

## Graywater Tier 2 Drip Irrigation System Design Worksheet

**Determine daily graywater flow:** \_\_\_\_\_gal/day

For single-family dwelling, use 160 gallons per day for 1 & 2 bedrooms, 240 gallons per day for 3 bedrooms, and 40 gallons per day for each additional bedroom (R317-401, Table 1). Daily graywater flow should be determined for maximum occupancy of house but must add at least one bedroom for unfinished basements.

Alternatively, determine flow using the fixtures in the residence: 30 gallons per day per bedroom for washing machine, 50 gallons per day per bedroom for shower/bathtub, and 5 gallons per day per bedroom for hand wash basin. Flow from other sources must be determined by a qualified designer.

Non-residential usage shall be sized by a certified designer and evaluated on a case-by-case basis by the regulatory authority.

**Select surge tank volume:** \_\_\_\_\_gallons

A surge tank shall have a minimum of 250 gallons in volumetric capacity to provide settling of solids, accumulation of sludge and scum unless justified with a mass balance of inflow and outflow and type of distribution for graywater discharge.

**Calculate number of emitters required:** \_\_\_\_\_emitters

From Table 5 of R317-401, based on soil type, using the left hand column, calculate minimum number of emitters required by multiplying daily graywater flow in gallons per day by minimum number of emitters required per gallon per day.

Also calculate the minimum number of emitters required by using the right hand column of Table 5 of R317-5: Divide the daily graywater flow in gallons per day by the maximum emitter discharge in gallons per emitter per day.

Use the largest number of emitters calculated by the two methods.

**Select wastewater irrigation tubing and other required components from manufacturer:**

Minimum spacing between emitters should be 12 inches in any direction, or as recommended by the manufacturer.

Emitters recommended by the manufacturer shall be resistant to root intrusion and suitable for subsurface and graywater dispersal.

Additional requirements for drip irrigation system components are given in R317-401-6.4

**Prepare a system sketch:**

Each drip irrigation system shall include the minimum number of emitters required to meet the daily graywater flows.

Each distribution zone shall have a minimum effective irrigation area for the soil characteristics and vegetation needs. A distribution zone is any portion of a graywater irrigation system that discharges graywater to a specific area for irrigation purposes.

**System Sketch**

