

**Requirements for all private water systems.**

(A) If the department or board of health determines that any private water system, any part thereof, or any appurtenance thereto, is being maintained in such a fashion, has deteriorated to such an extent, has been abandoned, that a safety hazard exists or contaminants might enter ground water or the potable water supply so as to constitute a public health hazard, the department or board of health shall order such work to be performed on the private water system as is deemed necessary to prevent contamination of the ground water or the supply to protect public health or safety.

(B) For purposes of this rule:

(1) A "backflow prevention device" is any device, method or type of construction to prevent backflow of water, liquids, mixtures, or substances into the distributing pipes of a potable supply of water from any source other than its intended source.

Any device used as a backflow prevention device must contain a dual check valve assembly meeting the requirements of American society of sanitary engineering (ASSE) standards 1013, 1015 or 1024 and/or an air gap.

(a) "Dual Check valve" means a backflow prevention device consisting of two spring-loaded, independently acting check valves.

(b) "Air Gap" is a method of creating a physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An approved air gap shall be at least twice the diameter of the supply pipe measured vertically above the overflow rim of the vessel, but, never less than one half inch.

(2) "Cross connection" means any physical connection or arrangement between two otherwise separate piping systems, one of which contains potable water and the other; gas, water, or other liquid of unknown or questionable quality or safety, whereby water may flow from one system to the other, the direction of flow depending on the pressure differential between the two systems.

(3) "Yard hydrant" means a device that is located outside of a building, equipped with a valve mechanism that controls the delivery of potable water, and is not designed to supply a fire department pumper.

"Weep hole" means a small diameter hole or series of holes located in the wall of the supply pipe for a yard hydrant that allow for drainage of accumulated water from the delivery piping. These holes are usually part of a plunger and valve system that seals off the holes during water usage and opens the holes during shutdown. These openings are located below ground level and below the frost line in areas where the threat of freezing exists.

- (C) All pipe utilized in the water piping system of a private water system outside and inside of a house or building shall be of materials conforming to table 1 and 2 of this rule.
- (D) All pipe shall also be protected from freezing.
- (E) All pipe fittings shall be approved for installation with the pipe material and shall conform to the respective pipe standards or one of the standards listed in Table 3 of the rule. All pipe fittings utilized in private water systems shall also conform to NSF standard 61.

-Table 1: Water service pipe (outside use)

MATERIAL	STANDARD
Copper or copper alloy pipe	ASTM B 42; ASTM B 302
Copper or Copper alloy tubing (Type K, WK, L, WI, M or WM)	ASTM B 75; ASTM B 88; ASTM B 251; ASTM B 447
Chlorinated polyvinyl chloride (CPVC)	ASTM D2846; ASTM F 441; ASTM F 442; CSA B137.6
Ductile iron water pipe	AWWA C151; AWWA C115
Polybutylene (PB) plastic pipe and tubing	ASTM D 2662; ASTM D 2666; ASTM D 3309; CSA B137.8
Polyethylene (PE) plastic pipe	ASTM D 2239; CSA CAN/CSA-B137.1
Polyethylene (PE) plastic tubing	ASTM D 2737; CSA B137.1
Cross-linked polyethylene (PEX) plastic tubing	ASTM F 876; ASTM F 877; CSA CAN/CSA-B137.5
Polyvinyl chloride (PVC) plastic pipe	ASTM D 1785; ASTM D 2241; ASTM D 2672; CSA CAN/CSA-B1373
Stainless-steel	ASTM A269; ASTM A312 / A312-09
	*ASTM – American Standard for Testing and Materials *AWWA – American Water Works Association *CSA – Canadian Standards Association

-Table 2: Water distribution pipe (inside use)

MATERIAL	STANDARD
Brass pipe	ASTM B43
Chlorinated polyvinyl chloride (CPVC)	ASTM D2846; ASTM F 441; ASTM F 442; CSA B137.6
Copper or copper alloy pipe	ASTM B 42; ASTM B 302
Copper or Copper alloy tubing (Type K, WK, L, WI, M or WM)	ASTM B 75; ASTM B 88; ASTM B 251; ASTM B 447
Cross-linked polyethylene (PEX) plastic tubing	ASTM F 877; CSA CAN/CSA-B137.5
Polybutylene (PB) plastic pipe and tubing	ASTM D 3309; CSA CAN/CSA-B137.8
Polyvinyl chloride (PVC) plastic pipe	ASTM D 1785; ASTM D 2241; ASTM D 2672; CSA CAN/CSA-B1373
Stainless-steel	ASTM A269; ASTM A312 / A312-09

-Table 3: Pipe fittings

MATERIAL	STANDARD
Cast Iron	*ASME B16.4; ASME B16.12
Chlorinated polyvinyl chloride (CPVC)	ASTM F 437; ASTM F 438; ASTM F 439
Cold Expansion Fittings with PEX Reinforcing Rings for use with Cross-linked Polyethylene (PEX) Tubing	ASTM F 1960
Copper or copper alloy	ASTM B16.15; ASTM B16.18; ASTM B16.22; ASTM B16.23; ASTM B16.26; ASTM B16.29; ASTM B16.32
Gray iron and ductile iron	AWWA C110; AWWA C153
Malleable iron	ASME B163
Metal Insert Fittings Utilizing a Copper Crimp Ring SDR9 (PEX) Tubing	ASTM f 1807
Polyethylene (PE) plastic	ASTM D 2609
Polyvinyl chloride (PVC) plastic	ASTM D 2464; ASTM D 2466; ASTM D 2467; CSA CAN/CSA-B137.2
Steel	ASME B16.9; ASME B16.11; ASME B16.28
Stainless steel	ASTM F2080-08
	*ASME – American Society of Mechanical Engineers

(F) Each private water system shall be equipped with a downturned sampling faucet for the sole purpose of collecting water samples. The downturned faucet shall meet the following requirements:

- (1) Shall be installed at the pressure tank, on the well side of the pressure tank, extended from the pressure tank to an accessible location outside the foundation walls, or at the first accessible point as it enters a building and before any treatment or disinfection device;
- (2) Any private water system requiring continuous disinfection shall be equipped with an additional downturned sampling faucet just after the retention tank or ultraviolet disinfection system;
- (3) Shall be easily accessible and not located in a confined space or crawl spaces, unless the pressure tank and sample port are installed within three feet of the crawl space entrance, or unless the crawl space is of a reasonable height for walking access by an average sized adult;
- (4) Shall be installed not less than eight inches above the floor or ground surface;
- (5) Shall be installed with a downturned angle no less than forty-five degrees from the horizontal;
- (6) Shall be a smooth-nosed (non-threaded) sample port that provides a smooth flow of water without splashing for proper sampling;
- (7) Shall not have an attached or built-in back-flow prevention device;

- (8) Shall be placed prior to any backflow device, except for wells directly feeding into a cistern or hauled water storage tank.
- (G) No person shall install or maintain a private water system with any physical cross-connections to a public water system:
- (H) No person shall install or maintain a private water system where physical cross-connections to another private water system or source exists unless:
  - (1) The private water system is constructed as a combination of one or more types of water supply sources; and
  - (2) The private water system shall have an approved backflow prevention device installed in line prior to any connections from other water sources to prevent the backflow of one water source into another and a sampling port place prior to the backflow prevention device; and
  - (3) Each corresponding supply component shall meet the requirements of this chapter for that type of water supply component.
- (I) No person shall install or maintain a connection within a private water system which could pollute the water system or provide a cross-connection between a source of contamination and the water system unless an approved backflow prevention device is installed.
- (J) An approved backflow prevention device shall be installed to protect all service connections where necessary to prevent a potential health or contamination hazard.
- (K) All backflow prevention devices installed on a service line shall comply with ASSE 1013, 1015 or 1024.
- (L) All service connections to the main service line shall have an approved backflow prevention device installed prior to or immediately after the connection to the main service line. The backflow prevention device shall be easily accessible within a vault, equipment storage pit or the foundation of the home or building for the purposes of inspection and maintenance.
- (M) Except for single family dwellings, and private water systems serving two dwellings on the same or adjacent lots, an ASSE 1013 or 1015 backflow prevention device shall be installed when the main service line is supplying water to more than one service connection. Additional service line connections branching off of service connections from the main service line shall have a ASSE 1013, 1015 or 1024 backflow prevention device installed immediately after the connection to the service line unless the unit being supplied meets the requirements in paragraph (N) of this rule or meets the requirements in Chapter 3701-26 of the Administrative Code.
- (N) Service line connections supplying water to a yard hydrant meeting ASSE standard 1057 or as approved by the department shall not be required to have a backflow prevention device installed prior to the yard hydrant. For yard hydrants meeting this standard, the department may require a backflow

prevention device, meeting ASSE standard 1024, on the hose bibb to prevent backflow or backsiphonage. All other yard hydrant service line connections shall meet the requirements in paragraph (K) of this rule.

- (O) Water storage tanks and reservoirs shall meet the criteria of paragraphs (A) and (B) of rule 3701-28-12 of the Administrative Code and also comply with all other applicable provisions of rule 3701-28-12 of the Administrative Code. For the purpose of this rule a storage tank does not include a pressure tank.
- (P) Wells discharging to a non-pressurized reservoir tank must be protected by a dual check valve prior to entering a reservoir tank.
- (Q) Any person intending to alter a well located in a pit or vault, where the vault will not be used to house other systems equipment shall:
  - (1) Extend the well casing a minimum of twelve inches above the top of the pit or vault walls or above the natural ground level whichever gives the greater height.
  - (2) Remove all other private water systems components from the pit or vault and fill the pit or vault by collapsing at least one wall, breaking up the floor, and removing all drains.
  - (3) Place a six inch deep layer of bentonite piled around the base of the casing prior to placement of fill materials in the vault.
  - (4) Fill the remaining area in the pit or vault with a clay-based soil.
- (R) Any person intending to alter a well located in a pit or vault, and use a portion of the pit or vault for housing other private water systems components shall comply with paragraphs (Q) (1), (Q)(3) and (Q)(4 ) of this rule, and shall also construct a new wall in the pit or vault to separate the well from the other system equipment. The wall shall be of sufficient strength and be watertight, and the outer diameter of the casing shall be a minimum of twelve inches from the outside edge of the new wall of the pit or vault to allow for twelve inches of backfill around the casing.
- (S) Any person intending to construct or alter a private water system with a pit or vault used specifically for the storage of the private water components, such as the pump and pressure tank, shall either add a drainage outlet with backflow protection to the existing pit or vault which will eliminate standing water in the pit or vault, or if a drain does not exist, install a backflow prevention device where the water service line enters the vault or pit.

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