California Building Standards Commission,

2525 Natomas Park Drive, Suite 130

Sacramento, California 95833

Attention: Jim McGowan, Executive Director

e-mailed to CBSC@dgs.ca.gov.

October 5th, 2012

Dear Jim McGowan,

Thank you for your work on CPC's chapter 16. As a greywater installer and educator, I think that HCD and BSC have greatly improved Chapter 16 from its original version in the UPC. There are, however, a few critical changes I think should be included. Please review my comments below.

Kind regards,

Laura Allen

Greywater Action

laura@greywateraction.org

510-846-2910

Suggested Revisions to the Text of the Regulations:

Note: Suggested revisions are in red.

1) Use NSF/ANSI 350 for all dwellings.

(HCD – Residential Occupancies) 1601.7 Minimum Water Quality Requirements. The minimum water quality for alternate water source systems shall meet the applicable water quality requirements for the intended application as determined by the public health Authority Having Jurisdiction. In the absence of water quality requirements *for on-site treated*

nonpotable gray water systems, the requirements of NSF/ANSI 350 shall apply.

~~*1) For owner occupied single family dwellings NSF/ANSI 350.*~~

~~*2) For R-1 and R-2 occupancies, the California Department of Public Health statewide uniform criteria for disinfected tertiary recycled water as provided in California Code of Regulations, Title 22, Section 60301.230.*~~

Reason:

1. NSF/ANSI 350 is a nationally recognized standard for both residential and commercial non-potable reuse. NSF/ANSI 350 was developed through an extensive national research and review process to establish requirements and a third party certification process for onsite **residential and commercial** systems in order to address public health and environmental concerns.

2. The NSF/ANSI 350 standard and certification process will be the primary third party certification process for onsite non-potable reuse systems in the future. Adoption of standards with an established third party certification process will ease concerns about installation of certified systems by property owners and health and building inspection officials, and it will facilitate safe and effective use of these systems.

3. There is no clear rationale why water quality standards for larger scale residential developments should be different than standards for commercial developments.

2) Allow mulch basins to be used in any system under 250 gallons.

1602.2 System Requirements.

1602.2.1 Discharge. Gray water shall be permitted to be diverted away from a sewer or private sewage disposal system, and discharge to a subsurface irrigation or subsoil irrigation system*, or disposal field, or mulch basin*. ~~The gray water shall be permitted to discharge to a mulch basin for single family and multi-family dwellings *residential occupancies*.~~ Gray water shall not be used to irrigate root crops or food crops intended for human consumption that come in contact with soil.

Reason:

Mulch basins are a type of subsurface irrigation system that use mulch (ie. woodchips) around the gray water outlet instead of soil. The use of mulch provides additional capacity for gray water to spread out into the air spaces between the mulch and slowly soak into the ground. Mulch basins help prevent pooling and runoff. There is no apparent reason why they should not be allowed to be used in commercial systems.

3) Update calculation for estimating gray water discharge to include a second option for water efficient homes.

1602.8.1 ~~Single Family Dwellings and Multi-Family Dwellings.~~ *Residential Occupancies.* The gray water-discharge for ~~single family and multi-family dwellings~~ *residential occupancies* shall be calculated by water use records, calculations of local daily per person interior water use, or the following procedure:

(1) The number of occupants of each dwelling unit shall be calculated as follows:

First Bedroom	2 occupants
Each additional bedroom	1 occupant

(2) The estimated gray water flows of each occupant shall be calculated as follows:

Showers, bathtubs and lavatories	25 gallons (95 L) per day/occupant
Laundry	15 gallons (57 L) per day/occupant

Proposed change: Add a second calculation for homes that have water efficient fixtures,

ie:

NO CONSERVATION

Shower/bath 13 gpd

Lavatory sink 5 gpd (from WA Department of Health from AWWA study

Washing machine 15 gpd

WITH CONSERVATION

Shower/bath 10 gpd

Lavatory sink (need number)

Washing machine 10 gpd

Info from American Water Works Assosiation.
http://www.drinktap.org/consumerdnn/Home/WaterInformation/Conservation/WaterUseStatistics/tabid/85/Default.aspx

4) Remove reference to putting a screen on a gray water pipe, it will quickly clog from gray water and cause clogging.

1602.9.2 Animals and Insects. *Gray water tank openings shall be protected to prevent the entrance of insects, birds, or rodents into the tank and piping systems. Screens installed on vent pipes, ~~inlets, and overflow pipes~~ shall have an aperture of not greater than 1/16 of an inch (1.6 mm) and shall be close fitting.*

Reason:

Screens will quickly clog from greywater and should not be used on inlet or overflow pipes. Putting a screen on the inlet or outlet pipe will create clogs and backups of gray water. If the inlet pipe is connected to the drainage system from the house there would be no way for animals or insects to enter.

5) Update soil types in this table to reflect table 1602.11 which has the most common types of soil.

Proposed change: The soil types listed below in table 1602.10 are not the most common types of soil. The next table in Chapter 16, table 1602.11, does have the most common types of soils. Table 1602.10 should be updated to be constant with table 1602.11 to include soil types of: 1) sand, 2) sandy loam, 3) loam, 4) clay loam, 5) sandy/silty clay, 6) clay.

TABLE 1602.10
DESIGN OF SIX TYPICAL SOILS

TYPE OF SOIL	MINIMUM SQUARE FEET OF IRRIGATION/*LEACHING* AREA PER 100 GALLONS OF ESTIMATED GRAY WATER DISCHARGE PER DAY	MAXIMUM ABSORPTION CAPACITY IN GALLONS PER SQUARE FOOT OF IRRIGATION/LEACHING AREA FOR A 24-HOUR PERIOD
Coarse sand or gravel	20	5.0
Fine sand	25	4.0
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

For SI units: 1 square foot = 0.0929 m^2, 1 gallon per day = 0.000043 L/s

6) Include kitchen sink water as “dark gray” water.

Graywater (HCD 1). *Pursuant to 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 wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "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~~ and kitchen sinks or dishwashers.*

Proposed change: Allow kitchen sink and dishwasher to be included as"graywater". Or, add new definition, "Dark graywater" to include kitchen sinks and dishwashers. Or allow kitchen sink graywater to be reused with a special permit and monitoring by Enforcing Agency.