



Gray Water Systems for Homes

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With the ever-expanding need to conserve water, more and more people are interested in pursuing alternative water supply systems that will help reduce potable water use. Chapter 15 (Alternate Sources for Nonpotable Applications) of the 2019 California Plumbing Code (CPC) provides regulations to help insure safe alternative water sources to meet this need for homes in California.

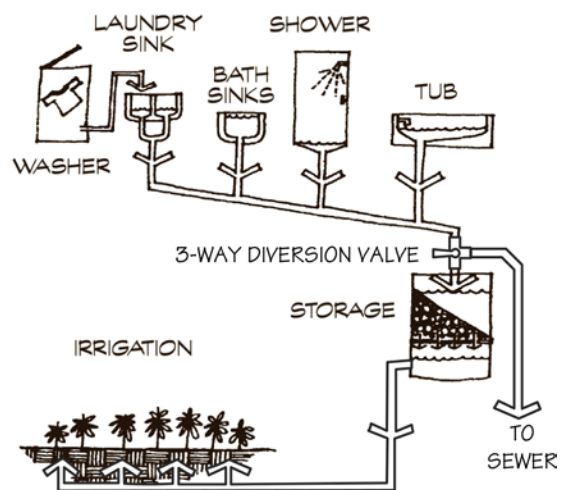
Gray Water Defined

Gray water is defined as untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Gray water" includes, but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.

Types of Gray Water Systems

The CPC classifies gray water systems into the following three types:

1. **Clothes Washer System** - using only a single domestic clothes washing machine in a one- or two-family dwelling.
2. **Simple System** - serving a one- or two-family dwelling with a discharge of 250 gallons per day or less.
3. **Complex System** - systems with a discharge of over 250 gallons per day.



The design and submittal requirements differ depending on the type of gray water system to be installed. A City of Sonoma building permit is required for the installation or alteration of any type of gray water system except a Clothes Washer System. [CPC 1503.1.1] Exemption from the requirement of a construction permit shall not be deemed to grant authorization for any gray water system to be installed in a manner that violates other provisions of the CA Plumbing Code or any other laws or ordinances. [CPC 1503.1(G)]

For Simple and Complex gray water systems, identification of the groundwater level and soil absorption qualities of the site must be determined. [CPC 1503.1.2 and 1503.1.3] This is typically determined by a licensed geotechnical engineer hired by the owner after review and analysis of test boring information. Local conditions have shown that many properties within the City of Sonoma have high groundwater or poor soil absorption qualities. A plot plan and a Gray water distribution plan showing how gray water will be dispersed shall be submitted and approved prior to issuance of the building permit. [CPC 1501.2, 1503.5 and 1503.7]

Gray Water System Limitations

- ✓ Gray water shall not be used for indoor use, such as flushing toilets and urinals, unless treated by an on-site water treatment system approved by the Building Department. [CPC 1505.0]
- ✓ The gray water system shall not be connected to any potable water system without an air gap. [CPC 1503.3]
- ✓ Gray water systems, or parts thereof, must be located on the same lot as the building or structure which discharges the gray water and may not serve buildings on other parcels unless a perpetual and exclusive easement is recorded. [CPC 1503.4 – see exception]
- ✓ Gray water systems must be located with the minimum setback distances indicated in Table 1503.4 of the 2019 California Plumbing Code.
- ✓ All gray water systems shall be designed to allow the user to direct the flow to either the irrigation or disposal field or the building sewer. The direction control of the gray water must be clearly labeled and readily accessible to the user. [CPC 1503.1(A)]
- ✓ Water used to wash diapers or similarly soiled or infectious garments or other prohibited contents shall be diverted by the user to the building sewer. [CPC 1503.1(B)]
- ✓ Gray water shall not be used with spray irrigation systems, shall not be allowed to pond or runoff, and shall not be discharged directly into or reach any storm drain system or body of water. [CPC 1503.1(C)]
- ✓ Human contact with gray water or the soil irrigated by gray water shall be minimized and avoided, except as required for maintenance of the gray water system. The discharge point of any gray water irrigation or disposal field shall be covered by at least two (2) inches of mulch, rock or soil, or a solid shield shall be used to minimize the possibility of human contact. [CPC 1503.1(D)]
- ✓ Gray water shall not contain hazardous chemicals derived from activities such as cleaning car parts, washing greasy or oily rags or other similar chemical disposal activities. [CPC 1503.1(F)]
- ✓ An operation and maintenance manual shall be created and maintained throughout the life of the gray water system and shall be provided to the new owners when a change of ownership occurs. [CPC 1503.1(H)]
- ✓ Gray water systems for homes must comply with all requirements contained in Chapter 15 of the 2019 California Plumbing Code.



For further information regarding the design and requirements for gray water installations, please see Chapter 15 of the 2019 California Plumbing Code.

For answers to further questions about gray water systems within the City of Sonoma, please contact the City of Sonoma Building Department.