

Part II**1613.0 Reclaimed Water Systems – General.**

(A) The provisions of this chapter shall apply to the installation, construction, alteration, and repair of reclaimed water systems intended to supply water closets, urinals, and trap primers for floor drains and floor sinks. Use is limited to these fixtures that are located in nonresidential buildings. Fixtures within residential buildings are excluded from the list of approved uses. The reclaimed water system shall have no connection to any potable water system, with or without mechanical backflow prevention devices. If reclaimed water is utilized on the premises, all potable water supplies shall be provided with appropriate backflow protection, as required by the Authority Having Jurisdiction. Except as otherwise provided for in this appendix, the provisions of this code shall be applicable to reclaimed water system installations.

(B) No permit for any reclaimed water system shall be issued until complete plumbing plans, with appropriate data satisfactory to the Authority Having Jurisdiction, have been submitted and approved. No changes or connections shall be made to either the reclaimed water system or the potable water system within any site containing a reclaimed water system without approval by the Authority Having Jurisdiction.

(C) Before the building may be occupied, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction and other authorities having jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

1614.0 Definitions.

Reclaimed water is water that, as a result of tertiary treatment of domestic wastewater by a public agency, is suitable for a direct beneficial use or a controlled use that would not otherwise occur. The level of treatment and quality of the reclaimed water shall be approved by the public health Authority Having Jurisdiction.

For the purpose of this chapter, tertiary treatment shall result in water that is adequately oxidized, clarified, coagulated, filtered, and disinfected so that at some location in the treatment process, the seven (7) day median number of total coliform bacteria in daily samples does not exceed two and two-tenths (2.2) per one hundred (100) milliliters, and the number of total coliform bacteria does not exceed twenty-three (23) per one hundred

(100) milliliters in any sample. The water shall be filtered so that the daily average turbidity does not exceed two (2) turbidity units upstream from the disinfection process.

Specifically excluded from this definition is gray water, which is defined in Part I of this chapter.

1615.0 Permit.

It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any reclaimed water system within a building or on a premises without first obtaining a permit to do such work from the Authority Having Jurisdiction.

1616.0 Drawings and Specifications.

The Authority Having Jurisdiction may require any or all of the following information to be included with or in the plot plan before a permit is issued for a reclaimed water system.

(A) A plot plan drawn to scale and completely dimensioned, showing lot lines and structures, location of all present and proposed potable water supplies and meters, water wells, streams, auxiliary water supply and systems, reclaimed water supply and meters, drain lines, and locations of private sewage disposal systems and one hundred (100) percent expansion areas or building sewer connected to the public sewer.

(B) Details of construction including riser diagrams or isometrics and a full description of the complete installation, including installation methods, construction, and materials as required by the Authority Having Jurisdiction. To the extent permitted by structural conditions, all reclaimed water risers within the toilet room, including appurtenances such as air/vacuum relief valves, pressure reducing valves, etc., shall be installed in the opposite end of the room containing the served fixtures from the potable water risers or opposite walls, as applicable. To the extent permitted by structural conditions, reclaimed water headers and branches off risers shall not be run in the same wall or ceiling cavity of the toilet room where potable water piping is run.

(C) Detailed initial and annual testing requirements as outlined elsewhere in this chapter.

1617.0 Pipe Material/Pipe Identification.

Reclaimed water piping and fittings shall be as required in this code for potable water piping and fittings. All reclaimed water pipe and fittings shall be continuously wrapped with purple-colored Mylar tape. The wrapping tape shall have a minimum

nominal thickness of five ten-thousandths (0.0005) inch (0.127 mm) and a minimum width of two (2) inches (51 mm). Tape shall be fabricated of poly(vinyl chloride) with a synthetic rubber adhesive and a clear polypropylene protective coating or approved equal. The tape shall be purple (Pantone color #512) and shall be imprinted in nominal one-half (1/2) inch (12.7 mm) high, black uppercase letters, with the words "CAUTION: RECLAIMED WATER, DO NOT DRINK." The lettering shall be imprinted in two (2) parallel lines, such that after wrapping the pipe with a one-half (1/2) inch width overlap, one (1) full line of text shall be visible. Wrapping tape is not required for buried PVC pipe manufactured with purple color integral to the plastic and marked on opposite sides to read "CAUTION: RECLAIMED WATER, DO NOT DRINK" in intervals not to exceed three (3) feet (914 mm).

All valves, except fixture supply control valves shall be equipped with a locking feature. All mechanical equipment that is appurtenant to the reclaimed water system shall be painted purple to match the Mylar wrapping tape.

1618.0 Installation.

(A) Hose bibbs shall not be allowed on reclaimed water piping systems.

(B) The reclaimed water system and the potable water system within the building shall be provided with the required appurtenances (valves, air/vacuum relief valves, etc.) to allow for deactivation or drainage as may be required by this chapter.

(C) Reclaimed water pipes shall not be run or laid in the same trench as potable water pipes. A ten (10) foot (3,048 mm) horizontal separation shall be maintained between pressurized, buried reclaimed and potable water piping. Buried potable water pipes crossing pressurized reclaimed water pipes shall be laid a minimum of twelve (12) inches (305 mm) above the reclaimed water pipes. Reclaimed water pipes laid in the same trench or crossing building sewer or drainage piping shall be installed in compliance with Sections 609.0 and 720.0 of this code. Reclaimed water pipes shall be protected similar to potable water pipes.

1619.0 Signs.

(A) Room Entrance Signs. All installations using reclaimed water for water closets and/or urinals shall be identified with signs. Each sign shall contain one-half (1/2) inch (12.7 mm) letters of a highly visible color on a contrasting background. The location of

the sign(s) shall be such that the sign(s) shall be visible to all users. The number and location of the signs shall be approved by the Authority Having Jurisdiction and shall contain the following text:

**TO CONSERVE WATER, THIS BUILDING USES
RECLAIMED
WATER TO FLUSH TOILETS AND URINALS.**

(B) Equipment Room Signs. Each equipment room containing reclaimed water equipment shall have a sign posted with the following wording in one (1) inch (25.4 mm) letters on a purple background:

**CAUTION
RECLAIMED WATER, DO NOT DRINK.
DO NOT CONNECT TO DRINKING WATER
SYSTEM.**

**NOTICE
CONTACT BUILDING MANAGEMENT BEFORE
PERFORMING ANY WORK ON THIS WATER
SYSTEM.**

This sign shall be posted in a location that is visible to anyone working on or near reclaimed water equipment.

(C) Where tank-type water closets are flushed with reclaimed water, the tank shall be labeled:

RECLAIMED WATER – DO NOT DRINK

(D) Valve Access Door Signs. Each reclaimed water valve within a wall shall have its access door into the wall equipped with a warning sign approximately six (6) inches by six (6) inches (152 mm x 152 mm) with wording in one half (1/2) inch (12.7 mm) letters on a purple background. The size, shape, and format of the sign shall be substantially the same as that specified in subsection (B) above. The signs shall be attached inside the access door frame and shall hang in the center of the access door frame. This sign requirement shall be applicable to any and all access doors, hatches, etc., leading to reclaimed water piping and appurtenances.

(E) Valve Seals. Each valve or appurtenance shall be sealed in a manner approved by the Authority Having Jurisdiction after the reclaimed system has been approved and placed into operation. These seals shall either be a crimped lead wire seal or a plastic breakaway seal which, if broken after system

approval, shall be deemed conclusive evidence that the reclaimed water system has been accessed. The seals shall be purple with the words "RECLAIMED WATER" and shall be supplied by the reclaimed water purveyor or by other arrangements acceptable to the Authority Having Jurisdiction.

1620.0 Inspection and Testing.

(A) Reclaimed water piping shall be tested as outlined in this code for testing of potable water piping.

(B) An initial and subsequent annual cross-connection inspection and test shall be performed on both the potable and reclaimed water systems as follows:

(1) Visual Dual System Inspection. Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Authority Having Jurisdiction and other authorities having jurisdiction.

- (i) Meter locations of the reclaimed water and potable water lines shall be checked to verify that no modifications were made, and that no cross-connections are visible.
- (ii) All pumps and equipment, equipment room signs, and exposed piping in the equipment room shall be checked.
- (iii) All valves shall be checked to ensure that valve lock seals are still in place and intact. All valve control door signs shall be checked to verify that no signs have been removed.

(2) Cross-Connection Test. The following procedure shall be followed by the applicant in the presence of the Authority Having Jurisdiction and other authorities having jurisdiction to determine whether a cross-connection occurred.

- (i) The potable water system shall be activated and pressurized. The reclaimed water system shall be shut down and completely drained.
- (ii) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the reclaimed water system is empty. The minimum period the reclaimed water system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable

and reclaimed water distribution systems, but in no case shall that period be less than one (1) hour.

- (iii) All fixtures, potable and reclaimed, shall be tested and inspected for flow. Flow from any reclaimed water system outlet shall indicate a cross-connection. No flow from a potable water outlet would indicate that it may be connected to the reclaimed water system.
 - (iv) The drain on the reclaimed water system shall be checked for flow during the test and at the end of the period.
 - (v) The potable water system shall then be completely drained.
 - (vi) The reclaimed water system shall then be activated and pressurized.
 - (vii) The reclaimed water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than one (1) hour.
 - (viii) All fixtures, potable and reclaimed, shall be tested and inspected for flow. Flow from any potable water system outlet shall indicate a cross-connection. No flow from a reclaimed water outlet would indicate that it may be connected to the potable water system.
 - (ix) The drain on the potable water system shall be checked for flow during the test and at the end of the period.
 - (x) If there is no flow detected in any of the fixtures that would have indicated a cross-connection, the potable water system shall be repressurized.
- (3)** In the event that a cross-connection is discovered, the following procedure, in the presence of the Authority Having Jurisdiction, shall be activated immediately:
- (i) Reclaimed water piping to the building shall be shut down at the meter, and the reclaimed water riser shall be drained.
 - (ii) Potable water piping to the building shall be shut down at the meter.
 - (iii) The cross-connection shall be uncovered and disconnected.

- (iv) The building shall be retested following procedures listed in subsections (B)(1) and (B)(2) above.
- (v) The potable water system shall be chlorinated with fifty (50) ppm chlorine for twenty-four (24) hours.
- (vi) The potable water system shall be flushed after twenty-four (24) hours, and a standard bacteriological test shall be performed. If test results are acceptable, the potable water system may be recharged.

(C) An annual inspection of the reclaimed water system, following the procedures listed in subsection 1620.0 (B)(1), shall be required. Annual cross-connection testing, following the procedures listed in subsection 1620.0 (B)(2), shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test occur less often than once in four (4) years. Alternate testing requirements may be allowed by the Authority Having Jurisdiction for institutional buildings.

The health officer or other designated appointee may substitute for the Authority Having Jurisdiction in the above-mentioned inspections and tests.

1621.0 Sizing.

Reclaimed water piping shall be sized as outlined in this code for sizing potable water piping.

1622.0 Approved Uses of Reclaimed Water.

Reclaimed water is allowed in all nonresidential buildings to supply fixtures as specified in this chapter, except where prohibited by statute, regulation, or ordinance.