

## **AWA Code: Section 2.17 Backflow Prevention.**

In making plumbing connections, the customer is required to comply with the regulations of the California State Department of Health Services and the United States Public Health Service. Such regulations prohibit (1) unprotected cross-connections between a public water supply and any unapproved source of water (i.e., wells), and (2) water service to premises where there is a possibility of contaminated water backflowing into the public water system .

- (a) The installation of backflow prevention assemblies shall be by and at the expense of the customer before the Agency approves or continues service. They shall be installed under the following conditions:
  - 1. Where another source of water, whether cross-connected or not, is in use or is available for use at the premises;
  - 2. Where non-potable water, contaminated liquid or soluble substances of any kind are used, produced or processed at the premises;
  - 3. Where the customer elevates or increases the pressure of water received by means of a pump of any kind;
  - 4. Where the Agency determines that because of the customers water facilities or equipment, a backflow prevention assembly is necessary; or
  - 5. Where a premises has any sewage treatment facility or pumping station .
- (b) When check valves or other protective devices are used as a protection to the customer's plumbing system, a suitable pressure relief valve shall be installed and maintained by the customer at customer's expense . The relief valve shall be installed between the check valves and the water heater.
- (c) In special cases, the Agency may require the customer to eliminate certain plumbing or piping connections as an additional precaution to prevent backflow .
- (d) The owner of any premises on or for which check valves or other protective devices are installed shall maintain, repair and replace

these devices, and shall inspect them for water tightness and reliability at least once per year in accordance with the regulations of the California State Department of Health Services. Such inspection documentation must be provided to the Agency annually. The Agency may require more frequent inspections if, upon inspection, the device fails, or where it has been determined that the hazard justifies more frequent testing and/or inspections. (Revised March 11, 2004 - Resolution No. 2004-16)

- (e) Double-check valves and other protective devices may be inspected and tested for water tightness by the Agency when it is suspected that the device may not be operating properly or the owner has not provided proof of compliance with this Section. If the inspection cannot be made without undue difficulty because of an obstruction or other interference, the customer will be notified and requested to either correct the condition or have the inspection made at his own expense and witnessed by the Agency. The Agency shall bill the owner for its costs for such inspection which bill shall be paid within thirty (30) days after its date. Interest shall accrue at the legal rate on any delinquent amount.
- (f) Service to any premises may be discontinued if it is found that dangerous or unprotected cross-connections exist, or if any defect is found in the check valves or other protective devices. Service shall not be restored until such defects are corrected at the customer's expense and applicable Agency service restoration charges have been paid as set forth in Rate Schedule UN-3(c). (Revised March 11, 2004 - Resolution No. 2004-16)
- (g) Inspection and testing shall be performed by a State certified backflow prevention device inspector. A list of certified inspectors will be made available to the owner by the Agency.

# TITLE 17

DIVISION 1. STATE DEPARTMENT OF HEALTH SERVICES  
CHAPTER 5. SANITATION (ENVIRONMENTAL)  
GROUP 4. DRINKING WATER SUPPLIES  
ARTICLE 1. GENERAL

§7S83. Definitions.

In addition to the definitions in Section 4010.1 of the Health and Safety Code, the following terms are defined for the purpose of this Chapter:

(a) "Approved Water Supply" is a water supply whose potability is regulated by a State or local health agency.

(b) "Auxiliary Water Supply" is any water supply other than that received from a public water system.

(c) "Air-gap Separation (AG)" is a physical break between the supply line and a receiving vessel.

(d) "AWWA Standard" is an official standard developed and approved by the American Water Works Association (AWWA).

(e) "Cross-Connection" is an unprotected actual or potential connection between a potable water system used to supply water for drinking purposes and any source or system containing unapproved water or a substance that is not or cannot be approved as safe, wholesome, and potable. By-pass arrangements, jumper connections, removable sections, swivel or changeover devices, or other devices through which backflow could occur, shall be considered to be cross-connections.

(f) "Double Check Valve Assembly (DC)" is an assembly of at least two independently acting check valves including tightly closing shut-off valves on each side of the check valve assembly and test cocks available for testing the watertightness of each check valve.

(g) "Health Agency" means the California Department of Health Services, or the local health officer with respect to a small water system.

(h) "Local Health Agency" means the county or city health authority.

(i) "Reclaimed Water" is a wastewater which as a result of treatment is suitable for uses other than potable **use**.

(j) "Reduced Pressure Principle Backflow Prevention Device (RP)" is a backflow preventer incorporating not **less** than two check valves, an automatically operated differential relief valve

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<sup>1</sup> Section 4010.1 has been recodified to 116275. GAL has been notified of this by request for a "change without regulatory effect".

located between the two check valves, a tightly closing shut-off valve on each side of the check valve assembly, and equipped with necessary test cocks for testing.

(k) "User Connection" is the point of connection of a user's piping to the water supplier's facilities.

(l) "Water Supplier" is the person who owns or operates the public water system.

(m) "Water User" is any person obtaining water from a public water supply.

#### §7584. Responsibility and Scope of Program.

The water supplier shall protect the public water supply from contamination by implementation of a cross-connection control program. The program, or any portion thereof, may be implemented directly by the water supplier or by means of a contract with the local health agency, or with another agency approved by the health agency. The water supplier's cross-connection control program shall for the purpose of addressing the requirements of Sections 7585 through 7605 include, but not be limited to, the following elements:

(a) The adoption of operating rules or ordinances to implement the cross-connection program.

(b) The conducting of surveys to identify water user premises where cross-connections are likely to occur,

(c) The provisions of backflow protection by the water user at the user's connection or within the user's premises or both,

(d) The provision of at least one person trained in cross-connection control to carry out the cross-connection program,

(e) The establishment of a procedure or system for testing backflow preventers, and

(f) The maintenance of records of locations, tests, and repairs of backflow preventers.

#### §7585. Evaluation of Hazard.

The water supplier shall evaluate the degree of potential health hazard to the public water supply which may be created as a result of conditions existing on a user's premises. The water supplier, however, shall not be responsible for abatement of cross-connections which may exist within a user's premises. As a minimum, the evaluation should consider: the existence of cross-connections, the nature of materials handled on the property, the probability of a backflow occurring, the degree of piping system complexity and the potential for piping system modification. Special consideration shall be given to the premises of the following types of water users:

(a) Premises where substances harmful to health are handled under pressure in a manner which could permit their entry into the public water system. This includes chemical or biological process waters and water from public water supplies which have deteriorated in sanitary quality.

(b) Premises having an auxiliary water supply, unless the auxiliary supply is accepted as an additional source by the water supplier and is approved by the health agency.

(c) Premises that have internal cross-connections that are not abated to the satisfaction of the water supplier or the health agency.

(d) Premises where cross-connections are likely to occur and entry is restricted so that cross-connection inspections cannot be made with sufficient frequency or at sufficiently short notice to assure that cross-connections do not exist.

(e) Premises having a repeated history of cross-connections being established or re-established.

#### §7586. User Supervisor.

The health agency and water supplier may, at their discretion, require an industrial water user to designate a user supervisor when the water user's premises has a multipiping system that convey various types of fluids, some of which may be hazardous and where changes in the piping system are frequently made. The user supervisor shall be responsible for the avoidance of cross-connections during the installation, operation and maintenance of the water user's pipelines and equipment.

## ARTICLE 2. PROTECTION OF WATER SYSTEM

### §7601. Approval of Backflow Preventers.

Backflow preventers required by this Chapter shall have passed laboratory and field evaluation tests performed by a recognized testing organization which has demonstrated their competency to perform such tests to the Department.

### §7602. Construction of Backflow Preventers.

(a) Air-gap Separation. An Air-gap separation (AG) shall be at least double the diameter of the supply pipe, measured vertically from the flood rim of the receiving vessel to the supply pipe; however, in no case shall this separation be less than one inch.

(b) Double Check Valve Assembly. A required double check valve assembly (DC) shall, as a minimum, conform to the AWWA Standard *CS06-78* (R83) adopted on January 28, 1978 for Double Check Valve Type Backflow Preventive Devices which is herein incorporated by reference.

(c) Reduced Pressure Principle Backflow Prevention Device. A required reduced pressure principle backflow prevention device (RP) shall, as a minimum, conform to the AWWA Standard *CS06-78* (R83) adopted on January 28, 1978 for Reduced Pressure Principle Type Backflow Prevention Devices which is herein incorporated by reference.

### §7603. Location of Backflow Preventers.

(a) Air-gap Separation. An air-gap separation shall be located as close as practical to the user's connection and all piping between the user's connection and the receiving tank shall be entirely visible unless otherwise approved in writing by the water supplier and the health agency.

(b) Double Check Valve Assembly. A double check valve assembly shall be located as close as practical to the user's connection and shall be installed above grade, if possible, and in a manner where it is readily accessible for testing and maintenance.

(c) Reduced Pressure Principle Backflow Prevention Device. A reduced pressure principle backflow prevention device shall be located as close as practical to the user's connection and shall be installed a minimum of twelve inches (12") above grade and not more than **thirty-six** inches (36") above grade measured from the bottom of the device and with a minimum of twelve inches (12") side clearance.

**§7604. Type of Protection Required.**

The type of protection that shall be provided to prevent backflow into the public water supply shall be commensurate with the degree of hazard that exists on the consumer's premises. The type of protective device that may be required (listed in an increasing level of protection) includes: Double Check Valve Assembly-(DC), Reduced Pressure Principle Backflow Prevention Device-(RP), and an Air-gap Separation-(AG). The water user may choose a higher level of protection than required by the water supplier. The minimum types of backflow protection required to protect the public water supply, at the water user's connection to premises with various degrees of hazard are given in Table 1. Situations which are not covered in Table I shall be evaluated on a case-by-case basis and the appropriate backflow protection shall be determined by the water supplier or health agency.

**TABLE 1**  
**TYPE OF BACKFLOW PROTECTION REQUIRED**

<i>Degree of Hazard</i>	<i>Minimum Type of Backflow Prevention</i>
(a) Sewage and Hazardous Substances	
(1) Premises where there are waste water pumping and/or treatment plants and there is no interconnection with the potable water system. This does not include a single-family residence that has a sewage lift pump. A RP may be provided in lieu of an AG if approved by the health agency and water supplier.	AG
(2) Premises where hazardous substances are handled in any manner in which the substances may enter the potable water system. This does not include a single-family residence that has a sewage lift pump. A RP may be provided in lieu of an AG if approved by the health agency and water supplier.	AG
(3) Premises where there are irrigation systems into which fertilizers, herbicides, or pesticides are, or can be, injected.	RP
(b) Auxiliary Water Supplies	
(1) Premises where there is an unapproved auxiliary water supply which is interconnected with the public water system. A RP or DC may be provided in lieu of an AG if approved by	AG

the health agency and water supplier.	
(2) Premises where there is an unapproved auxiliary water supply and there are no interconnections with the public water system. A DC may be provided in lieu of a RP if approved by the health agency and water supplier.	RP
 (c) Recycled Water	
(1) Premises where the public water system is used to supplement the recycled water supply.	AG
(2) Premises where recycled water is used, other than as allowed in paragraph (3), and there is no interconnection with the potable water system.	RP
(3) Residences using recycled water for landscape irrigation as part of an approved dual plumbed use area established pursuant to sections 60313 through 60316 unless the recycled water supplier obtains approval of the local public water supplier, or the Department if the water supplier is also the supplier of the recycled water, to utilize an alternative backflow protection plan that includes an annual inspection and annual shutdown test of the recycled water and potable water systems pursuant to subsection 60316(a).	DC
 (d) Fire Protection Systems	
(1) Premises where the fire system is directly supplied from the public water system and there is an unapproved auxiliary water supply on or to the premises (not interconnected).	DC
(2) Premises where the fire system is supplied from the public water system and interconnected with an unapproved auxiliary water supply. A RP may be provided in lieu of an AG if approved by the health agency and water supplier.	AG
(3) Premises where the fire system is supplied from the public water system and where either elevated storage tanks or fire pwnps which take suction from private reservoirs or tanks are used.	DC
(4) Buildings where the fire system is supplied from the public water system and where recycled water is used in a separate piping system within the same building.	DC
 (e) Dockside Watering Points and Marine Facilities	
(1) Pier hydrants for supplying water to vessels for any purpose.	RP
(2) Premises where there are marine facilities.	RP
 (t) <b>Premises</b> where entry is restricted so that inspections for cross-connections cannot be made with sufficient frequency or at sufficiently short notice to assure that they do not exist.	RP

(g) Premises where there is a repeated history of cross-connections being established or re-established.

RP

§7605. Testing and Maintenance of Backflow Preventers.

(a) The water supplier shall assure that adequate maintenance and periodic testing are provided by the water user to ensure their proper operation.

(b) Backflow preventers shall be tested by persons who have demonstrated their competency in testing of these devices to the water supplier or health agency.

(c) Backflow preventers shall be tested at least annually or more frequently if determined to be necessary by the health agency or water supplier. When devices are found to be defective, they shall be repaired or replaced in accordance with the provisions of this Chapter.

(d) Backflow preventers shall be tested immediately after they are installed, relocated or repaired and not placed in service unless they are functioning as required.

(e) The water supplier shall notify the water user when testing of backflow preventers is needed. The notice shall contain the date when the test must be completed.

(f) Reports of testing and maintenance shall be maintained by the water supplier for a minimum of three years.