(a)(ii)(D)	The amendment expands the termination points for temperature/pressure relief valves to now include a zone above an unpaved surface.
C1.2(a)	New variation subclause inserted to remove the requirement that bath traps be accessible.
C1.2(c)	New variation subclause inserted to include compliance with Table 5.6 and Figure B6 of AS/NZS 1260.