Rain Barrels Part III: Building a Rain Barrel from a Plastic Trash Can

Fact Sheet FS1127

Cooperative Extension

Cara Muscio, Marine Extension Agent, Monmouth, Ocean, and Atlantic Counties
Richard Mohr, Natural Resource Extension Agent, Ocean County

Using a rain barrel can help conserve water and reduce stormwater in your home landscape. When connected to a downspout, the barrel receives water from the roof and stores it for later usage. Rain barrels are made in various sizes and materials and can be purchased in home improvement or gardening stores. A rain barrel can also be constructed easily and economically from a 30-50 gallon plastic/ rubber trash bin.



A rain barrel of this size (30-50 gallons) will only hold a fraction of the amount of water coming off your roof. For example, an inch of rain over 1000 square feet of roof will yield over 600 gallons of water. To accurately estimate the amount of water your barrel will receive, this number needs to be adjusted to match the square footage of your particular building, as well as the number of downspouts that drain the roof. In addition, realize that the average daily rainfall in coastal New Jersey is closer to a tenth of an inch, though larger totals are common during heavier storms (NOAA 2010).

The following materials will be needed to construct the rain barrel:

Hardware	Tools and Reusable Materials
30-50 gallon trash can	Drill
1/2" quarter turn hose bib	3/4" hole saw (or spade drill bit)
3/4" x 1/2" male garden hose to FIP adapter	Measuring tape
2 - 1/2" PVC male adapters	Razor/box knife
2.5 x 2.5 ft of window screen	Adjustable wrench
Flexible downspout extension	Ratchet set (7/8 inch socket)
Cinder blocks, pavers, or stand	Teflon plumbers tape
5 feet of garden hose	Waterproof silicone sealant (clear)
	Hacksaw

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New Jersey Agricultural Experiment Station

Rutgers, The State University of New Jersey
88 Lipman Drive, New Brunswick, NJ 08901-8525
Phone: 732.932.5000

Note that the size of the spigots and adapters is a matter of choice, and the crucial measurement is that the fittings have a matching sized adapter. The parts listed (Figure 1), were chosen for ease of construction, and specifically to end in standard garden hose sized fittings.



Figure 1. Rain barrel hardware (clockwise from top): a hose bib, two PVC male adapters, and a male garden hose adapter on a square of window screen.

Barrel Construction

Barrel Construction occurs in three major parts: the barrel outflow (A), the barrel overflow (B), and the barrel inflow (C) (Figure 2). Each of the three construction elements is described below.

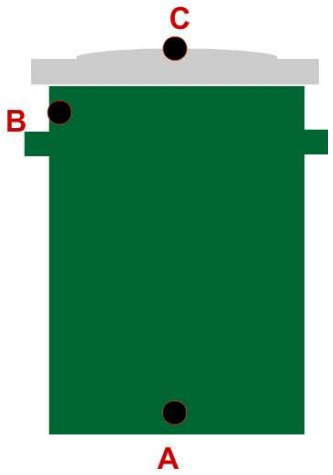


Figure 2. Diagram showing three separate rain barrel construction phases.

A. The Barrel Outflow

1. Measure an inch or so up from the bottom of the barrel and use the drill and hole saw or a box knife to make a small hole in the barrel. This is where the hose bib will be installed, so take care not to make the hole larger than the diameter of the bib.
2. Wrap both of the PVC adapters with Teflon plumbers tape in the direction of the threads.
3. Screw the adapter into the hole you made in the container, with the threads facing out of the barrel. Screw the hose bib onto the adapter from the outside.
4. Seal at the outside barrel surface with silicone sealant. Allow to dry per product directions.

B. The Barrel Overflow

5. After thinking about where you will place the finished barrel, select an area on the side or rear of the barrel for the overflow adapter. Drill a hole a few inches from the top of the barrel, in the area of your choosing.
6. Screw the second male PVC adapter into the overflow hole in the container, and screw the matching garden hose adapter on to it from the outside of the barrel.
7. Seal this connection with silicone seal on the outside of the barrel and let dry.
8. Attach a garden hose to the overflow adapter at a length that will reach the ground and not cause erosion as water flows out of the tube.

   You may consider attaching this overflow tube into a neighboring rain barrel. In this way, some of the water that exceeds the capacity of the first rain barrel can be captured.

C. The Barrel Inflow

9. Using the box knife, cut a hole in the lid of the container for the downspout adapter. You may choose to cut out a small downspout-sized hole or the majority of the lid (Figure 3).
10. Lay the window screen over the top of the trash can, and secure in place with the lid. You may trim the excess screen down for aesthetic purposes.

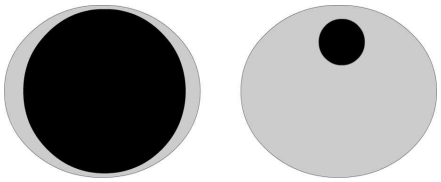


Figure 3. Two lid designs for trash can rain barrel On the left, the majority of the lid is cut off to expose a greater screened area while the right lid only has a small opening for the downspout.



An example of a rain barrel filled with water. Rain barrels should always be covered with a lid and screen to prevent mosquito infestation.

Installing the Barrel

1. Elevate the barrel on concrete blocks or a stand to help increase water flow, and ensure enough space beneath the spigot. Make sure the base is stable–every gallon of water weighs nearly 8.5 pounds.
2. Cut your downspout with a hacksaw to within six inches of the downspout hole in the top of the container. Save this piece for winterizing.
3. Attach a flexible downspout adapter to the downspout and direct into the opening in the top of the rain barrel container.
4. Ensure the window screen is attached under the lid to keep out mosquitoes.
5. Ensure that the spigot is closed, and begin storing water for your landscape.
6. Winterize your barrel by emptying and storing, and reattach the cut downspout via the plastic downspout adapter.

Notes when using rain barrels for landscaping

- You may have difficulty getting water out of your rain barrel, particularly if it is not very full. To assist in this, raise the barrel up higher so gravity will assist in water flow. Also, there is typically not enough pressure in a rain barrel to drive a commercial soaker hose. A modified soaker hose can be created by making sparse punctures of gradually increasing size in an old piece of garden hose.
- If the window screen is functioning properly, few leaves and debris should enter the rain barrel. In our tests, mosquitoes were not an issue in the barrel, however, there are commercial mosquito dunks that can be purchased if this becomes a concern.

For more information, please see the Rutgers Cooperative Extension publications E329 njaes.rutgers.edu/pubs/publication.asp?pid=E329 and FS1118 njaes.rutgers.edu/pubs/publication.asp?pid=FS1118 on rain barrels, and the Sustainable Landscapes website at ocean.rcre.rutgers.edu/ag/SustainableLandscape.html

References

NOAA. (2010) National Weather Service Forecast Office, NOAA online weather data: Daily/monthly normals (Atlantic City Airport). Accessed at www.weather.gov/climate/xmacis.php?wfo=phi on June 2, 2010.

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