



Building Act 2016
**Director's Guidelines - Charged Downpipes to Rainwater Tanks
of Class 1a & 10 Buildings for Drinking Water Purposes**

I, Brad Wheeler, in my capacity as Director of Building Control, and acting pursuant to section 19(1)(a) & 20(1)(a) of the *Building Act 2016*, hereby make the following Guideline:

Title	Director's Guidelines - Charged Downpipes to Rainwater Tanks of Class 1a & 10 Buildings for Drinking Water Purposes
Description	This document provides guidance to permit authorities, designers and plumbers, on the installation of charged downpipes on Class 1a & 10 buildings for drinking water purposes.
Version	Version 2.0
Application	Director's Guidelines - Charged Downpipes to Rainwater Tanks of Class 1a & 10 Buildings for Drinking Water Purposes v1.0 ceases to have effect from the approval of this document.
Date of Administrator's approval	16 July 2024
Commencement date	16 July 2024

Brad Wheeler
Director of Building Control
Consumer, Building and Occupational Services
Department of Justice

Document development history

Version	Application date	Key changes
2.0	16.07.24	Rewrite of document, updated figure, and information
1.0	29.06.2017	Original issue

1. Definitions

Charged Downpipes	For the purposes of this guideline, are downpipes that are almost continually full (charged) with water, generally extended below ground and run between the building and rainwater tank inlet.
NCC	National Construction Code
PCA	Plumbing Code of Australia
Permit Authority	A person appointed under Section 24 of the <i>Building Act 2016</i>
Plumbing work	This term has the same meaning as specified in the <i>Building Act 2016</i>
PVC-U	Unplasticized Polyvinyl Chloride

2. Application

The guideline applies to the vertical and graded charged pipework from the gutter connection to an above ground rainwater tank.

- 2.1 Compliance with the requirements within this guideline will provide a Deemed to Satisfy (DtS) pathway for the connection of charged downpipes to a rainwater tank for the purposes of collecting and storing drinking water for Class 1a and / or Class 10 buildings.
- 2.2 Designs alternative to this guideline are considered Performance Solutions requiring compliance with Section A, Governing Requirements of the NCC.
- 2.3 Connection of the rainwater tank to points of use is outside the scope of this guide and must be in accordance with the NCC.

The *Director's Determination – Categories of Plumbing Work* specifies low risk, notifiable and high-risk work.

Category 1 – Low Risk Plumbing Work	This work can be done by an owner, licensed plumber, or competent person.
Category 2 – Low Risk Plumbing Work	This work must be done by a licensed plumber with some work requiring notification and 'As-Constructed' plans submitted to the Permit Authority.
Category 3 – Notifiable Plumbing Work	This work must be done by a licensed plumber, where the Permit Authority has carried out an assessment and issued a Certificate of Likely Compliance before the commencement of work.
Category 4 – Permit Plumbing Work	This work must be done by a licensed plumber and requires a Plumbing Permit issued by the Permit Authority.

- 2.4 The installation of charged downpipes in accordance with this guide is determined as Category 2 Low Risk work requiring a post-installation Form 80 - Notification of Low-risk Work and 'as-constructed' plan. The disposal of system overflow shall be in accordance with local authority requirements and the plumber must confirm all details prior to installation.
- 2.5 Text provided in this guideline as a 'Note' is not part of this Guideline but is recommended as best practice. The use of the words 'should' and 'may' permits discretion as relevant to the clause to which they are applied.

3. Materials and products

This section specifies requirements for materials and products used in a charged downpipe drinking water storage system:

- 3.1 All pipe and associated materials must be in accordance with AS/NZS 3500.3 and when in contact with drinking water must be compliant to the requirements of:
- AS/NZS 4020, or
 - Through 'Evidence of Suitability' from an accredited testing laboratory as per the PCA. Certificates of conformity must be sought from respective manufacturers for stormwater products (AS/NZS 1254) and PVC-U products (AS/NZS 1260).
- 3.2 In bushfire prone areas, materials selection and installation requirements must be undertaken in reference to any pre-determined BAL rating and/or AS 3959 Construction of buildings in bushfire-prone areas.
- 3.3 Solvent cement and priming fluid – where used for the jointing of PVC-U pipes and fittings must conform to AS/NZS 3879 and AS/NZS 4020.
- 3.4 Type P solvent cement (green) and priming fluid must be used for all charged downpipe joints.
- 3.5 Sealants used in any part of the roof stormwater drainage system must be neutral cure.
- 3.6 Inspection opening caps or plugs must be of the water-tight type and fitted with a rubber ring or gasket held in position by a clip, strap, or threaded connection.
- 3.7 Rainwater tanks for drinking water purposes must meet all requirements of the NCC Volume 3 - Tasmania Appendix, including the mandatory markings and provision of a sludge valve.
- 3.8 Lead, or materials containing lead, must not be used in any part of a roof stormwater drainage catchment used to collect water for drinking.
- 3.9 Timber treated with preservatives must not form any part of a roof stormwater drainage catchment used to collect water for drinking.

4. Design and Installation

Tank support

- 4.1 Where a rainwater tank is supported on a stand or other structure, the supporting structure must comply with the NCC and the *Director's Determination – Categories of Building and Demolition Work*.

- 4.2 Rainwater tanks that are placed on a natural ground surface must sit on a minimum 100mm thick bed of crushed aggregate or natural gravel of nominal size between 7mm and 10mm, extending a minimum 100mm past the edge of the tank. Aggregate is to be held in place in such a manner that prevents displacement (e.g., treated timber boxing, masonry retaining blocks, etc.). Base shall be set a minimum 100mm above finished surface level (FSL).

Roof drainage system

Roof gutters draining to a rainwater tank that is used for drinking water purposes shall:

- 4.3 For new construction, have a minimum fall of at least 1:500 for eaves gutters and 1:200 for box gutters. Increased fall should be applied wherever possible to minimise ponding, silt and debris build-up that may promote the growth of pathogens.
- 4.4 Where the presence of directly overhanging vegetation occurs, be fitted with a leaf-guard system that prevents the accumulation of leaf matter and other debris within the gutter system. Such a system must in no way impede the free flow of water within the gutter or create the potential for blockage. In bushfire prone areas, the screen must be non-combustible, in accordance with AS 3959.

Note 1: *A leaf-guard system should also be considered where wind may cause debris from nearby vegetation to accumulate in gutters.*

- 4.5 Not drain any section of roof where the flue from a slow combustion heater forms part of that catchment, nor collect any water from condensate drains or heated water discharge drains.

Descending (above ground) charged downpipe:

- 4.6 Rainwater draining from the gutter into each charged downpipe must pass through a deflecting leaf diverter. The device must feature a primary coarse screen to prevent entry of animals and debris, plus a secondary fine screen to prevent entry of mosquitoes and other insects etc. Leaf diverters may be omitted, where fine-mesh gutter screens are installed to the full gutter system.
- 4.7 A watertight inspection opening must be installed on the descending pipework to the tank and be located a minimum 300mm to centre above FSL.

Note 2: *A first-flush device may be fitted in a location subject to the manufacturer's recommendations. It is recommended that such a device feature automatic drainage of the diverted water volume rather than reliance upon manual activation of a device valve. Drainage from such a device must not have the potential to cause damage or further water pooling.*

Note 3: *Sunlight has been shown to penetrate light-coloured plastic downpipes promoting the growth of algae in the warmed water. Light-coloured above-ground charged downpipes should be coated in a dark paint before applying a topcoat for cosmetic purposes.*

Underground charged section of pipework

- 4.8 Underground pipework must not be within 15 metres downslope, or within 4 metres in any direction from the nearest edge of an on-site wastewater management system land application area.
- 4.9 The underground section of pipework must be minimum DN100 and have a minimum cover and bedding in accordance with AS/NZS 3500.3.
- 4.10 The lowest point of the charged system must have a junction installed with a branch line graded towards a watertight cap within a scour-point pit, or draining to a point that does not create a nuisance and meets local authority requirements.
- 4.11 The scour pit must be sized in accordance with AS/NZS 3500.3 and be fitted with a grate, appropriate to its location.
- 4.12 The minimum fall across the pit must be in accordance with AS/NZS 3500.3

Ascending (above ground) charged pipe to tank

- 4.13 A watertight inspection opening must be installed on the ascending pipework to the tank and located a minimum 300mm to centre above FSL.
- 4.14 The ascending pipework must terminate via a flap valve, above a screened inlet located in the top of the tank. The invert of this outflow pipe must be a minimum 150mm below the surcharge point of the gutter system or leaf-guard diverter for flow rates not exceeding 5.0 L/s. For flow rates exceeding 5.0 L/s, calculations are required to determine minimum head and must be provided on request.

Notes 2 and 3 may also apply.

Tank overflow

- 4.15 The tank overflow must be fitted with a fine screen to prevent the entry of mosquitoes and vermin to the tank. Such a screen may be at the tank outlet itself, or integral to the overflow pipe and must be accessible for cleaning.
- 4.16 The tank overflow pipework must not be directly connected to the surface stormwater system. The overflow must terminate over a grated stormwater pit or directly over the scour-point pit.

5. Testing

A charged downpipe system must be flushed and tested as being watertight in accordance with AS/NZS 3500.3 Section 9.

6. Maintenance advice

Subject to the level of potential catchment contamination, a charged downpipe system should:

- a. Be visually inspected by the owner, minimum 6 monthly.

- b. Be flushed through the scour point at least every 12 months or after extended dry spells.
- c. Ensure the tank is cleaned of any accumulated sludge every 2-3 years.

Note: *Detailed advice on desludging and maintaining tanks can be found in the enHealth Guide – Guidance on the use of rainwater tanks and HB 230 Rainwater tank design and installation handbook.*

7. Typical Installation Layout

