



City of Malibu

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GUIDELINES FOR THE INSTALLATION AND USE OF RESIDENTIAL LAUNDRY GRAYWATER DISPOSAL SYSTEMS (LGDS)

Chapter 16A, “Nonpotable Water Reuse Systems,” of the 2007 California Plumbing Code (CPC) was approved by the California Building Standards Commission and became effective on January 20, 2010. Chapter 16A established minimum requirements for the installation of graywater systems in residential occupancies. This chapter contains provisions which allow the installation of a Laundry Graywater Disposal System (LGDS). An LGDS installed within Malibu City limits requires the issuance of a permit; however, the fees for the permit and plan review are waived.

These guidelines are intended to provide basic detailing and information to ensure that LGDS be installed properly and not become a nuisance in the future. Of course, any plumbing system that is not properly maintained over the long term will become a problem and may also create unsanitary conditions that could become a health hazard. Remember, maintenance is a critical element of any plumbing system! When using an LGDS, at least one small load of wash, per week, should be diverted to the sewer or septic system. This will ensure that the trap at the bottom of the stand pipe remains full and will prevent sewer gases from entering the home.

What is a Laundry Graywater Disposal System? A graywater system utilizing only a single domestic clothes washing machine in a one or two family dwelling.

Where can a Laundry Graywater Disposal System be installed? An LGDS can be constructed on the site of a single-family dwelling where soil conditions are such that graywater will be adequately absorbed into the soil.

Where can the clothes washing machine be located? To use these guidelines, the clothes washing machine must be located at an exterior wall. For clothes washing machines located at an interior wall, the proper plumbing permits must be obtained first in order to install new drain lines.

Can a filter be installed on the LDGS irrigation drain pipe? Although not required by the code, it is recommended that a filter is installed at a point before the perforated pipe. The filter will help prevent clogging of the drain holes.

What plants should I avoid watering with graywater? There is a significant amount of information available online about this topic. However, a general rule of thumb is that graywater should not be used for irrigating food crops. It is okay to irrigate trees and shrubs.

A plumbing permit is not required for a system which is supplied only by a clothes washer and that does not require the cutting of existing plumbing. Any LGDS must meet the following requirements provided in section 1602 to be considered permit exempt:

1. **1602.1.1 #1** If required, notification has been provided to the enforcing agency regarding the proposed location and installation of a graywater irrigation or disposal system. Contact the City's Environmental Sustainability Department to see if notification is required.
2. **1602.1.1 #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.

A Diverter valve may be installed at the point of connection between the washing machine drain hose, the graywater disposal line, and the standpipe leading to the sewer system. A diverter valve, if used, must be labeled and easily reached by the user for changing direction of the graywater flow to either receiving landscape or the sewer system. Graywater disposal piping downstream of the diverter valve should be identified with the words "CAUTION: NONPOTABLE WATER, DO NOT DRINK."

3. **1602.1.1 #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 pipping or accessibility.

The graywater system cannot have a direct connection to any potable water supply and must use gravity flow to the receiving landscape. Except for the pump in the washing machine, no pumps are allowed on this type of system. For your protection, the system must not interfere with, or change, other components of the house without first checking with and, if necessary, obtaining permits from the City's Environmental Sustainability Department. Do not conceal graywater piping in the building walls.

4. **1602.1.1 #4** The graywater shall be contained on the site where it is generated. The receiving landscape must be on the same property where the graywater is produced. Under no circumstances can graywater be allowed to run from one property to another and cannot be directed to an adjacent property or the public street or road.
5. **1602.1.1 #5** Graywater shall be directed to and contained within an irrigation or disposal field. Disposal/ Irrigation field recommendations include:
 - ✓ The disposal trench of mulch basin should be at least 13.5 linear feet per occupant in the house.
 - ✓ The number of occupants should be determined by counting two for the first bedroom and one for each bedroom after that. For example, a three bedroom house would have four occupants.
 - ✓ Four Occupants multiplied by 13.5 feet per occupant equals a 54 foot-long trench and disposal line.

- ✓ Owners should also confirm that there is no groundwater within three feet of the bottom of the disposal area before installing the system. To do this, simply excavate a post hole down three feet, wait approximately 30 minutes, and look for the presence of water. If water is present, the graywater disposal system should not be installed. In those areas where seasonal high graywater is known and documented to be less than within three feet, the graywater disposal system should not be installed.
- ✓ Caution should be exercised if placing an irrigation or disposal field at the top of a slope. The concentrated discharge of graywater could saturate the slope and cause movement of the soil; the graywater could then begin to drain down the surface of the slope. Therefore, irrigation or disposal lines should be no closer than 15 feet to the top of the slope.

6. **1602.1.1 #6** Ponding or runoff is prohibited and shall be considered a nuisance.

When planning and installing the disposal piping, depth and trench length are important. The lines should be below the surface of the ground and dispersed through a trench of adequate length so that over-saturation will not occur. Graywater cannot be allowed to accumulate on the ground or to runoff the property. Graywater must also not be allowed to reach any surface body of water or discharge into a stormwater drainage system. Graywater cannot be discharged to a public right-of-way.

7. **1602.1.1 #7** Graywater may be released above the ground surface provided at least two inches of mulch, rock, soil or solid shield covers the release point. Other methods which provide equivalent separation are also acceptable.

Disposal area trenches should be at least nine inches deep to ensure that the graywater does not come to the surface. However, at a minimum, the trench must be at least two inches in depth and covered in mulch.

8. **1602.1.1 #8** Graywater systems shall be designed to minimize contact with humans and domestic pets.

When designing and installing the disposal piping, depth and trench length is important. The lines need to be far enough below the surface of the ground and dispersed through a trench of adequate length so that over-saturation does not occur. When the ground becomes over-saturated, it is more likely that pets and people could come in contact with the graywater and ponding could occur.

9. **1602.1.1 #9** Water used to wash diapers or similarly soiled or infectious garments shall not be used and shall not be diverted to the building sewer.

The diverter valve installed in the line from the washing machine will allow the user to easily change the direction of the flow of the graywater. When clothing and diapers are soiled with human waste, the owner must be diligent to ensure that the diverter valve is sending the wastewater to the sewer system and not the landscaping.

10. **1602.1.1 #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.

As with clothing containing human waste, the diverter valve installed in the line from the washing machine will allow the user to easily change the direction of the flow of the graywater. The owner or the user must be diligent to ensure that the diverter valve is sending the wastewater from oily rags, chemicals, etc., to the sewer system and not to the landscaping. The potential for contamination from hazardous waste could occur should these be deposited in your yard. Besides damaging your plants, your pets could also be harmed if they were to come in contact with these chemical wastes.

11. **1602.1.1 #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.

Following the provisions of CPC Chapter 16 Section(s) 1602.1.1#1 through 1602.1.1#13 is mandatory in order for an LGDS installation. Also, a system that has been installed to comply with these standards is likely to perform better, and require less maintenance than a non-compliant system.

Additionally, in order for the system to qualify as an LGDS, the installation must not require the alteration of existing plumbing, mechanical, or electrical systems. Also, except for the penetration to the exterior for the graywater line feeding the landscaping, the building walls, roof or foundation cannot be modified. Should your proposed installation necessitate the modification of any of these systems, City staff in the Environmental Sustainability Department are available to assist you in obtaining the necessary permits.

12. **1602.1.1 #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.

This standard plan may serve as the operating instructions for diverting the graywater between the sewer/septic system and the landscaping.

