Reuse Water Systems

BCD Building Codes Division

Department of Consumer and Business Services

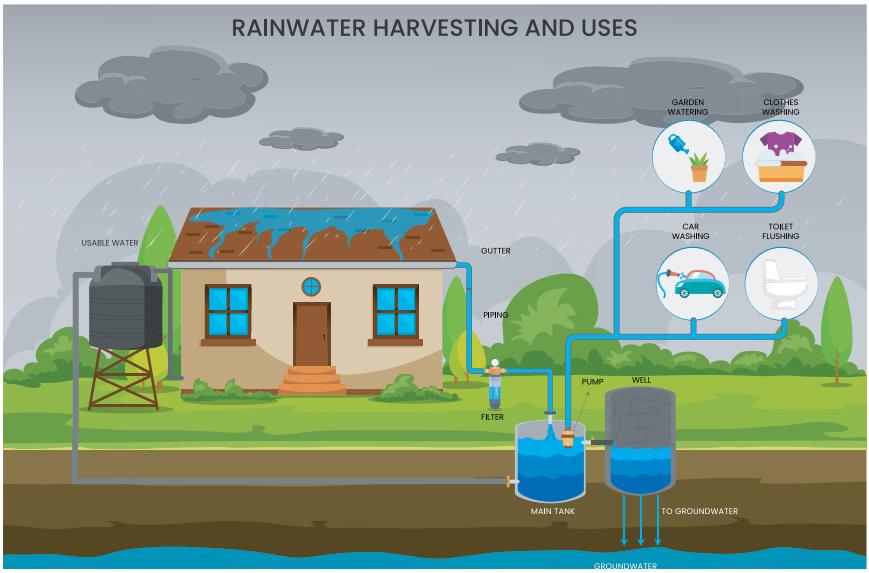
Contents

Introduction

Potable water is a precious resource. The effects of climate change, such as droughts and floods, put our sources of fresh water at risk. Water conservation is the responsibility of all of us; how we use water, including nonpotable water, is something we all need to consider.

To help Oregon conserve its water for now and for the future, the Oregon Building Codes Division (BCD) allows several water reuse systems and offers resources to understand how they work. In addition to BCD, local building departments, public water utilities, and other sources may also have programs and documentation available.

Nonpotable and potable rainwater, as well as graywater reuse systems are all alternate methods that can be used to help lessen the impacts on our fresh water. This guide was created to help Oregonians understand how these systems work and how they can be integrated into a new or existing structure.



Nonpotable rainwater systems

Nonpotable rainwater catchment is a viable alternate water source used around the world to supplement an existing water supply. These systems are approved for use under the Oregon Plumbing Specialty Code because water supplied from them are used for plumbing fixtures, appliances, and other things typically supplied by the plumbing system. Being regulated under the standards of the plumbing code, rainwater catchment systems safely provide nonpotable water for uses not intended for potable drinking water, such as sanitation or bathing. These systems are separate from potable water systems.

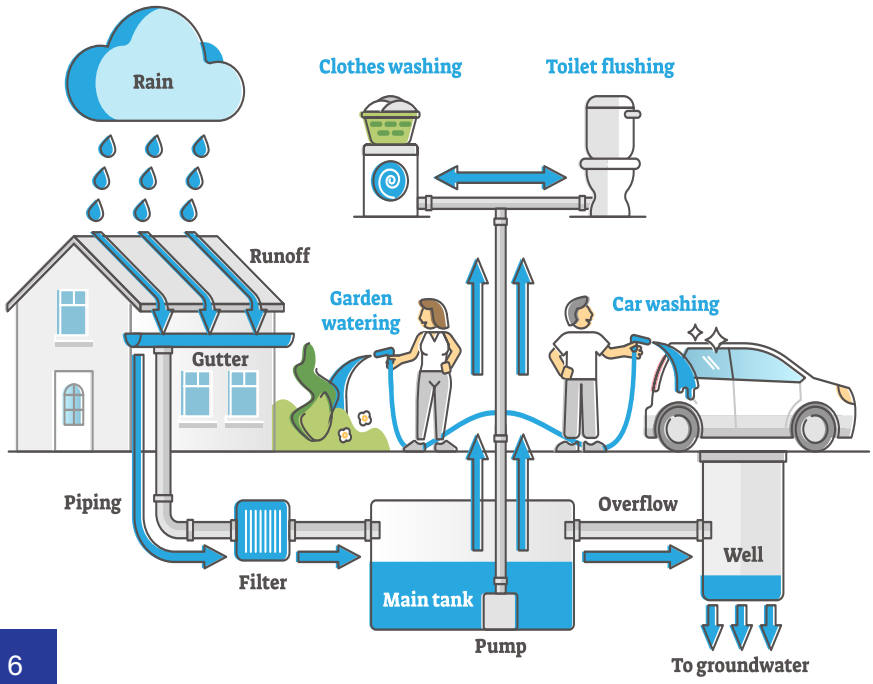
Nonpotable rainwater system details

- Uses include flushing toilets and urinals, and washing clothes.
- Rainwater catchment systems must be designed by a certified plumbing contractor or registered design professional, and designed to the requirements found in the American Rainwater Catchment Systems Association (ARCSA)/ American Society of Plumbing Engineers (ASPE)/ American National Standards Institute (ANSI) 63-2020 Rainwater Catchment Systems standard.

- Permits and inspections are required, including specific testing of components.

- Materials need to be compatible with the system installed, and pipe sizing should be the same as for potable water systems.
- Can supplement potable water sources, but a reduced pressure backflow assembly is required to protect the potable source.
- Collection surfaces, such as roofs, need to be made of hard, impervious material.
- Collected water may need to be treated if the quality does not meet standards provided by governing codes.
- Storage tanks can be installed above or below ground, need to be watertight, as well as designed and approved for the location. A structural permit may be required; check with your local building department.

RAINWATER HARVESTING



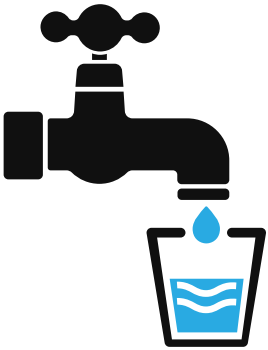
Potable rainwater systems

Can you filter rainwater to make it potable? Yes. If you intend to drink it or shower or wash dishes with it, then you will need to run it through a series of filters or a reverse osmosis system, depending on your situation. Doing this gets rid of harmful contaminants such as bacteria, parasites, and chemicals.

Potable rainwater systems are a sustainable way to provide an alternate water source for residents. These systems can be connected to the public utility, but they need to be protected from backflow, so no direct connection is allowed.

Potable rainwater system details

- Applies to single-family dwellings.
- Designed by an engineer or journeyman plumber (a registered design professional).
- Installed by the homeowner (Oregon Administrative Rule 918-695-0020(a)) or a licensed installer.
- Requires permits; fees based on local jurisdiction schedule:
  - » Local jurisdictions may also require plan submission (this is the case with Portland).
- Must have components listed and approved for potable use:
  - » Storage tanks must comply with the NSF/ANSI 61standard for evaluating the health effects of materials, components, products, and systems in contact with drinking water.



- Owner is responsible for maintaining safe water quality.
- Roof coatings comply with NSF Protocol 151, which confirms rainwater catchment products do not impart contaminants into the water at levels exceeding U.S. Environmental Protection Agency drinking water regulations.
- Post-filtration and treatment is required after the storage tank; treatment options include chlorination or ultraviolet light.
- Storage tanks can be installed above or below ground and must be listed and designed for the intended use.
- Pre-filtration or automatic roof cleaning is required, with specific requirements given (for example, ARCSA/ASPE/ANSI 63-2020 Rainwater Catchment Systems standard).

Graywater systems

Graywater reuse systems conserve water by diverting wastewater from showers, sinks, and laundry for secondary uses such as

irrigation or flushing toilets. These systems range from simple diversion to complex setups that include filtration and treatment.

Gray water reuse reduces freshwater consumption. This sustainable solution reduces your environmental footprint and your utility bills. Graywater systems can also ease the burden on septic systems. However, precautions are essential for safe installation and use of these systems.

Gray water has the potential to hold bacteria and viruses. **Gray water is never potable and should never be used for drinking purposes.** Pipes for graywater systems must be clearly identified as nonpotable and should never be used on or around freshwater irrigation sprinklers. Installation of graywater reuse systems require appropriate permits and licenses.

Graywater system details

- Residential or commercial applications.
- Permits required for installation.
- Installation requires a licensed plumbing company with an installer's license.
- Must comply with International Association of Plumbing and Mechanical Officials (IAPMO) Industry Group Consensus (IGC) 207 or Canadian Standards Association (CSA) B128.1 criteria for reclaimed water conservation system for flushing toilets.
- Systems must use purple pipe, be marked with continuous purple tape, or marked with the words "NONPOTABLE WATER."
- Water must not be discharged outside, unless approved by the Oregon Department of Environmental Quality.

- Owners can typically store collected gray water for 24 hours. For longer periods, it is recommended to treat water with chlorine or iodine.

Building Codes Division
1535 Edgewater St. NW
P.O. Box 14470
Salem, OR 97309-0404

800-442-7457 (toll-free)

bcd.info@dcbs.oregon.gov

oregon.gov/bcd

440-6107 (9/25/COM)