

1 observe your site



To determine if a rain barrel is right for your property, the first step is to identify your sites drainage conditions. Answer the questions below as you walk around your property.

Where does the runoff from your roof area go now?

Sketch a site plan. You can print an aerial view of your property from PortlandMaps.com as a starting point. Mark the locations of downspouts and roof lines, estimate the square footage of your roof and paved areas, and map where all these areas drain.

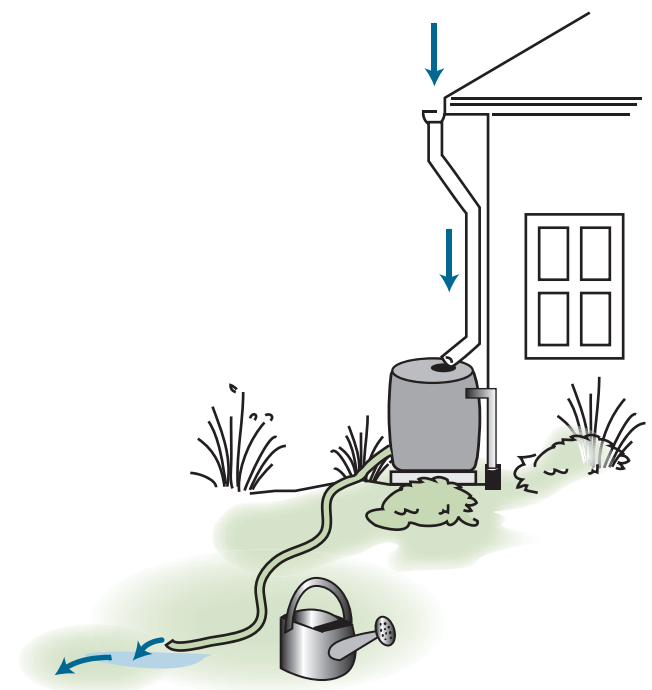
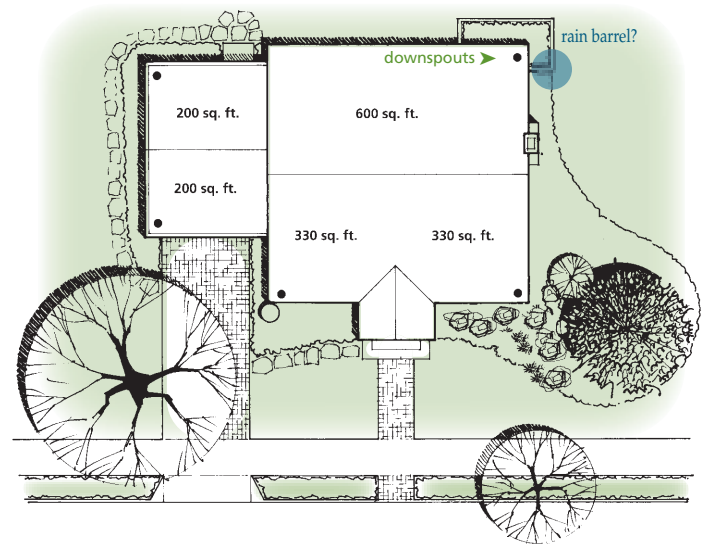
Where would you like to locate your rain barrel?

Install your rain barrel based on where you will use the water in your yard. Keep in mind that it may be possible to rehang the gutter and move the downspout to a more desirable location. The rain barrel must be located at the base of one of the downspouts draining your roof gutter. This is the downspout you will work with.

Where does that downspout currently drain?

The downspout you will divert to your rain barrel probably drains into a standpipe or to your yard. This is the stormwater *discharge* point and is the same location where the rain barrel should overflow to.. If you wish to change your stormwater discharge point, please refer to step 2.

example site plan: locate existing downspouts



2 plan your rain barrel

Rainwater collection for residential, external, non-potable uses such as irrigation, do not require a city permit, but there are still design considerations to follow.

Overflow

All rainwater collection systems must have an overflow to a safe disposal location. The average residential roof generates about 30,000 gallons of rainfall runoff every year, and an average 55 gallon rain barrel captures only a fraction of that. Even if you have multiple rain barrels, you must have an overflow to a safe discharge location.

If your rain barrel overflows into the standpipe, be sure the overflow pipe is attached and sealed to the standpipe opening.

If the downspout to be connected to your rain barrel currently drains to a surface infiltration area in your yard, the overflow from your rain barrel should also discharge to that location.

If the downspout currently drains to a standpipe and you wish to change your overflow disposal to surface infiltration in your yard, you must meet the safety guidelines detailed in *How to Manage Stormwater- Downspout Disconnection* or the *How to Manage Stormwater- Rain Gardens* guide (see Resources section of this document).

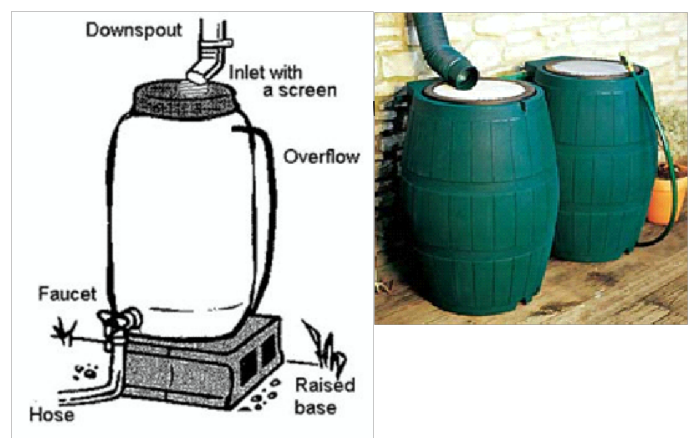
Safety Considerations

- Your rain barrel must be secured on a firm, level surface. A full 55-gallon rain barrel weighs over 400 lbs. and tipping is a risk if it's unsecured or on uneven ground.
- The barrel must be structurally sound and should be a food-grade container made to hold liquid. Containers such as trash cans are not designed to withstand the pressure of the water.

- The barrel must have a lid and a sturdy fine mesh covering all openings to prevent mosquitoes and debris from getting inside.
- The water from the rain barrel should **never** be used for drinking, cooking or other potable uses.
- Your rain barrel must have an overflow to a safe discharge point.
- If you use a moss-control product on your roof, be sure to use a product that is garden-safe.

Larger or more complex systems

More complex rainwater collection systems have a much larger storage container (a cistern), and/or use pumps to move water to desired locations. Some use their captured rain water indoors for toilet flushing. These projects involve factors not applicable to simple rain barrels, such as plumbing and electrical work, soil excavation, or concrete foundations and other structural components. For rainwater collection projects of this scale, you should consult a professional to review design, construction, and safety considerations.



3 construction

Many nurseries and yard supply stores sell fully assembled rain barrels, but you can get an unmodified barrel and convert it into a rain barrel yourself. Assemble your tools and supplies then follow the construction steps illustrated on the following page.



Tools

If you build your own rain barrel:

- drill
- inch hole saw for overflow pipe
- one-inch spade bit for spigot
- tin snips or heavy-duty scissors for cutting screen
- adjustable wrench
- utility knife
- safety glasses

To disconnect your downspout to your rain barrel:

- hacksaw
- drill
- tape measure
- screwdriver or nut driver
- pliers or crimpers



Materials

- One 55 to 90-gallon food grade plastic barrel (can be found online or at local restaurant suppliers, nurseries, or gardening supply stores)

Find the following items at most plumbing or hardware stores:

- hose spigot with 3/4 inch threaded inlet and 3/4 inch male hose end
- two 3/4 inch galvanized locknuts to secure spigot from the inside of the barrel
- four 1-inch (opening) washers to provide rigid surface to fasten hose bib
- Teflon tape
- silicon adhesive or outdoor caulking
- two 8" x 8" x 12" concrete or wooden blocks
- window screen mesh (enough to cover the barrel opening)
- downspout elbow to route the downspout to the barrel
- clincher strap (attaches downspout and barrel to house)
- small pieces of wood blocking to use behind clincher strap (if necessary)
- any additional materials necessary for the overflow location
- 1/4" #6 sheet metal screws for downspout
- 3/4" screws for clincher strap
- 2" overflow pipe fittings

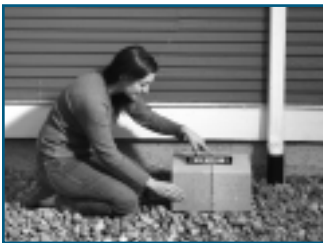
Construction in 6 Easy Steps



- 1 Inlet:** Create an opening with fine screening through which the rain barrel will collect water from the downspout elbow. This can be a single screened opening large enough to accommodate the downspout elbow (as shown in the photo), or a series of smaller screened openings directly in the top of the barrel.



- 2 Overflow:** Drill a hole near the top of the barrel to accommodate an overflow pipe that is at least 2 inches in diameter. If the overflow pipe elbow seals and seats securely, it can be threaded directly into the barrel opening. If not, it should be secured with washers on both sides of the barrel and a nut on the inside. Use Teflon tape around the threads and a bead of silicon caulking around the opening to ensure a tight seal.



- 3 Foundation:** Create a raised, stable, level base (like concrete blocks) for the rain barrel to sit on. You might want to test stability by filling the rain barrel with water before attaching to your structure. A full rain barrel is very heavy and tipping is a risk if it's unsecured or on an uneven surface.



- 4 Downspout:** Cut the downspout with a hacksaw so that the elbow will sit just above the rain barrel inlet. Attach the elbow over the downspout with a screw and secure the downspout to the house with the strap.

Attach Barrel: Set up the barrel beneath the elbow and secure the barrel to the house with a strap. Cut and attach the overflow pipe to the overflow elbow and direct to the existing discharge location.



- 5 Outlet:** Drill a hole near the bottom of the empty barrel to attach the drain spigot. If the spigot seals and seats securely, it can be threaded directly into the barrel opening. If not, it should be secured with washers on both sides of the barrel and a nut on the inside. Use Teflon tape around the threads and a bead of silicon caulking around the opening to ensure a tight seal.



- 6 Use:** After a rainfall, fill a watering can using the bottom spigot or attach a hose to use the water where it's needed.

4 maintenance

Simple maintenance of your stormwater system can prevent problems.

- Clean gutters at least twice a year, more often if you have trees.
- Make sure gutters are tilted to direct water to downspouts and fix low spots or sagging areas along the gutter line with spikes or place new hangers as needed.
- Make sure roof flashing directs water into the gutter.
- Make sure all parts are securely fastened together and the rain barrel is securely fastened to the building.
- Clean out the rain barrel and check for leaks at least once a year. Check and clear downspout elbows, rain barrel screening, and overflow to prevent clogging. Caulk any gutter, downspout, barrel, and overflow leaks and holes.
- Make sure the rain barrel remains securely screened to prevent mosquito entry.
- If overflow is to a surface infiltration area, monitor the overflow area and regrade soil if necessary to make sure water drains away from structures and does not flow onto pavement, sidewalks, or neighboring properties.

