



The Plumbing Code of Australia 2022

The National Construction Code (NCC) consists of three volumes. Volumes one and two contain the technical requirements for the construction of all classes of buildings in Australia. Volume three is the Plumbing Code of Australia (PCA) that sets the technical requirements for the installation of plumbing and drainage systems in Australia. The PCA 2022 came into effect on 1 May 2023 and is available free of charge on the Australian Building Codes Board's web site, www.abcb.gov.au.

How does the PCA fit into plumbing legislation in Western Australia (WA)?

The list below shows how the PCA fits into the hierarchy of WA plumbing regulation, with the legislation above overriding those underneath:

- ▶ The Plumbers Licensing Act 1995.
- ▶ The Plumbers Licensing and Plumbing Standards Regulations 2000 (the Regulations).
- ▶ **The Plumbing Code of Australia.**
- ▶ The AS/NZS 3500 standards, parts 0, 1, 2 and 4.
- ▶ Manufacturers' specifications.

Format of the PCA 2022.

The PCA 2022 replaced the PCA 2019 version on 1 May 2023. All volumes of the NCC have adopted a uniform clause numbering system called, Section-Part-Type-Clause (SPTC), for example B1D2, that details the deemed-to-satisfy provisions for water efficiency means the following:

- ▶ The first letter: Section B.
- ▶ The first number: Part number one (1) in the section.
- ▶ The second letter: Type, deemed-to-satisfy (D).
- ▶ The second number: Clause two (2) within the part.

Clause types of the PCA 2022.

The clause types used in the PCA are as follows:

- G = Governing requirement (mandatory)
- O = Objective (guidance)
- F = Functional Statement (guidance)
- P = Performance Requirement (mandatory)
- V = Verification Method (optional)
- D = Deemed-to-Satisfy Provision (optional)
- C = Clause in a Specification

Specification clauses may be mandatory or optional, depending on how they are called up by the NCC.

Informative parts of the NCC are not numbered and do not have numbered paragraphs.

Defined terms in the PCA are in italics and can be accessed by clicking on the term in electronic versions.



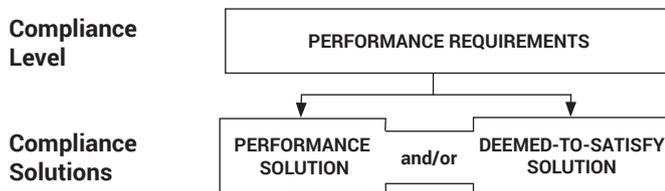
What parts of the PCA are regulated plumbing work in WA from 1 May 2023?

The Regulations tell us that only water supply, sanitary and drainage plumbing work is currently regulated in WA. Regulation 48 tells us which parts of the PCA relate to plumbing work in WA, as shown below:

- ▶ Section A.
- ▶ Parts B1, B2 (other than clauses B2P11 and B2D4 to B2D6), B3, B4 and B5.
- ▶ Specification 41.
- ▶ Parts C1 and C2.

What are governing requirements?

Governing requirements are a mandatory set of rules that outline how the PCA must be used. Figure A2G1 below, shows that a plumbing system may be installed as a deemed-to-satisfy (DTS) solution, performance solution or a combination of both to meet the overarching performance requirements in the PCA.



What are performance requirements?

Performance requirements are mandatory technical requirements that tell licensed plumbing contractors how a plumbing system must perform to be compliant. They must be met to ensure plumbing systems will be fit for their intended purpose. An example of a performance requirement is listed below, taken from part B for cold water services:

B1P6 Uncontrolled discharge

(1) A cold water service must avoid failure or uncontrolled discharge.

A cold water service installed in accordance with AS/NZS 3500.1:2021 will be a DTS solution to meet this performance requirement.

What is deemed-to-satisfy?

The DTS provisions are a set of rules, like a recipe book, that tell you how, what and where things must be done. They include materials, components, design factors, and plumbing requirements that, if used, are deemed to meet the performance requirements.

DTS provisions are clauses of the PCA although they also reference Australian standards that provide more detailed information such as the AS/NZS 3500 series which the plumbing industry is most familiar.

PCA 2022, schedule 2 lists all versions of referenced documents in force from 1 May 2023, including the new AS/NZS 3500:2021 versions of parts 0, 1, 2 and 4 that apply to regulated plumbing work in WA.

What is a performance solution?

The PCA is a performance based code and as such, flexibility is provided while ensuring compliant and acceptable plumbing and drainage solutions are installed.

The majority of plumbing installations in WA will be constructed under DTS provisions. However, that does not mean that a solution outside these provisions will fail and therefore not meet the performance requirements.

Performance solutions are often designs that current DTS standards may not have foreseen. Alternatively, a designer or manufacturer may have a new or innovative way to design a plumbing or drainage solution that provides important benefits while still meeting the performance requirements.

Some solutions may form only a part of a complete plumbing system or incorporate some DTS standards within the solution.

Additional information and resources can be found on the ABCB website using the following link:

www.abcb.gov.au/resources/filter/education-and-training

What is Quantification?

Quantification is a method of measuring how a performance requirement can be met. Performance requirements can be broad statements and whether the evidence provided in a performance solution is relevant or adequate may be debatable.

The PCA 2022 has included a number of these measurements, for example in the PCA 2019 a performance requirement in part B heated water services, was as follows:

BP2.4 Pressure relief and temperature limitation

(1) Containers used for producing and/or storing heated water must—

- (a) relieve excessive pressure; and
- (b) limit temperatures to avoid flash steam production in the event of rupture.

In the PCA 2022 the performance requirement has been quantified with maximum pressure and temperature inserted as follows:

B2P5 Pressure relief and temperature limitation

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

- (a) relieving pressure so that the maximum rated working pressure, or 1400 kPa, whichever is the lesser, is not exceeded; and
- (b) limiting water temperatures to a maximum of 99 °C; or
- (c) other suitable means providing an equivalent level of safety to (a) and (b).

How do licensed plumbing contractors certify performance solutions in WA?

Prior to installing a performance solution, the licensed plumbing contractor must be satisfied that the solution has been assessed in accordance with the methods set out in the PCA.

This may be in the form of reports, calculations or certificates signed off by technical experts with the skills, knowledge and experience to determine whether the performance solution will meet the performance requirements of the PCA.

Regulation 45A of the Regulations sets out the requirements for the certification of a performance solution that must be met.

The licensed plumbing contractor must submit the specific notice of intention for plumbing work that includes a performance solution, together with sufficient evidence, to the Plumbers Licensing Board at least 5 working days prior to commencing the work.

More information on performance solutions, including application details and a case study for a drainage performance solution can be found on the Building and Energy website using the following link.

www.commerce.wa.gov.au/building-and-energy/plumbing-performance-solutions

How does a performance solution comply?

Part A2 of the PCA sets out the mandatory governing requirements for compliance. A2G2 lists one or more assessment methods that can be used to show that a performance solution complies with the performance requirements and are as follows:

- ▶ Evidence of suitability.
- ▶ A verification method provided in the PCA.
- ▶ Other verification methods accepted by the appropriate authority.
- ▶ Expert judgement.
- ▶ Comparison with the DTS provisions.

NOTE:

Some of the deemed-to-satisfy clauses in the PCA are considered matters of public policy, not strictly technical in nature, and some have been removed from AS/NZS 3500 for that reason. One such example is B2D3 Layout of taps; that requires a heated water tap be to the left or above the cold water tap. These DTS clauses must be followed in addition to those contained in referenced documents, such as the AS/NZS 3500 series of Australian standards

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A2G2 (4) states:

Where a performance requirement is proposed to be satisfied by using a performance solution, the following steps must be undertaken:

- (a) Prepare a performance based design brief in consultation with relevant stakeholders.
- (b) Carry out analysis, as proposed by the performance based design brief.
- (c) Evaluate results from (4)(b) against the criteria in the performance based design brief.
- (d) Prepare a final report that includes—
 - (i) all performance requirements and/or deemed-to-satisfy provisions identified through A2G2(3) or A2G4(3) as applicable; and
 - (ii) identification of all assessment methods used; and
 - (iii) details of steps (4)(a) to (4)(c); and
 - (iv) confirmation that the performance requirement has been met; and
 - (v) details of conditions or limitations, if any exist, regarding the performance solution.

Although the steps above must be followed when choosing a performance solution pathway, the level of detail in each step may be reduced in less complex solutions.

Schedules of the PCA

Schedule 1 contains definitions, abbreviations and symbols. These are included in all volumes of the NCC.

Schedule 2 is a table of referenced documents as well as the version and applicable amendments that apply to all volumes of the NCC.

Schedules 3 - 11 have references to documents that affect buildings, water and plumbing systems as well as State and Territory variations and additions.

WA has 11 modifications to the current DTS standards, AS/NZS 3500:2021, which sit outside the PCA and are listed in the Regulations under regulation 49.