

## CHAPTER 94

# BACKFLOW PREVENTION REGULATIONS

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**94.01 DEFINITIONS.** The following terms are defined for use in the chapters in this Code of Ordinances pertaining to water service system:

1. "Approved backflow prevention assembly" means assembly that has been approved by the University of Southern California Foundation for Cross Connection Control and Hydraulic Research (USC) and meets AWWA Standard C511-89 for reduced pressure principal assemblies and ANSI/AWWA Standard C510-17(R21) for double check assemblies. The backflow prevention assembly must also be listed by the International Association of Plumbing and Mechanical Officials.
2. "Backflow" means the flow of water or other liquids, mixtures, or substances, under positive or reduced pressure in the distribution pipes of potable water supply from any source other than its intended source.
3. "Backpressure" means backflow caused by water pressure in a facility that is higher than the pressure of the public drinking water supply be caused by pumps, boilers, gravity or other sources of pressure.
4. "Backsiphonage" the reverse flow of used, contaminated, or polluted water from a plumbing fixture or device into the public drinking water due to reduced pressure. This can be caused by nearby firefighting, water main breaks or repairs.
5. "Backflow prevention assembly technician" means a person registered with the State of Iowa Department of Public Health to test or repair backflow prevention assemblies and to report on the conditions of these assemblies.
6. "Containment" means the installation of an approved testable backflow prevention assembly on the water service line immediately following the meter or at the service entrance to the building and always before any unprotected branch.
7. "Contaminant" means a substance that will impair the quality of the water to a degree that it creates a serious health hazard to the public leading to poisoning or the spread of disease.
8. "Cross connection" means any actual or potential connection between the public potable water supply and a possible source of contamination or pollution.
9. "Customer" means the owner, operator, or occupant of a building or property which has a water service from a public potable water system or owners of private water systems that receive their water from public potable water systems.
10. "Degree of hazard" means the rating of a cross connection or water service determined by the City Superintendent that indicates the potential risk to public health

through contamination or pollution. Facilities rated as high hazard will be required to install an approved reduced pressure principal assembly for containment.

11. “Double check valve assembly” means a backflow prevention assembly consisting of two independently acting, internally loaded check valves, four properly located test ports and two isolation valves.

12. “High hazard” means an actual or potential cross-connection which may create a hazard to public health through the introduction of non-potable or poisonous substances into the public water supply.

13. “Isolation” means a method of backflow prevention in which backflow prevention device is located to correct a cross connection at an in-plant location rather than at a water service entrance.

14. “Low hazard” means a cross-connection which may alter the quality of potable water to a degree which does not create a hazard to the public health, but which does adversely and unreasonably affect the aesthetic qualities of such potable waters for domestic use.

15. “Reduced pressure principal assembly” means a backflow prevention assembly consisting of two independently acting, internally loaded check valves, a differential pressure relief valve, four properly located test ports, and two isolation valves.

16. “Superintendent” means the person directly responsible for the municipal water supply and system as assigned by the City Administrator.

17. “Thermal expansion” means the volumetric increase of water pressure due to heating resulting in increased pressure in a closed session.

18. “USC” means the University of Southern California Foundation for Cross Connection Control and Hydraulic Research.

19. “Water service” means the connection between the public potable water system and a customer’s property or building.

20. “Water service entrance” means the point where the water service enters the customer’s property: generally considered to be the outlet end of the water meter and always before any unprotected branch.

**94.02 PURPOSE.** This chapter is intended to accomplish the following:

1. Protect the public potable water supply from potential backflow contamination from unprotected cross connections within a customer’s internal plumbing system.
2. Identify all connections that present an actual or potential risk to the public potable water supply and require approved backflow protection at the water service entrance (containment).
3. Maintain records of all installed backflow prevention assemblies and provide notice of annual testing requirements.
4. Enforce compliance of installation and annual testing requirements by terminating customers failing to comply.

**94.03 CROSS CONNECTION PROHIBITED.**

1. Cross connections from any well or other source of water to any piping system connected to the City's water system are prohibited. It is the customer's obligation to ensure all new and existing service lines meet the requirements of State, federal, and local ordinance, including all applicable plumbing codes.
2. All new and existing service lines are subject to the requirements of local and State of Iowa plumbing codes respecting backflow prevention and are also subject to the specific requirements set forth in this Code of Ordinances.

**94.04 RESPONSIBILITY.** The responsibilities of the customer are the following:

1. Customer shall be responsible for ensuring that no cross connections exist within the property served without an approved backflow prevention assembly for containment.
2. Customer shall prevent actual or potential pollutants and/or contaminants from entering the water system through backflow.
3. All water-using devices shall be designed to prevent backflow to the water system.
4. Where harmful contaminants or pollutants are used with any device or process connected to the water system, customer must install and maintain an approved backflow prevention assembly for containment at the water service entrance in accordance with these ordinances and any applicable plumbing code requirements.
5. All permanently installed underground irrigation systems shall contain an approved backflow prevention assembly for containment at the water service entrance designed to prevent backflow to the water system. If lawn irrigation is the only cross connection within a property, an approved reduced pressure principal assembly may be installed on the irrigation connection in lieu of installation at the meter. This will be categorized as containment for the purposes of enforcement.
6. All commercial, multi-tenant properties served by one water meter are deemed to have a potential for cross connections to non-potable or hazardous substances as the City does not have control of tenants changing in this type of facility.

**94.05 ADMINISTRATION.** The provisions of this section shall be administered according to the following:

1. For New Water Service.
  - A. An approved backflow prevention assembly for containment shall be installed at the domestic water service entrance to all newly constructed or remodeled commercial buildings.
  - B. For the purposes of this ordinance, any upgrade to an existing service line is deemed a new service.
  - C. Before the water service is turned on for use, the Superintendent (or their designee) shall inspect the installation of the backflow prevention assembly. The City may withhold approval of new water service to a new service line until all backflow protection requirements are met.

2. Existing Service Connections.
  - A. The City shall investigate service provided to existing service lines to determine the degree of cross contamination hazard that may exist or potentially exist and may require customers to complete a water usage inventory to allow evaluation of degree of hazard or may request access to the location served for purposes of inspection of water usage.
  - B. If a customer fails to provide access upon request, a high hazard condition shall be deemed to exist and an approved backflow prevention assembly for containment must be installed at the water service entrance within 30 days of notification or service will be terminated until such time as the required installation is complete.
  - C. Inspections under this ordinance may be performed by the Water Superintendent, Building Inspector, or other designee.
  - D. If the City finds an actual or potential high hazard cross connection to non-potable or hazardous substances, the City shall order the installation of approved backflow protection for containment and shall give written notice by mail or hand delivery to the customer of such order (the "Installation Notice").
  - E. The customer shall install an approved backflow prevention assembly for containment within 30 days from notification to avoid termination. The City has the authority to determine a schedule of compliance for the customer.
  - F. The installation of a backflow prevention assembly for containment will be considered complete when a passing backflow test is submitted using the method specified by the City and a confirmation inspection is completed by the City.
  - G. Thermal expansion must be addressed whenever a containment backflow prevention assembly is installed.
  - H. If the customer fails to complete installation pursuant to an Installation Notice, then the water service at the affected service line shall be terminated until such time as the required installation is complete and a passing backflow test form is submitted to the City.
  - I. If during an on-premises investigation the City determines that there is a high hazard cross connection, the City reserves the right to terminate the water service until an approved backflow prevention assembly has been installed and tested. The City has the authority to determine a schedule of compliance for the customer.
  - J. The responsibility to comply with all of the requirements of State and local codes in addition to this ordinance are solely the customer's and not conditioned upon whether the City has notified the customer that they have a high hazard cross-connection and that they shall install backflow-prevention assemblies for containment.

**94.06 PRIVATE WELLS.** Private wells and any piping served by a private well shall be physically disconnected from any plumbing pipes and fixtures that will be connected to the City distribution system. If a well will be left in service, no well equipment or piping shall be

allowed to remain in the building even if it is physically separated or isolated with a valve unless an approved reduced pressure principal assembly is installed at water service entrance.

**94.07 INSTALLATION OF BACKFLOW PREVENTION ASSEMBLIES FOR CONTAINMENT.** Installation of backflow prevention assemblies for containment must comply with USC guidelines, all applicable State and local codes in addition to the manufacturer's recommendations.

1. General requirements for the installation of backflow prevention assemblies include the following:
  - A. Installed in horizontal plumbing unless approved for vertical installation by USC.
  - B. Installed immediately following the water meter.
  - C. Installed upstream of branch piping.
  - D. Installed near an appropriately sized drain.
  - E. Installed to be protected from freezing.
  - F. Installed to be protected from thermal expansion if hot water is used within the water system.
  - G. Installed not to create a safety hazard (e.g. above an electrical panel).
  - H. Installed above grade and be accessible for testing; not less than 12" from the bottom of the assembly to the floor or grade, and not more than 36" high.
  - I. No device or assembly for containment shall be removed, relocated or substituted without approval of the City.

**94.08 TESTING & REPAIR.** General instructions for the testing and repair of backflow prevention assemblies are as follows:

1. Tests and repairs must be performed by a backflow prevention assembly technician registered with the Iowa Department of Public Health.
2. The costs of all testing shall be paid by the customer.
3. The backflow prevention assemblies shall be tested and inspected according to the following:
  - A. A backflow prevention device must be tested immediately following installation.
  - B. A backflow prevention device must be tested annually by the testing date specified by the City. ("Annual backflow test date.")
  - C. A backflow prevention assembly that is out of operation for more than three (3) months must be tested before it is put back into operation.
  - D. A backflow prevention assembly, that fails a test, must be repaired or replaced and then retested.
  - E. Repairs of backflow prevention assemblies shall be according to manufacturer's specifications and requirements.

- F. A backflow prevention assembly must be tested any time the Water Superintendent requires that a test be done.
- 4. A report of the annual test shall be submitted by the tester to the customer and the City using the method specified by the City.
  - A. The required test report shall be past due if the test is not performed and submitted using the method specified by the City by the annual backflow test date.

**94.09 CUSTOMER NON-COMPLIANCE.** The water service may be discontinued in the case of non-compliance with this ordinance. Non-compliance includes, but is not limited to, refusal to allow the City access to property to inspect cross connections, removal of a required backflow prevention assembly, failure to install a required backflow prevention assembly, and failure to properly test or properly repair a backflow prevention assembly when warranted.

**94.10 AUTHORITY.** The backflow protection requirements of this ordinance shall be administered by the City Water Superintendent. The Federal Safe Drinking Water Act of 1974 and the statutes of the *Iowa Administrative Code* shall be recognized. The water purveyor has the primary responsibility for preventing water from unapproved sources, or any other substances, from entering the public potable water system.

*(Chapter 94 – Ord. 1203 – Aug. 24 Supp.)*

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