

Chapter 25
**CROSS-CONNECTION CONTROL RULES AND REGULATIONS
and BACKFLOW PREVENTION¹**

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25.01 **CROSS-CONNECTION CONTROL GENERAL POLICY**

The purpose of these rules and regulations is:

1. To protect the public water supply system from contaminant 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.
2. To promote the elimination or control of existing cross-connections, actual or potential, between the public or consumer's potable water system and non-potable water systems, plumbing fixtures and sources or systems containing substances of unknown or questionable safety.
3. 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.

25.02 **APPLICATION**

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

25.03 **DEFINITIONS**

In addition to those terms defined in Appendix A and Chapter 23 of this Code, terms, whether capitalized or not, used in this Chapter 25 are defined as follows:

¹ Comprehensive Amendment, Ordinance 2001-51

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.

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 Plumbing Code and the IEPA.

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 the other.

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

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 the water-tightness of each check valve.

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.

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

Non-potable water: Water not safe for drinking, personal or culinary use as determined by the requirements of 35 Ill. Adm. Code 604.

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.

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 valves 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.

Survey: The collection of information pertaining to a customer's piping system regarding the location of all connections to the public water supply system and 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.

25.04

POLICY

The Village shall be responsible for protection of the public water supply system from contamination due to backflow or back-siphonage of contaminants through the customer's water service connection.

If, in the judgment of the Village, an approved backflow prevention device is necessary for the safety of the public water supply system, the Village 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. The consumer shall retain records of installation, maintenance, testing and repair as required in Section 25.07-D-4 herein for a period of at least five years.

The Village may require the consumer to submit a cross-connection inspection report to assist in determining whether or not service line protection will be required. All cross-connection inspections shall be conducted by a Cross-Connection Control Device Inspector ("CCCDI") certified by the Illinois Environmental Protection Agency ("IEPA").

25.05 **WATER SYSTEM**

A. Water System, Generally: The water system shall be considered as made up of two parts: the public water supply and the consumer's water system.

B. Public Water System: 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 Village up to the point where the consumer's water system begins.

1. 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.
2. The public water supply distribution system shall include the network of mains and pipes used to deliver water from the source to the consumer's water system.

C. Consumer's Water System: 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.

25.06 **CROSS-CONNECTION PROHIBITED**

A. Cross-Connections: 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. Prohibited Cross-Connections:

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

25.07

SURVEYS AND INVESTIGATIONS

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

B. Information: On request by the Village, the consumer shall furnish information regarding the piping system or systems or water use within the customer's premises. The consumer's premises shall be open at all reasonable times to the Village for the verification of information submitted by the consumer regarding cross-connection inspection results.

C. Surveys: 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 or the public potable water system. All cross-connection control or other plumbing inspections must be conducted in accordance with 225 ILCS 320/3(1).

D. Procedures: 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.
3. Cross-connection control devices shall be inspected at the time of installation and at least annually by a person approved by the IEPA as a CCCDI. The

inspection of mechanical devices shall include physical testing in accordance with the manufacturer's instructions.

4. Testing and 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 Village shall be available for inspection by IEPA personnel in accordance with 415 ILCS 5/4(e).
- c. Each device shall have a tag attached listing the date of most recent test, name of CCCDI and type and date of repairs.
- d. A maintenance log shall be maintained and include:
 - I. date of each test;
 - II. name and approval number of person performing the test;
 - III. test results;
 - IV. repairs or servicing required;
 - V. repairs and date completed; and
 - VI. service performed and date completed.

25.08

WHERE PROTECTION IS REQUIRED

A. Backflow Prevention: An approved backflow device shall be installed on all connections to the public water supply as described in the Plumbing Code, 77 Illinois Administrative Code 890 and the IEPA's regulations 35 Illinois Administrative 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 Village, actual or potential hazards to the public water supply system exist.

B. Devices for Certain Conditions: 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 Village and the source is approved by the IEPA.

2. Premises on which any substance is handled which can create an actual premises having sources or systems containing process fluids or waters originating from the public water supply system which are no longer under the sanitary control of the Village.
3. Premises having internal cross-connections that, in the judgment of the Village and/or the CCCDI, 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. Devices for Certain Facilities: An approved backflow device shall be installed on all connections to the public water supply as described in the Plumbing Code, 77 Illinois Administrative Code 890 and the IEPA's regulations 35 Illinois Administrative 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 Village determines that no actual or potential hazard to the public water supply system exists:

1. Hospitals, mortuaries, clinics, nursing homes.
2. Laboratories.
3. Piers, docks, waterfront facilities.
4. Sewage treatment plants, sewage pumping stations or storm water pumping stations.
5. Food or beverage processing plants.
6. Chemical plants.
7. Metal plating industries.
8. Petroleum processing or storage 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.
13. Premises that are located on elevations relative to the water system which could, due to pressure decreases in the system, cause backflow from the consumer's water system into the public water supply system.

25.09

TYPE OF PROTECTION REQUIRED

A. Protection for Certain Conditions: The type of protection required under Sections 25.08-B-1, 2 and 3 of these regulations 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 assembly 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 assembly or a double check valve assembly 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. Protection for Certain Premises: The type of protection required under Sections 25.08-B-4 and 5 of these regulations shall be an approved fixed proper air gap separation or an approved reduced pressure principle backflow prevention device.

C. Fire Protection Systems: 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 non-potable source; or water can be pumped into the fire safety system from any other source;
4. There is a connection whereby another source can be introduced into the fire safety system.

D. Other Fire Safety Systems: All other fire safety systems connected to the potable water supply shall be protected by a double check valve assembly on metered service lines and a double detector check valve assembly on unmetered service lines.

25.10

BACKFLOW PREVENTION

A. Installation Standards: All plumbing installed within the Village shall be installed in accordance with Illinois Plumbing Code, 77 Illinois Administrative Code 890. If in accordance with the Illinois Plumbing Code or in the judgment of the Village, an approved backflow prevention device is necessary for the safety of the public water supply system, the Village shall give notice to the water customer to install such an approved device immediately. The water customer shall, at his own expense, install such an approved device at a location and in a manner in accordance with the Illinois Plumbing Code, IEPA and all applicable local regulations, and shall have inspections and tests made of such approved devices upon installation as required by the Illinois Plumbing Code, IEPA and local regulations.

B. Other Water Supplies: 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 the 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 Village and the IEPA.

C. Surveys: It shall be the duty of the Village to 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 Village shall deem necessary. Records of such surveys shall be maintained and available for review for a period of at least five years.

D. Inspections: The approved CCCDI 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, and the Village or its authorized agents, employees or contractors 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. On demand the owner, lessees or occupants of any property so served shall furnish to the Village any information which it may request regarding the piping system or systems or water use on such property. The refusal of such information, when demanded, shall, within the discretion of the Village, be deemed evidence of the presence of improper connections as provided by this Chapter.

E. Notice of Violations: The Village is hereby authorized to discontinue with five days notice by regular mail and hand delivery to the occupant thereof, the water service to any property wherein any connection in violation of the provisions of this Chapter is known to exist, and to take such other precautionary measures as it may deem necessary to eliminate any danger of contamination of the public water supply distribution mains. Water service to such property shall not be restored until such conditions have been eliminated or corrected in compliance with the provisions of this Chapter 25, and until a reconnection fee of \$250.00 is paid to the Village. Immediate disconnection with verbal notice can be effected when the Village is assured that imminent danger of harmful contamination of the public water supply system exists. Such action shall be followed by written notification of the cause of disconnection. Immediate disconnection without notice to any part can be effected to prevent actual or anticipated contamination or pollution of the public water supply, provided that, in the reasonable opinion of the Village or the IEPA, such action is required to prevent actual or potential contamination or pollution of the public water supply. Neither the Village or its employees, agents or assigns shall be liable to any customer for any injury, damages or lost revenues which may result from termination of said customer's water supply in accordance with the terms of this Chapter 25, whether or not said termination was with or without notice.

F. Responsibility for Contamination: The customer is responsible for back siphoned or back pressured material or contamination through backflow, if contamination of the potable water supply system occurs through an illegal cross-connection of an improperly installed, maintained or repaired device, or a device which has been bypassed. The customer also must bear the cost of clean-up of the potable water supply system.

G. Regulations: The rules, regulations and standards of the Village are on file in the Office of the Village Clerk. These regulations detail the procedures and requirements of the Village.

H. Penalties: Any violation of this Chapter 25 shall be punishable by a fine of not less than \$50.00 nor more than \$1,000.00 for each violation plus all costs of prosecution, including but not limited to filing fees, witness fees, attorneys fees, court costs and any damages to the Village's potable water system. Each day that a violation continues shall be considered a separate offense.