

# ARTICLE G. CROSS-CONNECTION CONTROL; CONTAINMENT PROVISIONS

## 8-2G-1: ADOPTION OF CROSS-CONNECTION CONTROL; CONTAINMENT PROVISIONS:

This Article shall consist of the Cross-Connection Control; Containment Provisions as established by the West Des Moines Water Works. (Ord. 1297, 5-4-1998)

## 8-2G-2: LICENSE AND PERMIT REQUIREMENTS:

All license and permit requirements for work on backflow prevention assemblies shall be as established for plumbing work in the Plumbing Code Ordinance<sup>1</sup> adopted by the City, and established requirements utilized by the West Des Moines Water Works. (Ord. 1297, 5-4-1998)

## 8-2G-3: DEFINITIONS:

Where terms, phrases and words are not defined, they shall have their ordinary accepted meanings within the context with which they are used. The following definitions shall be applicable to this Article:

**ADMINISTRATIVE AUTHORITY:** The administrative authority shall be the West Des Moines Water Works and Building Division of the Community Development Department.

**APPROVED BACKFLOW PREVENTION ASSEMBLY FOR CONTAINMENT:** 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 ANSI-AWWA Standard C510-89, "Double Check Valve Backflow-Prevention Assemblies", or ANSI-AWWA Standard C511-89, "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.

**APPROVED BACKFLOW PREVENTION ASSEMBLY FOR CONTAINMENT IN A FIRE PROTECTION SYSTEM:** 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 requirement to the Fire Code and the Building Code of the City of West Des Moines, in addition to the requirements of the "administrative authority" as defined in this Section. Devices sized smaller than two and one-half inches (2<sup>1</sup>/<sub>2</sub>" ) which have not been listed by Underwriters Laboratory (UL) and tested by Factory Mutual Research Corporation (FM) may be allowed if approved by the Fire Marshal and the Building Official.

**AUXILIARY WATER SUPPLY:** Any water supply on or available to the premises other than the water

purveyor's approved public water supply such as, but not limited to, a private well, pond or river.

**CONTAINMENT:** A method of backflow prevention which requires the installation of a backflow prevention assembly at the water service entrance.

**CROSS-CONNECTION:** 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 nonpotable, used, unclean, polluted and contaminated water, or other substance, to enter into any part of such potable water system under any condition.

**CUSTOMER:** The owner, operator, 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.

**DEGREE OF HAZARD:** The rating of a cross-connection or water service which indicates if it has the potential to cause contamination or pollution.

**DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY:** A backflow prevention device consisting of two (2) independently acting internally loaded check valves, four (4) properly located test cocks, and two (2) isolation valves.

**HIGH HAZARD CROSS-CONNECTION:** A cross-connection which may cause an impairment of the quality of the potable water by creating an actual hazard to the public health, through poisoning or through the spread of disease by sewage, industrial fluids or waste.

**ISOLATION:** A method of backflow prevention in which a backflow prevention assembly is located at the cross-connection rather than at the water service entrance.

**LOW HAZARD CROSS-CONNECTION:** A cross-connection which may cause an impairment of 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.

**REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY:** A backflow prevention device consisting of two (2) independently acting internally loaded check valves, a different pressure relief valve, four (4) properly located test cocks, and two (2) isolation valves.

**REGISTERED BACKFLOW PREVENTION ASSEMBLY TECHNICIAN:** A person who is registered by the State of Iowa to test or repair backflow prevention assemblies and report on the condition of those assemblies.

**THERMAL EXPANSION:** Volumetric increase of water due to heating resulting in increased pressure in a closed system.

**WATER SERVICE:** Depending on the context, water service is 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.

**WATER WORKS:** For the purposes of this Article, Water Works shall mean the West Des Moines Water Works. (Ord. 1297, 5-4-1998)

**8-2G-4: ADMINISTRATIVE AUTHORITY:**

- A. Water Works, and the Building Division 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.
  
- B. 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. (Ord. 1297, 5-4-1998)

**8-2G-5: NEW WATER SERVICE:**

- A. Plans shall be submitted to the Water Works for review on all new water services in order to determine the degree of hazard.
  
- B. The Water Works shall determine the type of backflow prevention assembly required for containment based on the degree of hazard.
  
- C. The Building Division shall require the installation of the appropriate backflow prevention assembly for containment before the initiation of water service. (Ord. 1297, 5-4-1998)

**8-2G-6: EXISTING WATER SERVICES:**

- A. Upgrades of existing water services shall be treated as new water services.
  
- B. The Water Works shall publish and make available to each customer a copy of the standards used to determine the degree of hazard.
  
- C. The Water Works shall, in writing, notify customers whose premises are classified as single-family residential of the provisions of this Article and shall require compliance therewith.

- D. Customers whose premises are not classified as single-family residential shall complete and return to the Water Works a cross-connection hazard survey to be used to determine the type of containment device.
- E. The Water Works shall, on the basis of information received from customers or gathered through on-premises investigations or surveys, determine the type of backflow prevention assembly required for containment based on the degree of hazard.
- F. Within the time frame specified in writing by the Water Works, the customer shall install a backflow prevention assembly for containment required by the Water Works.
- G. For existing water services, the Water Works may inspect the premises to determine the degree of hazard. When high hazard cross-connections are found, the Water Works shall, at its sole discretion: 1) develop a schedule of compliance which the customer shall follow; or 2) terminate the water service until a backflow prevention assembly for containment required by the Water Works has been installed.
- H. Failure of the Water Works to notify a customer that they are believed to have a high hazard cross-connection and that they shall install backflow prevention assemblies for containment in no way relieves a customer of the responsibility to comply with all requirements of this Article. (Ord. 1297, 5-4-1998)

## **8-2G-7: CUSTOMER RESPONSIBILITIES:**

- A. The customer shall be responsible for ensuring that no cross-connections exist without approved backflow protection within his premises starting at the point of service from the public potable water system.
- B. The customer shall, at his own expense, cause installation, operation, testing and maintenance of the backflow prevention assemblies required by the Water Works.
- C. The customer shall ensure that the Water Works is provided with copies of records of the installation and of all tests and repairs made to the backflow prevention assembly on the approved form within fifteen (15) days after testing and/or repairs are completed.
- D. In the event of a backflow incident, the customer shall immediately notify the Water Works of the incident and take steps to confine the contamination or pollution. (Ord. 1297, 5-4-1998)

## **8-2G-8: REQUIREMENTS FOR BACKFLOW PREVENTION ASSEMBLIES:**

### **A. 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 Water Works 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 the Water Works has classified as low hazard.

### **B. 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 the Water Works determined to have any 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 the 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 shall be required on all new systems at the time of installation and on existing systems at the time that they are upgraded.

### **C. Backflow Prevention Assembly Technicians: A backflow prevention assembly technician registered by the State of Iowa shall include his registration number on all correspondence and forms required by or associated with this Article.**

### **D. Registered Backflow Prevention Assembly Technician Noncompliance: Noncompliance with any of the following by a registered technician shall be grounds for reporting said individual to the State Health Department:**

1. Improper testing or repair of backflow prevention assemblies.
2. Improper reporting of the results of testing or of repairs made to backflow prevention assemblies.
3. Failure to meet registration requirements.

#### 4. Related unethical practices.

### E. 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 the 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 containment 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.
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 need 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 as stated in section 1003.
10. All shut-off valves shall conform with 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 (2") and smaller and resilient seat gate valves on assemblies installed in piping larger than two inches (2").
11. Location and protection of the assembly shall be approved by the Water Works and Department of Community Development prior to installation.

### F. Testing Of Backflow Prevention Assemblies:

1. Testing of backflow prevention assemblies shall be performed by a registered backflow prevention assembly technician. The costs of tests required in subsection F2 through F5 of this Section, shall be the responsibility of the owner.
2. Backflow prevention assemblies shall be tested upon installation and tested and inspected at least annually.

3. Backflow prevention assemblies which are in place, but have been out of operation for more than three (3) 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.
4. 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.
5. Water Works may require backflow prevention assemblies to be tested at any time in addition to the annual testing requirement.
6. The registered backflow prevention assembly technician shall report the successful test of a backflow prevention assembly to the customer and to the Water Works on the form provided by the Water Works within fifteen (15) days of the test.
7. Water Works may require, at its own cost, additional tests of individual backflow prevention assemblies as it shall deem necessary to verify test procedures and results.

#### G. 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 Water Works on the form provided by the Water Works within fifteen (15) days of the repair. The report shall include the list of materials or replacement parts used.

#### H. Customer Noncompliance: The water service may be discontinued in the case of noncompliance with section 1003A. Noncompliance includes, but is not limited to, the following:

1. Refusal to allow the Water Works and/or the Building Inspection Division personnel access to the property to inspect for cross-connections.
2. Removal of a backflow prevention assembly which has been required by the Water Works.
3. Bypassing of a backflow prevention assembly which has been required by the Water Works.
4. Providing inadequate backflow prevention when cross-connections exist.
5. Failure to install a backflow prevention assembly which has been required by the Water Works.
6. Failure to test and/or properly repair a backflow prevention assembly as required by the Water Works.

7. Failure to comply with the requirements of this Article. (Ord. 1297, 5-4-1998)

## **8-2G-9: BOARD OF APPEALS:**

Any person aggrieved by any decision by the Water Works Department regarding this Article may appeal to the Water Works Board utilizing their procedures and guidelines.

A. Appeals Procedure: Any person aggrieved by any decision made by the Building Official regarding this Article may file an appeal to the Mayor and City Council. The appeal shall be completed by filing with the City Clerk within ten (10) days from the date of the written decision of the Building Official, a notice of appeal requesting a hearing based on a claim that the true intent of this Article, or the rules legally adopted thereunder have been incorrectly interpreted.

However, in serving as the Board of Appeals, the Mayor and City Council shall have no authority relative to interpretation of the administrative provisions of this Article, nor shall they be empowered to waive requirements of this Article.

Failure to file a timely written petition as required herein shall constitute a waiver of the right to appeal and the decision of the Building Official shall constitute a final determination.

The application shall be accompanied by copies of plans, specifications, or any pertinent information which may be required to adequately evaluate the appeal. Said appeals shall also be accompanied by a one hundred dollar (\$100.00) filing fee for administrative and publication costs.

Upon receipt of a timely filed written petition to the Mayor and City Council, the City Clerk shall place the appeal on the next regular City Council agenda. Written notification of the time, place and nature of the hearing shall be given to the petitioner within five (5) working days after the written petition is filed with the City Clerk.

The hearing shall be scheduled no later than twenty (20) working days after the date on which the written petition was filed and may be extended for a reasonable period by the Mayor's discretion, or upon written request from the petitioner or the Building Official, for good cause shown. The public shall be noticed of the hearing by use of the media as is typical for other City public hearings.

Due to the failure of a petitioner to appear at a scheduled hearing of an appeal, the Mayor and City Council may proceed with the hearing and make a decision in the absence of the petitioner.

### **B. Hearing Procedure:**

1. The hearing shall be open to the public and shall be recorded, transcribed and maintained. Opportunity shall be afforded all parties to respond and present evidence and arguments on all issues involved. Parties may represent themselves or may be represented by legal counsel, or other individuals of their choosing.
2. Documentary evidence may be received in the form of copies or excerpts if the original is not readily available. Upon request, parties shall be given an opportunity to compare the copy with



the original, if available.

3. Witnesses at the hearing, or available persons whose testimony has been submitted in written form, shall be subject to cross-examination by any party as necessary for a full and true disclosure of the facts.
4. The Mayor shall conduct the hearing and have the power to administer oaths. The Mayor and City Council may cause subpoenas to be issued for such witnesses and the production of such written articles as either party may designate. The subpoenas may be signed by the Mayor and City Council.
5. When five (5) City Councilmembers are not present to hear an appeal, either the appellant or the appellant's representative shall have the right to request a postponement of the hearing.
6. The City Council shall modify or reverse the decision of the Building Official by a concurring vote of three (3) members.
7. The decision of the City Council shall be by resolution. Certified copies shall be furnished to the appellant and to the Building Official.
8. The Building Official shall take immediate action in accordance with the City Council decision.
9. Any person, whether or not a previous party of the appeal, shall have the right to apply to the appropriate court for a writ of certiorari to correct errors of law. Application for review shall be made in the manner and time required by law following the decision.
10. Other remedies to the decision of the City Council shall be by judicial review by the appropriate County District Court and shall be filed within twenty (20) days of the decision. (Ord. 1297, 5-4-1998)

## **8-2G-10: LIABILITY FOR DAMAGES:**

- A. This Article is enacted only for the purpose of securing to individuals the enjoyment of rights and privileges to which they are entitled as members of the public, rather than for the purpose of protecting any individual from harm.
- B. The City, its officers, employees or agents make no representations or warranties of any kind whatsoever, expressed or implied, with respect to the completeness or thoroughness of the inspections and examinations performed under this Article but said inspections are made solely to assist the owner of any building, structure, equipment and premises to meet certain minimum requirements of this Article and to compel, if necessary, the owner to meet the minimum requirements for the protection of the health, welfare and safety of persons and property. Nothing herein contained in this Article shall alleviate the owner of any building, structure, equipment and premises to make an independent inspection in order to fulfill the requirements of this Article nor shall this Article be construed to relieve or lessen the responsibility of any person owning, operating or controlling any building, structure, equipment or premises regulated herein from any damages to any person or property caused by defects. The City, its officers, employees or agents shall not be held as assuming any liability for damages to any person or property by reason of the

inspections authorized by this Article, or any approvals issued herein, or for any act or failure to act in the enforcement of this Article. (Ord. 1297, 5-4-1998)

### **8-2G-11: SAVING CLAUSE:**

If any section, provision, sentence, clause, phrase or part of this Article shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the Article as a whole or any provision, section, subsection, sentence, clause, phrase or part hereof not adjudged invalid or unconstitutional. (Ord. 1297, 5-4-1998)

### **8-2G-12: VIOLATION:**

Any person who violates the provisions of this Article upon conviction shall be punished as set forth in Section [1-4-1](#) of this City Code. (Ord. 1297, 5-4-1998)

### **8-2G-13: EFFECTIVE DATE:**

This Article shall be in full force and effect from and after its passage, approval and publication as provided by law. (Ord. 1297, 5-4-1998)