

**EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
CALIFORNIA DEPARTMENT OF WATER RESOURCES**

**REGARDING PROPOSED CHANGES TO
Dual Plumbing Design Standards for Potable and Recycled Systems in Buildings
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 5**

(The State agency shall draft the regulations in plain, straightforward language, avoiding technical terms as much as possible and using a coherent and easily readable style. The agency shall draft the regulation in plain English. A notation shall follow the express terms of each regulation listing the specific statutes authorizing the adoption and listing specific statutes being implemented, interpreted, or made specific. (PART 1 – ADMINISTRATIVE CODE))

LEGEND FOR EXPRESS TERMS

1. Existing California amendments or code language being modified, as well as selected terms set forth in Chapter 2, Definitions are in italics when they appear in the model code text, independent of state amended definitions: All such language appears in *italics*, modified language is underlined.
2. New California amendments: All such language appears *underlined and in italics*.
3. Repealed text: All such language appears in ~~strikeout~~.

EXPRESS TERMS

Section:

**Draft California 2010 California Plumbing Code – Chapter 16A – Part II
Showing Changes from the 2009 Uniform Plumbing Code**

Part II

1613A.0 Recycled Reclaimed Water Systems – General.

(A) The provisions of Part II of this chapter shall apply to the installation, construction, alteration, and repair of ~~reclaimed~~recycled water systems intended to supply water closets, urinals, trap primers for floor drains, ~~and~~ floor sinks and other allowed uses. The recycled water system shall not have any connections to the potable water system except via an air gap approved by the Authority Having Jurisdiction or via a temporary connection to the potable system for initial testing of the recycled water system piping. ~~irrigation, industrial processes, water features and other uses approved by the Authority Having Jurisdiction. Potable water supplied as makeup water in these systems shall be protected against back pressure and back-siphonage in accordance with Sections 602.0 and 603.0.~~

(B) No permit for any ~~reclaimed~~recycled 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~~recycled water system or the potable water system within any site containing a ~~reclaimed~~recycled water system without approval by the Authority Having Jurisdiction. See Section 1620A.0 for further details.

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

(D) A ~~reclaimed~~recycled water system shall be designed by a person registered or licensed to perform plumbing design work.

1614A.0 Definitions.

~~Reclaimed~~Recycled Water – Non-potable water that meets California Department of Public Health statewide uniform criteria

for disinfected tertiary recycled water, or as result of treatment, meets federal requirements for its intended uses. The level of treatment and quality of the reclaimed water shall be approved by the Authority Having Jurisdiction. Recycled water is also known as reclaimed water.

1615A.0 Permit.

It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any ~~reclaimed~~recycled water system within a building or on a premises without first obtaining a permit to do such work from the Authority Having Jurisdiction. Section 13553 of the Water Code specifies structures where indoor use of recycled water is allowed. These structures include commercial, retail and office buildings, theaters, auditoriums, condominium projects, schools, hotels, apartments, barracks, dormitories, jails, prisons, reformatories, and other structures as determined by the State Department of Public Health.

1616A.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. Drawings and specifications for recycled water systems shall be in accordance with the requirements identified in Chapter 1, General Code Provisions, of the California Plumbing Code.

(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. The drawings and specifications shall provide sufficient detail to determine compliance with the requirements of this chapter and the California Plumbing Code.

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

1617A.0 Pipe Material/Pipe Identification.

Reclaimed Recycled water pipe shall comply with Sections 1617A.1 and 1617A.2.

1617A.1 Pipe Materials – Reclaimed Recycled water pipe, valves and fittings shall conform to the requirements of Sections 604.0, 605.0 and 606.0.

1617A.2 Color and Information – Reclaimed Recycled water systems shall have a purple background with black uppercase lettering with the words "CAUTION: RECLAIMED RECYCLED WATER, DO NOT DRINK."

The minimum size of the letters and length of the color field shall conform to Table 6-1. Where used, a colored identification band shall be indicated every twenty (20) feet (6,096 mm) not less than once per room, and shall be visible from the floor level. Marking is not required for pipe manufactured with purple color integral to the pipe and marked with black uppercase lettering to read "CAUTION: NONPOTABLE RECLAIMED WATER, DO NOT DRINK." in intervals not to exceed five (5) feet (1,524 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. All recycled water pipe shall be permanently marked to identify that it contains recycled water. This may be accomplished by labeling piping using purple-colored (Pantone color #512) adhesive Mylar PVC tape along the entire length of the pipe or using non-metallic pipe manufactured with purple integral to the material. For either material, the identification system shall be installed so the wording above is clearly visible.

1618A.0 Installation.

(A) The portions of the recycled water piping system shall not include any Hose hose bibbs. Only quick couplers that differ from those used on the potable water system shall be used on the portions of the recycled water piping system. shall not be allowed on reclaimed water piping systems.

(B) The ~~reclaimed~~recycled 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 testing ~~deactivation or drainage~~ as required for cross-connection test in Section 1620A.0.

(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 not less than twelve (12) inches (305 mm) above the reclaimed water pipes. Reclaimed/Recycled 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/Recycled water pipes shall be protected similar to potable water pipes.

1619A.0 Signs.

(A) Commercial, Industrial and Institutional Room Entrance Signs. All rooms in commercial, industrial, and institutional occupancies using reclaimed/recycled 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/RECYCLED

WATER TO FLUSH TOILETS AND URINALS.

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

CAUTION

NONPOTABLE RECLAIMED/RECYCLED 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/recycled water equipment.

(C) Where tank-type *toilets* (water closets) are flushed with reclaimed/recycled water, ~~the tank shall be labeled: a permanent sign (such as plastic or stainless steel) shall be installed inside the tank to warn that the water within the tank is not a suitable emergency water supply. The sign shall be labeled:~~

NONPOTABLE RECLAIMED/RECYCLED WATER – DO NOT DRINK

(D) Valve Access Door Signs. Each reclaimed/recycled 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/recycled water piping and appurtenances.

(E) Valve Seals. The master recycled water shut-off valve and/or the recycled water meter curb cock and each valve within a wall shall be sealed after the recycled water system has been approved and placed into operation. These seals shall be either crimped lead wire or plastic break-away seal which, if broken after system approval, shall be deemed conclusive evidence that the recycled water system has been accessed. The seals shall be purple, numbered, and

contain the words "Recycled Water", and shall be supplied by the recycled water purveyor, or by other arrangements acceptable to the Authority Having Jurisdiction.

1620A.0 Inspection and Testing.

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

(B) The recycled water system shall be inspected and tested in accordance to the following: (a) an initial cross-connection test before the initial operation of the recycled water system; (b) an annual visual system inspection; (c) a cross-connection test as required pursuant to section 60316(a), Title 22, California Code of Regulations; (d) a cross-connection test when there is material reason to believe that the potable water and/or recycled water system separation has been compromised; and (e) a cross-connection test following remediation of a discovered cross-connection. A material reason to believe that the system has been compromised may be based on, but is not limited to, evidence gathered: (a) during a visual inspection performed pursuant to section 1620A.0, or (b) as a result of an inspection performed following complaints of water quality or flow conditions consistent with a compromised system.

An initial Cross-Connection Test and subsequent Annual Visual System inspection and test shall be performed on both the potable and reclaimed water systems. The potable and reclaimed water system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection as follows:

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

(i) Meter locations of the ~~reclaimed~~recycled 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.

(iv) If the visual inspection indicates that the recycled water plumbing has been modified, a Cross-Connection Test is required.

(2) **Cross-Connection Test.** The applicant shall perform the Cross-Connection Test as required pursuant to the first paragraph in section 1620A.0 (B).

The test shall be conducted 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.

Alternate inspection and testing requirements may be allowed by the Authority Having Jurisdiction for residential, institutional or industrial buildings where shutting off the water is not practical. The recycled water purveyor or other designated appointee may substitute for the Authority Having Jurisdiction in the above mentioned inspection and tests.

(i) The potable water system shall be activated and pressurized. The ~~reclaimed~~recycled water system shall be shut down and completely ~~depressurized~~drained.

(ii) The potable water system shall remain pressurized while the recycled water system is depressurized. ~~for a minimum period of time specified by the Authority Having Jurisdiction while the reclaimed water system is empty. The minimum period the~~ recycled 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~~recycled water distribution systems, ~~but in no case shall that period be less than one (1) hour.~~

(iii) All fixtures, potable and ~~reclaimed~~recycled, shall be tested and inspected for flow. Flow from any ~~reclaimed~~recycled water system outlet shall indicate a cross-connection. No flow from a potable water outlet would indicate that it may be ~~is~~ connected to the ~~reclaimed~~recycled water system.

(iv) The drain on the ~~reclaimed~~recycled 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 ~~depressurized~~drained.

(vi) ~~(vi)~~ The ~~reclaimed~~recycled water system shall then be activated and pressurized. For the initial test, a temporary connection to a potable water supply will be required to test the recycled water system plumbing. At the conclusion of the test, the temporary connection to the potable water supply shall be disconnected.

(vii) The ~~reclaimed~~recycled water system shall remain pressurized ~~for a minimum period of time specified by the Authority Having Jurisdiction while the potable water system is~~ depressurized 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~~recycled, shall be tested and inspected for flow. Flow from any potable water system outlet shall indicate a cross-connection. No flow from a ~~reclaimed~~recycled water outlet would indicate that it may be is 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) Cross-Connection Discovered. 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~~Recycled water piping to the building shall be shut down at the meter, and the ~~reclaimed~~recycled 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 shall be permitted to 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

1621A.0 Sizing.

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

Changes Required to Section 6.01.1
of the Uniform Plumbing Code

2009 Uniform Plumbing Code – Chapter 6 – Water Supply and Distribution

601.0 Hot and Cold Water Required

601.1 Except where not deemed necessary for safety or sanitation by the Authority Having Jurisdiction, each plumbing fixture shall be provided with an adequate supply of potable water running water piped thereto in an approved manner, so arranged as to flush and keep it in a clean and sanitary condition without danger of backflow or cross-connection. Water closets and urinals shall be flushed by means of an approved flush tank or flushometer valve.

Exceptions:

1. Listed fixtures that do not require water for their operation and are not connected to the water supply.
2. *Where a public agency requires a building to use recycled water to flush water closets and urinals in accordance with California Water Code 13554*

Notation

Authority: Water Code § 13557 - (AB 371 Goldberg, Statutes of 2006) requiring the Department of Water Resources, in consultation with the State Department of Health Services, to adopt and submit to the California Building Standards Commission regulations to establish a state version of a dual plumbing code to provide design standards to safely plumb buildings with both potable and recycled water systems).

Reference(s): Water Code Sections 13050 – 13583; Health and Safety Code Sections 6512, 116800-116820, California Code of Regulations, Titles 17 and 22.