

Water Supply Symposium “Our Water, Our Future, Our Solutions”

Sarah Cierebiej EHS II



Whatcom County
HEALTH
Department



Water Conservation

Rainwater catchment

Greywater systems

Low flow fixtures



Rainwater Catchment

Rainwater catchment prior to October 2016

- **October 2009, rainwater is no longer considered waters of the state.**
- **Rainwater catchment is used as an alternative source when wells are dry and no public water is available.**



Rainwater Catchment

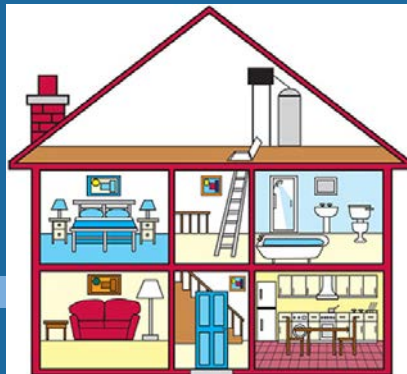
Data

- 2010 - October 2016: 13 systems approved
- October 2016 – present: 14 systems approved

Two step process:

1. Design approved for building permit approval.
2. Installation approved by installer for final occupancy.

Only tracked as related to building permits.
Does not track systems installed after building permit is issued.



Rainwater Catchment Calculations

Amount of rainwater harvested and stored based on:

- Number of people - 2 (full time)
- Amount of rainfall - Bellingham 35"/yr.

Determines:

Roof size - 16,739 sq. ft.

Storage size - 9000 gallons

For Lake Whatcom – 9,154 sq. ft.

Rainfall Table (Western Regional Climate Center www.wrcc.dri.edu)

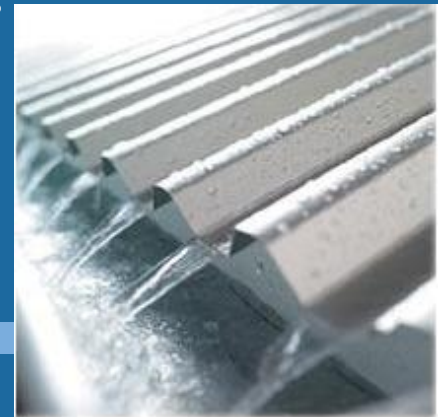
Blaine	41"
Bellingham	35"
<u>Clearbrook</u>	46"
Glacier	61"
Lake Whatcom	64"
Marietta	32"

Rainwater Catchment

Design criteria









- **Designed by a professional: American Rainwater Catchment Systems Association or PE.**
- **Roofing material: enameled metal, tile or cement tile.**
- **Filtration and disinfection for whole house.**
- **Operation & Maintenance plan for: roof & gutter cleaning, storage tank cleaning, water testing, etc. O&M is signed, notarized and recorded.**

Cost: \$10,000 - \$25,000



Greywater

Greywater makes up the largest portion of wastewater from your home...up to 40 gallons per person each day.

							
Toilet 24% 32.6 gphd	Faucet 20% 27.0 gphd	Shower 20% 26.9 gphd	Clothes washer 16% 22.0 gphd	Leak 13% 17.8 gphd	Bath 3% 4.4 gphd	Other* 3% 4.0 gphd	Dishwasher 2% 2.2 gphd

* The "Other" category includes evaporative cooling, humidification, water softening, and other uncategorized indoor uses.

Greywater

What is harmful about greywater?

Greywater can contain chemicals, bacteria, viruses, and other pollutants that, if mishandled, can pose a risk to public health and the environment. The amount of pollutants carried by greywater varies depending on what goes down the drain.

Clothes Washer:	Bacteria, bleach, foam, high pH, hot water, nitrates, oil and grease, salts, soaps, suspended solids.
Bathroom:	Bacteria, hair, hot water, odor, oil and grease, soaps, suspended solids.
Kitchen:	Bacteria, food particles, hot water, odor, oil and grease, soaps, high pH and sodium (from dishwasher), suspended solids.

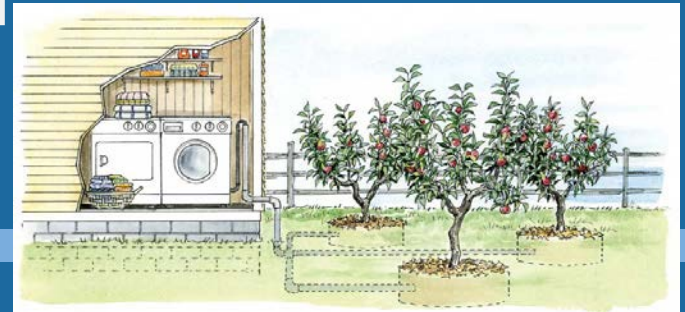
Adapted from Small Flows quarterly newsletter, Winter 2001

Graywater

In 2011, WAC 246-274 set requirements for using greywater for subsurface irrigation. LHJ had 3 years to adopt, unless lack of resources prevented implementation.

Intended to encourage water conservation while protecting public health.

- Greywater is for sub-surface irrigation only.
- Still need septic system or sewer to divert greywater when it isn't the growing season.
 - Greywater systems are intended to be seasonal.
- Reclaimed water is addressed through the WA State Plumbing Code.



Greywater

2 ways to conserve water:

- Reduce water coming in.
- Reduce water going out: waterless toilet & greywater system combination.

Doesn't remove the need for drainfield, but may reduce size.

Whatcom County Health Department uses:

- WAC 246-272A On-Site Sewage System code and,
- List of registered on-site treatment and distribution products in RS&G*.



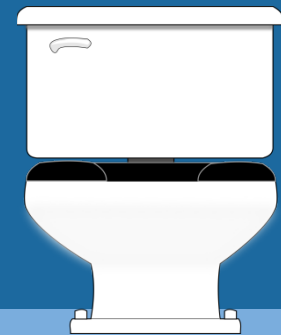
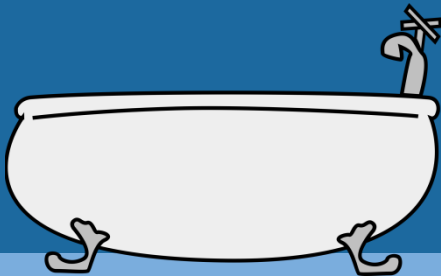
*Recommended Standards and Guidance for Performance, Application, Design and Operation and Maintenance.

Low Flow Fixtures

The Energy Code requires a certain number of energy credits for new construction.

Energy credits can be acquired through multiple systems including plumbing with low flow fixtures and efficient water heaters.

- All showerhead and kitchen sink faucets installed in the house shall be rated at 1.75 GPM or less. All other lavatory faucets shall be rated at 1.0 GPM or less.



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Thank you!

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