

Graywater Reuse

In a Nutshell

Graywater is reusable wastewater from bathroom sinks, bathtub shower drains, and washing machine drains. These are included in residential, commercial, and industrial applications. Typically, graywater is reused onsite, and it tends to be used for landscape irrigation purposes. If the graywater is to be used for irrigation purposes, the soap and personal care products used in the household must be non-toxic and also low-sodium.

The “How To”

Uses for graywater include the irrigation of lawns, trees, food crops, and ornamental plants. There are a few guidelines for the use of graywater when it is to be used for irrigation purposes.

- Graywater must be directly applied to the soil.
- Sprinklers or other devices which allow for contact with above-ground portion of the plants should not be used.
- Graywater is alkaline, which means that plants which only thrive in acidic soil should not be watered using graywater.
- Young plants or seedlings should not be watered with graywater.
- Graywater should be used over a large area and should be rotated with fresh water in order to avoid the buildup of sodium salts.

When irrigating plants outdoors, graywater should only be used on flat areas where runoff is not likely to occur. Cloth bags are sometimes attached to the end of the hose in order to distribute the water and it may also act as an additional filter. If this is done, the filter will need to be cleaned regularly.

If the area of the site plan is arid, a firebreak or "greenbelt" may be necessary. This would consist of high-moisture species of plants. Graywater is ideal for these plants, due to the nutrients that are provided in the process.

Graywater can also be used to flush toilets. Toilet flush water can account for up to 50% of indoor water use. The quality of the graywater can be poor if it is only to be used for flushing purposes. This is due to the fact that the water will end up in the sewage or septic system, which it would have gone to initially had it not been reused within the household. Graywater should not be pumped back into the toilet tank and should only be pumped into the toilet bowl, as it could disrupt the mechanisms within the toilet and may possibly be backsiphoned into fresh water if a water pressure drop were to occur.

For publications related to graywater, click here: http://aces.nmsu.edu/pubs/_m/m-106.html

Planning & Zoning

Codes for graywater reuse tend to specify the uses for the reused water, in addition to what is required of individuals who utilize gray water. Not many areas have specific codes for graywater reuse, but for the areas that do, a summary is provided below.

1. The code must specify what amount of water is permitted to be reused by the homeowner or business.
2. Specifications as to what behaviors are to be avoided or are illegal.
3. The permitted uses of the reused water in addition to those that are not permitted.
4. Specifications as to what is allowed to be in the reused water.
5. Specifications for the storage of the reused water.

Dollars & Cents

The cost of installation for a graywater system varies depending upon the complexity of the system itself. Things such as the complexity of the plumbing, the size of the yard, and who is installing the system all factor into the price of the system. For simple systems, the primary task to be done is digging for the pipes and basins, meaning that one can save money by doing so himself/herself.

Rough estimates for various systems include:

Laundry to Landscape Irrigation system:

- Materials: \$100-\$250
- Full system installation: \$700-\$2000

Branched-Drain System

- Materials: \$200-\$400
- Full system installation: \$800-\$3,000

Pumped System

- Materials: \$400-\$600
- Full system installation: \$1,000-\$3,000

The most common complex system is a sand filter to drip irrigation system. Due to the complexity of the system, it is difficult to install on one's own. The price can range from \$5,000-\$10,000 depending upon the complexity of the plumbing system in the design.

Measuring Success

The purpose of a graywater reuse systems is to reduce residential water consumption by reusing water used within the household. The success of one of these systems can be measured by either checking the reduction in water consumption or the savings one experiences in his/her water bill. One can also assess the improvement in the health of the plants being watered with the reused graywater.

Discover More

The official American Society of Civil Engineers statement on graywater reuse can be found [here](#).

The New Mexico State University guide on graywater reuse provides a lot of beneficial information on graywater reuse and the various applications. This page can be found [here](#).