

Chapter 112 -- Water

Water System Cross Connection Control

112.010. Definitions. For the purposes of this ordinance the following terms shall be deemed to have the meaning indicated below:

1. Public water supply - Any system of water supply intended or used for human consumption or other domestic uses, including source, treatment, storage, transmission and distribution facilities where water is furnished to any community, collection or number of individuals, or is made available to the public for human consumption or domestic use, but excluding water supplies serving one single family residence.
2. Cross connection - means any physical arrangement whereby a public water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or other device which contains, or may contain, contaminated water, sewage, or other waste or liquid of unknown or unsafe quality which may be capable of imparting contamination to the public water supply as a result of backflow. Bypass arrangements, jumper connections, removable sections, swivel or change-over devices, and other temporary or permanent devices through which, or because of which, backflow could occur are considered to be cross connections.
3. Air gap separation - means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the flood level rim of the receptacle, and shall be at least double the diameter of the supply pipe measured vertically above the flood level rim of the vessel. In no case shall the gap be less than one inch.
4. Approved - the term "approved" as herein used in reference to a water supply system or backflow prevention device (or method) shall mean one that has been approved by the State regulatory agency.
5. Auxiliary supply - means any water source or system, other than the public water supply, that may be available in the building or premises.
6. Backflow - means the flow other than the intended direction of flow, of any foreign liquids, gases, or substances into the distribution system of a public water supply.
7. Backflow prevention device - means a device to counteract back pressures or prevent back siphonage.
8. Back pressure - means backflow caused by a pump, elevated tank, boiler, or other means that could create pressure within the system greater than the supply pressure.

9. Back siphonage - means a form of backflow due to a negative or sub-atmospheric pressure within a water system.
10. Consumer - means the owner or operator of a private potable-water system served by a public potable-water system.
11. Cross connection, Point of - means the specific point or location in a public or a consumer's potable-water system where a cross connection exists.
12. 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 in-line testing the water-tightness of each check valve.
13. Hazard, degree of - expresses the results of an evaluation of a health, system, or plumbing hazard.
14. Hazard, health - means any condition, device, or practice in a water supply system and its operation that creates, or may create, a danger to the health and well-being of a consumer.
15. Hazard, plumbing - means a cross connection in a consumer's potable-water system that may permit back siphonage in the event of a negative pressure in the supply line. (Unprotected plumbing-type cross connections are considered to be health hazards. They include, but are not limited to, faulty connections to fixtures such as toilets, sinks, tubs, lavatories, wash trays, and domestic washing machines.)
16. Industrial fluids - means any fluid or solution that may chemically, biologically, or physically degrade the approved water supply.
17. Industrial line - means a separate water piping system serving water-using devices, with a backflow preventer or air gap separation on this line at the point of takeoff from the potable-water line.
18. Industrial piping system, consumers - means a system used by a consumer for transmission or storage of anything (fluid, solid, or gas) other than the water supply intended or used for human consumption or food processing. (Such a system would include all pipes, conduits, tanks, receptacles, fixtures, equipment, and appurtenances used to produce, convey, or store substances that are or may be polluted.
19. Laboratory, approve testing - means one that is approved by the appropriate health agency and water laboratory and is properly staffed and equipped with pumps, meters, measuring devices, and

other equipment to test and evaluate fully a backflow prevention device for design, materials, construction, and operation.

20. Non-potable water - means water not safe for drinking, personal, or culinary use.
21. Pollution - means the presence in water of any foreign substance (organic, inorganic, radiologic, or biologic) that tends to degrade its quality so as to constitute a hazard or to impair its potability or usefulness.
22. Potable water - means water that is safe for drinking, personal, or culinary use.
23. Reduced pressure principal backflow prevention device - means a device incorporating two or more check valves and an automatically operating differential relief valve located between the two checks, two shutoff valves, and equipped with necessary appurtenances for in-line testing. The device shall operate to maintain the pressure in the zone between the two check valves, less than the pressure on the public water supply side of the device. At cessation of normal flow, the pressure between the check valves shall be less than the supply pressure. In case of leakage of either check valve the differential relief valve shall operate to maintain this reduced pressure by discharging to the atmosphere. When the inlet pressure is two pounds per square inch or less the relief valve shall open to the atmosphere thereby providing an air-gap in the device.
24. Service connection - means the terminal end of a service from the public potable-water system - that is, where the water purveyor loses jurisdiction and sanitary control over the water at its point of delivery to the consumer's water system. If a meter is installed at the end of the service connection, then the service connection means the downstream end of the meter.
25. Water, delivered - shall mean any water supplied from a public potable water system to a consumer's water system after it has passed the point of delivery and is no longer under the sanitary control of the water system operator.
26. Water supervisor - means the consumer or his deputy charged with the responsibility of maintaining a consumer's water system free from cross connections and other sanitary defects. (A certified backflow prevention device tester should not act as a water supervisor unless he is a full-time employee of the consumer, having the day-to-day responsibility for the installation and use of pipelines and equipment on the premises and for the avoidance of cross connections.)
27. Water supply, approved - means any public or consumer's potable water supply that has been investigated and approved by the state agency having jurisdiction.

28. Water system, public potable - means any publicly owned domestic water system operated under public-health supervision. Such a system includes all sources, facilities, and appurtenances between the source and the point of delivery, such as valves, pumps, pipes, conduits, tanks, receptacles, fixtures, equipment, and appurtenances used to produce, convey, treat, or store a potable water for public consumption or use.

112.020. Purpose. The purpose of this resolution is to establish a cross connection control program to protect the health of water consumers by the control of actual and/or potential cross connections through the proper installation and surveillance of backflow prevention devices on service lines leading to premises where cross connections exist or are likely to occur and through the inspection and regulation of plumbing within the premises to minimize the danger of contamination of the water system on the premises or the public water supply itself.

1. Protecting these supplies against contamination or pollution resulting from backflow of objectionable fluids through cross connections.
2. Protecting these supplies at the service connection by isolating within the consumer's premises pollution or contamination that may result from backflow through cross connections.
3. Providing means whereby an industrial consumer may utilize a separate system for his industrial uses so as to prevent possible pollution or contamination of his internal potable water system.

12.030. Implementation. The implementation of the program to control cross connections required cooperation between the customer, the City Water Department, the health officer and the plumbing authority. The City Water Department has primary responsibility to prevent contamination of the public water supply through cross connections. The customers served and the Department are jointly responsible for preventing contamination of the water system within the customer's premises. An effective control program requires attention to both of these. Backflow prevention devices are not a substitute for a continuing and aggressive program of cross connection investigation, surveillance and control.

112.040. Interpretations. These regulations will be reasonably interpreted by the City Water Department. It is the Department's intent to recognize the varying degrees of hazard and to apply the principle that the degree of protection shall be commensurate with the degree of hazard.

112.050. Cross connections. All cross connections, whether or not such cross connections are controlled by automatic devices, such as check valves or by hand operated mechanisms such as gate valves or stop cocks, are hereby prohibited.

112.060. Enforcement. Failure on the part of persons, firms, or corporations to discontinue the use of any and all cross connections and to physically

separate such cross connections will be sufficient cause for the discontinuance of the public water service to the premises on which the cross connection exists.

112.070. Inspection. The City Water Department shall, in cooperation with the health officer and/or the local plumbing inspection authority, make periodic inspections of premises served by the water supply to check for the presence of cross connections. Any cross connections found in such inspection shall be ordered removed by the Department. If an immediate hazard to health is caused by the cross connection, water service to the premises shall be discontinued until it is verified that the cross connection has been removed.

112.080. Installment. Backflow prevention devices shall be installed at the service connection or within any premises where in the judgment of the City Water Department the nature and extent of activities on the premises, or the materials used in connection with the activities, or materials stored on the premises would present an immediate and dangerous hazard to health should a cross connection occur, even though such cross connection does not exist at the time the backflow prevention device is required to be installed. This shall include but not be limited to the following situations:

1. Premises having an auxiliary water supply, unless the quality of the auxiliary supply is in compliance with local standards, and is acceptable to the Department.
2. Premises having internal cross connections that are not correctable, or intricate plumbing arrangements which make it impracticable to ascertain whether or not cross connections exist.
3. Premises where entry is restricted so that inspections for cross connections cannot be made with sufficient frequency or at sufficiently short notice to assure that cross connections do not exist.
4. Premises having a repeated history of cross connections being established or re-established.
5. Premises on which any substance is handled under pressure so as to permit entry into the public water supply, or where a cross connection could reasonably be expected to occur. This shall include the handling of process waters and cooling waters.
6. Premises where materials of a toxic or hazardous nature are handled such that if back siphonage should occur, a serious health hazard may result.
7. The following types of facilities will fall into one of the above categories where a backflow prevention device is required to protect the public water supply. A backflow prevention device shall be installed at these facilities unless the Department determines no hazard exists. Partial list:

Hospitals, mortuaries, clinics
Laboratories
Schools with laboratories
Nursing Homes
Sewage treatment plants
Food or beverage processing plants
Chemical plants using a water process
Metal plating industries
Petroleum processing or storage plants
Radioactive material processing plants or nuclear reactors
Laundry and dyeing facilities
Paper processing plants
Auxiliary water systems
Cooling systems
Farming operations
Fire protection systems
Sprinkler systems filled with anti-freeze solutions
Film processing equipment
Irrigation systems
Storage tanks, cooling towers, and circulating systems
Steam generating systems
Water treatment plants

112.090. Equipment.

1. The type of protective device required shall be determined by the City Water Department and shall depend on the degree of hazard which exists.
2. An air gap separation or a reduced pressure principle backflow prevention device shall be installed where the water supply may be contaminated with sewage, industrial waste of a toxic nature or other contaminant which would cause a health or system hazard.
3. In the case of a substance which may be objectionable but not hazardous to health, a double check valve assembly, air gap separation or a reduced pressure principle backflow prevention device shall be installed.
4. Backflow prevention devices shall be installed at the meter, or at a location designated by the Department. The device shall be located so as to be readily accessible for maintenance and testing, and where no part of the device will be submerged.
5. Backflow prevention devices shall be installed by the Department at the customer's expense.

6. Any protective device required in this section shall be a model approved by the Department. A double check valve assembly or a reduced pressure principle backflow prevention device will be approved.

112.100. Annual inspection. Backflow prevention devices shall be annually inspected and tested by the City Water Department at the customer's expense, or more often where successive inspections indicate repeated failure. The devices shall be repaired, overhauled, or replaced by the Department at the customer's expense whenever they are found to be defective. Inspections, tests and repairs and records thereof shall be performed by the Department at the customer's expense. Failure of the customer to cooperate in the installation, maintenance, testing or inspection of backflow prevention devices required in this section shall be grounds for the termination of water to the premises.

Adopted by Ordinance 6/14/93.