

Extract From Acceptable Solutions By Taumata Arowai

End-point treatment system requirements

- a) Each component of the end-point treatment system must be installed:
 - i. **To meet the peak instantaneous demand** for treated drinking water.
 - ii. In accordance with the manufacturer's instructions and requirements.
- b) The end-point treatment system and all associated pipework and associated fixtures **must comply with the Building Act 2004 and the Building Code if relevant.**
- c) The design and construction of **the water treatment system must prevent backflow**, being the unplanned reversal of flow of water or mixtures of water and contaminants into the water supply system.
- d) Each UV disinfection unit **must be validated to** at least one of the following standards:
 - i. Ultraviolet Disinfection Guidance Manual (USEPA 2006b).
 - ii. DVGW Technical Standard W294 (DVGW 2006).
 - iii. öNORM M 5873-1: 2020 01 01.¹
 - iv. **NSF/ANSI 55 Class A (NSF, ANSI n.d).**
- e) Where a UV disinfection unit has been installed before 12 October 2022 and written evidence is available from the manufacturer (e.g., manufacturer's website, instruction manual, etc) that the unit delivers a minimum UV reduction equivalent dose of 40 mJ/cm² then the unit is not required to meet the UV validation requirements set out above.
- f) Each end-point treatment system must (as a minimum):
 - i. Have **two stage cartridge filtration with 20 micron and 5 micron or less**, nominal pore sizes.
 - ii. Have a UV disinfection unit that delivers **a minimum reduction equivalent dose of 40 mJ/cm²** as measured by a UVI or UV dose sensor.
 - iii. **Monitor UV dose continuously** and generate a local onsite alarm if the UV dose is below 40 mJ/cm² or outside the limits specified by the manufacturer.
 - iv. Have flow control to ensure water flow is within the specification of the UV unit and **be designed to shutdown automatically on a low UVI or UV dose.**
 - v. Have a **lamp status indicator** if a UV disinfection unit contains more than one lamp.
 - vi. If applicable, not allow flow of water during a UV disinfection unit's lamp warm-up period until the required UVI or UV dose is achieved (an automatic control valve or start/stop of the pump must be used to control flow during the warm-up period).
 - vii. **Have an air release valve(s)** to allow air to be removed from the system on start up.
 - viii. **Have manual isolation valves fitted upstream and downstream** of the treatment system to allow for maintenance.
 - ix. Be sized to **ensure flow rates comply with clause G12.3.7(a) (Water supplies) of the Building Code** and are adequate for the correct functioning of fixtures and appliances within the building.²

¹ UV reactors installed before 1 January 2020 can be certified to öNORM M5873 (Österreichisches Normungsinstitut 2001).

² Probable instantaneous flow rates for dwellings can be found in AS/NZS 3500.1:2021.