

CHAPTER 90

WATER SERVICE SYSTEM

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90.01 DEFINITIONS. The following terms are defined for use in the chapters in this Code of Ordinances pertaining to the Water Service System:

1. “Customer” means, in addition to any person receiving water service from the City, the owner of the property served, and as between such parties the duties, responsibilities, liabilities and obligations hereinafter imposed shall be joint and several.
2. “Des Moines Water Works” means the City water utility organized under Chapter 388, *Code of Iowa*, which is officially known as the Board of Water Works Trustees of the City of Des Moines, Iowa.
3. “Water service pipe” means the pipe from the water main to the building served.
4. “Water system” means all public facilities for securing, collecting, storing, pumping, treating, and distributing water.

90.02 MANDATORY CONNECTIONS. All residences and business establishments within the City limits intended or used for human habitation, occupancy or use shall be connected to the public water system, if it is reasonably available and if the building is not furnished with pure and wholesome water from some other source.

90.03 WATER SERVICE PROVIDED BY DES MOINES WATER WORKS. Water service to all customers, within and without the City, that are connected to the water system of the City shall be provided by the Des Moines Water Works, pursuant to the terms of a Chapter 28E Agreement between the City and the Des Moines Water Works. All such service shall be provided directly by Des Moines Water Works as the water service provider to customer and shall be pursuant to the rates, fees, rules, and regulations established by the Des Moines Water Works from time to time.

90.04 PERMITS. Before any person makes a connection with the public water system, a written permit must be obtained from the Des Moines Water Works as provided in its rules and regulations.

90.05 FEES AND CHARGES. Fees and charges for permits, taps, connections, and all other services, including system development fees, shall be established by, collected by, and subject to the policies and procedures of the Des Moines Water Works.

90.06 COLLECTIONS AND LIENS. The Des Moines Water Works shall have, and may exercise, all authority for collection of water rates and charges granted by law, including discontinuing service and imposition of liens as provided by law.

90.07 COMPLIANCE WITH PLUMBING CODE. The installation of any water service pipe and any connection with the water system shall comply with all pertinent and applicable provisions, whether regulatory, procedural, or enforcement provisions, of the Plumbing Code of the City and the laws of the State of Iowa.

90.08 PLUMBER REQUIRED. All installations of water service pipes and connections to the water system shall be made by a State-licensed plumber, except that Des Moines Water Works shall be allowed to make routine service line repairs in connection with water main repairs.

90.09 FAILURE TO MAINTAIN. When any portion of the water service pipe which is the responsibility of the property owner becomes defective or creates a nuisance and the owner fails to correct such nuisance, the Des Moines Water Works may do so, and the City may assess the costs thereof to the property.

90.10 COMPLETION BY THE CITY. Should any excavation be left open or only partly refilled for twenty-four hours after the water service pipe is installed and connected with the water system, or should the work be improperly done, the City shall have the right to finish or correct the work, and the Council shall assess the costs to the property owner or the plumber. If the plumber is assessed, the plumber must pay the costs before receiving another permit, and the plumber's bond or cash deposit shall be security for the assessment. If the property owner is assessed, such assessment may be collected with, and in the same manner as, general property taxes.

90.11 OPERATION OF CURB VALVE AND HYDRANTS. It is unlawful for any person, except the Des Moines Water Works or authorized City personnel, to turn water on at the curb valve, and no person, unless specifically authorized by the City or the Des Moines Water Works, shall open or attempt to draw water from any fire hydrant for any purpose whatsoever.

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CHAPTER 91

CROSS CONNECTION CONTROL

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91.01 DEFINITIONS. The following definitions apply only to this chapter. For the purpose of this chapter, these definitions supersede definitions given elsewhere in this Code of Ordinances.

1. “Administrative authority” means Des Moines Water Works and the City of Windsor Heights.
2. “Approved backflow prevention assembly for containment” means a backflow prevention assembly which is listed by the University of Southern California Foundation for Cross Connection Control and Hydraulic Research as having met the requirements of ANSI-AWWA Standard C510-97, *Double Check Valve Backflow Prevention Assemblies*, of ANSI-AWWA Standard C511-97, *Reduced Pressure Principle Backflow Prevention Assemblies*, for containment. The listing shall include the limitations of use based on the degree of hazard. The backflow prevention assembly must also be listed by the International Association of Plumbing and Mechanical Officials.
3. “Approved backflow prevention assembly for containment in a fire protection system” means a backflow prevention assembly to be used in a fire protection system which meets the requirements of Factory Mutual Research Corporation (FM) and Underwriters Laboratory (UL), and the requirements of the Fire Code and the Building Code of Windsor Heights, in addition to the requirements of Section 91.07 of this chapter. Devices sized smaller than 2½ inches which have not been listed by Underwriters Laboratory (UL) and tested by Factory Mutual Research Corporation (FM) may be allowed if they meet the requirements of the Fire Code and the Building Code.
4. “Auxiliary water supply” means any water supply on or available to the premises other than City of Windsor Heights or its designee’s approved public water supply, such as (but not limited to) a private well, pond, or river.
5. “Containment” means a method of backflow prevention which requires the installation of a backflow prevention assembly at the water service entrance.
6. “Cross connection” means any actual or potential connection or arrangement, physical or otherwise, between a potable water supply system and any plumbing fixture or tank, receptacle, equipment, or device, through which it may be possible for non-potable, used, unclean, polluted, and contaminated water or other substance to enter into any part of such potable water system under any condition.

7. “Customer” means the owner, operator, or occupant of a building or property which has a water service from a public water system, or the owner or operator of a private water system which has a water service from a public water system.
8. “Degree of hazard” means the rating given by the administrative authority of a cross connection or water service which indicates its potential to cause contamination or pollution of the public water supply.
9. “Double check valve backflow prevention assembly” means a backflow prevention device consisting of two independently acting internally loaded check valves, four properly located test cocks, and two isolation valves.
10. “High hazard cross connection” means a cross connection which may cause an impairment of the quality of the public potable water supply by creating an actual hazard to public health, through poisoning or through the spread of disease by sewage, industrial fluids, or waste.
11. “Isolation” means a method of backflow prevention in which a backflow prevention assembly is located at the cross connection rather than at the water service entrance.
12. “Low hazard cross connection” means a cross connection which may cause an impairment of the quality of the public potable water supply to a degree which does not create a hazard to public health, but which does adversely and unreasonably affect the aesthetic qualities of such potable waters for domestic use.
13. “Reduced pressure principle backflow prevention assembly” means a backflow prevention device consisting of two independently acting internally loaded check valves, a pressure relief valve, four properly located test cocks, and two isolation valves.
14. “Registered backflow prevention assembly technician” means a person who is registered by the State of Iowa to test and repair backflow prevention assemblies and report on the condition of those assemblies.
15. “Thermal expansion” means volumetric increase of water due to heating resulting in increased pressure in a closed system.
16. “Water service” means, depending on the context, the physical connection between a public water system and a customer’s building, property, or private water system, or the act of providing potable water to a customer.
17. “Public water supplier,” for the purpose of this section, means the entity providing public water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serving an average of at least 25 people for at least 60 days a year.

91.02 ADMINISTRATIVE AUTHORITY.

1. The City of Windsor Heights or Des Moines Water Works shall have the right to enter, with the consent of the customer or upon the basis of a suitable warrant issued by a court of appropriate jurisdiction, any property to inspect for possible cross connections.
2. Des Moines Water Works shall maintain records of cross connection hazard surveys, and the installation, testing, and repair of all backflow prevention assemblies installed for containment purposes.

91.03 NEW WATER SERVICES.

1. Plans shall be submitted to Des Moines Water Works for review on all new water services to determine the degree of hazard.
2. Des Moines Water Works shall determine the type of backflow prevention assembly required for containment based on the degree of hazard.
3. The Des Moines Water Works shall inspect the installation of the required backflow prevention assembly for containment before the initiation of water service.

91.04 EXISTING WATER SERVICES.

1. Upgrades of existing water services shall be treated as new water services for the purpose of this section.
2. Customers whose premises are not classified as single-family residential shall complete and return a "Water Usage Inventory" to Des Moines Water Works to be used to determine the degree of hazard of the facility.
3. Des Moines Water Works shall, on the basis of information received from the Water Usage Inventory or gathered through on-site investigations or surveys, determine the degree of hazard and type of backflow prevention assembly required for containment.
4. Within the time frame specified in writing by Des Moines Water Works, the customer shall install a backflow prevention assembly for containment.
5. For existing water services, Des Moines Water Works may inspect the premises to determine the degree of hazard. When high hazard cross connections are present, Des Moines Water Works shall assign a deadline for the installation of a backflow prevention assembly for containment.
6. Failure of the customer to install a backflow prevention assembly by the deadline as required will result in termination of the water service until the installation is complete.
7. Failure of Des Moines Water Works to notify a customer that a high hazard cross connection exists and that a backflow prevention assemblies for containment must be installed in no way relieves a customer of the responsibility to comply with all requirements of this section.

91.05 CUSTOMER RESPONSIBILITIES.

1. The customer shall be responsible for ensuring that no cross connections exist without approved backflow protection within his or her premises, starting at the point of service from the public potable water system.
2. The customer shall, at his or her own expense, cause installation, operation, testing, and maintenance of backflow prevention assemblies.
3. The customer shall ensure that copies of records of the installation and of all tests and repairs made to all backflow prevention assemblies be submitted to the Des Moines Water Works on the approved form within fifteen (15) days after testing and/or repairs are completed.

4. In the event of a backflow incident, the customer shall immediately notify Des Moines Water Works of the incident, and the Des Moines Water Works will recommend steps to confine the contamination or pollution.

91.06 REQUIRED BACKFLOW PREVENTION ASSEMBLIES FOR CONTAINMENT – WATER SERVICES.

1. An air gap or an approved reduced pressure principle backflow prevention assembly is required for water services having one or more cross connections which the administrative authority has classified as high hazard.
2. An approved double check valve assembly is required for water services having no high hazard cross connections but having one or more cross connections which Des Moines Water Works has classified as low hazard.

91.07 REQUIRED BACKFLOW PREVENTION ASSEMBLIES FOR CONTAINMENT – FIRE PROTECTION SYSTEMS.

1. A reduced pressure principle backflow prevention assembly shall be installed on all new and existing fire protection systems, which are determined to have any one of the following:
 - A. Direct connections from public water mains with an auxiliary water supply on or available to the premises for pumper connection.
 - B. Interconnections with auxiliary supplies such as reservoirs, rivers, ponds, wells, mills, or other industrial water systems.
 - C. Use of antifreezes or other additives in the fire protection system.
 - D. Combined industrial and fire protection systems supplied from public water mains only, with or without gravity storage or pump suction tanks.
 - E. Any other facility, connection, or condition, which may cause contamination.
2. A double check valve assembly will be required for all other fire protection systems. The double check valve assembly shall be required on all new systems at the time of installation and on existing systems at the time that they are upgraded.
3. Submittal of proposed backflow prevention devices to Des Moines Water Works does not relieve the designer or the sprinkler contractor of the responsibility of submitting plans, including backflow prevention devices to the City of Windsor Heights for approval.

91.08 BACKFLOW PREVENTION ASSEMBLY TECHNICIANS.

1. A backflow prevention assembly technician registered by the State of Iowa shall include his or her registration number on all correspondence and forms required by or associated with this chapter.
2. Noncompliance with any of the following by a registered technician shall be grounds for reporting said individual to the State Health Department.
 - A. Improper testing or repair of backflow prevention assemblies.
 - B. Improper reporting of the results of testing or of repairs made to backflow prevention assemblies.

- C. Failure to meet registration requirements.
- D. Related unethical practices.

91.09 INSTALLATION OF BACKFLOW PREVENTION ASSEMBLIES.

1. The required backflow prevention assemblies for containment shall be installed in horizontal plumbing immediately following the meter or as close to that location as deemed practical by Water Works. In any case, it shall be located upstream from any branch piping. Installation at this point does not eliminate the responsibility of the customer to protect the water supply system from contamination or pollution between the backflow prevention assembly and the water main.
2. Reduced pressure principle backflow prevention assemblies shall be installed so as to be protected from flooding.
3. Reduced pressure principle backflow prevention assemblies shall not be installed in underground vaults or pits.
4. All backflow prevention assemblies shall be protected from freezing. Those devices used for seasonal water services may be removed in lieu of being protected from freezing; however, the devices must be reinstalled and tested by a registered backflow prevention technician prior to service being reactivated.
5. If hot water is used within the water system, thermal expansion shall be provided for when installing a backflow prevention assembly for containment.
6. Provisions shall be made to convey the discharge of water from reduced pressure principle backflow prevention assemblies to a suitable drain.
7. No backflow prevention assemblies shall be installed in a place where it would create a safety hazard, such as, but not limited to over an electrical panel, or above ceiling level.
8. If interruption of water service during testing and repair of backflow prevention assemblies for containment is unacceptable, another backflow prevention assembly, sized to handle the temporary water flow needed during the time of test or repair, should be installed in parallel piping.
9. All backflow prevention assemblies shall be installed so that they are accessible for testing.
10. All shut-off valves shall conform to the current edition of the *Manual of Cross Connection Control* (University of Southern California) requirements for either ball or resilient seat gate valves at the time of installation. Ball valves shall be used on assemblies installed in piping two inches and smaller and resilient seat gate valves on assemblies installed in piping larger than two inches.
11. Location and protection of the containment assembly shall be approved by Des Moines Water Works prior to installation.

91.10 TESTING OF BACKFLOW PREVENTION ASSEMBLIES. Testing of backflow prevention assemblies shall be performed by a registered backflow prevention assembly technician. The costs of tests required in the following subsections shall be borne by the customer.

1. Backflow prevention assemblies shall be tested upon installation and tested and inspected at least annually.

2. Backflow prevention assemblies, which are in place, but have been out of operation for more than three months, shall be tested before being put back into operation. Backflow prevention assemblies used in seasonal applications shall be tested before being put into operation each season.
3. Any backflow prevention assembly which fails a periodic test shall be repaired or replaced. When water service has been terminated for noncompliance, the backflow prevention assembly shall be repaired or replaced prior to the resumption of water service. Backflow prevention assemblies shall be retested by a registered backflow prevention assembly technician immediately after repair or replacement.
4. Des Moines Water Works may require backflow prevention assemblies to be tested at any time in addition to the annual testing requirement.
5. The registered backflow prevention assembly technician shall report the successful test of a backflow prevention assembly to the customer and to Des Moines Water Works within fifteen (15) days of the test.

Des Moines Water Works may require, at the owner's expense, additional tests of individual backflow prevention assemblies as it shall deem necessary to verify test procedures and results.

91.11 REPAIR OF BACKFLOW PREVENTION ASSEMBLIES.

1. All repairs to backflow prevention assemblies shall be performed by registered backflow prevention assembly technicians.
2. The registered backflow prevention assembly technician shall not change the design, material, or operational characteristics of a backflow prevention assembly during repair or maintenance, and shall use only original manufacturer replacement parts.
3. The registered backflow prevention assembly technician shall report the repair of a backflow prevention assembly to the customer and to the Des Moines Water Works within fifteen (15) days of the repair. The report shall include the list of materials or replacement parts used.
4. Any time fire services are discontinued for a period of time longer than necessary to test the device; the tester is required to notify the Fire Marshal's office that the fire service is shut off for repair.

91.12 CUSTOMER NONCOMPLIANCE. The water service may be discontinued in the case of noncompliance with this section. Noncompliance includes (but is not limited to) the following:

1. Refusal to allow Des Moines Water Works access to the property to inspect for cross connections.
2. Removal of a backflow prevention assembly, which has been required by Des Moines Water Works and/or the City of Windsor Heights.
3. Bypassing of a backflow prevention assembly which has been required by Des Moines Water Works and/or the City of Windsor Heights.
4. Providing inadequate backflow protection when cross connections exist.
5. Failure to install a backflow prevention assembly, which has been required by Des Moines Water Works and/or the City of Windsor Heights.

6. Failure to test and/or properly repair a backflow prevention assembly as required by Des Moines Water Works and/or the City of Windsor Heights.
7. Failure to comply with the requirements of this chapter.

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