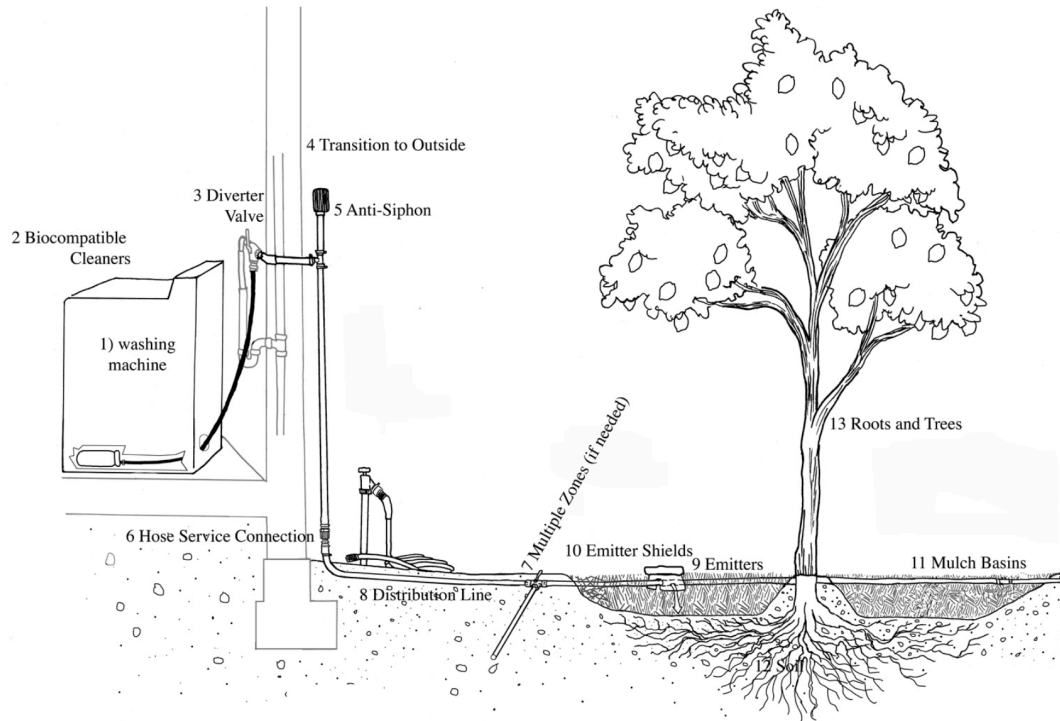


Streamlined Residential Graywater Use

Simplifying requirements for gray water systems can encourage residents to participate in water reuse and conservation.



Elements of a laundry-to-landscape graywater system

(Photo courtesy of Santa Barbara Water Resources Division and OasisDesign.net)

The Impact

By adopting an accessible permitting policy for graywater use and providing resources on safe practices and the installation process of graywater systems, cities can speed up implementation of residential graywater projects and increase public education and active participation in water sustainability.

Description

Graywater is lightly used water, including water from laundry, showers and sinks, but not from toilets or kitchen sinks. Altogether, gray water makes up 50 to 80% of residential wastewater. This water can be reused safely for purposes such as landscape irrigation.

Water from dishwashers and kitchen sinks, often called “dark gray water”, is not recommended for gardens as it has high concentration of chemicals, fats and organic matter. Water from toilets is referred to as “black water.”

In 2009 California updated its plumbing code to allow laundry-to-landscape systems that properly follow guidelines to be installed without a permit. Other simple gray water systems (direct, isolated connections with a discharge capacity of 250 gallons per day or less) can be permit-free at the discretion of the local permitting agency in coordination with the corresponding water provider.

Residential graywater systems, particularly simple systems, present little health risk, yet many cities still require permits for all projects except laundry-to-landscape ones and do not provide resources for customers to consider and navigate this process. Many cities' websites don't even mention the possibility of gray water projects or the lack of a permit requirement for laundry-to-landscape systems.

Santa Barbara and other cities have not only made both laundry-to-landscape and simple systems permit-free, but have also provided information for customers interested in both simple and complex gray water systems (over 250 gallons per day of discharge). Through these resources, customers can determine their interest in a graywater system, whether their project needs a permit and the proper steps toward implementation.

On its Graywater and Rainwater webpage, the City of Santa Barbara includes links to Santa Barbara County's extensive handbook on safe gray water use, to simple system registration, to the permitting guide for complex systems, to the state plumbing code and to other resources. The city also partnered with Sweetwater Collaborative, a local Santa Barbara nonprofit that ran classes and installation workshops from 2013 to 2023. These programs increased participation and ensured safety by discussing the long-term maintenance and attention associated with these systems. The city also offers rebates on three-way valves and other components of simple gray water systems.

Where It's Been Implemented

The City and County of Santa Barbara have played a major role in California's acceptance of gray water systems. In 2015, Santa Barbara County became the first jurisdiction in the state to allow permit-exempt simple gray water systems using shower water, and it published a handbook of safe practices in 2017. Marin County has also made simple systems permit-free and provides several resources on its website. San Francisco Public Utilities Commission requires permits for systems other than laundry-to-landscape connections but offers a rebate and a design manual.

The San Mateo County Environmental Health Services Blog provides information on "Graywater Do's and Don'ts." San Mateo County currently requires a permit for any gray water system besides a simple laundry-to-landscape system. The City of Burlingame's informational webpage on gray water systems provides resources and clearly informs residents of both San Mateo County's permit requirements and Burlingame's additional requirement of a backflow prevention device on all gray water systems with potential for cross-connection to the potable drinking supply.

Key Drivers

Gray water systems offer an exciting way for individuals to participate in water sustainability, opening the door to increased awareness and reduction of water use. However, a complicated and expensive permitting process can prevent those interested from undertaking this water-saving project.

Those who do are often unsure how to initiate a gray water system and can be easily discouraged by the lack of information and guidance. Meanwhile, when even the simplest gray water systems cost roughly \$1,500 - \$2,000 to install (\$400 of which is materials), the additional permit fee can be enough to dissuade interested customers. A simplified permitting process and extensive resources and guidance can encourage widespread participation.

Key Factors for Success

A city and its residents should understand that installing a simple gray water system does not automatically result in large water savings, only saving up to a modest 15%. However, a "systems approach" that treats gray water as the "central hub" for optimizing various water-saving strategies can result in up to 60% water savings. Those additional measures include using rainwater and stormwater



on plants, recycling rainwater to toilets and laundries, installing water-efficient fixtures and adopting water-efficient habits.

Key Obstacles

Often a city hasn't made the switch to a no-permit process for simple systems simply because the topic has never demanded attention. However, regulating the safety of no-permit gray water systems is important. While sickness from gray water has never been documented as a pressing health issue, especially to pets and younger children, it is essential to make sure customers don't allow gray water to run off the property and instead ensure it is contained by a mulch basin. To avoid potential contamination of the potable water system, city officials can collaborate with their water agency to provide information on safe practices for customers and/or gray water installers. Streamlining the process and providing resources increases safety in the implementation of these projects.

Gray water systems currently demand money, time and personal investment that prevent them from becoming widely accessible. However, streamlining the process for customers who are interested makes residential water reuse easier and engages residents in water sustainability.

Timeline to Implementation

While a city's resources for gray water can be expanded over time, the timeline for expanding no-permit gray water options depends primarily on how frequently the city modifies its building code.

References and Resources

- Madeline Wood, Water Conservation Supervisor, City of Santa Barbara, MWood@SantaBarbaraCA.gov, 805-897-2672
- [California Plumbing Code \(see Chapter 16\)](#)
- [San Mateo County Health: Graywater Do's and Don'ts](#)
- [Burlingame: Graywater Systems](#)
- [Santa Barbara: Graywater and Rainwater](#)
- [Santa Barbara: County Graywater Handbook](#) (also in Spanish)
- [Santa Barbara: Free Registration of Simple Graywater Systems](#)
- [Santa Barbara: Guide to Permitting a Single-Family Graywater System](#)
- [Santa Barbara: Irrigation Efficiency Rebates](#)
- [Marin County: Graywater Systems](#)
- [San Francisco: Graywater Laundry to Landscape Rebate](#)
- [San Francisco: Graywater FAQ](#)
- [San Francisco: Graywater Design Manual for Outdoor Irrigation](#)
- [Sweetwater Collaborative: Welcome Page](#)
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