



Building Inspection Division
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Residential Graywater Systems

As of August 4, 2009 the Department of Housing and Community Development and the California Building Standards Commission adopted new graywater standards. These standards allow for installation of residential graywater systems under specific situations. The Standards are available at http://www.hcd.ca.gov/codes/shl/Preface_ET_Emergency_Graywater.pdf and should be reviewed before a graywater system is designed.

By definition in this standard, graywater includes wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs. It does not include wastewater from kitchen sinks or dishwashers.

There are different requirements depending on the system proposed:

1. **Clothes Washer System** – a graywater system using only a single domestic clothes washing machine in a one- or two- family dwelling. **Does not require a Building Permit** but the system must meet the requirements of Section 1603A1.1 (see reverse). A Graywater Installation Worksheet is to be completed and approved by the Building Department.
2. **Single Fixture System** – A graywater system collecting graywater from one plumbing fixture or a single drain which collects graywater from more than one fixture in a one-or two-family dwelling. **Does not require a Building Permit** but the system must meet the requirements of Section 1603A1.1 (see reverse). A Graywater Installation Worksheet is to be completed and approved by the Building Department.
3. **Simple system** – A graywater system serving a one-or two-family dwelling with a discharge of 250 gallons per day or less. Simple systems exceed a clothes washer system and/or a single fixture system. **Does require a Building Permit**. The design of the Simple System shall be acceptable to the Chief Building Official and shall meet generally accepted graywater system design criteria.
4. **Complex system** – A graywater system that discharges over 250 gallons per day. **Does require a Building Permit**. The design of the Complex System shall be designed by a person who can demonstrate competence to the satisfaction of the Chief Building Official.

Designing a Graywater system:

Section 1603A1.1 allows for a graywater system to be constructed **without a permit** if it includes only **one fixture and is designed to meet specific requirements:**

1. If required, notification has been provided to the Enforcing Agency regarding the proposed location and installation of a graywater irrigation or disposal system.
2. The design shall allow the user to direct the flow to the irrigation or disposal field or the building sewer. The direction control of the graywater shall be clearly labeled and readily accessible to the user.
3. The installation, change, alteration or repair of the system does not include a potable water connection or a pump and does not affect other building, plumbing, electrical or mechanical components including structural features, egress, fire-life safety, sanitation, potable water supply piping or accessibility.
4. The graywater shall be contained on the site where it is generated.
5. Graywater shall be directed to and contained within an irrigation or disposal field.
6. Ponding or runoff is prohibited and shall be considered a nuisance.
7. Graywater may be released above the ground surface provided at least two (2) inches (51mm) of mulch, rock, or soil, or a solid shield covers the release point. Other methods which provide equivalent separation are also acceptable.
8. Graywater systems shall be designed to minimize contact with humans and domestic pets.
9. Water used to wash diapers or similarly soiled or infectious garments shall not be used and shall be diverted to the building sewer.
10. Graywater shall not contain hazardous chemicals derived from activities such as cleaning car parts, washing greasy or oily rags, or disposing of waste solutions from home photo labs or similar hobbyist or home occupational activities.
11. Exemption from construction permit requirements of this code shall not be deemed to grant authorization for any graywater system to be installed in a manner that violates other provisions of this code or any other laws or ordinances of the Enforcing Agency.
12. An operation and maintenance manual shall be provided. Directions shall indicate the manual is to remain with the building throughout the life of the system and indicate that upon change of ownership or occupancy, the new owner or tenant shall be notified the structure contains a graywater system.

If your system does not meet the qualifications of a Clothes Washer System or a Single Fixture System, it will require a Building Permit. The Permit Application Materials will contain sufficient detail to demonstrate to the Chief Building Official that the graywater will be handled in an appropriate manner. A graywater system for which a construction permit is required shall be subject to inspection by the Enforcing Agency and such construction or work shall remain accessible and exposed for inspection purposes until approved.

Estimating Graywater Discharge:

To determine if your system will be a Simple System or a Complex System you must estimate your Graywater Discharge. You can calculate the estimates of graywater based on water use records, calculations of local daily per person interior water use, or the following procedure:

1. Number of occupants of the dwelling equals number of bedrooms plus 1.
2. Estimated Graywater flow per occupant is calculated as follows:
 - a. Showers, baths, wash basins 25 GPD/Occupant
 - b. Laundry 15 GPD/Occupant
3. Multiply number of occupants by the applicable estimated graywater discharge as provided above and the type of fixtures connected to the graywater system.