

# Backflow Prevention and Cross-Connection Control

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## Contents

1	PURPOSE .....	3
2	STATEMENT .....	3
2.1	Definitions .....	3
3	PROVISIONS .....	4
3.1	Cross-Connection Control .....	4
3.2	Hazard Ratings.....	4
3.3	Backflow Prevention Assessment .....	4
3.4	Initial Installation of Testable Devices .....	5
3.5	Annual Testing and Maintenance of Backflow Devices.....	5
3.6	Failure to Install, Register, Test or Maintain Devices .....	6
3.7	Removal or Change of Device .....	6
3.8	Fire Service Requirements .....	6
3.9	Standpipes .....	7
3.10	Reclaimed Water Supplies .....	7
3.11	Relevant Registers .....	7
3.12	Responsibilities.....	7
3.13	Fees and Charges .....	7
4	IMPLEMENTATION .....	8
5	REVIEW .....	8
6	APPLICATION OF ECOLOGICALLY SUSTAINABLE DEVELOPMENT (ESD) PRINCIPLES .....	8

## 1 PURPOSE

The objectives of this policy are: -

- To minimise public health risk
- To separate and protect the quality of the potable water supply in Council's water reticulation system from real or potential hazards
- To ensure cross-connection control is properly managed within properties
- To define responsibilities for plumbers and property owners

## 2 STATEMENT

As drinking water quality standards have increased across Australia due to community expectations, a greater focus has been given to the prevention of contamination of water reticulation systems.

State Government and Australian Standards have regulated cross-connection control and backflow prevention for a long period of time. The commencement of the Plumbing and Drainage Act 2011 established NSW Fair Trading as the single plumbing and drainage regulator in NSW. Shoalhaven City Council, under delegation from NSW Fair Trading, is required to take measures to ensure compliance and assist in the protection of public health.

Shoalhaven City Council is the statutory authority responsible under the Local Government Act 1993 for water supply in the City of Shoalhaven. "Council" in this document refers to "Shoalhaven City Council".

This policy forms part of the conditions for approval to draw water from the Council potable water supply under Section 68 Part B (2) of the Local Government Act 1993.

### 2.1 Definitions

**Backflow** is defined as:

- a) Flow in a direction contrary to the normal or intended direction of flow; and/or
- b) The unintended flow of water from a potentially polluted source into a potable water supply.

Backflow generally occurs from a property to the water supply system in instances where there is a pressure differential between the water main and the property, and can occur in the following ways:

- Back Siphonage – occurs when the water supply pressure falls below atmospheric pressure, usually due to a break in the water main, or if there is a significant draw on the water supply e.g. through firefighting activities.
- Backpressure – occurs where the pressure downstream (within a property) becomes greater than the pressure upstream i.e. a property's water pressure is greater than the main water supply.

**Backflow Prevention Device** is a device that prevents the reverse flow of water from a potentially polluted source into a potable water supply system. Backflow Prevention Devices are either testable or non-testable. Only testable devices are required to be registered with Council.

For typical household meters, backflow is prevented through a non-testable backflow device integral with the water meter.

**Cross-connection** is any connection or arrangement, physical or otherwise, between any potable water supply system either directly or indirectly connected to a water main, and any fixture, storage tank, receptacle, equipment or device through which it may be possible for any non-potable, used, unclean, polluted or contaminated water, or any other substance, to enter any part of such potable water system under any conditions.

**Cross-connection control** is the control of contamination into a reticulation system (whether Council mains or private services) from potential sources within premises connected to the water reticulation system.

### 3 PROVISIONS

#### 3.1 Cross-Connection Control

- 3.2.1 Only potable water shall be supplied to plumbing fixtures or outlets used for drinking, bathing, culinary use, or the processing of food, medical or pharmaceutical products. All water supply systems shall be designed, installed and maintained so as to prevent contaminants from being introduced into potable water supply systems.
- 3.2.2 No device or system that may permit the introduction of any foreign substance into the water service shall be connected directly or indirectly to any other part of the water supply system (including fire protection, garden watering and irrigating systems) or to any temporary attachment to the water service without a method of cross-connection control and backflow prevention.

#### 3.2 Hazard Ratings

Cross-connections are rated using three degrees of hazards as follows:-

- *High hazard* - Any conditions, device or practice which in connection with the water supply system has potential to cause death.
- *Medium hazard* - Any condition, device or practice which in connection with the water supply system could endanger health
- *Low hazard* - Any condition, device or practice which in connection with the water supply system would constitute a nuisance but not endanger health.

#### 3.3 Backflow Prevention Assessment

- 3.3.1 Cross Connections and Backflow Prevention requirements are to be assessed in accordance with the AS/NZS 3500.1 Australian/New Zealand Plumbing and Drainage Standard Part 1 – Water Services.
- 3.3.2 Backflow protection requirements are determined by first identifying the individual hazards within premises. In working upstream from each hazard the water shall be regarded as non-potable until a backflow prevention device is provided, suitable to the degree of hazard.
- 3.3.3 In assessing a potential backflow condition consideration must be given to the complexity of piping, the probability of piping change and negligent or incorrect use of equipment that may result in a backflow condition.

- 3.3.4 Backflow prevention devices shall be provided in accordance with the hazard rating, the suitability of the device and for:
- a) **Individual Backflow Protection** - protection shall be provided at the water connection to a fixture or appliance;
  - b) **Zone Backflow Protection** - protection shall be provided in the connection to specified sections of a plumbing system within a building or facility; and
  - c) **Containment Backflow Protection** - protection shall be provided in the property service connection immediately downstream of the water meter(s) serving the property.
- 3.3.5 Upon application for development approval of a proposed/altered use within a property, a condition may apply for the installation and registration of an appropriate backflow prevention device for the designated hazard rating. Where directed by Council, the property owner(s) and/or occupier(s) must make the necessary arrangements for a backflow survey to be undertaken by an appropriately qualified person. The results of the survey are to be ratified by Council.
- 3.3.6 Premises where the hazard is unknown or where inspection is restricted, such as self-storage facilities, are considered to have and will default to a high hazard rating.
- 3.3.7 Where potential for cross-connection may occur between subdivided or strata properties, appropriate backflow devices must be fitted for site containment at each strata property. Such devices must be consistent with the highest hazard rating within the strata properties.
- 3.3.8 Council may at any time, where it deems necessary, require that a backflow survey be undertaken or require that backflow prevention device/s be installed.

### 3.4 Initial Installation of Testable Devices

The property owner must undertake the necessary arrangements to install, to have tested and to register backflow devices by:

- engaging a licensed plumber for installation of such devices. Backflow prevention devices shall comply with Australian Standard AS2845 Water supply – Backflow Prevention Devices.
- engaging a licensed plumber, qualified in Backflow Prevention and authorised by Council for testing of such devices;
- ensuring the submission of appropriate documentation (initial test report and an Agreement & Record of Installation form);
- payment of the fee for inspection of the installation and initial registration of the device(s) installed. Where, due to non-compliance, additional inspections are required then an additional inspection fee may apply.

The month of the initial test date becomes the anniversary month for annual testing purposes.

### 3.5 Annual Testing and Maintenance of Backflow Devices

At each year's anniversary date, the property owner(s) must ensure that testable devices are tested and are maintained if required.

Council shall give notice to the property owner(s), or their designated contact person, approximately four (4) weeks in advance of when annual testing and certification of devices is required and due. The notice will include the required fees.

Testing, and maintenance where necessary, must be carried out by a licensed plumber qualified in Backflow Prevention, and in accordance with AS2845 Water supply – Backflow prevention devices Part 3: Field testing and maintenance of testable devices. Results of the testing and maintenance must be forwarded to Council within 2 weeks of the test date. Council must be advised if the results cannot be forwarded due to a delay with maintenance.

Certification of the device must be registered with Council, which includes payment of the annual registration fee.

Formal notice will be issued if certification of a property's device(s) by a qualified person has not been received within two (2) weeks of the due date. A late fee will apply for each four (4) week period (or part thereof) overdue until receipt of the appropriate certification. Council may also take action in accordance with clause 3.6 (below).

### **3.6 Failure to Install, Register, Test or Maintain Devices**

Where a customer has failed to install, register, test or maintain backflow prevention devices(s), Council may do one or more of the following (as applicable):

- Send formal notification and issue a late fee for each four week period overdue
- test and certify the device and charge a fee to the property owner (or delegate)
- apply a water flow restrictor to the metered water service for the property, and charge a fee for the removal of the restrictor
- disconnect the water service if Council believes that the hazard presented by the activities on the property presents an unacceptable risk to the water supply, and charge a fee for the disconnection/reconnection.

### **3.7 Removal or Change of Device**

If the process or activity at the property has changed and the hazard rating is reduced, the property owner must have an accredited backflow prevention plumber certify the change in rating and advise Council in writing.

If the process or activity at the property has changed and the hazard rating is increased, the property owner must ensure that an appropriate device is installed and tested by an accredited backflow prevention plumber.

At any time a device is added, removed or changed, council must be advised on the Backflow Prevention Device – Agreement & Record of Installation form.

### **3.8 Fire Service Requirements**

Owners of properties with separate hydrant and sprinkler fire services must install a testable double check detector assembly. The device must be installed close to where the water service crosses the property boundary and upstream of any booster assembly or off-take. (Please note that the reduction of pressure across a backflow prevention device needs to be taken into account during the hydraulic design phase of a project to ensure minimum pressure requirements are met for fire services.)



### 3.9 Standpipes

Any standpipe connected to Council's water supply must have a testable backflow prevention device immediately after the standpipe.

### 3.10 Reclaimed Water Supplies

Premises with a reclaimed water supply are required to install on the potable water supply, a backflow containment device suitable for high hazard. The device must be either a Registered Break Tank (RBT) or a Reduced Pressure Zone Device (RPZD).

### 3.11 Relevant Registers

Council will compile and update on a regular basis:

- A register of properties and their owners/occupiers where testable backflow prevention devices are installed.
- A register of installed testable backflow prevention devices for each property.
- A register of authorised licensed plumbers qualified in backflow prevention device testing.

The list of local authorised licensed plumbers who are qualified in "Backflow Prevention" will be made available to owners/occupiers upon request.

### 3.12 Responsibilities

#### 3.9.1 Plumbers

A licensed plumber must install all backflow prevention devices. Only a licensed plumber with backflow prevention accreditation may test/commission the devices.

Plumbers, who have tested a device, or devices, must provide a copy of their backflow certification to Council prior to submitting Test & Maintenance Reports. This is only required on the first occasion a plumber submits test reports to Council.

Plumbers must submit the Test & Maintenance Report to Council within 2 working days of testing the device. The property owner/occupier must ensure that this occurs.

#### 3.9.2 Property Owners

The property owner must ensure that all backflow prevention devices installed comply with this policy. This includes installation, maintenance and testing of the device or devices in accordance with the Australian standards.

The property owner is responsible for ensuring that all relevant documents are submitted to Council and that fees are paid within the required timeframes. Property owners may elect to delegate this responsibility to the property occupiers, however without written evidence supporting this delegation, Council will continue to deem the property owner responsible.

### 3.13 Fees and Charges

Fees and charges relating to backflow prevention are in accordance with the current, annually produced "Management Plan – Fees and Charges".



## 4 Implementation

Section 7 of the Plumbing & Drainage Act 2011 requires that plumbing and drainage work must comply with the Plumbing Code of Australia and other standards or requirements prescribed by the legislation.

The Plumbing Code of Australia requires that cold water services be designed, constructed and installed in such a manner to avoid the likelihood of contamination of drinking water within both the water service and the Network Utility Operator's supply. Furthermore, the Plumbing Code of Australia also specifies that the design, construction, installation, replacement, repair, alteration and maintenance of cold water services must be in accordance with AS/NZS 3500.

The following Groups of the Council have responsibilities as detailed below:-

- Shoalhaven Water Group has responsibilities to provide potable water to Australian Drinking Water Guidelines 2011 guidelines within the water supply reticulation systems up to and including meters on property boundaries.
- Under delegation from NSW Fair Trading, Planning Environmental and Development Group has responsibility for the approval, testing and inspection of water supply and sewerage plumbing within property boundaries.
- Planning Environmental and Development Group also has responsibility for protection of public health in compliance with the Local Government Act, 1993 and the Public Health Act, 2010.

From the above, Shoalhaven Water Group is responsible for the “containment protection” of properties that directly connect to the reticulated water supply system for control of cross-connection and prevention of backflow contaminating the system.

Planning Environmental and Development Group has responsibility for “zone” and “individual” protection within properties.

Shoalhaven Water Group has responsibility for maintaining the register of testable backflow devices and management of the annual testing program. The backflow register and testing program includes all testable backflow prevention devices installed on properties within the Shoalhaven\*.

## 5 Review

In accordance with s165 (4) of the Local Government Act 1993, this policy will be reviewed within one year of the election of every new Council.

## 6 Application of Ecologically Sustainable Development (ESD) Principles

To ensure future supply of safe drinking water to the community.

\* This policy relates to properties under NSW State Government jurisdiction and within the borders of the Shoalhaven Local Government Area. Where water is supplied by Council to land held by the Commonwealth, containment protection backflow prevention device(s) are required to be installed, tested, maintained and registered with Council. Any internal “zone” or “individual” protection on Commonwealth held land, and the associated installation, testing and maintenance of those devices remain the responsibility of the landowner.