Town Of Webster
Massachusetts
Est. 1832

**Water & Sewer Department**
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# Webster Water Cross Connection Program

## August 2023

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# CROSS CONNECTION PROGRAM

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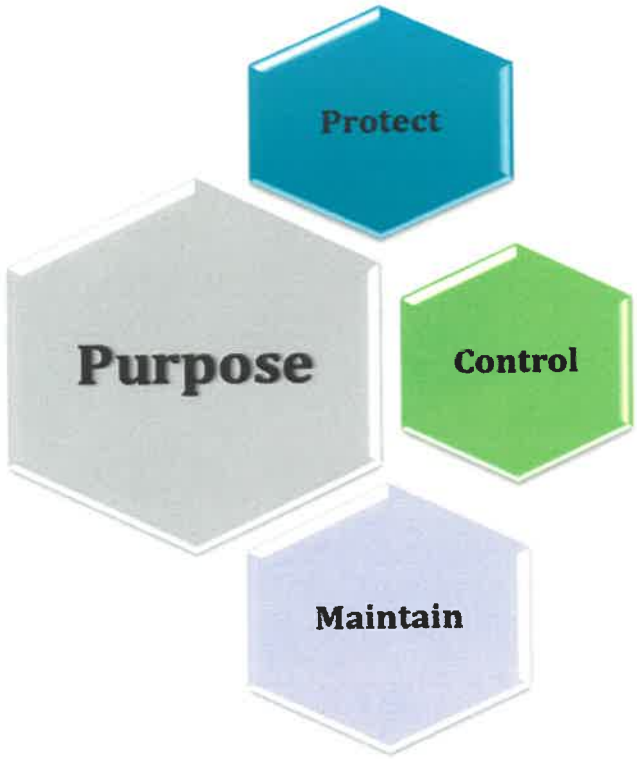
### 1. Policy

Cross-connections between non-potable sources of contamination or private wells and the public water supplies can pose significant threats to public health. This program is designed to maintain the potability and safety of the water in the distribution system in the Town of Webster by establishing procedures and rules to control potential cross-connection situations. These preventative measures are employed using a containment strategy in order to prevent the contamination of public drinking water via the backflow of water or other fluids from a source(s) other than those approved, intended source(s) of supply.

## 2. Purpose

1. **To protect the public water supply** served by the Town of Webster from the possibility of contamination or pollution through backflow into the public water system from the Owner's internal distribution system.
2. **To promote control** of or the elimination of existing cross-connections, actual or potential, between the in-plant potable water system and non-potable systems.
3. **Provide continuing maintenance** of the cross-connection control program; effectively preventing the contamination or pollution of all potable water systems by cross-connection.




## 3. Authority

The Federal Safe Drinking Water Act requires that the water purveyor hold the primary responsibility for preventing water from unapproved sources, or any other substances, from entering the potable, public water system. This intent is further clarified in the Massachusetts DEP Cross-Connection Control Program Regulations, 310 CMR 22.22, and the Town of Webster Water Department Cross-Connection Control Program, hereby incorporated for reference. In addition, authority arises from the rules and regulations published by the Massachusetts Board of State Examiners of Plumbers and Gasfitters, 248 CMR 176, sub-section 10.14.

## 4. Definitions

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| **Approved**: Accepted by the Town of Webster Water Department as meeting an applicable specification stated or cited in this regulation, or as suitable for the proposed use.<br><br>**Auxiliary Water Supply:** Any water supply, on or available to the premises, other than the surveyor's approved public potable water supply. | **Cross-Connection:** Any actual or potential connection between the public water supply and a source of contamination or pollution.<br><br>**Fixture Isolation:** A method of backflow prevention in which a backflow preventer is located to correct a potential cross-connection at an in-plant location. Fixture isolation may be used in combination with a containment device. |

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| **Backflow:** The flow of water or other fluids, mixtures or substances, caused by positive or reduced pressure conditions, into the distributing pipes of a potable water supply system from any source other than the approved source of supply.<br><br>**Back Pressure**: A condition in which the Owner's system pressure is greater than the supplier's system pressure.<br><br>**Back-Siphonage:** The backflow of water caused by the reduction of pressure in the potable water supply system.<br><br>**Certified Tester:** An individual who is currently certified by the appropriate regulatory authority, as a Certified Backflow Preventer Tester (or similarly titled certification) to test, maintain and repair a backflow preventer.<br><br>**Containment:** A method of backflow prevention requiring a backflow prevention device at the water service entrance, directly after the meter outlet valve and always before the first tap to any appliance, appurtenance, device, pump, pressure vessel, apparatus or outlet intended to serve or handle water.<br><br>**Contaminant:** A substance that will impair the quality of the water to a degree that it creates a serious health hazard to the public, leading to poisoning or the spread of diseases. | **Owner:** Any person holding legal title to a property upon which a cross-connection inspection is to be made or upon which a potential cross-connection may exist.<br><br>**Permit:** A document issued by the water supplier that allows the use of a backflow preventer.<br><br>**Pollutant:** A foreign substance that would degrade water quality, constituting moderate hazard, or impair the quality to the extent that, while not creating a hazard to public health, does adversely and unreasonably affect water intended for domestic use.<br><br>**Survey:** A detailed inspection of an Owner's internal water system for the presence of a potential risk to public health and the adverse effect of a contaminant or pollutant upon a water system arising from a backflow into that system. Surveys are intended to detect all potential cross-connections within an owner's property.<br><br>**Water Superintendent:** The official or delegated representative in charge of Town of Webster Water Department who is vested with the authority and responsibility for the implementation of an effective Cross-Connection control program and for the enforcement of the provisions of this ordinance. |

### 5. Backflow Preventer Types

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| **Air Gap (AG):** A physical separation sufficient to prevent backflow between the free- flowing discharge end of the potable water system and any other system. Physically defined as a vertical distance equal to twice the diameter of the supply side pipe diameter, however, no less than one inch. | **Atmospheric Vacuum Breaker (AVB):** A device that prevents back-siphonage by creating an atmospheric vent when there is either a negative pressure or sub-atmospheric pressure in a water system. |

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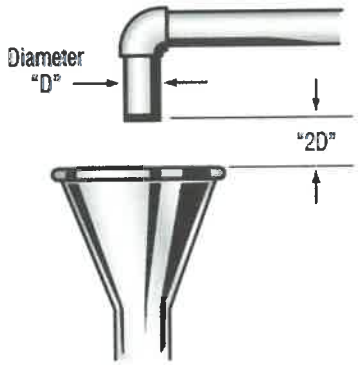
<tr>
<td>Air gap.<br> 
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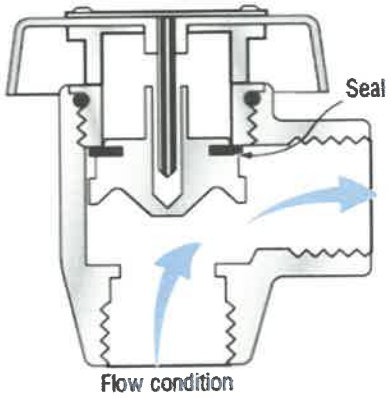
<td>Atmospheric vacuum breaker.<br> 
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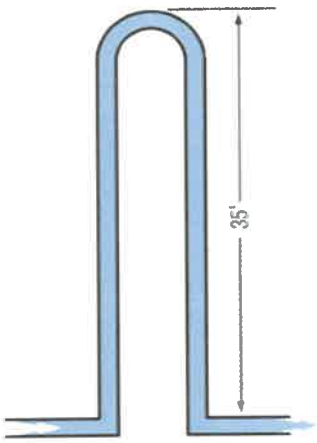
<td>Barometric Loop: A fabricated piping arrangement rising at least thirty-five (35) feet at its topmost point above the highest fixture it supplies. It is utilized in water supply systems to protect against back-siphonage.</td>
<td>Barometric loop.<br> 
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<td>Double Check Valve Assembly (DCVA): An assembly of two independently operating check valves with tightly closing shut-off valves on each side of the check valves, plus properly located test cocks for testing each check valve.</td>
<td>Pressure Vacuum Breaker (PVB): A device containing one or two independently operated check valves and an independently operated spring loaded air inlet valve located on the discharge side of the check valve(s). The device includes tightly closing shut-off valves on each side of the check valve(s) and properly located test cocks for the testing of the check valve(s).</td>
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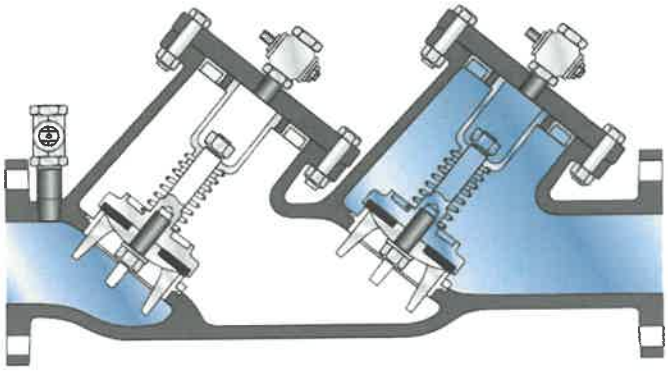
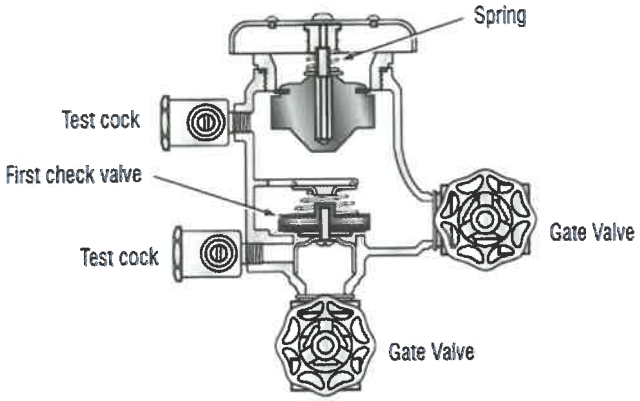
**Double check valve.**



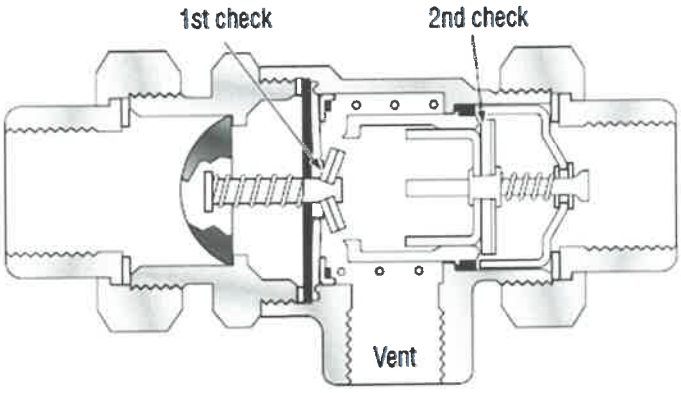
**Pressure vacuum breaker**



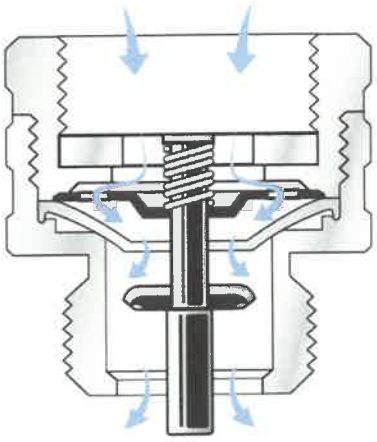

**Backflow Preventer with Intermediate Atmospheric Vent (BPIAV):** A device having two independently operating check valves separated by an atmospheric vent chamber.

**Hose Bibb Vacuum Breaker:** A device connected to a hose bibb acting as an Atmospheric Vacuum Breaker; this device is not to be used under constant pressure.

**Double check valve with atmospheric vent.**




**Hose bibb vacuum breaker.**



**Residential Dual Check:** An assembly of two loaded, independently operating check valves without tightly closing shut-off valves and test cocks. Generally employed immediately downstream of the water meter to act as a containment device.

**Reduced Pressure Backflow Preventer (RPBP):** An assembly consisting of two independently operating check valves with an automatically operating differential relief valve located between the two check valves, tightly closing shut-off valves on each side of the check valves, plus properly located test cocks for the testing of the check.

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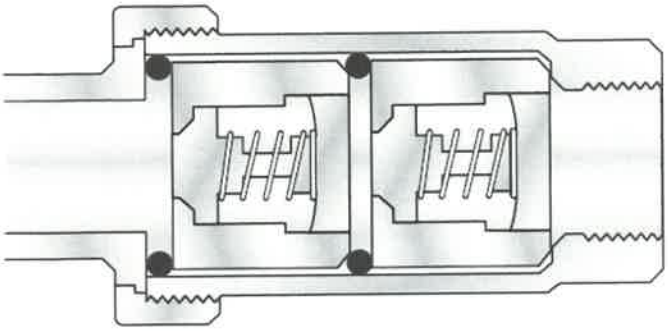
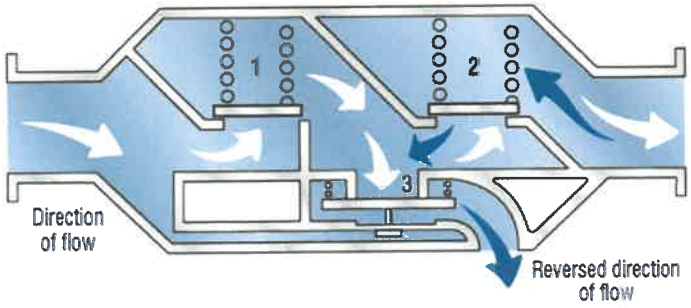
Residential dual check.



Reduced pressure zone backflow preventer — principle of operation.




### 7. Responsibilities

### A. Town of Webster Water Department

- For new installations, the Town of Webster Water Department will provide an on-site evaluation and/or inspection of plans in order to determine the type of backflow preventer that will be required by the Town of Webster Water Department for containment.
- For premises existing prior to the start of this program, the Town of Webster Water Department will perform surveys and follow-up inspections of plans and/or the premises. The Town of Webster Water Department will inform the Owner in writing of the findings of the survey, as well as any corrective action(s) deemed necessary and the time allowed for the correction to be made. Ordinarily, forty-five (45) days will be allowed. However, this time period may be adjusted commensurate with degree of hazard involved, the complexity of the upgrade, and the history of the device(s) in question.
- Any existing backflow preventer shall be allowed by the Town of Webster Water Department to continue in service unless the degree of hazard is such as to supersede the effectiveness of the present backflow preventer, or its use results in an unreasonable risk to public health.
- The Town of Webster Water Department will not allow any cross-connection with a high degree of hazard to remain unless it is protected by an approved backflow preventer for which a permit has been issued and which shall be regularly tested to assure satisfactory operation.
- The Town of Webster Water Department will inform the Owner of any failure to comply by the time of the first re-inspection. The Town of Webster Water Department will allow an additional fifteen (15) days for the correction. In the event that the Owner informs the Town of Webster Water Department of extenuating circumstances concerning the reason behind the lack of a correction being made, a time extension may be granted by the Town of Webster Water Department, not to exceed an additional thirty (30) days.
- If, at any time, the Town of Webster Water Department determines that a serious threat to the public health exists, the water service will be terminated immediately.
- The Town of Webster Water Department will conduct initial premise surveys to determine if a containment backflow prevention device already exists, the nature of existing hazards, and corrections to be made. It is contemplated that the initial focus will be on high hazard industries and commercial/industrial premises, with secondary emphasis on residential properties.

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The Town of Webster Water Department will classify each cross-connection by degree of hazard and will require the installation of approved backflow prevention devices for high and low hazards.

**1. Low Degree of Hazard**

If backflow were to occur, the resulting effect on the water supply would be a change in its aesthetic qualities. The foreign substance must be non-toxic to humans. The following types of backflow prevention devices may be used for the containment of on-site contaminants in low hazard situations as approved by the Town of Webster Water Department:

- Air gap (AG)
- Atmospheric Vacuum Breaker (AVB)
- Pressure Vacuum Breaker (PVB)
- Double Check Valve Assembly (DCVA)
- Residential Dual Check
- Backflow Preventer with Intermediate
- Atmospheric Vent (BPIAV)
- Combination of the above

**2. High Degree of Hazard**

- If backflow were to occur, the resulting effect on the water supply could cause illness or death. The foreign substance may be toxic to humans from a chemical, bacteriological, or radiological standpoint. The effects of the contaminants may result from short or long term exposure.
- Only the following types of backflow prevention devices may be used for the containment of on-site contaminants in high hazard situations:
    - Air gap (AG)
    - Reduced Pressure Principle Backflow Preventer (RPZ)
    - Combination of the above

**B. Owner**

- The Owner shall be responsible for the elimination or protection of all cross-connections on his premises. The Owner shall be responsible for the water quality beyond the outlet end of the containment device and should utilize fixture outlet protection for that purpose.
- The Owner shall absorb all costs to install, perpetually maintain, and professionally inspect any and all backflow preventers on his premises.
- The Owner shall correct any malfunction of the backflow preventer revealed by periodic inspections. This shall include the replacement of parts or the replacement of the backflow preventer, if deemed necessary by the Town of Webster Water Department.
- The Owner shall inform the Town of Webster Water Department of any proposed or modified cross-connections and also existing cross-connections of which the owner is aware but have not yet been discovered by the Town of Webster Water Department.

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- The owner shall not install a bypass around any backflow preventer unless there is a backflow preventer of the same type on the bypass. Owners who cannot shut down operations for testing of the device(s) must supply additional devices necessary to allow inspection to take place.
- The Owner shall install backflow preventers in a manner and location approved by the Town of Webster Water Department.
- The Owner shall only install backflow preventers approved by the Town of Webster Water Department.
- The Owner will be required to install a high hazard backflow preventer at the service entrance if a private water source is maintained, even though it is not cross-connected to the Town of Webster water system.
- In all high hazard facilities requiring backflow devices installed for containment, if the owner installs plumbing to provide potable water for domestic purposes on the Town of Webster Water Department side of the backflow preventer, such plumbing must have its own backflow preventer installed.
- The owner shall be responsible for the payment of all fees for permits, surveys, annual or semi-annual device inspections, re-testing in the event of device failure, and re-inspections for non-compliance with the Town of Webster Water Department requirements.
- All residential buildings will be required to conform to Massachusetts State Plumbing Code and the Town of Webster Water Department regulations relating to backflow prevention.
- Commercial Owners shall install a backflow prevention device commensurate with the degree of hazard, as determined by the Town of Webster Water Department.
- As part of the permitting process and prior to device installation, the Owner shall submit to the Town of Webster Water Department a sketch of the proposed installation of the required backflow preventer. The sketch shall depict the height from the floor and the distance from any walls and the ceiling. In the case of fire protection devices, the sketch should show the point of entry of the water line into the building. All testable backflow devices must be installed per USC/ASE guidelines. The sketch must also be inclusive of any electrical connections within ten (10) feet of the device installation.

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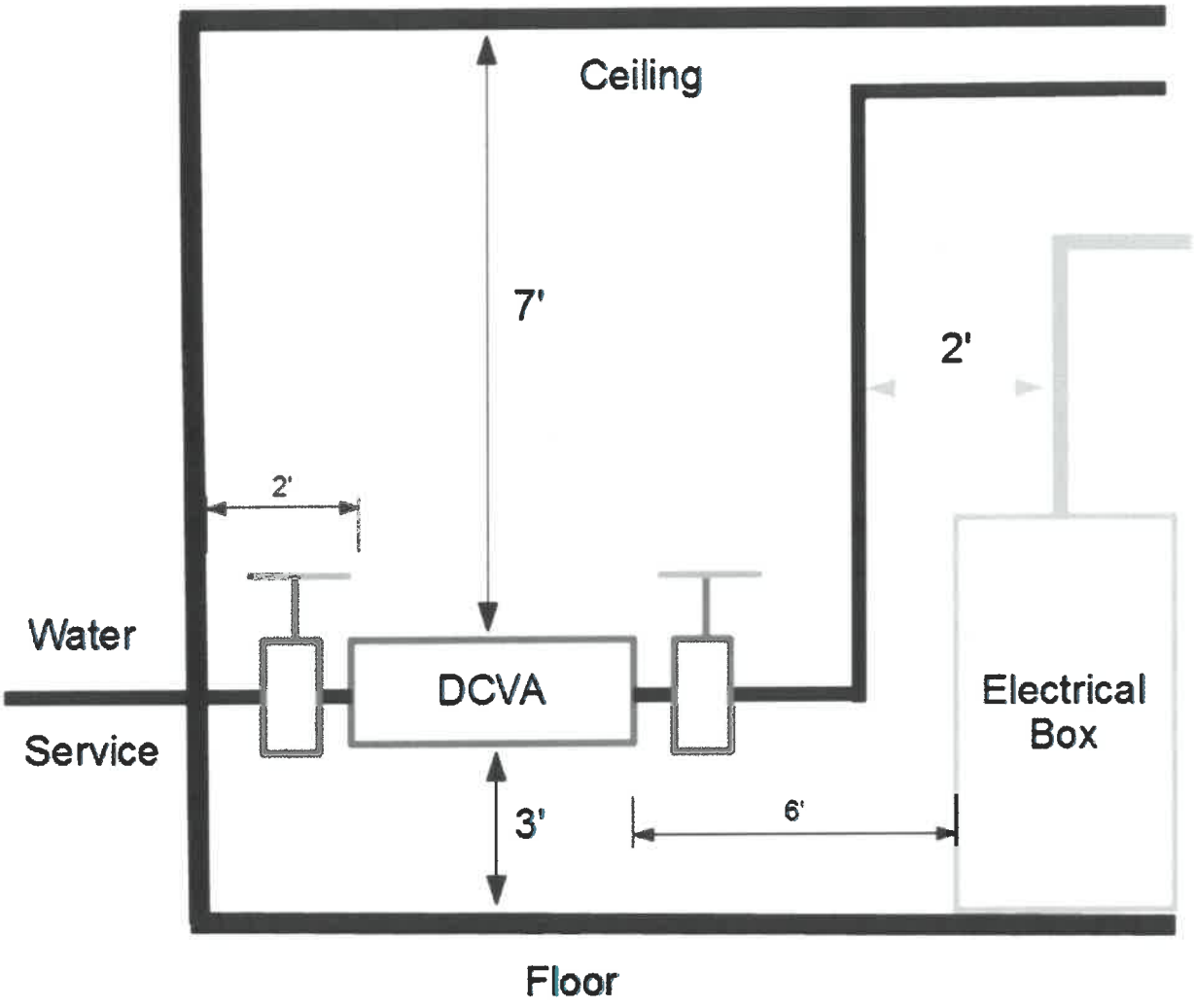



- If a reduced pressure principle backflow preventer is required, the Owner must ensure that provisions have been made to carry any water vented from the device to a proper drain. Any new installation of reduced pressure principle backflow preventers in meter pits, vaults, or any other container where the device could potentially be submerged is prohibited (See Section 19 on Irrigation). Existing devices installed in pits, vaults, or any other container that require confined space entry to test devices will incur additional expenses that the Owner will absorb.
- The Owner should be aware that the installation of a backflow device results in a potentially closed plumbing system within the residence. As such, provisions may have to be made by the Owner to provide for thermal expansion within the closed loop system, i.e., the installation of thermal expansion devices and/or pressure relief valves.
- The Town of Webster Water Department strongly recommends that all new and retrofit installations of reduced pressure principle devices and double check valve backflow preventers include the additional installation of strainers located immediately upstream of the device to prevent fouling of backflow devices due to unforeseen circumstances occurring to the water supply system, such as water main repairs, water main breaks, fires, periodic cleaning and flushing of mains, etc. These occurrences may 'stir up' debris

within the water main that will cause fouling of backflow devices installed without the benefit of strainers.

### C. Local Plumbing Inspector

Local plumbing inspectors, authorized by the Massachusetts Board of State Examiners of Plumbers and Gasfitters, 248 CMR 176, sub-section 10.14, have the following responsibilities relative to cross-connections:

- The inspector of plumbing will ensure that potable water supply systems are designed, installed and maintained in a manner as to prevent contamination from non-potable liquids, solids, or gases that may be introduced to a potable water supply system through cross-connections.
- After reviewing the plans and specifications for plumbing work and before issuing a permit, the plumbing inspector shall require the installation of appropriate devices in accordance with 248 CMR 176.
- No plumbing permit shall be issued for cross-connection installations requiring reduced pressure zone backflow preventers or double check valve assemblies until the application for such permit is accompanied by a letter of approval from the Town of Webster Water Department.

### 8. Prohibited Cross-Connections

- No person shall connect, cause to be connected, or allow to remain connected, any piping, fixture, fitting, container, appliance, or internal system in a manner that may allow any foreign substance to enter the Town of Webster water system, unless the water system is protected by an approved backflow preventer that has been installed, tested, and maintained in accordance with this bylaw.
- No person shall install or maintain a service connection to any water system in which the plumbing, facilities, and fixtures have not been constructed and installed under the authority of a permit, as required by a local government and by using the acceptable plumbing practices prescribed by the Massachusetts Board of State Examiners of Plumbers and Gasfitters.

### 9. Removal of Backflow Prevention Devices

- No person shall remove, cause, or permit to be removed an approved backflow preventer that has been specifically installed to protect the Town of Webster Water Department except under the following conditions:
- Necessary to facilitate the repair of the backflow preventer that shall be immediately replaced with a temporary backflow preventer until the original backflow preventer is satisfactorily repaired or replaced and tested.

OR

- For the purpose of immediately replacing the backflow preventer with another backflow preventer that meets or exceeds the requirements listed in this plan.

OR

- Warranted due to alterations to the Owner's water system that completely eliminates the risk of contamination to the Town of Webster Water Department for which the backflow preventer was originally required. In such circumstances, the backflow preventer shall not be removed until the Town of Webster Water Department provides written approval for the removal of the backflow preventer upon the receipt of the documentation listed below. The cost of obtaining the necessary documentation shall be the responsibility of the owner and includes:
- A written request from the Owner to permit the removal of the backflow preventer.
- A cross-connection survey report confirming that the cross-connection hazard no longer exists within that facility.

OR

- Authorized by the Town of Webster Water Department

**10. Temporary Water Services**

**A. General requirements for temporary water service**

Any outlet used to dispense drinking water from the Town of Webster water system to supply a temporary water service for construction or other purposes shall be protected against backflow caused by backsiphonage or backpressure under the following circumstances:

- A reduced pressure backflow preventer shall be used when there is no final connection to a plumbing system.
- A reduced pressure backflow preventer shall be used when the temporary water service is connected to a plumbing system with high hazard cross-connection. The presence of an on-site auxiliary water supply or contaminating conditions shall require a reduced pressure backflow preventer.
- A minimum double check backflow preventer shall be used when the temporary water service is connected to a plumbing system with a low hazard cross-connection.
- The appropriate backflow preventer used for the temporary water service is to be owner-provided.

**B. Backflow Preventer Required**

A contractor, developer, or other person (customer) requiring temporary water service may acquire water from the Town of Webster water system provided that the temporary water connection is fitted with a backflow preventer approved by the Town of Webster Water Department in accordance with the following requirements:

- If a temporary service connection using a fire hydrant, flush valve assembly, or temporary connection is used to provide water, a shut off valve and backflow preventer (may include a temporary water meter) shall be installed on the hydrant, flush valve outlet, or temporary connection.
- The Town of Webster Water Department may supply, install, and test the temporary water meter, valve, and backflow preventer at the Owner's cost.
- Prior to the Town of Webster Water Department turning on the supply of water to the temporary water connection, the Owner shall demonstrate to the satisfaction of the Town of Webster Water Department

that an appropriate backflow preventer is installed, in accordance with the requirements of this section, and is functioning properly.

- The Owner shall protect the temporary water meter, valve, and backflow preventer from freezing and/or any other damage.
- If any loss or damage occurs to the temporary water meter, valve, or backflow preventer, the Ownershall immediately notify the Town of Webster Water Department and shall pay all costs associated with the replacement or repair of the temporary water meter, valve, or backflow preventer.
- If the backflow preventer is damaged or missing, the Town of Webster Water Department reserves the right to immediately shut off the water supply from the public water system through the temporary water connection to the Owner's real property until the backflow preventer is either replaced or repaired.
- The Owner shall be responsible for the safe return and proper working condition of any temporary water meter, valve, and backflow preventer provided by the Town of Webster Water Department for the temporary water service.

Temporary water service to industrial-commercial-institutional (ICI) or multi-family construction sites

- During the construction period for an ICI or large multi-family facility, the temporary water service at a construction site for an ICI or multi-family residential facility shall be isolated using a reduced pressure backflow preventer downstream of the water meter.

Temporary water service to residential construction sites during the construction period

- The temporary water service at a construction site for a small (1-3 family) residential facility shall, minimally, use both of the backflow preventers listed below, connected in series; based upon observed cross-connection hazards, a site may require a higher, more stringent level of isolation:
- Reduced Pressure Principle Backflow Preventer (typically located downstream of the water meter)

AND

- A hose connection vacuum breaker (typically located at the hose connection).

**11. Fire Protection Systems**

Fire Protection System Isolation

- Fire protection systems shall be separately isolated either by using a Reduced Pressure Backflow Preventer or a Double Check Backflow Preventer (appropriate to the type of fire system installed within the facility).

Fire Protection System Isolation for New, Severe Hazard Facilities:

- A fire protection system installed within a new facility categorized as a high cross-connection hazard shall itself require a Reduced Pressure Backflow Preventer. (See Appendix A, Section 19)

Hydraulic Performance

- Prior to the installation of a backflow preventer on an existing fire protection system, the Town of Webster Water Department may require that a professional engineer review the hydraulic calculations to ensure that the operation of the fire protection system will not be compromised and that it complies with the appropriate codes and standards. The cost of providing this assurance shall be borne entirely by the Owner, except where stated otherwise.

**12. Records and Templates**

The Town of Webster Water Department will initiate and maintain the following records:

- Master list of all service connections relying upon backflow preventers to protect the public water system
- Inventory information on approved air gaps or backflow preventers to include description, installation date, history of inspections, tests, repairs, test results, and the name of the inspector/tester
- Master files on Cross-Connection Permits
- Copies of permits and permit applications and installation sketches
- Copies of survey results and summaries
- Annual program summary reports and backflow incident reports

The Town of Webster Water Department will prepare standardized survey forms, reports, and notifications to be used during implementation of this program.

**13. Device Testers, Test Equipment, and Testing Frequency**

**A. Certified Testers**

- All certified testers submitting backflow preventer test data to the Town of Webster Water Department shall possess a current, valid license issued by MassDEP.
- All approved authorized testers will have a Town of Webster Water Department I.D.
- If the certified tester is unable to provide proof that he/she is a certified backflow assembly tester, the backflow preventer test data shall be deemed invalid and the backflow preventer shall revert to an untested status.
- Backflow preventer test data shall not be accepted from a certified tester if their certification has expired prior to the date of the backflow preventer test.

**B. Registration of Current Certified Testers**

- When notified to do so by the Town of Webster Water Department, all certified testers currently testing backflow preventers installed in the Town of Webster water system shall register with the Town of Webster Water Department and, henceforth, shall renew their registration annually.

Registration of Newly Certified Testers

- Prior to conducting any testing on backflow preventers installed within the public water system, all newly certified testers shall register with the Town of Webster Water Department.

**C. Maintenance and Calibration of Testing Equipment**

- Certified testers shall ensure that their testing equipment is, at all times, maintained so that it performs within the manufacturer's tolerances and specifications.
- Testing equipment shall be calibrated and certified by the authorized manufacturer's representative to meet the requirements of the Town of Webster Water Department.
- The calibration of testing equipment shall be conducted once every twelve (12) months, or as specified by the Town of Webster Water Department, from the date of the previous calibration.
- All testing equipment calibrators shall provide a copy of the calibration results to the Town of Webster Water Department within seven (7) days of the calibration.

**D. Periodic Testing of Backflow Devices**

- All testable backflow prevention devices shall be inspected and tested semi-annually or annually based on the backflow device type.
- Periodic inspections shall be performed by a certified inspector; results shall be recorded on standard forms and copies distributed to the Owner and the Town of Webster Water Department within 14 days of the actual test.
- Any backflow preventer that fails during a periodic test will be repaired or replaced. Upon completion of a repair, the device will be tested a second time at the Owner's expense to verify correct operation. High hazard situations will not be allowed to continue unprotected if the backflow preventer fails the test and cannot be repaired immediately. The Owner is responsible for spare parts, repair tools, or a replacement device. Parallel installation of two (2) devices is an effective means to ensure uninterrupted water service.
- These devices shall be repaired or replaced at the expense of the Owner whenever said devices are found to be defective.
- Backflow prevention devices will be inspected more frequently if the Town of Webster Water Department feels that, due to the degree of hazard involved or other reasons determined, additional inspections are warranted. Cost of the additional inspections will be borne by the Owner.
- All new and modified fire protection systems shall have a backflow device installed in-line prior to any appurtenances. The type of device required shall be based on the degree of hazard, as determined by the Town of Webster Water Department.
- Simple wet or dry systems, without the use of chemicals within the system, that do not have a fire pump or external fire department connections, shall be considered low hazard and require a testable double check valve assembly.
- Any system containing any outside fire department connections, fire pumps, and/or chemicals, such as fire suppressants or antifreeze, shall be considered a high hazard situation and require a reduced pressure principle backflow preventer.

**14. Permits, Fees and Fines**

- Cross-connection permits required for each backflow prevention device must be obtained from the Town of Webster Water Department. The fee for this permit is included in the Town of Webster Water Department initial test fee and subject to change.
- A permit is not required when fixture isolation is achieved with the utilization of a non-testable backflow preventer.
- The fee for testing backflows shall be in accordance with the fee table provided herein, subject to change.
- In addition to termination of water service, the Town of Webster Water Department reserves the right to assess a fine of up to $300.00.
- The Town of Webster Water Department currently does not assess a fee for surveys, however, this is subject to change. If the Town of Webster Water Department initiates a change to begin charging for facility surveys, payment for surveys is the responsibility of the Owner.

**15. Enforcement Policy**

Access to Property

- An officer or other person authorized by the Town of Webster Water Department may enter at all reasonable times and upon presentation of proof of his or her identity any real property, including all areas within individual facilities, to inspect and determine whether or not all regulations, prohibitions, and requirements under this bylaw are being met.

Enforcement of Program Provisions

- An officer or other person authorized by the Town of Webster Water Department may enforce the provisions of this program.

Installation of Devices

- The water purveyor will be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow of contaminants or pollution through the water service connection. The designated agent shall give notice, in writing, to each Owner to install an approved backflow prevention device at each water service and on unprotected fixtures within the building to the Owner's premises. The Owner shall, within forty-five (45) days or sooner, dependent upon the degree of hazard, install approved device or devices at their own expense.

Repair/Replacement of Defective Devices

- If the Owner fails to ensure that a defective backflow preventer for a facility classified as a high cross-connection hazard has been repaired or replaced within the permitted time period, the Town of Webster Water Department may conduct an inspection to verify that the level of backflow protection for the system is commensurate with the cross-connection hazards found within the facility.

If the Town of Webster Water Department conducts an inspection and finds that:

- The level of backflow protection is satisfactory, but the defective backflow preventer that provides containment (including any supplementary backflow preventers that are defective) has not been repaired or replaced and tested, the Town of Webster Water Department shall direct the Owner to complete the outstanding repairs or replacement and advise the Owner that, in the absence of the Owner completing those repairs or replacement and testing within a specified period, the Town of Webster Water Department reserves the right to terminate water service;

  OR

- If the level of backflow protection is unsatisfactory, the Town of Webster Water Department shall direct the Owner to install and test backflow preventers appropriate to the level of cross-connection hazards found within the facility within a specified period of time.

Failure to Comply With Direction of the Town of Webster Water Department

- If an Owner fails to comply or refuses to comply with an oral or written directive of the Town of Webster Water Department, the Owner may be subject to penalties, including fines and the termination of water service.

**16. Quality Assurance and Control**

All backflow preventers shall be approved by the Foundation for Cross-Connection Control, Hydraulic Research of the University of Southern California (FCCCHR-USC), and/or the American Society of Sanitary Engineers (ASSE).

**17. Public Education**

- The Town of Webster Water Department will promote the elimination of existing cross-connections, actual or potential, between its Owners' in-plant potable water system(s) and any non-potable source through public education.
- All new and existing Owners shall be informed of the dangers of cross-connections to the safety of the public water supply system. This information shall include an explanation of backflow, typical residential (or commercial) cross-connections, and the threats that may be introduced should a backflow condition occur. The importance of removal or protection of cross-connections within the private water system shall be stressed.
- The Owner shall be informed that installation of a backflow device results in a potentially closed plumbing system within the residence or commercial building.
- Public education may be included in water bills. Other means to disperse cross-connection education may include local radio, public access television, community events, school presentations, and local newspaper articles.

**18. Response**

- Suspected backflow incidents will be investigated promptly. If a cross-connection is found, it shall be isolated. The Owner shall be required to remove the cross-connection and/or install an appropriate backflow prevention device prior to the restoration of water service to the owner.

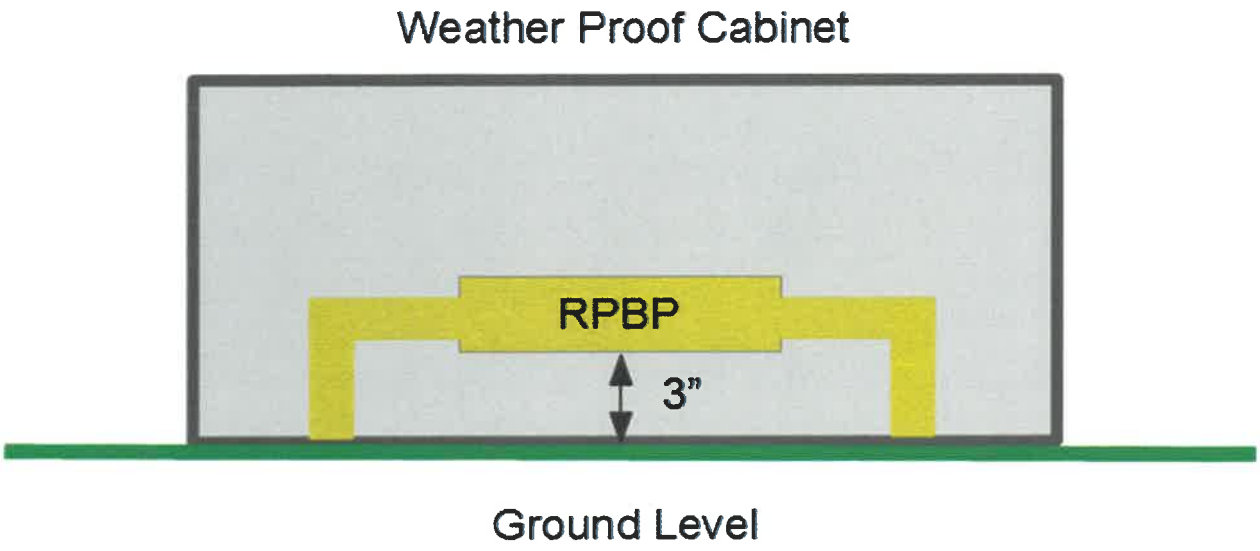
**19. Irrigation**

All commercial, industrial, institutional, and residential facilities must have backflow protection on their irrigation systems. A permit from the Town of Webster Water Department is required before work begins. Backflow preventers are tested annually. Installation requirements are:

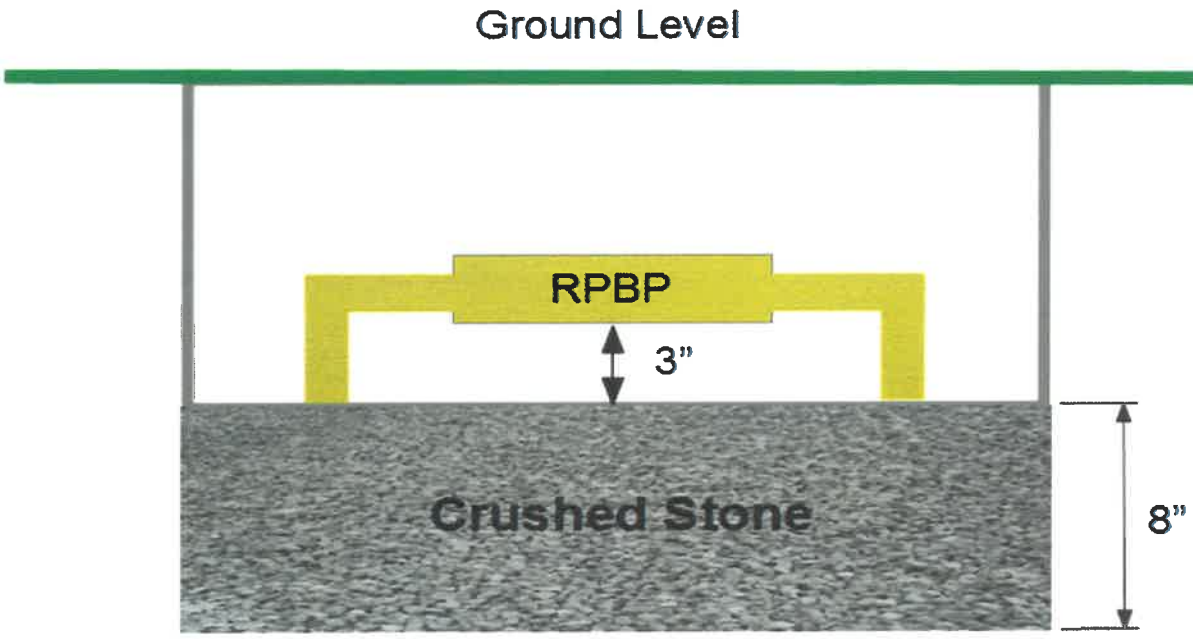
- Irrigations systems must have, at a minimum, a Pressure Vacuum Breaker or Reduced Pressure Principle Backflow Preventer device (or appropriate backflow assembly) at the potable water connection
- Reduced Pressure Backflow Preventer devices will be preferably installed inside building or in an above ground cabinet. Other installations will require approval by the Town of Webster Water Department.
- Assembly must not be covered by sod, dirt, or construction debris
- Test ports must have plastic or brass threaded plugs
- The assembly must be readily accessible with adequate room for maintenance and testing. Assemblies two (2) inches and smaller must have at least a 3-inch clearance on all sides of the assembly. Backflow assemblies shall be installed so that the checks are horizontal and the test cocks face upward.
- There must be at least six inches of crushed stone under the assembly on outside installations
- Water must be ON during test
- Assembly orientation must allow for easy access to test cocks
- The box must have solid walls constructed with non-decaying materials that extend to the crushed stone base

Sample outside above ground RPBP installation:

**Appendix C**




Sample outside below ground RPBP installation:




***Appendix A – Types of Backflow Prevention Devices Required***

Types of Backflow Prevention Devices Required: Referenced from the provisions of 310 CMR 22.22 (10), Table 310 CMR 22-1 shall serve as the guide for the type of protection required.

# Appendix C

## TABLE 22-1

AG - Air Gap
RPBP - Reduced Pressure Backflow Preventer
DCVA - Double Check Valve Assembly
AVB - Atmospheric Vacuum Breaker
PVB - Pressure Vacuum Breaker
BPIAV - Backflow Preventer with Intermediate Atmospheric Vent

| | Acceptable Types of Backflow Preventers | | | | | | |
|---|---|---|---|---|---|---|---|
| Types of Hazard on Premises | AG | RPBP | DCVA | AVB | PVB | BPIAV | Comments* |
| 1. Sewage Treatment Plant | X | X | | | | | |
| 2. Sewage Pumping Station | X | X | | | | | |
| 3. Food Processing | X | X | X* | | | | *If no health hazard exists |
| 4. Laboratories | X | X | X* | | | | *If no health hazard exists |
| 5. Fixtures with hose threads on inlets | X | X | X | X | | | In addition to an air gap separation, all fixtures that have a threaded hose type connection shall at a minimum, be equipped with a AVB in accordance with 248 CMR 2.14 |
| 6. Hospitals, Mortuaries, Clinics | X | X | | | | | |
| 7. Plating Facilities | X | X | | | | | |
| 8. Irrigation Systems | X | X | | X* | X** | | Each case should be evaluated individually.<br>*An AVB can be used if no backpressure is possible and no health hazard exists.<br>**Pressure Vacuum Breakers can be installed if. back pressure is not possible |
| 9. Systems or Equipment Using Radioactive Material | X | X | | | | | |
| 10. Submerged Inlets | X | X | | X* | | | *If no health hazard exists and no back pressure is possible |
| 11. Dockside Facilities | X | X | | | | | |
| 12. Valved outlets or fixtures with hose attachments | X | X | | X* | | | Each case should be evaluated individually<br>*If no health hazard exists and no back pressure is possible |
| 13. Commercial Laundries and Dry Cleaners | X | X | | | | | |
| 14. Commercial Dishwashing Machines | X | X | | X* | | | *If no health hazard exists |
| 15. High and Low Pressure Boilers | X | X* | | | | | *If chemicals are added |
| 16. Low Pressure Heating Boilers | | | | | | X | Residential and small commercial, having no chemicals added |
| 17. Photo Processing Equipment | X | X | | | | | |
| 18. Reservoirs – Cooling Tower Re-circulating Systems | X | X | | | | | |
| 19. Fire Protection Systems: For cross connection control, fire protection systems may be classified on the basis of water source and arrangement of supplies as follows: | | | | | | | |

# Appendix C



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19. Fire Protection Systems (continued)<br>a. Class 1: Direct connection from public water system mains only; no pumps, tanks, or reservoirs; no physical connection from other water supplies; no antifreeze or other additives of any kind; all sprinkler drains discharge to atmosphere, dry wells, or other safe outlets. These systems may or may not have fire department connections. Refer to 310 CMR 22.22(9)(d)1. | X | X | X | | | | A backflow prevention assembly does not have to be installed on existing fire protection systems installed prior to March 21, 1997, provided that the fire protection system is registered with the public water system, equipped with a UL listed alarm check valve that is properly maintained in accordance with NFPA 25 and has not undergone substantial modification defined within 310 CMR 22.22(9)(d)3. Alarm check maintenance records must be available for inspection by the Department, its designee or the public water system |
| b. Class 2: Same as Class 1 except that booster pumps may be installed in the connections from the street mains. These systems may or may not have fire department connections. Refer to 310 CMR 22.22(9)(a). | X | X | X | | | | A backflow prevention assembly does not have to be installed on existing fire protection system installed prior to March 21, 1997, provided that the fire protection system is registered with the public water system and equipped with a UL listed alarm check valve that is properly maintained in accordance with NFPA 25. Alarm check maintenance records must be available for inspection by the Department, its designee or the public water system |
| c. Class 3: Direct connection from public water system mains, plus one or more of the following: elevated storage tanks; fire pumps taking suction from aboveground covered reservoirs, or tanks; and pressure tanks. | X | X* | X* | | | | *RPBP or DCVA contingent on evaluation of auxiliary supply and on-site system in accordance with 310 CMR 22.22(9)(d)1. |
| d. Class 4: Directly supplied from public water system mains, similar to Class 1 and Class 2 with an auxiliary water supply dedicated to fire department use and available to the premises, such as an non-potable water source located within 1700 feet of the fire department connection, (FDC). | X | X* | | | | | *RPBP on evaluation of auxiliary supply and on-site system in accordance with 310 CMR 22.22(9)(d)1. |
| e. Class 5: Directly supplied from public water system 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 other additives are used. | X* | X* | | | | | *RPBP or air gap contingent on evaluation of auxiliary supply and on-site system. Refer to 310 CMR 22.22(9)(d)1. |
| f. Class 6: Combined industrial and fire protection systems supplied from the public water mains only, with or without gravity storage or pump suction tanks. | X | X* | | | X | X | *RPBP contingent on evaluation of on-site water system Refer to 310 CMR22.22 (9)(d)1. |
| g. Residential fire protection systems for one and two family detached dwellings and manufactured homes only. Fire protection systems in three family dwellings meeting NFPA 13D requirements as provided in 780 CMR, Chapter 9, are included in this section. | X | X | X | | | | Non testable devices and flow through systems should be used whenever possible. Systems are typically designed and installed in accordance with NFPA 13D: "Installation of Sprinkler systems in One and Two Family Dwellings and manufactured homes." These systems are authorized to use food grade antifreeze with no additional requirements when potable piping (PB, CPVC, and copper tube) is employed. If non-grade antifreeze is utilized, the system may be classified as a class 5. If a fire department connection is used, the requirements for a class 1 or 2 apply. |
| h. Residential fire protection systems for other than those described in Table 22-1-19.g. | X | X | X | | | | Fire protection system in this category shall comply with the requirements set forth in class 1 through 4 as appropriate. |
| 20. Solar Energy Systems | X | X | | | | X* | Residential and small commercial having no chemicals or only USP Glycerine added to water |
| 21. Single Jacketed Heat Exchangers | X | X | | | | | Each case should evaluated individually |

## Appendix C

*Appendix B – Cross Connection Control Program Design Data Sheet and Plumbing Plan*

# RESIDENTIAL CROSS CONNECTION APPLICATION

LAWN SPRINKLER· New ☐ N ☐ LAWN SPRINKLER· Existing: Y N ☐ ☐

SILLCOCKS: ☐Y ☐ NEW SECOND METER: Y N ☐ ☐

## HOME OWNER INFORMATION

LOCATION OF METER: _____

PROPERTY OWNER: _____ TEL NO: _____

ADDRESS: _____

## PLUMBER/CONTRACTOR INFORMATION

COMPANY NAME: _____ TEL NO: _____

ADDRESS: _____

CONTACT PERSON: _____ TEL NO: _____

PLUMBER'S EMAIL: _____

## BACKFLOW PREVENTION DEVICE INFORMATION

MANUFACTURER: _____

TYPE: _____ MODEL: _____

## CROSS CONNECTION PLAN

*ON REVERSE SIDE OF THIS SHEET, PLEASE PROVIDE A SCHEMA TIC, USING ACCEPTED SYMBOLS AND NOMENCLATURE, DETAILING YOUR PROPOSED INSTALLA TION. IT IS IMPORTANT THAT THE SCHEMA TIC SHOW EITHER:* (1) *PRESSURE VACUUM BREAKER INSTALLATION -MUST HAVE A MINIMUM OF* 12 *INCHES ABOVE THE HIGHEST POINT OF WA TER IN A SPRINKLER SYSTEM, OR (2) REDUCED PRESSURE ZONE BACKFLOW ASSEMBL Y -ASSEMBL Y MUST BE INSTALLED A MINIMUM OF* 12 *INCHES ABOVE GROUND LEVEL.*

SIGNATURE OF APPLICANT: _____ DATE: _____

## OFFICE USE ONLY

_____APPROVED BACKFLOW DEVICE
_____NOTIFIED PLUMBER/HOMEOWNER
_____NOTIFIED PLUMBING INSPECTOR

Date_____Initials_____
Date_____Initials_____
Date_____Initials_____

## Appendix C

WEBSTER WATER DEPARTMENT
P.O. Box 793 - 38 HILL ST - WEBSTER, MA 01570
PHONE: 508-949-3861 or 508-949- 3865 FAX: 508-949-3868

### NON-RESIDENTIAL BACKFLOW PREVENTION DEVICE DESIGN DATA SHEET

1. Owner's Name: _____
   Address: _____
2. Facility
   Name: _____
   Address: _____
   Contact Person / Agent: _____
   Telephone # of Facility: _____
   New or Existing Facility: _____
   General Description of the type of business or activities carried out at this facility:

   _____
3. DEVICE DATA

   Manufacture _____ Model # _____

   RPBP _____ DCVA _____ PVB _____ SIZE _____ Hot / Cold Unit _____

   Location of device _____

   From what type of contamination is the water supply protected? _____

   _____

   How many other (RPBP) or (DCVA) are located in this building? _____

   Type of Gate Valve? OS&Y _____ BALL _____ BUTTERFLY _____ NRS _____

## Plans Submitted

**A fully labeled, detailed schematic of the potable and nonpotable water piping Immediately surrounding the backflow prevention device installation must be submitted. These plans must clearly show the following:**

1. **Height above floor of the device;**
2. **Distance from wall of the device;**
3. **Type of chemical(s) used (if any) and the type of downstream of the device;**
4. **Alignment of the device;**
5. **Type of chemical(s) used (if any) and the type of equipment upstream of the device;**
6. **Location of upstream and downstream shutoff valves.**

**Please note the schematic must be at least 8 ½ by 11 inches with a completed title block.**

**Design data sheet submitted by:**

**Plumber signature** _____ **(date)** _____

**Owner's Agent/owner** _____ **Of** _____

**Date**

**Tele. No.** _____

_____

## Water Division

**Assigned Cross Connection ID No.** _____

**Installation approved** _____ **Installation rejected** _____

**Comments** _____

_____

**Approved**

_____

**Cross Connection Inspector** **Date** **Water Superintendent** **Date**