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Grey Water Reclamation Systems

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QUESTION

In our area, water conservation is a very important concern and more and more clients want to incorporate grey water recycling into the designs of their homes. Do you have any suggestions?

ANSWER

Grey water recycling is an excellent way to reduce water usage because it offers a means to use some water - specifically, grey water - more than once. In addition, some grey water reclamation systems redirect grey water into the soil where it is naturally filtered - safely reintroducing into the environment without adding strain to a community's storm drain or waste water systems.

Grey water recycling is an accepted practice in Australia and many parts of Europe, and is gaining popularity in North America because it helps:

- Lower overall water consumption

- Reduce pressure on sewer and storm drain systems

- Protect waterways

- Prevent erosion

What is Grey Water?

Grey water is simply waste water from activities like bathing, washing dishes, and laundry. It gets is name from its cloudy appearance, which is the result of detergents and food waste, and is generally recognized to make up at least 50% of a typical home's waste water.

- Grey water does not include water from toilets, which contains human waste and is referred to as black water or sewage. Black water should never be reused for any application without extensive treatment first.

- Grey water should contain only a limited amount of cooking waste. Waste water from dishwashers or sinks with garbage disposals is sometimes described as "dark grey," and requires additional filtering and settling before it can be used in typical grey water applications.

- Clean, potable water is often referred to as white water. Unless it has been thoroughly cleaned and sanitized, grey water should never be consumed, used for cooking, cleaning, or bathing.

- Grey water can also be obtained by harvesting rainwater. While rainwater does not have a grey appearance, when collected from roofs or patios it is not pristine enough to qualify as white water. It is, however, ideal for the same uses that grey water is.

Applications for Grey Water

There are a number of different ways that grey water can be reused:

- Shower and bath water can be diverted for indoor or outdoor irrigation, as well as for toilet flushing.

- Water from the kitchen sink can be diverted for irrigation as well, but often contains grease and food particles in quantities that should be controlled using filters and/or settling.

- Because the salts and other chemicals found in most dish washer and laundry detergents can be harmful to plants, both dish washer water and laundry water are best suited to reuse for toilet flushing.

Special Considerations

When incorporating a grey water reclamation system into a building plan, it is essential that you make sure it is allowable under the local building codes. Currently, regulations vary considerably by locale: many jurisdictions do not allow grey water reuse, do not have clear regulations, or are considering changes to better address local water supply concerns.

Once you have determined what local regulations allow, consider the building site. Grey water irrigation systems operate best on sloping terrain that does not contain a lot of clay. On flat sites with poor drainage, consider landscaping features such as tiered planters or planting walls.

When designing a system for a particular project, it's also important to consider the needs and lifestyle of the homeowner. In fact, grey water systems should always be user-specific. For example:

- The simplest grey water systems divert wash water directly to an interior or exterior planting bed using nothing more than gravity. These systems are relatively inexpensive, long-lasting, and need very little maintenance - however, they do require that users always be careful about what they wash down the drain. Too much food waste or grease, non-biodegradable soaps or detergents, as well as toxic cleaning products like bleach can damage a system, compromise its safety, or even ruin it completely.

- More complex systems incorporate one or more settling tanks, filters, and/or disinfectants and allow users a lot more flexibility. Such systems are considerably more expensive, though, and require regular maintenance to avoid serious problems.

Drawing Grey Water Systems

Chief Architect's CAD Tools allow you to produce detail drawings and diagrams of plumbing runs for grey water systems, just as they can for other plumbing and mechanical systems. You can create custom line styles for grey water lines, place your grey water lines on custom layers, as well as create details of components such as settling tanks and overflow handling and save these details in the library for future use. Please refer to the Related Articles section at the bottom of this article for details.

MORE INFORMATION

Grey water reclamation is often associated with arid regions where water conservation is a top priority, but it also an ecologically beneficial practice in areas that don't have a limited water supply. Because grey water contains food particles and chemicals like nitrogen that are used as fertilizer by plants, it can cause serious environmental damage when it is released into waterways - as often happens during periods of heavy rain in many urban areas. Used as a controlled source of irrigation for landscaping, though, it can safely fertilize ornamental plants, shrubs, and trees. Specially selected plants can even break down some of the more toxic compounds present in some household detergents.

Related Articles

- Adding a CAD Object, CAD Detail, or Text to the Library (/support/article/KB-00002/adding-a-cad-object-cad-detail-or-text-to-the-library.html)
- Creating HVAC and Plumbing Runs (/support/article/KB-00934/creating-hvac-and-plumbing-runs.html)
- Managing and Creating Line Styles (/support/article/KB-01019/managing-and-creating-line-styles.html)

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