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By-law 38-2023

A By-law to Enforce Cross Connections are Protected with Backflow Prevention Devices

Whereas subsection 11(2) of the *Municipal Act, 2001*, SO 2001 c. 25, as amended (the "Municipal Act") authorizes an upper-tier municipality to pass a by-law related to the health, safety and well-being of the inhabitants of persons; and

Whereas under subsection 20(1) of the *Safe Drinking Water Act, 2002*, SO 2002 c. 32 it is an offence to cause or permit anything to enter a drinking-water system if it could result in, a drinking-water hazard, a contravention of a prescribed standard or the interference with the normal operation of the system; and

Whereas subsection 7(1) of the *Building Code Act*, 1992, SO 1992 c. 23, as amended (the "Building Code Act"), authorizes the council of an upper-tier municipality that has entered into an agreement with a local municipality under subsection 3(5) of that Act to pass by-laws applicable to matters for which and in the area in which the upper-tier municipality has the jurisdiction for the enforcement of that Act; and

Whereas Division B Part 7, section 7.6.2 of the Ontario Building Code, being O Reg 332/12 made under the Building Code Act, requires potable water systems to be protected from contamination; and

Whereas contamination of a drinking-water system can have an adverse impact on the health, safety, and well-being of the users; and

Whereas section 436 of the Municipal Act authorizes a municipality to pass by-laws providing that the municipality may enter on land at any reasonable time for the purposes of carrying out an inspection to determine whether a by-law, direction or order of the municipality is being complied with; and

Whereas the County desires to protect the health, safety and well-being of the inhabitants of the county by passing a by-law to put mechanisms in place so as not to permit the discharging of a contaminating substance into drinking-water systems;

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Now Therefore Be It Enacted as a by-law of the Council of the Corporation of the County of Northumberland as follows:

1. **That** the mechanisms to enforce Backflow Prevention Regulations be adopted in accordance with Schedule “A”, “B”, and “C” attached hereto and forming part of this by-law; and

2. **That** should any provision or application of this by-law be held by a court of competent jurisdiction to be invalid, illegal, or unenforceable, it is the intent of the Council passing this By-law that such invalidity should not affect any other provisions or applications of this By-law which can be given effect without the invalid provision or application, and to this end the provisions of this By-law shall be deemed separate and independent and may be applied and enforced in accordance with its terms to the fullest extent possible according to law.

That By-law 38-2023 be introduced and be deemed to be read a first, second and third time, passed, signed and sealed this 13th day of December, 2023.

_____

, Warden

_____

Maddison Mather, Clerk

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Schedule “A” to By-law 38-2023

1.0 Short Title

1.1 This Schedule may be cited as the “Backflow Prevention Regulations”.

2.0 Interpretation

2.1 For the purposes of this Schedule, 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”

“auxiliary water supply” means, when applied to any premises, any water supply on or available to the premises other than the primary potable water supply for the premises;

“backflow” means the flowing back of or reversal of the normal direction of the flow;

“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, 1992, S.O. 1992, chap. 23, as amended, or any successor thereof;

“County” means Northumberland County and includes its employees, servants and agents;

“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 County containing information related to the types of cross connections and the method of protecting those cross connections within any building, structure, or property. The form must also contain owner and contact information for the property;

“CSA Standard” means the document entitled B64.10-17 ‘Selection and installation of backflow preventers/Maintenance and field testing of backflow preventers’ published by the CSA Group (formerly the Canadian Standards

Association), as may be amended from time to time and including any successor thereof, and including Annex B & C;

“drinking-water” means drinking water as defined in subsection 2(1) of the Safe Drinking Water Act, 2002, S.O. 2002, chap. 32 (the “Safe Drinking Water Act”), as follows:

a) Water intended for human consumption, or

b) Water that is required by an Act, regulation, order, municipal by-law or other document issued under the authority of an Act,

   i) to be potable, or

   ii) to meet or exceed the requirements of the prescribed drinking water quality standards.

“dwelling unit” means a suite operated as a housekeeping unit, used or intended to be used by one or more persons and usually containing or having access to cooking, eating, living, sleeping and sanitary facilities:

"Inspector" means a Plumbing or Sewage System Inspector or intern Inspector appointed by By-law by the County;

“Municipality” means the employees, servants and agents serving:

a) Township of Alnwick/Haldimand
b) Municipality of Brighton
c) Town of Cobourg
d) Township of Cramahe
e) Township of Hamilton
f) Municipality of Trent Hills
g) Municipality of Port Hope

“municipal drinking-water system” means municipality drinking-water system as defined in subsection 2(1) of the Safe Drinking Water Act as follows:

A drinking-water system or part of a drinking-water system,

a) that is owned by a municipality or by a municipal service board established under the Municipal Act,

b) that is owned by a corporation established under sections 9, 10 and 11 of the Municipal Act in accordance with Section 203 of the Municipal Act;

c) from which a municipality obtains or will obtain drinking-water under the terms of a contract between the municipality and the owner of the system, or

d) that is in a prescribed class.

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

"person" includes a corporation;

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

"premise isolation" means isolation of the potable water distribution system located within a building, structure, or property from the Municipality's water supply or private potable water supply or untreated water supply;

"property" means any land within the County and includes all buildings or structures;

"qualified person" means a person who is employed by a company that is licensed as a tester of backflow prevention devices

"Selection Guide" means the Backflow Prevention Device Selection Guide as set out in Appendix B and the CSA Standard and Annex B, whichever is more restrictive;

"Senior Inspector (SI)" means the Senior Plumbing and Sewage System Inspector appointed by County by-law, giving the same powers of a Chief Building Official where it applies to Part 7 and Part 8, plumbing and sewage systems;

"source isolation (point of use)" means isolation of the water located within or having flowed through a source or potential source of contamination within a building, structure or property 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;

"suite" means a single room or series of rooms of complementary use, operated under a single tenancy, and includes:

a) Dwelling units,

b) Individual guest rooms in motels, hotels, boarding houses, rooming houses and dormitories, and

c) Individual stores and individual or complementary rooms for business and personal services occupancies

"test report" means a test report acceptable to the County containing information related to a 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 County 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 owner of a drinking water system;

"water meter" means the water meter installed to record the amount of water supplied to such premises by the Municipality; and

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

3.0 Application of Schedule

3.1 Except as provided in 3.2 and 3.3 below, this Schedule applies to existing premise isolation for Industrial, Commercial, Institutional, and multi residential buildings or facilities where a moderate hazard or severe hazard may be caused by backflow and includes existing minor, moderate and severe hazards for zone and source isolation as defined in Appendix B.

3.2 This schedule does not apply to buildings of residential occupancy within the scope of Ontario Regulation 332/12 (Ontario Building Code) Division B Part 9 as defined in Division A 1.1.2.4, whereby the building is 3 or fewer storeys in building height and having a building area not exceeding 600 square meters and is not used as a retirement home.

3.3 In addition to and notwithstanding section 3.1 and 3.2 herein, this Schedule applies to any property in a Municipality where a condition exists in any building or structure that may be hazardous or detrimental to the potable water supply.

4.0 Notice to Owners

4.1 Owners with buildings or facilities to which this Schedule applies will receive a notice informing them of this Schedule and its requirements.

4.2 Where an owner or other person receives a notice described in section 4.1, they shall:

a) cause a cross connection control survey and testing of installed backflow prevention devices within 30 days of the date noted on the notice; and

b) ensure the cross connection control survey form and any test reports are submitted to the SI within 72 hrs of completion for review.

4.3 Upon completion of the cross connection control survey review, the County shall provide the owner and any other persons the County deems necessary with a further notice informing them the cross connection control survey is complete. The further notice shall identify:

a) If acceptable no further work is required until a new cross connection control survey is required by this Schedule or the owner is found in contravention of 5.1 of this By-law.; or

b) If remediation work is required, and the time frame required for the completion of that work.

4.4 Where a notice referred to in section 4.3 requires further remediation work, the owner and/or any other person identified in the notice shall ensure that the work is completed within the time identified in the notice.

4.5 Time frames or deadlines referred to in in subsections 4.2 (a) & (b) or 4.3(b), or in section 4.4, may be extended by the SI where they are satisfied that the extension is justified. Any request for an extension of time under this section shall be made to the SI, in writing, and shall include:

a) Date of request
b) Owners' name
c) Address of the property
d) Type of building or facility
e) Hazard of the property in accordance with Appendix B
f) Length of extension time requested
g) Reason for requesting the time extension
h) A detailed plan, complete with dates for compliance with this Schedule.

5.0 Cross Connection Prohibited

5.1 No person or owner shall connect, cause to be connected, or allow to remain connected to a municipal drinking water system or any other potable water system any cross connection 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 Schedule.

5.2 In addition to section 5.1 and in accordance with all other provisions of this Schedule, every owner of property to which this Schedule applies shall ensure that

a backflow prevention device is installed in respect of premise isolation, source isolation and zone isolation in every building, structure or property connected to a municipal drinking water system or other potable water system or supply.

5.3 No person or owner shall remove an installed backflow prevention device except in accordance with the requirements of this Schedule or the Ontario Building Code.

5.4 No person or owner shall connect, cause to be connected, or allow to remain connected to a municipal drinking water system any auxiliary water supply without written approval from the owner of that system.

5.5 Where a property as identified in 3.1 has a hazard classification change, which results in a different type of backflow prevention device being required, the owner shall ensure the SI is notified in writing and shall include the reason for the change in the property's hazard classification within 72 hrs of the change.

6.0 Persons Permitted To Carry Out Work

6.1 Only the persons listed in Appendix "A" the Authorized Functions List shall carry out the corresponding functions set out in such list.

In addition to the qualifications listed in Appendix "A" a person permitted to perform the Cross Connection Control Surveys or testing of backflow preventers shall also have and submit proof of the following qualifications in a form satisfactory to the County:

a) a testers certificate issued by the American Water Works Association, "AWWA", American Society of Inspectors of Plumbing and Sanitary Engineers "ASSE" or approved equivalent which has been issued or renewed within five years prior to date of the submission of the cross connection Control Survey or Preventer Test Report, and

b) a current calibration certificate for the test equipment issued within the twelve months prior to the date of submission of a preventer test report.

7.0 Application of CSA Standard

7.1 Except as otherwise set out in this Schedule, the selection, installation, maintenance and field testing of backflow prevention devices shall be in accordance with Schedule B and the CSA Standard whichever is more restrictive.

7.2 Wherever the CSA Standard and this Schedule are in conflict, the provisions of this Schedule shall prevail and wherever the Schedule is in conflict with the Ontario Building Code, the Ontario Building Code (OBC) shall prevail.

8.0 Selection of Backflow Prevention Devices

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8.1 Every owner of a building, structure or property to which this Schedule applies shall, every five years from the date of the original survey or as otherwise required by the County, cause to be carried out a survey of each of their buildings, structures and property with respect to all existing cross connections and all existing and required backflow prevention devices and:

a) 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

b) shall ensure that the completed cross connection control survey form is provided to the County within 72 hrs of the survey being conducted.

8.2 Every owner shall ensure that every required backflow prevention device used or allowed to be used for premise isolation on their property is a testable device and is the proper device to be used pursuant to section 8.3 of this Schedule or is otherwise permitted under sections 8.4-8.6 of this Schedule.

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

a) Appendix B and if not identified therein, using the CSA Standard; or

b) when the type of cross connection is not identified in Appendix B or the CSA Standard, by an Ontario professional engineer and the device selection approved by the SI;

8.4 Despite section 8.3 of this Schedule, the SI may require or permit a particular backflow prevention device to be used in respect of any cross connection.

8.5 Despite section 8.3 of this Schedule, the SI may permit an existing backflow prevention device if previously approved and provided the safety of the potable water supply is maintained to the satisfaction of the County in its sole discretion.

8.6 Despite section 8.3 of this Schedule, 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 Appendix B and/or the CSA Standard. These cross connections are to be indicated on the cross connection control survey form.

9.0 Installation of Backflow Prevention Devices

9.1 Every person installing a backflow prevention device shall ensure that a plumbing permit is obtained and:

a) such device is installed in accordance with manufacturers specifications, the Ontario Building Code and the requirements of the CSA Standard;

b) such device is located in such a manner so that in the event of backflow the device prevents contamination of the Municipality's water supply and any other potable water system;

c) where such device is installed in respect of premise isolation, as required by the CSA Standard, 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 owner of the municipal drinking water system;

d) 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" along the length of the pipe;

e) 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";

f) non-potable water piping shall be identified by markings that are permanent, distinct and easily recognized along the length of the pipe;

g) a sign containing the words NON-POTABLE, DO NOT DRINK in letters at least 25mm high with a 5mm strike and shall be posted immediately above a fixture that is permitted to receive non-potable water in accordance with the OBC;

h) non-potable water piping shall not be located where food is prepared in a food processing plant or above food-handling equipment or above a non-pressurized potable water tank or above a cover of a pressurized water tank;

i) an outlet from a non-potable water system shall not be located where it can discharge into a sink or lavatory, a fixture to which an outlet from a potable water system is discharged or a fixture that is for a purpose related to the preparation, handling or dispensing of food, drink or products that are intended for human consumption.

j) notwithstanding anything in Part 5.0 herein, an outlet from a rainwater system conforming to the OBC is permitted to be used as water supply for a clothes washer, laundry tray, mop sink, bed pan washers, water closets, urinals, hose bibs, sub-surface irrigation, or the priming of traps.

k) notwithstanding anything in part 5.0 herein, storm sewage or greywater conforming to the OBC is permitted to be used as water supply for water closets, urinals, sub-surface irrigation, or the priming of traps.

l) piping downstream of a backflow prevention device shall be protected from expansion and contraction caused by temperature change or building shrinkage

m) piping, other than piping used for a fire suppression system, subjected to a static pressure exceeding 550 kPa (79.7 psi) must be reduced using a pressure reducing valve.

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.

10.0 Testing of Devices

10.1 Every owner who has a backflow prevention device located on their property shall ensure that:

a) such device is tested by a qualified person pursuant to Appendix A when it is first installed and annually thereafter or when requested by the County and also when it is cleaned, repaired, overhauled or relocated;

b) a test report is to be provided by the owner or other person acting on the owner's behalf to the SI within 72 hrs. of the test being conducted;

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

d) 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.

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

10.3 Every person who tests a backflow prevention device shall:

a) provide a legible test report to the owner in respect of such test;

b) 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

c) upon finding that such device is malfunctioning or otherwise not in proper working order, immediately notify the owner and the SI of such condition in writing.

10.4 No person shall cause a test tag affixed in accordance with 10.3 b) to be removed.

11.0 Inspections

11.1 the County may enter on land at any reasonable time for the purposes of carrying out an inspection to determine whether this schedule or any notice or order issued pursuant to this schedule is being complied with.

11.2 Notwithstanding 10.1, the County shall not enter or remain in any room or place actually being used as a dwelling except in compliance with section 437 of the Municipal Act or pursuant to an order issued under section 438 of the Municipal Act.

11.3 The County shall not exercise any power of entry under this schedule without providing at least 24 hours advance notice to the owner and any occupant of the land except where, in the sole discretion of County, the provision of such notice:

a) may result in the contamination or further contamination of a municipal drinking water system or any other supply of potable water;

b) may pose an imminent risk to the health and safety of any person, or to the public at large;

c) may result in damage or further damage to the property of any person, including the County or a Municipality;

d) may result in the loss of evidence or the destruction or removal of documents or things concerning a matter relating to the inspection;

e) is not possible or advisable due to an ongoing emergency or similar urgent situation;

f) cannot be provided because no owner or occupant has been identified after reasonable efforts to locate them; or

g) would be inconsistent with the terms of any order or warrant issued by a court of competent jurisdiction,

11.4 When carrying out an inspection pursuant to section 11.1, the County may:

a) require the production for inspection of documents or things relevant to the inspection;

b) inspect and remove documents or things relevant to the inspection for the purpose of making copies or extracts. The County is required to provide receipts to the owner for items removed and they must be returned to the owner when copies or extracts are completed.

c) require information from any person concerning a matter related to the inspection; and

d) make examinations or take tests, samples or photographs necessary for the purposes of the inspection, provided that where samples are taken, the County shall comply with subsections 436(3)-(5) of the Municipal Act.

11.5 Any person to whom an order is issued pursuant to section 11.5 shall comply with that order within the time set out in that order.

11.6 No person shall hinder, obstruct or attempt to hinder or obstruct any inspector or any person assisting an inspector conducting an inspection pursuant to this schedule.

12.0 General Provisions

12.1 In addition to any other provision of this Schedule, the County may at any time require an owner, at the owner's expense, to conduct tests, provide reports and undertake any other measures required for the prevention of backflow or protection of a cross connection by an order to comply issued under the Ontario Building Code Act. For greater certainty, nothing in this schedule is intended to supersede, replace, or limit any authority or power of the County pursuant to the Building Code Act.

12.2 Appendices "A", "B" and "C" shall form part of this Schedule.

12.3 A plumbing permit is required to be obtained pursuant to the Building Code Act to install a backflow prevention device. The provisions of the Act and the regulations pertaining to such plumbing permit continue to apply to each installation in addition to the provisions of this Schedule.

12.4 Where a time frame is set out in this Schedule for carrying out any action, the SI may upon the application of the owner in writing, extend the time for compliance.

12.5 Any document or thing that is required to be submitted or delivered to the County or the SI pursuant to this Schedule may be delivered by hand at the County offices, or by fax, or email or by mail and are considered delivered at the time they are received. After hours and holiday drop boxes are available at the county offices.

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Northumberland County Building Services
600 William Street
Cobourg, ON K9A 3A5

Phone: 905-372-1929
Toll Free: 1-800-354-7050
Fax: 905-372-1696

Email: inspections@northumberland.ca

Notwithstanding anything in this Schedule, where arrangements are made for the submission or delivery of any documents or things with the SI, the requirements of this Schedule for the submission or delivery of that document or thing shall be deemed to have been met.

13.0 Enforcement

13.1 An Inspector, as defined herein, and any other person who may be so designated by County Council are hereby authorized to enforce the provisions of this Schedule.

13.2 Every person who contravenes any provision of this Schedule is guilty of an offence and upon conviction is liable to a fine as provided for by the Provincial Offences Act, RSO 1990, c. P.33 as amended..

13.3 Where a conviction is entered, in addition to any other remedy or penalty provided by law, the court in which the conviction has been entered, and any court of competent jurisdiction, thereafter, may make an order prohibiting the continuation or repetition of the offence by the person convicted.

13.4 Each day on which a person contravenes any provision of this Schedule shall be deemed to constitute a separate offence under this Schedule as provided for in subsection 429(2) of the Municipal Act, 2001, SO 2001, c. 25.

13.5 Pursuant to the authority established in subsection 429(2) of the Municipal Act, 2002, SO 2001, c. 25, every person who contravenes a provision of this Schedule is guilty of an offence and upon conviction pursuant to Part III of the Provincial Offences Act, RSO 1990, c. P.33, as amended, shall be subject to the following penalties:

a) Upon a first conviction, a fine of not more than $10,000.
b) Upon a second or subsequent conviction, a fine of not more than $25,000..

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Appendix "A" to Schedule “A” to By-law 38-2023

Authorized Functions List

Item	Function	* Journeyman Plumber with Tester's License	** Apprentice Plumber with Tester's License	Professional Engineer with Tester’s License	Fire System Sprinkler Fitter with a Tester's License	Lawn Irrigation System Installer with Tester's License	Purveyor with Tester’s License Within Municipal Buildings
1	Carry out *Cross Connection* Control Survey	✓		✓			✓
2	Install, Relocate or Replace *Backflow Prevention Device*	✓	✓				
3	Repair of *Backflow Prevention Device*	✓	✓	✓	✓		✓
4	Test *Backflow 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 Systems	✓	✓			✓	✓

*Required to be employed by a Plumbing Contractor.

**Required to be employed by a Plumbing Contractor and under the direct supervision of a Journeyman Plumber.

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Schedule “B” to By-law 38-2023

Backflow Prevention Device Selection Guide

1. Except as otherwise set out in this Appendix, the selection, installation, maintenance and field testing of backflow prevention devices shall be in accordance with the CSA Standard.

2. Wherever the CSA Standard and this Appendix are in conflict, the provisions of this Appendix shall prevail and wherever the Appendix is in conflict with the Ontario Building Code, the Ontario Building Code (OBC) shall prevail.

3. Make-up water may be supplied to a non-potable water system by use of a reduced pressure backflow preventer or an air gap

4. Where a clothes washer is supplied by a rainwater system and a potable water system, the potable water system, shall be protected by dual check valve backflow preventers conforming to CSA B64.6 Dual Check Valve (DuC) for area isolation and premise isolation

5. Fire Protection Systems shall comply with this Schedule and the OBC whichever is more restrictive

Additional Definitions:

“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, 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.

Table: Backflow Prevention Guide To Degree Of Hazard – Premise Isolation

Type of *Building*	Degree of Hazard	Type of *Building*	Degree of Hazard
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	Photo processing facility	Severe
Aquaculture farm	Severe	Plant using radioactive material	Severe
Aquarium (public)	Severe	Plastic manufacturing plant	Severe
Arena	Moderate	Plating shop	Severe
Asphalt plant	Severe	Poultry farm	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 shop	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

Car wash	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 facility	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-*potable 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, 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		
Nursing Home	Moderate		
Office *Building*	Moderate		
Oil Refinery	Severe		

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Table: Backflow Prevention Guide To Degree Of Hazard- Source (Point Of Use)

Type of *Cross Connection*	Degree of Hazard	Type of *Cross Connection*	Degree of Hazard
Agricultural chemicals (sprayers)	Severe	Garbage disposal unit	Severe
Air compressor oil cooler	Moderate	Garbage can washer	Severe
Animal watering	Moderate	Heat Exchanger	Moderate to Severe
Aspirator (toxic)	Severe	Heating System (copper/plastic; no chemicals)	Minor
Aspirator (non-toxic)	Moderate	Heating System (no chemicals added)	Moderate
Autoclave	Severe	Heating System (chemicals added)	Severe
Autopsy and mortuary equipment	Severe	Heating System (single family dwelling)	Moderate
Auxiliary water supply	Severe	Hose bib, sediment faucet	Minor to Severe
Baptistery	Moderate	Hose bib, sediment faucet, connected to high hazard	Severe
Basin	Moderate	Hose bib, sediment faucet (residential)	Minor to Moderate
Bathtub (all)	Moderate	Humidifier	Moderate
Bedpan washer	Severe	Humidifier with sump	Severe
Beverage dispensing equipment (no carbonator)	Minor	Hydrotherapy bath	Moderate
Beverage dispensing equipment (with carbonator)	Moderate	Ice Machine for commercial restaurant	Moderate to Severe
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
Degreasing equipment system	Severe	Non-*potable 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	Moderate	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
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
Sterilizer (connection into chamber)	Severe	Wok table (for oriental cooking with submerged inlet	Moderate
Still	Minor	X-ray equipment	Severe
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		
Emergency eyewash/Shower - this equipment must be installed upstream of all zone and source isolation			

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Fire Protection Systems - General Conditions

1. Antifreeze solutions must be water solutions of pure glycerin (C.P. or U.S.P., 96.5% grade) OR propylene glycol conforming to Section 3-5.2.1 of NFPA-13, 1994 Edition. These are best described as food-grade chemicals.

2. Antifreeze solutions must be tested to verify compliance with above conditions. Any other antifreeze solution is NOT permitted and must be replaced

3. Expansion chambers shall be of an appropriate size to compensate for thermal expansion of antifreeze solution.

4. 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.

Table: Backflow Prevention Devices On Fire Sprinkler And Standpipe Systems

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
CSA Standard Number	Type of Device (1)	System made with *Potable Water* System Materials		System Not Made with *Potable Water* System Materials	
		Minor Hazard(2) Residential Partial Flow-Through System	Minor Hazard(2) Class 1 System	Moderate Hazard(2) Class 1, 2, 3 and 6 Systems	Severe Hazard(2) – Any Class of System in which Antifreeze or Other Additives are used
B64.6.1	DuC	P	NP	NP	NP
B64.9	SCVA	P	P	NP	NP
B64.5.1	DCVA	P	P	P	NP
B64.4.1	RP	P	P	P	P

Notes:
P - Permitted
NP – Not Permitted
(1)– The product is only permitted for use on fire sprinkler and standpipe systems.
(2) – 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 Device*s".

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Selection Guide for Backflow Preventers

		Degree of Hazard			
Type of Device	*CSA Standard* Designation	Minor	Moderate	Severe	Device Under Continuous Pressure
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	B64.2.1.1	✓	✓†	✓*	No
HCVB	B64.2	✓	✓†	✓*	No
LFVB	B64.7	✓	✓†	✓*	No
PVB	B64.1.2	✓	✓	✓	Yes
RP	B64.4	✓	✓	✓	Yes
SRPVB	B64.1.3	✓	✓	✓	Yes

*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.

†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.

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County of Northumberland
Part I Provincial Offences Act
By-law 38-2023, Backflow Prevention Regulations
Schedule C

Item	Column 1 Short form Wording	Column 2 Provision creating or defining offence	Column 3 Set Fine
1	Fail to perform cross connection control survey and/or testing within 30 days of notice.	Schedule A, s. 4.2 a)	$475
2	Fail to submit results of cross connection control survey and testing within 72 hours of completion.	Schedule A, s. 4.2 b)	$475
3	Fail to perform remediation work required within time specified in notice.	Schedule A, s. 4.4	$475
4	Cause or allow non-complying cross connection.	Schedule A, s. 5.1	$475
5	Fail to install required backflow prevention device.	Schedule A, s. 5.2	$475
6	Remove required backflow prevention device.	Schedule A, s. 5.3	$475
7	Connect auxiliary water supply to municipal drinking water system without approval.	Schedule A, s. 5.3	$475
8	Failure to notify of hazard classification change.	Schedule A, s. 5.4	$475
9	Unauthorized person carrying out work.	Schedule A, s. 6.1	$475

NOTE: the general penalty provision for the offences listed in the above is subsection 13.2 of Schedule A to By-law 38-2023, a certified copy of which has been filed.

10	Fail to perform cross connection survey within 5 years of previous survey.	Schedule A, s. 8.1	$475
11	Use or allow improper or unpermitted backflow prevention device for premise isolation.	Schedule A, s. 8.2	$475
12	Improper installation of backflow prevention device.	Schedule A, s. 9.1	$475
13	Fail to ensure backflow prevention device in proper working order.	Schedule A, s. 9.2	$475
14	Failure to ensure annual or required device testing is performed by a qualified person.	Schedule A, s. 10.1 a)	475
15	Failure to provide annual or required test report to County within 72 hours of completion.	Schedule A, s. 10.1 b)	$475
16	Failure to install, improper completion of, or removal of test tag.	Schedule A, s. 10.3 b)	$475
17	Failure to notify County of non-operational or malfunctioning backflow prevention device.	Schedule A, s. 10.3 c)	$475
18	Remove test tag.	Schedule A, s. 10.4	$475
19	Failure to comply with order.	Schedule A, s. 11.5	$475
20	Hinder or obstruct an inspector.	Schedule A, s. 11.6	$475

NOTE: the general penalty provision for the offences listed in the above is subsection 13.2 of Schedule A to By-law 38-2023, a certified copy of which has been filed.