



CITY OF HAMILTON
Codified Ordinance CHAPTER 941
Backflow and Backsiphonage Prevention

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941.01 DEFINITIONS.

Unless the context specifically indicates otherwise, the meanings of the terms used in this chapter shall be as follows:

- (1) "Air gap separation" means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supply water to a tank, plumbing fixture or other device and the flood level rim of the receptacle.
- (2) "Approved" means that a backflow preventer or method has been accepted by the water purveyor and the Director of Public Utilities as suitable for the proposed use.
- (3) "Auxiliary water system" means any water system on or available to the premises other than the public water system and includes the water supplied by the system. These auxiliary waters may include water from another purveyor's public water system; or water from a source such as wells, lakes or streams; or process fluids; or used water. They may be polluted or contaminated or objectionable or constitute a water source or system over which the water purveyor does not have control.
- (4) "Backflow" means the flow of water or other liquids, mixtures or substances into the distributing pipes of a potable water supply from any source other than the intended source of the potable water supply.
- (5) "Backsiphonage" means the flow of water or other liquids, mixtures or substances into the distributing pipes of a potable water system by means of a reversal of flow pressure drop, pressure loss or induced vacuum.
- (6) "Backflow preventer" means any device or means to prevent backflow into a potable water system.
- (7) "Consumer" means the owner or person in control of any premises supplied by or in any manner connected to a public water system.
- (8) "Consumer's water system" or "water distribution pipe" means any water system located on the consumer's premises as defined in the Ohio Plumbing Code, section 4101:2-51-01. A household plumbing system shall be considered to be a consumer's water system.
- (9) "Contamination" means an impairment of the quality of the water by sewage, process fluids or waste to a degree which could create an actual hazard to the public health through poisoning or through spread of disease by exposure.
- (10) "Cross-connection" means any arrangement whereby backflow can occur.
- (11) "Degree of hazard" is derived from an evaluation of the potential risk to health and the adverse effect upon the potable water system.
- (12) "Director" means the Director of the Ohio Environmental Protection Agency.

(13) "Double check valve assembly" means an assembly composed of two single, independently acting check valves including tightly closing shutoff valves located at each end of the assembly and suitable connections for testing the water-tightness of each check valve.

(14) "Health hazard" means any condition, device or practice in a water system or its operation that creates, or may create, a danger to the health and well-being of users. "Severe", as used to qualify "health hazard", means a hazard to the health of the user that could reasonably be expected to result in significant morbidity or death.

(15) "Interchangeable connection" means an arrangement or device that will allow alternate but not simultaneous use of two sources of water.

(16) "Nonpotable water" means water not safe for drinking, personal or culinary use.

(17) "Person" means the State, any political subdivision, public or private corporation, individual, partnership or other legal entity.

(18) "Pollution" means the presence in water of any foreign substance that tends to degrade its quality so as to constitute a hazard or impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such waters for domestic use.

(19) "Potable water" means water which is satisfactory for drinking, culinary and domestic purposes and meets the requirements of the Department of Health of the State.

(20) "Process fluids" means any fluids or solution which may be chemically, biologically or otherwise contaminated or polluted in a form or concentration such as would constitute a health, pollutional or system hazard if introduced into the public or a potable consumer water system. This includes, but not limited to:

- A. Polluted or contaminated waters;
- B. Process waters;
- C. Used waters originating from the public water system which may have deteriorated in sanitary quality;
- D. Cooling waters;
- E. Contaminated natural waters taken from wells, lakes, streams or irrigation systems;
- F. Chemicals in solution or suspension;
- G. Oils, gases, acids, alkalis and other liquids and gaseous fluids used on industrial or other processes, or for fire fighting purposes;

(21) "Public water system" means any publicly or privately owned potable water system subject to Ohio R.C. Chapter 6109.

(22) "Reduced pressure principle backflow preventer" means a device containing a minimum of two independently acting check valves together with an automatically operated pressure

differential relief valve located between the two check valves. During normal flow and at the cessation of normal flow, the pressure between these two checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the check valve at less than the supply pressure. The unit shall include tightly closing shutoff valves located at each end of the device, and each device shall be fitted with the properly located test cocks.

(23) "Service connection" means the terminal end of a water service pipe from the public water system. If a meter is installed at the end of the service, then the service connection means the downstream end of the meter.

(24) "System hazard" means a condition posing an actual or potential threat of damage to the physical properties of the public water system or a potable consumer's water system.

(25) "Pollutional hazard" means a condition through which aesthetically objectionable or degrading material not dangerous to health may enter the public water system or a potable consumer's water system.

(26) "User's water" means any water supplied by a water purveyor from a public water system to a consumer's water system after it has passed through the service connection and is no longer under the control of the water purveyor.

(Ord. 87-4-36. Passed 4-22-87.)

(27) "Water purveyor" means the individual at a facility responsible for the on-site supervision of technical operations and maintenance as assigned by and reporting to the Director of Public Utilities in accordance to Rules 3745-7-01 to 3745-7-16 of the Ohio Administrative Code.

(28) "Supplier of water" means the owner or operator of a public water system.

(Ord. 97-10-119. Passed 10-22-97.)

941.02 WATER SYSTEM.

(a) The water system shall be considered as made up of two parts: the public potable water system and the consumer's water system.

(b) The public potable system shall consist of the source facilities and the distribution system, and shall include all those facilities of the potable water system, under the control of the Director of Public Utilities up to the point where the consumer's water system begins.

(c) The source shall include all components of the facilities utilized in the production, treatment, storage and delivery of water to the public distribution system.

(d) The public distribution system shall include the network of conduits used for delivery of water from the source of the consumer's water system.

(e) The consumer's water system shall include those parts of the facilities beyond the service connection which are utilized in conveying water from the public distribution system to points of use.

(Ord. 87-4-36. Passed 4-22-87.)

941.03 CROSS-CONNECTION PROHIBITED.

(a) No water service connection shall be installed or maintained to any premises where actual or potential cross-connections to the potable or consumer's water system may exist unless such actual or potential cross-connections are abated or controlled to the satisfaction of the Director of Public Utilities.

(b) No connection shall be installed or maintained whereby an auxiliary water supply may enter a public potable or consumer's water system unless such auxiliary water supply and the method of connection and use of such supply shall have been approved by the Director of Public Utilities.

(Ord. 87-4-36. Passed 4-22-87.)

941.04 SURVEY AND INVESTIGATIONS.

(a) The consumer's premises shall be open at all reasonable times to the Director of Public Utilities, or his authorized representative, for the conducting of surveys and investigations of water use practices within the consumer's premises to determine whether there are actual or potential cross-connections to the consumer's water system through which contamination or pollutants could backflow into the public potable water system.

(b) On request by the Director of Public Utilities, or his authorized representative, the consumer shall furnish information on water use practices within his premises.

(c) It shall be the responsibility of the water consumer to conduct periodic surveys of water use practices on his premises to determine whether there are actual or potential cross-connections to his water system through which contaminants or pollutants could backflow into his or the public potable water system.

(Ord. 87-4-36. Passed 4-22-87.)

941.05 WHERE PROTECTION IS REQUIRED.

(a) An approved backflow preventer shall be installed on each service line to a consumer's water system serving premises, where in the judgment of the Director of Public Utilities, actual or potential hazards to the public potable water system exist.

(b) An approved backflow preventer shall be installed on each service line to a consumer's water system serving premises where the following conditions exist:

(1) Premises having an auxiliary water supply, unless such auxiliary supply is accepted as an additional source by the Director of Public Utilities and the source is approved by the Ohio Environmental Protection Agency.

(2) Premises on which any substance is handled in such a fashion as to create an actual or potential hazard to the public potable water system. This shall include premises having sources or systems containing process fluids or waters originating from the public potable water system which are no longer under the sanitary control of the Director of Public Utilities.

(3) Premises having internal cross-connections that, in the judgment of the Director of Public Utilities, are not correctable or intricate plumbing arrangements which make it impractical to determine whether or not cross-connections exist.

(4) Premises where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical to make a complete cross-connection survey.

(5) Premises having a repeated history of cross-connections being established or re-established.

(6) Others as specified by the Director of Public Utilities.

(c) An approved backflow preventer shall be installed on each service line to a consumer's water system serving, but not necessarily limited to, the following types of facilities unless the Director of Public Utilities determines that no actual or potential hazard to the public potable water system exists:

(1) Hospitals, mortuaries, clinics, nursing homes;

(2) Laboratories;

(3) Sewage treatment plants, sewage pumping station or storm water pumping station;

(4) Food or beverage processing plants;

(5) Chemical plants;

(6) Metal plating industries;

(7) Petroleum processing or storage plants;

(8) Radioactive material processing plants or nuclear reactors;

(9) Car wash;

(10) All other commercial, industrial and residential occupancies where specifically deemed necessary by the Director of Public Utilities;

(11) Others as specified by the Director of Public Utilities.

(d) An approved backflow preventer shall be installed at any point of connection between the public potable or consumer's water system and an auxiliary water supply, unless such auxiliary supply is accepted as an additional source by the Director of Public Utilities and the source is approved by the Ohio Environmental Protection Agency.

(Ord. 87-4-36. Passed 4-22-87.)

941.06 TYPES OF PROTECTION REQUIRED.

(a) The type of protection required under Section [941.05](#)(a), (b) and (c) shall depend on the degree of hazard which exists as follows:

(1) An approved air gap separation shall be installed where the public potable water system may be contaminated with substances that could cause a severe health hazard;

(2) An approved air gap separation or an approved reduced pressure principle backflow preventer shall be installed where the public potable water system may be contaminated with a substance that could cause a system or health hazard;

(3) An approved air gap separation or an approved reduced pressure principle backflow preventer or an approved double check valve assembly shall be installed where the public potable water system may be polluted with substances that could cause a pollutional hazard not dangerous to health.

(Ord. 87-4-36. Passed 4-22-87.)

(b) The type of protection required under Section [941.05](#)(b) and (d) hereof shall be an approved air gap separation or an approved interchangeable connection.

(Ord. 97-10-119. Passed 10-22-97.)

(c) Where an auxiliary water supply is used as a secondary source of water for a fire protection system, the provisions of subsection (a)(2) hereof for an approved air gap separation or an approved interchangeable connection may not be required providing:

(1) At premises where the auxiliary water supply may be contaminated with substances that could cause a system or health hazard, the public or consumer's potable water system shall be protected against backflow by installation of an approved reduced pressure principle backflow preventer;

(2) At all other premises, the public or consumer's potable water system shall be protected against backflow by installation of either an approved reduced pressure principle backflow preventer or an approved double check valve assembly;

(3) The public or consumer's potable water system shall be the primary source of water for the fire protection system;

(4) The fire protection system shall be normally filled with water from the public or consumer's potable water system;

(5) The water in the fire protection system shall be used for fire protection only with no regular use of water from the fire protection system downstream from the approved backflow preventer;

(6) The water in the fire protection system shall contain no additives.

(Ord. 87-4-36. Passed 4-22-87.)

941.07 BACKFLOW PREVENTERS.

(a) Any backflow preventer required by these rules and regulations shall be of a model or construction approved by the Director of Public Utilities and shall comply with the following:

(1) An air gap separation to be approved shall be at least twice the diameter of the supply pipe, measured vertically above the top rim of the vessel, but in no case less than one inch;

(2) A double check valve assembly or a reduced pressure principle backflow preventer shall be approved by the Director of Public Utilities, and appear on the current "list of approved backflow preventers" of the Ohio Environmental Protection Agency;

(3) An interchangeable connection to be approved shall be either a swing type connector or a four-way valve of the lubricated plug type that operates through a mechanism which unseats the plug, turns it ninety degrees and reseats the plug. Four-way valves shall not be used as stop valves but shall have separate stop valves on each pipe connected to the valve. The telltale port on the four-way valve shall have no piping connected and the threads or flange on this port shall be destroyed so that a connection cannot be made. The four-way valve or swing type connector, when used in connection with a potable and auxiliary water supply, shall have a reduced pressure backflow preventer installed on the potable water line at the interconnection.

(b) Existing backflow preventers approved by the Director of Public Utilities at the time of installation and properly maintained shall, except for inspection and maintenance requirements, be excluded from the requirement of subsection (a)(1) hereof providing the Director of Public Utilities is assured that they will satisfactorily protect the public potable water system. Whenever the existing device is moved from the present location or requires more than minimum maintenance or when the Director of Public Utilities finds that the maintenance of the device constitutes a hazard to health or possible pollution of the water supply, the device shall be replaced by a backflow preventer meeting the requirements of these regulations.

(c) The use of the approved backflow preventer at the water service connection does not in any way affect or eliminate the need for individual fixture devices or airgap as required by Section 4104: 2-51-38 of the Ohio Basic Building Code. (Ord. 87-4-36. Passed 4-22-87.)

941.08 INSTALLATION.

(a) Backflow preventers required by these rules and regulations shall be installed at a location and in a manner approved by the Director of Public Utilities and shall be installed by and at the expense of the water consumer.

(b) Backflow preventers installed on the service line to a consumer's water system shall be located on the consumer's side of the water meter, as close to the meter as is reasonably practical, and prior to any other connection.

(c) Pits or vaults shall be of watertight construction, shall be so located and constructed as to prevent flooding and shall be maintained free from standing water by means of either a sump and pump or a suitable drain. Such sump pump or drain shall not connect to a sanitary sewer nor permit flooding of the pit or vault by reverse flow from its point of discharge. An access ladder and adequate natural or artificial lighting shall be provided to permit maintenance inspection and testing of the backflow preventer.

(Ord. 87-4-36. Passed 4-22-87.)

(d) Reduced pressure type backflow and backsiphonage preventers shall not be installed in pits except in approved mound type pits with above grade drains.

(Ord. 97-10-119. Passed 10-22-97.)

941.09 INSPECTION AND MAINTENANCE.

(a) At any premises on which backflow preventers required by these regulations are installed, the consumer shall have inspections, tests and overhauls made in accordance with the following schedules, or more often, where inspections indicate a need:

(1) Air separation shall be inspected at the time of installation and at least every twelve months thereafter;

(2) Double check valve assemblies shall be inspected and tested for tightness at the time of installation and at least every twelve months thereafter. They shall be dismantled, inspected internally, cleaned and repaired whenever needed and at least every thirty months;

(3) Reduced pressure principle backflow preventers shall be inspected and tested for tightness at the time of installation and at least every twelve months thereafter. They shall be dismantled, inspected internally, cleaned and repaired whenever needed and at least every five years;

(4) Interchangeable connections shall be inspected at the time of installation and at least every twelve months thereafter.

(Ord. 87-4-36. Passed 4-22-87.)

(b) Inspections, tests, and overhaul of backflow and backsiphonage preventers shall be made at the expense of the water consumer and shall be performed by authorized personnel who have been certified by the Ohio Department of Health and/or have passed the backflow and backsiphonage prevention training provided by the Operator Training Committee of Ohio and approved by the Director of Public Utilities.

(Ord. 97-10-119. Passed 10-22-97.)

(c) Whenever backflow preventers required by these regulations are found to be defective, they shall be repaired, or replaced at the expense of the consumer without delay;

(d) The water consumer shall maintain a complete record of each backflow preventer from purchase to retirement. This shall include a comprehensive listing that includes a record of all tests, inspections and repairs. Records of inspections, tests, repairs and overhaul shall be submitted to the Director of Public Utilities;

(e) Backflow preventers shall not be bypassed, made inoperative, removed or otherwise made ineffective without specific authorization by the Director of Public Utilities.

(Ord. 87-4-36. Passed 4-22-87.)

941.10 BOOSTER PUMPS.

(a) Where a booster pump has been installed on the service line to or within any premises, such pump shall be equipped with a low pressure cut-off device designed to shut off the booster pump when the pressure in the service line on the suction side of the pump drops to ten pounds per square inch gage or less.

(b) The water consumer shall maintain the low pressure cut-off device in proper working order and shall certify to the Director of Public Utilities, at least once a year, that the device is operable. (Ord. 87-4-36. Passed 4-22-87.)

941.11 VIOLATIONS AND NOTICE FEES.

(a) After reasonable notice to the occupants of any premises, the Director of Public Utilities shall deny or discontinue the water service to such premises wherein any backflow or backsiphonage preventer required by these regulations is not installed, tested, and maintained in a manner acceptable to the Director of Public Utilities, or if it is found that the backflow or backsiphonage preventer has been removed or by-passed, or if an unprotected cross-connection exists on the premises, or if a low pressure cut-off required by these regulations is not installed and maintained in working order, or for failure to pay fees pursuant to subsection (b) hereof.

(b) Water service to such premises shall not be restored until the consumer has corrected or eliminated such conditions or defects in conformance with these regulations and to the satisfaction of the Director of Public Utilities.

(c) The following fees shall be charged to and imposed upon the occupant(s) of any premises who is served with notice that any backflow or backsiphonage preventer is required to be tested pursuant to these regulations and in a manner acceptable to the Director of Public Utilities:

<u>Notice</u>	<u>Fee</u>
First notice per device tested	\$ 15.00
Second notice per device tested	30.00
Final notice per device tested	65.00

(Ord. 97-10-119. Passed 10-22-97.)