## Chapter 4.23
## DESIGN STANDARDS: HOLDING TANKS AND GRAYWATER SYSTEMS

Sections:



### 4.23.100 Use of Holding Tanks

No person shall use any temporary or permanent tank for holding wastewater for later disposal off site, such as a holding tank, except:

1. In connection with the repair of a failed wastewater treatment system; or,
2. In the case of a failed system replacement, where the District has determined that all other options for a replacement system have been considered by the applicant and that a holding tank is the only remaining feasible option.

### 4.23.110 Holding Tank Compliance

All holding tanks shall comply with the following:

1. Issuance of a permit and payment of prescribed holding tank fees. The holding tank permit fee may be periodically collected and may be charged on a unified water service bill.
2. Periodic submittal of documents verifying that the required pumping has been completed by a person licensed by the County of Marin pursuant to Section 25000 et seq. of the Health and Safety Code.
3. Installation of an audio/visual alarm within 20 feet of the holding tank; to be activated when the tank is within 85% of total capacity.

### ~~4.23.200 Graywater Systems~~

~~Any onsite wastewater system design which conforms to Appendix G of the California Plumbing Code (Title 24, Part 5, California Administrative Code) shall be designated a graywater system. Any design to treat graywater on site shall be considered an alternative system and may be approved only through the granting of a variance.~~

### 4.23.120 Holding Tank Design Standards

All tanks shall meet all of the following design standards:

1. The tank shall have a minimum 1,200 gallon capacity.
2. The tank shall be NSF approved and constructed of solid, durable materials not subjected to excessive corrosion or decay and shall be watertight. The tank shall

be vented as required in Chapter 9 of the California Building Code.

3. The tank shall be constructed of either concrete or fiberglass.
4. Unless approved by the District, fiberglass tanks shall not be installed within the Special Flood Hazard Area. Approval of the fiberglass tanks may be granted on case by case basis due to limited or no access to the tank location.
5. Tanks shall be installed such that access ports or openings are at least twelve inches below grade with at least one (1) riser which reach two (2) inches minimum above the ground surface.
6. Tanks shall be installed level on a solid bed and in no case shall the depth be greater than the manufactures limits of cover. Soil around the tank shall be hard-compacted or jetted.

4.23.200 Graywater Systems

Any onsite wastewater system design which conforms to Appendix G of the California Plumbing Code (Title 24, Part 5, California Administrative Code) shall be designated a graywater system. And further described as a system designed to collect graywater and transport it out of the structure for distribution in an irrigation or dispersal field. A graywater system may include tanks, valves, filters, pumps or other appurtenances along with piping and receiving landscape.

The following requirements apply to all graywater systems:

1. Installation of graywater systems shall, at a minimum conform to 2007 CPC, Title 24, Part 5, Chapter 16A, Part I – Nonpotable Water Reuse Systems.
2. Graywater use indoors is prohibited.
3. Graywater will not be used to irrigate root crops or edible part of food crops that touch the soil.
4. Graywater will not be used for spray irrigation.
5. Graywater will not be allowed to pond or runoff.
6. Graywater will not be discharged directly into any drainage swale, storm drain system, or surface water body.
7. Water used to wash diapers or similary soiled or infectious garments will not be used in the graywater system.
8. Water used to wash oily rags or to dispose of hazardous waste solutions such as from home photo labs will not be used in the graywater system.
9. Graywater includes but is not limited to wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.
10. Periodic inspections no less than every two (2) years shall be conducted by District staff. Inspection frequency will coincide with the wastewater system inspection for the subject property. Section 4.07.725 Accessibility for Periodic Inspections shall be applicable.
11. The graywater system shall not be connected to any potable water system without an air gap or other physical device which prevents backflow. A backflow ~~devise~~device (RPP type approved by District staff) shall be required to protect potable water from contamination.
12. An operation and maintenance manual shall be provided and maintained through the life of the system and upon change of ownership or occupancy. A copy of this

manual shall be provided to the District.

13. Installation of a water system backflow prevention device (RPP Type) approved by the District.

4.23.210 Application for Graywater System Construction Permit

To obtain a Graywater System Construction Permit, the owner or designated agent of the property on which the proposed work is to be conducted shall complete the application form and pay the prescribed permit fee. The application shall:

1. Identify and describe the work to be covered by the permit;
2. Provide the street address and Marin County Assessor's Parcel Number
3. Provide the Owner and Design contact information
4. Provide at least one (1) soil profile log, as described in Section 4.15.221, in the vicinity of the graywater dispersal field
5. Provide three (3) sets of plans, diagrams, computations, specifications, and other data for construction of the graywater system. If plans are larger than 11" x 17", then one (1) reduced 11" x 17" plan set shall be provided in addition to the three (3) sets of plans.
6. Give such other data and information as may be required by the General Manager.

4.23.220 Graywater Tank Design

When system design includes a tank, specifications for the tank shall be submitted to the District for approval. All graywater tanks shall meet the following:

1. Tanks shall be NSF approved and constructed of solid, durable materials not subject to excessive corrosion or decay and shall be water-tight. Steel tanks are prohibited.
2. Each tank shall have an access opening to allow for inspection and cleaning. All maintenance covers shall be removable and shall be gas and watertight. Unless approved by the District Engineer for use with a traffic rated tank, tank lids shall not weigh more than 25 pounds and must be securely fastened to access risers of an approved type.
3. Tanks shall be vented as required by Chapter 9 of the California Plumping Code. The tanks shall be sealed against vermin and mosquitoes.
4. Tanks shall have its rated capacity permanently marked on the unit with a sign stating "Graywater Irrigation System, Caution – Unsafe Water" permanently marked in a visible location on the tank lids.
5. An overflow drain shall be designed to allow overflow to gravity flow into the inlet side of the septic tank. The overflow drain shall not be less than the inlet pipe. The tank shall be protect against sewer line backflow by a backwater valve.
6. Tanks shall be designed to minimize detention time and sized to distribute the estimate amount of graywater produced on a daily basis.
7. Setback requirements shall adhere to Section 4.15.100

4.23.230 Connections to Graywater Tank

All pipe, valves, fittings, and connections to a septic tank shall be made in a manner

consistent with the Uniform Plumbing Code Section 1610 A.1, 2, 3.

4.23.240 Graywater Irrigation and Dispersal Field

There shall be sufficient area and appropriate soil condition on the parcel to prevent ponding or runoff of graywater. The graywater irrigation and dispersal field shall meet the following:

1. The type of irrigation and dispersal field shall be determined by the location, discharge capacity, soil type, and ground water level. Graywater discharge from irrigation or disposal field systems shall be at least two (2) inches deep to minimize the possibility of human contact.
2. Setback requirements shall adhere to Section 4.15.100
3. No graywater system shall be permitted if areas where the absorption capacity of the soil is unable to accommodate the intended discharge of the proposed dispersal field.
4. No irrigation and dispersal field shall extend within three (3) vertical feet of the highest know groundwater elevation or to a depth where graywater contaminates the ground water, ocean water, or surface water.

4.23.250 Graywater Discharge

The graywater discharge shall be calculated by estimates on water use records and the following:

Estimate the number of occupants of each dwelling unit as follows:

| | |
|---|---|
| First Bedroom | 2 occupants |
| Each Additional Bedroom | 1 occupant |

Estimate graywater flows based on number of occupants as follows:

| | |
|---|---|
| Showers, bathtubs & wash basins | 25 GPD/occupant |
| Laundry | 15 GPD/occupant |

The total number of occupants shall be multiplied by the applicable estimated graywater discharge as provided above and the type of fixtures connected to the graywater system.

4.23.260 Clothes Washer System

A clothes system utilizes only a single domestic clothes washing machine in a single family residential dwelling. The system design shall include the following:

1. Ability of the user to direct flow with a diversion valve to the irrigation / dispersal field or to the inlet side of the septic tank. The direction control of the graywater shall be clearly labeled and readily accessible to the user.
2. Installation of an air vent at the high point of the supply manifold
3. Release of graywater above the ground surface provided at least two (2) inches of mulch, rock, or soil, or a solid shield covers the release points. Other methods which provide equivalent separation are also acceptable.

4. Minimize human and domestic pet contact with the graywater system
5. A construction inspection schedule to observe, at a minimum, the following:
    - Prior to construction, the layout of the irrigation or dispersal field
    - Operation of diversion valve
    - A flow test to the point of the graywater irrigation or dispersal field to show lines and components are watertight

4.23.300 Simple System

Simple systems exceed a clothes washer system and comply with the following:

1. The discharge capacity shall be 250 gallons per day or less.
2. Graywater systems with a tank shall have an overflow system such that the tank overflow will gravity flow to the inlet side of the septic tank.
3. Excess graywater from the irrigation or dispersal field shall flow to the inlet side of the septic tank through a diversion valve.
4. All construction work done pursuant to a Construction Permit shall be done by, or under the supervision of, a person holding an appropriate license as a contractor pursuant to state law. The owner may be authorized to perform permitted maintenance or repair work of a minor nature which work will not endanger the public health, nor violate any laws, ordinances, or regulations.
5. Submittal of a Designer's Observation schedule per Section 4.07.131 to observe work conforms to the approved application, plans, and specifications and shall include , at a minimum, the following:
    - Prior to construction, the layout of the irrigation or dispersal field
    - Watertight test of tank(s), as applicable
    - Operation of diversion valve
    - A flow test to the point of the graywater irrigation or dispersal field to show lines and components are watertight

4.23.360 Complex System

Any graywater system which is not a clothes washer or simple system shall comply with the following:

1. The discharge capacity is over 250 gallons per day.
2. Design plans shall be prepared by an approved Designer per Section 4.03.212.
3. Site Evaluation per Section 4.15.200 shall be performed by the Designer with observation by District staff.
4. Graywater systems with a tank shall have an overflow system such that the tank overflow will gravity flow to the inlet side of the septic tank.
5. Excess graywater from the irrigation or dispersal field shall flow to the inlet side of the septic tank through a diversion valve.
6. All construction work done pursuant to a Construction Permit shall be done by, or under the supervision of, a person holding an appropriate license as a contractor pursuant to state law. The owner may be authorized to perform permitted maintenance or repair work of a minor nature which work will not endanger the public health, nor violate any laws, ordinances, or regulations.
7. Submittal of a Designer's Observation schedule per Section 4.07.131 to observe work

conforms to the approved application, plans, and specifications and shall include , at a minimum, the following:

- Prior to construction, the layout of the irrigation or dispersal field
- Watertight test of tank(s), as applicable
- Operation of diversion valve
- A flow test to the point of the graywater irrigation or dispersal field to show lines and components are watertight

## Table 16A-1 Location of Graywater Systems

| Minimum Horizontal Distance Required From: | Tank (feet) | Irrigation Field (feet) | Dispersal Field (feet) |
|---|---|---|---|
| Building Structures[1] | 5[2] | 2 | 5 |
| Property Line | 5 | 1.5 | 5 |
| Water Supply Wells[3] | 50 | 100 | 100 |
| Streams and Lakes[3] | 50 | 100[4,5] | 100[4] |
| Sewage Pits or Cesspools | 5 | 5 | 5 |
| Sewage Dispersal Field | 5 | 4[6] | 4[6] |
| SepticTank | 0 | 5 | 5 |
| Domestic Water Line | 5 | 0 | 0 |
| Public Water Main | 10 | 10[7] | 10[7] |

[1]Building structures does not include porches and steps, whether covered or uncovered, breeezeways, roofed porte cocheres, roofed patios, carports, covered walks, covered driveways, and similar structures or appurtenances.

[2]Underground tanks shall not be located within a 45 degree angle from the bottom of the foundation, or they shall be designed to address the surcharge imposed by the structure. The distance may be reduced to six (6) Inches for aboveground tanks when first approved by the District.

[3]Where special hazards are involved, the distance required shall be increased as directed by the District

[4]These minimum clear horizontal distances shall also apply between the irrigation or dispersal field and the ocean mean higher high tide line.

[5]The minimum horizontal distance may be reduced to 50 feet fro irrigation fields utilizing graywater which has been filtered prior to entering the distribution piping.

[6]Plust two (2) feet fro each additional foot of depth in excess of one (1) foot below the bottom of the drain line.

[7]For parallel construction or crossings, approved by the District shall be required.

## Table 16A-2 Design Criteria of Six Typical Soils

| Type of Soil | Square Feet<br>Min. ft² of irrigation / leaching area per 100 gal of estimate daily graywater discharge | Gallons<br>Max absorption capacity in gal/ft² of irrigation / leaching area for 24 hrs |
|---|---|---|
| Coarse sand or gravel | 20 | 5 |
| Fine Sand | 25 | 4 |
| Sandy Loam | 40 | 2.5 |
| Sandy Clay | 60 | 1.7 |
| Clay with considerable sand or gravel | 90 | 1.1 |
| Clay with small amounts of sand or gravel | 120 | 0.8 |