

Graywater

A GUIDELINE FOR THE INSTALLATION AND USE OF RESIDENTIAL LAUNDRY GRAYWATER DISPOSAL SYSTEMS (LGDS)

Presented By:

- Jim MacDonald, C.B.O.
Building Official, County of Ventura
- Dave Hansen, C. B. O.
District Manager, County of Ventura
- Dave Thomas, C. B. O.
Senior Building Inspector, County of Ventura

What is Graywater?

Definition:

2007 CPC Section 1602.0

“Graywater is untreated household waste water that has not come into contact with toilet waste.”

2007 CPC Section 1602A.0 (Health and Safety Code Section 17922.12)

“graywater” means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious contaminated, or unhealthy bodily waste , and does not present a threat from contamination by unhealthful processing, manufacturing, or operating waste.”

(Graywater includes used water from bathtubs, showers, bathroom wash basin, and water from cloths washers and laundry tubs. It shall not include wastewater from kitchen sinks or dishwashers)

Recent History of Graywater

- Graywater has been around for many years. Code requirements regulating graywater systems were finally introduced into the Uniform Plumbing Code in the 1994 edition, Appendix G and the CPC Ch. 16 and have remained intact to present.
- *Chapter 16A* was established to provide minimum requirements and provisions for the installation of limited types of graywater systems to be install **without a construction permit** in occupancies regulated by the Department of Housing and Community Development (HCD).
- The emergency graywater regulations, which added Chapter 16A “Nonpotable Water Reuse Systems” into the 2007 CPC were adopted by the California Building Standards Commission (CBSC) on July 30, 2009. It was filed with the Secretary of State on August 4, 2009 as effective immediately on filing.
- In compliance with the Administrative Procedure Act, HCD prepared a “Certificate of Compliance” confirming the completion of the rulemaking process including a 45 day public comment period and a 15 day comment period, a Final Statement and the Final Express Terms.
- The “Certificate of Compliance” along with the Final Express Terms were unanimously approved by the CBSC and filed with the Secretary of State on January 20, 2010.
- With this action complete Title 24, Part 5, Chapter 16A ,Part I emergency regulations of the 2007 California Plumbing Code (CPC) were made permanent.

What is the Intent CPC Chapter 16A

- 1) Conserve water by facilitating greater reuse of laundry, shower, lavatory and similar sources of discharge for irrigation.
- 2) Reduce the number of non-compliant graywater systems by making legal compliance easily achievable.
- 3) Provide guidance for avoiding potentially unhealthy conditions.
- 4) Provide an alternate way to relieve stress on a private sewage disposal system by diverting the graywater.

Definitions

- **Clothes Washer System**: A graywater system utilizing only a single domestic clothes washing machine in a one or two family dwelling.
- **Disposal Field**: An intended destination for graywater including but not limited to a mulch basin or receiving landscape feature, graywater leach field or other approved method of disposal.
- **Graywater System**: A system designed to collect graywater and transport it out of the structure for distribution in an Irrigation or Disposal Field.
- **Irrigation Field**: An intended destination for graywater in the receiving landscape including but not limited to a drip irrigation system, mulch basin or other approved method of dispersal for irrigation.
- **Mulch**: Organic waste material including but not limited to leaves, prunings, straw, pulled weeds and wood chips. Mulch shall be permeable enough to allow rapid infiltration of graywater.
- **Mulch Basin**: A type of irrigation or disposal field filled with mulch or other approved permeable material of sufficient depth, length and width to prevent ponding or runoff. A mulch basin may include a basin around a tree a trough along a row of plants or other shape necessary for irrigation or disposal.

The “What” and “Where” of Graywater Systems

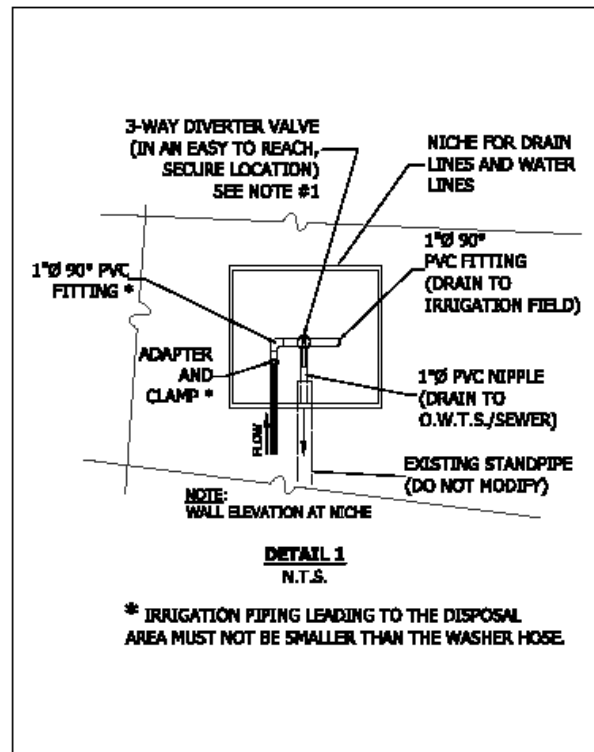
- What is a “Laundry Graywater Disposal System” (LGDS) ?
- Where can a LGDS be Installed?
- Where can the clothes washing machine be located?
- Can a filter be installed on the LDGS irrigation drain pipe?
- What plants should I avoid watering with Graywater?

12 Simple Requirements

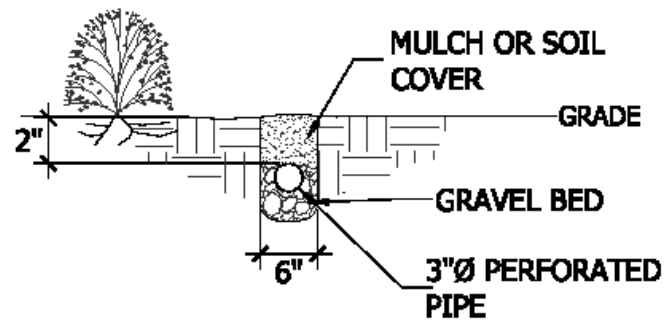
1603A.1.1: A permit is not required for an LGDS which is supplied only by a clothes washer and does not require the cutting of the existing plumbing piping provided it is in compliance with 1603.1.1

- 1) **1603A.1.1#2:** The design shall allow the user to direct the flow to the irrigation or disposal field or the building sewer. The direction control of the graywater shall be clearly labeled and readily accessible to the user.
- 2) **1603A.1.1#3:** The install, change, alteration or repair of the system does not include a potable water connection or a pump and does not affect other building, plumbing, electrical, mechanical.
- 3) **1603A.1.1#4:** The Graywater shall be contained on the site where it is generated.
- 4) **1603A.1.1#5:** Graywater shall be directed to and contained within an irrigation or disposal field.
- 5) **1603A.1.1#6:** Ponding or runoff is prohibited and shall be considered a nuisance.
- 6) **1603A.1.1#7:** Graywater may be released above the ground surface provided at least two (2) inches of mulch, rock, or soil or a solid shield covers the release point. Other methods which provide equivalent separation are also acceptable.
- 7) **1603A.1.1#8:** Graywater systems shall be designed to minimize contact with humans and domestic pets.
- 8) **1603A.1.1#9:** Water used to wash diapers or similarly soiled or infectious garments shall not be used and shall be diverted to the building sewer.
- 9) **1603A.1.1#10:** Graywater shall not contain hazardous chemicals derived from activities such as cleaning car parts, washing greasy or oily rags, or disposing of waste solutions from home photo labs or similar hobbyist or home occupation activities.
- 10) **1603A.1.1#11:** Exemption from construction permit requirements of this code shall not be deemed to grant authorization for any Graywater system to be installed in a manner that violates other provisions of this code or any other laws or ordinances of the Enforcing Agency
- 11) **1603A.1.1#12:** An operation and maintenance manual shall be provided. Directions shall indicate the manual is to remain with the building throughout the life of the system and indicate that upon change of ownership or occupancy, the new owner or tenant shall be notified the structure contains a Graywater system.

Diverter System

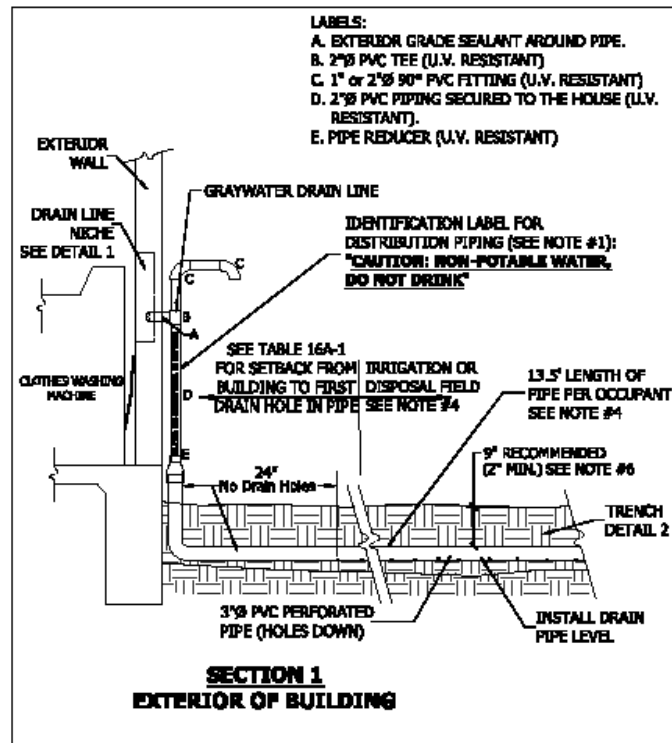


Disposal Irrigation Field



**DETAIL 2:
DISPOSAL/IRRIGATION FIELD
RECOMMENDATIONS**

Exterior of Building



Parts and Supplies

PARTS and SUPPLY LIST FOR: INSTALLATION AND USE OF RESIDENTIAL LAUNDRY GRAYWATER DISPOSAL SYSTEMS (LGDS)

VALVE

3 Way Diverter Ball Valve (Brass, PVC, Polypropylene)

PIPE

3"- PVC Solid Drain Pipe

3"- PVC Perforated Drain Pipe

2"-PVC *Ultraviolet Resistant* Pipe

*2"- ABS Drain Pipe (for alternate system)

1"- PVC SCH 40 pipe

1"-PVC SCH 40, *Ultraviolet Resistant* Pipe

FITTINGS

3"- 90 Degree ¼ Bend, Schedule 40 PVC Elbow (Hub x Hub)

3"- PVC Coupler (Hub x Hub)

3"x 2"- SCH 40, PVC Reducer

3"- PVC Adapter, (Spigot x Hub) (converts from Schedule 40 PVC to PVC Sewer/Drainage Pipe)

2"- SCH 40 PVC Tee, *Ultraviolet Resistant*, (Slip x Slip x Slip)

2"x 1"- SCH 40 PVC, Reducer Bushing, *Ultraviolet Resistant* (For: Vent/Overflow and Size transition)

*2"- ABS Short Sweep, Drainage Fitting (For: Alternate System)

*2"- ABS Sanitary Tee (For: Alternate System)

1"- 90 Degree SCH 40 PVC Fitting *Ultraviolet Resistant* Elbow

1"- 90 Degree SCH 40 PVC Fitting Elbow

1"- 45 Degree SCH 40 PVC Fitting Elbow

1"- Sch 40 PVC Coupler

1"- 90 Degree SCH 40 PVC Male Adapter (for: Connecting diverter valve to Drain and Graywater)

1"- SCH 40 PVC Male Adapter (For: Connecting Washing Machine Drain hose to Diverter Valve)

SUPPLIES

PVC Primer and PVC Glue

ABS primer and ABS Glue

All Purpose Glue (For: PVC, CPVC, ABS, and Polystyrene)

Exterior Polyurethane Sealant, or Silicon Sealant

Hacksaw, PVC Cutter, Utility Knife, Measuring Tape, Hole Saw, Hammer,

(*These part listed as part of the "Alternate System")