SQUAMISH

Cross Connection Control Program

Public Works

Bylaw 2259, 2013

The Cross Connection Control Program is in place to preserve and protect the District's potable (drinking) water supply and distribution system. This program will ensure the system is not compromised by back-siphonage or backpressure which will result from a cross connection.

Contents

INTRODUCTION

The District of Squamish owns, operates and maintains a potable water supply and distribution system consisting of 143KM of pipe, approximately 701 fire hydrants, 2322 system valves, 19 control valves stations, 4 pump stations, 7 reservoirs and 7 wells. As the water purveyor, we supply potable water to about 19,893 residents and every day, Squamish uses on average, 10 million liters– enough to fill the Brennan Park swimming pool 10 1/2 times each day with fresh drinking water.

In British Columbia, the Ministry of Health provides the legislation in the *Drinking Water Protection Act*, to ensure safe drinking water is provided to all British Columbians. Our regional division, Vancouver Coastal Health Authority, approves the Permit to Operate a Water Supply System. One condition of this operating permit requires The District of Squamish to have a Cross Connection Control Program. This program helps protect the potable water supply from contaminants that can be introduced into the system by back-siphonage or backpressure.

First introduced in 2011, The District of Squamish Cross Connection Control Program receives its authority from the Cross Connection Control Bylaw No. 2259 (2013), and encompasses the British Columbia Plumbing Code, Division B, Part 2, Section 2.6.2, which requires potable water be protected from contamination. The District of Squamish follows CSA B.64.10 (most current edition) for selection, installation, maintenance and field testing of backflow prevention assemblies. Approved backflow prevention assemblies are essential to protect the potable water from contaminants.

Cross connection control can be divided into two categories; prevention from contamination inside private property protecting its users (i.e. dental office equipment) and prevention from contamination of the water purveyor system (i.e. a hose left inside a swimming pool). Cross connection control/backflow prevention assemblies that protect the District's potable water system are owned by the property owner/manager and these assemblies are required to be installed downstream of the point of service.

Safety of drinking water is a public health issue. If a person becomes ill or dies from drinking water, a purveyor may be required to defend itself in a prosecution. This prosecution could be brought by the Crown under the Criminal Code (Canada), under the *Drinking Water Protection Act*, or in a claim for damages brought by a property owner/manager under the common law of negligence or nuisance. A contamination scenario could mean substantial financial implications for a municipality, including increased insurance rates and operational costs. One aspect of ensuring our water supply is protected lies in an effective Cross Connection Control program between the District of Squamish and the Institutional, Commercial, and Industrial (ICI) customers it provides potable water to.

DEFINITIONS

Air gap - The unobstructed vertical distance between the lowest point of the water supply outlet and the flood level rim of the fixture or unit into which the outlet discharges. This distance must be vertically orientated and at least twice the inside diameter of the inlet pipe, but never less than 1".

Atmospheric Vacuum Breaker (AVB) – Used to isolate minor to moderate hazards only. AVB is effective against backflow caused by back-siphonage only and should not be used if backpressure can develop in the downstream piping.

Auxiliary Water Supply – Any water available on or to premises originating from a source or system, other than from the District of Squamish waterworks system.

Backflow – A hydraulic condition in the water piping system which causes water to flow in reverse of the normal direction.

Backpressure – Caused when a potable water system is connected to a non-potable water system operating under higher pressure. It may be caused by booster or recirculating pumps, boiler or heating systems, elevated piping or holding tanks, etc.

Back-siphonage – Caused by negative or reduced pressure in the supply piping. It may be caused by water main break or repair, hydrant flushing, firefighting, etc.

Backflow Assembly Tester – A person holding a valid cross connection control tester certificate from BC Water and Waste Association (BCWWA).

Backflow Prevention Assembly – A device or plumbing arrangement in the water system which is designed to prevent backflow and which meets the design and installation criteria requirements of the CAN/CSA standards B64.10 (most current edition).

Property owner/manager – Any person to whom water is supplied by the District of Squamish and includes the owner of the premises to which water is supplied.

Cross Connection – Any temporary, permanent or potential water connection between the potable public water supply and a source of contamination or pollution.

Cross Connection Control Program (CCCP) – The District of Squamish Cross Connection Control Program policies, procedures and specification which provide reference, guidelines, bulletins and amendments relevant to the Cross Connection Control Bylaw 2259.

Double check valve assembly (DCVA) – An assembly consisting of two force-loaded, independently acting check valves, including tightly closing resilient-seated shutoff valves located at each end of the assembly and fitted with properly located resilient-seated test cocks. Used for moderate or minor hazard application.

Dual Check Valve (DCV) - A backflow prevention assembly consisting of two independently acting, force-loaded, soft-seated check valves in series. This backflow prevention assembly does not have a relief port or test cocks. They are to be used for minor residential hazards only where there is no health hazard involved.

Hazard – Refers to one of three levels of hazard: minor, moderate and high as determined by the District of Squamish Utilities Department.

Minor	Any actual cross connection or potential cross connection that constitutes only a nuisance, with minimal possibility of becoming a health risk.
Moderate	Any actual or potential hazard that has a low probability of becoming a health risk.
High	Any actual cross connection or potential cross connection involving any substance that could be a danger to health.

Hose Connection Vacuum Breaker (HCVB) – Used for minor hazards only. HCVB is effective against backflow caused by back-siphonage and low head pressure caused when the end of a hose is elevated above the HCVB.

Potable Water – Water that is fit for human consumption as defined in the Drinking Water Protection Act and regulations.

Premises Isolation – Protection of the waterworks from contamination due to backflow by the installation of one or more backflow prevention assemblies downstream of the service connection on the connection pipe conveying water on a premise and upstream of the first outlet or connecting water pipe.

Pressure Vacuum Breaker (PVB) – An assembly that prevents backflow when pressure in the system upstream of the backflow prevention assembly falls below atmospheric pressure. Used for minor and moderate hazard application. PVB is effective against back- siphonage only and should not be used if backpressure can develop in the downstream piping.

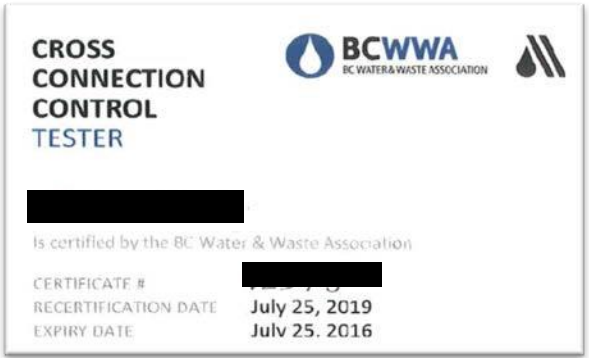
Reduced Pressure Backflow Assembly (RPBA) – An assembly containing two independently acting, internally loaded check valves separated by a reduced pressure zone. Used for high hazard applications where an approved air gap is unpractical.

Zone or Area Protection - Protection provided for sections of a piping system within a building or facility with no domestic connections downstream of a backflow prevention assembly.

PURPOSE

The purpose of the Cross Connection Control Program is to:

1. Educate the public about the dangers of cross connection and how the public can protect themselves and others from harm.
2. Promote the elimination and control of existing cross-connections.
3. Provide guidance to ensure the backflow prevention unit selection is appropriate, installation is done properly, and testing and maintenance practices are followed.
4. Ensure tracking of all testable backflow prevention assemblies to confirm that they are working properly.



STRATEGIES

To maintain an ongoing Cross Connection Control Program to ensure the delivery of clean safe water to the residents of the District of Squamish.

Administration/Personnel and Enforcement/Authority

The Utilities Department of Public Works has the responsibility to administer the Cross Connection Control Program. Bylaw officers have the authority to enforce the bylaw.

The District of Squamish Cross Connection Control Bylaw 2259 is enacted to provide adequate enforcement authority. It provides staff the ability to turn off or discontinue service in case of non-compliance.

Standards

Selection, installation and testing of backflow prevention assemblies shall follow those set forth in the latest edition of Standard CAN/CSA-B64.10 "Selection and installation of backflow prevention assembly Maintenance and field testing of backflow prevention assemblies". British Columbia Plumbing Code, Division B, Part 2.6.2 shall be followed along with the District of Squamish engineering standards.

Certification

All testing shall be done by a tester possessing a valid cross connection control certificate, through BCWWA (BC Water and Waste Association). Each backflow prevention assembly must be tested upon installation, once every twelve months, after repairs and after relocation. Temporary assemblies must be tested each time they are installed for use.

Inspection – New or Renovated Facilities

All applications for new services and upgrading existing services must be routed through the Districts' Building Department. The site plan, mechanical plan and the plumbing fixture schedules must be checked for actual and potential cross connections by a District of Squamish Building Inspector. Required backflow prevention assemblies will be listed on the final plans before approval. Occupancy will not be approved until all backflow assemblies are properly installed and tested. The most common uses for a testable backflow prevention assemblies are to protect potable water from backflow caused by underground irrigation systems and fire sprinkler systems.

Inspection – Existing Facilities

All existing facilities where cross connection is suspected, are or will be listed on a priority list, starting with the high and medium hazard for industrial, commercial and institutional (ICI) facilities. Annual test reports for all ICI buildings shall be sent to the Utilities Department at Public Works within thirty days of completion.

Other residential conditions such as fire sprinkler systems, irrigation systems, medical devices, swimming pools, auxiliary water systems and residential boilers and geothermal systems, will be included in a future phase of the program.

Responsibilities of the Water Purveyor (District of Squamish)

The District of Squamish is responsible for cross connection control begins at the water supply source. This includes all public water treatment, storage and distribution facilities and end at the downstream end of the water meter and District boundaries.

The District shall do its best to prevent the contamination of the water distribution system by identifying facilities of medium and high hazard and by providing guidance to property owner/managers so cross connections can be controlled. The District maintains records of received test reports until a new report is provided.

The Cross Connection Control Program is addressing premise isolation on all medium and high hazard water use processes first. The utilities department sends letters to the property owner or manager explaining the requirements, if any, for cross connection control. If no response is received, a second letter is sent explaining the importance of compliance. If no response is received in the allotted time frame, a third letter will be sent outlining possible actions up to and including termination of water service. Low hazard and Residential cross connection programs will be designed and implemented in the future.

With guidance from the governing authorities, the District will provide educational materials and information to assist property owners and managers with this program. Should a cross connection incident occur, the water system emergency response plan has procedures to address it.

Responsibilities of the Water Property owner/manager

The property owner/manager is responsible to comply with all matters prescribed in the Cross Connection Control Bylaw 2259. It is the responsibility of the property owner/manager to insure onsite water practices or processes do not affect the District of Squamish water utility in a negative manner.

The property owner/manager shall control every cross connection on a premise in an acceptable manner and shall maintain every backflow prevention assembly in good working order (this applies to temporary and permanent connections).

When it becomes known or suspected that a backflow prevention assembly is no longer needed or not in good working order, whether from inspection or field test results or other indications, the property owner/manager shall arrange for the immediate repair or replacement of the backflow prevention assembly and the Utilities Department shall be contacted. The type of backflow prevention assembly required will depend on the degree of hazard that exists, the probability of a backflow incident occurring, and the type of circumstance causing potential or actual backflow to occur.

The purchase, installation, operation, maintenance, field testing, field inspection, repair, removal or replacement of a backflow prevention assembly used to protect the municipal water system from a property/ facility shall be at the sole expense of the property owner/manager. The property owner/manager shall be responsible for ensuring a tester/installer/inspector is certified by the BC Water and Waste Association and the certification has not expired.

The property owner/manager shall ensure that the test report is submitted to the Utilities Department at the District of Squamish Public Works within thirty days of testing the device.

The property owner/manager shall notify the Utilities Department of any changes of use of the premises or facilities or alteration, addition or removal of any part of the private water system including its appurtenances and fixtures.

The property owner/manager shall install, upgrade, replace or remove backflow prevention assemblies to control any modified cross connections in compliance with the bylaw and CSA standard B64.10 (latest version).

The property owner/manager shall be responsible for the installation of pressure or air release devices to prevent pressure fluctuation within the private water system due to thermal expansion.

The property owner/manager shall be responsible for providing the necessary information, scheduling and access to allow for the proper inspection of backflow potential and the selection of an appropriate cross connection control device.

Records Management

- The end goal is to have the record of all backflow prevention assemblies installed within the District of Squamish and to keep the records up to date.
- A copy of each inspection report is kept by the Utilities Department until a new report for the unit is completed.
- Property owners/managers of properties which have testable backflow assemblies should keep documentation for a minimum of three years.
- Record management is done with a database program. The record management software keeps track of assemblies due for testing.
- All tested backflow assemblies shall have a District of Squamish supplied tag showing the assembly identification number, tester's name, tester's certification number, what it is protecting and the date tested. (See sample at bottom of test report, Page 12)

Program Structure

The District of Squamish Cross Connection Control Program is structured to allow for updates in policy. This structure includes bulletins which will notify the general public and contractors of the requirements for cross connection control not specifically addressed in the accepted CSA standard. These bulletins will specify the requirements of the Cross Connection Control Program if they show a discrepancy or vary from the accepted CSA standard. In the case of a discrepancy between the accepted CSA standard and a bulletin of the Cross Connection Control Program, the intent of the bulletin will prevail.

The District will:

1. Continue to implement and maintain the Cross Connection Control Program.
2. Develop annual work plans and program structure.
3. Regularly evaluate cross connection control funds.
4. Regularly evaluate and update the Cross Connection Control Program.

ASSEMBLIES FOR PREMISE ISOLATION

Assemblies for premise isolation shall be in accordance with the Canadian Standards Association (CSA), B64.10 (latest edition), manual for the Selection and Installation of Backflow Prevention Devices.

CERTIFIED TESTER

A list of Certified Cross Connection Testers can be downloaded through the BCWWA Cross Connection Control website www.bcwwa.org .

CONTACT INFORMATION

The District of Squamish Utilities Department may be reached at

Address:	Public Works Yard
	39909 Government Rd, Squamish, B.C. V0N 3G0
Mail:	37955 Second Avenue, Squamish, B.C. V8B 0A3
Phone:	604-815-6868
Email:	publicworks@squamish.ca

FORMS

Assessment/Survey Report

See page 11 for a sample.

Backflow Assembly Test Report

See page 12 for a sample. **Test reports are obtained for a $5.00 fee from the Building Department at Municipal Hall.**

REPORTING AN INCIDENT

To report a suspected or actual backflow incident, please call 604 815 6868 (Monday to Friday 8-4:30pm) or 604 815 4040 AFTER HOURS emergency line.

Cross-Connection Survey Report

Name of Facility | Account ID# | Date

Service Address | Type of Business

Mailing Address | Prov: | Postal Code

Contact Name: | Phone # | Appointment

Service Connection(s)	Location	Size	Meter Size	Service has backflow protection at the Meter
☐ Main Inlet/Combined				☐ Yes with ☐ AG ☐ FP ☐ DC ☐ DuC
☐ Domestic				☐ No Premise Isolation is required per summary
☐ Fire				☐ Fire service ☐ RP ☐ DC ☐ Other
☐ Irrigation only				Line Pressure:
☐ Other				(psig)
Considerations for Thermal Expansion is recommended ☐ Yes ☐ No				

Summary & Mandatory Requirements of Survey			
Facility degree of Hazard	☐ Severe	☐ Moderate	☐ Minor
☐ Premise isolation is required with a: ☐ Reduced Pressure Backflow Assembly ☐ Double Check Valve Assembly ☐ Dual Check Valve (DuC)			
☐ Premise isolation is not required at this time providing items listed below are rectified			
☐ Additional Backflow protection is required at items No.:			

Number of Facility | Account ID# | Date

Cross-Connection		Location	Type of CC		Hazard S/M/L	Existing Protection YES	NO	Requirements/Findings
			Indirect ☐	Direct ☐		☐	☐	
			☐	☐		☐	☐	
			☐	☐		☐	☐	
			☐	☐		☐	☐	
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SQUAMISH
PO Box 310 Squamish, BC V8B 0A3
Ph: 604.892.5217, Fax: 604.892.1083
www.squamish.ca

Backflow Assembly Test Report

Initial Test Date: ____ / _____ / _____ (DD MM YYYY) **After Repair** Test Date: ___ / _____ / _____ (DD MM YYYY)

Occupant of Premise: ______________________ **Civic Address:** ______________________

Owner's Mailing Address: ______________________ City: ______________ Prov: ______ Post Code: __________

Location of Assembly: ______________________ ☐ **Portable Assembly** ____________ Ph: ______________

Assembly: ☐ Existing (Annual Test) ☐ New ☐ Replacement ☐ Repair ☐ Decomissioned **Bldg. Permit No.** (if applicable): ________

Description: ☐ Premise ☐ Area/Zone (specify): ______________________ ☐ Fixture (specify): __________

Device Type: ☐ Air Gap ☐ RPBA ☐ DCVA ☐ Other (specify): ______________________

____________ / ____________ / ____________ / ____________
Manufacturer / Model / Serial Number / Size

INITIAL TEST

Reduced Pressure Backflow Assembly **Apparent Pressure Drop:** ________ psig **Line Pressure Test:** ________ psig

A. Differential Relief Valve Opening Point	Check Valve #2 Closed Tight	B. Check Value #1 Static Pressure Drop	C. Buffer (B – A = C)	Test Result:
________ psid	☐	________ psid	________ psid	☐ Pass ☐ Fail (complete reverse side of form)
Air Gap is greater than or equal to the diameter of the Relief Port of RPBA/RPDA (1" min.): ☐ Pass ☐ Fail				

Double Check Valve Assembly

Check Valve #1 Closed Tight	Check Valve #2 Closed Tight	Test Result:
☐ ________ psid	☐ ________ psid	☐ Pass ☐ Fail (complete reverse side of form)

☐ **Pressure Vacuum Breaker** / ☐ **Spill Resistant**

Air Inlet Valve Opening Point	Check Valve Pressure Drop	Test Result:
________ psid	________ psid	☐ Pass ☐ Fail (complete reverse side of form)
☐ Open Fully (O/F)		

FINAL TEST (AFTER REPAIR)

Reduced Pressure Backflow Assembly

A. Differential Relief Valve Opening Point	Check Valve #2 Closed Tight	B. Check Value #1 Static Pressure Drop	C. Buffer B-A=C	Test Result:
________ psid	☐	________ psid	________ psid	☐ Pass ☐ Fail (complete reverse side of form)

Double Check Valve Assembly

Check Valve #1 Closed Tight	Check Valve #2 Closed Tight	Test Result:
☐ ________ psid	☐ ________ psid	☐ Pass ☐ Fail (complete reverse side of form)

☐ **Pressure Vacuum Breaker** / ☐ **Spill Resistant**

Air Inlet Valve Opening Point	Check Valve Pressure Drop	Test Result:
________ psid	________ psid	☐ Pass ☐ Fail (complete reverse side of form)
☐ Open Fully (O/F)		

Tester's Name: ______________________

Tester's Certification No.: ______________________

Gauge Last Calibrated Date: ____ / ____ / ______ (DD MM YYYY)

Testing Company Name: ______________________

Testing Company Ph: ______________________

I certify that I have tested the above assembly and that it meets the performance requirements outlined in the AWWA Canadian Cross Connection Control Manual and the CSA B64.10.1-11.

Notes: ______________________

Tester's Signature: ______________________

Owner / Rep. Signature: ______________________

☐ **Shutoff valves returned to original position**

White copy = Mail or drop-off to District of Squamish, 37955 Second Ave, P.O. Box 310, Squamish, B.C. V8B 0A3 Pink copy = Owner/Rep. Buff copy = Tester

OFFICIAL USE ONLY

↑ DETACH TEST TAG HERE AND AFFIX TO THE TESTED ASSEMBLY ↑

SQUAMISH

District of Squamish – Backflow Assembly Test Tag

Affix Here

Assembly: ____________ / ____________ / ____________ / ____________
Manufacturer / Model / Serial Number / Size

Civic Address: ______________________ Description: ______________________

Location of Assembly: ______________________

I certify that I have **tested** the above assembly and that it meets the performance requirements outlined in the AWWA Canadian Cross Connection Control Manual and the CSA B64.10.1-11.

Tester's Signature: ______________________ Certification No. ____________ Test Date ____ / _____ / ______ (DD MM YYYY)

SQUAMISH
HARDWIRED *for* ADVENTURE

Reaching Compliance with Cross Connection Control

1. **An assessment, or survey, is scheduled and conducted** at the premise by a qualified District of Squamish employee or representative:
    - The assessment is mailed to the property owner or manager;
    - The assessment will provide minimum requirements as well as suggested installations
2. The property owner or manager will notify the District of Squamish indicating **intent to comply** within stated timeframe on assessment letter (30 days)
3. The property owner or manager will **contact a plumber** to provide quote for necessary works
    - Plumber will ensure the assemblies for premise isolation shall be in accordance with the Canadian Standards Association (CSA), B64.10 (latest edition), manual for the Selection and Installation of Backflow Prevention Devices.
    - Plumbing Contractors with valid District of Squamish Business Licenses may be found here: http://squamish.ca/discover-squamish/maps-and-data/mobile-web-maps/business-licences/ (simply type 'plumbing' into the search field at the top right of this page)
4. Once works are complete to minimum requirements, a certified Cross Connection Control tester must **test the assembly and complete a District of Squamish test report**. Sometimes the installing plumber is also an active certified tester.
    - The device is tagged using the bottom portion of the test form (see above sample page 12)
5. The CCC certified tester will **submit the test report** to the District of Squamish:
6. Upon receipt of the test report, a follow-up inspection will be conducted to **confirm compliance** on new installations. Testing is then **conducted annually** and test reports are to be submitted to the District of Squamish.
7. Compliance is maintained by:
    - the submission of annual test reports and,
    - immediate reparations of any defective backflow prevention assemblies, and any changes as prescribed by any of the parties in authority including Vancouver Coastal Health, the BC Plumbing Code, the District of Squamish, or the Canadian Standards Association.

Time Frames to keep in mind

Initial Property Survey & Installation of Backflow Device(s):
Upon receipt of first assessment letter the property owner or manager has 30 days to notify District of Squamish in writing of intention to comply with bylaw #2259.

→ If no reply is received by the District of Squamish, a second notice will be sent in the mail – 30 days to notify District of Squamish of intention to reach compliance.

→ If no reply to second notice, a third notice will be mailed. Failure to comply may result in action including fine or possible water service interruption.

→ Works are to be completed within 120 days or other specified time agreed to by the District (Article 7.1)

Annual Testing of Backflow Device(s):

→ A reminder notice is mailed to the property owner or manager indicating the device location and detail. The test report is due within 30 days of this letter.

→ If a test report is not received and recorded for the premise, a second letter is sent requesting the test be completed and submitted in accordance with the bylaw #2259.

→ A third and final notice will be sent if no response is received. Failure to comply may result in action including fine or possible water service interruption.

Article 7.5 of the Bylaw states:
The failure to send a notice(s), or the failure to receive a notice(s), shall not excuse the mandatory duty of the property owner/manager or other responsible party to comply with the Bylaw and/or the District of Squamish Cross Connection Control Program and all other applicable bylaws.

Other Frequently Asked Questions

What are the costs?

Costs of a plumbing contractor and backflow assemblies are highly variable, depending on the facility, and the business nature within the facility. The District of Squamish is neither able nor authorized to provide estimates.

What is a backflow assembly test and how often do we need to conduct testing?

All backflow assemblies must be tested annually to ensure they still work and are approved for use by the District of Squamish. Test forms are available at the **Building Department** of **Municipal Hall, 37955 Second Ave.** The forms are $5.00 each and are to be completed and submitted by a certified backflow assembly tester with current testing certification. A list of Certified Cross Connection Testers can be downloaded through the BCWWA Cross Connection Control website www.bcwwa.org

Why do we need to comply?

The District of Squamish Cross Connection Control Program receives its authority from the Cross Connection Control Bylaw 2259 and the British Columbia Plumbing Code, Division B, Part 2, Section 2.6.2, which requires potable water be protected from contamination. The District follows CSA B.64.10 (most current edition) for selection, installation, maintenance and field testing of backflow prevention assemblies. **Approved backflow prevention devices are essential to protect the potable water from contaminants.**

How to reach us

We are here to answer any further questions and would be pleased to assist:

Public Works – Utilities

By email: publicworks@squamish.ca

By Phone: 604 815 6868
Monday to Friday
08:00 am – 04:30pm

By Mail: District of Squamish
Public Works Department
PO Box 310
Squamish, BC, V8B 0A3

Appendix 1

The District of Squamish
Bylaw No. 2259, 2013

A bylaw to establish a cross connection control program and process for the District of Squamish.

WHEREAS, provincial legislation requires water suppliers to ensure that provisions are in place for the elimination and prevention of contamination between their potable water and any non-potable sources.

AND WHEREAS, the Council has established a bylaw to regulate the District of Squamish Waterworks System.

NOW THEREFORE, the Council of the District of Squamish, in open meeting assembled, ENACTS AS FOLLOWS:

1. CITATION

1.1. This Bylaw may be cited for all purposes as "The District of Squamish Cross Connection Control Bylaw No. 2259, 2013."

2. DEFINITIONS

2.1. "Approved Backflow Prevention Assembly" means a backflow preventer that is designed to be tested and repaired in-line and to meet the design and installation criteria requirements of the CSA B64 series and CSA B64.10 most current editions;

2.2. "Authorized Agent" includes a Person, Firm or Corporation representing the District of Squamish by written consent;

2.3. "Auxiliary Water Supply" means any water available on or to a premise originating from a source or system, other than that from the District of Squamish Waterworks System;

2.4. "Backflow" The flow of water or other liquids, gases or solids from any source, in the reverse direction from normal, as a result of back-siphonage or backpressure, back into the potable private water system or the District of Squamish Waterworks System;

2.5. "Backflow Assembly Test Report" means a form provided by or approved for use by the District of Squamish to be used when testing backflow assemblies to record all pertinent information and test data;

2.6. "Backflow Assembly Tester" means a person holding a valid certificate from the American Water Works Association, British Columbia Section for testing backflow prevention assemblies and approved by the District of Squamish;

2.7. "Backflow Preventer" means a mechanical apparatus installed in a water system that prevents backflow of contaminants into the potable Waterworks System and to meet the design and installation criteria requirements of the CAN/CSA standards B64 Series most current edition;

2.8. "Building Inspector" means a person appointed by the Council as a building inspector for the District of Squamish to administer the building and plumbing regulations;

2.9. "Contaminant" means any physical, chemical, biological or radiological substance or matter in water which may render the water non-potable, according to the Province of British Columbia Drinking Water Protection Act & Regulations;

2.10. "Cross Connection" means any actual or potential physical connection whereby the District of Squamish Waterworks System is connected, directly or indirectly, with any non-potable or unapproved private water supply system, sewer, drain, conduit, well, pool, storage reservoir, plumbing fixture, or any other device which contains, or may contain, non-potable or contaminated water, liquid, gases, sewage, or other waste, of unknown or unsafe quality which may be capable of imparting a pollutant or contaminant into the public water supply as a result of backflow;

2.11. "Cross Connection Control Program" means the District of Squamish Cross Connection Control Program Policies, Procedures and Specifications which provide references, guidelines, bulletins and amendments relevant to this bylaw;

2.12. "Cross Connection Control Inspector" means a person holding a valid certificate and approved by the District of Squamish;

2.13. "CSA" is the abbreviation for the Canadian Standards Association;

2.14. "Consumer" means any person, company or corporation who is the owner or agent for the owner of any premises to which water is supplied or made available from the works and also any person who is the occupier of any such premises and also includes any person who is actually a user of water supplied to any premises or by any service from the said works;

2.15. "Discontinue" means to terminate the arrangement between the District of Squamish and the Consumer for the supply of water and to shut off the service pipe, disconnect, or remove it;

2.16. "Hydrant or Temporary Use Permit" means a permit issued by the District of Squamish for any Person requesting water from a fire hydrant, stand pipe, or temporary water connection for purposes other than emergency fire protection;

2.17. "Inspect" means an on-site review of the water use, facilities, meters, piping, equipment, operating conditions and maintenance records for the purpose of evaluating for conformity with the terms and conditions of this bylaw;

2.18. "Occupier" means any person to whom a water service is rendered and shall include the tenant of lands and premises;

2.19. "Owner" means the registered owner, or the person named as the registered owner on the tax roll by reason of agreement for sales, of any lands and premises situated within the District of Squamish boundaries and shall, where applicable, include the agent, executor or administrator of such owner or the lessee or occupier of the premises;

2.20. "Person" shall, in addition to its ordinary meaning, include a firm or partnership, company or corporation. In addition, throughout this bylaw where the context requires, the singular shall be held to mean and to include the plural and the masculine, the feminine or body corporate;

2.21. "Potable Water" means water that is fit for human consumption as defined in the Drinking Water Protection Act and Regulations;

2.22. "Premises" means any Real property and buildings on it;

2.23. "Private Water System" means any privately owned pipe and fittings intended for the delivery or distribution of water within a premise or to a property and includes any domestic use, irrigation system, greenhouse and hydroponics system, and any other use of water supplied by the District of Squamish Waterworks System;

2.24. "Service" means the supply of water by means of the waterworks system;

2.25. "Service Connection Point" means the point of physical connection between the waterworks system and the private water system. Typically the Service Connection Point is at the downstream side of the water meter and/or is located at or near the Owners property line.

2.26. "The District" means the District of Squamish

2.27. "Written Notice" means a notice in writing from the District of Squamish to a person who is in violation of any of the provisions of this by-law;

2.28. "Turn Off" means to turn off the water supply by closing a District of Squamish owned valve or curb stop by any other means approved by the District;

2.29. "Turn On" means to allow the flow of water by opening a District of Squamish owned valve or by any other means approved by the District;

2.30. "Used Water" means any potable water which is no longer in the water distribution system including potable water that has moved downstream or past the Water Connection (water meter) and/or the property line to the private water system;

2.31. "Waterworks System" means the pipe connecting the Waterworks System of the District of Squamish and all fittings and valves owned or maintained by the District provided to the property line on any street, lane, right-of-way or easement.

3. WATER SUPPLY AND PRESSURE

3.1. The District of Squamish does not guarantee pressure or continuous supply of water, or accept responsibility at any time for the maintenance of pressure in its water mains or for increases or decreases in pressure. The District reserves the right at any and all times, without notice, to change operating water pressure and to shut off the water supply for the purposes of making repairs, extensions, alterations or improvements, or for any other reason.

3.2. The District of Squamish, its officers, employees or agents shall not incur any liability of any kind whatsoever by reason of the cessation in whole or in part of water pressure or water supply, or changes in operating pressures, or by reason of the water containing sediments, deposits, or other foreign matter.

3.3. Where steam or hot water boilers or other equipment is fed with water by pressure directly from the waterworks system, the District shall not be liable for any injury or damage which may result from such pressure or from lack of such pressure or any injury or damage resulting from the improper installation of a backflow preventer.

4. CONTAMINATION

Subject to the provisions of this Bylaw:

4.1. No person shall create a cross connection by connecting, causing to be connected, or allowing to remain connected to the District of Squamish waterworks system, any device, piping, fixture, fitting, container, appliance or any other chattel or thing which may under any circumstances allow non-potable water, used water, wastewater or any chemical, liquid, gas or other substance to enter the waterworks system.

5. CONDITION OF SERVICE

5.1. Service supplied by the District to a Consumer shall only be provided where, in the opinion of the District, the waterworks system has been effectively protected from any actual or potential cross connections existing at or within the Consumer's private water system.

6. INSPECTION

6.1. The District of Squamish or agent shall be entitled, at its determination to:

6.1.1. Access the private water system located on private property at all reasonable hours in order to carry out inspections and surveys of the premises to determine the existence of connections or cross connections prohibited by this bylaw and as stated in the District of Squamish Cross-Connection Control Program.

6.1.2. Impose minimum standards that must be met and satisfied relating to the type of backflow preventer and the installation and maintenance of the same as specified by the District of Squamish Cross Connection Control Program.

6.1.3. Inspect the type of backflow preventer, the installation and state of maintenance and repair of the same;

6.2. Where an official written Cross Connection inspection is required for a premise, the inspection shall only be conducted by the agent with a valid Cross Connection Control Inspector Certificate and who is approved by the District.

6.3. A Cross Connection Inspection shall be completed every five (5) years from the date of the first inspection, subsequent to any tenant or ownership change, rezoning of property or as required by the District.

6.4. For all newly constructed, renovated or reconstructed premises, the District shall provide evaluation, plan review or otherwise ensure these premises are protected from cross connections and are in compliance with the CSA B64.10 standards as referenced in the BC Building Code and meet all additional requirements as outlined in this Bylaw and the Districts Cross Connection Control Program policies.

7. NOTICE TO CORRECT DEFICIENCIES OR CONTROL CROSS CONNECTIONS

7.1. Where the District of Squamish or agent determines that there exists a connection or cross connection prohibited by this Bylaw and the Cross Connection Control Program Policies, written notice may be given by the District of Squamish to the Consumer to correct the deficiencies noted therein, or to control cross connections by installing an Approved Backflow Preventer

conforming to the CAN/CSA B64.10 most current edition at the expense of the Consumer, within 120 days or other specified time agreed to by the District.

7.2. Notwithstanding anything contained herein if, in the opinion of the District, the configuration of any water connection which creates a risk of contamination to the waterworks system, the Consumer, shall install on the private water system at the location of the service connection point from the waterworks system, or other location stipulated by the District, an Approved Backflow Prevention Assembly, in addition to any backflow preventers installed in the Consumer's private water system.

7.3. The Consumer shall install a Backflow Preventer, commensurate to the degree of hazard, as premise isolation on the domestic water service(s) located after the water meter or other location stipulated by the District, for all premises that receive water service from the District of Squamish.

7.4. The Consumer shall install a type of backflow preventer commensurate to the degree of hazard as established by CAN/CSA B64.10 (most current editor) and that is approved by the District.

7.5. The failure to send a notice(s), or the failure to receive a notice(s), shall not excuse the mandatory duty of the Consumer or other responsible party to comply with this Bylaw and/or the District of Squamish Cross Connection Control Program and all other applicable bylaws.

7.6. Where any condition is found to exist which, in the opinion of the District of Squamish, may otherwise expose the waterworks system to risk of contamination, the District or authorized agent shall, at their discretion, take one or more of the following actions:

7.6.1. Give notice to the Consumer to correct the condition or cross connection(s) at the expense of the Consumer within a specified time period; or

7.6.2. Notify the Consumer that an approved Backflow Preventer shall be properly installed at the expense of the Consumer; or

7.6.3. Shut Off or Discontinued Service until the condition is corrected; or

7.6.4. Install an approved Backflow Prevention Assembly at the Service Connection Point with all costs being charged to the Consumer.

7.7. Any Consumer whose water has been turned off pursuant to this Bylaw shall not have the water from the District's Waterworks System turned on until all requirements of the District have been met and the Consumer has paid to the

District all costs associated with the shut off / turn on of Service, and the Consumer's default under this section has been remedied.

8. TESTING AND MAINTENANCE OF BACKFLOW PREVENTION ASSEMBLIES

8.1. The Consumer shall provide to the District within thirty (30) days of initial installation, repair or relocation of an approved backflow prevention assembly a District of Squamish backflow assembly test report from a certified Backflow Assembly Tester confirming the following:

8.1.1. The installation or test date of the Approved Backflow Prevention Assembly

8.1.2. The specific location of the assembly and what cross connection or hazard it is intended to isolate

8.1.3. The manufacturer, model, size and serial number of the backflow preventer installed and

8.1.4. That it is an approved backflow prevention device selected and installed correctly and in compliance with the CSA B64.10 standards and that the device is in proper operating condition.

8.2. Approved backflow prevention assemblies are required to be inspected and tested by a certified Backflow Assembly Tester, upon installation, after repair and at least once in every twelve (12) month period or more often if required by the District.

8.3. Where a Consumer fails to have an Approved Backflow Prevention Assembly tested, the District may notify the Consumer that the backflow assembly must be tested within five (5) working days, or within a specified period agreed to by the District. If the Consumer fails to comply with such notice the District of Squamish or authorized agent shall discontinue service(s) and the Consumer may be subject to enforcement or penalties listed under the District of Squamish Municipal Ticket Information Bylaw No. 1832, 2004.

8.4. Where there is a visible or other indication that a backflow preventer is malfunctioning, it is the responsibility of the Consumer to immediately notify the District, and further, to stop using the private water system until the backflow preventer is replaced or repaired and re-tested. This includes but is not limited to damage by: freezing, hot water, fire or otherwise due to neglect.

9. TEMPORARY WATER USE CONNECTION

9.1. Except for emergency fire use, no Person shall connect, cause to be connected, or allow to remain connected, any piping, fixture, fitting, container or appliance to a fire hydrant, stand pipe or any other temporary water connection:

9.1.1. In a manner which, under any circumstances, may allow used water, wastewater or any liquid or substance of any kind to enter the District of Squamish waterworks system and

9.1.2. Without using an Approved Backflow Prevention Assembly which has been approved and installed in accordance with the District of Squamish Cross Connection Control Program and

9.1.3. Without first obtaining a Hydrant Use Permit.

9.2. Any Consumer who violates this section will be refused access to Service through the use of a fire hydrant or temporary water connection.

10. AUXILIARY WATER SUPPLIES

10.1. No connection shall be installed or maintained whereby water from an auxiliary water supply system may enter the District's waterworks system or private water system unless such auxiliary water supply system and the method of connection and use of such system have been approved by the District.

11. COMMERCIAL AND AGRICULTURAL IRRIGATION USE AND TURN ON

11.1. Where a cross connection exists between the District waterworks system and a private water system, in addition to the general provisions stated in this bylaw, the Consumer shall also comply with the following:

11.1.1. No person except the duly authorized agent of the District of Squamish shall turn on an agricultural irrigation system.

11.1.2. Prior to commencement of operation of the private water system in each irrigation season, the Consumer or any person operating a commercial or agricultural irrigation system shall have the Approved Backflow Prevention Assembly inspected and tested, at the Consumer's expense, by a certified Backflow Assembly Tester.

11.1.3. An Approved Reduced Pressure Principal Backflow Assembly (RP) shall be used whenever fertilizers, chemicals, or any other substance detrimental to health are introduced to a Private Water System.

12. ENFORCEMENT

12.1 This Bylaw may be enforced by the General Manager, Director of Operations, Building Inspectors, Utilities Supervisor or a Bylaw Enforcement Officer.

12.2 A General Manager, Director of Operations, Building Inspectors, Utilities Supervisor or a Bylaw Enforcement Officer may enter on or into the property for the purpose of inspecting to determine whether the regulations, restrictions and requirements of this Bylaw are being met.

12.3 This Bylaw may be enforced:

a) By means of a ticket issued under the District's Municipal Ticket Information System Bylaw No. 1832, 2004;
b) By prosecution under the Offence Act;
c) By way of a bylaw notice under the Bylaw Notice Enforcement Act and Bylaw of the District made under that Act; or
d) By way of civic action as authorized by statute.

Contravention and Penalties

12.4 A person who:

a) Contravenes, violates or fails to comply with any provision of this Bylaw;
b) Suffers or allows any act or thing to be done in contravention of this Bylaw; or
c) Fails or neglects to do anything required to be done under this bylaw,

Or of any permit or order issued under this Bylaw, commits an offence and upon conviction, shall be liable to paying a fine of up to Ten Thousand Dollars ($10,000) and to pay any further amounts that may be ordered under the Offence Act, and where the offence is a continuing one, each day that the offence is continued shall constitute a separate offence.

READ a First, Second and Third Time this 16th day of July, 2013.

ADOPTED this 23rd day of July, 2013.

Rob Kirkham, Mayor

Robin Arthurs,
Director of Administrative Services

Appendix 2

Premises Isolation

Type of Facility or Premises	Health Hazard Classification	Type of Backflow Preventer[1]
Abattoir/Slaughter House	High	RPBA
Animal Hospital	High	RPBA
Auto Body Shop	High	RPBA
Auto Dealership	Low	DCVA
Auto Dealership w/Repair and/or Car Wash Facility	High	RPBA
Auto Detailing Facility (Not Automatic Car Wash)	Low	DCVA
Automotive/Motorcycle Repair Facility	High	RPBA
Battery Manufacturing/Repair Facility	High	RPBA
Beverage Processing Plant Including Distillery and/or Brewery	High	RPBA
Building Higher than 10 Meters Above Water Connection	Low	DCVA
Building with Auxiliary Water Supply	High	RPBA
Building with Chemical Treatment System on Domestic Supply (Whole or Part)	High	RPBA
Building with Rainwater Harvesting or Greywater Reuse System	High	RPBA
Car Wash, Automatic	High	RPBA
Chemical Manufacturing, Processing, Bulk Storage and/or Distribution	High	RPBA
Cold Storage Facility	High	RPBA
Concrete Processing or Distribution Facility	High	RPBA
Docks - Commercial	High	RPBA
Dye Plant	High	RPBA
Extended Care Facility, Retirement or Nursing Home	Low	DCVA
Extended Care Facility, Retirement or Nursing Home - With Hazard Diagnostic or Treatment Equipment	High	RPBA
Fire Hall	Low	DCVA
Fish Processing Plant	High	RPBA
Food Processing Plant	High	RPBA
Funeral Home	High	RPBA
Garbage Transfer Facility	High	RPBA
Hospital	High	RPBA
Ice Manufacturing Plant	High	RPBA
Machine Shop	High	RPBA
Manufacturing Facility	High	RPBA
Marina	High	RPBA
Meat Packing Plant	High	RPBA
Metal Plating Facility	High	RPBA
Paint Manufacturing Plant	High	RPBA
Pharmaceutical Manufacturing Facility	High	RPBA
Plastic Manufacturing/Mold Injection Facility	High	RPBA
Plating Shop	High	RPBA

Radiator Manufacturing and/or Repair Facility	High	RPBA
Rail Yard and Trackside Facilities for Trains	High	RPBA
Recycling Facility	High	RPBA
Rendering Facility	High	RPBA
Research Facility	High	RPBA
Restricted Access	High	RPBA
School	Low	DCVA
Sewage Dump Station	High	RPBA
Sewage Pumping Station	High	AG/RPBA
Steam Plant	High	RPBA
Veterinary Clinic With Lab or Operation Facility	High	RPBA
Veterinary Clinic w/o Lab or Operation Facility	Low	DCVA
Waste Disposal Facility	High	RPBA
Wastewater Facility	High	RPBA

Fixture Isolation

Type of Fixture	Health Hazard Classification	Type of Backflow Preventer
Air Compressor – Commercial or Industrial	High	RPBA
Air Conditioning Systems	High	RPBA
Animal Cage Washer	High	RPBA
Animal Wash	High	RPBA
Animal Watering	High	RPBA
Aquarium Make up	High	RPBA
Aspirator	High	RPBA
Autoclave	High	RPBA
Autopsy/Mortuary Equipment	High	RPBA
Auxiliary Water	High	RPBA/AG
Baptismal Fountain	High	RPBA
Beverage Dispenser - Carbonated	High	DCAPc
Beverage Dispenser – Non Carbonated	Low	DuC
Bidet	High	AVB
Boiler - Residential w/o Chemical Addition and less than 400,000 btu	Low	DCAP
Boiler with Chemical Addition	High	RPBA
Bottle Washer	High	RPBA
Bread Making Equipment	Low	DCVA
Brewery Equipment	High	RPBA
Brine Tank	Low	DCVA
CO2 Injection	High	DCAPc
Chemical Cleaning Tank	High	RPBA
Chemical Feed/Mixing Station	High	RPBA
Chemical Holding/Storage Tank	High	RPBA
Chemical System, Separate or Integral to Equipment/Appliance	High	RPBA
Chilled Water System	High	RPBA
Chlorinator	High	RPBA
Clothes Washer or Laundry Machine – Commercial with Chemical Feed	High	RPBA
Commercial Kitchen Equipment – Coffee Urn	Low	DuC
Commercial Kitchen Equipment – Commercial Dishwasher	High	RPBA
Commercial Kitchen Equipment – Espresso Machine	Low	DCVA
Commercial Kitchen Equipment – Dipper Well	Low	AG
Commercial Kitchen Equipment – Food Steamer	Low	DCVA
Commercial Kitchen Equipment – Glass washer (Hot and Cold Feed)	High	RPBA
Commercial Kitchen Equipment – Hood Wash Down	High	RPBA
Commercial Kitchen Equipment – Hot Chocolate or Hot Water Dispenser	Low	DuC
Commercial Kitchen Equipment – Ice Cream Machine	High	RPBA

Commercial Kitchen Equipment – Ice Machine – Condenser Cooling	High	RPBA
Commercial Kitchen Equipment – Ice Machine – Water Feed	High	RPBA
Commercial Kitchen Equipment – Juice Machine	Low	DuC
Commercial Kitchen Equipment – Rotisserie Oven	Low	DCVA
Commercial Kitchen Equipment – Pot Washer	High	RPBA
Commercial Kitchen Equipment – Potato Peeler	Low	DCVA
Commercial Kitchen Equipment – Steam Cooker	Low	DCVA
Commercial Kitchen Equipment – Steam Table	Low	DCVA
Commercial Kitchen Equipment – Steamer Oven	Low	DCVA
Commercial Kitchen Equipment - Waste Food Tray Line/Trough	High	RPBA
Commercial Kitchen Equipment – Waste Pulper	High	RPBA
Condensate Cooling/Receiver/Tank	High	RPBA
Cooling Condenser - AC unit	High	RPBA
Cooling Tower	High	RPBA
Dental Equipment – Film Processor	High	RPBA
Dental Equipment – Model Trimmer	High	RPBA
Dental Equipment – Sterilizer and Instrument Washer	High	RPBA
Dental Equipment – Vacuum Pump	High	RPBA
Dental Equipment – Water Supply to Dental Chair – For Multiple Chairs on one Dedicated Water Connection See Note #2	High	RPBA
Dental Equipment – X-ray Machine	High	RPBA
Descaling Equipment	High	RPBA
Detergent/Soap Dispenser	High	RPBA
Dishwasher (Commercial)	High	RPBA
Distiller	High	RPBA
Dockside Water Connection – For Multiple Connections to a Dedicated Water Connection	High	RPBA
Dry Cleaning Equipment	High	RPBA
Dye Equipment	High	RPBA
Engine/Genset Cooling System	High	RPBA
Film Processor	High	RPBA
Fire Hose Cabinet (Connected to Domestic Piping)	Low	DCVA
Fire Service Connection w/o Chemical Addition	Low	DCVA
Fire Service Connection with Chemical Addition	High	RPBA
Floor Drain with Flushing Rim	High	RPBA
Fountain/Ornamental Water Feature	High	RPBA
Frozen Carbonated Beverage (FCB) Maker	High	RPBA
Fume Hood	High	RPBA
Garbage Chute Washdown	High	RPBA
Garbage Disposal Unit (Garburator)	High	RPBA
Geothermal	High	RPBA
Glass Rinser	Low	DuC

Heating System - Residential w/o Chemical Addition and less than 400,000 btu	Low	DCAP
Hot Tub/Spa - Direct Feed	High	RPBA
Humidifier w/o Chemical Addition	Low	DCVA
Humidifier with Chemical Addition	High	RPBA
Hydronic Heating System – Commercial	High	RPBA
Hydronic Heating System – Residential w/o Chemical Addition and less than 400,000 btu	Low	DCAP
Ice Machine – Condenser Cooling	High	RPBA
Ice Machine – Residential Refrigerator-type w/o Built-in Filter	Low	DuC
Ice Machine – Water Feed	High	RPBA
Ice Making/Resurfacing Equipment	Low	DCVA
Irrigation System with Chemical Addition	High	RPBA
Irrigation System w/o Chemical Addition	Low	DCVA
Janitor Sink with Hose Connection	Low	AVB
Jug Rinser	Low	DuC
Laboratory Equipment – Air compressor	High	RPBA
Laboratory Equipment – Animal Cage Washer	High	RPBA
Laboratory Equipment – Animal Water Bottle Filler	High	RPBA
Laboratory Equipment – Animal Watering System	High	RPBA
Laboratory Equipment – Aspirator	High	RPBA
Laboratory Equipment – Autoclave	High	RPBA
Laboratory Equipment – Electron Microscope	High	RPBA
Laboratory Equipment – Equipment Cooling	High	RPBA
Laboratory Equipment – Fume Hood	High	RPBA
Laboratory Equipment – Serrated Faucet	High	RPBA
Laboratory Equipment – Specimen Tank	High	RPBA
Laboratory Equipment – Spray Hose	High	RPBA
Laboratory Equipment – Vacuum Pump	High	RPBA
Laundry Tub with Hose Bibb Connection	Low	HBVB
Lens Cutting/Grinding Equipment	High	RPBA
Medical Equipment – Air Compressor	High	RPBA
Medical Equipment – Angio/MRI Cooling	High	RPBA
Medical Equipment – Aspirator	High	RPBA
Medical Equipment – Autoclave/Sterilizer	High	RPBA
Medical Equipment – Bedpan Macerator	High	RPBA
Medical Equipment – Bedpan Washer/Sterilizer	High	RPBA
Medical Equipment – Blood Analysis Equipment	High	RPBA
Medical Equipment – Burn Shower	High	RPBA
Medical Equipment – CT Scan	High	RPBA
Medical Equipment – Cart Washer	High	RPBA
Medical Equipment – Dialysis Equipment	High	RPBA
Medical Equipment – Dye Slide Table	High	RPBA

Medical Equipment – Endoscope	High	RPBA
Medical Equipment – Film Processor	High	RPBA
Medical Equipment – Hydrotherapy Bath	High	RPBA
Medical Equipment – Laser Cooling	High	RPBA
Medical Equipment – MRI Cooling	High	RPBA
Medical Equipment – Patient Tub with Flexible Hose	High	RPBA
Medical Equipment – Renal Processor	High	RPBA
Medical Equipment – Steris Washer	High	RPBA
Medical Equipment – Ultrasonic Washer	High	RPBA
Medical Equipment – Vacuum Pump	High	RPBA
Medical Equipment – Washdown Station	High	RPBA
Medical Equipment – X-ray Equipment	High	RPBA
Paint Booth	High	RPBA
Pedicure Spa/Bowl - For Multiple Pedicure Spa/Bowls on one dedicated water connection	High	RPBA
Photo Developing Equipment	High	RPBA
Photo Lab Sink/Tank	High	RPBA
Plating Tank	High	RPBA
Pressure Washer w/o Aspirator	Low	DCVA
Pressure Washer with Aspirator	High	RPBA
Produce Misting System	High	RPBA
Proofer Oven	Low	DCVA
Pump Primer Line - Non-toxic	Low	DCVA
Pump Primer Line - Toxic	High	RPBA
Pump Primer Line for Auxiliary Water Source Pump	High	AG
Radiator Flushing Equipment	High	RPBA
Refrigeration Unit - Industrial	High	RPBA
Restricted Area	High	RPBA
Reverse Osmosis Equipment - Inlet 25mm or Larger	High	RPBA
Reverse Osmosis Equipment - Inlet Less than 25mm w/o Chemical	Low	DCVA
Reverse Osmosis Equipment - Inlet Less than 25mm with Chemical	High	RPBA
Rock Polisher	High	RPBA
Sanitary Equipment	High	RPBA
Sewage Ejector	High	RPBA
Sewage Pump	High	RPBA
Sewer Connected Equipment	High	RPBA
Shampoo Sink	Low	AVB/DuC
Steam Generator (Small Unit Contained Within Appliance/Equipment) – w/o Chemical Addition	Low	DCVA
Storm Sewer	High	RPBA
Sump	High	RPBA
Swimming Pool – Direct Feed	High	RPBA
Tanning Booth	High	RPBA

Trap Primer	High	RPBA
Vacuum Pump	High	RPBA
Vehicle Washing Equipment	High	RPBA
Vending Machine (No Carbonator)	Low	DCVA
Wash Rack	High	RPBA
Washdown Equipment	High	RPBA
Wastewater Treatment Process	High	RPBA
Water Filter – Inlet Less than 25mm	Low	DCVA
Water Filter – Inlet 25mm and Larger	High	RPBA

[1] Backflow Preventer Type – Abbreviations

AG Air Gap
AVB Atmospheric Vacuum Breaker – Non-testable Backflow Prevention Device
DCAP Dual Check with Atmospheric Port – Non-testable Backflow Prevention Device
DCAPc Dual Check with Atmospheric Port (carbonator) – Non-testable Backflow Prevention Device
DCVA Double Check Valve Assembly - Testable Backflow Prevention Assembly
DuC Dual Check Valve – Non-testable Backflow Prevention Device
DuCV Dual Check with Intermediate Vent – Non-testable Backflow Prevention Device
HBVB Hose Bibb Vacuum Breaker – Non-testable Backflow Prevention Device
LFVB Laboratory Faucet Vacuum Breaker – Non-testable Backflow Prevention Device
PVBA Pressure Vacuum Breaker Assembly - Testable Backflow Prevention Assembly
RPBA Reduced Pressure Backflow Assembly - Testable Backflow Prevention Assembly
SRVBA Spill Resistant Vacuum Breaker Assembly - Testable Backflow Prevention Assembly