

THE CORPORATION OF THE  
TOWN OF GRIMSBY

By-law No. 09-73

A BY-LAW TO PROTECT THE TOWN OF GRIMSBY'S DRINKING WATER  
DISTRIBUTION SYSTEM FROM CONTAMINATION THROUGH CROSS-  
CONNECTION AND BACKFLOW

WHEREAS the Town of Grimsby as the Owner of the Grimsby Drinking Water Distribution System is responsible to operate, maintain and test its water distribution system in accordance with the Safe Drinking Water Act, 2002, S.O. 2002, C.32 and O. Reg 170/03, both as amended, to ensure that all water provided by this system meets the requirements of the prescribed drinking-water quality standards;

AND WHEREAS The Safe Drinking Water Act, 2002 places a Standard of Care on the Owner of the municipal drinking water distribution system;

AND WHEREAS The Town of Grimsby wishes to protect its residents and other users of the Town's drinking water distribution system from deleterious and harmful contaminants that may enter the water distribution system through cross-connections and backflow.

NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE TOWN OF GRIMSBY ENACTS AS FOLLOWS:

**1. SHORT TITLE**

1.0 This By-law may be cited as the "Backflow Prevention By-law".

**2. INTERPRETATION**

2.0 For the purposes of this By-law, the following terms shall have the corresponding meanings:

"Authorized Functions List" means the list of functions and the persons authorized to carry out such functions as set out in Appendix "A" of this By-law;

"auxiliary water supply" means, when applied to any property or structure, any water supply on or available to the property or structure other than the Town's primary potable water supply for the property or structure;

"backflow" means the flowing back of or reversal of the normal direction of flow of water;

"backflow device tester" means a Person, performing or engaging to perform "Backflow Work"

'backflow prevention device" means a device that prevents backflow certified to the CSA Standard;

"backflow work" includes performing building surveys to identify cross connections; selection, testing and repair of backflow prevention devices and completion of test reports and test tags for backflow prevention devices;

'building" shall have the same meaning as set out in the Ontario Building Code;

"cross-connection" means any actual or potential connection between a potable water supply or system and any source of pollution or contamination and includes any by-pass, jumper connection, removable section of pipe, swivel or changeover device and any other temporary or permanent connecting arrangement through which backflow may occur;

"cross-connection control survey form" means a form acceptable to the Town containing information related to the types of cross-connections, the Degree of Hazard (in accordance with Appendix "B" of this By-law) and the method of protecting those cross-connections within any building or structure. The form must also contain owner and contact information for the property;

"CSA Standard" means the document entitled 864.10-071864. 10.1-07 Selection and installation of backflow preventers/Maintenance and field testing of backflow preventers published in 2007 by the Canadian Standards Association, or any successor thereof;

"distribution system" means the Town of Grimsby Drinking Water Distribution System and includes appurtenances and the property service pipe as defined in the Safe Drinking Water Act, 2002, S.O. 2002, C.32 and O.Reg 170/03;

"Licensed Plumber" means a Person who has been issued a Certificate of Qualification in the trade of plumber under the Trades Qualification Act and Apprenticeship Act, R.S.O. 1990, Chapter T.17, or any successor thereof;

"Ontario Building Code" means Ontario Regulation 350/06 (the Ontario Building Code) or any successor thereof;

"owner" means any person, firm or corporation having control over property to which this By-law applies and includes the owner registered on the title of the property and any occupant of any building or structure located on such property;

"potable water" means water that is safe for human consumption;

"premise isolation" means protection provided at the entrance to a building or structure from the Town's drinking water supply;

"property" means any land within the Town of Grimsby and includes all buildings or structures;

"qualified person" means a person who is accredited by a School of Accreditation as an installer and or tester of backflow prevention device;

"School of Accreditation" means any school or college providing a cross-connection control course in backflow prevention device testing that has been accredited by an organization or association such as the Ontario Water Works Association or equivalent as approved by the Town;

"Selection Guide" means the Backflow Prevention Device Selection Guide as set out in Appendix "B" of this By-law;

"source isolation" means isolation of the water located within or having flowed through a source or potential source of contamination within a building or structure including a device, machine, water system or the like, from any potable water system;

"structure" means anything constructed or built permanently or temporarily which is provided with a source of potable water;

"test report" means a test report for premise isolation backflow devices acceptable to the Town containing information related to the qualified person's name, certification number, employer name, contact information, serial number of test kit and last calibration date of test kit. The test report must also contain the make, model, serial number, size, type, location, purpose, installation address and test results of the backflow prevention device. The form must also contain owner, occupant and contact information for the property;

"test tag" means a tag acceptable to the Town containing information related to the make, model, serial number, size, type, location, purpose, installation address and test history of the backflow prevention device;

"Town" means the Corporation of the Town of Grimsby and includes its employees, servants and agents;

"untreated water" means any water not subject to the requirements of the Ontario Safe Drinking Water Act 2002. S.O. 2002, C.32;

"water meter" means the water meter installed within a property or structure to record the amount of water supplied to such property or structure by the; and

"zone isolation" means the isolation of the water located within an area of a building or structure from any potable water system located within such building or structure.

### **3. APPLICATION OF BY-LAW**

3.0 This By-law applies to existing industrial, commercial, institutional and multi-residential buildings and structures, except buildings or structures of residential occupancies which are of three or fewer stories in building height above ground level and having a building area - total gross floor area not exceeding 600m<sup>2</sup> all as defined in the Ontario Building Code.

3.1 In addition to and notwithstanding section 3.0 of this By-law, this By-law applies where a condition exists in any building or structure that may be hazardous or detrimental to the potable water supply.

3.2 Where any requirements of the Ontario Building Code or any other By-law or Regulation conflict with this By-law, then the requirement which provides the highest degree of premise isolation shall apply.

### **4. CROSS-CONNECTION PROHIBITED**

4.0 No person or owner shall connect, cause to be connected, or allow to remain connected to the Town's drinking water distribution system or any other potable water system any piping, fixture, fitting, container, appliance, vehicle, machine or the like in a manner which may under any circumstance allow untreated water, waste water or any other liquid, chemical or substance to enter such supply or system, except in compliance with the provisions of this By-law.

4.1 In addition to section 4.0 of this By-law and in accordance with all other provisions of this By-law, every owner of property to which this By-law applies shall ensure that a backflow prevention device is installed in respect of premise isolation, source isolation and zone isolation in every building or structure where the Town's drinking water distribution system supply or other potable water supply or connection exists.

4.2 No person or owner shall connect, cause to be connected, or allow to remain connected to the Town's drinking water distribution supply any auxiliary water supply without written approval from the Town.

4.3 No person or owner shall connect, cause to be connected or allow to remain connected either directly or indirectly to the Town's drinking water distribution system supply, any untreated water or non-potable water.

4.4 Fire protection systems connected to potable water from the water distribution system shall be protected against backflow in accordance with CSA Standard.

## **5. PERSONS PERMITTED TO CARRY OUT WORK**

5.0 Only persons listed in the Authorized Functions List shall carry out the corresponding functions set out in such list and shall be a qualified person.

5.1 (a) every Backflow Device Tester shall have a regular place of business and shall identify to the Town the mailing address of the business property or structure;

(b) every Backflow Device Tester Company shall list all employees with a current certificate from a School of Accreditation as a backflow device tester;

(c) every Backflow Device Tester shall provide the following documentation at the time of the initial installation;

- (i) a current certificate from a School of Accreditation as a certified Backflow Prevention Device Tester for all their employees performing Backflow Work;
- (ii) a valid calibration certificate for testing equipment used in the testing requirements of this By-law.

## **6. APPLICATION OF CSA STANDARD**

6.0 Except as otherwise set out in this By-law, the installation, maintenance and field testing of backflow prevention devices shall be in accordance with the CSA Standard.

6.1 Wherever the CSA Standard and this By-law are in conflict, the provisions which provide the highest degree of premise isolation shall apply.

## **7. SELECTION OF BACKFLOW PREVENTION DEVICES**

7.0 Every owner of a building or structure of a type set out in Section 3 of this By-law shall, unless otherwise required by the Town, cause to be carried out a cross-connection control survey form, of each of their buildings and structures with respect to all existing cross-connections and all existing and required backflow prevention devices and:

7.0.1 shall ensure that such survey is carried out on a cross-connection control survey form by a qualified person permitted to do so pursuant to the Authorized Functions List; and,

7.0.2 shall ensure that the completed cross-connection control survey form is provided to the Town within 14 days of the survey being conducted; and,

7.0.3 shall be carried out after the passing of this By-law by the owners of all required properties and shall be submitted to the Town under section 7 .0.2, of this By-law, not later than May 1, 201 0; and,

7.0.4 shall also be carried out by the owner within 14 days of any new building, building expansion or alteration to any buildings' plumbing or operational changes that may affect the Town's drinking water distribution system.

7.1 Every owner shall ensure that every backflow prevention device required for premise isolation on their property is a testable device and is the proper device to be used pursuant to section 7 .2 of this By-law.

7.2 Backflow prevention devices for premise, source or zone isolation shall be determined:

7.2.1 using the Selection Guide; or

7.2.2 when the type of cross-connection is not identified in the Selection Guide, by the Town.

7.3 Despite section 7.2 of this By-law, the Town may require or permit in writing only, a particular backflow prevention device to be used in respect of any cross-connection.

7.4 Despite section 7.2 of this By-law, the Town may permit an existing backflow prevention device if previously approved but shall be approved only as long as the safety of the water supply is maintained to the satisfaction of the Town in its sole discretion.

7.5 Despite section 7.2. of this By-law, where a source isolation backflow prevention device has been installed by the manufacturer of the equipment, the cross-connection is required to be reviewed to determine if the backflow prevention device meets the requirements of the Selection Guide. These cross-connections are to be indicated on the cross-connection control survey form.

## **8.INSTALLATION OF BACKFLOW PREVENTION DEVICES**

8.0 Every person installing a backflow prevention device shall ensure that:

8.0.1 such device is installed in accordance with manufacturers specifications and the requirements of the CSA Standard; and,

8.0.2 such device is located in such a manner so that in the event of backflow, the device prevents contamination of the Town's drinking water supply and any other potable water system; and,

8.0.3 where such device is installed in respect of premise isolation, such device is located before the first branch line leading off the water supply line and not more than 3.0 metres downstream of the water meter, except where circumstances require the device to be installed upstream of the water meter and such location is to the satisfaction of the Town; and,

8.0.4 where such device is installed in respect of premise isolation all piping between the water meter and such device is clearly labeled "no connection permitted"; and,

8.0.5 where such device is installed in respect of source or zone isolation, all piping between the point of contamination and the point at which the device is located, is labeled "non-potable water".

8.1 Every owner of property upon which a backflow prevention device is installed shall ensure that such device is maintained and in proper working order at all times.

8.2 The Initial Compliance Implementation Date for the owners of all required buildings and structures existing at the date of the passing of this By-law to meet the backflow device installation requirements of this By-law shall be no later than:

- (i) July 1, 2010 for all properties as identified as "Severe Hazard" as defined in Appendix "B" of this By-law and identified under section 7.0 - cross-connection control survey form requirements of this By-law; and,
- (ii) January 1, 2011 for all properties as identified as "Moderate Hazard" as defined in Appendix "B" of this By-law and identified under Section 7.0- cross-connection control survey form requirements of this By-law.

## **9. TESTING OF DEVICES**

9.0 Every owner who has a backflow prevention device located on his or her property shall ensure that:

9.0.1 such device is tested by a qualified person when it is first installed and shall be tested annually thereafter or at any other time when requested by the Town and also when the device is cleaned, repaired, overhauled, replaced or relocated; and,

9.0.2 a test report for a premise isolation device shall be provided to the Town within fourteen days of the test being conducted; and,

9.0.3 in the event that such device is malfunctioning or otherwise not in proper working order, the device is immediately repaired or replaced; and,

9.0.4 in the event that the water supply to the device cannot be shut down in order to facilitate annual testing, a by-pass shall be installed around the device with a suitable backflow prevention device installed in the by-pass to allow for annual testing of both devices.

9.1 Every person who tests a backflow prevention device shall carry out such testing in accordance with this By-law, the CSA Standard and all applicable legislation.



9.2 Every person who tests a backflow prevention device shall:

9.2.1 provide a legible test report to the owner in respect of such test; and,

9.2.2 upon completing such test, complete and affix a test tag to the device or immediately adjacent to the device on the piping connected thereto; and,

9.2.3 upon finding that such device is malfunctioning or otherwise not in proper working order, immediately notify the owner of the property of such condition in writing, and, in the case of a premise isolation device, also notify the Town immediately verbally and also immediately in writing.

## **10. INSPECTIONS**

10.0 The Town may, at any reasonable time, enter without advance notice onto any property, building or structure to inspect for compliance with this By-law.

10.0.1 When carrying out an inspection pursuant to section 10.0 of this By-law, the Town may:

- (a) require the production for inspection of documents or effects relevant to the inspection.
- (b) inspect and remove documents or effects relevant to the inspection for the purpose of making copies or extracts.
- (c) require information from any person concerning a matter related to the inspection.
- (d) make examinations or take tests, samples or photographs necessary for the purposes of the inspection.

10.1 Where an owner does not comply with any provision of this By-law, the Town may:

10.1.1 Order the owner to comply with this By-law's requirements, and in so doing, shall provide reasonable particulars of the owner's non-compliance and prescribe the time period for compliance with such Order;

10.1.2 Shut off the water supply to the property or any portion thereof until such time as all provisions of this By-law are met.

## 11. GENERAL PROVISIONS

11.0 In addition to any other provisions of this By-law, the Town may at any time order an owner to conduct tests, provide reports and undertake any other measures required for the prevention of backflow or protection of a cross-connection.

11.1 Appendices "A" (Authorized Function List) & "B" (Backflow Prevention Device Selection Guide) shall form part of this By-law.

READ A FIRST TIME THIS 21<sup>st</sup> day of September 2009.

READ A SECOND AND THIRD TIME AND FINALLY PASSED THIS day of , 2009

  
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R.N. Bentley, Mayor

  
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Sandy-Easton, Town Clerk

**Appendix "A"**  
**To By-Law Number 09-73 of The Corporation of the Town of Grimsby**  
**Authorized Function List**

Item	FUNCTION	LICENCED PLUMBER WITH TESTER'S QUALIFICATIONS	* JOURNEYMAN PLUMBER WITH TESTER'S QUALIFICATIONS	** APPRENTICE PLUMBER WITH TESTER'S QUALIFICATIONS	FIRE SYSTEM SPRINKLER FITTER WITH A TESTER'S QUALIFICATIONS	LAWN IRRIGATION SYSTEM INSTALLER WITH TESTER'S QUALIFICATIONS
1	Carry Out Cross-connection Control Survey	✓	✓			
2	Install, Relocate or Replace 1 Backflow Prevention Device	✓	✓	✓		
3	Repair of Backflow Prevention Device	✓	✓	✓	✓	
4	Test Backf/ow Prevention Device	✓	✓	✓	✓	
5	Items 1,2, 3 & 4 above in Respect of Fire Protection Systems	✓	✓	✓	✓	
6	Items 2 (up to 1"), 3 & 4 above in Respect of Lawn Sprinkler System	✓	✓	✓		✓

\* Required to be employed by a Licenced Plumbing Contractor

\*\* Required to be employed by a Licenced Plumbing Contractor

**APPENDIX "B"**  
**to By-Law No. 09-73 of the Corporation of the Town of Grimsby**  
**BACKFLOW PREVENTION DEVICE SELECTION GUIDE**

**INTERPRETATION**

In addition to those terms defined in section 2.0 of By-law No. 09-73, the following terms shall have the corresponding meanings for the purposes of this Appendix:

"air gap (AG)" means the unobstructed vertical distance through air between the lowest point of the water supply outlet and the flood level rim of the fixture or device into which the outlet discharges;

"back siphonage" means backflow caused by pressure below atmospheric in the supply system;

"double check valve assembly (DCVA)" means a backflow prevention device 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. This device is designed for use under continuous pressure;

"dual check valve {DuC} " means a backflow prevention device consisting of two independently acting, force-loaded, soft-seated check valves in series. This device does not have a relief port or test cocks. This device is designed for use under continuous pressure;

"dual check valve with atmospheric port (DCAP), (DCAPC)" means a backflow prevention device that consists of two independently acting check valves separated by an intermediate chamber with an atmospheric port. A chamber pressure higher than the supply pressure is required to open the port when there is a positive pressure on the supply side. This device is designed for use under continuous pressure; (DCAPC) is specifically designed for use in carbonated beverage dispensing machines;

"dual check valve with intermediate vent {DuCV}" means a backflow prevention device that consists of two independently acting check valves biased to a normally closed position. Between the check valves there is a relief port that is biased to a normally open position. This device is designed for use under continuous pressure;

"reduced pressure principle assembly (RP)" means a backflow prevention device that consists of a mechanically independently acting, hydraulically dependent relief valve located in a chamber between two independently operating, force-loaded check valves, the intermediate chamber pressure always being lower than the supply pressure when there is a positive pressure on the supply side. The unit includes properly located resilient-seated test cocks and tightly closing resilient-seated shutoff valves at each end of the assembly. This device is designed for use under continuous pressure;

"minor hazard" means any cross-connection or potential cross-connection that constitutes only a nuisance, with no possibility of any health hazard;

"moderate hazard" means any minor hazard that has a low probability of becoming a severe hazard;

"severe hazard" means any cross-connection or potential cross-connection involving any substance that could be a danger to health;

"single check valve" (SCVAF) means a backflow preventer that consists of one force-loaded, independently acting check valve, including resilient-seated shut-off valves located at each end of the SCVAF backflow preventer and fitted with resilient-seated test cocks. SCVAF backflow preventers are designed for use under continuous pressure on fire sprinkler and standpipe systems;

"vacuum breaker" means a device that will prevent backflow when pressure in the system upstream of the device falls below atmospheric pressure. Air is only admitted downstream of the device;

"vacuum breaker, atmospheric type (AVB)" means a vacuum breaker designed to be under pressure only when water is being drawn from the system and for short, intermittent periods of time;

"vacuum breaker, laboratory faucet type (LFVB)" means a vacuum breaker consisting of two independently acting check valves force-loaded or biased to a normally closed position. Between the check valves there is a relief port that is force-loaded or biased to a normally open position. When the laboratory faucet is off, the check valves are closed and the port is open; when the faucet is on, the check valves are open and the port is closed; and

"vacuum breaker, pressure type (PVB)" or "spill resistant pressure type (SRPVB)" means an assembly containing an independently acting check valve force-loaded or

biased, to a normally closed position, and an independently operating air inlet valve force-loaded or biased to a normally open position and located on the discharge side of the check valve. The assembly is equipped with properly located resilient-seated test cocks and tightly closing resilient-seated shutoff valves located at each end of the assembly. The device is designed for use under continuous pressure.

**APPENDIX "B"**  
**to By-Law No. 09- 73 of the Corporation of the Town of Grimsby**

<b>Selection Guide for Backflow Preventers</b>					
		<b>Degree of Hazard</b>			
<b>Type of Device</b>	<b>CSA Standard Designation</b>	<b>Minor</b>	<b>Moderate</b>	<b>Severe</b>	<b>Device Under Continuous Pressure</b>
Air gap		✓	✓	✓	No
AVB	B64.1.1	✓	✓	✓*	No
DCAP	B64.3	✓	✓†	—	Yes
DCAPC	B64.3.1	✓	✓	—	Yes
DCVA	B64.5	✓	✓	—	Yes
DuC	B64.6	✓	—	—	Yes
DuCV	B64.8	✓	✓†	—	Yes
HCDVB	B64.2.11.1	✓	✓†	✓*	No
HCVB	B64.2	✓	✓†	✓*	No
LFV8	B64.7	✓	✓†	✓*	No
PVB	B64.1.2	✓	✓	✓	Yes
RP	B64.4	✓	✓	✓	Yes
SRPVB	B64.1.3	✓	✓	✓	Yes
<p><b>*When the recommended backflow preventer is used for this degree of hazard. Zone protection with an RP backflow preventer or an air gap shall also be required.</b></p> <p><b>† When the recommended. device is used for this degree of hazard, zone or area protection with a DCVA backflow preventer, RP backflow preventer, or an air gap shall also be required.</b></p>					

**APPENDIX "B"**  
**to By-Law No. 09-73 of the Corporation of the Town of Grimsby**

**BACKFLOW PREVENTION GUIDE TO DEGREE OF HAZARD**

<b>Type of Cross Connection</b>	<b>Degree of Hazard</b>	<b>Type of Cross Connection</b>	<b>Degree of Hazard</b>
Agricultural chemicals (sprayers)	Severe	Garbage disposal unit	Severe
Air compressor oil cooler	Moderate	Garbage can washer	Severe
Animal watering Aspirator (toxic)	Moderate	Heat Exchanger	Moderate to Severe
Aspirator (non-toxic)	Severe	Heating System (copper/plastic: no chemicals)	Minor
Autoclave	Moderate	Heating System (no chemicals added)	Moderate
Autopsy and mortuary equipment	Severe	Heating System (chemicals added)	Severe
Auxiliary water supply	Severe	Heating System (single family dwelling)	Moderate
Baptistery	Severe	Hose bib sediment faucet	Minor to Severe
Basin	Moderate	Hose bib, sediment faucet, connected to high hazard	Severe
Bathtub (all)	Moderate	Hose bib, sediment faucet (residential)	Minor to Moderate
Bedpan washer	Moderate	Humidifier	Moderate
Beverage dispensing equipment (no carbonator)	Moderate	Humidifier with sump	Severe
Beverage dispensing equipment (with carbonator)	Minor	Hydrotherapy bath	Severe
	Minor	Ice Machine for commercial restaurant	Moderate to Severe

<b>Type of Cross Connection</b>	<b>Degree of Hazard</b>	<b>Type of Cross Connection</b>	<b>Degree of Hazard</b>
Bidet	Moderate to Severe	Ice making equipment for sports arena	Severe
Bottle Washer	Moderate to Severe	industrial fluid system	Severe
Bread Making equipment	Minor to Moderate	irrigation system (chemical injected)	Severe
Canopy washer	Severe	Irrigation system (no chemical added)	Moderate
Chemical Feed Tank	Severe	Lab bench equipment (toxic)	Severe
Chiller tank (no chemical)	Moderate to Severe	Lab bench equipment (non toxic)	Minor
Chiller tank (with chemical)	Severe	Laboratory	Severe
Chlorinator	Severe	Laboratory Faucet	Moderate to Severe
Clothes washer (residential)	Moderate	laundry, commercial coin-operated	Moderate
Coffee machine	Minor	Laundry machine commercial	Moderate
Condensate tank (top feed)	Moderate	Laundry machine residential	Minor
Condensate tank	Severe	Laundry tub faucet with hose bib connection	Moderate
Cooking Kettle	Minor	Lavatory	Moderate
Cooling Condenser (solenoid upstream)	Minor	Lethal substance	Severe
Cooling Condenser (solenoid downstream)	Severe	Livestock equipment	Severe
Cooling Tower	Severe	Mixing tee with steam and water	Moderate
Deaerator (Top Feed)	Moderate	Mop sink faucet with hose bib connection	Moderate
Deaerator (Bottom Feed)	Severe	Mortuary or Morgue	Severe



<b>Type of Cross Connection</b>	<b>Degree of Hazard</b>	<b>Type of Cross Connection</b>	<b>Degree of Hazard</b>
Degreasing equipment system	Severe	Non-portable water	Severe
Deionized water	Severe	Optician or Ophthalmology equipment	Minor to Moderate
Dental Vacuum pump	Severe	Photo lab sink	Severe
Dental Cuspidor (with internal air gap)	Minor	Pipette washer	Severe
Dental Cuspidor (no air gap)	Severe	Piping to chemical dispensers	Minor to Severe
Dental Delivery System	Minor	Plating tank	Severe
Detergent dispenser	Severe	Potato peeler	Moderate
Dipper well in ice-cream parlour or restaurant	Moderate	Poultry barn	Severe
Dish rinse unit with flex hose	Moderate	Pressure washer (no aspirator)	Minor
Dishwasher (commercial)	Moderate	Pressure washer (with aspirator)	Severe
Dishwasher (residential)	Minor to Moderate	Private fire hydrant	Moderate
Distiller	Minor	Private water source	Severe
Dockside Marine Facility	Severe	Pump primer line (toxic)	Severe
Dry sprinkler or standpipe system	Moderate	Pump primer line (non-toxic)	Moderate
Fire Hydrant	Moderate	Radiator flushing equipment	Severe
Flexible shower head with hose	Minor to Severe	Restricted area	Severe

<b>Type of Cross Connection</b>	<b>Degree of Hazard</b>	<b>Type of Cross Connection</b>	<b>Degree of Hazard</b>
Floor drain with flushing rim	Severe	Reverse osmosis	Minor
Flush Tank	Moderate	Reverse osmosis with backwashing	Moderate
Flushing equipment device	Severe	Reverse osmosis with chemical cleaning	Severe
Flushometer	Severe	Serrated faucet	Severe
Fountain, ornamental	Moderate to Severe	Sewage ejector	Severe
Fountain, ornamental (chemical added)	Severe	Sewage pump	Severe
Fume hood	Severe	Shampoo sink	Moderate
Sizing vat	Severe	Wash rack	Severe
Solar energy unit	Severe	Wash tank	Moderate
Solution tank	Severe	Wash tank (toxic)	Severe
Spa or Hot Tub	Moderate	Water Closet (tank/type)(N/A if constructed after 1995)	Moderate
Specimen Tank	Severe	Water closet (flushometer type)	Moderate
Steam table	Minor to Moderate	Water hauling equipment (non-toxic)	Moderate
Steam generator	Moderate	Water hauling equipment (toxic)	Severe
Steam cleaner	Moderate	Water softener (commercial)	Minor
Sterilizer (condensate cooling only)	Moderate	Water softener drain	Severe
Still	Minor	Wok table (for oriental cooking with submerged inlet)	Moderate

Type of Cross Connection	Degree of Hazard	Type of Cross Connection	Degree of Hazard
Swimming Pool (residential)	Minor		
Swimming pool (other than residential)	Moderate		
Swimming Pool (direct connect)	Moderate		
Swimming pool makeup tank	Moderate		
Teeth cleaning equipment (veterinary type)	Moderate		
Trap primer	Sever		
Vending machine with no carbonators	Minor		
Emergency eyewash/Shower – this equipment must be installed upstream of all zone and source isolation			
<p>Fire Protection Systems.: General Conditions</p> <p>Antifreeze solutions must be water solutions of pure glycerin (C.P. or U.S.P., 96.5% grade) OR propylene glycol conforming to action 3-5.2.1 of NFPA-13, 1994 Edition. These are best described as food-grade chemicals.</p> <p>Antifreeze solutions must be tested to verify compliance with above conditions. Any other antifreeze solution is NOT permitted and must be replaced</p> <p>Expansion chambers shall be of an appropriate size to compensate for thermal expansion of antifreeze solution.</p> <p>An adequate amount of piping before or after the location of any backflow prevention device shall be Increased In size to compensate for the pressure loss created by the device being installed. The flows are to be in accordance with NFPA•13 for the appropriate hazard classification In the area downstream of the backflow prevention device.</p>			

<b>Table 7.6.2.4 Backflow Prevention Devices on fire Sprinkler and Standpipe Systems Form Part of Sentences 7.6.2.4.(2)</b>					
<b>Column 1</b>	<b>Column 2</b>	<b>Column 3</b>	<b>Column 4</b>	<b>Column 5</b>	<b>Column 6</b>
<b>CSA Standard Number</b>	<b>Type of Device</b>	<b>System made with Portable Water System Materials</b>		<b>System Not made with Portable Water System Materials</b>	
		<b>Minor Hazard (2) Residential Partial Flow-Through System</b>	<b>Minor Hazard (2) Class 1 System</b>	<b>Moderate Hazard (2) Class 1,2,3 and 6</b>	<b>Severe Hazard (2) Any Class of System in which Antifreeze or Other Additives are used</b>
B64.6.1	DuC	P	NP	NP	NP
B64.9	SCVA	P	P	NP	NP
B 64.5.1	DCVA	P	P	P	NP
B64.4.1	RP	P	P	P	P
<p><b>Notes to Table 7.6.2.4.:</b>  <b>P -Permitted</b>  <b>NP -Not Permitted</b>  <b>(1)-The product is only permitted for use on fire sprinkler and standpipe systems.</b>  <b>(2)-Minor Hazard, Moderate Hazard and Severe Hazard have the same meaning as Indicated in Can/CSA-S64.10 •Manual for the Selection and installation of Backflow Prevention Devices””.</b></p>					

### APPENDIX 11 811

to By-Law No. 09- 73 of the Corporation of the Town of Grimsby

### BACKFLOW PREVENTION GUIDE TO DEGREE OF HAZARD -PREMISE ISOLATION

<b>Type of Building</b>	<b>Degree of Hazard</b>	<b>Type of Building</b>	<b>Degree of Hazard</b>
Abattoir (slaughter house)	Severe	Paint manufacturing plant	Severe
Airport	Moderate	Penitentiary	Moderate
Animal feed lot	Moderate to Severe	Petroleum processing or storage facility	Severe

Animal stock yard	Moderate to Severe	Pharmaceutical manufacturing facility	Severe
Apartment building (within the scope of Part 3 of the Ontario Building Code.)	Moderate to Severe	Photo processing facility	Severe
Aquaculture farm	Severe	Plant using radioactive material	Severe
Aquarium public}	Severe	Plastic manufacturing plant	Severe
Arena	Moderate	Platina shop	Severe
Asphalt plant	Severe	Poultry Shop	Severe
Auto body shop	Severe	Power generating facility	Severe
Auto dealership	Moderate	Premise where access prohibited	Severe
Automotive Plant	Severe	Printing plant	Severe
Automotive repair shoo	Severe	Pulp and/or paper plant	Severe
Beverage processing plant	Severe	Radiator shop	Severe
Blood clinic	Severe	Recycling facility	Severe
Camp site	Moderate	Refinery, petroleum Processing	Severe
Camp site with RV hookups or dump station	Severe	Rendering facility	Severe
Carwash	Severe	Research building	Severe
Church	Moderate	Residential premises-multi-tenant	Moderate
College	Moderate	Restaurant	Moderate
Commercial premises	Moderate to Severe	School	Moderate
Concrete plant	Severe	Sewage dump station	Severe
Dental office	Moderate	Sewage treatment plant	Severe
Dental surgery facility	Severe	Steam boiler plant	Severe
Dockside marine facility	Severe	Steel manufacturing plant	Severe
Dry cleaning plant	Severe	Storage Warehouse	Moderate

Dry cleaning facility (no dry-cleaning process on premise)	Moderate	Swimming pool facility	Moderate
Duplex housing with shared service	Minor	Technical institute	Moderate
Dye plant	Severe	Townhouse (shared service)	Minor
Exhibition ground	Severe	Track-side facilities for trains	Severe
Farm	Moderate to Severe	University	Moderate to Severe
Film processing faculty	Severe	Veterinary clinic	Moderate to Severe
Fire Service main connected to more than one of the following different sources of supply: (I) City water supply system (II) a private water supply system or (III) a source of non-portable water	Moderate to Severe	Veterinary clinic (special equipment)	Severe
Fire station	Moderate to Severe	Waste disposal	Severe
Fish farm or Hatchery	Severe	Waste water facility	Severe
Food processing plant	Severe	Waste water pump station	Severe
Fuel dispensing facility	Moderate	Waste Water Treatment Plant	Severe
Funeral Home	Moderate to Severe	Water filling station	Severe
Garbage transfer facility	Severe	Water park	Moderate
Golf course	Moderate to Severe	Water treatment plant	Severe
Grocer	Moderate	Water treatment pump station	Severe
Hair salon	Moderate	Zoo	Severe
Hospital	Severe		
Hotel	Moderate		
Industrial and Institutional	Moderate to Severe		
Kennel	Moderate		
Laboratory	Severe		
Laundry (commercial)	Severe		

Laundry) commercial coln-operated)	Moderate		
Mall - multi-tenant	Moderate		
Manufacturing Plant (not specified)	Moderate		
Marina (pleasure boat)	Moderate to Severe		
Meat Packing plant	Severe		
Medical clinic (non surgical)	Moderate		
Medical clinic (surgical)	Severe		
Milk processing plant	Severe		
Mining facility	Severe		
Mobile home park	Moderate		
Mortuary or morgue	Severe		
Motel	Moderate		
Motor cycle repair facility	Severe		
Nursing Home	Moderate		
Office Building	Moderate		
Oil Refinerv	Severe		