

TOWN OF FAIR HAVEN  
FAIR HAVEN, VERMONT

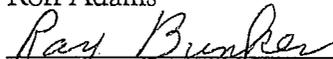
WATER SYSTEM  
BACKFLOW PREVENTION POLICY

Approved by the Board of Selectmen the 20<sup>th</sup> day of April, 2010.

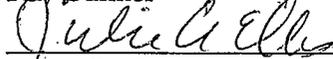
Board of Selectmen



Ron Adams



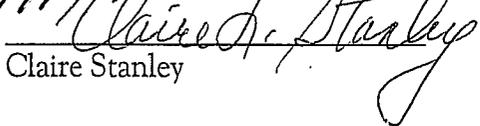
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## CONTROL OF CROSS CONNECTIONS AND BACKFLOW

### 1. Responsibility

The Town of Fair Haven shall be responsible for the protection of the public potable water distribution system from the contamination or pollution due to the backflow of contaminants or pollutants through the water service connection. If, in the judgment of the Town an approved backflow prevention assembly is required at the consumer's water service connection; or, within the consumer's private water system for the safety of the water system, the Town or its designated agent shall give notice in writing to said consumer to install such an approved backflow prevention assembly(s) at a specific location(s) on his premises. The consumer shall install such an approved backflow prevention assembly(s) at the consumer's own expense within the time schedule required by the notice; and, failure, refusal or inability on the consumer to install, have tested and maintained said assembly(s) shall constitute grounds for discontinuing water service to the premises until such requirements have been satisfactorily met.

### 2. Water System

The water system shall be considered as made up of two parts: The Town's owned system and the Consumer's system.

The Towns' system shall consist of the supply facilities and distributions system; and shall include all those facilities of the water system under the complete control of the Town, up to the point where the consumer's system begins. While the Town is ultimately responsible for water quality to the "last tap" on the municipal system, the last tap shall be considered the last point on the system where water enters into a building and is registered at a water meter.

The supply shall include all components of the facilities utilized in the production, treatment, storage, and delivery to the consumer's system.

The distribution system shall include the network of conduits used for the delivery of water from the source to the consumer's system.

The consumer's system shall include those parts of the facilities beyond the termination of the Towns distribution system, which are utilized in conveying potable water to points of use. For the purpose of this Ordinance, the consumers system shall begin at the downstream side of the curb stop or gate valve and proceed and end at the upstream side of the water meter, then begin again on the downstream side of the water meter.

### 3. Policy

inspection, observation, measurement, sampling, testing and maintenance, and to determine whether unprotected cross-connections or other structural or sanitary hazards, including violations of these regulations exist. If a property owner, resident or occupant denies the Town or other duly authorized employees of the Town access after reasonable notice has been provided to the property owner, resident or occupant, the Town may direct disconnection on forty-eight (48) hours written notice to the owner, resident or occupant. Once water service has been disconnected it will not be restored until access has been provided and the Town has been paid all applicable charges. When a backflow condition becomes known, the Town shall deny or immediately discontinue service to the premise by providing for a physical break in the service line until the consumer has corrected the condition(s) in conformance with the Rules and Regulations of the Town of Fairhaven relating to water supplies and the regulations adopted pursuant thereto. Subject to these Rules and Regulations, the Town shall have the authority to terminate any water service connection to any facility where cross connections are found to be in non-compliance. If necessary, water service shall be disconnected for failure to test or maintain backflow prevention devices in a manner acceptable to the Town. If it is found that the backflow prevention device has been removed or bypassed or otherwise rendered ineffective, water service shall be discontinued unless corrections are made immediately.

An approved backflow prevention assembly shall also be installed on each service line to a business or consumer's water system at or near the property line or immediately inside the building being served; but, in all cases, before the first branch line leading off the service line wherever the following conditions exist:

- a) In the case of premises having an auxiliary water supply which is not or may not be of safe bacteriological or chemical quality and which is not acceptable as an additional source by the Town, the public water system shall be protected against backflow from the premises by installing an approved backflow prevention assembly in the service line commensurate with the degree of hazard.
- b) In the case of premises on which any industrial fluids or any other objectionable substance is handled in such a fashion as to create an actual or potential hazard to the public water system, the public system shall be protected against backflow from the premises by installing an approved backflow prevention assembly in the service line commensurate with the degree of hazard. This shall include the handling of process waters and waters originating from the water purveyor's system which have been subject to deterioration in quality.
- c) In the case of premises having (1) internal cross-connections that cannot be permanently corrected or protected against, or (2) intricate plumbing and piping arrangements or where entry to all portions of the premises is not readily accessible for inspection purposes, making it impracticable or impossible to ascertain whether or not dangerous cross-connections exist, the public water system shall be protected against backflow from the

premises by installing a backflow prevention assembly(s) in the service line.

- d) Installation of the residential dual check devices on a retrofit basis on existing service lines will be instituted at a time deemed necessary by the Town.

The type of protective assembly required under subsections a, b, and c above shall depend upon the degree of hazard, which exists as follows:

- a) In the case of any premises where there is auxiliary water supply as started in subsection (a) above of this section and is not subject to any of the following rules, the public water system shall be protected by an approved air gap or an approved reduced pressure principle backflow prevention assembly.
- b) In the case of any premises where there is water or substance that would be objectionable but not hazardous to health, if introduced into the public water system, the public water system shall be protected by an approved double check valve backflow prevention assembly.
- c) In the case of any premises where there is any material dangerous to health, which is handled in such a fashion as to create an actual or potential hazard to the public water system, the public water system shall be protected by an approved air gap or an approved reduced pressure principle backflow prevention assembly. Examples of premises where these conditions will exist include sewage treatment plants, sewage pumping stations, chemical manufacturing plants, hospitals, mortuaries and plating plants.
- d) In the case of any premises where there are unprotected cross-connections, either actual or potential, the public water system shall be protected by an approved air gap or an approved reduced pressure principle backflow prevention assembly at the service connection.
- e) In the case of any premises where, because of security requirements or other prohibitions or restrictions, it impossible or impractical to make a complete in-plant cross-connection survey, the public water system shall be protected by an approved air gap or an approve reduced pressured principle backflow prevention assembly on each service to the premise.

Any backflow prevention assembly required herein shall be a make, model and size approved by the Town. The term "Approved Backflow Prevention Assembly" shall mean an assembly that has been manufactured in full conformance with the standards established by the American Water Works Association entitled:

AWWA/ANSI C510-92<sup>1</sup> Standard for Double Check Valve Backflow Prevention Assemblies;

AWWA/ANSI C511-92<sup>1</sup> Standard for Reduced Pressure Principle Backflow Prevention Assemblies;

And, have met completely the laboratory and field performance specification of the foundation for Cross-Connection Control and Hydraulic Research for the University of Southern California (USC FCCCHR) established in:

Specifications of Backflow Prevention Assemblies- Section 10 of the most current edition of the *Manual of Cross-Connection Control*.

All domestic backflow prevention devices, with the exception of residential dual check valves, shall be installed and repaired in accordance with local, state, and federal regulations, which may require persons performing repairs to hold a professional license and certification, except for backflow prevention devices installed on fire protection systems. A licensed fire sprinkler contractor is responsible for all work conducted on a fire protection system, including the installation, maintenance and repair of backflow prevention devices.

It shall be the duty of the consumer at any premise where reduced pressure backflow prevention assemblies are installed to have a field test performed by a certified backflow prevention assembly tester upon installation and at least twice per year. It shall be the duty of the consumer at any premise where double check valve assemblies are installed to have a field test performed by a certified backflow prevention assembly tester upon installation and at least once per year. It shall be the duty of the consumer at any premise where pressure vacuum breakers are installed to have a field test performed by a certified backflow prevention assembly tester upon installation and at least once per year. In those instances where the Superintendent deems the hazard to be great enough he may require field tests at more frequent intervals. These tests shall be at the expense of the water user and shall be performed by the Town of Fair Haven or its duly authorized agent. These assemblies shall be repaired, overhauled or replaced, and retested at the expense of the consumer whenever said assemblies are found to be defective. Records of such tests, repairs and overhaul, if performed by non-Town personnel, shall be made available to the Town within fourteen (14) days of completion of the test.

All presently installed backflow prevention assemblies which do not meet the requirements of this section but were approved devices for the purposes described herein at the time of installation and which have been properly maintained, shall, except for the testing and maintenance requirements stated within these rules be excluded from the requirements of these rules so long as the Town is assured that they will satisfactorily protect the water's purveyor's system. Whenever the existing device is moved from the present location or requires more than the minimum maintenance or when the Town finds that the maintenance constitutes a hazard to health, the unit shall be replaced with an approved backflow prevention assembly meeting the requirements of this section.

#### 4. Approved Backflow Prevention Devices

Approved backflow prevention devices shall be located so as to provide containment protection, and may be supplemented with the installation of in-plant protection backflow protection devices.

Only backflow devices approved by the Town shall be used.

All approved devices shall allow for accurate testing so as to allow verification of their performance.

In general, protection shall be provided by an air gap or a Town approved RPZ, or DCV with the manufacturer approved inlet and outlet control valves and four test cocks as a complete unit, installed in a horizontal alignment, unless otherwise approved by the Department.

The Town reserves the right to prohibit the use of any cross connection protection devices if the Town determines that such device is found, after subsequent review, to be defective or to have performed inadequately in the field.

No person shall remove or contract with another person for the removal of any required backflow protection device without obtaining the approval of the Town for the removal of said device first.

If an RPZ, DCV, or PVB cannot be removed from service for maintenance and testing, then a second device of the same type shall be installed in parallel so as to permit inspection and repair of either unit.

The assembly should be sized hydraulically, taking into account both the volume requirements of the service and the head loss of the assembly. Refer to manufacturers head loss curves.

Every backflow prevention device up to two inches (2") shall be installed with full port ball type shutoff valves approved by the manufacturer.

All RPZ, DCV, and PVB assemblies shall meet the standards established by at least one of the following organizations:

ASSE  
AWWA  
USC Specifications

#### 5. Acceptable Devices for Types of Hazards

Only the following types of backflow prevention devices shown below shall be used for the containment of on-premise hazards for low and high hazard situations respectively:

Low Hazard

1. Air gap
2. Atmospheric vacuum breaker  
(Where bacteria hazards aren't present)
3. Pressure vacuum breaker
4. Double check valve assembly
5. Reduced pressure backflow device
6. Or combination of the above

High Hazard

1. Air gap
2. Reduced pressure/  
backflow device
3. Or combination of the above

Any domestic, commercial, institutional, and fire protection service line, including each line of a multiple service line, and a multi family building serving more than two units shall be equipped with an approved backflow device or an approved air gap separation on each line. All other connections to the water main, including standpipes leading to elevated tanks, temporary ferules, hose connections, and irrigation systems shall be equipped with approved backflow prevention devices.

Approved backflow prevention devices shall be located so that protection of all cross connections is achieved with a minimum number of devices.

An approved backflow assembly shall be installed to any premise where multistoried (more than two stories) buildings such as a hotel, apartment house, offices, etc. are operated or maintained. An approved air gap or RPZ shall be installed where there is a potential health, contamination, or system hazard. A DCV shall be installed where there is only a pollutional hazard.

A backflow prevention device shall not be installed in locations where the device is subject to corrosive fumes, grit, sticky, or abrasive liquids. The device shall be protected against mechanical abuse. All devices shall be installed so they are easily accessible for testing and repair, and inspection.

Each backflow preventer installed in a building shall be located in a room or structure that is well lighted, properly drained, and not subject to flooding.

All assemblies shall be adequately supported and/or restrained to prevent lateral movement. Pipe hangers, braces, saddles, stanchions, piers, etc., shall be used to support the device and should be placed in a manner that will not obstruct the function or access to the relief valve.

**6. Backflow Prevention Assembly Installations**

A. Reduced Pressure Principal Backflow Preventers (RPZ)

All RPZ assemblies shall be installed in accordance with the manufacturer's specifications and the following Department requirements:

1. All RPZ assemblies must be purchased and installed with the manufacturer's approved full port inlet and outlet control valves and four (4) test cocks as a complete package unit.
2. This assembly shall be installed a minimum of twelve inches (12") from the floor to the lowest part of the device, and a maximum of sixty inches (60") above the surrounding ground or floor to the top of the device. A minimum of twelve inches (12") of clear space shall be maintained above the assembly to allow for servicing check valves and for operation of shut-off valves.
3. The assembly shall be installed a minimum of twelve inches (12") away from the nearest wall. Also, the manufacturer must state if the device has been approved for use in either the horizontal or vertical flow up or down configuration.
4. Brass ¼" adapters shall be installed on each test cock of the device.
5. The water service line must be thoroughly flushed before installing the assembly.
6. If continuous, uninterrupted water service is desired, two smaller RPZ assemblies may be installed in parallel. When the RPZ's are used in parallel, the total rated capacity of the assemblies must equal or exceed the capacity of the main feed line. A bypass around the RPZ is not permitted.
7. The assembly must be sized hydraulically to avoid excessive pressure loss.
8. An RPZ must be installed above ground in an outdoor installation, with a minimum twelve-inch (12") clearance. An approved on-site constructed or approved pre-manufactured shelter must be installed to provide additional protection against freezing and vandalism.
9. Where possible, an approved RPZ assembly shall be installed within a building on the service connection after but close to the meter. In certain cases, a backflow prevention assembly may be installed at an alternative location such as outdoors or at the discharge side of a booster pump. The device shall be protected from freezing, flooding, and vandalism. Access for routine testing and maintenance shall be provided. RPZ's shall not be installed in pit locations.
10. Drinking and domestic water lines, lines for safety showers, and lines for eye wash units must be taken off the upstream side of RPZ assemblies for those devices installed as in-plant protection.
11. There shall be no outlet, tee, tap, or connection of any kind to or from the supply line between the meter and the backflow prevention device.

12. If the device is to be used on a hot water line, a device approved for use at the elevated temperature must be used.
13. The drain to the relief port must have an approved air gap separation between the port and drain line, at least twice the internal diameter of the discharge line. A drain, capable of handling the maximum flow from the relief port shall be provided. RPZ's should be located in a location where water spillage is not objectionable.
14. While not effective in all cases, the installation of a soft seated check valve assembly immediately ahead of the RPZ will often hold the pressure constant to the assembly in times of fluctuating pressure supply. This fluctuating pressure supply could cause nuisance dripping and potential fouling of the assembly if left without a soft-seated check valve.
15. Provisions may have to be made by the owner to provide for thermal expansion within his closed loop system, i.e. the installation of thermal expansion devices and/or pressure relief valves.

In any of the above installation criteria, the owner must be made aware of the potential for water damage in the event of a discharge.

B. Approved Air Gap (AG)

An air gap is an unobstructed separation through free atmosphere between the lowest opening from any pipe or outlet supplying water to a tank, plumbing fixture, or other device from the flood-level rim of the receptacle. The air gap is the most reliable means of backflow protection.

1. The air gap must be installed with a minimum separating distance of at least two times the diameter of the water supply pipe (measured vertically above the flood level rim of the receptacle). In no case however, shall the separation be less than one inch.
2. The separation distance must be measured from the lowest point on the pipe or outlet supplying water to a receptacle.

C. Double Check Valve Assembly (DCV)

All DCV assemblies shall be installed in accordance with the manufacturer's specifications and the following Department requirements:

1. All DCV assemblies must be purchased and installed with the manufacturer's approved full port inlet and outlet control valves and four (4) test cocks as a complete package unit.

2. This assembly shall be installed a minimum of twelve inches (12") from the floor to the lowest part of the device, and a maximum of sixty inches (60") above the surrounding ground or floor to the top of the device. A minimum of twelve inches (12") of clear space shall be maintained above the assembly to allow for servicing check valves and for operation of shut-off valves.
3. The assembly shall be installed a minimum of twelve inches (12") away from the nearest wall. Also, the manufacturer must state if the device has been approved for use in either the horizontal or vertical flow up or down configuration.
4. Brass 1/4" adapters shall be installed on each test cock of the device.
5. The water service line must be thoroughly flushed before installing the assembly.
6. All domestic service lines tapped from sprinkler services for commercial and/or industrial buildings shall have a DCV installed as a minimum backflow preventer device.
7. If continuous, uninterrupted water service is desired, two smaller DCV assemblies may be installed in parallel. When the DCV's are used in parallel, the total rated capacity of the assemblies must equal or exceed the capacity of the main feed line. A bypass around the DCV is not permitted.
8. The assembly must be sized hydraulically to avoid excessive pressure loss.
9. Preferably all DCV assemblies should be installed above ground, but may be installed below ground level in a pit or chamber designed to prevent flooding. If the DCV is installed in a pit the following guidelines shall be followed:
  - a) There shall be no outlet, tee, tap, or connection of any kind to or from the supply line between the meter and the backflow prevention device.
  - b) The device shall be protected against freezing. Access for routine testing and maintenance shall be provided.
  - c) If a drain in the pit is absolutely necessary there shall be no connection between the drain and sewer or appurtenance, which permits the passage of polluted water into the pit.
10. Where possible, an approved DCV assembly shall be installed within a building on the service connection after but close to the meter. In certain cases, a backflow prevention assembly may be installed at an alternative location such as outdoors or at the suction side of a booster pump. The device shall be protected from freezing, flooding, and vandalism. Access for routine testing and maintenance shall be provided.

11. Drinking and domestic water lines, lines for safety showers, and lines for eye wash units must be taken off the upstream side of RPZ assemblies for those devices installed as in-plant protection.
12. There shall be no outlet, tee, tap, or connection of any kind to or from the supply line between the meter and the backflow prevention device.
13. Provisions may have to be made by the owner to provide for thermal expansion within his closed loop system, i.e. the installation of thermal expansion devices and/or pressure relief valves.

D. Pressure Vacuum Breaker Assembly (PVB)

All PVB assemblies shall be installed in accordance with the manufacturer's specifications and the following Department requirements:

1. The critical installation level shall be no less than twelve inches (12") above the highest point use or downstream piping for pipe applied applications and one inch (1") for equipment mounted/deck mounted applications. They shall be used only where drainage is provided.
2. PVB assemblies must not be installed where the device is subject to corrosive fumes or dust.
3. Brass ¼" adapters shall be installed on each test cocks of the device.
4. PVB's shall be tested annually.

E. Residential Dual Check (DC)

All Residential Dual Check assemblies shall be installed in accordance with the manufacturer's specifications and the following Town requirements:

1. All residential buildings will be required to install a residential dual check device immediately downstream of the water meter.
2. The owner shall be made aware that the installation of a residential dual check valve results in a potential closed plumbing system within his residence. As such, provisions may have to be made by the owner to provide for thermal expansion within his closed loop system, i.e. the installation of thermal expansion devices and/or pressure relief valves.
3. Typically, residential dual check valves are not testable, therefore not subject to annual or semiannual testing requirements.

F. Vacuum Breakers

A hose bib vacuum breaker should be installed on all outlets having a hose thread connection. It is screwed directly on to the sill cock. Freezing conditions require the draining feature.

An atmospheric vacuum breaker shall be located beyond the last control valve prior to the first outlet. All vacuum breakers shall be installed at an elevation at least six-inches (6") above the highest outlet. All atmospheric vacuum breakers shall be installed so that they are not subject to backpressure or continuous operating pressure of more than twelve (12) hours duration. All AVB's shall be installed in such a fashion that they will not be subject to corrosion that may render them inoperable.

#### G. Irrigations Systems

An approved backflow assembly shall be installed on each service to premises on which there is an irrigation system.

1. An approved air gap or RPZ shall be installed where there is an actual or potential health hazard caused by the installation of facilities for injecting under pressure fertilizers, fungicides, pesticides, soil conditioners and other noxious or objectionable substances through the irrigation system.
2. An approved air gap or DCV shall be installed where there is an actual or potential cross connection, which may adversely or unreasonably affect the aesthetic qualities of the domestic water supply.
3. A dual check assembly shall be installed on the irrigation line at the location of the separate water meter for the irrigation line at residential settings if there are none of the actual or potential hazards listed in #1 above.
4. Alternatively, a pressure vacuum breaker may be installed on the irrigation system according to the above requirements and manufactures specifications if there are none of the actual or potential hazards listed in #1 above, and if the device is not subject to backpressure from pumps or elevated piping. The owner must protect the device from freezing and maintain the device as required.

#### H. Strainers

The Town strongly recommends that all new and retrofit installations of reduced pressure principle devices and double check valve backflow preventers include the installation of strainers located immediately upstream of the backflow device. Installations of backflow preventers after water meters with existing strainers may not require the installation of another strainer. The installation of strainers will preclude the fouling of

backflow devices due to both foreseen and 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.

#### I. Fire Protection Systems

Devices and valves installed on fire protection systems including dual check backflow preventers for residential fire sprinkler systems shall be listed by Underwriters Laboratory (UL), unless otherwise approved by the head of the local fire department.

All new or modified fire systems with or without a Siamese connection, shall have installed as a minimum, an approved DCV. Based upon the degree of hazard, an RPZ may be required. The DCV or RPZ shall be installed on the line leading into the fire system.

An RPZ is required on all new or modified fire sprinkler system with or without a Siamese connection if chemicals are added to the fire sprinkler system. The RPZ shall be installed on the line leading into the fire system.

#### J. Pit Installations

Primarily due to considerations for access, safety, and gravity drainage, no devices shall be installed in pits except as specifically approved by the Town in cases of unique circumstances.

Where pit installations are proposed, however, they shall be designed with the following standards:

1. Pits or vaults shall be watertight, flood free, and maintained free from standing water by means of either a sump and pump or suitable drain. Such a pump or drain shall not connect to a sanitary sewer, nor permit flooding of the pit or vault by reverse flow from its point of discharge.
2. Drainage capacity shall be sized to accommodate both intermittent and catastrophic failure of the relief valve. All drainage from RPZ's must be gravity drains.
3. Sump pumps are not allowed unless they are sized to accommodate the maximum discharge rate and connected to emergency power supplies.
4. The pit opening and manhole cover must be at least 36" in diameter.

5. The foothold inserts must be a maximum 12" apart, and must be installed so that the top foothold is within 12" of the manhole cover and the bottom foothold is within 12" of the bottom of the pit floor.
6. The pit floor shall be pitched to the drain.
7. If built in a roadway, the top of the pit must be adequately enforced.
8. Pits must have crane access for installing and removing large assemblies, if required.
9. Pits must have adequate ground cover to prevent freezing.
10. Surface grading must divert runoff away from the entranceway.

K. Protective Enclosures

1. Floor elevation must be at least six inches (6") above finish grade.
2. Must provide adequate clearances around the device to access test cocks, shut off valves, check valves and relief valve.
3. Require electric heaters or heat trace wire for any water service used year round.
4. Require provisions for natural or artificial light.
5. Require full gravity drains according to the drainage requirements.
6. Require security measures such as locking doors and panels, flow alarms or flow indicator lights, power indicator lights, etc.

7. **Facilities and Equipment Requiring Backflow Prevention Assemblies**

The following is a list of the types of facilities, which are considered as possible cross connection hazards, and the required backflow device assembly for each:

<u>Type of Device to be Used</u>	<u>AG</u>	<u>RPZ</u>	<u>DCV</u>	<u>PVB</u>
A. Medical Facilities				
1. Hospitals		X	X	
2. Clinics		X	X	
3. Laboratories		X	X	
4. Veterinary Hospitals/Clinics		X	X	
5. Nursing and Convalescent Homes			X	X
6. Physical Therapy Clinics			X	X
7. Morgues			X	X
8. Mortuaries		X	X	
9. Autopsy Facilities			X	X
10. Embalmers		X	X	
11. Dental Offices		X	X	

	<u>AG</u>	<u>RPZ</u>	<u>DCV</u>	<u>PVB</u>
12. Medical offices with radiographic, physical therapy, and/or lab facilities		X	X	
<b>B. Treatment Plants</b>				
1. Sewerage		X	X	
2. Waste Water		X	X	
3. Industrial Waste			X	X
4. Pumping Stations			X	X
<b>C. Commercial Manufacturing/Storage</b>				
1. Automotive Plants		X	X	
2. Aircraft/Missile Plants			X	X
3. Beverage Bottling Plants		X	X	
4. Breweries/Distilleries	X	X		
5. Chemical Plants		X	X	
6. Car Wash Facilities	X	X		
7. Dairies and Cold Storage Plants		X	X	X
8. Dye Works	X	X		
9. Irrigation Systems	X	X	X	X
10. Laundries	X	X	X	
11. Meat Packing Plants	X	X		
12. Metals manufacturing Plants	X	X		
13. Paper/Paper Product Plants	X	X		
14. Petroleum or Gas Processing Plants		X	X	
15. Photographic Film Processing Plants	X	X		
16. Plating Plants	X	X		
17. Power Plants	X	X		
18. Radioactive Handling Plants	X	X		
19. Rubber Plants	X	X		
20. Sand, Gravel, Concrete, or Asphalt Plants		X	X	
21. Swimming Pools		X	X	X
22. Technical Schools, Colleges, Universities		X	X	X
23. Solar Energy/Heating Systems		X	X	
24. Temporary Services using Hydrants		X	X	
25. Waterfront Facilities	X	X		
26. Where a Cross Connection is Maintained		X	X	
27. Food Processing		X	X	
<b>D. Buildings</b>				
1. With Sewerage Ejectors		X	X	
2. With Water Booster pump and/or Storage Tank	X	X		
3. Supermarkets	X	X	X	
4. Restaurants	X	X	X	
5. Schools, Research Facilities, Any Building With Laboratories		X	X	

	<u>AG</u>	<u>RPZ</u>	<u>DCV</u>	<u>PVB</u>
6. Buildings with Fire Service		X	X	X
7. Warehouses used for Hazardous Material Storage		X	X	
8. Factories	X	X	X	
9. Shopping Malls	X	X	X	
10. Multi Family	X	X	X	
11. Multi Story	X	X	X	
E. Miscellaneous Equipment and Facilities				
1. Domestic Water Booster Pumps		X	X	
2. Food and Drug Processing		X	X	X
3. Hydraulic Equipment	X	X		
4. Sinks with Hose Threads	X	X		X
5. Submerged Inlets		X	X	
6. Valved Outlets or Fixtures With Hose Attachments	X	X	X	X
7. High and Low Pressure Boilers		X	X	
8. Reservoirs- Cooling Tower Recirculating Systems		X	X	X
9. Premises Where inspection Is Prohibited		X	X	
10. Commercial Dishwashers		X	X	X
11. Soap Injector		X	X	
13. Steam Generating Plant		X	X	
14. Tank Truck- Lawn Care, Sweeper		X	X	X
15. Water Cooled Equipment		X	X	
16. Boilers			X	
17. Heat Exchangers with added chemicals			X	
18. Solar heating systems with added chemicals				X

## Fire Protection Systems

### 1. Class 1

Direct connection from public water system mains only; no pumps, tanks, or reservoirs, no physical connection from any other water supplies, no antifreeze or other additives of any kind; all sprinkler drains discharge to atmosphere, dry wells, or other safe outlets. The system may or may not have fire department connections.

A backflow prevention assembly does not have to be installed on existing systems installed prior to April 1, 2003, provided that the fire protection system is registered with the Department, equipped with a UL listed alarm check valve that is maintained in accordance with NFPA 25 and has not undergone substantial modification. Alarm check maintenance records must be available for inspection by the Department. All new or modified fire systems shall have installed as a minimum, an approved DCV. Based upon the degree of hazard, an RPZ may be required. The DCV or RPZ shall be installed in the line leading into the fire system.

2. Class 2

Same as Class 1 except the booster pumps may be installed in the connections from the street mains. These systems may or may not have fire department connections.

A backflow prevention assembly does not have to be installed on existing systems installed prior to April 1, 2003, provided that the fire protection system is registered with the Department, equipped with a UL listed alarm check valve that is maintained in accordance with NFPA 25 and has not undergone substantial modification. Alarm check maintenance records must be available for inspection by the Department. All new or modified fire systems shall have installed as a minimum, an approved DCV. Based upon the degree of hazard, an RPZ may be required. The DCV or RPZ shall be installed in the line leading into the fire system.

3. Class 3

Direct connection from public water mains plus one or more of the following: elevated storage tanks, fire pumps taking suction from above ground covered reservoirs or tanks, and pressure tanks.

RPZ or DCV contingent on evaluation of auxiliary supply and on-site system.

4. Class 4

Directly supplied from public water system mains, similar to Class 1 and 2 with an auxiliary water supply dedicated to fire department use and available to the premises, such as a non-potable water source located within 1,700 feet of the fire department connection.

RPZ on evaluation of auxiliary supply and on-site system.

5. 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 or ponds; driven wells; mills or other industrial water systems; or where antifreeze or other additives are used.

RPZ or air gap contingent on evaluation of auxiliary supply and on site system.

6. Class 6

Combined industrial and fire protection systems supplied from the public water mains only, with or without gravity storage or pump suction tanks.

RPZ contingent upon evaluation of site water system.

7. Class 7

Residential fire protection systems for one and two family detached dwellings and manufactured homes only.

Non-testable and flow through systems should be used whenever possible. Dual check valves are authorized when only food grade antifreeze is used with no additional additives. If non-grade antifreeze is utilized, the system may be classified as a Class 5.

3. **OTHER PENALTIES**

In addition to any enhanced billing authorized herein, the Selectboard may, by ordinance, provide additional penalties for violation of any of the provisions of these Regulations.

4. **SEVERABILITY**

The declaration of invalidity of any section, term or provision of these regulations shall not affect any other section, term or provision.

