1st July 2022

Building System Performance
Building Code Update 2022 - Plumbing and Drainage

Te Kāwanatanga o Aoteraoa – Ministry of Business, Innovation and Employment
PO Box 628
Wellington 6140
Email: buildingfeedback@mbie.govt.nz

Dear Sir/Madam,

SUBMISSION FOR WATER NEW ZEALAND ON THE BUILDING CODE UPDATE 2022: PLUMBING AND DRAINAGE

INTRODUCTION AND OVERVIEW

1. Water New Zealand ("Water NZ") appreciates the opportunity to provide a submission on MBIE Plumping and Drainage. This submission addresses related consultation pieces on:
   - Section 1 - Lead in Plumbing Products
   - Section 3 - Protection of Potable Water
   - Section 4 - AS/NZS 3500 plumbing standards

2. Water NZ is a national not-for-profit organisation which promotes the sustainable management and development of New Zealand's three waters (drinking water, wastewater and stormwater).

3. Water NZ is the country's largest three waters industry body, providing leadership and support in the water sector through advocacy, collaboration, and professional development. Its 2,700 members are drawn from all areas of the water management industry including regional councils and territorial authorities, consultants, suppliers, government agencies, academia, and scientists.

4. Many members will be making their own submissions, these submissions are intended to complement those of its members. Our submission has been prepared by Water NZ's Technical Manager Noel Roberts with considerable input from the Water New Zealand Backflow special interest group committee.

5. All consumers of drinking water deserve access to safe water. We recognise that the building code plumbing and drainage requirements play an important role in facilitating this. With most water supplies there is a real risk of backflow incidents occurring which make water unsafe to drink. There have been many serious backflow incidents recorded in New Zealand although they are not often widely publicised as we have often been lucky to avoid serious public health consequences. One such example involved beer from a brewery back-siphoning into a public water main. Under different circumstances, for example if beer had reached a customer on a dialysis machine, this could have had adverse health consequences. The most serious incident to make the news occurred in May 1994 when caustic soda from a dairy factory back siphoned into a common water main resulting in at least six people receiving chemical burns, some of them serious. The incident was caused by a maintenance worker's mistake. Had a proper boundary device and a building zone device isolating the cleaning process been installed, the incident would have been contained within the factory cleaning process and kept

staff and neighbouring properties safe. The likelihood of backflow events occurring is low, but the consequences could be catastrophic.

Section 1 - Lead in plumbing Products

6. Water New Zealand endorses the proposal to amend Acceptable Solution G12/AS1 to limit the maximum lead content to 0.25% for any product that contains copper alloy and is intended for use in contact with potable water for human consumption. This is a cost-effective approach as it addresses plumbosolvency at the source of the problem, avoiding the significant costs that would be incurred for water suppliers to reduce lead being dissolved into drinking water by dosing specific chemicals. This solution will also address the plumbosolvency issues caused by tap ware for consumers that are not connected to networked supplies.

Section 3 - Protection of Potable Water

7. Section three refers to “containment backflow protection” and identifies a boundry protection device, there is often confusion if containment is referring to a boundry or protection with a building or both. There are different purposes and management approaches for both a ‘Containment device’ and a ‘Boundary device’. We suggest adopting the term ‘boundary device’ for network protection from a property as this is common industry parlance alongside a standardised definition to avoid confusion. The definition for boundary device in the 2019 Water New Zealand Code of Practise document is:

   Boundary device (sometimes known as a containment device) means any backflow prevention device located at or near the point of supply as defined by the water supplier, usually as close as is practical to the property boundary.

   Discussion was had if “building zone protection” is a better term for describing a device within a building.

8. Section 3.4.2 classifies hoses under 18m as low hazard. This implies that a vacuum beak device is required on every hose tap where a long hose could be fitted. As it is unknown what length of hose could be added at the time of construction, is this recommending a vacuum break is installed on every tap? Note that a vacuum break is suitable for low pressure only.

9. The use of the term ‘zone device’ should be promoted in G12 as isolating processes and hazards within the building to protect occupants. This could be applied to fire systems as well. Section 3.4.3 is an example of where the term containment device may create confusion and a zone device or similar term may offer value.

10. Figure 3.1 Example of containment backflow convention, on page 24 is confusing as it appears to show two devices in series. This implies there would be two devices on the boundary, one owned by the supplier and one owned by the customer. Clarification in the update to only show one device and description of the ownership model elsewhere would provide more clarity. Two devices in series should be avoided as an unnecessary cost burden.

11. Describing the separation of functions and management for backflow protection between water network protection and within the building protection is suggested.

12. There is confusion within the code as to who has overall control of boundary devices. It is of critical importance that the water suppliers have control of the management and selection of boundary devices. The Water Services Act 2021 places a duty of care on water suppliers to ensure that drinking water suppliers provide safe drinking water to consumers. The boundary device is there to protect the water network and other neighbouring properties. It is the water supplier that carries the water contamination risks and therefore should have the final say on what boundary device is installed, how the device is maintained and associated auditing.

13. We support the proposed amendments to Acceptable Solution G12/AS1 for the protection of potable water in preference to the development of guidance material. The update of G12 will provide a more consistent approach across Aotearoa.

14. The building code states that testing should be done by an authorised plumber, when in fact testing of boundary devices (containment device) is currently carried out by Industry Qualified Professionals. This certification is currently managed by local government bodies. The Water Services Act 2021 has introduced regulations relating to authorisations for prescribed skills, qualifications, or experience in respect of drinking water supply. Dialogue is needed with Taumata Arowai to determine if authorisations are required to undertake testing of boundary devices.

    Inside the property, zone backflow device installation, maintenance and testing should be carried out by an authorised plumber. For fire service systems where a backflow device is installed, the fire system starts after the backflow device. That backflow device is still serviced by an authorised plumber.

15. Section 3.4.4 addresses backflow prevention device installation. This section should also acknowledge that dishwashes, beverage dispenses and other appliances connected to the water supply pose medium backflow hazards with built in non-testable backflow devices. These hazards need to be acknowledged and a method developed to prove how these risks have been mitigated.

16. Section 3.4.4. states that “Backflow prevention devices must be fitted with mechanical unions on the inlet and outlet of the valve to allow for the removal of the valve for replacement”. It is possible to comfortably remove a backflow device with only one union. Recommend wording changed to reflect that while two unions can be used, at least one is required.

17. Section 3.4.4. states that “Backflow prevention devices need to be installed with isolation valves in order allow independently qualified persons to test these devices annually”. It should also be added that isolation valves should be resilient seated to allow for reliable isolation of the device to be tested.

18. Section 3.4.4 states that “Backflow prevention devices installed within buildings need to have adequate drainage provisions to accommodate both intermittent and full flow rate discharge to prevent water damage to building elements in the event a relief valve fully opens.” We recommend a table is created to determine what the drainage requirement sizing should be. This is determined by device size and maximum operating pressure.

19. We support the guidance around what constitutes an accessible position for backflow prevention devices to be installed. We recommend that “above ground where practicable.” Is added to the text.

20. The American Society of Sanitary Engineering's (ASSE) standards should be added to the list as acceptable overseas standard for backflow devices included in 3.4.5. Backflow prevention device testing and manufacturing standards.

21. We echo the need to have pipework clearly identified in a building, this should apply to above and below ground pipework in a private property. This is a trending problem water supplies are coming across, particularly in the rural environment where irrigations systems are also present. The risk of cross connections to the water supply and public health are growing. There is an additional environmental benefit with residential properties where storm water and wastewater networks are commonly cross connected.

22. We support the recommendations outlined in sections 3.4.7 - 3.4.9 and transitions approach outlined in section 3.5.

Section 3 – General comments

23. Table 2a, should be revised to check if double check, dual check, or detector check devices would be appropriate.

24. Table 2a, should separate out if an underground tank is in use. If so, then a testable backflow device should be required. The reason for this that any failure or blockage of an overflow would be un-noticed. The preferred backflow device for an above ground tank is an airgap. Overflows that are part of the air gap need to be vermin proofed and this should be added as a requirement to G12.

25. Rainwater tanks – where a rainwater tank is used for drinking water and a network connection also exists the risk is considered medium. Roof water tanks can contain bird excrement, lead and heavy metals from coal fires.

26. There should be a domestic compliance schedule if a testable backflow device is fitted, i.e. where a hydraulic lift is fitted, adoption of grey water reuse is installed on the property etc.

27. Consider if every apartment should have a 10-year dual valve check.

Section 4 – AS/NZS 3500 Plumbing Standards

28. We support and endorse the changes proposed in Sections 4.2 to 4.5.

Section 5 – Water Supply Components

29. Cleaning and disinfection of water storage tanks – If the tank is used for multiple properties, then a more thorough cleaning process is required with monitoring of chlorine contact time. Another guidance material to reference various options to achieve this is the Water New Zealand Hygiene Practises to prevent water contamination https://www.waternz.org.nz/Resources/Article?Action=View&Article_id=1836

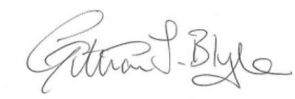
30. Water New Zealand support devices such as the expansion vessel that contribute towards water efficiency.

CLOSING COMMENTS

31. We look forward to continuing to support and work with MBIE in co-ordinating responses to protecting the water supply of all New Zealanders.

32. We welcome the opportunity to discuss any aspects of this submission with MBIE. If you have any specific questions in relation to this submission, please contact Noel Roberts (noel.roberts@waternz.org.nz).

Ngā mihi nui,



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