



Whistler Blackcomb Cross Connection Control Program

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Whistler Blackcomb Cross Connection Control Program

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CROSS CONNECTION CONTROL PROGRAM

1. PURPOSE

The purpose of this program is to;

1.1 Protect the Drinking Water System from Cross Connections

Protect the Drinking Water supplied by the WB Snowmaking Department from the possibility of Contamination by removing or isolating real or potential sources of Contamination that may Backflow into the Drinking Water System.

1.2 Provide Continuing Cross Connection Control Program

Provide for the maintenance of a Cross Connection Control Program which will systematically and effectively seek to prevent contamination of the Drinking Water System.

2. CROSS CONNECTION AUDITS

2.1 Audits Conducted Every Five Years

A Cross Connection Audit shall be conducted on all Existing Facilities classified by Canadian Standards Association standard B64.10 as a Moderate or Severe Hazard Facility once every five (5) years from the date of the previous audit.

2.2 Audit Report

A copy of the results of the Cross Connection Audit shall be provided to the Cross Connection Control Officer within seven (7) days of the completion of the audit.

3. CERTIFIED TESTERS & TESTING EQUIPMENT

a) All Certified Testers submitting Backflow Preventer test data to the Cross Connection Control Officer shall possess a valid, within date, BCWWA Certificate of Competency as a Backflow Assembly Tester showing a certificate number.

b) If the Certified Tester is unable to provide proof that he/she is a BCWVVA Certified Backflow Assembly Tester (i.e. copy of BCWWA certificate), the Backflow Preventer test data shall not be accepted and the Backflow Preventer shall be considered to be untested.

c) Backflow Preventer test data shall not be accepted from a Certified Tester if the BCWWA Certificate of Competency as a Backflow Preventer Assembly Tester has expired prior to the date of testing the Backflow Preventer.

3.1 Maintenance of Testing Equipment

Certified Testers shall ensure that their testing equipment is, at all times, maintained so that it performs within the manufacturer's tolerances and specifications.

3.2 Calibration of Testing Equipment

Testing equipment shall be calibrated and certified by the manufacturer's representative authorized to do so, to meet the requirements of Canadian Standards Association standard B64.10.

3.3 Annual Calibration of Testing Equipment

The calibration of testing equipment specified in Section 29.3 shall be conducted once every twelve (12) months from the date of the previous calibration.

3.4 Equipment Calibration Notice to the Cross Connection Control Officer

All testing equipment calibrators shall provide a copy of the calibration results to the Cross Connection Control Officer within seven (7) days of the calibration.

4. DEFINITIONS

The following words, terms and phrases when used in the Program shall have the meanings set forth in Section 4, whether appearing in capital or lowercase form. If not defined below, the words and phrases used in this Program shall have their common and ordinary meanings to the degree consistent with the technical subject of this Program.

- **Air Gap** means the unobstructed vertical distance through air between the lowest point of the water supply outlet and the flood rim of the fixture or device into which the outlet discharges. **To be effective an Air Gap must be twice the diameter of the water supply outlet and never less than 25mm.**
- **Area Isolation** means a method of confining the potential source of Contamination to a specific area within a Facility by providing a Backflow Preventer that isolates a section of the piping system which may include Drinking Water and non-Drinking Water connections.
- **Auxiliary Water Supply** means any supply of water which originates from a source other than the main Drinking Water System and is available to a building via the Snowmaking system which has the potential to be connected to the Drinking Water System. This system is **considered Non-Potable** until treated. **All Non-Potable piping must be labeled or tagged every 6' along the entire pipe length from the non-potable water supply to fixture in order to eliminate any potential confusion with the potable water supply.**
- **Backflow** means a flow of water or other liquid, gas or solid from any source in a backward or reverse direction into a Drinking Water System that has been caused either by Back-Pressure or Back-Siphonage.
- **Backflow Preventer** means a mechanical assembly, device, or method that has been specifically designed and installed to prevent a Backflow into a Drinking Water System.
- **Back-Pressure** means pressure that is higher than the ambient pressure in the Drinking Water System.
- **Back-Siphonage** means a Backflow caused by a reduced or negative pressure in the Drinking Water System.
- **Program** means this Cross Connection Control Program.
- **Certified Tester** means an individual who is currently certified by the British Columbia Section, American Water Works Association as a Certified Backflow Preventer Tester (or similarly titled certification) to test, maintain and repair a Backflow Preventer.
- **Contamination** means an impairment of the Drinking Water in a Drinking Water System by the introduction or admission of a Foreign Substance that may compromise the safety or aesthetic characteristics of that Drinking Water.
- **Cross Connection** means an actual or potential connection between any part of a Drinking Water System and any other environment containing other substances which is allowing or has the potential to allow a Foreign Substance to enter a Drinking Water System. Bypass arrangements, jumper connections, removable sections, swivel or changeover devices or any other temporary or permanent connecting arrangements through which a Backflow may occur are considered to be Cross Connections.
- **Cross Connection Audit** means a high level inspection which is used confirm the degree of Cross Connection Hazard and to address obvious Cross Connections within an Existing Facility along with verifying that the Premise Isolation protection is proportional to the types of Cross Connection Hazards present and confirming that any installed Backflow Preventers are suitable for the task and are being maintained and tested.
- **Cross Connection Hazard** means one of a Minor Cross Connection Hazard, Moderate Cross Connection Hazard or Severe Cross Connection Hazard in accordance with Canadian Standards Association standard B64.10.
- **Cross Connection Control** means the enforcement of this Program.
- **Cross Connection Control Officer** and **CCCO** is the individual appointed by WB to administer the Cross Connection Control Program.
- **Cross Connection Control Program** means the program operated by the Whistler Blackcomb Snowmaking Department to administer and regulate the selection, installation, testing and maintenance of Backflow Preventers.

- **DCAPC** means Dual Check Valve c/w Atmospheric Port for Carbonators
- **Domestic Purposes** has the same meaning as in the *Drinking Water Protection Act*.
- **Double Check Backflow Preventer** means a testable Backflow Preventer that consists of two force-loaded, independently acting check valves and two shut-off valves assembled within one body and furnished with four test cocks. A Double Check Backflow Preventer is designed for use under continuous pressure and is typically used to provide protection against a Backflow from a Moderate Cross Connection Hazard.
- **Drinking Water** has the same meaning as in the *Drinking Water Protection Act*.
- **Drinking Water Health Hazard** has the same meaning as in the *Drinking Water Protection Act*.
- **Drinking Water System** means the entire water piping system including any storage facilities and fixtures that are used to distribute Drinking Water.
- **Dual Check Backflow Preventer** means a non-testable Backflow Preventer consisting of two independently acting, spring-loaded check valves in series and commonly Jacking shutoff valves and test cocks. A Dual Check Backflow Preventer is typically used to provide protection against a Backflow from a Minor Cross Connection Hazard.
- **Engineer** means the individual responsible for approving design changes to our Drinking Water system.
- **Existing Facility** means a Facility for which construction is complete and a Drinking Water Operating Permit is issued.
- **Facility** means something that is built, installed, or provided to serve a particular purpose.
- **Facility Survey** means a detailed inspection of the Drinking Water System for the presence of a potential risk to public health and the adverse effect of a Drinking Water Health Hazard upon a Drinking Water System arising from a Backflow into that system. A Facility Survey is intended to detect all potential cross connections within a Facility.
- **Fixture Isolation** means a method of confining the potential source of Contamination to a specific fixture / faucet within a Facility by providing a Backflow Preventer that isolates the fixture from the Drinking Water system.
- **Foreign Substance** means a substance such as a gas, liquid or solid including a chemical, waste product, steam, water from any Auxiliary Water Supply (Drinking Water or otherwise), or any other substance that may cause Contamination of the Drinking Water contained within a Drinking Water System.
- **Hose Connection Vacuum Breaker** means a non-testable Backflow Preventer that consists of a single, force-loaded check valve biased to a closed position. A Hose Connection Vacuum Breaker is designed to be used under pressure only when water is being drawn from the Drinking Water System for short, intermittent periods and is typically used to provide protection against a Backflow from a hose connected to a hose bib (faucet).
- **Irrigation System** means a system of pipes and valves that carry water to various types of sprinklers for distribution over the surface of the soil with the piping located either above or below ground.
- **Minor Cross Connection Hazard** means any type of Cross Connection or potential Cross Connection involving a Backflow of any substance that constitutes only a nuisance and results in a reduction in only the aesthetic qualities of the Drinking Water, with no possibility of becoming any health hazard.
- **Minor Hazard Facility** means a Facility classified by Canadian Standards Association standard B64.10 as having a minor degree of hazard because of the prevalence of Minor Cross Connection Hazards within the Facility.
- **Moderate Cross Connection Hazard** means any Minor Cross Connection Hazard that has a low probability of becoming a Severe Cross Connection Hazard and includes, but is not limited to, connections involving water where the aesthetic qualities of the water have been reduced and, under certain circumstances, can create a danger to health.
- **Moderate Hazard Facility** means a Facility classified by Canadian Standards Association standard B64.10 as having a moderate degree of hazard because the prevalence of Moderate Cross Connection Hazards within the Facility.

- **New Facility** means a Facility that is under construction and/or a Drinking Water Permit has not been issued.
- **Officer** means a Cross Connection Control Officer appointed by Whistler Blackcomb to enforce this Program.
- **On Mountain** means any and all facilities located on Whistler Blackcomb property that are not supplied by the Resort Municipality of Whistler's Drinking Water infrastructure.
- **Plumber** means an individual who possesses a British Columbia tradesman's qualification certificate as a Plumber and is currently working in the field as a Plumber.
- **Point-of-Use Isolation** means a method of protecting the Drinking Water System by providing a Backflow Preventer at the source of the potential Cross Connection Hazard.
- **Premise** means the building fed by a particular Drinking Water system.
- **Premise Isolation** means a method of preventing Backflow into the Drinking Water System from a building by installing a suitable Backflow Preventer in the Service Line or pipe at or near the building away from the Drinking Water distribution system.
- **Pressure Vacuum Breaker** means a testable Backflow Preventer that consists of an independently acting check valve force-loaded or biased to a closed position and an independently operating air inlet valve force-loaded or biased to an open position and located downstream of the check valve. A Pressure Vacuum Breaker is designed to be used under continuous pressure and is typically used to provide protection against a Backflow from a Moderate Cross Connection Hazard.
- **Prime User** means the department that is responsible for the upkeep and maintenance of the equipment in the facility. Typically this will be Snowmaking for the supply of the water to the building and Building Maintenance for all fixtures and mechanisms in the facility.
- **Public Drinking Water System** means collectively the Whistler Blackcomb Drinking Water Supply System and all of the drinking water distribution systems comprising water reservoirs, treatment plants, pumping stations, feeder mains, service connections, valves, fittings, hydrants, meters, cross connection control assemblies and devices and other equipment and machinery.
- **Readily Accessible** means capable of being reached for the purposes of operation, renewal, servicing, and inspection, without having to climb over or remove an obstacle or to use a portable ladder.
- **Reduced Pressure Backflow Preventer** means a testable Backflow Preventer that consists of two independently-acting, spring-loaded check valves separated by a spring-loaded differential pressure relief valve, two shutoff valves and four test cocks. A Reduced Pressure Backflow Preventer is typically used to provide protection against a Backflow from Severe Cross Connection Hazards.
- **Severe Cross Connection Hazard** means any Cross Connection involving a Backflow of any substance that could be a danger to health.
- **Severe Hazard Facility** means a Facility classified by Canadian Standards Association standard B64.10 as having a severe degree of hazard because of the prevalence of Severe Cross Connection Hazards within the Facility.
- **Service Connection** means the point of physical connection between the Drinking Water Distribution System and serviced building.
- **Temporary Water Connection** means a short term connection to the Drinking Water System for the purpose of construction or expansion of a development or for other reasons approved by Vancouver Coastal Health.
- **Water Supplier** means Whistler Blackcomb Snowmaking Maintenance.

5. APPLICATION

5.1 Cross Connection Control Program

The provisions in this Program are applicable to all installers and maintainers in the Drinking Water System including, but not limited to, Snowmaking Maintenance and Building Maintenance. In the event of a conflict between the local municipal Program which addresses Cross Connections or Backflow Preventers and the Whistler Blackcomb Cross Connection Control Program, the stricter requirement shall prevail.

5.2 Canadian Standards Association

The design, selection and installation of new Backflow Preventers along with the maintenance and field testing of new and existing Backflow Preventers shall conform to the 2007 version of the Canadian Standards Association standard. B64.10. The Cross Connection Control Officer may reclassify a Facility as a Minor Hazard Facility, Moderate Hazard Facility or Severe Hazard Facility following an inspection which reveals the otherwise unanticipated presence or absence of specific categories of Cross Connection Hazards within the Facility.

5.3 British Columbia Building Code

Where a plumbing permit has been issued, the installation of Backflow Preventers on a Premise shall comply with the current edition of the *British Columbia Building Code* at the time of the issuance of the permit. In the event of a conflict between the *British Columbia Building Code* and Canadian Standards Association, the stricter requirement shall apply. Nevertheless, in all cases, the *British Columbia Building Code* shall be used to determine the **minimum** requirements. If the *British Columbia Building Code* is silent on any aspect, the direction provided by the Canadian Standards Association shall be used.

5.4 Policies / Procedures / Forms

Policies required to facilitate the operation of the Whistler Blackcomb Cross Connection Control Program are available at;

S:\OPS\SNOWMAKING\POTABLEWATER\BACKFLOWPREVENTION

in the WB Shared folder or in written form at the Snowmaking Main Pump House.

6. CROSS CONNECTIONS PROHIBITED

6.1 Cross Connections Prohibited

No Person shall connect, cause to be connected or allow to remain connected, any piping, fixture, fitting, container, appliance, or internal system in a manner which may allow any Foreign Substance to enter the Drinking Water System, unless the Water System is protected by an approved Backflow Preventer which has been installed, tested and maintained in accordance with this Program.

6.2 Prohibit Connection to an Unacceptable Plumbing System

No Person shall install or maintain a Service Connection to any Customer's Drinking Water System in which the plumbing system, facilities and fixtures have not been constructed and installed under the authority of a permit where required by a local government, and by using the acceptable plumbing practices prescribed by the *British Columbia Building Code* and considered by the Water Supplier to be necessary for the protection of health and safety.

7. CROSS CONNECTIONS & CONTAMINATION

7.1 Report Discovered Cross Connections

A Staff Member or Certified Tester that discovers a Cross Connection that is contaminating or has the potential to contaminate the Drinking Water in the Drinking Water System **shall immediately resolve the issue** and notify the Cross Connection Control Officer about that Cross Connection without delay.

7.2 Inspection

If the Cross Connection Control Officer believes that a Cross Connection exists in contravention of **Section 5**, the Cross Connection Control Officer will carry out an inspection of the Facility.

7.3 Contaminating Condition Found

If, in the opinion of the Cross Connection Control Officer, any condition is found to exist which is or may be contaminating the Drinking Water System, Snowmaking may take one or more of the following actions:

- a) *Request*; Give notice to Building Maintenance requiring correction of the fault.
- b) *Install Backflow Preventer*; In the absence of Building Maintenance installing an approved Backflow Preventer within a specified time period which provides isolation according to the degree of Cross Connection Hazard, Snowmaking may proceed with the installation.
- c) *Discontinue Water Service*; Discontinue any water service until the condition is corrected.

8. INSTALLING BACKFLOW PREVENTERS

8.1 Orientation and location of Backflow Preventers

A Backflow preventer must be installed following the manufactures recommendations while allowing adequate space to service and maintain the unit. Drainage should always be considered when choosing a location to prevent damage to ceilings, walls and equipment. An air gap must be present whenever the Backflow Preventer allows for flow to indicate equipment failure.

8.2 Installing of Backflow Preventers

When a Backflow Preventer is installed a WB Cross Connection Control Service Tag must be obtained by the Cross Connection Control Officer and displayed on or immediately adjacent to the Backflow Preventer. It must be correctly labeled and the information and location submitted to the Cross Connection Control Officer. The officer will then record the information in the Cross Connection Control Program Inventory and submit the information to the WB Maintenance Planners where an Asset Identification Number will be assigned.

8.3 Initial Test of Reduced Pressure Backflow Preventers

The Reduced Pressure Backflow Preventer is not considered active / installed until and an initial test has been completed, and passed, by a Certified Tester.

9. TESTING BACKFLOW PREVENTERS

9.1 Ensure Testing of Backflow Preventers

Where a testable, Backflow Preventer has been installed, the Prime User shall ensure that the Backflow Preventer is inspected and tested by a Certified Tester upon installation and thereafter, annually, to determine whether or not it is fully operational or, as often as required by the Cross Connection Control Officer where conditions are encountered that may impede the satisfactory operation of the Backflow Preventer or that may compromise the level of protection required for that category of Cross Connection Hazard.

9.2 Report Results of Testing

Where a testable, Backflow Preventer has been installed, the Installer shall ensure that a Whistler Blackcomb Cross Connection Control Testing and Inspection Report showing the results of any and all tests requested and performed, including detailed descriptions of any necessary repairs made, has been submitted and received by the Cross Connection Control Officer within fourteen (14) calendar days following the date of the notice to test. The reverse of the Service Tag must be marked to indicate the date and the Tester.

9.3 Backflow Preventer Test Failures

If a Backflow Preventer fails the annual test, the Certified Tester shall immediately notify their supervisor and shall immediately begin repair or replacement the Backflow Preventer.

9.4 Delayed Replacement of Defective Backflow Preventers

If the defective Backflow Preventer cannot be immediately repaired or replaced, the Certified Tester shall immediately notify their supervisor **AND** the Cross Connection Control Officer of this result. A hazard assessment must be conducted and the water supply may be interrupted until the hazard is minimized. The Backflow Preventer is to be back in operation within fourteen (14) calendar days of the date of the failed test.

9.5 Display Proof of Testing

The Tester shall ensure that a *WB Cross Connection Control Service Tag* issued by Snowmaking Maintenance is displayed on or immediately adjacent to the Backflow Preventer indicating the required information and the dates of initial testing and thereafter, the dates of the annual inspections. The Tester shall ensure that the test date and tester identification as specified by the Cross Connection Control Officer have been recorded on the tag.

9.6 Maintain File of Test Results

The Cross Connection Control Officer shall maintain a file of test results for all Backflow Preventers installed "On Mountain" in the Main Pump House. The Maintenance Planning department also has a list of all Backflow Preventers and their maintenance schedules in WB's Asset Tracking System.

10. BY-PASS, REMOVAL OR TAMPERING

10.1 By-Pass of a Backflow Preventer

No Person shall by-pass an approved Backflow Preventer that has been specifically installed to protect the Public Drinking Water System without the express, written permission of the Cross Connection Control Officer.

10.2 Removal of a Backflow Preventer

No Person shall remove, cause or permit to be removed an approved Backflow Preventer that has been specifically installed to protect the Drinking Water System unless that removal is:

- a) Necessary to facilitate the repair of the Backflow Preventer and that Backflow Preventer is immediately replaced by a temporary Backflow Preventer until the time that the original Backflow Preventer is satisfactorily repaired or replaced and tested.
- b) For the purpose of immediately replacing the Backflow Preventer with another Backflow Preventer that meets or exceeds the requirements listed in this Program.
- c) Warranted due to alterations to the Drinking Water System. In which it completely removes the risk of contamination to the Drinking Water System for which the Backflow Preventer was originally required. In such circumstances, the Backflow Preventer shall not be removed until the Cross Connection Control Officer provides written approval for the removal of the Backflow Preventer.

10.3 Tampering with Backflow Preventer

No Person shall tamper with an approved Backflow Preventer that has been specifically installed to protect the Drinking Water System.

11. NEW WATER MAINS

11.1 Isolation of New Water Mains

New water mains shall be kept isolated from the live water main of the active distribution system by using a physical separation method until satisfactory bacteriological test results have been received by the Water Supplier and the highly chlorinated disinfecting water has been flushed out of the new water main.

12. TEMPORARY WATER SERVICE

12.1 General Requirements for Temporary Water Service

Any outlet used to dispense Drinking Water from the Drinking Water System to supply a temporary water service for construction or other purposes shall be protected against Backflow caused by Back-Siphonage or Back-Pressure in the following circumstances:

- a) A Reduced Pressure Backflow Preventer shall be used when there is no final connection to a plumbing system.
- b) A Reduced Pressure Backflow Preventer shall be used when the temporary water service is connected to a plumbing system with Severe Cross Connection Hazards. The presence of an on-site Auxiliary Water Supply or contaminating conditions shall require a Reduced Pressure Backflow Preventer.
- c) A minimum Double Check Backflow Preventer shall be used when the temporary water service is connected to a plumbing system with Moderate Cross Connection Hazards.

12.2 Backflow Preventer & Shut off Required

A Department/Contractor requiring temporary water service may acquire water from the Drinking Water System provided that the Temporary Water Connection is fitted with a shut off valve and a Backflow Preventer. The Snowmaking Department will provide and install equipment to a point of tie in for the Contractor.

13. NEW FACILITIES & NEW CONNECTIONS

13.1 New Severe Hazard Facilities

A New Facility classified as a Severe Hazard Facility by Canadian Standards Association standard B64.10 shall require Premise Isolation using a Reduced Pressure Backflow Preventer in addition to Point-of-Use / Fixture Isolation and Area Isolation (if applicable) within the Facility in accordance with Section 3.

13.2 New Moderate Hazard Facilities

A New Facility classified as a Moderate Facility by Canadian Standards Association standard B64.10 shall require Premise Isolation using a Double Check Backflow Preventer in addition to Point-of-Use Isolation and Area Isolation (if applicable) within the Facility in accordance with Section 3.

13.3 New Minor Hazard Facilities

A New Facility classified as a Minor Hazard Facility by Canadian Standards Association standard B64.10 shall not require a Backflow Preventer, insuring any future potential hazards will have either fixture or zone isolation.

13.4 New Connections

Any new connections into the Drinking Water Supply System, including but not limited to; faucets, food equipment, toilets, janitor supplies and Fire Systems must have prior approval from the Cross Connection Control Officer.

14. EXISTING FACILITIES

14.1 Existing Severe Hazard Facilities

- a) An Existing Facility classified as a Severe Hazard Facility by Canadian Standards Association standard B64.10 shall require Premise Isolation using a Reduced Pressure Backflow Preventer.
- b) Premise Isolation using a Double Check Backflow Preventer for an Existing Facility classified as a Severe Hazard Facility may be considered on a case-by-case basis by the Cross Connection Control Officer provided that **BOTH** Point-of-Use Isolation **AND** Area Isolation (if applicable) using Reduced Pressure Backflow Preventers have been installed to supplement the reduced level of Premise Isolation protection. To ensure that no Severe Cross Connection Hazards have been missed.

14.2 Existing Moderate Hazard Facilities

- a) An Existing Facility classified as a Moderate Hazard Facility by Canadian Standards Association standard B64.10 shall require Premise Isolation using a Double Check Backflow Preventer when one or more of the conditions listed below are present:
 - i. The Existing Facility has experienced one or more water quality issues related to Cross Connections.
 - ii. The Existing Facility contains complex piping arrangements or the potential for non-potable (Snowmaking) piping connected to the Drinking Water System.
 - iii. The Existing Facility contains an industrial-commercial-institutional occupant classified as a Severe Hazard Facility.
 - iv. A booster pump is installed to provide additional water pressure within the Facility.
- b) Point-of-Use Isolation **OR** Area Isolation within an Existing Facility classified as a Moderate Hazard Facility without requiring Premise Isolation may be considered on a case-by-case basis by the Cross Connection Control Officer provided that **ALL** of the conditions listed below are satisfied **AND**
 - i. A Cross Connection Audit of the Existing Facility has been conducted.
 - ii. The Backflow Preventers used for Point-of-Use **OR** Area Isolation at or within an Existing Facility are appropriate to the Cross Connection Hazard.

14.3 Existing Minor Hazard Facilities

- a) An Existing Facility classified as a Minor Hazard Facility by Canadian Standards Association standard B64.10 shall not require a Backflow Preventer, insuring any future potential hazards will have either fixture or zone isolation.
- b) If an Existing Facility classified as a Minor Hazard Facility contains a Severe or Moderate Cross Connection Hazard process, Fixture or Zone Isolation of the process is required using a Backflow Preventer appropriate to the type of Cross Connection Hazard.

15. LOCATIONS FOR PREMISE ISOLATION

15.1 Standard Installation Location for Premise Isolation

The standard location for a Backflow Preventer which provides Premise Isolation immediately is inside of the building/premise before any branches or fixtures in the plumbing system.

15.2 Alternative Installation Locations for Premise Isolation

In accordance with Canadian Standards Association standard B64.10, the following general requirements shall apply when alternative installation locations for a Backflow Preventer that provides Premise Isolation are proposed:

- a) No water connections (e.g. for fire hydrants, irrigation systems, hose connections, or other similar devices for the transmission of water) shall be made between the supply and the Backflow Preventer unless those connections are protected by a Backflow Preventer.
- b) Backflow Preventers shall be installed in Readily Accessible locations to facilitate safe inspection, field testing and maintenance.
- c) Manufacturer's recommendations shall govern the clearances provided for Backflow Preventers.
- d) Reduced Pressure Backflow Preventers shall not be installed in a pit or vault below grade.
- e) Backflow Preventers shall be located so that they do not hinder the operation of other safety system devices such as fire protection systems.
- f) Backflow Preventers shall be protected from freezing.

16. FIRE PROTECTION SYSTEMS

16.1 Fire Protection System Isolation

Fire protection systems shall be separately isolated either by using a Reduced Pressure, Backflow Preventer or a Double Check Backflow Preventer (appropriate to the type of fire system installed within the Facility).

16.2 Fire Protection System Isolation for New or Severe Hazard Facilities

A fire protection system installed within a New Facility categorized by Canadian Standards Association standard B64.10 as a Severe Cross Connection Hazard shall itself require a Reduced Pressure Backflow Preventer.

17. BOOSTER PUMPS

Where the available water pressure within a Facility does not meet the stated specifications of the demands of the building user, a booster pump may be required. The installation of a booster pump within a Facility shall require Premise Isolation using a Backflow Preventer appropriate to the Cross Connection Hazard category of the Facility.

18. AUXILIARY / SNOWMAKING WATER SUPPLY

An Auxiliary Water Supply piping shall not be interconnected to the Drinking Water System piping unless written permission is received from Vancouver Coastal Health.

19. IRRIGATION SYSTEMS

All Irrigation Systems shall be isolated against Backflow caused by Back-Siphoning or Back Pressure with the following:

19.1 Irrigation Systems with Chemical Injection

Irrigation Systems **with** chemical injection shall be isolated from the Drinking Water System using a Reduced Pressure Backflow Preventer installed upstream of the Irrigation System.

19.2 Irrigation Systems without Chemical Injection

Irrigation Systems **without** chemical injection shall be isolated from the Drinking Water System using:

a) A Pressure Vacuum Breaker installed upstream of the Irrigation System and at least 300 mm (12") above the highest point of the irrigation system,

OR

b) A Double Check Backflow Preventer installed upstream of the Irrigation System.

20. CARBONATION SYSTEMS

All post-mix soft drink carbonation systems shall be isolated against Backflow caused by Back Pressure using a Backflow Preventer in accordance with the following requirements:

20.1 Pipe

Reinforced plastic or rubber or stainless steel tubing shall be used for the pipe between the carbonator and the DCAPC. **This pipe shall not be made of copper or a copper alloy.**

20.2 Backflow Preventer

A **stainless steel-bodied** Reduced Pressure Backflow Preventer shall be installed in the water line supplying the carbonator beverage dispensing equipment.

OR

A CSA approved Dual Check Backflow Preventer with atmospheric port rated for carbonators (either stainless steel or plastic body).

21. BOILER HEATING SYSTEMS

Boiler heating systems shall be isolated against Backflow caused by Back-Siphonage or Back-Pressure with a Reduced Pressure Backflow Preventer as these systems typically contain chemicals to protect them from corrosion.

22. SOLAR HOT WATER SINGLE-PLATE HEAT EXCHANGERS

Solar hot water heat exchangers typically contain chemical additives to protect them from corrosion and freezing.

22.1 Industrial / Commercial Facility

Single-plate, solar hot water heat exchangers shall require Premise Isolation using a Double Check Backflow Preventer (or Reduced Pressure Backflow Preventer if required by the Cross Connection Hazard classification of the Facility) in addition to a Reduced Pressure Backflow Preventer located at the make-up water connection.

23. DISHWASHERS & GLASSWASHERS

Dishwashers / Glass washers shall be isolated against Backflow caused by Back-Siphonage or Back-Pressure using a Reduced Pressure Backflow Preventer at the water connection(s).

24. DETERGENT DISPENSING UNITS

Detergent dispensing units shall be isolated against Backflow caused by Back-Siphonage or Back-Pressure using a Reduced Pressure Backflow Preventer or an Air Gap at the make-up water connection. Detergent dispensing units shall be connected with a separate water connection and not be connected to a faucet, sink tap, or atmospheric vacuum breaker.

25. REVERSE OSMOSIS EQUIPMENT

Reverse osmosis equipment installed in shall be isolated against Backflow caused by Back-Siphonage or Back-Pressure using a Reduced Pressure Backflow Preventer.

26. EXISTING BULK WATER CARRIERS

Bulk Water Carriers who are currently obtaining Drinking Water from the established Drinking Water System for the purpose of bulk water deliveries shall be serviced and shock treated annually.

26.1 Filling Stations

Filling Stations shall prevent against Backflow. A Reduced Pressure Backflow Preventer is preferred to prevent freezing during winter operation. An Air Gap will be acceptable for "summer only" use. The Prime Operator must insure that all "fill" and "dispensing" locks and fittings are in "as new" condition.