

VIRGINIA RAINWATER HARVESTING SYSTEM REGULATIONS FOR LARGE BUILDINGS

The rainwater reuse regulations became effective on November 20, 2024.

LARGE SCALE BUILDING IMPACT

Onsite non-potable water reuse applications for treated rainwater can be used within the building envelope and property boundaries for common purposes such as:

- Toilets and urinals flushing
- Irrigation: spray or subsurface drip
- Clothes washing
- Mechanical equipment (HVAC makeup)
- Hose bibbs
- Decorative fountains
- Pressure washing (building exterior cleaning)
- Firefighting or protection and fire suppression

Collection and reuse of captured rainwater can offset the total water demands associated with the operation of the building. Building collection area and storage availability are some of the biggest drivers to determining water use reduction potential that can be served by rainwater. Epic Cleantec can prepare an analysis to give options and determine a best value approach for your building.

LIMITATIONS

Quantity - The only real limits are based on the amount of available rainwater. Proper sizing of the capture cistern is critical to balance the cost of storage with building program needs and supply to the various non-potable demands.

Quality - The End-Use Tiers determine acceptable usage. Treatment system to be tailored to the building's specific needs.

Non-Potable Reuse: Doesn't require a permit, simpler path and easier adoption path to implementation for the building owner and occupants.

Potable Reuse: Use of harvested rainwater for human consumption requires a permit from VDH. There are various regulatory requirements which are more extensive than for non-potable reuse.

WATER REUSE CATEGORIES

There are three distinct categories (called end use tiers) of non-potable end use. Treatment system components selected based on how water will be reused onsite.

END USE TIER 1: Low exposure end use: Non-potable water use where humans will rarely come into contact with the treated rainwater due to the nature of the installation that limits direct or indirect contact under normal operation. Examples include:

- Trap primers
- Restricted access spray irrigation (irrigation in fenced or remote locations where human visitation is controlled or prevented)
- Surface and subsurface drip irrigation
- Ice rinks

END USE TIER 2: Medium exposure end use: Non-potable water use where human contact with treated rainwater is indirect or limited. Examples include:

- Toilet and urinal flushing
- Clothes washing
- Heating Ventilation and Air Conditioning system evaporative cooling
- Rooftop thermal cooling

END USE TIER 3: High exposure end use: Non-potable water use where human contact with treated rainwater is direct. Examples include:

- Hose bibs
- Pressure washing
- Firefighting or protection and fire suppression
- Decorative fountains
- Vehicle washing
- Nonrestricted spray irrigation (irrigation not in fenced or remote locations where human visitation is controlled or prevented)

END USE TIER 4: Potable reuse. Must meet stringent drinking water standards.

The owner of a rainwater harvesting system shall ensure that the rainwater harvesting system is inspected by an operator in accordance with regulations based on the qualifying Tier. Once per year for Tiers 1-3. Every 90 days for a Tier 4 potable reuse system.

Note: Higher tier uses require disinfection and additional filtration versus lower tiers as a rule of thumb.

PERMITTING

Q1: Is a permit from VDH required for non-potable use rainwater harvesting?

No, VDH does not require a permit for the construction or operation of a non-potable use rainwater harvesting system.

However, VDH can request to see copies of documents such as Operation and Maintenance plans and records.

Once the regulations become effective (target date November 20, 2024), owners of new rainwater harvesting systems intended for Tier 1, 2, or 3 end use shall

- File a registration form with VDH within 30 days of installation of the system
- Notify VDH of the permanent discontinuation of the use of the system such that harvested rainwater is not used for any purpose.

Owners of rainwater harvesting systems already in use prior to November 20, 2024, may also file a registration form voluntarily.

Q2: Will I need a permit for a potable rainwater harvesting system?

Yes, all use of harvested rainwater for human consumption requires a permit from VDH.

If your rainwater harvesting needs will qualify as a waterworks, you will coordinate with the VDH Office of Drinking Water.

The Rainwater Harvesting System Regulations apply to potable water systems that do not meet criteria to be classified as a waterworks. These will primarily be systems for residences. For a private system, potable end use of harvested rainwater is designated as "Tier 4. Potable water end use. Intended for human consumption," and must comply with the Rainwater Harvesting System Regulations.

This includes obtaining both a construction permit to install a system and an operating permit (OP) to operate and maintain the system.

Resources:

<https://www.vdh.virginia.gov/environmental-health/environmental-health-services/rainwater-harvesting/>

<https://www.townhall.virginia.gov/L/ViewXML.cfm?textid=18677>