

# CANTON WATER DEPARTMENT



## POLICY AND PROCEDURE FOR CROSS-CONNECTION CONTROL AND BACKFLOW PREVENTION

CITY OF CANTON, OHIO

## FOREWORD

In accordance with the Federal Safe Drinking Water Act, and requirements of the Ohio Environmental Protection Agency, the Ohio State Plumbing Code; the City of Canton Plumbing Code; and the City of Canton Code of Ordinances; the Canton Water Department has established a policy and procedure for the protection of the public potable water supply.

The Policy and Procedures as outlined herein, along with other applicable codes, rules, and regulations, are designed to provide reasonable protection for the City of Canton's public potable water supply against **Contamination** and/or **Pollution** resulting from backflow and/or backsiphonage through uncontrolled plumbing connections and/or cross-connections.

J. D. Williams, Superintendent  
Canton Water Department

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**POLICY AND PROCEDURE  
FOR  
CROSS-CONNECTION CONTROL  
AND  
BACKFLOW PREVENTION**

**SECTION I. INTENT, PURPOSE, AND CONTROL**

1. INTENT:

To recognize that all Consumer's water systems have connections to various apparatus, vessels, etc., that could have impurities and contaminates in varying degrees and, if not properly controlled and contained, could contaminate or pollute the user's and/or the Public potable water supply system. It is also the intent to apply the principal that the type of protection required shall be determined by whether the impurities are hazardous contaminants or nonhazardous pollutants.

2. PURPOSE :

(a) To protect the City of Canton public potable water system against actual or potential backflow and/or backsiphonage by containment, within a Consumer's premises, any pollution or contaminant that has entered, or may enter, into the Consumer's potable water system through an undiscovered or uncontrolled Cross- Connection on said premises.

(b) To eliminate uncontrolled Cross-Connections to non-potable systems as well as uncontrolled interconnections to any potable water system that is not part of the City of Canton water system, by installing an appropriate Backflow-Prevention Device(s) to isolate such system(s) from that of the City of Canton's potable water system.

3. CONTROL :

Requires cooperation between the City of Canton; Water Department, Plumbing Inspection Department, and the Consumer in the execution of and the adherence of the duties and responsibilities of each as set forth by this Policy, and these Procedures, in conjunction with other applicable codes, rules and regulations.

## **SECTION II. RESPONSIBILITIES :**

### **1. THE CANTON WATER DEPARTMENT (PURVEYOR):**

The Superintendent of the Canton Water Department, as authorized through Ordinances adopted by the City Council of the City of Canton, is primarily responsible for preventing the contamination and pollution of the Public potable water system by instituting a program of "Backflow Prevention". Such responsibility begins at the point of origin of the Public potable water supply and includes all of the distribution system, and terminates at the service connection for the Consumer's water system. The required consumer-supplied backflow-prevention device at the service-connection shall provide maximum (Reduced Pressure Zone assembly-RPZ) or minimum (Double Check Valve Assembly-DCV) protection as concluded by the Superintendent or his authorized representative. In addition, the Superintendent shall exercise reasonable vigilance to ensure that the consumer adheres to this Policy and these Procedures as stated and outlined herein.

### **2. THE PLUMBING INSPECTION DEPARTMENT (INSPECTOR):**

The Plumbing Inspection Department is primarily responsible for enforcing the plumbing code to prevent contamination and pollution within the consumer's water system through a program of "Cross- Connection Control" requiring that all plumbing outlets terminate through an approved air gap or be controlled by an approved mechanical backflow-prevention device. Such responsibility begins at the service-connection to the premises and extends to the extremities of the Consumer's potable water system.

### **3. THE CONSUMER (CUSTOMER):**

The Consumer has the dual responsibility for protecting the potable water in his own system from degradation due to conditions originating on his premises, by complying with the plumbing code, and also for protecting the quality of water in the City of Canton water supply against any potential or actual health hazard(s) generated on or from his premises through uncontrolled cross-connections, by backflow-prevention at the service connection. Therefore, after Authority has been determined the type of backflow protection that is required at a Consumer's service-connection, the Consumer is responsible for the costs of procurement, installation, and maintenance of said device.

**SECTION III. IMPLEMENTATION AND ENFORCEMENT :**

1. This policy and these Procedures shall be implemented immediately for Backflow-Prevention, in conjunction with existing Ohio State Plumbing Code requirements on Backflow-prevention by Cross- Connection Control for all new domestic water, fire protection and irrigation system installations.
2. Implementation of this Policy and these Procedures shall also commence immediately on existing installations. Priority schedules shall be established and evaluations made by the Canton Water Department for the Consumer's retrofit requirement at the service connection, beginning with those Consumers whose premises represent the greatest potential threat to the public potable water system. The Canton Water Department however, shall not be responsible for abatement of cross-connections which may exist within a Consumer's premises. As a minimum, the evaluation shall consider: the existence of cross-connections; the nature of the materials handled on the property; the probability of a backflow occurring; the degree of piping system complexity; and, the potential for system modification.
3. Enforcement of this Policy and there Procedures shall be administered by the Canton Water Department, utilizing it's staff in cooperation with those of the Plumbing Inspection, Health, and Fire Departments of the City of Canton as authorized by Council of the City of Canton.

#### **SECTION IV. INSPECTION OF FACILITIES :**

1. The Consumer, upon request, shall furnish to the Canton Water Department, any pertinent information regarding the Consumer's water system on such premises where backflow and/or backsiphonage are deemed possible through uncontrolled plumbing connections and/or cross-connections,
2. Nothing herein shall relieve the Consumer of the responsibility for conducting or causing to be conducted periodic surveys of water-use practices on his premises to determine whether there are actual or potential uncontrolled cross-connections within the Consumer's water system through which contaminants could flow back into his own or the Canton Water Department public potable water supply. If the premises is classified, restricted or high security with no admittance, maximum (rpz) protection at the service-connection is required.
3. Facilities considered to pose an actual or potential contamination and/or pollution threat to the public potable water supply will be subject to inspection by an authorized representative(s) of the Canton Water Department and, when deemed necessary, in accompaniment with a representative(s) from the Plumbing Inspection, Health, and/or Fire Departments. Inspections will focus on plumbing outlets and potential contaminating or polluting substances within a facility. Inspections will be scheduled at a time mutually agreeable with the Consumer's representative and the Canton Water Department representative(s). Using information gathered, the Canton Water Department will determine the degree of potential backflow hazard and specify the type of backflow protection required at the Consumer's service-connection.
4. If, upon inspection, a facility is found not to be in full compliance with the plumbing code, maximum protection will be required. If the owner brings the facility up to full code compliance within a ninety (90) day period, minimum protection will be allowed at the service-connection provided potential hazards within the premises are low.
5. After reasonable notice to the Consumer, of a violation of this Policy and/or these Procedures existing on the premises, water service shall be discontinued, and any other such precautionary measures taken that are deemed necessary to protect the quality of water in the Canton Water Department potable water supply. Water service shall not be restored until the danger has been eliminated in compliance with the provisions of this Procedure.
6. While in the course of a routine inspection or special investigation, the Inspector(s) discovers a condition of imminent or actual high hazard system contamination, the inspecting department's representative shall be authorized to IMMEDIATELY DISCONTINUE service to the facility. Service will not be restored until the hazardous condition has been corrected and reinspected.
7. In the event of accidental contamination or pollution of the Public potable water supply, the Consumer, if he is so aware, shall IMMEDIATELY NOTIFY the Canton Water Department so that appropriate measures may be taken to contain and isolate the contaminant and/or pollutant.

**NOTE : Cost and liabilities are the Consumer's responsibility, and known failure to report is a criminal offense under City, State and Federal Law.**

**SECTION V. WATER FROM OTHER SOURCES AND FIRE HYDRANTS :**

1. When any premises is served by the Canton Water Department water system, and the owner of said premises continues to have a well or any other source of water, it shall be in violation of this Policy and/or Procedures for the plumbing on said premises to be installed or so interconnected that water in the Canton Water Department water supply and the private water supply can, in any way, become intermingled.
2. Upon discovery of an uncontrolled interconnection on any premises being furnished water through the City water system, as in Item (1) above, the owner of said premises shall be notified that the interconnection must be removed and/or controlled by an approved backflow-prevention device within thirty (30) days, and that failure to remove or correct the interconnection will result in removal of the meter. If the correction is not made within the thirty (30) day period, the meter will be removed and will not be reinstated until the maximum-type backflow prevention is installed at the service connection, and the owner has paid for all associated costs.
3. Booster pumps installed on the service line to or within any premises, must be approved and permitted by the Canton Water Department, and such permitted pumps shall be equipped with a low- pressure cut-off device designed to shut off the booster pump when the pressure on the service line on the suction side of the pump drops to 10 PSI for 30 seconds. It shall be the duty of the water consumer to maintain the low-pressure cut-off device in proper working order at all times and to certify to the Canton Water Department, at least once a year, that the device is operable.

**NOTE :** Consumer shall assume all liabilities.

**SECTION VI. SELECTION OF DEVICES (also see Fig. 10, Appendix):**

1. Vacuum breakers and backflow preventers shall be selected on the basis of the impurities involved and the type of cross-connection. The impurities shall be classified as contaminants (hazardous) and/or pollutants (nonhazardous); and the cross-connection by whether it is a pressure or nonpressure as follows: (See Terminology; page 13, appendix)
  - (a) **CROSS-CONNECTION, NONPRESSURE TYPE:** This type of connection, when not protected by a minimum air gap, shall be protected by an appropriate vacuum breaker or an approved backflow preventer (BFP).
  - (b) **CROSS-CONNECTION, PRESSURE TYPE:** This type connection shall be protected by an approved BFP only.

**CAUTION:** A pressure vacuum breaker shall not be used alone on a pressure-type cross-connection.

**NOTE:** Because an irrigation system serves an environment that is open to atmosphere, it would not be classified as a pressure-type cross-connection. However, due to the special nature of the installation, minimum protection against backflow shall include a pressure vacuum breaker or a double check valve backflow preventer. If chemicals are injected into the system, minimum protection shall include a reduced pressure zone backflow preventer.

2. Vacuum breakers shall be corrosion resistant. Other backflow- prevention devices, including accessories, components, and fittings in sizes 2 inches and smaller shall be bronze with threaded connections. Sizes 2-1/2 inches and larger shall be bronze, or fused epoxy-coated iron inside and out, or galvanized iron, with flanged connections.
3. Each device shall have a brass identification tag, securely attached with corrosion-resistant mechanical fasteners, and include the manufacturer's name, serial number, and maximum working pressure and temperature.
4. Each device must have the appropriately located test cocks.
5. The Canton Water Department shall make the determination of which type of device will be installed for containment.

**SECTION VIII. APPROVAL OF DEVICES :**

All backflow-prevention devices shall be approved in accordance with the applicable standard of the American Society of Sanitary Engineering, the American National Standards Institute, the American Water Works Association, the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research, and the State of Ohio EPA.

**EXCEPTION:** If no standard yet exists for a particular device, or if the device is a derivative of one covered by a national standard, the Canton Water Department shall determine whether the device will be allowed.

## **SECTION VIII. LOCATION AND INSTALLATION OF DEVICES :**

1. Location of all backflow-prevention devices shall be in an area that provides a safe working environment for testing and maintenance. This area shall be readily accessible and free from dirt, extreme cold, heat, and/or electrical hazards.
2. All backflow prevention devices shall be mounted in a horizontal position, unless specifically designed and approved to be mounted in any other position.
3. Installation of all backflow-prevention devices shall be in accordance with the Ohio Administrative Code, the following Procedures and other applicable codes and regulations. Installations for containment shall be by a duly licensed plumbing, mechanical and/or utility contractor; and as approved by the Canton Water Department.
  - (a) When a double check valve backflow-preventer is used in the containment concept, it shall be installed at or as close to the service-connection as practical. When installed in a vault, the construction shall be of water tight design, that will not flood, with a sump if subjected to ground water, and provide an access ladder with sufficient light to permit maintenance, inspecting and testing.
  - (b) When a reduced pressure zone backflow preventer is installed at the service-connection it shall be above ground in a structure that is protected from freezing.

**NOTE:** When a backflow preventer is installed on a service pipe inside a structure on any premises for the purpose of containing said premises, it shall be unlawful to tap into such service pipe between the BFP and the service-connection. Any branch connection(s) on an existing service tap shall be permanently disconnected or equipped with a backflow preventer(s) commensurate with the degree(s) of hazard.

4. Facilities that must have a continuous uninterrupted water supply shall install backflow-prevention devices in parallel for testing and maintenance purposes. In no case shall a bypass arrangement be installed unless it also is equipped with an approved backflow-prevention device.
5. Vacuum breakers and backflow preventers equipped with atmospheric vents, or with relief openings, shall be so installed and so located as to prevent any vent or any relief opening from being submerged. They shall be installed in the position as recommended by the Manufacturer, and prescribed in the following:
  - (a) VACUUM BREAKER, PRESSURE TYPE (PVB): This device shall be installed at least 12 inches above the highest outlet or the overflow level on the nonpotable system. It may be installed upstream of the last shut-off valve. (Fig. 8, Appendix)
  - (b) VACUUM BREAKER, HOSE TYPE (HVB): This device shall be installed directly on the hose threads, if not an integral part of the valve. It may not be subjected to continuous pressure, static or flowing. Nor shall it be attached to a freezeless-type hydrant unless it is a model specifically designated for this service. (fig. 9, Appendix)

**CAUTION:** Freezeless hydrants require manual winterization except those models with integral vacuum breakers and automatic drainage features.

- (c) BACKFLOW PREVENTER, DOUBLE CHECK VALVE (DCV): This device shall not be buried in earth but may be installed below ground as in Para.(2a) provided ball valve test cocks fitted with brass plugs are used. Assembly bolts on bronze DCV's installed in pits shall be resistant to electrolysis. A full-port ball valve in sizes through 2 inch, and a ball or resilient-seated gate valve in sizes above 2 inch, shall be near the inlet and outlet sides of the device. The device shall be provided with three ball valve test cocks and a fourth test cock shall be provided on the upstream side of the inlet shut-off valve. When below ground, a union or flange shall be near the inlet and outlet sides. No intervening connection(s) shall be between the shut-off valves and the backflow preventer. Except where a meter or other device with bronze strainer, integral or attached, is immediately upstream of the backflow preventer, a bronze strainer shall be provided between the inlet shut-off valve and the device on sizes through 2 inch. When used on sizes larger than 2 inch, the strainer shall be of the same material as device.
- (d) BACKFLOW PREVENTER, REDUCED PRESSURE ZONE (RPZ): This device shall not be installed below ground. Where relief valve discharge could cause water damage, it shall be piped via an air gap, or a funnel, at the vent/relief port to a floor drain or other approved location. Positive shut-off valves, test cocks, and strainers are to be provided as in Paragraph (e) above. No intervening branch connection(s) shall be between the shut-offs and the backflow preventer. (Figs. 1-4, Appendix)

NOTE: When a reduced pressure zone device is installed in a line subject to periodic no-flow conditions, and supply pressure subject to fluctuations, an auxiliary directional check with soft disc, capable of functioning in any position the BFP may be installed in, shall be provided between the inlet shut-off valve and the BFP head to lock the supply pressure in, and prevent unnecessary discharge through the vent/relief port. Make-up lines to chilled water systems and hydronic heating systems are examples of installations where a drop in supply pressure may occur during no-flow conditions. When a water pressure reducing valve is required in the same line with the RPZ device, it is usually possible to locate the reducing valve upstream of the device and take advantage of the check valve effect of the reducing valve. In such case, the auxiliary directional check would not be required.

**\*\*\*\*\* SPECIAL CAUTION \*\*\*\*\***

THERMAL EXPANSION - When water is heated and stored in a distribution system, or a branch of the system, that has been closed by the installation of a backflow-prevention device, or any other checking device; an auxiliary relief valve, or expansion chamber, shall be installed to limit thermal expansion of the water being heated to not more than 80 psi static (no-flow) pressure at any fixture on the system.

## SECTION IX. FIRE PROTECTION SYSTEMS :

1. For the purpose of BACKFLOW-PREVENTION by CONTAINMENT, if the service-connection to a premises; from the Canton Water Department potable water supply, is intended to be used for fire protection service, it shall be classified and/or defined as follows:
  - (a) DEDICATED service-connection - one that is designated to supply potable water for fire protection service ONLY.
  - (b) COMBINATION service-connection - one that is designated to supply potable water for BOTH domestic use and fire protection service.
2. To further associate the sources of water that may be used for fire protection and classes of fire protection systems, the following AWWA Classes shall also apply for Backflow-Prevention by Containment:

**Class 1** - Directly supplied from Public water mains only: no pumps, tanks, or reservoirs; no physical connection from other water supplies; no antifreeze or additives of any kind; all sprinkler drains discharging to atmosphere, dry wells, or other safe outlets.

**Class 2** - Directly supplied from public water mains, same as Class 1, except that authorization has been obtained for a booster pump to be installed in the supply line. **NOTE:** Must have special approval and be permitted by the Canton Water Department.

**Class 3** - Directly supplied from public water mains, same as Class 1, plus one or more of the following: Elevated storage tanks; fire pumps taking suction from above ground covered reservoirs or tanks. All storage facilities shall be filled from the potable water supply and maintained in a potable condition.

**Class 4** - Directly supplied from public water mains, similar to classes 1 and 2, and with an auxiliary water supply on or available to the premises; or an auxiliary water supply located within approximately 1,700 feet of the pumper connection.

**Class 5** - Directly supplied from Public water mains, and interconnected with auxiliary supplies, such as: pumps taking suction from reservoirs exposed to contamination, or rivers and ponds; driven wells; mills or other industrial water systems; or where antifreeze or additives are used.

**Class 6** - Directly supplied from Public water mains only, with or without gravity storage or pump suction tanks, and/or interconnections with industrial systems.

3. The following terminology and definitions for types of fire protection systems shall also be applicable;
  - (a) Sprinkler System - includes express riser pipe that convey water to the laterals that supply sprinkler heads.
    - i. Limited Area Sprinkler System - includes express riser pipe that convey water to the laterals that supply sprinkler heads. Limited to a small area within the premises, and to 25 sprinkler heads. This may be connected directly to the water distribution system within the premises.
  - (b) Standpipe System - includes bulk riser pipes equipped with hose connections, usually at each floor and roof, for exclusive use by the fire department; plus laterals on each floor of certain facilities that supply water to hose cabinet for use by the occupants to control incipient fires until the fire department arrives.

- (c) Combined Systems - includes bulk and express riser pipes that supply both sprinkler and standpipe systems.
4. Fire systems shall be further classified and defined as:
- (a) **NONHAZARDOUS** - containing impurities Class 3 and lower. Also see, Terminology for Pollutants -Appendix.
  - (b) **HAZARDOUS** - containing impurities Class 4 and higher. Also see, Terminology for Contaminants -Appendix.
5. Fire protection systems as defined by the State Fire Code shall be contained from the Canton Water Department potable water supply by backflow-prevention devices as indicated and that have approvals as required under Section VII of this procedure and classified or listed by the Underwriters Laboratories and Factory Mutual Insurance, as follows:

Class 1, 2, and 3 Sprinkler Systems, and Nonhazardous Standpipe or Combined Systems: shall be contained by the installation of a DOUBLE CHECK DETECTOR CHECK backflow preventer.

Class 4, 5, and 6 Sprinkler Systems, and Hazardous Standpipe or Combined Systems: shall be contained by the installation of a REDUCED PRESSURE ZONE DETECTOR CHECK backflow preventer.

Class Systems with Combination Hazards: shall be contained from the public water mains by procedures applicable to the component that requires the higher degree of protection.

6. The purpose of certain checking devices used, or likely to be used, with fire protection systems is outlined below to call attention to those that are approved for use as backflow-prevention devices and those that are not.
- (a) DIRECTIONAL CHECK - to provide direction flow only. Not an approved backflow-prevention device.
  - (b) ALARM CHECK - to signal an alarm; to summon the fire department, etc., when a sprinkler head flows water; and on wet-pipe systems, to provide directional flow. Not an approved backflow- prevention device.
  - (c) SINGLE DETECTOR CHECK - to detect unauthorized use of water for other than fire service; to detect leaks in fire protection systems; and, with by-pass check, to provide directional flow. Not an approved backflow-preventer.
  - (d) DOUBLE CHECK VALVE (DCV) - to prevent backflow of polluted water into a potable water system; and to provide directional flow. Approved for use with full service Master or FM meters on a Combination service connection only.
  - (e) DOUBLE DETECTOR CHECK (DDC) - to prevent backflow of polluted water from a fire protection system into a potable water supply; to detect unauthorized use of water; to detect leaks in the fire protection system; and, to provide directional flow. Approved for use on a Dedicated service connection.
  - (f) REDUCED PRESSURE ZONE CHECK (RPZ) - to prevent backflow of contaminated water into a potable water system; and to provide directional flow. Approved for use on a Combination service as in item (d).

- (g) REDUCED PRESSURE DETECTOR CHECK (RPDC) - to prevent backflow of contaminated water from a fire protection system into a potable water system; to detect unauthorized use of water; to detect leaks in the fire protection system; and, to provide directional flow. Approved for use on a dedicated service as in item (e).
- 7. Single detector checks that are used on nonhazardous fire protection systems Class 1, 2, or 3 may not be considered as a component part of a DDC backflow preventer. Specifically, the addition of a second single check to one of these devices may not be substituted for a Double Detector Check (DDC) assembly, that is approved for backflow- prevention.
- 8. It is intended that the approved Double Detector Check (DDC) backflow preventer be in lieu of; not in addition to the two checking devices already required in the supply to Class 1 and 2 or, the double check valve BFP already required on Class 3 nonhazardous systems or, that the approved Reduced Pressure Detector Check (RPDC) be in addition to the RPZ already required on hazardous systems. The only additional checking device intended in the 3/4 inch copper detector check line, in conjunction with the bronze detector meter, is a 3/4 inch Double Check Valve (DCV) or Reduced Pressure Zone (RPZ).
- 9. The two shut-off valves required for periodic testing of the backflow prevention device shall be OS and Y, FDA approved fused epoxy coated inside and out, with resilient seats and the inlet valve shall include an approved test cock on the upstream side. All components shall be listed for fire protection service by Underwriters Laboratories and Factory Mutual.

**EXPECTION:**

Where limited area systems are installed as a part of the water distribution system within a premises, utilizing the same materials as the water distribution system and are not provided with a fire department connection, isolation of the water supply system shall not be required.

**SECTION X. TESTS, MAINTENANCE, AND REPAIRS :**

- 1. All backflow-prevention devices, both existing and new, and all parts thereof, shall be maintained in a safe and reliable operating condition.
- 2. The consumer shall be responsible for the cost of testing, maintenance, and repair of all backflow-prevention devices downstream of the service-connection within the premises and on his own private systems.
- 3. The consumer is responsible for backsiphoned material or contamination and/or pollution through backflow and, if contamination or pollution of the Canton Water Department public potable water system occurs through an illegal cross-connection and/or an improperly installed, maintained or repaired device, or a device that has been bypassed, he shall be liable for all associated costs of clean-up required for the public potable water system.
- 4. Tests, maintenance, and repairs on BFP devices are to be made in accordance with the following schedule or more frequently where inspections indicate a need or are specified in the manufacturer's instructions:
  - (a) FIXED AIR GAP SEPARATIONS - shall be inspected at the time of installation and at least annually thereafter.
  - (b) PRESSURE VACUUM BREAKERS - shall be inspected and tested at the time of installation and at least annually thereafter.
  - (c) DOUBLE CHECK VALVE BACKFLOW PREVENTERS - shall be inspected and tested at the time of installation and at least annually thereafter.

- (d) REDUCED PRESSURE ZONE BACKFLOW PREVENTERS - shall be inspected at the time of installation and at least annually thereafter.
  - (e) SYNTHETIC COMPONENTS WITHIN A DEVICE - shall be replaced as required.
5. Test procedures for all backflow-prevention devices shall be as outlined in the: UNIVERSITY OF SOUTHERN CALIFORNIA, FCCCHR; MANUAL OF CROSS-CONNECTION CONTROL.
  6. Testing must be performed by an individual(s) who is certified and/or trained to understand the design and intended operation of the device(s) being tested, and has proved his competency to the Canton Water Department. Each individual must hold a current Ohio Department of Commerce certificate or an Operators Training Committee of Ohio certificate.
  7. A test and maintenance record for each RPZ, DCV, and PVB device used in the containment concept shall be maintained by the Consumer. Following each test or repair, a report must be sent to the Canton Water Department, Engineering Office and must include the following:
    - (a) Date of installation and location of device:
    - (b) Manufacturer's name, model and serial number:
    - (c) Date of each test or visual inspection:
    - (d) Name of authorized person performing test:
    - (e) Test results:
    - (f) Description of repairs or service required:
    - (g) Date of repairs completed:
    - (h) Name and signature of device owner or authorized official.

Sample Forms: See Appendix; Forms available from CWD

8. All backflow-prevention devices and test data shall be subject to periodic inspection by a representative of the City of Canton Water Department or Plumbing Inspection Department. If a device is found to be inoperative or malfunctioning, the Consumer will be given a reasonable time to complete corrections required by the Inspector or Representative, With the exception of cases involving actual or imminent system contamination, the time allotted for correction will be determined by potential hazard posed to the Public Potable Water Supply.
9. If all corrective measures have not been taken in the allotted time, termination of water service will be recommended. If the Superintendent concurs, the Consumer will receive a certified letter of intent to terminate service. Termination procedures will be initiated (10) days after receipt. If the Consumer completes the corrections prior to the deadline, termination procedures will be halted.

## **SECTION XI: REMOVAL OF A BACKFLOW PREVENTION DEVICE**

All backflow prevention devices were installed to protect the public potable water system against actual or potential backflow and/or backsiphonage by containment, within a Consumer's premises, any pollution or contaminant that has entered, or may enter into the Consumer's potable water system through any undiscovered or uncontrolled Cross-Connection on said premises.

While it is not recommended that a backflow prevention device be removed, there are circumstances when the removal of the device will be considered.

### **1. The removal of a boiler for a heating system.**

When a hot water or a steam boiler system is removed from a premises and a new type of heating plant is installed, the backflow prevention device may be removed when the following conditions have been met:

- (a) The boiler must be completely removed from the premises
- (b) The water lines to the boiler must be cut and capped
- (c) A plumbing permit must be obtained for the work
- (d) The Water Department must be informed for an inspection to ensure that the previous conditions have been met.

Upon the completion of the inspection, and all of the conditions have been met, the backflow device will be deactivated from the records and will no longer be required to be tested.

### **2. Lawn irrigation system.**

When a lawn irrigation system is no longer permanently being used, it may be disconnected from the system and the backflow prevention device can be removed, providing the following conditions have been met:

- (a) The line supplying the system must be cut and capped at the branch off of the main incoming line.
- (b) If the outside underground system is not removed, the supply line must be cut a minimum of 10 (ten) feet away from the foundation of the house.
- (c) The Water Department must be informed for an inspection to ensure that the previous conditions have been met.

Upon the completion of the inspection, and all of the conditions have been met, the backflow device will be deactivated from the records and will no longer be required to be tested.

## **SECTION XII. ADDITIONAL INFORMATION :**

Any questions regarding this policy and/or these procedures may be directed to the:

CANTON WATER DEPARTMENT  
ENGINEERING DEPARTMENT  
2664 HARRISBURG RD. N.E.  
CANTON, OHIO 44705

PHONE: (330) 489-3310  
FAX: (330) 489-3073

**TERMINOLOGY FOR  
BACKFLOW-PREVENTION  
PROGRAM**

**AUTHORITY** - the individual, official board, department or agency established and authorized by city and/or other political subdivision created by law to administer and enforce the provisions of the Plumbing Code, the Federal and State Safe Drinking Water Acts, and the Ordinances, Rules Regulations, and Policies of The City of Canton, in the state of Ohio.

**AIR GAP SEPARATION** - 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.

**APPROVED** - means that a backflow-prevention device or method has been accepted by the supplier of water and the director as suitable for proper use.

**AUXILIARY WATER SYSTEM** - any water system on or available to the premises other than the public water system and includes the water supplied by the system. These auxiliary waters may include water from another supplier's public water system; or water from a source such as wells, lakes, or streams; or process fluids; or used water. They may be polluted or contaminated or objectionable or constitute a water source or system over which the supplier of water dose not have control.

**BACKFLOW** - the flow of water or other liquids, mixtures, or substances into the distribution pipes of a potable water supply from any source other than the intended source of the potable water supply.

**BACKFLOW PREVENTER (BFP)** - a device designed to prevent reverse flow in a water system. The term should normally be used when backpressure-type backflow is implied.

**BACKFLOW PREVENTER, DOUBLE CHECK VALVE (DCV)** - a backpressure-type backflow- prevention device designed for continuous or intermittent pressure, including backpressure, where pollutants are involved.

**BACKFLOW PREVENTER, DOUBLE DETECTOR CHECK (DDC)** - a backpressure-type backflow-prevention device designed to serve also as a detector check on fire protection systems where pollutants are involved. It includes a line- size approved double check valve backflow preventer with a metered bypass, into which has also been incorporated an approved double check valve backflow preventer.

**BACKFLOW PREVENTER, REDUCED PRESSURE ZONE (RPZ)** - a backpressure and backsiphonage-type backflow-prevention device designed to operate under continuous pressure, including backpressure, where contaminants are involved.

**BACKFLOW PREVENTER, REDUCED PRESSURE DETECTOR CHECK (RPDC)** -a backpressure and backsiphonage-type backflow-prevention device designed to serve also as a detector check on fire protection systems where contaminants are involved. It includes a line-size reduced pressure zone backflow preventer with a metered bypass, into which has also been incorporated an approved reduced pressure zone backflow preventer.

**BACKFLOW-PREVENTION** - a program, an ordinance, a code, a policy; designed to discover, to eliminate, to prevent; all unauthorized and uncontrolled backflow and cross-connections.

**BACKFLOW-PREVENTION BY CROSS-CONNECTION CONTROL** - the installation of a backflow-prevention device at each cross-connection on a premises to protect both the premises and the Public Water Supply System.

**BACKFLOW-PREVENTION BY CONTAINMENT** - the installation of a backflow- prevention device at the service connection to protect only the Public Water Supply System.

**BACKFLOW PREVENTION DEVICE** - any device, method, or type of construction intended to prevent backflow into a potable water system.

**BACKPRESSURE** - an increase in pressure in a Consumer's water system, or a branch of the system, above that of the service-connection. It is generally caused by pumps, thermal expansion, or reasons other than a reduction or loss of the incoming pressure. Backpressure is generally more evident in a closed water system.

**BACKSIPHONAGE** - a reverse flow in a water system caused by a negative pressure in the incoming pipe, when the point of use is at atmospheric pressure. Backsiphonage is generally more evident in an open water system.

**BACKSIPHONAGE PREVENTER** - a device designed to prevent reverse flow in a water system. The term should be used only where a negative supply pressure is implied.

**BACKFLOW-PREVENTION DEVICE TECHNICIAN (CERTIFIED TESTER)** - a person qualified to test and/or repair backflow-prevention and cross-connection control devices; and who has proved his competency to the Canton Water Department. Must hold a current Ohio Department of Commerce certificate or an Operators Training Committee of Ohio certificate

**CLOSED WATER SYSTEM** - one with a checking device installed in the service pipe. A check valve, backflow preventer, or pressure reducing valve would create a closed system.

**CONSUMER** - the owner or person in control of any premises supplied by or in any manner connected to a public water system.

**CONSUMER'S WATER SYSTEM** - all potable water piping, valves, fittings, and appurtenances on the premises, supplied by or in any manner connected to a public water system. A household plumbing system is considered to be a consumer's water system.

**CONTAMINANT** - any substance that, if introduced into the potable water system, could create a health hazard.

**CONTAMINATION** - an impairment of the quality of the water by sewage or process fluids or waste to a degree which could create an actual hazard to the public health through poisoning or through spread of disease by exposure.

**CROSS-CONNECTION** - a physical connection or arrangement between two otherwise separate piping systems; one of which contains potable water, the other a nonpotable fluid, or water of unknown quality, where there could be backflow into the potable system unless it is protected by an appropriate backflow-prevention device.

**CROSS-CONNECTION, NONPRESSURE TYPE** - a low-inlet installation where a potable water pipe is connected or extended below the overflow rim of a receptacle, or an environment, that contains nonpotable fluid, and is at atmospheric pressure.

**CROSS-CONNECTION, PRESSURE TYPE** - an installation where a potable water pipe is connected to a closed vessel, or a piping system that contains nonpotable fluid, and is above atmospheric pressure.

**DEGREE OF HAZARD** - a term derived from an evaluation of the potential risk to health and the adverse effect upon the potable water system, which can range in severity from mildly toxic to lethal.

**DIRECTOR** - the director of environmental protection or his duly authorized representative.

**DOUBLE CHECK VALVE ASSEMBLY** - 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 testing the water-tightness of each check valve.

**HEALTH HAZARD** - any condition, device or practice in a water system or its operation that creates, or may create, a danger to the health and well-being of users. The word "severe" as used to qualify "health hazard" means a hazard to the health of the user that could reasonably be expected to result in significant morbidity or death.

**INSPECTOR** - an individual qualified in a vocation and authorized to make inspections, interpret codes, regulations, and procedures.

**INTERCHANGEABLE CONNECTIONS** - an arrangement or device that will allow alternate but not simultaneous use of two sources of water. This device alone is not an approved backflow-prevention device.

**LIMITED AREA SPRINKLER SYSTEM** - a fire suppression system used to protect a small area within the premises, limited to 25 sprinkler heads.

**NON-POTABLE WATER** - water not safe for drinking. personal or culinary use.

**OPEN WATER SYSTEM** - one with no checking devices installed in the service pipe. Water from the Consumer's system is free to backflow into the main, for whatever reason.

**PERSON** - means the state, any political subdivision, public or private corporation, individual, partnership, or other legal entity.

**POLLUTANT** - any substance that, if introduced into the potable water system, could be objectionable but could not create a health hazard.

**POLLUTION** - the presence in the potable water system of any foreign substance that tends to degrade its quality so as to constitute a hazard or impair the usefulness or quality of the water to a degree which does not create an actual hazard to public health but which does adversely and unreasonably affect such waters for domestic use.

**POLLUTION HAZARD** - a condition through which an aesthetically objectionable or degrading material not dangerous to health may enter the public water system or a potable consumer's water system.

**POTABLE WATER** - water which is satisfactory for drinking, culinary, and domestic purposes and meets the requirements of the environment protection agency.

**PROCESS FLUIDS** - any fluid or solution which may be chemically, biological or otherwise contaminated or polluted in a form or concentration such as would constitute a health, pollution, or system hazard if introduced into the public or a potable consumer's water system. This includes, but is not limited to:

- (1) Polluted or contaminated waters;
- (2) Process waters;
- (3) Used waters originating from the public water system which may have deteriorated in sanitary quality;
- (4) Cooling waters;
- (5) Contaminated natural waters taken from wells, lakes, streams, or irrigation systems;
- (6) Chemicals in solution or suspension;
- (7) oils, gasses, acids, alkalis, and other liquid and gaseous fluids used in industrial or other processes, or for fire fighting purposes.

**PUBLIC WATER SYSTEM** - has the meaning ascribed to such term in rule 3745-81- 01 of the Administrative Code.

**REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICE** - a device containing a minimum of two independently acting check valves together with an automatically operating pressure differential relief valve located between two check valves. 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.

**REPRESENTATIVE** - a person authorized to represent the Superintendent of the Canton Water Department.

**SERVICE-CONNECTION** - the point of delivery of water to a premises; the normal location of the meter. It is the end of the water purveyor's jurisdiction and the beginning of the Plumbing Official's and Consumer's, and defined as follows:

**DEDICATED** - a single service connection that is designated for one use only; (i.e., domestic, fire protection, or irrigation.)

**COMBINATION** - a single service connection that is designated for more than one use; (i.e., domestic and fire protection.)

**SEVERE HEALTH HAZARD** - a hazard to the health of the water user that could reasonably be expected to result in significant morbidity or death.

**SUPPLIER OF WATER** - the owner or operator of a public water system.

**SYSTEM HAZARD** - a condition posing an actual or potential threat of damage to the physical properties of the public water system or a potable consumer's water system.

**USED WATER** - any water supplied by a supplier of water from public water system to a consumer's water system after it has passed through the service connection and is no longer under the control of the supplier.

**VACUUM BREAKER (VB)** - a backsiphonage-prevention device that introduces air into the potable water system when the system pressure approaches zero. It is designed for use where the receptacle or environment being served is subject to atmospheric pressure only.

**VACUUM BREAKER, ATMOSPHERIC TYPE (AVB)** - a backsiphonage-prevention device designed for use under flow conditions only, not to exceed 12 consecutive hours, and where it will be subject to no static pressure, and no backpressure.

**VACUUM BREAKER, PRESSURE TYPE (PVB)** - a backsiphonage-prevention device designed to operate under continuous pressure; static or flowing, but on backpressure.

**VACUUM BREAKER, HOSE TYPE (HVB)** - a backsiphonage-prevention device designed for hose connections only, but not for continuous pressure, static or flowing.

**VACUUM RELIEF VALVE** - a device designed to limit the degree of vacuum in a vessel or pipe, but not for cross-connection control.

**CANTON WATER DEPARTMENT  
ENGINEERING OFFICE**

2664 HARRISBURG RD. N. E., PO BOX 7904, CANTON, OHIO 44705-7904  
ENGINEERING 330-489-3310 FAX 330-489-3073

**REPORT OF INSPECTIONS, TEST AND MAINTENANCE**

Unit No.: \_\_\_\_\_ Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_  
Size: \_\_\_\_\_ Installed Date: \_\_\_\_\_ Rebuilt Date: \_\_\_\_\_ Last Tested \_\_\_\_\_  
Device Location: \_\_\_\_\_ Serial number: \_\_\_\_\_  
Existing Unit: \_\_\_\_\_ New Unit: \_\_\_\_\_ Replacement?: \_\_\_\_\_ Old Serial No.: \_\_\_\_\_  
Type: RP Assembly: \_\_\_\_\_ DC Assembly: \_\_\_\_\_ PVB Assembly: \_\_\_\_\_ Air Gap: \_\_\_\_\_ For: Containment \_\_\_\_\_ Isolation \_\_\_\_\_  
System Protected: Domestic \_\_\_\_\_ Fire line \_\_\_\_\_ Lawn Irrigation \_\_\_\_\_ Boiler \_\_\_\_\_ Other \_\_\_\_\_

**REDUCED PRESSURE PRINCIPLE ASSEMBLY**

RP Initial Test: \_\_\_\_\_ Relief valve opened at: \_\_\_\_\_  
RP Repairs Required: \_\_\_\_\_  
RP Final Test: \_\_\_\_\_ Relief valve opened at: \_\_\_\_\_

**DOUBLE CHECK VALVE ASSEMBLY**

DC Initial Test: \_\_\_\_\_  
DC Repairs Required: \_\_\_\_\_  
DC Final Test: \_\_\_\_\_

**PRESSURE VACUUM BREAKER**

VB Initial Test: \_\_\_\_\_  
VB Repairs Required: \_\_\_\_\_  
VB Final Test: \_\_\_\_\_

Tester: \_\_\_\_\_ ODH or OTCO Cert No.: \_\_\_\_\_  
Printed Name: \_\_\_\_\_ Test Date: \_\_\_\_\_  
Firm Name: \_\_\_\_\_  
Firm Address \_\_\_\_\_ Fax No.: \_\_\_\_\_  
City, State, Zip \_\_\_\_\_ Phone No.: \_\_\_\_\_

**OWNER CERTIFICATION**

I hereby certify that the following report is correct and that the following statement is true:

The reduced pressure principal assembly, double check valve assembly, or the pressure vacuum breaker assembly has been in constant use at this location during the entire prescribed interval between test periods and during period this assembly was not by-passed, made inoperative or removed without proper authorization. All defects found during the operating period or during tests of the assembly were satisfactorily correct without delay.

Address: \_\_\_\_\_ Owner/Agent \_\_\_\_\_  
City, State, Zip \_\_\_\_\_ Printed Name: \_\_\_\_\_  
Owner: \_\_\_\_\_ Title: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Date: \_\_\_\_\_

Please return one copy to Canton Water Department, Engineering Office, POBox 7904, Canton, Ohio 44705

CWD/INSP-89 R/5-08

REPORT OF INSPECTION TESTS AND MAINTENANCE

MANUFACTURER \_\_\_\_\_ MODEL \_\_\_\_\_  
 SIZE \_\_\_\_\_ DATE INSTALLED \_\_\_\_\_ LAST REBUILT \_\_\_\_\_ LAST TESTED \_\_\_\_\_  
 LOCATION OF DEVICE \_\_\_\_\_ SERIAL NUMBER \_\_\_\_\_  
 EXISTING UNIT \_\_\_\_\_ NEW UNIT \_\_\_\_\_ REPLACEMENT \_\_\_\_\_ SERIAL NUMBER OF REPLACED UNIT \_\_\_\_\_  
 TYPE: \_\_\_ RP ASSEMBLY \_\_\_ DCV ASSEMBLY \_\_\_ PVB ASSEMBLY FOR: \_\_\_ CONTAINMENT \_\_\_ ISOLATION  
 SYSTEM PROTECTED: \_\_\_ DOMESTIC \_\_\_ FIRELINE \_\_\_ LAWN IRRIGATION \_\_\_ BOILER \_\_\_ OTHER

UNIT NUMBER	Reduced Pressure Principle Assembly			Pressure Vacuum Breaker	
	Double Check Valve Assembly		Relief Valve	Air Inlet	Check Valve
	1st Check	2nd check		Opened At _____ PSID	_____ PSID
Initial Test	1 DC-Closed Tight_ RP-_____ psid 2 Leaked _____	1 Closed Tight_ _____ 2 Leaked _____	Opened At _____ psid	Did Not Open _____	Leaked _____
Repairs And Material Used					
Test After Repair	DC-Closed Tight RP-_____ psid	Closed Tight_ _____	Opened At _____ psid	Opened At _____ PSID	_____ PSID

Certified Tester \_\_\_\_\_

ODH Cert. No.

--	--	--	--	--

Printed Name \_\_\_\_\_

or  
OTCO Serial No.

--	--	--	--	--	--	--	--	--	--

Firm Name \_\_\_\_\_

Firm Address \_\_\_\_\_

DATE OF TEST

MO.	DAY	YR.

OWNER CERTIFICATION

I hereby certify that the following report is correct and that the following statement is true:

The reduced pressure principle assembly, double check valve assembly or the pressure vacuum breaker assembly has been in constant use at this location during the entire prescribed interval between test periods and during that period this assembly was not by-passed, made inoperative or removed without proper authorization. All defects found during the operating period or during tests of the assembly were satisfactorily corrected without delay.

Address \_\_\_\_\_ By \_\_\_\_\_

\_\_\_\_\_ Printed Name \_\_\_\_\_

Owner \_\_\_\_\_ Title \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ Date \_\_\_\_\_

Please return one copy to: Canton Water Department, Engineering Office, PO Box 7904  
 CWD/INSP-89 R/5-08/RPTEST Canton, Ohio 44705 TEL: 330-489-3310 FAX: 330-489-3073

TESTS AND MAINTENANCE

A I R G A P S E P A R A T I O N

Type of device \_\_\_\_\_ Model \_\_\_\_\_  
Size \_\_\_\_\_ Date Installed \_\_\_\_\_  
Location of Device \_\_\_\_\_ Serial No. \_\_\_\_\_  
Is this a replacement? \_\_\_\_\_ Serial No. of replaced unit \_\_\_\_\_

I hereby certify that the air gap separation described above was inspected by me on \_\_\_\_\_ and the following findings were made:  
(date)

\_\_\_\_\_ Effective diameter of supply pipe or opening.  
\_\_\_\_\_ Near wall distance, if present.  
\_\_\_\_\_ Hight of supply opening above the flood-level rim.  
\_\_\_\_\_ Required minimum air gap separation is provided.  
Yes \_\_\_\_\_ No \_\_\_\_\_  
\_\_\_\_\_ Air gap separation is not being bypassed.  
Yes \_\_\_\_\_ No \_\_\_\_\_  
\_\_\_\_\_ No evidence that arrangements have been made to bypass the air gap separation.  
Yes \_\_\_\_\_ No \_\_\_\_\_

Inspector \_\_\_\_\_ Cert. No. \_\_\_\_\_

Printed Name \_\_\_\_\_

CERTIFICATION

I hereby certify that the foregoing report is correct and that the following statement is true:

The air gap separation has been in constant use at the location during the entire prescribed interval between inspections and during that period this device was not bypassed or otherwise made ineffective.

Company \_\_\_\_\_ By \_\_\_\_\_

Address \_\_\_\_\_ Printed name \_\_\_\_\_

\_\_\_\_\_ Title \_\_\_\_\_

Date \_\_\_\_\_

Report of Inspection  
Tests and Maintenance

V A C U U M   B R E A K E R

Type of Device \_\_\_\_\_ Model \_\_\_\_\_  
Size \_\_\_\_\_ Date installed \_\_\_\_\_  
Location of Device \_\_\_\_\_ Serial No. \_\_\_\_\_  
Is this a Replacement? \_\_\_\_\_ Serial No. of replaced unit \_\_\_\_\_

Height above highest outlet: \_\_\_\_\_

External Inspection: \_\_\_\_\_

Internal Inspection: \_\_\_\_\_

Cleaned: \_\_\_\_\_

Repaired: \_\_\_\_\_

	Initial Test (psi)	Final Test (psi)
Air Inlet Opening		
Check Valve Differential		

Inspector \_\_\_\_\_ Cert.No. \_\_\_\_\_ Date \_\_\_\_\_

Printed name \_\_\_\_\_

**CERTIFICATION**

I hereby certify that the foregoing report is correct and  
that the following statement is true:

The vacuum breakers have been in constant use at these  
locations during the entire prescribed interval between tests,  
and during that period these devices were not bypassed, made  
inoperative or removed without proper authorization. All defects  
found during the operating period or during inspections or tests  
of these devices were satisfactorily corrected without delay.

Company \_\_\_\_\_ By \_\_\_\_\_

Address \_\_\_\_\_ Printed name \_\_\_\_\_

\_\_\_\_\_ Title \_\_\_\_\_

Date \_\_\_\_\_

Report of Inspection  
Tests and Maintenance

LOW PRESSURE CUT - OFF DEVICE  
AND  
MINIMUM PRESSURE SUSTAINING VALVE

Type of device \_\_\_\_\_ Model \_\_\_\_\_  
Size \_\_\_\_\_ Date Inspected \_\_\_\_\_  
Location of Device \_\_\_\_\_ Serial No. \_\_\_\_\_  
Is this a replacement? \_\_\_\_\_ Serial No. of replaced unit \_\_\_\_\_

Size of Service \_\_\_\_\_

Pump Rating: \_\_\_\_\_ gpm

The pump automatically cut off at \_\_\_\_\_

Is a minimum pressure sustaining valve installed after the pump?

Did the minimum pressure sustaining valve operate properly before pump cut off?

Did the pump remain off until manually restarted?

Did the pump turn on with manual restart?

Initial Test	Final Test	
		pgsi
		yes/no
		yes/no/NA
		yes/no
		yes/no

Describe repairs: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Inspector \_\_\_\_\_ Cert. No. \_\_\_\_\_ Date \_\_\_\_\_

Printed name \_\_\_\_\_

**CERTIFICATION**

I hereby certify that the foregoing report is correct and that the following statement is true:

This low pressure cut-off device and minimum pressure sustaining valve (if installed) have been in constant use at this location during the entire prescribed interval between tests and during that period the device was not bypassed, made inoperative or removed without proper authorization. All defects found during the operating period or during inspections or tests of the device were satisfactorily corrected without delay.

Company \_\_\_\_\_ Signature \_\_\_\_\_

Address \_\_\_\_\_ Printed name \_\_\_\_\_

\_\_\_\_\_ Title \_\_\_\_\_

Date \_\_\_\_\_

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8	VACUUM BREAKER, HOSE BIB TYPE INSTALLATION (HVB)	26
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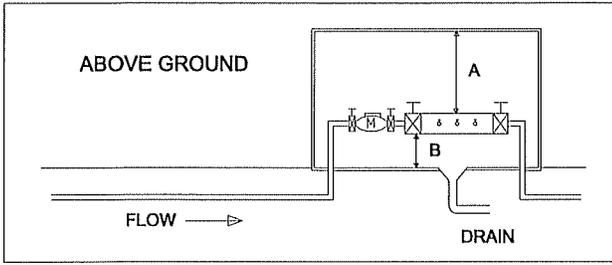


Fig. 1

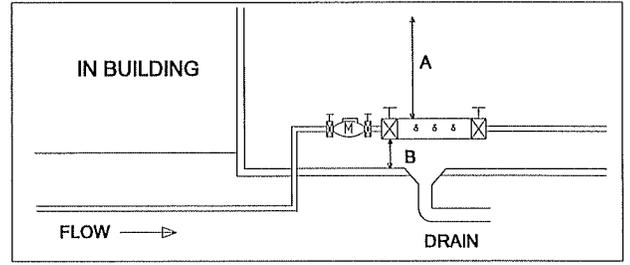


Fig. 2

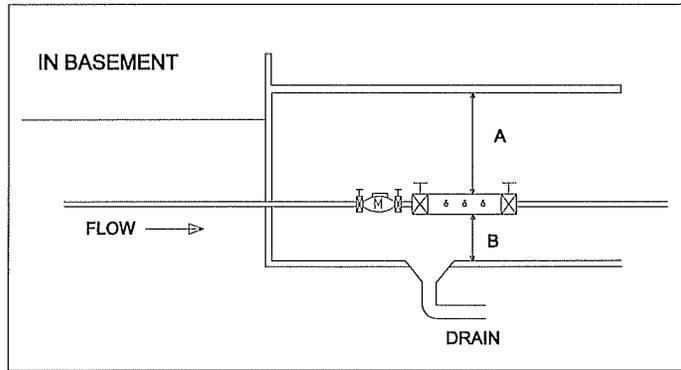


Fig. 3

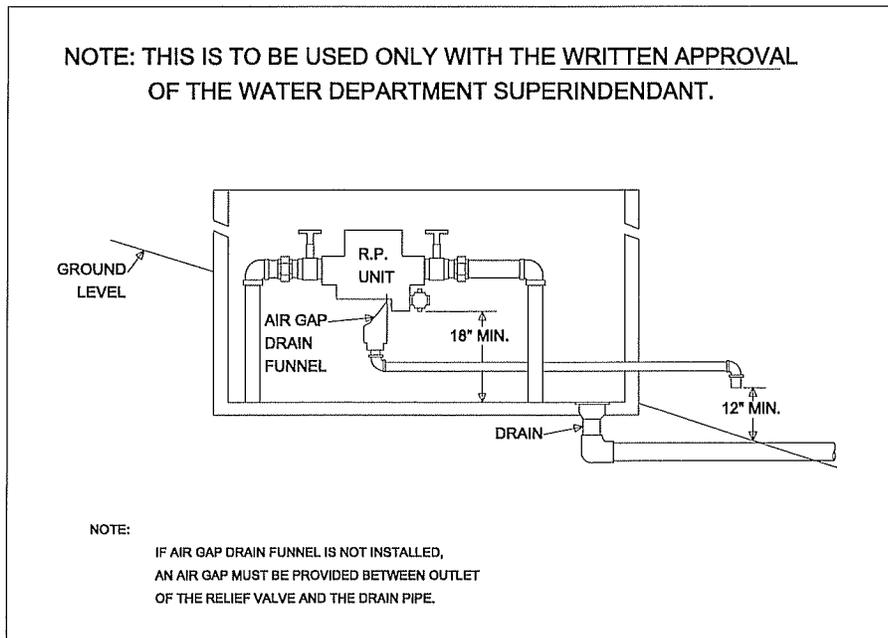


Fig. 4

A = ADEQUATE CLEARANCE ABOVE UNIT FOR OPERATION OF VALVES OR REPAIR.

B = MINIMUM CLEARANCE 12", MAXIMUM CLEARANCE 30".

ALL METERS AND RP UNITS MUST BE PROTECTED FROM FREEZING

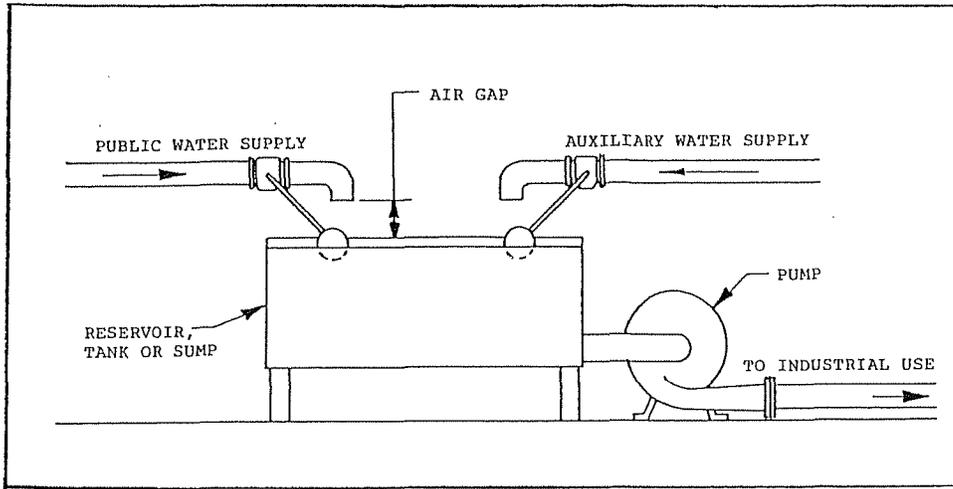


Fig. 5

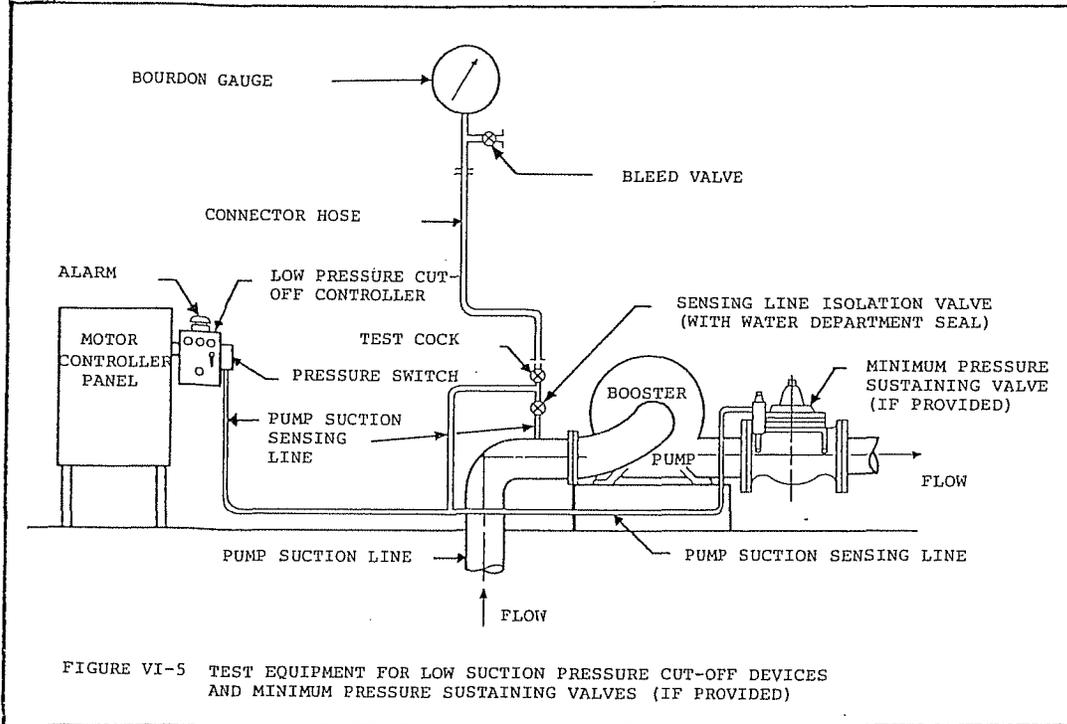
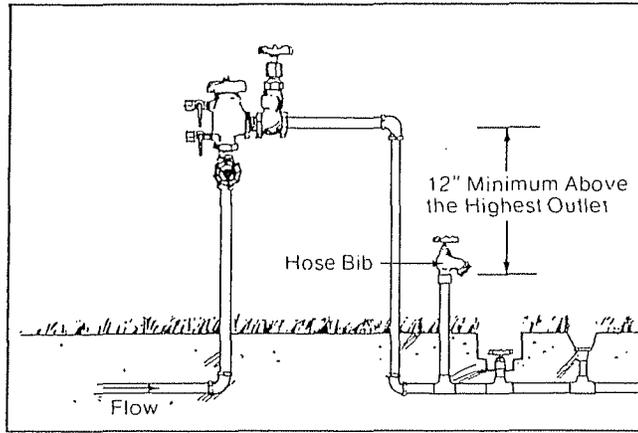
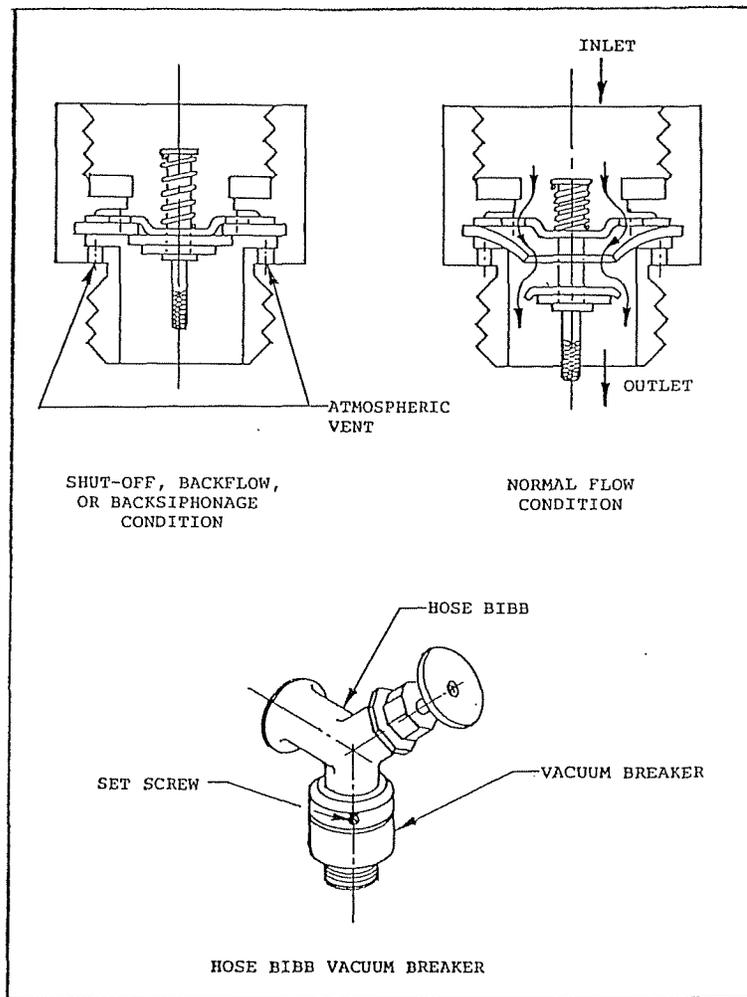


FIGURE VI-5 TEST EQUIPMENT FOR LOW SUCTION PRESSURE CUT-OFF DEVICES AND MINIMUM PRESSURE SUSTAINING VALVES (IF PROVIDED)

Fig. 6



**Fig. 7**



**Fig. 8**

## DEVICE SELECTION CHART

TYPE OF CROSS-CONNECTION	HAZARD LEVEL	M-Minimum				O-Optional	
		AG ANSI A112.1	RPZ ASSE 1013	DCV ASSE 1015	PVB ASSE 1020	RPDCA ASSE 1047	DCDCA ASSE 1048
Connection to pressurized system that contains	Severe High Hazard	M					
	High Hazard		M				
	Low Hazard		O	M			
Make-up lines to chilled hydronics systems that contain	Severe High Hazard	M					
	High Hazard		M				
	Low Hazard		O	M			
Fire protection systems that contain	Severe High Hazard	M					
	High Hazard					M	
	Low Hazard					O	M
Lawn sprinkler and irrigation systems with	Pumped injection		M				
	No injection		O	O	M		

AG – Air Gap

RPZ – Reduced Pressure Zone Backflow Preventer

DCV – Double Check Valve Backflow Preventer

PVB – Pressure Vacuum Breaker

RPDCA – Reduced Pressure Detector Check Assembly

DCDA – Double Check Detector Check Assembly

### DEGREE OF HAZARD EVALUATION TERMS

Ohio Department of Commerce

Ohio Environmental Protection Agency

Severe High Hazard	=	Severe Health Hazard
High Hazard	=	Health Hazard
High Hazard	=	System Hazard
Low Hazard	=	Pollution Hazard

## REFERENCES

BACKFLOW PREVENTION AND CROSS CONNECTION CONTROL, MANUAL M-14, 1966;  
AMERICAN WATER WORKS ASSOCIATION

CROSS CONNECTIONS & BACKFLOW PREVENTION, SECOND EDITION;  
by GUSTAVE J. ANGELS Sr., AMERICAN WATER WORKS ASSOCIATION

BACKFLOW PREVENTION AND CROSS-CONNECTION CONTROL, THIRD EDITION, 1987  
STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

CANTON PLUMBING CODE, REVISED JANUARY, 1987;  
CITY OF CANTON, OHIO

OHIO ADMINISTRATIVE CODE, CHAPTER 3745-95  
STATE OF OHIO

BACKFLOW-PREVENTION BY CONTAINMENT, 1988;  
DEPARTMENT OF PUBLIC UTILITIES, GWINNETT COUNTY, GEORGIA

CHAPTER 4101:2-51 (OHIO PLUMBING CODE);  
OHIO ADMINISTRATIVE CODE

CODIFIED ORDINANCES; 1989  
CITY OF CANTON, OHIO

MANUAL OF CROSS CONNECTION-CONTROL, EIGHTH EDITION  
FOUNDATION FOR CROSS-CONNECTION CONTROL and HYDROLIC RESEARCH  
UNIVERSITY OF SOUTHERN CALIFORNIA

Prepared by

Canton Water Department, Engineering Office

1989

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ORDINANCE NO. 182/74

AN ORDINANCE SUPPLEMENTING CHAPTER 955 OF THE CANTON CODE OF ORDINANCES TO PROVIDE AN EFFECTIVE MEANS OF PREVENTING BACKFLOW AND BACK-SIPHONAGE INTO THE PUBLIC WATER SYSTEM; AND DECLARING THE SAME TO BE AN EMERGENCY

WHEREAS, the Ohio State Health Department and the United States Public Health Service strongly encourage the establishment of cross-connection control programs within various waterworks; and

WHEREAS, in order to accomplish this goal it is necessary to introduce restrictions that go beyond normal plumbing codes; and

WHEREAS, these restrictions require the installation of a preventive device immediately behind the water meter;

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF CANTON, STATE OF OHIO, THAT:

Section 1. Chapter 955 of the Canton Code of Ordinances be supplemented by Section 955.14 to read as follows:

955.14 CROSS-CONNECTION CONTROL AND WATER QUALITY PROTECTION; BACKFLOW PROTECTION.

(a) If, in the judgment of the Waterworks Superintendent, the integrity of the public water system is or can be endangered by backflow from an actual or a potential cross-connection within the plumbing system of a water consumer, the Superintendent may order the installation of an approved backflow prevention method or device consisting of either an air gap, double sanitary check valve assembly, vacuum breaker, reduced pressure principle backflow preventer, or any combination thereof, at the water service connection to the premise.

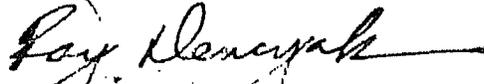
(b) The water consumer shall install the designated device or method at his own expense, and failure, refusal or inability to install said device or method immediately shall constitute a ground for discontinuing water service to the premise until such device or method has been installed and approved by the Superintendent.

(c) The use of the approved backflow preventer at the water service connection does not in any way affect or eliminate the need for individual fixture devices or air gaps as required by the Ohio Building Code.

(d) All necessary permits shall be obtained from the political subdivision having jurisdiction.

Section 2. This ordinance is hereby declared to be an emergency measure necessary for the immediate preservation of the public peace, health or safety of the citizens of the City of Canton. And provided it receives the affirmative vote of two-thirds of the elected members to Council, it shall take effect and be in force immediately upon its passage and approval by the Mayor; otherwise, it shall take effect and be in force from and after the earliest period allowed by law.

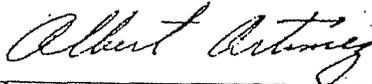
PASSED: JUN 17 1974



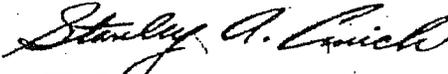
President of Council

ATTEST: JUN 17 1974

APPROVED:



Clerk of Council



Mayor