

# Green Infrastructure Project

# Rain Barrel

## Need free water?

A rain barrel is used to collect rain water. A simple rain barrel can be constructed for minimal costs using materials found at most hardware stores. A rain barrel is an easy way to help the environment and save you money.



**Fairbanks  
Green  
Infrastructure Group**

The average residential roof generates about 30,000 gallons of rainfall every year. Using rain barrels to temporarily store and reuse rainwater can conserve drinking water by providing an alternative water source for gardens. Rain barrels can also reduce both the water use charge and corresponding sewer charge on your city utility bill. Rain runoff from your roof may flow into a storm drain. Collecting this water can protect the quality of our streams and groundwater.

**Caution:** Water collected in rain barrels is coming off a roof, into gutters and downspouts. It is not considered to be “drinkable” or potable water. **IT IS NOT SAFE TO DRINK.** Rain barrel water is fine if used to water non-edible plants such as flowers or lawns. It should not be used to water vegetables. Even water from a metal or plastic roof can contain bacteria from birds or other animals.

### Cold Climate Considerations:

The rain barrel must be disconnected from the downspout in the fall to prevent ice dams from forming in the gutters. If you have concerns about mosquito breeding in your rain barrel, be sure that your screen is small enough not to allow adult mosquitoes into the barrel. If this is not possible, add some kitchen oil to coat the surface of the water which will prevent egg deposition and/or larval development.

### Other Considerations:

Install your rain barrel based on where you will use the water in your yard. The rain barrel should be located at the base of one of the downspouts draining from your roof gutter. All rainwater collection systems should have an overflow to a safe disposal location. Even if you have multiple rain barrels, you should have an overflow system.

### Cost Estimate:

- Pre-made: \$80 - \$200
- Homemade: \$70 - \$200

### Time Estimate:

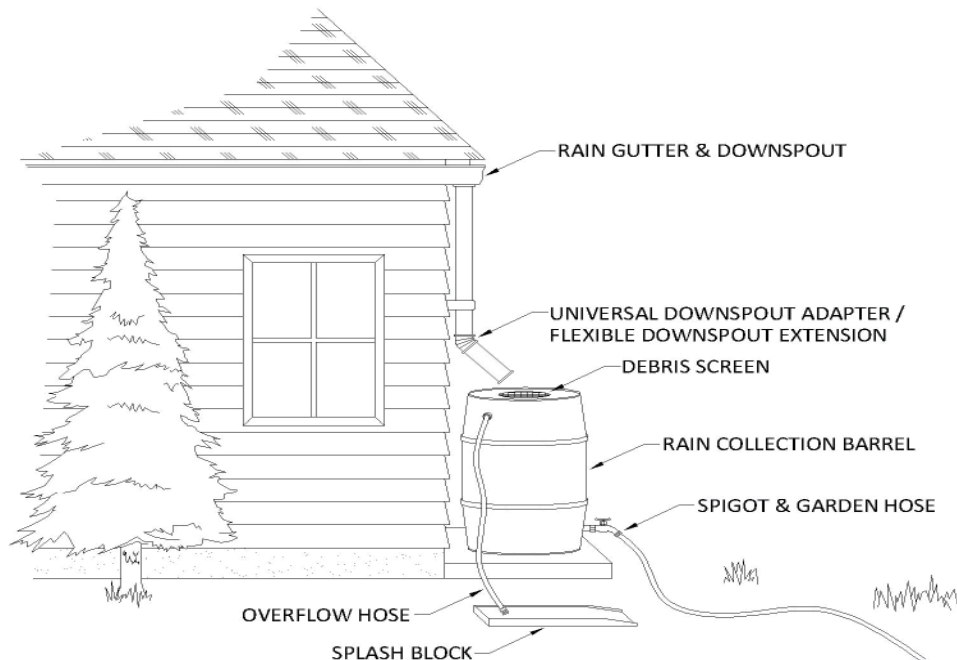
- The project will take about one to two days.

### Pros:

- Reduces water runoff
- Increases groundwater infiltration
- Minimal maintenance required
- Requires limited space
- Collects rainwater for gray water uses

### Cons:

- Freezing water can cause pipe blockage and deformation of the barrel.



# Constructing Your Own Rain Barrel

## Materials:

- New 30+ gallon plastic garbage can with lid
- Hose spigot with  $\frac{3}{4}$  inch threaded inlet and  $\frac{3}{4}$  inch male hose end
- Two  $\frac{3}{4}$  inch galvanized locknuts to secure hose spigot from the inside of the barrel
- Four 1 inch (opening) metal washers to provide rigid surface to fasten hose spigot
- $\frac{3}{4}$ " garden hose or tubing, 4-5 feet long (for overflow hose)
- Silicone adhesive or outdoor caulking
- Teflon tape
- Two  $\frac{3}{4}$ " bulkhead fittings with gaskets
- $\frac{1}{4}$ " #6 sheet metal screws (for downspout)
- 2 8x8x12" Concrete or wooden blocks
- Wire screen mesh (enough to cover barrel opening)
- Universal downspout adapter or flexible downspout extension or gutter elbow
- Garden hose (length as desired)
- Splash Block
- 24" Bungie Cord (to secure lid)
- Heat Tape (optional)

## Tools:

- Drill
- 1" hole saw
- Small drill bit
- Heavy duty scissors or tin snips
- Utility Knife
- Hacksaw, to redirect gutter to rain barrel
- Tape measure
- Screwdriver or nutdriver
- Adjustable wrench
- Channel lock pliers or crimpers
- Caulk Gun (if using caulk)



## Hose Spigots



## Bulkhead Fitting with Gasket



## 1" Metal Washer



## 1" Hole Saw

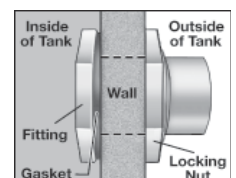


## Downspout Adapters



## Steps:

1. You can calculate the amount of water you can expect to collect using the size of your roof and the average rainfall for Fairbanks. Fairbanks averages about 1.3 inches of rain each month from May to September. This will help you determine how many barrels you will want to install. A rain barrel calculator is available at: <http://www.rainbarrelguide.com/how-much-water-can-you-collect-in-rain-barrels-during-a-rainfall/>.
2. Level the soil at your site and use the concrete blocks to create a stable platform for the rain barrel.
3. Make an opening at least twice the size of your downspout in the top of the barrel for the incoming water.
4. Attach the wire screen mesh to the hole on top of the barrel to keep debris out.
5. With the 1" Hole Saw, drill a one-inch hole within four inches of the bottom of the barrel.
6. Attach the bulkhead fitting:
  - a. Separate the two parts of the bulkhead fitting, leaving the gasket on the body and put the locknut part aside.
  - b. Wrap Teflon tape around the threads of the bulkhead fitting, smooth into the threads.
  - c. Insert the body through the hole in the tank from the inside, trapping the gasket between the tank wall and the bulkhead fitting.
  - d. From the outside of the barrel, screw the locknut back onto the body over the Teflon tape.



## Steps Continued:

7. Attach the hose spigot to the bulkhead fitting.
8. Modify the downspout so that it directs water into the barrel:
  - a. Measure how tall your rain barrel is going to be including the height of the platform and up to five extra inches
  - b. Use a hacksaw to cut the downspout at the appropriate height.
  - c. Attach the universal downspout adapter or flexible down spout extension using the small sheet metal screws
  - d. Place the rain barrel under the downspout so the water will flow into it.
9. Install waterproof heat tape in downspout and barrel (optional but recommended to keep ice dams from forming).
10. Set up the overflow system:
  - a. Drill a hole within three inches of the top of the barrel.
  - b. Insert the plastic hose/tubing into the hole and glue into place with rubber cement or caulking.
  - c. Direct the overflow hose to the splash block, or to a suitable runoff area, or to another rainbarrel.

## Maintenance:

- Wash out rainbarrel and check washers for integrity every spring.
- Clean off the wire screen periodically throughout the growing season.
- Clean gutters once a year to keep them clear.
- Empty the barrel and reposition the downspout before the first freeze in the fall.
- Clean algae buildup yearly.

For more information about this and other Green Infrastructure Projects please visit:

**[www.fairbanksgig.com](http://www.fairbanksgig.com)**

## Sources:

Aquabarrel Kits

[www.aquabarrel.com](http://www.aquabarrel.com)

City of Portland, Oregon, Rain Barrel Plans

[www.portlandonline.com/bes/index.cfm?a=182095&c=50367](http://www.portlandonline.com/bes/index.cfm?a=182095&c=50367)

Healthy Landscapes

[www.uri.edu/ce/healthylandscapes/rainbsources.html](http://www.uri.edu/ce/healthylandscapes/rainbsources.html)

*Rain Barrel Guide* is a website with many articles on rainwater harvesting.

[www.rainbarrelguide.com](http://www.rainbarrelguide.com)

Rain Garden Networks

[www.raingardennetwork.com/rainbarrels.htm](http://www.raingardennetwork.com/rainbarrels.htm)

Whatcom County, Bellingham, Washington, Rain Barrel Factsheet

<http://whatcom.wsu.edu/ag/compost/rainbarrel.htm>

