

Bulletin No. 180

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Effective: 5-1-89 Revision: 5-18-90

Approved: Poll H-K-

STANDARD INSTALLATION GUIDELINES

RECLAIMED WATER IN OFFICE BUILDINGS

RECLAIMED WATER SUPPLY AND USE ALLOWED

Reclaimed water supplied by Irvine Ranch Water District which complies with State of California Title 22, Section 60313(b) California Code of Regulations for water quality may be used to supply toilets, urinals, trap primer supply to floor drains only. Use is limited in these types of fixtures or facilities in commercial/industrial buildings, with residential buildings explicitly excluded from the list of approved uses. In all other uses and occupancies, potable water supply is required. Approval to use this special system in lieu of Uniform Plumbing code requirements shall be considered by the City of Irvine Administrative Authority on an individual job basis.

PIPE MATERIALS/PIPE IDENTIFICATION

Piping to be used for the reclaimed water risers within buildings shall be Type L copper pipe, and shall be continuously wrapped with purple colored mylar tape. Reclaimed water pipe identification wrapping tape shall be a nominal 0.0005" thick, with a minimum width of 2 inches. The tape shall be fabricated of polyvinyl chloride with a synthetic rubber adhesive, and a clear polypropylene protective coating. The tape shall be purple (Panatone Color No. 249C), and shall be imprinted in nominal 1/2" high, black, upper case letters, with the words, "CAUTION: RECLAIMED WATER, DO NOT DRINK". The lettering shall be imprinted in two parallel lines, such that after wrapping the pipe with a one half width overlap, one full line of text is visible.

All control valves shall be lever handle ball valves equipped with a locking feature, and painted purple to match the mylar marking tape. All mechanical equipment which is appurtenant to the reclaimed water system shall also be painted to match the mylar wrapping tape.

All on-site below grade piping shall be materials approved by the City of Irvine, all off-site below grade piping shall conform the Irvine Ranch Water District standards, and all below grade piping both on-site and off-site shall be continuously marked in accordance with Irvine Ranch Water District standards.



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Robert Harman

PIPE INSTALLATION

All pipelines installed within the building and downstream of the water meter(s) shall be installed in accordance with the City of Irvine adopted Uniform Plumbing Code, including all applicable City of Irvine ordinances and amendments, and the International Association of Plumbing and Mechanical Officers. All reclaimed water risers within the building, including appurtenances such as air/vacuum relief valves, pressure reducing valve assemblies, etc., shall be installed in the opposite end of the bathroom from the potable water risers, or opposite walls as applicable, and where feasible. Reclaimed water piping and domestic water piping within the walls, ceilings, or floors, will not be installed with parallel runs. No stub-outs beyond the plumbing core will be permitted from the reclaimed water system.

To mitigate access between the reclaimed water and domestic water headers, an effective separator, which may consist of, but is not necessarily restricted to, a single sheet of standard drywall, or aluminum sheeting, shall be installed within the wall between the reclaimed water and potable water headers. The effective separator shall extend the full width of the wall section, and be a minimum of three feet in length centered on the piping headers.

All materials used in conjunction with the implementation of the provisions of this section shall comply with the Irvine Ranch Water District "Standard Specifications for the Construction of Water, Sewer, and Reclaimed Water Facilities", latest edition, and meet the minimum standards prescribed by the State of California. No cross connections between reclaimed and potable water of any kind shall be made with or without mechanical back flow prevention.

No changes or connections shall be made to either piping system without approval by the City of Irvine Building and Safety authority.

Before the building can be occupied, the installer shall obtain City of Irvine plumbing inspection approval and contact the Irvine Ranch Water District for completion of an initial cross connection test. The City of Irvine will not issue final use approval until such test is successfully completed by the Irvine Ranch Water District.



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ANNUAL TESTING PROCEDURES

Both the potable and reclaimed water system risers within the buildings shall be equipped with a manual drain, and an air/vacuum valve which will allow the entire riser to be drained. an annual basis, in the presence of the building superintendent, the reclaimed water riser will be drained in the presence of a representative of the Irvine Ranch Water District. Once the riser is completely drained, the IRWD representative will check each reclaimed water outlet in the building by the flushing toilets, urinals, etc., to verify no cross connection occurs. Upon completion of this testing, and with no evidence of a cross connection, the potable water system will be drained, and all potable water served fixtures will be checked for flow. After both systems have been drained and checked, and no evidence of cross connection found, both systems will be placed back into operation. Refer to Exhibit A for detailed reclaimed water dual distribution system testing procedures.

SIGNS

Restroom Entrance Signs -

All installations using reclaimed water for toilets, urinals, trap primers will be identified with signs in accordance with the requirements of the City of Irvine. At a minimum, the signs will contain 1/2" wide and 1/2" high letters of a highly visible color on a contrasting background. At least one sign shall be installed in each bathroom location. The location will be such that the sign is visible to all users, and the location will be approved by the City of Irvine. The signs will have the following test, and be similar to the sample attached as Figure 1:

> "TO CONSERVE WATER, THE RESTROOMS IN THE BUILDING USE RECLAIMED WATER IN THE TOILETS AND/OR URINALS. *

Equipment Room Signs -

Each equipment room containing reclaimed water equipment shall have a sign posted in both English and in Spanish with the following wording in one-inch white letters on a purple background (refer to Figure 2):



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CAUTION

RECLAIMED WATER DO NOT DRINK
Do Not Cross Connect with Drinking Water System

NOTICE

Contact Building Management Before Performing Any Work on This Water System

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

Control Valve Access Door Signs -

Each reclaimed water control valve within a wall shall have its access door into the wall equipped with a warning sign approximately six inches square with wording in 1/2" white letters on a purple background. The size, shape, and format of that sign shall be substantially the same as that shown on Figure 2. The signs shall be attached in the access door frame by means of two short lengths of chain, and shall hang in the center of the access door frame. A Spanish language version of the sign in Figure 1 shall be installed on the inside of the access door. This sign requirement will be applicable to any and all access doors, hatches, etc.

Control Valve Tags -

Each lever handle ball control valve, or appurtenance shall be sealed in a manner approved by IRWD after the reclaimed system has been approved, and placed into operation. This tag shall either be a crimped lead wire seal, or a plastic break-away 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 will be supplied by the Irvine Ranch Water District, or by other arrangements acceptable to the District.

Exhibit A

RECLAIMED WATER DUAL DISTRIBUTION SYSTEM ANNUAL CROSS CONNECTION CONTROL TESTING PROCEDURE

A. Visual Pre-test System Inspection

Prior to commencing the cross connection testing, a dual system inspection will be conducted by City of Irvine, and Irvine Ranch Water District inspectors in the presence of representatives of the building owner, and cognizant agencies.

- 1. Check meter locations of the reclaimed water and domestic water lines, verify that no modifications were made, or cross connections are visible.
- 2. Check domestic water backflow prevention device (Reduced Pressure Principle Device Required).
- 3. Check all pumps and equipment, equipment room signs, and exposed piping in equipment room.
 - 4. Check all valves to make sure that valve lock seals are still in place, and in tact. Check all valve control door signs, and verify no signs have been removed.

B. Cross-connection control testing

The following procedure will be followed to determine if a cross connection has been made.

- Deactivate domestic main line and drain.
 - i. Test domestic fixtures floor-by-floor for cross connections. Turn on each fixture and check for flow in both the men's and women's restrooms.
- 2. Deactivate reclaimed main line and drain.
 - Test reclaimed fixtures floor-by-floor for cross connections. Turn on each fixture and check for flow in both the men's and women's restrooms.

- 3. On all floors, check primary restroom signs to make sure they are in place and visible. Also recheck,
 - i. Signs and stickers on inside of plumber's closets.
 - ii. Tags on all reclaimed water valves.
 - iii. Locking clips on all reclaimed valves.

If there is no flow detected in any of the fixtures which would indicate a cross connection, and all signs, tags, and seals are still in place, re-activate the domestic riser first, then the reclaimed water riser. Provide written verification to the Health Departments, City of Irvine, and the Irvine Ranch Water District that the annual cross connection control test has been completed, and none were discovered.

C. Response to confirmed cross connection

In the event that a cross connection is discovered the following procedure will be immediately activated.

- 1. Shut down reclaimed water to building at the meter, and drain reclaimed water riser.
- 2. Shut down potable to building at the meter.
- 3. Notify health agencies involved in annual testing, followed by written notice within 24 hours. This notice will include an explanation as to the nature of the cross connection, the date and time discovered, and the steps that were taken to mitigate the cross connection.
- 4. Uncover and disconnect cross connection.
- 5. Retest building following procedures listed in Section A and B.
- 6. Shock domestic system with 50 ppm Cl₂ 24 hours.
- 7. Flush domestic water system after 24 hours, and perform standard bacteriological test. If test results are acceptable, recharge the domestic water system in according with Irvine Ranch Water District standards.

MONITORING

In addition to the detailed cross connection control inspection described, periodic monitoring of the high-rise building will be performed by the Irvine Ranch Water District. This will consist of at a minimum, but not be limited to, visual inspection of pump rooms, pressure reducing stations, all bathrooms, signs, tags, etc.

The elements of the periodic monitoring may consist of, but are not necessarily limited to, the following specific items.

- 1. Run random water sample testing on reclaimed water and domestic water.
- 2. Check walls for visible repairs which might indicate that plumbing changes may have occurred.
- 3. Check water closets to see if valve locks have been broken.
- 4. Check with Building Maintenance Supervisor to ask whether any routine operations or maintenance work has been performed on plumbing systems.

To conserve water the restrooms in this building use reclaimed water for flushing the toilets and/or urinals.



For information please call: Irvine Ranch Water District (714) 476-7500

CAUTION RECLAIMED WATER DO NOT DRINK

NOTICE

CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM