

Plumbing Practice Note CW-03: Maximum static water pressure within a building

This Practice Note provides guidance on the requirements for maximum static water pressure at any water outlet within a building and water efficient tapware.

The content below provides guidance on:

- Maximum static pressure and testing
- Types of pressure regulating devices
- Flow rate requirements
- Complying with flow rate requirements



For guidance on the plumbing regulatory framework refer to Plumbing Practice Note CW-01 Cold Water Plumbing – Regulatory Framework

Abbreviations & Definitions

The abbreviations and definitions set out below are for guidance only. They are not intended to vary those set out in the Building Act 1993 or the Plumbing Regulations 2018.

- **AS** – Australian Standard
- **AS/NZS** – Australian/ New Zealand Standard
- **NCC** – National Construction Code 2019, Volume 3
- **Regulations** – Plumbing Regulations 2018
- **WELS** – Water Efficiency Labelling and Standards

Maximum static pressure and testing

The installation of water services within a building must comply with AS/NZS 3500.1. The maximum static pressure at any outlet, other than a fire service outlet, within a building must not exceed 500 kPa. This applies to all new plumbing work and includes heated water outlets.

The best method to check the maximum static pressure is to connect a correctly calibrated pressure gauge to the meter outlet that is located at the property boundary. The static pressure, available from the water authority will be shown on the device. If this reading exceeds 500kPa, a pressure regulating device needs to be installed.



Types of pressure regulating devices

Any currently approved pressure limiting valve or adjustable pressure reducing valve may be used.

The valve can be installed anywhere in the cold-water line, provided the valve is accessible. Where full mains pressure is required at a point/s outside the building, connection of these points can be made upstream of the valve.

It is a requirement of AS/NZS 3500.1 and AS/NZS 3500.4 that the maximum flow rate must not exceed 9 L/min of static pressure from a water outlet, connecting a shower, basin, kitchen sink or laundry trough, or 18 L/min for a bath.

Flow rate requirements

Plumbers and builders play an important role in encouraging Australians to use water more efficiently and to ensure that they comply with the maximum water supply flow rates for both hot and cold water.

Generally, this will involve installing appropriately approved Water Efficiency Labelling and Standards (WELS) products.

The intent of the requirement is to ensure that, under all operating conditions the flow rate will not exceed 9 L/min. The flow rate should be measured at the shower head or outlet when both, hot and cold taps are in the fully open position.

Where there are separate hot and cold pillar or hob mounted taps, each should also be measured at the outlet in the fully open position.

For mixer taps and tap sets, they should be measured at the outlet, either from:

- the cold tap in the fully open position,
- from the hot tap in the fully open position, or
- the mixed flow from the outlet in the fully open position.

While standards do not prescribe any specific method to control the flow, this can be achieved by using the following:

- WELS rated tapware and shower heads;
- In-line flow regulators; and
- In-tap flow regulators.

The following figures show the three main types of tap controls:

- In-line flow control valves with in - tap flow regulators, refer to Figure 1;
- Separate hot and cold pillar or hob mounted taps, refer to Figure 2;
- A tap set incorporating hot and cold taps with a common outlet, refer to Figure 3;
- Mixer taps with a single lever control and common outlet, refer to Figure 4;

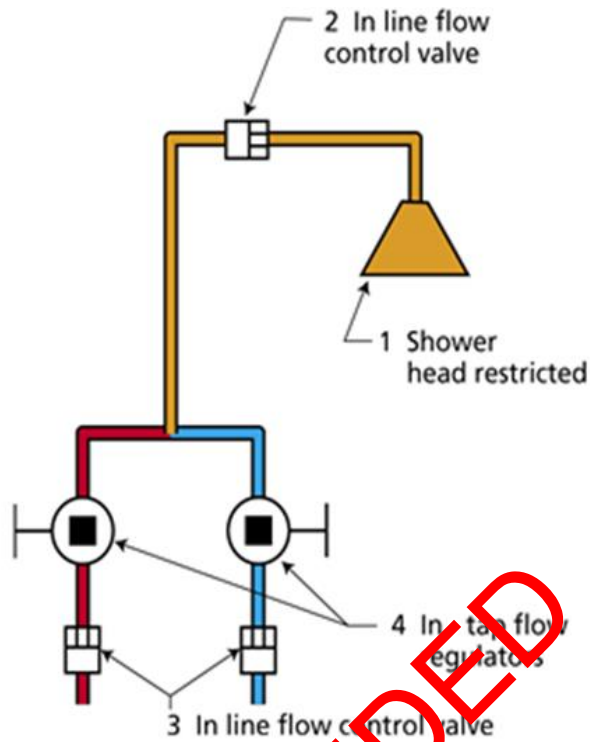


Figure 1: In-line flow control valves

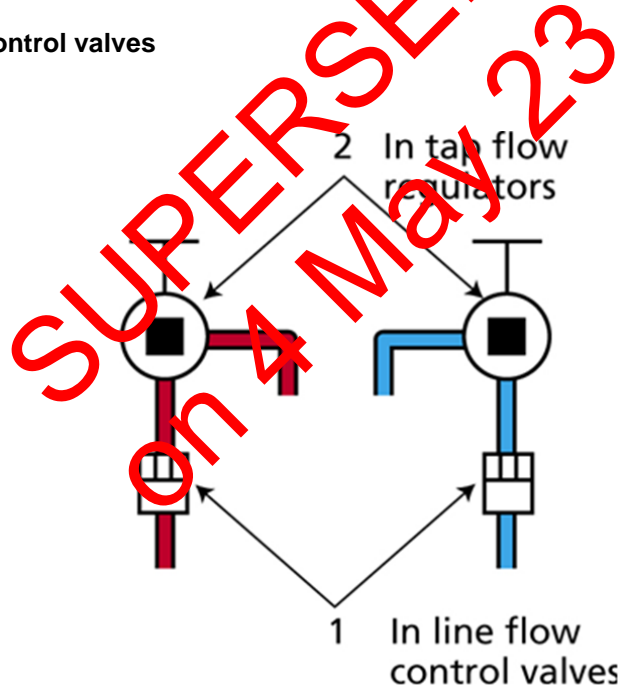


Figure 2: In line flow control valves and in tap flow regulators

SUPERSEDED
on 4 May 23

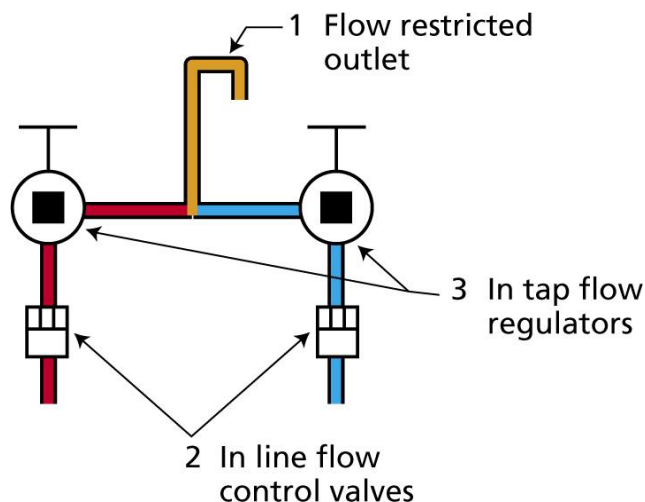


Figure 3: In line flow control valves, in-tap flow regulators or restricted outlets

Explanatory Notes: Figures 2 & 3:

1. WELS compliant tapware
2. Approved in-line flow control valves can be used to the hot and cold supply to the taps.
3. In-tap flow regulators may also be used.

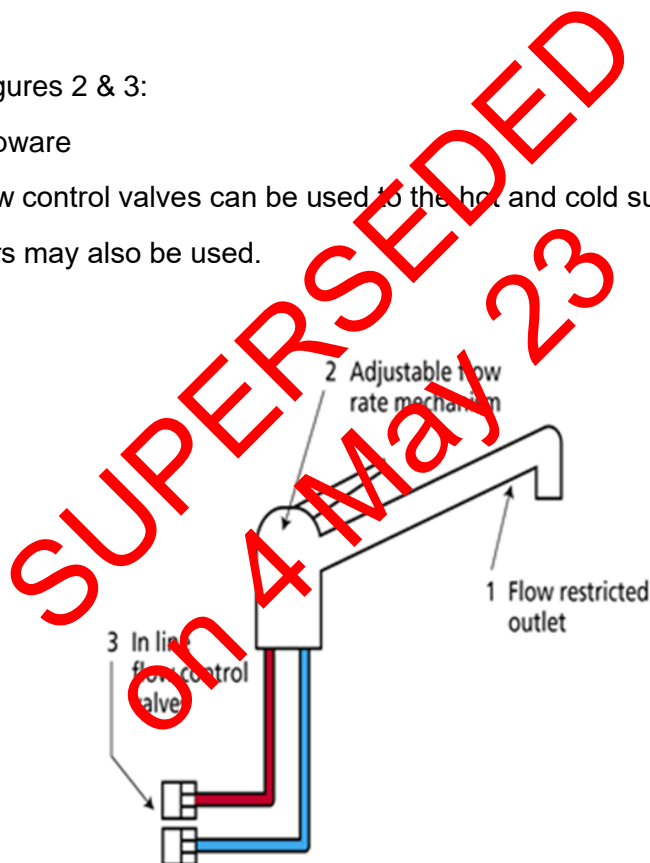


Figure 4: Single lever mixer with incorporated flow restriction

Explanatory Notes: Figure 4:

1. A single lever mixer tap may have the flow restriction incorporated in the outlet by the manufacturer who will label the tap set as complying with WELS.
2. Some manufacturers may provide an adjustable flow rate mechanism within the tap body which can be set on site by the plumber.
3. Approved in-line flow control valves may be used to the hot and cold supply to the tap.



It is a requirement for all tapware to have an approved Watermark & WELS rating to ensure compliance.

Related Documentation

- Plumbing Regulations 2018
- National Construction Code 2019 Volume Three
- AS/NZS 3500.1:2018 - Water services
- AS/NZS 3500.4:2018 – Heated water services
- <https://www.waterrating.gov.au/>
- <https://watermark.abcb.gov.au/>

List of Amendments

- Amended to reflect current Plumbing Regulations NCC and Australian Standards
- Update format
- Minor amendments to improve readability

Version History

- Version 1, published 05 August 2022, supersedes Technical Solution Sheet 5.06 Maximum Outlet Pressure within Building's Water Supply Flow Rates (last published April 2014).

Contact Us

If you have a technical enquiry, please email plumbingtechnicaladvice@vba.vic.gov.au or call 1300 815 127.

Victorian Building Authority
Goods Shed North
733 Bourke Street
Docklands VIC 3008

www.vba.vic.gov.au

SUPERSEDED
on 4 May 2023

Copyright

© August 2022 Victorian Building Authority (VBA).

This Practice Note has been prepared and published by the VBA for general educational and information purposes only. This publication must not be copied, reproduced, published, adapted, or communicated by any person without the VBA's prior written consent or as permitted by the Copyright Act 1968 (Cth). The VBA makes no warranties or representations whatsoever about the accuracy, reliability, suitability, completeness or authenticity of any information or material contained in this resource. Any use or reliance on such information is at a person's own risk. The VBA accepts no liability whatsoever for any direct, indirect, or consequential loss or damage any person may suffer arising out of or in connection with the access or use of this resource (including any third-party material included in this resource).