

# residential on-site stormwater storage structures

ON-SITE STORMWATER STORAGE STRUCTURES can include rain barrels, cisterns, bladders, or other storage devices as approved by the **Northeast Ohio Regional Sewer District (NEORS)**. These structures collect and capture rooftop rainwater that would otherwise drain directly to the stormwater system or streams. The collected stormwater can be used to water plants, trees, or lawns during dry periods.

## rain barrel:

A **rain barrel** is composed of a 40-55 gallon barrel or drum with some type of diverter or connection from a downspout, a spigot or hose to drain the barrel, and some type of overflow mechanism. Any openings to the air should be screened to keep debris and insects out.

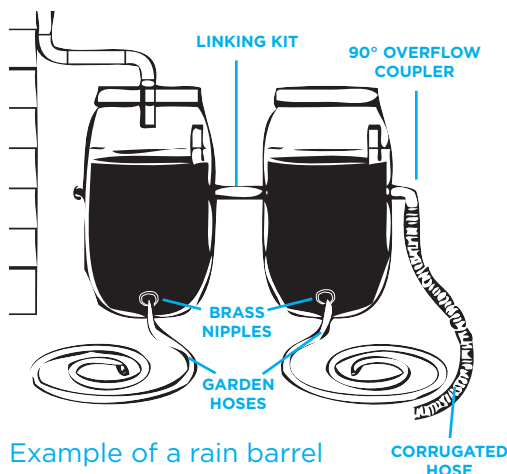
An overflow mechanism must be provided so that when the rain barrel is full, excess water can flow back into the downspout and then to a storm sewer, or into a landscaped area.



Example of a rain barrel with downspout diverter that directs overflow back to the downspout

Saving water not only helps protect the environment it saves money and energy because of the decreased demand for treated tap water. Check with your County Soil and Water Conservation District or local watershed group for instructions on how to make and install a rain barrel.

Rain barrels can also be purchased through several online suppliers. Ensure your rain barrel will meet the requirements on the next page.



Example of a rain barrel with overflow to yard

## rain bladder:

A **rain bladder** is a flexible modular tank designed to be installed into the tightest locations and can be completely hidden from view. They can be installed under the sub-floor of a home, gazebo, and under decking.



Rain bladder

## cistern:

**Cisterns** are similar to rain barrels in function but hold larger quantities of water. They can be installed underground, at ground level, or elevated depending on the site and space constraints of the property.



Cistern

A cistern should be constructed out of reinforced concrete, galvanized steel, or plastic, and should have smooth interior surfaces, be watertight, have enclosed lids and be sized according to the installation standards on the next page to manage the proper amount of runoff.

To obtain an individual residential property credit for on-site stormwater storage  
**CERTAIN STANDARDS AND GUIDELINES MUST BE MET.**

## installation standards:

To obtain an individual residential property credit for on-site stormwater storage the following standards and requirements must be met:

1. 50% of the property's roof area is properly connected to rain barrels or other approved storage devices that provide at least 40 gallons of storage per downspout,  
- or -  
storage structures must be sized to hold the runoff from at least 50% of the property's roof area during a 1-inch rainfall event.

$$V = \frac{1}{2} \times A \times 0.6225 \text{ gallons/foot}^2$$

Where:

V = volume of storage structure in gallons

A = total surface area of roof in square feet

0.6225 = conversion factor (gallons per cubic foot per inch of rain)

### Example

A 500-gallon cistern would provide runoff storage from a 1,600-square-foot rooftop for a one-inch rainfall.

$$A = 1,600 \text{ square feet}$$

$$\frac{1}{2} \times 1,600 \times 0.6225 = 498 \text{ gallons}$$

2. On-site stormwater storage must be completed in such a way that does not provide mosquito breeding grounds, such as making sure rain barrels are covered with a lid or screen that prevents mosquitoes from entering the storage structure.
3. On-site stormwater storage must be equipped with an overflow or bypass mechanism to divert rainwater to the storm drainage systems when storage structure is full. These mechanisms must not cause erosion, property damage or overflow onto a neighboring property.
4. On-site stormwater storage must be completely drained in no less than 24 hours and no longer than 4 days after each rainfall event.
5. All on-site stormwater storage structures must meet the requirements of member community building and zoning codes for downspout disconnection, landscaping, property setbacks, and other applicable local codes.

## maintenance guidelines:

1. Clean your gutters regularly to reduce debris.
2. Clear off any screens as necessary.
3. Periodically check any hoses associated with the storage structure to clear any debris.
4. To winterize, disconnect and return the downspout to its original configuration. Remove the hoses and mesh screen and store them. Make sure to drain the container to prevent it from freezing and cracking. If possible, store it upside down, so no water or materials will be able to enter.
5. For cisterns, leave the outflow spigot fully open during frost/freezing periods and unhook the drain hose about twice a year to clean out any compacted sediment.

## where to get a rain barrel:

You can purchase a rain barrel at most major lawn and garden centers. Call your local center to see if they carry them or if they can order one for you. There are numerous online suppliers as well.

You can also make your own rain barrel using a large trashcan, agricultural supply container, or other large container and a little ingenuity.

For further recommendations, talk to your local Soil and Water Conservation District or watershed group (see back page).