

# BACKFLOW PREVENTION HANDOUT



This handout is based on RCW 19.27, known as the "Washington State Building Code" and RCW 18.106 "Plumbers". The handout includes portions of the International Codes, and may include portions of other codes adopted by statute, publications, as well as Klickitat County Ordinances and policies.

## DEFINITIONS:

**Backflow.** The flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable supply of water from sources other than its intended source.

**Backflow Connection.** An arrangement whereby backflow can occur.

**Backflow Preventer.** A backflow prevention device, an assembly, or another method to prevent backflow into the potable water system.

**Backpressure Backflow.** Backflow due to an increased pressure above the supply pressure, which may be due to pumps, boilers, gravity, or other sources of pressure.

**Backsiphonage.** The flowing back of used, contaminated, or polluted water from a plumbing fixture or vessel into a water supply pipe due to a pressure less than atmospheric in such pipe.

**Backwater Valve.** A device installed in a drainage system to prevent reverse flow.

**Certified Backflow Assembly Tester.** A person certified by the Washington State Department of Health under Chapter 246-292 WAC to inspect (for correct installation and approval status) and test (for proper operation), maintain and repair (in compliance with Chapter 18.106 RCW) backflow prevention assemblies, device and air gaps.



**602.1 Prohibited Installation.** No installation of potable water supply piping, or part thereof, shall be made in such a manner that it will be possible for used, unclear, polluted, or contaminated water, mixtures, or substances to enter a portion of such piping from a tank, receptor, equipment, or plumbing fixture by reason of backsiphonage, suction, or other cause, either during normal use and operation thereof, or where such tank, receptor, equipment, or plumbing fixture is flooded or subject to pressure exceeding the operating pressure in the hot or cold water piping.

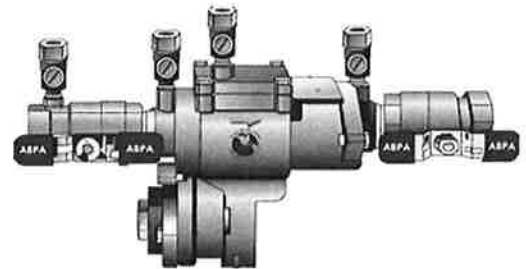
**602.2 Cross-Contamination.** No person shall make a connection or allow one to exist between pipes or conduits carrying domestic water supplied by a public or private building supply system, and pipes, conduits, or fixtures containing or carrying water from any other source or containing or carrying water that has been used for any purpose whatsoever, or piping carrying chemicals, liquids, gases, or substances whatsoever, unless there is provided a backflow prevention device approved for the potential hazard and maintained in accordance with this code. Each point of use shall be separately protected where potential cross-contamination of individual units exist.

**602.3 Backflow Prevention.** No plumbing fixture, device, or construction shall be installed or maintained, or shall be connected to a domestic water supply, where such installation or connection provides a possibility of polluting such water supply or cross-connection between a distributing system of water for drinking and domestic purposes and water that becomes contaminated by such plumbing fixture, device, or construction unless there is provided a backflow prevention device approved for the potential hazard.

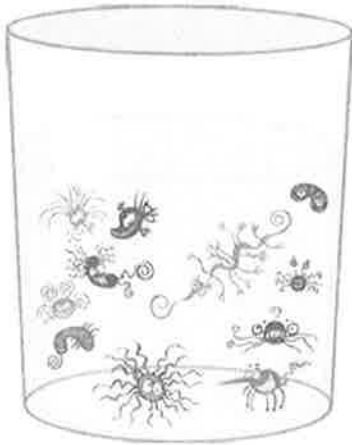
**602.4 Approval by Authority.** No water piping supplied by a private water supply system shall be connected to any other source of supply without approval of the Health Department or other department having jurisdiction.

**603.1 Cross-Connection Control-General.** Cross-connection control shall be provided in accordance with the provisions of this chapter. Devices or assemblies for protection of the public water system must be models approved by the Department of Health under WAC 246-290-490. The authority having jurisdiction shall coordinate with the local water purveyor where applicable in all matters concerning cross-connection control within the property lines of the premises.

No person shall install any water operated equipment or mechanism, or use any water treating chemical or substance, if it is found that such equipment, mechanism, chemical or substance may cause pollution or contamination of the domestic water supply. Such equipment or mechanism may be permitted only when equipped with an approved backflow prevention device or assembly.



Example



**603.2 Approval of Devices or Assemblies.** Before any device or assembly is installed for the prevention of backflow, it shall have first been approved by the authority having jurisdiction. Devices or assemblies shall be tested for conformity with recognized standards acceptable to the authority having jurisdiction. Backflow prevention devices and assemblies shall comply with Table 603.2, except for specific applications and provisions as stated in Section 603.5.1 through 603.5.21.

All devices or assemblies installed in a potable water supply system for protection against backflow shall be maintained in good working condition by the person or persons having control of such devices or assemblies. Such devices or assemblies shall be tested in accordance with Section 603.4.2 and WAC 246-290-490. If found to be defective or inoperative, the device or assembly shall be replaced or repaired. No device or assembly shall be removed from use or relocated or other device or assembly substituted, without the approval of the authority having jurisdiction.

**Testing shall be performed by a Washington State Department of Health certified backflow assembly tester yearly.**

**603.3 Backflow Prevention Devices, Assemblies, and Methods.** Backflow prevention devices, assemblies, and methods shall comply with this code: Air gap, atmospheric vacuum breaker (AVB), hose connection backflow preventer, double check valve backflow prevention assembly (DC), pressure vacuum breaker backflow prevention assembly (PVB), spill-resistant pressure vacuum breaker (SVB), reduction-pressure principle backflow prevention assembly (RP), double check detector fire protection backflow prevention assembly, reduced pressure detector fire protection backflow prevention assembly.

**603.4.2 Testing.** For devices and assemblies other than those regulated by the Washington Department of Health in conjunction with the local water purveyor for the protection of public water systems, the authority having jurisdiction shall ensure that the premise owner or responsible person shall have the backflow prevention assembly tested by a Washington State Department of Health certified backflow assembly tester.

1. At the time of installation, repair or relocation; and
2. At least on an annual schedule thereafter, unless more frequent testing is required by the authority having jurisdiction.

**603.4.9 Prohibited Location.** Backflow prevention devices with atmospheric vents or ports shall not be installed in pits, underground or in submerged locations. Backflow preventers shall not be located in any area containing fumes or aerosols that are toxic, poisonous, infectious, or corrosive.

Klickitat County Environmental Health can provide additional information on potable water and protection.

**603.4.3 Access and Clearance.** Access and clearance shall be provided for the required testing, maintenance, and repair. Not less than 12" between the lowest portion of the assembly and grade, floor, or platform. Installation elevated more than 5' above the floor or grade shall be provided a platform capable of supporting a tester or maintenance person.



**603.5.6 Protection from Lawn Sprinklers and Irrigation Systems.** Potable water supplies to systems having no pumps or connections for pumping equipment, and no chemical injection or provisions for chemical injection, shall be protected from backflow by one of the following:

1. Atmospheric vacuum breaker (AVB)
2. Pressure vacuum breaker backflow prevention assembly (PVB)
3. Spill-resistant pressure vacuum breaker (SVB)
4. Reduced pressure principle backflow prevention assembly (RP)
5. A double check valve backflow prevention assembly (DC) may be allowed when approved by the water purveyor and the authority having jurisdiction.