

Denver Graywater Program Fact Sheet

What is Graywater?

Legislation authorizing use of graywater in Colorado defines graywater as the portion of wastewater that, before being treated or combined with other wastewater, is collected from fixtures within residential, commercial, or industrial buildings or institutional facilities for the purpose of being put to beneficial use.

The State of Colorado allows only certain sources of graywater to be used: from bathroom and laundry room sinks, bathtubs, showers, and laundry machines. Use of wastewater from toilets, urinals, kitchen sinks, dishwashers, or non-laundry utility sinks is prohibited.

Will Graywater Systems be Required in Denver?

No. Participating in the graywater program will be completely voluntary. We simply want to make the option available to property owners and developers who want to utilize graywater.

Why Allow the Use of Graywater Now?

In 2013, the Colorado State Legislature adopted House Bill 13-1044, legislation authorizing the use of graywater and directing the Colorado Department of Public Health and Environment and the State Plumbing Board to develop and adopt rules regulating the use of graywater.

In 2015, the Colorado Water Quality Control Commission adopted 5 CCR § 1002-86 ("Regulation 86"), which permits local governments to adopt an ordinance authorizing the use of graywater.

Now that state regulations are in place, Denver can allow the use of graywater by:

- Adopting an ordinance that allows beneficial use of graywater;
- Developing a graywater control program that meets the requirements of Regulation 86, and;
- Adopting a building code that includes plumbing requirements that allow graywater use.

City Council will vote to update the City's building code, including plumbing code language regulating graywater use, on March 7th, 2016. Rules and regulations for a graywater control program will be developed by the Board of Environmental Health if Council chooses to adopt a graywater ordinance.

Why Allow the Use of Graywater?

As Denver's population grows, water conservation will be of continued importance. Denver Water estimates for every 1,000 graywater systems installed in single-family homes, enough water could be saved to serve about 125 households per year (Denver Water, 2016). Further, a graywater program will support the City's 2020 Community Sustainability Goal for Water Quantity of reducing per capita use of potable water in Denver by 22% by providing a new option to conserve water.

How Can Graywater be Used?

Graywater may be used for subsurface irrigation of non-agricultural plants and for flushing toilets and urinals. Regulation 86 outlines specific requirements, prohibitions and standards for graywater use for non-drinking purposes.

Can Denver Allow More Sources or Uses?

No. The legislation authorizing beneficial use of graywater in Colorado, House Bill 13-1044, only allowed sources that are discharges from bathroom and laundry room sinks, bathtubs, showers, and laundry machines. Regulation 86 defines what uses of graywater are allowed. Currently, the only allowed uses are subsurface irrigation of non-agricultural plants and toilet or urinal flushing.

What are the Benefits of Using Graywater?

Using graywater allows us to conserve a precious natural resource while saving money. Savings have been estimated to be as much as \$160 per year (Bartels, 2013) for a single family home. Large facilities that have high uses of water from showers and laundry and high water demand for toilet flushing such as hotels, multi-family residential, and dormitories, could realize more significant cost savings.

How Much Does it Cost to Install a Graywater System?

A Department of Environmental Health study found that the costs for installing single family residential graywater systems for new construction would range from \$1,300 to \$2,800, depending on the type of system installed, and estimated maintenance costs would be \$50 per year. We do not have any estimates for the cost to install larger scale systems.

How Much Interest is there in Graywater?

It is anticipated that the greatest demand for graywater will come from new hotels, multi-family residential facilities, dormitories, and buildings pursuing a green building certification. It is much more costly to retrofit existing structures than to incorporate a system in new construction, so it is likely that the greatest demand will come from new development. Small residential users may be interested in the passive systems, but most likely not the toilet flushing systems due to high costs of installation.

Denver Water, the US Green Building Council Colorado Chapter and several environmental groups have expressed support for Denver to allow graywater use. Contacts with the Home Builders Association, Apartment Association, and Colorado Hotels and Lodgers Association have expressed support for voluntary graywater program in concept and would like to learn more to share with their members.

What about Impacts to Water Resources?

The Colorado State Engineer's Administrative Position for Graywater Reuse (Colorado Department of Natural Resource, 2011) states "for water users that rely on municipal water supplies, the Division of Water Resources does not regulate the reuse of gray water within the municipal system. If water is reused or re-circulated as a part of residential, commercial, or industrial operations, and that reuse or recirculation takes place within the confines of that operation, that is, there is no reuse of water after it leaves the site, there is no water rights conflict."

Are there any Health Risks?

The Water Quality Control Commission adopted Regulation 86 for the purpose of imposing requirements, prohibitions, and standards for the use of graywater that adequately protect public health and water quality. Therefore, Denver graywater systems in compliance with Regulation 86 will minimize any potential health risks caused by the use of graywater.

References

Bartels, L. (2013, April 13). Denver Post. Colorado "graywater" measure could reduce water bills.

Colorado Department of Health and Environment (2015). Regulation 86, Graywater Control Regulation. 5 CCR 1002-86, Colorado Water Quality Control Commission, effective December 30, 2015. Available at <https://www.colorado.gov/pacific/cdphe/wq-graywater>.

Colorado State Engineer (2011). Administrative Position for Graywater Reuse. Colorado Department of Natural Resources, Division of Water Resources, Sept.7, 2011.

Denver Water (2016). Graywater Use. Retrieved from Denver Water Web Site on March 3, <http://www.denverwater.org/AboutUs/WaterLaw/Graywater/>