

Greywater Reuse

In a Nutshell

Gray water is reusable wastewater from bathroom sinks, bath tub shower drains, and washing machine drains. These are included in residential, commercial, and industrial applications. Typically, gray water is reused onsite and it tends to be used for landscape irrigation purposes. If the gray water 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 greywater include the irrigation of lawns, trees, food crops, and ornamental plants. There are a few guidelines for the use of greywater when it is to be used for irrigation purposes.

- Greywater 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.
- Greywater is alkaline, which means that plants which only thrive in acidic soil should not be watered using greywater.
- Young plants or seedlings should not be watered utilizing greywater.
- Greywater 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, greywater 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. Greywater is ideal for these plants due to the nutrients that are provided in the process.

Greywater can also serve as the water used to flush a toilet. Toilet flush water can account for up to 50% of indoor water use. The quality of the greywater 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. Greywater 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.

http://aces.nmsu.edu/pubs/_m/m-106.html

Planning & Zoning

http://www.azsos.gov/public_services/Title_18/18-09.htm

Codes for gray water 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 gray water 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 greywater 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.

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.

<http://greywateraction.org/content/cost-greywater-systems>

Measuring Success

The purpose of a greywater reuse system 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 by the savings one experiences in his water bill. One can also assess the improvement in the health of the plants being watered with the reused greywater.

Discover More

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

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