City of Stevenson Cross-Connection and Backflow Prevention Manual

CITY OF STEVENSON CROSS-CONNECTION AND BACKFLOW PREVENTION MANUAL

TABLE OF CONTENTS

TABLES

I. Definitions

A. Approved

Accepted by the Water Purveyor as meeting an applicable specification stated or cited in this regulation.

B. Auxiliary Water Supply

Any water supply to the premises other than the City of Stevenson's approved public potable water system.

C. Backflow

The flow of water or other liquids, mixtures or substances, under positive or reduced pressure in the distribution pipes of a potable water supply from any source other than its intended source.

D. Backflow Preventer

A device or means designed to prevent backflow or back siphonage. Most commonly categorized as air gap, atmospheric vacuum breaker, double check valve assembly, pressure vacuum breaker, and reduced pressure device.

D.1 Air Gap

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 distance equal to twice the diameter of the supply side pipe diameter but never less than one inch.

D.2 Atmospheric Vacuum Breaker

A device which prevents back siphonage by creating an atmospheric vent when there is either a negative pressure or sub-atmospheric pressure in a water system.

D.3 Double Check Valve Assembly

An assembly of two independently operating spring loaded check valves with tightly closing shut of valves on each side of the check valves, plus properly located test cocks for the testing of each check valve.

D. 4 Pressure Vacuum Breaker

A device containing one or two independently operated spring loaded check valves and an independently operated spring loaded air inlet valve located on the discharge side of the check or

checks. Device includes tightly closing shut-off valves on each side of the check valves and properly located test cocks for the testing of the check valve(s).

D.5 Reduced Pressure Device

An assembly consisting of two independently operating approved 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 valves and the relief valve.

E. Backpressure

A condition in which the owners system pressure is greater than the suppliers system pressure.

F. Back Siphonage

The flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply system from any source other than its intended sources caused by the sudden reduction of pressure in the potable water supply system.

G. City

The city of Stevenson or their duly authorized representative.

H. Containment

A method of backflow prevention which requires a backflow protection device at the water service entrance to effectively isolate the premise from the distribution system.

I. Contaminant

A substance that will impair the quality of the water to a degree that it creates a health hazard to the public leading to poisoning, the spread of disease or a violation of water quality standards.

J. Cross-Connection

Any actual or potential connection between the public water supply and a source of contamination or pollution.

K. Owner

Any person who has legal title to, or license to operate or occupy, a property upon which a cross-connection inspection will be made or upon which a cross-connection is present.

L. Water Purveyor

The Purveyor or his delegated representative in charge of the city of Stevenson water system.

M. Person

Any individual, partnership, company, public or private corporation, political subdivision or agency of the state or the United States or any other legal entity.

N. Permit

A document issued by the city which allows the use of a backflow preventer.

O. Pollutant

A foreign substance that will degrade water quality and would constitute a moderate hazard, or impair the usefulness or quality of the water to a degree that is not a hazard to the public health but which does adversely and unreasonable effect such water for domestic use.

P. Water Service Entrance

That point in the owner's water system beyond the sanitary control of the city; generally considered to be the outlet end of the water meter.

II. Purpose and Scope

This manual establishes minimum standards for the city to protect the public potable water supply from possible contamination of pollution due to backflow or back siphon from a customer's private internal system into the public potable water system.

This manual establishes minimum cross-connection control operating policies, provides guidelines and requirements for installation, testing, and maintenance of approved backflow devices, and establishes permitting and inspection requirements for existing and new backflow protection devices.

III. Authority

A. The Federal Safe Drinking Water Act of 1974 and the statutes of the State of Washington Title 43 RCW and Chapter 248-54 WAC require purveyors to "protect public water systems from contamination due to cross-connection."
B. Ordinance No. _____ prohibits the presence of cross-connections.

IV. Responsibility

The Purveyor shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow or back siphonage of contaminants or pollutants through water service connections.

If the Purveyor determines a backflow device is required at any customer's premises, the Purveyor or his delegated agent, shall give notice to said customer to install an approved backflow prevention device at one or more locations to his premises. Installation of requested backflow protection devices shall be a condition of continued water service from the city.

Upon installation the customer shall have the device tested by a state certified backflow assembly tester and then contact the city requesting inspection and of the tested device or devices. The customer shall supply the city with a copy of the signed testing report prior to inspection. The customer shall be subject to all applicable inspection and testing fees as may be established by the city and the tester.

V. Failure to Comply

Any person, firm or corporation who violates any of the provisions of this manual or Ordinance No. _____ Cross-connections and Backflow may be punished in accordance with Stevenson Municipal Code Section 15.01.130.

Any person, firm or corporation who violates any provisions and requirements of this manual shall be subject to discontinuance of supply of city water to the premises. Discontinuance of the city potable supply to the premise shall remain in effect until corrective action as required by the Purveyor is completed, tested and approved.

VI. Requirements

A. General

The city will operate a cross-connection control program which fulfills the requirements of the State of Washington Cross-Connection Regulations and approved by the city of Stevenson.

Owners shall allow property to be inspected for possible cross-connections and shall follow the provisions of the city's program if a cross-connection is permitted.

If the city requires that public supply be protected by containment, owners shall be responsible for water quality beyond the outlet end of the containment devices and should utilize fixture outlet protection for that purpose. Fixture outlet devices shall be installed in accordance with the Uniform Plumbing Code. A plumbing permit and inspections may be required.

B. City of Stevenson

On new installations, the city will (1) provide on-site evaluation and/or inspection of plans in order to determine the type of backflow preventer, if any, that will be required, (2) will issue permits, and (3) perform inspection. At a minimum, a meter setter check valve will be required on all new construction.

For premises existing prior to the effective date of Ordinance No. 955, the city will perform evaluations and inspections of plans and/or premises and inform owners by letter of any corrective action deemed necessary, the method of achieving the correction, and the time allowed for the correction to be made. Ordinarily, corrections must be made within sixty days; however, the city may shorten this time period depending upon the degree of hazard involved and the history of the device(s) in question.

Premises will be inspected on or after the expiration date of required action to correct a cross-connection. Premises not in compliance with the city's request shall receive written notice that water service to the premises will be terminated. If the owner informs the city of extenuating circumstances as to why the correction has not been timely completed within five working days of receipt of the notice of termination, the city may grant a time extension up to, but not exceeding thirty days.

The city will not allow any cross-connection to remain unless it is protected by an approved backflow preventer for which a permit has been issued and which will be regularly tested at the owner's expense to insure satisfactory operation.

If the city determines at any time that a serious threat to the public health exists, the water service will be terminated immediately.

The city shall perform all inspection for all backflow devices. Testing and inspection shall be done (1) during the initial installation, (2) during on-site reviews of existing installations, (3) after any repairs or maintenance, and (4) after any relocation and the annual testing requirement.

When an initial installation or annual testing indicates that a backflow device is not properly functioning, the owner shall correct the malfunction within five (5) working days as directed by the city. The owner shall contact the city after correcting the malfunction for inspection and retesting of the device(s).

C. Owner

Owners shall be responsible for the elimination or protection of all cross-connections on their premises.

Owners, after having been informed by a letter from the city, shall at their expense, install any and all backflow preventers requested.

Owners shall correct any malfunction of the backflow preventer which is revealed by periodic city testing, within five (5) working days of the identification of the malfunction and as directed by the city.

Owners shall inform the city of any proposed or modified cross-connections and also any existing cross-connections of which owners are aware but have not been found by the city.

Owners shall only install backflow preventers approved by the city.

Any owner having a private well, will be required to have a backflow preventer device installed one (1) foot to eighteen (18) inches behind the water meter.

The owner shall be responsible for the payment of all fees for (1) permits, (2) initial, annual or semi-annual device testing, (3) re-testing if the device fails to operate correctly, and (4) any re-inspections for non-compliance with city requirements. The fee for a backflow preventer permits shall be the same as the fee for a plumbing permit as specified in The State Uniform Plumbing Code.

VII. Applicability

The provisions of this manual are applicable to all connections to the city domestic water supply. The city recognizes there are varying degrees of risk associated with different types of uses and will consider such risks when determining if a cross connection exists and applicable backflow prevention devices. Table 1 lists common backflow devices that may be required. NOTE: The following Tables 1, 2, 3 and 4 are derived from American Water Works Association Cross Connection Control Manual, May 1990.

Table 1: Abbreviations

Abbreviation	Description	Level of Protection
AG	Air Gap	1
RPBA	Reduced Pressure Backflow Assembly	2
RPDA	Reduced Pressure Detector Assembly	2
DCVA	Double Check Valve Assembly	3
DCDA	Double Check Detector Assembly	3
PVBA	Pressure Vacuum Breaker Assembly	4
AVB	Atmospheric Vacuum Breaker	5

NOTE: Lower numbers in the "Level of Protection" column indicate higher levels of protection.

There are premises which require mandatory premises isolation. These types of premises and minimum protection requirements are shown in Table 2. Table 2 does not include all premises. The city may require backflow protection of any facility it deems appropriate and a risk to the domestic system. Table 3 lists the types of facilities which may require backflow protection devices.

Table 2: Premises Requiring Mandatory Service Protection

Premises	Protection	Premises	Protection
Beverage bottling plants	RPBA	Nursing homes	RPBA
Car washes	RPBA	Petroleum processing or storage plant	RPBA
Chemical plants	RPBA	Piers and docks	RPBA
Fire sprinkler services	DCVA	Radioactive material processing	RPBA
Food processing plants	DCVA	plants or nuclear reactors	
Sewage lift stations	RPBA	Hospitals, medical centers and clinics	RPBA
Sewage pump stations	RPBA	Sewage treatment plants	RPBA
Metal plating industries	RPBA	Tall buildings (over 30', domestic water)	DCVA
Mortuaries	RPBA	Unapproved auxiliary supply	RPBA

Table 3: Facilities Requiring Backflow Protection

Facilities	Protection	Facilities	Protection
Battery manufacturing	RPBA	Film processing facilities	RPBA
or repair facilities		Ice manufacturing plants	RPBA
Boat marinas	RPBA	Mobile home parks	DCVA
Canneries	DCVA	Packing houses (slaughter)	RPBA
Cold storage plants	RPBA	Paper products plants	RPBA

Commercial laundries	RPBA	Parks and playgrounds	DCVA
Concrete mixing plants	DCVA	Plasma centers	RPBA
Dairies	DCVA	Sand and gravel plants	DCVA
Dry cleaners	RPBA	Ship repair facilities	RPBA
Dry docks	RPBA	Shopping centers	DCVA
Farms	DCVA		

In addition to mandatory backflow protection for certain types of premises, there are numerous fixtures, equipment areas, or other common use areas which could have cross-connection and backflow potential. These fixtures, equipment areas and other areas must be inspected and analyzed to determine potential risk to the system. Table 4 lists typical fixtures, equipment areas and other areas that may or may not require backflow protection devices.

Table 4: Fixtures, Equipment and Areas with Backflow Potential

Fixtures, Equipment and Areas	Minimum Protection	Fixtures, Equipment and Areas	Minimum Protection
Air compressors	DCVA	Etching tanks	AG/RPBA
Air conditioning systems	RPBA	Fermenting tanks	AG/RPBA
Air washers	RPBA	Fertilizer injection equipment	RPBA
Aquarium make-up water	AG/RPBA	Film processors	RPBA
Aspirators, medical	AVB	Fire department connections	DCVA
Aspirators, weedicide, herbicide and pesticide	AVB	Fire sprinkler systems	DCVA
		Floor drains	AG
Autoclaves	RPBA	Flushing floor drains	AVB
Autopsy tables	RPBA	Foamite systems	RPBA
Baptismal founts	AG/AVB	Fountains, ornamental	AG/RPBA
Bathtub, below rim filler	Not allowed	Fume hoods	AVB
Bedpan washers	AVB	Garbage can washers	AVB/PVBA
Beverage dispensers using CO_2	RPBA	Garbage disposals	AVB
Bidets	AG-internal	Heat exchangers	RPVA
Boat lifts	RPBA	Heat pumps	RPBA
Boiler feed lines	AG/RPBA	High pressure washers	DCVA
Bottle washing equipment	RPBA	Hose bibbs	AVB
Box hydrants	PVBA/DCVA	Hoses, kitchen rinse	AVB
Brine tanks	AG/DCVA	Hot tubs	AG/RPBA
Can washing equipment	AVB/PVBA	Hot water heating systems	RPBA
Chemical feeder tanks	AG/RPBA	Hot water boilers	RPBA
Chilled water systems	RPBA	Humidifier tanks and boxes	AG
Chlorinators	RPBA	Hydraulically operated equipment	DCVA
Coffee urns	AG/AVB	Hydrotherapy baths	AVB
Computer cooling lines	AG/RPBA	Ice makers	AG
Condensate tanks	AG/RPBA	Industrial fluid systems	RPBA
Cooking kettles	AG/AVB	Intertied (looped) water systems	DCVA

Cooling towers	AG/RPBA
Decorative ponds	AG/RPBA
Degreasing equipment	RPBA
Demineralized water systems	RPBA
Dental duspidors	RPBA
Detergent dispensers (dishwasher)	AVB
Dialysis equipment	RPBA
Drinking fountains	AG
Dye vats and tanks	AG/RPBA
Dynamoters	DCVA
Emergency generators	RPBA
Perchlorethylene reclaim	RPBA
Pesticide applicator trucks	AG/RPBA
Photo developing tanks and sinks	RPBA
Photostat equipment	RPBA
Pipette washers	AVB
Potato peelers	AVB
Poultry feeders	RPBA
Private hydrants	DCVA
Processing tanks	AG/RPBA
Pump seal water	AG
Pumps, pneumatic ejector	RPBA
Pump prime lines	DCVA
Pumps, water operated ejector	RPBA
Radiator flushing equipment	RPBA
Recreational vehicle dump stations	RPBA
Serrated faucets	AVB
Service sinks	AVB
Sewer connected equipment	AG
Sewer flushing	AG
Shampoo basins/hose rinse	AVB
Showers, telephone	AVB
Sitz baths	AVB
Soap mixing tanks	AG/AVB
Solar heating systems	RPBA
Solution tanks	AG/RPBA
Spas	AG/RPBA
Specimen tanks	AG/RPBA
Starch tanks	AG/DCVA
Steam-air sprays	RPBA
Irrigation systems	AVB/PVBA
Janitor sinks	AVB
Kitchen equipment	AVB
Laboratory equipment	RPBA
Laundry machines, commercial	RPBA
Lavatories	AVB
Livestock drinking tanks	AG/AVB
Mobile carpet cleaners	RPBA
Mop sinks	AVB
Outboard motor test tanks	AG/AVB
Steam cleaners	RPBA
Steam ejectors	RPBA
Steam generating facilities	RPBA
Sterilizers	RPBA
Stills	RPBA
Sumps	AG
Swimming pools	AG/RPBA
Toilets (internal)	AG
Trap primers	AG
Ultrasonic baths	AG
Urinals (internal)	AG
Used water systems	RPBA
Vats	AG/AVB
Washing pools	AG/RPBA
Wall hydrants	AVB
Wash basins	AG/AVB
Wash-up sinks	AG/AVB
Wash tanks	AG/AVB
Waste water lines	AG
Water-air sprays	DCVA
Water closets (internal)	AG
Water cooled equipment	DCVA
Water ejectors	RPBA
Water recirculating systems	DCVA
Water settling	DCVA
Water treatment tanks	AG/RPBA
Water trucks	DCVA
Wet vacuum systems	RPBA
Whirlpool baths	AVB
Windshield washer fluid aspirators	RPBA
X-ray processors	RPBA

VIII. Installation and Testing

Installation and testing of all backflow devices shall be in accordance with Cross Connection Control Manual Accepted Procedures and Practices produced by the American Water Works Association. The latest edition shall be used. Copies can be purchased from the State Department of Health Drinking Water Section.

In addition, all backflow protection devices shall be installed at a location that is easily accessible for inspection and testing one (1) foot to eighteen (18) inches behind the water meter. Devices located in vaults shall have adequate clearances and depths to allow city to inspect and test. Devices that cannot be easily and readily inspected shall be required to be relocated and replumbed. The owner shall contact the city for applicable installation requirements and standards.

IX. Existing Backflow Protection Devices

Any existing backflow protection device in use can continue to be used providing:

1. The device is functioning properly based on inspection and testing by the city.
2. The degree of protection is satisfactory for protection of the city's domestic system as determined by the Purveyor.

Backflow devices that do not meet above conditions shall, at the owner's expense, be removed and installed with new approved devices.