



3. WATER SUPPLY

Policy 3.3

BACKFLOW PREVENTION - CONTAINMENT

Version 1

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3.3 BACKFLOW PREVENTION

OBJECTIVES:

1. To assure the quality of Lithgow City Council's drinking water supply by minimising the risk of backflow contamination from connections to the supply system.
2. To set out Lithgow City Council's requirements for the installation and maintenance of containment backflow prevention devices on high, medium and low hazard properties.
3. To identify when testable backflow prevention devices are required to protect the water supply from contamination back through a customer's water service.

DEFINITIONS:

1. A property, for the purposes of this policy, includes all properties other than domestic single dwelling low hazard residential properties serviced by a 20mm or 25mm water connection.
2. AS/NZS 3500 is the Australian Standard/New Zealand Standard for plumbing and drainage. AS/NZS 3500:1 refers to Part 1 (Water Services) of this standard.
3. Backflow is defined as:
 - a. flow in the direction contrary to the normal or intended direction of flow.
 - b. the unintended flow of water from a potentially polluted source into a potable water supply system.
4. A backflow prevention device is a mechanical device that will prevent the reverse flow of water from a potentially polluted source into the potable water supply system.
5. Connections include all connections to a Lithgow City Council water main, including those from customers' premises or from standpipes.
6. Containment protection is defined as the installation of a backflow prevention device on the water service at the property boundary, to prevent backflow from within the property entering the potable water supply system.
7. Cross connection is defined as any connection or arrangement between the potable water supply system connected to the water main or any fixture, which may under certain conditions enable non-drinking water or other substances to enter the potable water supply system.
8. Customer is defined as the property owner.
9. Fire drencher sprinkler systems are defined as heat activated fire suppression systems, which spray water on the outside surface of a building or structure, to prevent the spread of fire from an adjacent building or structure.

10. Fire services are defined as services comprising water pipes, fire hydrants, fire hose reels, fittings, and including water storage or pumping facilities, which are installed solely for firefighting and extinguishing purposes in and around a building or property. Under certain conditions part of a fire sprinkler system may be included.
11. Hazard ratings are defined in AS/NZS 3500 as follows:
 - a. High Hazard - Any condition, device or practice, which in connection with the water supply system has the potential to cause death.
 - b. Medium Hazard - Any condition, device or practice, which in connection with the water supply system could endanger health.

POLICY:

1. General

- 1.1. All property owners must comply with the requirements of the Plumbing Code of Australia and AS/NZS 3500:1.
- 1.2. All customers with a water connection must assess the potential hazard and shall install appropriate backflow prevention at the boundary for containment purposes.
- 1.3. The installation of a backflow prevention containment device is necessary to ensure the public water supply system is protected from backflow of contaminants.
- 1.4. This policy covers only site containment backflow prevention devices. It is the responsibility of the property owner for zone and individual backflow prevention devices.

Zone protection means; Installing a backflow prevention device at the connection point of specified sections of a plumbing system within a building or facility.

Individual protection means; Installing a backflow prevention device at the point where the water pipes connect to a fixture or appliance.

2. Conditions of Installation

- 2.1. The property owner is responsible for the full cost of complying with this policy.
- 2.2. All backflow prevention containment devices installed to comply with this policy are the responsibility of the property owner. This may include (but is not limited to) installation, maintenance and annual testing.
- 2.3. Lithgow City Council will maintain a register of testable device installations, annual maintenance records and will conduct sample audits of installations to ensure ongoing compliance with AS/NZS 3500:1.
- 2.4. Existing medium and high risk properties connected to the water supply must install a compliant backflow prevention containment device within 12 months of notice issued by Lithgow City Council.
- 2.5. If Lithgow City Council determines that the backflow prevention device is unsatisfactory and issues a notice requiring the customer to repair, maintain, test, replace or install a backflow prevention device, the customer shall

comply with the notice within the time specified in the notice as per the Local Government Act 1993, Section 124 order 5 (h) - Under this Act local government can take action as necessary to bring into compliance with relevant standards or requirements set or made by this act relating to a water service or meter.

- 2.6. If the customer fails to install, repair, maintain, replace or test a backflow prevention device as required by a notice issued by Lithgow City Council, Lithgow City Council may disconnect (in the case of a non-residential property) or restrict (in the case of a residential property or mixed development) the customer from the water supply system until such time as the customer has complied with the notice so to prevent contamination of the water supply. Lithgow City Council may also impose a fee or charge for administrating non-compliance with the policy.
- 2.7. Lithgow City Council reserves the right to take appropriate regulatory action against the licence plumber for any incorrect installation that does not meet the requirements of AS/NZS 3500:1.
- 2.8. All properties must comply with the requirements specified in AS/NZS 3500.1:2003 or this policy, which ever requires the highest protection level.
- 2.9. Where a change of use for a property results in a reduced hazard rating, the property owner must have an accredited backflow prevention plumber certify the change in hazard rating and then inform Lithgow City Council. Lithgow City Council may conduct a site audit to verify the new hazard rating.
- 2.10. All properties connected to Lithgow City Council's water supply system are to have appropriate backflow prevention containment devices installed.
- 2.11. The type of device installed shall be in accordance with the hazard rating of the processes conducted, or the water supply installations present on site.
- 2.12. If the hazard rating varies due to multiple processes, the highest hazard rating shall be applied.
- 2.13. Properties identified as having high or medium hazards must install a testable backflow prevention device.
- 2.14. Where hazards are unknown for a commercial, industrial or a mixed development, the hazard rating will default to high and the installation of a testable device will be required.
- 2.15. High hazard properties require the installation of a Registered Break Tank, Reduced Pressure Zone Device or Registered Air Gap.
- 2.16. Medium hazard properties require the installation of a testable double check valve.
- 2.17. Low hazard properties require the installation of a non-testable dual check value.
- 2.18. Metered standpipes require a testable double check valve.
- 2.19. Fire services require the installation of a double check detector assembly.
- 2.20. Independent fire drencher sprinkler systems require the installation of a dual check valve.
- 2.21. All backflow prevention containment devices shall be installed in accordance with AS/NZS 3500:1. A backflow prevention containment device must be

fitted to all water supplies entering the property regardless of the supply type or metering arrangement. All devices must be installed on the outlet side of the master water meter supplying the property to achieve site containment. In circumstances where there is no master water meter, the containment device shall be installed on the water supply where it enters the property boundary. There must be no connections bypassing the containment device or water meter.

- 2.22. A backflow containment device must be installed so that the underside of the valve is a minimum of 300mm above the surrounding surface unless otherwise specified in the Plumbing Code of Australia.
- 2.23. Where a fire booster service is installed, the device must be installed so that the underside of the valve is a minimum of 750mm above the surrounding surface.
- 2.24. On a metered standpipe, the device shall be integrated into the design of the standpipe.
- 2.25. On a separate hydrant and/or sprinkler fire service, the device shall be installed close to where the water service crosses the property boundary, upstream of any booster assembly on, or offtake from the fire service.

3. Customer compliance and reporting requirements

- 3.1. All backflow prevention devices must be installed by a licensed plumber. Only a licensed plumber with backflow prevention accreditation may commission and test the device.
- 3.2. Registered Break Tanks and Registered Air Gaps must be installed and certified by a licensed plumber.
- 3.3. Customers are responsible for the installation, maintenance and annual testing of all backflow prevention devices in accordance with AS/NZS 3500:1 and ensuring that the associated documentation (Backflow Prevention Application, Inspection and Maintenance Report) and any prescribed fee is forwarded to Lithgow City Council.
- 3.4. The customer’s licensed and backflow accredited plumber is responsible for completing the Backflow Prevention Application (required on installation of the device) and the Backflow Prevention Device Inspection and Maintenance Report (required on commissioning or testing the device).
- 3.5. For low hazard connections, Lithgow City Council requires the registration of the backflow device. Completion of the Inspection and Maintenance Report is not mandatory for low hazard connections.
- 3.6. The device installation and commissioning test must be registered with Lithgow City Council within two working days of commissioning.
- 3.7. Customers are responsible for the provision of zone and individual backflow protection from hazards within their property as specified in AS/NZS 3500:1.

Table 1: Site Containment Backflow Prevention Standard

Premise type/category	Examples (not limited to)	Hazard
Alternate Water Supply	bore water, dams, reclaimed	High

Premise type/category	Examples (not limited to)	Hazard
	stormwater or recycled waste water (black or grey reuse)	
Below Ground Rainwater Tank	fully buried, partially buried, commercial, industrial, 2+ residential strata units - 25mm+ water service	High
Premise with Restricted Access	defence force, heavy industry, universities, chemical plants/processing or similar, petroleum processing plants or similar, radioactive reactor/processing or similar, major shopping centres, private network utilities, power stations and sub stations, coal mines, metal recyclers, water treatment works, prisons and corrective centres, airports	High
Water Front Facilities	piers, docks, marinas, fishing co-ops, oyster/prawn/fish farmers	High
Sewerage Treatment/Disposal/Recycling	sewerage treatment works, sewage lift stations, sewage lift stations residential (with well washers), sanitary depots, recreational vehicle sewerage dump points, effluent re-use plant	High
Automotive	petrol stations, vehicle, plant and plant equipment washing, caravan parks with sanitary dump point	High
Health Facilities	hospitals, mortuaries, funeral parlours with embalming, day surgery premises, pathology laboratories, general laboratories, dental surgeries - with direct water connection to dental chairs nursing homes with dirty utility rooms - sterilisers, pan washing, medical/dental - autoclaves, sterilisers, bidets - residential/commercial/industrial	High
Food Processing and Preparation	abattoirs, food processing (where high hazard is identified - clean in place systems) food & beverage processing plants including grease arrestors	High
Metal Finishing	galvanising, electro plating, chrome plating, zinc plating, powder coating	High

Premise type/category	Examples (not limited to)	Hazard
Agricultural	drinking troughs, crop farms, hydroponic operations, organic, veterinary surgeries, pest control facilities	High
Trade Waste	oil separator (process, wash day), prison sanitary grinder system, dilution pit, commercial laundries, industrial silt trap, Daf unit/collection tank with pH correction and/or coagulant dosing, Grease Arrestor	High
Fire Control	hydrant with chemical injection, hydrant within high hazard area, fire hose reel/s within high hazard area, sprinkler with chemical injection, below ground hydrants	High
Sporting/Recreational	golf course, irrigation with pump system or fertiliser/chemical injection, irrigation with below ground sprinklerheads ("pop up")	High
Local Government - Council, Public Utility	public swimming pool - with chemical storage, works depots, waste disposal facilities - garbage dumps	High
Development Construction	temporary construction water services for 3+ residential units, commercial and industrial developments (rpzd to be registered with Lithgow City Council upon connection and unregistered with Council upon disconnection)	High
Local Government - Council, Public Utility	public swimming pool - no chemical storage, mixed use buildings - offices etc, secondary school laboratories - dilution pit, spas, fountains	Medium
Fire Control	commercial/industrial premises with sprinkler service, commercial/industrial premises with hydrant service, commercial/industrial premises with fire hose reel/s, residential fire services identified as medium risk	Medium
Recreational	caravan parks without sanitary dump points	Medium
Trade Waste	silt trap	Medium
Above Ground Rainwater Tank	3+ strata units	Medium
Below Ground Rainwater Tank	single residential stand-alone	Medium

Premise type/category	Examples (not limited to)	Hazard
* Accepting Roof Water Only * Adequate Vermin Proofing * Require inlet and outlet	dwelling 20mm water service	20mm Vented Dual Check Valve
Sewage Pump Station	single residential stand-alone dwelling 20mm water service (no internal well washers and with or without potable water flushing via an external air gap)	Medium 20mm Vented Dual Check Valve
Alternate Water Supply (Residential) * No interconnection with drinking water supply	residential bore water, residential reclaimed stormwater	Medium 20mm Vented Dual Check Valve
Above Ground Rainwater Tank	single stand-alone residential dwelling, strata duplex	Low
Commercial	hairdressers basins or troughs	Low

Table 2: Minimum Site Containment Backflow Requirements

Connection type	Minimum requirements
32mm water meter	testable device - minimum double check valve (TDCV)
40mm water meter	
50mm water meter	
80mm water meter	
100mm water meter	
150mm water meter	
200mm water meter	
single check detector assembly	not to be used

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