Ohio Administrative Code

Rule 3701-28-08 Pumps, pressure tanks, and other requirements for all private water systems.

Effective: January 1, 2020

(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. If there is known groundwater contamination in an area, the board of health or the department may require access be provided for sampling of a private water system in that area for such parameters as are necessary to determine if the private water system is impacted by or contributing to the contamination, and may order such work as is necessary to ensure that the existing private water system does not contribute to the transport of the contamination.

(B) All pipe and fittings 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. All pipe and fittings utilized in private water systems shall also conform to NSF 61-2016.

(C) All pipes and valves shall also be protected from freezing or other physical damage. Valves shall be installed so that they are accessible from the surface of the ground by means of an open stack.

(D) All pipe fittings and nipples 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 605.5 or table 605.8 of rule 4101:3-6-01 of the Administrative Code. All pipe fittings and nipples utilized in private water systems shall also conform to NSF 61-2016.

MATERIAL	STANDARD
Copper or copper alloy pipe	ASTM B42-2015a; ASTM B302-2017
Copper or Copper alloy tubing (Type K, WK, L, WI, M or WM)	ASTM B75/B75M-2011; ASTM B88-2016; ASTM B251-2017; ASTM B447-2012a

Chlorinated polyvinyl chloride (CPVC)	ASTM D2846/D2846M-2017be1; ASTM F441/F441M-2015; ASTM F442/F442M-2013e1; CSA B137.6 2017
Ductile iron water pipe	AWWA C151 2009; AWWA C115 2011
Polybutylene (PB) plastic pipe and tubing	CSA B137.8 2017
Polyethylene (PE) plastic pipe	ASTM D2239-2012a; CSA B137.1 2017
Polyethylene (PE) plastic tubing	ASTM D2737-2012a; CSA B137.1 2017
Cross-linked polyethylene (PEX) plastic tubing	ASTM F876-2017; ASTM F877-2018; CSA B137.5 2017
Polyvinyl chloride (PVC) plastic pipe	ASTM D1785-2015e1; ASTM D2241-2015; ASTM D2672-2014; CSA B137.3 2017
Stainless-steel	ASTM A269/A269M-2015a; ASTM A312 /A312M-2017

MATERIAL	STANDARD
Brass pipe	ASTM B43-2015
Chlorinated polyvinyl chloride (CPVC)	ASTM D2846/D2846M-2017be1; ASTM F441/F441M-2015; ASTM F442/F442M-2013e1; CSA B137.6 2017
Copper or copper alloy pipe	ASTM B42-2015a; ASTM B302-2017
Copper or Copper alloy tubing (Type K, WK, L, WI, M or WM)	ASTM B75/B75M-2011; ASTM B88-2016; ASTM B251-2017; ASTM B447-2012a
Cross-linked polyethylene (PEX) plastic tubing	ASTM F877-2018; CSA B137.5 2017
Polybutylene (PB) plastic pipe and tubing	CSA B137.8 2017
Polyvinyl chloride (PVC) plastic pipe	ASTM D1785-2015e1; ASTM D2241-2015; ASTM D2672-2014; CSA B137.3 2017
Stainless-steel	ASTM A269/A269M-2015a; ASTM A312/A312M-2017

(E) Each private water system shall be equipped with a down turned sampling faucet for the sole purpose of collecting water samples. The down turned sampling faucet shall:

(1) Be installed at or as close as possible to 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) Be equipped with an additional down turned sampling faucet just after each stage of the treatment

system, retention tank of the treatment system or ultraviolet light disinfection system for any private water system requiring continuous disinfection or other point of entry treatment system;

(3) Be easily accessible and not located in a confined space or crawl spaces, unless the pressure tank and sample faucet 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) Be installed not less than eight inches above the floor or ground surface and in a location with sufficient area and access to place a container for capturing the flushed water;

(5) Be installed with a down turned angle no less than forty-five degrees from the horizontal;

(6) Be a non-threaded sample faucet that provides a controllable flow of water for proper sampling;

(7) Not have an attached or built-in check valve which may harbor microbial contamination; and

(8) Be placed prior to any backflow prevention device (ASSE 1013 2011, ASSE 1015 2011, or ASSE 1024 2004), except for wells directly supplying a cistern or other water storage tank.

(F) No person shall install or maintain a private water system with any actual or potential cross-connections to a public water system unless such actual or potential cross-connections are abated to controlled to the satisfaction of the supplier of the public water, in accordance with rule 3745-95-02 of the Administrative Code.

(G) 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;

(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 faucet placed 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.

(H) 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 or other approved engineering control is installed.

(I) An approved backflow prevention device shall be installed to protect all service connections where necessary to prevent a potential health or contamination hazard.

(J) All backflow prevention devices installed on a service line shall comply with ASSE 1013-2011, ASSE 1015-2011 or ASSE 1024-2004.

(K) All service connections, including a yard hydrant, 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.

(L) Except for single family dwellings, and private water systems serving two dwellings on the same or adjacent lots, an ASSE 101312011 or ASSE 1015-2011 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 1013-2011, ASSE 1015-2011 or ASSE 1024-2004 backflow prevention device installed immediately after the connection to the service line unless the unit being supplied meets the requirements in paragraph (M) of this rule or meets the requirements in Chapter 3701-26 of the Administrative Code.

(M) Service line connections supplying water to a yard hydrant meeting ASSE 1057-2012 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 1024-2004, on the hose bib to prevent backflow or backsiphonage. All other yard hydrant service line connections shall meet the requirements in paragraph (J) of this rule.

(N) A room housing pumping equipment shall:

(1) Allow access for maintenance, alteration, removal, and repair of the private water system components.

(2) Be constructed above the ground surface, except if the room is constructed as a basement, a basement offset, crawl space, or buried vault that does not accumulate water.

(O) Pump construction, installation, design and maintenance shall comply with the following:

(1) A pump shall be constructed so that there are no unprotected openings into the interior of the pump or well casing.

(2) Any fuel operated motor used to power a pump shall meet the isolation distances specified in Table 1 of rule 3701-28-07 of the Administrative Code or shall be installed within a watertight secondary containment vessel that is capable of containing at least 2.5 times the maximum capable volume of fuel stored within the motor.

(3) Any plastic pump drop pipes used shall be in compliance with material requirements for pipe as required under rule 3701-28-08 of the Administrative Code and the pressure rating of the drop pipe shall be adequate to withstand the total pressures in the system, and the depth of installation. Drop pipes and check valves shall not have holes installed for drainage.

(4) Any submersible pump motor lubricants and vertical turbine shaft lubricants used shall be United States department of agriculture (USDA) or food and drug administration (FDA) approved food contact grade formulations or NSF 61-2016.

(5) Only potable water shall be used for priming pumps.

(6) If not already integrated into the design of a submersible pump by the manufacturer, a check valve shall be installed no greater than twenty-five feet from the top of submersible the pumps.

(7) Pumps shall be installed at a depth and configuration that is appropriate to the well construction and as recommended by the pump manufacturer.

(P) The installation of hand pumps shall comply with the following:

(1) A hand pump, hand pump head, hand pump stand, or similar devices shall:

(a) Be constructed in accordance with paragraph (O) of this rule;

(b) Provide for venting as required under paragraph (Q)(5) of rule 3701-28-10 of the Administrative Code; and

(c) Have a closed downward directed spout and a sealed pump rod packing assembly.

(2) A hand pump shall be attached to the well casing by a sealed flange with a rubber gasket, or other method approved by the department, to adequately prevent the entrance of surface water, dirt, animals, insects, or other foreign matter and to provide a watertight connection. The flange shall be not less than twelve inches above a concrete slab or the ground surface. Any annular space between a standpipe and well casing shall be sealed in accordance with paragraph (I) of rule 3701-28-10 of the Administrative Code.

(3) Where a well casing functions as a hand pump cylinder wall, the plunger shall be not less than twenty-five feet below the ground surface. A casing wall weep hole is not permitted.

(4) A hand pump shall not be installed by constructing a hole or opening in a well cap.

(Q) Water suction lines shall be constructed of materials approved under this rule.

(R) Pressure tanks, in-well pressure tanks, and constant pressure systems installed for private water systems shall meet the following requirements:

(1) Except for in-well pressure tanks, a pressure tank shall be installed in a basement, basement offset, pump room, or buried vault on the property of the well owner.

(2) Pressure tanks shall not be buried, unless the unit has been adequately designed for such use with manufacturer specifications for its installation as a buried pressure tank and the board of health has determined that space for above ground installation is limited. Buried pressure tanks shall be installed above the water table.

(3) For new construction a pressure tank shall not be located in a crawl space, unless the crawl space is reasonably accessible by walking by an average size adult from the inside or outside of the home or building, for inspection and sampling by the board of health. A pressure tank and sampling port shall be located no more than three feet from the entrance to a crawl space that is not accessible by walking by an average size adult.

(4) Except for jet pump installations, pressure tanks shall have a pressure relief valve or one shall be installed in the private water system prior to the distribution system shut-off.

(5) Pressure tanks shall meet NSF standard 61 2016.

(6) In-well pressure tanks designed to be installed in a well shall be installed in accordance with the manufacturer's requirements.

(S) 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.

(T) Private water systems discharging to a non-pressurized reservoir tank must be protected by a backflow prevention device that meets the requirements of ASSE 1013-2011, ASSE 1015-2011, or ASSE 1024-2004 prior to entering a reservoir tank.

(U) Any person intending to alter a well located in a pit or vault, where the pit or 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 around the base of the casing prior to placement of fill materials in the pit or vault, and fill the remaining area in teh pit or vault with a clay-based soil.

(V) 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 (U)(1) and (U)(3) 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.

(W) 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.

(X) If any part of the pump, distribution system, or any connection malfunctions or becomes defective in such a fashion that contamination may occur, the pump or connection or part of the distribution system shall be promptly repaired or replaced as necessary to prevent contamination.

(Y) All electrical connections for private water system controls and motors shall be installed in accordance with the manufacturer's specifications.