

## **Gray Water Guidelines**

### **General**

Gray water is untreated wastewater collected from certain plumbing fixtures and drains. Gray water is sewage, but is not highly contaminated with toxic levels of chemicals, organic matter, suspended solids and microorganisms that are potentially pathogenic. Gray water includes wastewater collected from bath tubs, showers, lavatory fixtures, clothes washing machines, and laundry tubs. In addition, rainwater may be collected to supplement gray water flows. Gray water does not include industrial waste or wastewater passing from toilets, urinals, kitchen sinks, dishwashers or laundry water exposed to soiled diapers.

Gray water is typically collected and stored for irrigation uses through a subsurface piping system. However, gray water may be treated through an approved process and used for either above ground irrigation or toilet flushing purposes. The plumbing fixtures, valves, storage container, pumps, irrigation piping, etc., are referred to as a gray water system.

### **Permit**

A permit issued under the authority of the State Health Commissioner is to be obtained prior to installation and use of a gray water system. The plumbing fixtures used in a gray water system must comply with the requirements of the statewide building code. The gray water system must also comply with applicable state and local regulations and policies implemented through the Virginia Department of Health. A preliminary meeting with local and state health department staff to discuss the proposed gray water system is desirable prior to submission of the permit application.

A complete permit application is to be submitted to the local health department for evaluation and approval prior to installation of a gray water system. The permit application is to include a transmittal letter identifying: the applicant, their means of ownership of the gray water system, and the location of the proposed gray water system. A suitable diagram of the property boundaries, location of residences, buildings, water and sewage utilities, paved areas and irrigation areas that are connected to or within 100 feet of the gray water system is to be submitted with the application. Some construction details such as vent piping, traps, valving, overflows, pump specifications, filters, chemical addition, etc., may be required. Complete information necessary to evaluate site soils, their wastewater adsorption capacity, and water table location, would be required for irrigation systems.

The permit application is to specify the capacity of the gray water system in terms of: estimated flows, storage provided, irrigation area and layout, pump capacity, overflow rates, filtration rates, chemical dosing rates, etc.

Gray water collected from commercial, industrial, or institutional systems is to be characterized as to volume and content based on appropriate records or approved sampling and testing results obtained by the gray water system owner.

### **Installation**

All necessary local permits (Health and Building Code) are to be issued prior to initiating installation of a gray water system.

Components of a gray water system designed to ensure proper treatment and disinfection as required for proposed uses are to be designed and certified by an appropriately licensed professional consultant or have been certified as to treatment performance by a nationally recognized testing authority such as the National Sanitation Foundation (NSF).

Storage tanks are to be installed in a manner to prevent leakage or spillage of gray water and are to be provided with proper traps and venting and provided with an overflow to an approved sewage collection system, or sewage disposal system. Installation of all gray water system components must comply with the issued permit. The gray water system is not to be connected to any potable water system without an approved air gap to prevent any possible backflow. A rainwater collection piping system is to include an approved diversion valve to limit the volume discharge to the storage tank. The constructed gray water system is to be inspected by local and State Health Department staff prior to operation.

During an inspection of construction, certain components on the gray water system are to be tested to ensure proper operation. Exposed gray water system components are to be permanently coded and marked to indicate that the gray water is unsuitable for drinking or personal contact. The gray water system installation is to comply with all buffer zones and set-backs required by existing state and local regulations and ordinances.

### **Operation**

During operation, no untreated or undisinfected gray water is to either reach the ground surface, or be used for toilet flushing. A set of acceptable operation and maintenance instructions is to be developed and remain available to the system owner. Gray water used for toilet flushing is to be dyed or colored by approved methods. The gray water system capacity is to be sufficient to use the generated daily flow. The volume of any rainwater diverted to the gray water system is to be controlled so as not to exceed the established permitted capacity.