

## MayormayCHAPTER 52: CROSS-CONNECTION CONTROL

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### **§ 52.00 DEFINITIONS.**

For the purpose of this subchapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

**AGENCY.** Illinois Environmental Protection Agency.

**APPROVED.** Backflow prevention devices or methods approved by the Research Foundation for Cross-Connection Control of the University of Southern California, Association of State Sanitary Engineers, American Water Works Association, American National Standards Institute, or certified by the National Sanitation Foundation.

**AUXILIARY WATER SYSTEM.** Any water source or system on or available to the premises other than the public water supply system and includes the water supplied by the system. These auxiliary waters may include water from another surveyor's public water supply system; water from a source such as wells, lakes, streams, or process fluids; or used water. These waters may be polluted, contaminated, objectionable, or constitute a water source or system over which the water surveyor does not have control.

**BACKFLOW.** The flow of water or other liquids, mixtures, or substances into the distribution pipes of a potable water system from any source other than the intended source of the potable water supply.

**BACKFLOW PREVENTION DEVICE.** Any device, method, or type of construction intended to prevent backflow into a potable water system. All devices used for backflow prevention in Illinois must meet the standards of the Illinois Environmental Protection Agency.

**CONSUMER or CUSTOMER.** The owner, official custodian, or person in control of any premises supplied by or in any manner connected to a public water system.

**CONSUMER'S WATER SYSTEM.** Any water system located on the customer's premises. A building plumbing system is considered to be a customer's water system.

**CONTAMINATION.** An impairment of the quality of the water by entrance of any substance to a degree which could create a health hazard.

**CROSS-CONNECTION.** Any physical connection or arrangement between two otherwise separate piping systems, one of which contains potable water and the other a substance of unknown or questionable safety or quality, whereby there may be a flow from one system into another.

**DIRECT.** A cross-connection formed when a water system is physically joined to a source of unknown or unsafe substance.

**INDIRECT.** A cross-connection through which an unknown substance can be forced, drawn by vacuum, or otherwise introduced into a safe potable water system.

**DOUBLE CHECK VALVE ASSEMBLY.** An assembly composed of single, independently acting check valves approved under ASSE Standard 1015. A double check valve assembly must include tight shutoff valves located at each end of the assembly and suitable connections for testing whether each check valve is watertight.

**FIXED PROPER AIR GAP.** The unobstructed vertical distance through the free atmosphere between the water discharge point and the flood level rim of the receptacle.

**HEALTH HAZARD.** Any condition, device or practice in a water system or its operation resulting from a real or potential danger to the health and well-being of consumers. The word **SEVERE** as used to qualify **HEALTH HAZARD** means a hazard to the health of the user that could be expected to result in death or significant reduction in the quality of life.

**INSPECTION.** A plumbing inspection to examine carefully and critically all materials, fixtures, piping and appurtenances, appliances, and installations of a plumbing system for compliance with requirements of the Illinois Plumbing Code, 77 111. Admin. Code 890.

**NONPOTABLE WATER.** Water that does not meet public health standards for drinking water and is not suitable for human consumption or culinary use. (See 77 111. Admin. Code 900.) Any water of unknown quality is considered non-potable. (77 111. Admin. Code 890.120)

**PLUMBING.** The actual installation, repair, maintenance, alteration, or extension of a plumbing system by any person. **PLUMBING** includes all piping, fixtures, appurtenances, and appliances for a supply of water for all purposes, including without limitation lawn sprinkler systems, from the source of private water supply on the premises or from the main in the street or alley or at the curb to, within, and about any building where persons live, work, or assemble. **PLUMBING** includes all piping from discharge of pumping units to and including pressure tanks in water supply systems. **PLUMBING** includes all piping, fixtures, appurtenances, and appliances for a building drain and a sanitary drainage and related ventilation system of any building or buildings where persons live, work, or assemble from the point of connection of such building drain to the building sewer or private sewage disposal system five feet beyond the foundation walls.

**POLLUTION.** The presence of any foreign substance (organic, inorganic, radiological, or biological) in water that tends to degrade its quality so as to constitute a hazard or impair the usefulness of the water.

**POTABLE WATER.** Water that is suitable for human consumption in accordance with the Drinking Water Systems Code, 77 111. Admin. Code 900.

**POTENTIAL CROSS-CONNECTION.** A fixture or appurtenance with threaded hose connection, tapered spout, or other connection which would facilitate extension of the water supply line beyond its legal termination point.

**PROCESS FLUID.** Any fluid or solution which may be chemically, biologically, or otherwise contaminated or polluted in a form or concentration such as would constitute a health, pollution, or system hazard if introduced into the public or a consumer's potable water system. This includes but is not limited to:

- (1) Polluted or contaminated waters;
- (2) Process waters;

- (3) Used water originating from the public water supply system which may have deteriorated in sanitary quality;
- (4) Cooling waters;
- (5) Questionable or contaminated natural waters taken from wells, lakes, streams, or irrigation systems;
- (6) Chemicals in solution or suspension; and
- (7) Oils, gases, acids, alkalis, and other liquid and gaseous fluids used in industrial or other processes, or for firefighting purposes.

***PUBLIC WATER SUPPLY.*** All mains, pipes, and structures through which water is obtained and distributed to the public, including wells and well structures, intakes and cribs, pumping stations, treatment plants, reservoirs, storage tanks and appurtenances, collectively or severally, actually used or intended for use for the purpose of furnishing water for drinking or general domestic use and which serve at least 15 service connections or which regularly serve at least 25 persons at least 50 days per year. A public water supply is either a community water supply or a non-community water supply.

***REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICE.*** 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 and approved under ASSE Standard 1013. 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 must include tightly closing shutoff valves located at each end of the device, and each device shall be fitted with properly located test cocks.

***SERVICE CONNECTION.*** The opening, including all fittings and appurtenances, at the water main through which water is supplied to the user.

***SURVEY.*** The collection of information pertaining to a customer's piping system regarding the location of all connections to the public water supply system. The survey must include the location, type, and most recent inspection and testing date of all cross-connection control devices and methods ~ located within that customer's piping system. The survey must be in written form, and should not be an actual plumbing inspection.

***SYSTEM HAZARD.*** A condition through which an aesthetically objectionable or degrading material not dangerous to health may enter the public water supply system or a consumer's potable water system.

**USED WATER.** Any water supplied by a public water supply 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 supply official custodian.

**WATER PURVEYOR.** The owner or official custodian of a public water system.

**§52.01 ILLINOIS PLUMBING CODE ADOPTED BY REFERENCE.**

All plumbing henceforth installed within the Village shall be installed in accordance with the Illinois Plumbing Code, 77 Ill. Admin. Code 890, which is hereby adopted by reference. The Village Clerk shall keep three copies of said Code of file and available for public use, inspection, and examination.

**§ 52.02 NOTICE GIVEN WHEN BACKFLOW PREVENTION DEVICE REQUIRED; DEVICE TO BE INSTALLED AND TESTED IN APPROVED MANNER.**

(A) If, in accordance with the Illinois Plumbing Code or in the judgment of the Superintendent of Water, an approved backflow prevention device is necessary for the safety of the public water supply system, the Superintendent of Water shall give notice to the water customer to install such an approved device immediately.

(B) Any water customer required to install an approved backflow prevention device under division (A) above shall, at his own expense, install such an approved device at a location and in a manner in accordance with the Illinois Plumbing Code and all applicable local regulations, and shall have inspections and tests made of such approved devices upon installation and as required by the Illinois Plumbing Code and local regulations.

Penalty, see § 52.99

**§ 52.03 CONNECTIONS TO BE APPROVED.**

No person, firm, or corporation shall establish or permit to be established, or maintain or permit to be maintained, any connection whereby a private, auxiliary, or emergency water supply other than the regular public water supply of the Village may enter the supply or distribution system of said Village, unless such private, auxiliary, or emergency water supply and the method of connection and use of such supply shall have been approved by the Superintendent of Water and the State Environmental Protection Agency.

**§ 52.04 SURVEYS REQUIRED; RECORDS TO BE MAINTAINED.**

The Superintendent of Water shall cause surveys and investigations to be made of industrial and other properties served by the public water supply to determine whether actual or potential hazards to the public water supply may exist. Such surveys and investigations shall be made a matter of public record and shall be repeated at least every two years, or as often as the

Superintendent of Water deems necessary. Records of such surveys shall be maintained and available for review for a period of at least five years.

Penalty, see § 52.99

#### **§ 52.05 CROSS-CONNECTION CONTROL DEVICE INSPECTOR.**

The Village Water Department shall hire a cross-connection control device inspector or shall train an existing employee to perform such function.

#### **§ 52.06 RIGHT OF ENTRY; RIGHT TO REQUESTED INFORMATION.**

(A) *Right of entry.*

(1) The cross-connection control device inspector shall have the right to enter at any reasonable time any property served by a connection to the public water supply or distribution system of the Village for the purpose of verifying the presence or absence of cross-connections.

(2) The Water Superintendent or his authorized agent shall have the right to enter at any reasonable time any property served by a connection to the public water supply or distribution system of the Village for the purpose of verifying information submitted by the customer regarding the required cross-connection control inspection.

(B) *Right to requested information.*

(1) On demand the owner, lessee, or occupants of any property so served shall furnish to the Superintendent of Water any information which he may request regarding the piping system or systems or water use on such property.

(2) The refusal of such information, when demanded, shall, within the discretion of the Superintendent of Water, be deemed evidence of the presence of improper connections as prohibited by this chapter.

Penalty, see § 52.99

#### **§ 52.07 DISCONTINUATION OF SERVICE; RESTORATION OF SERVICE.**

(A) Discontinuation of service. The Village Superintendent of Water is hereby authorized and directed to discontinue, after reasonable notice to the occupant thereof, except as provided in division (A) (2) below, the water service to any property wherein any connection in violation of the provision of this chapter is known to exist, and to take such other precautionary measures as

he may deem necessary to eliminate any danger of contamination of the public water supply distribution mains.

(1) *Oral notice of discontinuation.* The Superintendent of Water may disconnect a customer on oral notice if there is in the Superintendent's opinion an imminent danger of harmful contamination of the public water supply system. Such action shall be followed by written notification of the cause of disconnection.

(2) *Discontinuation without notice.* There may be immediate disconnection without notice to any party to prevent actual or anticipated contamination or pollution of the public water supply, provided that, in the reasonable opinion of the Superintendent of Water or the State Environmental Protection Agency, such action is required to prevent actual or potential contamination or pollution of the public water supply.

(3) *City not liable for losses due to discontinuation.* Neither the public water supply, the Superintendent of Water, or its agents or assigns shall be liable to any customer for any injury, damages, or lost revenues which may result from termination of the customer's water supply in accordance with the terms of this chapter, whether or not said termination was with or without notice.

(B) *Restoration of service.* Water service to any property whose water service has been discontinued as provided by division (A) above shall not be restored until the conditions which caused the discontinuation have been eliminated or corrected in compliance with the provisions of this chapter, and until a reconnection fee of \$50 is paid to the Village.

## **§ 52.08 VIOLATORS TO BEAR CLEAN-UP COSTS.**

Any consumer responsible for back-siphoned material or contamination through backflow, if contamination of the potable water supply system occurs through an illegal cross-connection or an "improperly installed, maintained, or repaired device, or a device which has been bypassed, must bear the cost of clean-up of the potable water supply.

## **CROSS-CONNECTION DEVICE REGULATIONS**

### **§ 52.15 PURPOSE.**

The purpose of these rules and regulations is:

(A) To protect the public water supply system from contamination or pollution by isolating within the customer's water system contaminants or pollutants which could backflow through the service connection into the public water supply system.

(B) To promote the elimination or control of existing cross-connections, actual or potential, between the public or consumer's potable water system and nonpotable water systems,

plumbing fixtures, and sources or systems containing substances of unknown or questionable safety.

(C) To provide for the maintenance of a continuing program of cross-connection control which will prevent the contamination or pollution of the public and consumer's potable water systems.

#### **§ 52.16 APPLICATION.**

These rules and regulations shall apply to all premises served by the public potable water supply system of the Village.

#### **§ 52.17 POLICY.**

(A) The owner or official custodian shall be responsible for protection of the public water supply system from contamination due to backflow or back-siphonage of contaminants through the consumer's water service connection.

(B) If, in the judgment of the Superintendent of Water or his authorized representative, an approved backflow prevention device is necessary for the safety of the public water supply system, the Superintendent of Water shall give notice to the consumer to install such approved backflow prevention device at each service connection to the premises. The consumer shall immediately install such approved device or devices at his own expense; failure, refusal, or inability on the part of the consumer to install such device or devices immediately shall constitute grounds for discontinuing water service to the premises until such device or devices have been installed.

(C) The consumer shall retain records of installation, maintenance, testing, and repair as required in § 52.23 for a period of at least five years.

#### **§ 52.19 COMPONENTS OF WATER SYSTEM DEFINED.**

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

(B) The public water supply 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 Superintendent of Water 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 water supply distribution system.

(D) The public water supply distribution system shall include the network of conduits used to deliver water from the source to the consumer's water system.



(E) The consumer's water system shall include all parts of the facilities beyond the service connection used to convey water from the public water supply distribution system to points of use.

**§ 52.20 CROSS-CONNECTION PROHIBITED.**

(A) Connections between potable water systems and other systems or equipment containing water or other substances of unknown or questionable quality are prohibited except when and where approved cross-connection control devices or methods are installed, tested, and maintained to insure proper operation on a continuing basis.

(B) (1) No physical connection shall be permitted between the potable portion of a supply and any other water supply not of equal or better bacteriological and chemical quality as determined by inspection and analysis by the Agency.

(2) There shall be no arrangement or connection by which an unsafe substance may enter a supply.

Penalty, see § 52.99

**§ 52.21 RIGHT OF ENTRY OF INSPECTOR; CONSUMER TO FURNISH INFORMATION.**

(A) The consumer's premises shall be open at all reasonable times to the approved cross-connection control device inspector for the inspection of the presence or absence of cross-connections within the consumer's premises and for testing, repair, and maintenance of cross-connection control devices within the consumer's premises.

(B) On request by the Superintendent of Water or his authorized representative, the consumer shall furnish information regarding the piping system or water use within the customer's premises. The consumer's premises shall be open at all reasonable times to the Superintendent of Water for the verification of information submitted by the inspection consumer to the public water supply custodian regarding cross-connection inspection results.

**§ 52.22 WATER CONSUMER TO ARRANGE SURVEYS AND TO PREVENT BACKFLOW.**

(A) It shall be the responsibility of the water consumer to arrange 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 private or the public potable water system. All cross-connection control or other plumbing inspections must be conducted in accordance with ILCS Ch. 225, Act 320, § 3(1).

(B) It is the responsibility of the water consumer to prevent backflow into the public water system by ensuring that:

(1) All cross-connections are removed; or approved cross-connection control devices are installed for control of backflow and back-siphonage;

(2) Cross-connection control devices shall be installed in accordance with the manufacturer's instructions; and

(3) Cross-connection control devices shall be inspected at the time of installation and at least annually by a person approved by the Agency as a cross-connection control device inspector. The inspection of mechanical devices shall include physical testing in accordance with the manufacturer's instructions.

### **§ 52.23 TESTING; RECORDS.**

(A) Each device shall be tested at the time of installation and at least annually, or more , frequently if recommended by the manufacturer.

(B) Records submitted to the community public water supply shall be available for inspection by Agency personnel.

(C) Each device shall have a tag attached listing the date of most recent test, name of the cross- connection control device inspector, and type and date of repairs.

(D) A maintenance log shall be maintained and shall include:

(1) Date of each test;

(2) Name and approval number of person performing the test;

(3) Test results;

(4) Repairs or servicing required;

(5) Repairs and date completed; and

(6) Servicing performed and date completed.

### **§ 52.24 WHERE PROTECTION REQUIRED.**

(A) An approved backflow prevention device shall be installed on all connections made after the effective date of these regulations to the public water supply as described in the Plumbing Code, 77 111. Admin. Code 890, and the Agency's regulations 35 111. Admin. Code

680. In addition, an approved backflow prevention device shall be installed on each service line to a consumer's water system serving premises where, in the judgment of the Superintendent of Water, actual or potential hazards to the public water supply system exist.

(B) An approved backflow prevention device 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 Superintendent of Water and the source is approved by the State Environmental Protection Agency.

(2) Premises on which any substance is handled which can create an actual or potential hazard to the public water supply system. This shall include premises having sources of systems containing process fluids or waters originating from the public water supply system which are no longer under the sanitary control of the Superintendent of Water.

(3) Premises having internal cross-connections that, in the judgment of the Superintendent of Water and the cross-connection control device inspector, 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.

(C) An approved backflow prevention device shall be installed on all connections to the public water supply as described in the Plumbing Code, 77 111. Admin. Code 890 and the Agency's regulations 35 111. Admin. Code 653. In addition, an approved backflow prevention device 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 Superintendent of Water determines that no actual or potential hazard to the public water supply system exists:

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

(2) Laboratories

(3) Piers, docks, or waterfront facilities

(4) Sewage treatment plants, sewage pumping stations, or stormwater pumping

stations

(5) Food or beverage processing plants

(6) Chemical plants

(7) Metal plating industries

- (8) Petroleum processing or stage plants
- (9) Radioactive material processing plants or nuclear reactors
- (10) Car washes
- (11) Pesticide, herbicide, or extermination plants and trucks
- (12) Farm service and fertilizer plants and trucks

**§ 52.25 TYPE OF PROTECTION REQUIRED.**

(A) The type of protection required under §52.24 (B)(1) through (3) above shall depend on the degree of hazard which exists as follows:

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

(2) An approved fixed proper air gap separation or an approved reduced pressure principle backflow prevention device shall be installed where the public water supply system may be contaminated with a substance that could cause a system or health hazard.

(3) An approved fixed proper air gap separation or an approved reduced pressure principle backflow prevention device shall be installed where the public water supply system may be polluted with substances that could cause a pollution hazard not dangerous to health.

(B) The type of protection required under § 52.24(B)(4) above shall be an approved fixed proper air gap separation or an approved reduced pressure principle backflow prevention device.

(C) Where a public water supply or an auxiliary water supply is used for a fire protection system, reduced pressure principle backflow preventers shall be installed on fire safety systems connected to the public water supply when:

- (1) The fire safety system contains antifreeze, fire retardant, or other chemicals;
- (2) Water is pumped into the system from another source;
- (3) Water flows by gravity from a nonpotable source, or water can be pumped into the fire safety system from any other source; or
- (4) There is a connection whereby another source can be connected to the fire safety system.

**§ 52.26 BACKFLOW PREVENTION DEVICES TO BE OF APPROVED DESIGN AND INSTALLATION.**

(A) All backflow prevention devices or methods required by these rules and regulations shall be approved by the Research Foundation for Cross-Connection Control of the University of Southern California, American Water Works Association, American Society of Sanitary Engineering, or American National Standards Institute, or certified by the National Sanitation Foundation to be in compliance with applicable industry specifications.

(B) Installation of approved devices shall be made in accordance with 35 Ill. Admin. Code 653.802, and only as specified by the Research Foundation for Cross-Connection Control of the University of Southern California or applicable industry specifications. Maintenance as recommended by the manufacturer of the device shall be performed. Manufacturer's maintenance manual shall be available on-site.

**§ 52.27 INSPECTION; MAINTENANCE.**

(A) It shall be the duty of the consumer at any premises on which backflow prevention devices required by these regulations are installed to have inspections, tests, maintenance, and repair made in accordance with the following schedule or more often where inspections indicate a need or are specified in manufacturer's instructions.

(1) Fixed proper air gap separations shall be inspected to document that a proper vertical distance is maintained between the discharge point of the service line and the flood level rim of the receptacle at the time of installation and at least annually thereafter.

(2) Double check valve assemblies shall be inspected and tested at the time of installation and at least annually thereafter, and required service shall be performed within 15 days.

(3) Reduced pressure principle backflow prevention devices shall be tested at the time of installation and at least annually or more frequently if recommended by the manufacturer, and required service performed within five days.

(B) Testing shall be performed by a person who has been approved by the Agency as competent to service the device. Proof of approval shall be in writing.

(C) Each device shall have a tag attached listing the date of most recent test or visual inspection, name of tester, and type and date of repairs.

(D) A maintenance log shall be maintained and include:

(1) Date of each test or visual inspection;

(2) Name and approval number of person performing the test or visual inspection;

- (3) Test results;
- (4) Repairs or servicing required;
- (5) Repairs and date completed; and
- (6) Servicing performed and date completed.

(E) Whenever backflow prevention devices required by these regulations are found to be defective, they shall be repaired or replaced at the expense of the consumer without delay.

(F) Backflow prevention devices shall not be bypassed, made inoperative, removed, or otherwise made ineffective without specific authorization by the Superintendent of Water.

### **§ 52.28 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 20 psi or less.

(B) It shall be the duty of the water consumer to maintain the low pressure cut-off device in proper working order and to certify to the Superintendent of Water, at least once a year, that the device is operable.

### **§ 52.29 DISCONTINUANCE OF SERVICE; RESTORATION OF SERVICE.**

(A) The Superintendent of Water shall deny or discontinue, after reasonable notice to the occupants thereof, the water service to any premises wherein any backflow prevention device required by these regulations is not installed, tested, maintained, and repaired in a manner acceptable to the Superintendent of Water; if it is found that the backflow prevention device has been removed or bypassed; 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.

(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 Superintendent of Water, and the required reconnection fee is paid.

### **§ 52.99 PENALTY.**

Any person violating any provision of this chapter may be fined not more than \$250.