

**By-law Number (2016)-20028**

A by-law to amend By-law Number (1991)-13791 as previously amended by By-law Number (2008)-18660, relating to backflow into the City's water public utility.

**Whereas**

the City is authorized under the **Municipal Act, 2001** to provide a water public utility and to regulate backflow into the City's water supply;

**And whereas**

the City has enacted By-law Number (1991)-13791 to regulate the supply of water;

**And whereas**

the City has enacted By-law Number (2008)-18660 to amend By-law Number (1991)-13791 to regulate backflow into the City's water supply;

**And whereas**

the City wishes to update its by-laws regulating backflow into its water public utility;

**And whereas**

the City wishes to create under the **Municipal Act, 2001**, a stand-alone by-law with respect to Backflow Prevention;

**And whereas**

the City has enacted By-law Number (2009)-18776 to regulate the power of entry onto land and to apply to any by-law of the City passed under the **Municipal Act, 2001**;

**The Council of the Corporation of the City of Guelph 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:

**"accredited organization"** means a governing body that certifies individuals in the field of backflow prevention, including The Ontario

Water Works Association (OWWA), and American Society Of Sanitary Engineers (ASSE).

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

**"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 premises, any water supply on or available to the premises other than the primary **potable water system** for the premises;

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

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

**"building"** shall have the same meaning as set out in the Building Code Act, S.O.1992, chapter 23, as amended, or any successor thereof;

**"City"** means the Corporation of the City of Guelph and includes its employees, servants and agents;

**"cross connection"** means any actual or potential connection between a system providing potable water 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 **City** containing information related to the types of **cross connections** 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 **B64.10-11/B64.10.1-11 Selection and installation of backflow preventers/Maintenance and field testing of backflow preventers** published in 2011 by the Canadian Standards Association, 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 system"** means water that is supplied by the **City**;

**"premise isolation"** means isolation of the water located within a **building** or **structure** from the **City's** water supply;

**"property"** means any land within the City of Guelph and includes all **buildings** or **structures**;

**"qualified person"** means a person who is certified by an accredited organization;

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

**"untreated water"** means any water not subject to the requirements of the Safe Drinking Water Act, and/or water that is not under the direct control of the Water Purveyor;

**"water meter"** means the **water meter** installed within a premises to record the amount of water supplied to such premises by the **City**; and

**"zone isolation"** means the isolation of non-potable 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** of residential occupancies as described in Division A, Article 1.1.2.4. of

Ontario Regulation 332/12 (the Ontario Building Code) or any successor thereof.

- 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 system**.

#### **4. Cross connection prohibited**

4.0 No **person** or **owner** shall connect, cause to be connected, or allow to remain unconnected to the **City's 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 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, area isolation** and **zone isolation** in every **building** or **structure**.

#### **5. Persons permitted to carry out work**

5.0 Only the persons listed in the **authorized functions list** shall carry out the corresponding functions set out in such list.

5.1 Every **qualified person** shall complete and pass a cross-connection control course in backflow preventer testing, and shall have a certificate issued by an **accredited organization**.

5.2 Every **qualified person** must maintain active status with an **accredited organization** and provide proof of same to **City**.

#### **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 of this by-law shall prevail.

#### **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, every **five** years or as otherwise required by the **City**, cause to be carried out a survey of each of his or her **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 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 **City** within 14 days of the survey being conducted.
- 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, area** or **zone isolation** shall be determined:
  - 7.2.1 using the **Selection Guide**,
  - 7.2.2 from section 8 of this by-law, or
  - 7.2.3 when the type of **cross connection** is not identified in the **Selection Guide**, by the **City**;
- 7.3 Despite section 7.2 of this by-law, the **City** may require or permit 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 **City** may permit an existing **backflow prevention device** if previously approved and as long as the safety of the **potable water system** is maintained to the satisfaction of the **City** 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. **Auxiliary water supply**

- 8.0 Buildings of residential occupancy that are exempted from this by-law in section 3.0, are required to be protected if they have access to an **auxiliary water supply**.
  - 8.0.1 **Premise isolation** shall be provided by a dual check valve.
  - 8.0.2 The **potable water system** shall be protected by a dual check valve for **source isolation** where a clothes washer is supplied by both an **auxiliary water supply** and a **potable water system**.

8.0.3 The **potable water system** shall be protected by a reduced pressure backflow assembly or an air gap for **source isolation** where make up water is provided for an **auxiliary water supply**.

8.1 Buildings that are not supplied by the **potable water system** shall have all **cross connections** protected.

## 9. Installation of backflow prevention devices

9.0 Every person installing a **backflow prevention device** shall ensure that:

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

9.0.2 such device is located in such a manner so that in the event of **backflow** the device prevents contamination of the **potable water system**;

9.0.3 where such device is installed in respect of **premise isolation**, such device is located within a maximum of 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 **City**;

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

9.0.5 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 labelled "non-potable water".

9.1 Every **owner** shall ensure that a backflow prevention device is installed where required by this by-law.

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

## 10. Testing of devices

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

10.0.1 except as permitted in section 10.3 and 10.4, such device is tested by a **qualified person** when it is first installed and annually thereafter or when requested by the **City** and also when it is cleaned, repaired, overhauled or relocated;

10.0.2 a **test report** is provided to the **City** within 14 days of the test being conducted;

- 10.0.3 in the event that such device is malfunctioning or otherwise not in proper working order, the device is immediately repaired or replaced; and
- 10.0.4 In the event that the water supply to the device cannot be shut down in order to facilitate annual testing, a parallel system shall be installed, with a suitable **backflow prevention device** installed to allow for annual testing of both devices.
- 10.1 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.
- 10.2 Every person who tests a **backflow prevention device** shall:
- 10.2.1 provide a legible **test report** to the **owner** in respect of such test;
- 10.2.2 upon completing such test, complete and affix a **test tag** to the device or immediately adjacent to the device on the piping connected thereto.
- 10.3 Any building with **premise isolation** that is considered a minor hazard and has no other **cross connections** that require a testable device may have its **premise isolation device** tested every 5 years.
- 10.4 Buildings with an **auxiliary water supply** referenced in section 8 of this by-law with a reduced pressure backflow assembly shall have the device tested annually.

## **11. Inspections**

- 11.0 Buildings with an **auxiliary water supply** referenced in section 8 of this by-law shall be inspected by the City every 5 years to ensure no other **cross connections exist**.

## **12. General provisions**

- 12.0 In addition to any other provision of this by-law, the **City** 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**.
- 12.1 Where an **owner** does not comply with any provision of this by-law, the **City** may:
- 12.1.1 order the **owner** to comply with the by-law 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;
- 12.1.2 shut off the water supply to the **property** or any portion thereof until such time as all provisions of this by-law are met.

12.2 Appendices "A" and "B" shall form part of this by-law.

**13. Penalties**

13.0 Every person who contravenes any provision of this by-law is guilty of an offence.

13.1 A person convicted of an offence under this by-law is liable, on a first conviction, to a fine of not more than \$10,000 and, on a subsequent conviction, to a fine of not more than \$25,000.

**14. Amending prior by-laws**

14.0 By-law Number (1191)-13791, as amended by By-law Number (2008)-18660, be and hereby is amended by deleting section 33 in its entirety and Schedule "A" in its entirety.

**PASSED this TWENTY-FIRST day of MARCH, 2016.**



**Cam Guthrie, Mayor**



**STEPHEN O'BRIEN - CITY CLERK**



## Appendix "A"

Of City of Guelph By-law Number (2016)-20028

### Authorized Functions List

Function Item	Journeyperson Plumber with Tester's License	Apprentice Plumber with Tester's License <sup>1</sup>	Journeyperson Sprinkler and Fire Protection Installer with a Tester's License	Apprentice Fire Sprinkler and Fire Protection Installer with a Tester's License <sup>2</sup>	Lawn Irrigation System Installer with Tester's License
<b>1.</b> Carry out Cross Connection Control Survey	Authorized	Not authorized	Not authorized	Not authorized	Not authorized
<b>2.</b> Install, Relocate or Replace Backflow Prevention Device	Authorized	Authorized	Not authorized	Not authorized	Not authorized
<b>3.</b> Repair of Backflow Prevention Device	Authorized	Authorized	Authorized	Authorized	Not authorized
<b>4.</b> Test Backflow Prevention Device	Authorized	Authorized	Authorized	Authorized	Not authorized
<b>5.</b> Items 1, 2, 3 & 4 above in Respect of Fire Protection Systems	Authorized	Authorized	Authorized	Authorized	Not authorized
<b>6.</b> Items 2 (up to 1 inch), 3 & 4 above in Respect of Lawn Sprinkler Systems	Authorized	Authorized	Not authorized	Not authorized	Authorized

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<sup>1</sup> Required to work under the direct supervision of a Journeyperson Plumber.

<sup>2</sup> Required to work under the direct supervision of a Journeyperson Sprinkler Fitter.

## Appendix "B"

Of City of Guelph By-law Number (2016)-20028

### Backflow Prevention Device Selection Guide

#### Interpretation

In addition to those terms defined in section 2.0 of By-law "A", 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, air space type (ASVB)" means a manufactured device with a visible integral space between the inlet and outlet of the fitting that prevents backflow;

"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, hose connection type (HCVB), (HCDVB)" means a vacuum breaker consisting of a single or double force-loaded check valve biased to a normally closed position. Downstream of the check valve is a means of automatically venting to atmosphere that is force-loaded or biased to a normally open position. If there is no flow through the device, the check valve is closed and the vent is open. The device is 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;

### **Backflow Prevention Guide to Degree of Hazard**

<b>Type of Cross Connection</b>	<b>Degree of Hazard</b>
Agricultural chemicals (sprayers)	Severe
Air compressor oil cooler	Moderate
Animal watering	Moderate
Aspirator (toxic)	Severe
Aspirator (non-toxic)	Moderate
Autoclave	Severe
Autopsy and mortuary equipment	Severe
Auxiliary water supply	Severe
Baptistery	Moderate
Basin	Moderate
Bathtub (all)	Moderate
Bedpan washer	Severe
Beverage dispensing equipment (no carbonator)	Minor
Beverage dispensing equipment (with carbonator)	Moderate
Bidet	Moderate to Severe
Bottle washer	Moderate to Severe
Bread making equipment	Minor to Moderate
Canopy washer	Severe
Chemical feed tank	Severe
Chiller tank (no chemical)	Moderate to Severe
Chiller tank (with chemical)	Severe
Chlorinator	Severe
Clothes washer (residential)	Moderate
Coffee machine	Minor
Condensate tank (top feed)	Moderate
Condensate tank	Severe
Cooking kettle	Minor
Cooling condenser (solenoid upstream)	Minor
Cooling condenser (solenoid downstream)	Severe
Cooling tower	Severe
De-aerator (top feed)	Moderate
De-aerator (bottom feed)	Severe
Degreasing equipment system	Severe
Deionized water	Severe

<b>Type of Cross Connection</b>	<b>Degree of Hazard</b>
Dental Vacuum pump	Severe
Dental Cuspidor (with internal air gap)	Minor
Dental Cuspidor (no air gap)	Severe
Dental Delivery system	Minor
Detergent dispenser	Severe
Dipper well in ice-cream parlour or restaurant	Moderate
Dish rinse unit with flex hose	Moderate
Dishwasher (commercial)	Moderate
Dishwasher (residential)	Minor to Moderate
Distiller	Minor
Dockside Marine Facility	Severe
Dry sprinkler or standpipe system	Moderate
Fire Hydrant	Moderate
Flexible shower head with hose	Minor to Severe
Floor drain with flushing rim	Severe
Flush tank	Moderate
Flushing equipment device	Severe
Flushometer	Severe
Fountain, ornamental	Moderate to Severe
Fountain, ornamental (chemical added)	Severe
Fume hood	Severe
Garbage disposal unit	Severe
Garbage can washer	Severe
Heat Exchanger	Minor to Severe
Heating System (copper/plastic; no chemicals)	Minor
Heating System (no chemicals added)	Moderate
Heating System (chemicals added)	Severe
Heating System (single family dwelling)	Moderate
Hose bib, sediment faucet	Minor to Severe
Hose bib, sediment faucet, connected to high hazard	Severe
Hose bib, sediment faucet (residential)	Minor to Moderate
Humidifier	Moderate
Humidifier with sump	Severe
Hydrotherapy bath	Moderate
Ice Machine for commercial restaurant	Moderate to Severe
Ice making equipment for sports arena	Severe
Industrial fluid system	Severe
Irrigation system (chemical injected)	Severe
Irrigation system (no chemical added)	Moderate
Lab bench equipment (toxic)	Severe
Lab bench equipment (non toxic)	Minor
Laboratory	Severe
Laboratory Faucet	Moderate to Severe
Laundry, commercial coin-operated	Moderate
Laundry machine, commercial	Moderate

<b>Type of Cross Connection</b>	<b>Degree of Hazard</b>
Laundry machine, residential	Minor
Laundry tub faucet with hose bib connection	Moderate
Lavatory	Moderate
Lethal substance	Severe
Livestock equipment	Severe
Mixing tee with steam and water	Moderate
Mop sink faucet with hose bib connection	Moderate
Mortuary or Morgue	Severe
Non-potable water	Severe
Optician or Ophthalmology equipment	Minor to Moderate
Pedicure Chair	Moderate to Severe
Photo lab sink	Severe
Pipette washer	Severe
Piping to chemical dispensers	Minor to Severe
Plating tank	Severe
Potato peeler	Moderate
Poultry barn	Severe
Pressure washer (no aspirator)	Minor
Pressure washer (with aspirator)	Severe
Private fire hydrant	Moderate
Private water source	Severe
Pump primer line (toxic)	Severe
Pump primer line (non-toxic)	Moderate
Radiator flushing equipment	Severe
Restricted area	Severe
Reverse osmosis	Minor
Reverse osmosis with backwashing	Moderate
Reverse osmosis with chemical cleaning	Severe
Serrated faucet	Severe
Sewage ejector	Severe
Sewage pump	Severe
Shampoo sink	Moderate
Sizing vat	Severe
Solar hot water systems (residential - no chemicals added)	Minor to Moderate
Solar hot water systems (residential - relatively harmless heat transfer fluid)	Minor to Moderate
Solar hot water systems (residential - toxic heat transfer fluid)	Severe
Solar hot water systems (commercial - single wall heat exchanger)	Moderate to Severe
Solar hot water systems (all types double wall heat exchanger)	Minor
Solar hot water systems (make-up water connection to the heat transfer piping loop)	Minor to Severe

<b>Type of Cross Connection</b>	<b>Degree of Hazard</b>
Solution tank	Severe
Spa or hot tub	Moderate
Specimen tank	Severe
Steam table	Minor to Moderate
Steam generator	Moderate
Steam cleaner	Moderate
Sterilizer (condensate cooling only)	Moderate
Sterilizer (connection into chamber)	Severe
Still	Minor
Swimming pool (residential)	Minor
Swimming pool (other than residential)	Moderate
Swimming pool (direct connection)	Moderate
Swimming pool makeup tank	Moderate
Teeth cleaning equipment (veterinary type)	Moderate
Trap primer	Severe
Vending machine with no carbonators	Minor
Wash rack	Severe
Wash tank	Moderate
Wash tank (toxic)	Severe
Water closet (tank type)(N/A if constructed after 1995)	Moderate
Water closet (flushometer type)	Moderate
Water hauling equipment (non-toxic)	Moderate
Water hauling equipment (toxic)	Severe
Water softener, commercial	Minor
Water softener drain	Moderate
Wok table (for oriental cooking with submerged inlet	Moderate
X-ray equipment	Severe

**Emergency eyewash/Shower: this equipment must be installed upstream of all zone and source isolation.**

### **Fire Protection Systems - General Conditions**

- Antifreeze solutions must be water solutions of pure glycerin (C.P. or U.S.P., 96.5% grade) OR propylene glycol conforming to NFPA-13. These are best described as food-grade chemicals.
- Antifreeze solutions must be **tested** to verify compliance with above conditions. Any other antifreeze solution is NOT permitted and must be replaced.
- Expansion chambers shall be of an appropriate size to compensate for thermal expansion of antifreeze solution.
- 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**.

**Backflow Prevention Devices on fire Sprinkler and Standpipe Systems**  
**Forming part of sentences 7.6.2.4 (2)**

CSA Standard Number	Type of Device <sup>1</sup>	System Made With Potable Water System Materials	System Made with Potable Water System Materials	System not Made with Potable Water System materials	System not Made with Potable Water System Materials
		Minor Hazard <sup>2</sup> Residential Partial Flow-Through System	Minor Hazard <sup>2</sup> Class 1 System	Moderate Hazard <sup>2</sup> Class 1, 2, 3 and 6 Systems	Severe Hazard <sup>2</sup> Any Class of System in which Antifreeze or Other Additives are used
B64.6.1	DuC	Permitted	Not Permitted	Not Permitted	Not Permitted
B64.9	SCVA	Permitted	Permitted	Not Permitted	Not Permitted
B64.5.1	DCVA	Permitted	Permitted	Permitted	Not Permitted
B64.4.1	RP	Permitted	Permitted	Permitted	Permitted

<sup>1</sup> The product is only permitted for use on fire sprinkler and standpipe systems.

<sup>2</sup> Minor Hazard, Moderate Hazard and Severe Hazard have the same meaning as indicated in Can/CSA-B64.10 Manual for the Selection and Installation of **Backflow Prevention Devices**.



## Backflow Prevention Guide to Degree of Hazard - Premise Isolation

Type of Building	Degree of Hazard
Abattoir (slaughter house)	Severe
Airport	Moderate
Animal feed lot	Moderate to Severe
Animal stock yard	Moderate to Severe
Apartment building (within scope of Part 3 of the OBC)	Moderate
Aquaculture farm	Severe
Aquarium (public)	Severe
Arena	Moderate
Asphalt plant	Severe
Auto body shop	Severe
Auto dealership	Moderate
Automotive Plant	Severe
Automotive repair shop	Severe
Beverage processing plant	Severe
Blood clinic	Severe
Camp site	Moderate
Camp site with RV hookups or dump station	Severe
Car wash	Severe
Church	Moderate
College	Moderate
Commercial premises	Minor to Severe
Concrete plant	Severe
Dental office	Moderate
Dental surgery facility	Severe
Dockside marine facility	Severe
Dry cleaning plant	Severe
Dry cleaning facility (no dry cleaning process on premise)	Moderate
Duplex housing with shared service	Minor
Dye plant	Severe
Exhibition ground	Severe
Farm	Moderate to Severe
Film processing facility	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-potable water	Moderate to Severe
Fire station	Moderate to Severe
Fish farm or hatchery	Severe
Food processing plant	Severe
Fuel dispensing facility	moderate
Funeral Home	Moderate to Severe
Garbage transfer facility	Severe
Golf course	Moderate to Severe

<b>Type of Building</b>	<b>Degree of Hazard</b>
Grocer	Moderate
Hair salon	Moderate
Hospital	Severe
Hotel	Moderate
Industrial and Institutional	Moderate to Severe
Kennel	Moderate
Laboratory	Severe
Laundry (commercial)	Severe
Laundry (commercial, coin-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
Multi-service interconnected Facility	Moderate
Nursing Home	Moderate
Office Building	Minor to Moderate
Oil Refinery	Severe
Paint manufacturing plant	Severe
Penitentiary	Moderate
Petroleum processing or storage facility	Severe
Pharmaceutical manufacturing facility	Severe
Photo processing facility	Severe
Plant using radioactive material	Severe
Plastic manufacturing plant	Severe
Plating shop	Severe
Poultry farm	Severe
Power generating facility	Severe
Premise where access prohibited or restricted	Severe
Printing plant	Severe
Pulp and/or paper plant	Severe
Radiator shop	Severe
Recycling facility	Severe
Refinery, petroleum processing	Severe
Rendering facility	Severe
Research building	Severe
Residential premises-multi- tenant	Moderate
Restaurant	Moderate

<b>Type of Building</b>	<b>Degree of Hazard</b>
School	Moderate
Sewage dump station	Severe
Sewage treatment plant	Severe
Shopping Mall	Moderate
Steam boiler plant	Severe
Steel manufacturing plant	Severe
Storage Warehouse	Moderate
Swimming pool facility	Moderate
Technical institute	Moderate
Townhouse (shared service)	Minor
Track-side facilities for trains	Severe
University	Moderate to Severe
Veterinary clinic	Moderate to Severe
Veterinary clinic (special equipment)	Severe
Waste disposal	Severe
Waste water facility	Severe
Waste water pump station	Severe
Waste water treatment plant	Severe
Water filling station	Severe
Water park	Moderate
Water treatment plant	Severe
Water treatment pump station	Severe
Zoo	Severe

## Selection Guide for Backflow Preventers

Type of Device	CSA Standard Designation	Minor Degree of Hazard	Moderate Degree of Hazard	Sever Degree of Hazard	Device Under Continuous Pressure
Air gap	Not applicable	Permitted	Permitted	Permitted	No
ASVB	B64.1.4	Permitted	Permitted	Permitted	No
AVB	B64.1.1	Permitted	Permitted	Permitted <sup>1</sup>	No
DCAP	B64.3	Permitted	Permitted <sup>2</sup>	Not permitted	Yes
DCAPC	B64.3.1	Permitted	Permitted	Not permitted	Yes
DCVA	B64.5	Permitted	Permitted	Not permitted	Yes
DuC	B64.6	Permitted	Not permitted	Not permitted	Yes
DuCV	B64.8	Permitted	Permitted <sup>2</sup>	Not permitted	Yes
HCDVB	B64.2.1.1	Permitted	Permitted <sup>2</sup>	Permitted <sup>1</sup>	No
HCVB	B64.2	Permitted	Permitted <sup>2</sup>	Permitted <sup>1</sup>	No
LFVB	B64.7	Permitted	Permitted <sup>2</sup>	Permitted <sup>1</sup>	No
PVB	B64.1.2	Permitted	Permitted	Permitted	Yes
RP	B64.4	Permitted	Permitted	Permitted	Yes
SRPVB	B64.1.3	Permitted	Permitted	Permitted	Yes

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<sup>1</sup> 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.

<sup>2</sup> When the recommended device is used for this degree of hazard, area protection with a DCVA **backflow** preventer, or an air gap shall also be required.