



Pumping apparatus and venting

This technical note has been issued to clarify the venting requirements for drains, branch drains, fixture discharge pipes and individual pumping apparatus, in accordance with AS/NZS 3500.2:2021, section 12 Pumped discharge.

General

Pumping of wastewater shall only be used where gravity connection is not practicable or possible. Substantial evidence must be provided in order to prove that a gravity connection is not achievable.

Types of apparatus

The types of wastewater pumping apparatus being installed in modern plumbing systems are listed below and must comply with AS/NZS 3500.2:2021, section 12:

- ▶ Wet wells designed for pumping wastewater, see photo 1.
- ▶ Small bore pumps for pumping discharge from waste fixtures, see photo 2.
- ▶ Small bore macerator pumps designed for pumping wastewater with solids, see photo 3.

Toilet pans with integral maceration units must be WaterMark certified to WaterMark Technical Specification, WMTS 516:2014. There are currently no deemed to satisfy provisions for these units and therefore they cannot be installed without an application for a performance solution in accordance with the Plumbing Code of Australia (PCA).



Photo 1: Typical wet well installation

Vent categories

There are essentially six categories of vents that shall not be interconnected with vents from other categories. However, these vents may interconnect with vents from within the same category at locations as required by AS/NZS 3500.2:2021.

When combined, the resulting vent must be sized in accordance with tables in AS/NZS 3500.2:2021 as follows:

- ▶ Vents from fixtures discharging to disconnecter gullies: Table 8.5.6.2.
- ▶ Sealed disconnecter gully vents: Table 8.5.6.2.
- ▶ Chamber or steam relief vents from bedpan sanitizers and washers: Table 8.5.6.2.
- ▶ Arrester chamber (trade waste) vents: Table 8.5.6.2.
- ▶ Vents from wet wells and apparatus for pumping discharge from waste fixtures: Table 8.5.6.2.
- ▶ Drainage, relief, stack and upstream vents: Tables 3.9.3.1 and 8.5.3.5.

Wet wells

Wet wells must be constructed in accordance with the relevant clauses of AS/NZS 3500.2:2021, section 12 or WaterMark certified if purchased as a plumbing product. Wet wells constructed on site shall be provided with a minimum DN 80 open vent, extended independently to atmosphere or interconnected with other wet well vents only, above the overflow level of the highest fixture connected to either wet well.

AS/NZS 3500.2:2021, clause 3.9, requires all main drains connected to wet wells must have an open upstream vent at all times regardless of length, number of toilet pans or total fixture unit loading.

Air admittance valves (AAVs) are only permitted, if required, to vent individual fixtures connected to the open vented main drain.

Pump discharge from waste fixtures

Apparatus for pumping discharge from waste fixtures constructed on site must comply with provisions in AS/NZS 3500.2:2021, clause 12.8 and positioned adjacent to the apparatus within the same room.

The holding tank for the apparatus shall be provided with a minimum DN 50 open vent extended independently to atmosphere or interconnected with other pumping apparatus vents above the overflow level of the highest fixture connected to either apparatus.

Waste fixture discharge pipes to the apparatus do not require upstream venting unless exceeding the lengths listed in AS/NZS 3500.2:2021, table 4.6.3. Connection of fixtures to disconnecter gullies. Air admittance valves or carbon odour control filters are not permitted.

Small bore and macerator/pumps

Small bore pumps for waste fixture and macerator pumps for soil fixtures must be WaterMarked to WMTS-106:2019 and have a vent pipe to atmosphere or interconnect with any other vents except those specified in AS/NZS 3500.2:2021, clause 6.9.3.

The fixture discharge pipes to the apparatus may be unvented unless exceeding lengths as stated in AS/NZS 3500.2:2021, clause 3.10.3 and table 4.6.3.

In both scenarios above, AAVs or carbon odour control filters are not permitted under deemed-to-satisfy provisions.



Photo 2: Typical small bore pump for waste fixtures



Photo 3: Typical small bore macerator pump

Performance plumbing solutions

An increasing number of purpose built pumping units are being manufactured with an integral carbon odour control filter instead of a socket to provide an open vent to atmosphere.

Licensed plumbing contractors are reminded that there are currently no deemed to satisfy provisions in AS/NZS 3500.2:2021 to permit the omission of an open vent. Therefore all such installations require an application for a performance solution through the PCA.

Information regarding the submission of plumbing performance solutions is available from the Building and Energy website link below:

www.dmirs.wa.gov.au/building-and-energy

Discharge pipes from pumping apparatus

AS/NZS 3500.2:2021, clause 12.7 lists appropriate points of connection for outlet discharge pipes and requires approved materials for pressure pipes to be in accordance with AS/NZS 3500.1:2021.

Consideration should be given to the type of pipe material used for pumped discharges. As pressure pipe of this type may also be used for drinking water, it is good plumbing practice to colour code or label the pipe with signage identifying it as a pumped discharge line containing sewerage.

Notes

The technical note series is issued by the Plumbers Licensing Board to assist the plumbing industry to comply with the Plumbers Licensing and Plumbing Standards Regulations 2000 (the Regulations) applicable to plumbing work in Western Australia.

Each technical note is to be read in conjunction with Part 6 of the Regulations that currently adopt the Plumbing Code of Australia (PCA) and the deemed to satisfy provisions of AS/NZS 3500:2021, parts 0, 1, 2 and 4 but modified in certain matters to suit the State's building approach and other local conditions.

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