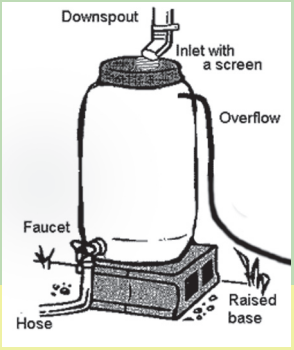
HOW TO MAKE A RAIN BARREL

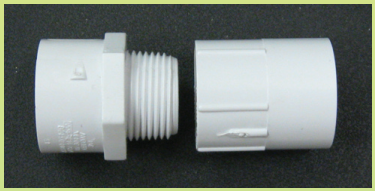
There are many different types, sizes, and styles of rain barrels, and even more possibilities for plumbing combinations. You may even have some parts on hand that will help get the job done, or visit your local hardware store for some help selecting the right parts.

There are a few vital components and assembly methods. Follow the guidance below, and with the assistance of someone from the plumbing aisle, you'll be in business!

HAVE FUN!
BE INNOVATIVE!



Plumbing connections: All connections to the barrel should be threaded (male threads), wrapped in teflon tape and/or coated in silicone or similar sealant, and screwed tight to the barrel. Adding a washer or rubber gasket will provide extra seal/leak protection. On the inside of the barrel, a tank fitting or other open-ended part with female threads should be attached to help hold the fittings tight to the barrel to prevent leaks.



¾" MALE ADAPTER (screws into the outside of the barrel) and ¾" FEMALE ADAPTER (screws onto threads from the inside of the barrel)

VERY IMPORTANT NOTES:

- Allow silicone or sealant to fully dry (at least 24 hrs) before connecting other parts or hoses, and before connecting your barrels to the downspout.
- Typically, fittings are ¾" PVC (plastic). Brass fittings will hold up better over time, but are more expensive and may be more difficult to find.
- Overflow fittings may need to be larger in diameter if you're collecting a large roof area into a single barrel, or simply divert the downspout once the barrel is full.
- Drill holes with a spade bit the same outer diameter as the part you're installing. For example, ¾" parts, have a 1" outer diameter,

Cover all openings: To prevent mosquitoes from getting into the barrel and breeding, cover all openings with window screen mesh.

EVERY BARREL SETUP NEEDS:

1. **Inlet** on the top of the barrel. The style of inlet will depend on the type of barrel you buy; it may have a fully open top, which will need to be covered with screen or 1/4 inch mesh to keep debris and mosquitoes out. If the barrel has a top, you will need to cut a hole large enough to accommodate the downspout or downspout extender.

2. **A Secure Lid** or tightly covered opening to keep animals and children from falling in.
3. **Overflow spigot or hose adapter** should be near the top of the barrel for when it is full. Use parts you can connect to a hose so you can route the excess water away from your home's foundation.

4. **Base** – the surface you place your rain barrel(s) on should be level and should raise the barrels up enough to get a watering can underneath the spigot. The base should be sturdy enough to hold the weight of a full barrel (over 400 pounds!). Cinderblocks work well.

5. **Spigot** (typically brass) near the bottom of the barrel, with possibility for hose connection.
6. **Downspout extender or elbow** – depending on the height of the roof, barrels, and length of gutter you are adapting, you may need a downspout extender (flexible plastic piece that attaches to the gutter) or a 45° elbow to direct flow to the inlet. OPTIONAL, but recommended, is a leaf guard or screen in the gutter above the downspout to keep leaves and debris from clogging the inlet.

CONNECTING MULTIPLE BARRELS

If you choose to connect more than one barrel, it is most efficient to connect them at the bottom so that they fill and drain simultaneously, as a system. If you connect them at the top, you'll need a spigot on each barrel to get the water out of all of them.

2 barrels – fittings similar to those used for the overflow can inserted into the sides of each barrel and then connected with a short, flexible hose or tubing secured with hose clamps. A hot water heater hose could also be used to connect two barrels. The inlet should be on one barrel and the overflow on the 2nd.

3 or more barrels – To simplify and reduce the number of holes drilled, the connections should be on the front of each barrel. The barrel on the end will have a 90° elbow with a hose barb, the other barrel(s) will have a "tee" fitting with hose barbs to connect short, flexible hoses between each barrel. The inlet should be on one end of the line, and the overflow should be on the other end of the line.

Note: Hose clamps will help hold the hose ends tight to the fittings to prevent leaks.

MAINTAINING YOUR RAIN BARREL OR CISTERN

1. **Rinse your barrel** at the end of each season. During the rainy season, small debris and sediment will slip through the holes in the screen or mesh and settle to the bottom of your barrel. Give it a good rinse and scrub off any algae growth at the end of each summer.
2. **Monitor the system regularly** to ensure intakes and overflows are not blocked with leaves and other debris from the roof.
3. **Check your roof and gutters often.** Remove any leaves, branches, dirt or other litter.
4. **Trim or remove any plant materials** that overhang your house - animals often use these to access your roof and gutters. This will also reduce the leaves and litter clogging your gutters.
5. **Check your barrel or cistern and its cover.** Make sure the cover is secure and does not allow animals to fall, creep, crawl or jump in.
6. **Prevent ice damage** – If a long, cold spell (below 32° for several consecutive days) is predicted, it is recommended you drain your barrels and disconnect them from the downspout to avoid any damage from freezing. Once the cold snap is over, reconnect your barrels and they'll be refilled in no time!

RAIN WATER COLLECTION RESOURCES

American Rainwater Catchment Systems Association
News and information and examples of rainwater collection systems. Web site has a business directory with links to local suppliers, etc. *www.arcsa-usa.org*

Local Feed and Hardware Stores and Co-ops
More and more stores are carrying rain barrels, ready to connect, and can often order larger tanks and cisterns.

The Tank Depot - *www.tank-depot.com*

Search on **Craigslist:** *http://seattle.craigslist.org/* (key words; rain barrel or food grade barrels)

PremierPlastics.com
Distributors of light weight, high strength, and corrosion free polyethylene storage tanks for drinking water, rain water, chemicals and septic systems.

Plastic-mart.com
One-stop shopping site for all types of molded plastic storage and transportation containers, including custom sizing and design.

Your Local Conservation District
Provides free technical assistance to landowners, including calculations and rainwater collection system design. Find yours at *http://tinyurl.com/LocalCD*

WHY COLLECT RAINWATER?

Conserve drinking water

Residential irrigation and other outdoor uses can account for as much as 40% of water consumption.

Water conservation measures, such as collecting rainwater and more efficient watering practices, reduces the demand on your personal well or municipal and community water system. Other ways to reduce your yard's water consumption are to use native and other drought-tolerant plants and limit the amount of space devoted to thirsty lawns.

Reduce stormwater runoff

By collecting and storing rainwater for later use, you reduce storm-water runoff from your roof. Stormwater runoff can pick up harmful pollutants and carry them to your local stream and Puget Sound.

Better for plants

Rainwater is un-treated, oxygenated, pH neutral, and naturally free of chemicals. Your plants will love it!

Save money!

Rainwater is FREE, minus some one-time set up costs for your collection system. It saves money on utility bills and may conserve energy/electricity you may be using to pump well water.

Look inside *for answers about:*

- **HOW MUCH CAN I COLLECT?** Rain barrels vs. cisterns
- **USING YOUR COLLECTED RAINWATER** How clean is the water?
- **HEALTH & SAFETY TIPS**

So Many Options!!

Questions or need more information?

Contact your local Conservation District

http://tinyurl.com/LocalCD

EVERETT

PSEP Puget Sound Conservation Districts

RAIN-WATER

Use it *or* Lose it!

Rainwater is a valuable (and FREE) resource – collecting it for summer watering is a great way to save money, conserve water, and have healthy plants!

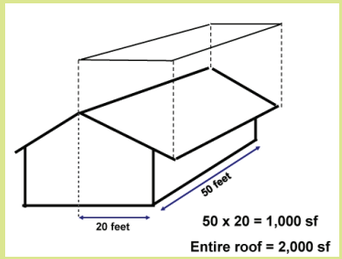
HOW MUCH RAINWATER CAN I COLLECT?

The amount of rainwater you can collect depends on your storage capacity and your roof area.

How to calculate your rainwater collection volume:

Measure square feet (sf) of catchment area

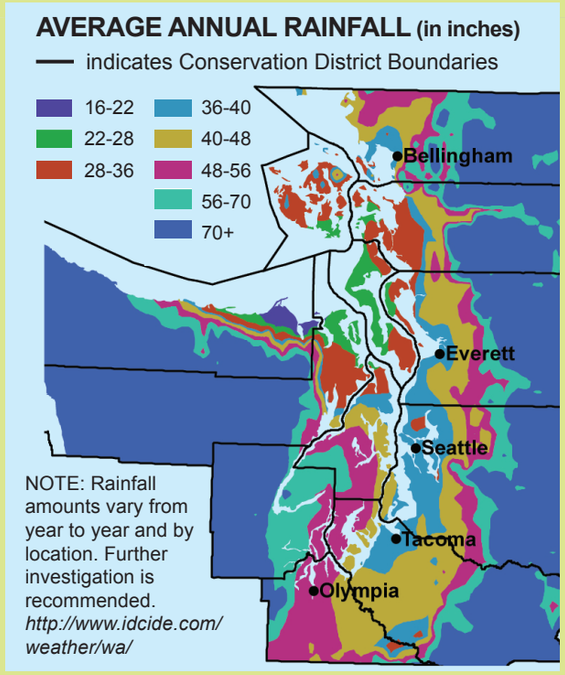
Length x width of contributing roof area = sf of catchment area. (Note: don't take into account the pitch, or slant of your roof, but do be sure to only include the portion of your roof emptying into rain barrels.)



Plug your catchment total square feet (sf) into the formula below.

Square feet (sf) of catchment area x efficiency (0.8 for composite roofing) OR (0.9 for metal) x rainfall in feet (inches/12) x 7.48 conversion factor = gallons of rainwater available annually

Example: 1200 x 0.8 x 2.5 ft. x 7.48 = 17,952 gallons



NOTE: Rainfall amounts vary from year to year and by location. Further investigation is recommended. *http://www.idcide.com/weather/wa/*

Rain Barrels vs. Cisterns

Cisterns can be above ground or below ground and typically hold hundreds of gallons of water. Rain barrels are located above ground, hold less water and are not considered permanent structures. Both may require a pumping system.

Think about all the things you use water for in the summer and how much you could replace with collected rainwater.

This (and your budget, of course) will help you determine how many barrels you will need, or if a cistern would be a better option. Rain barrels and cisterns can be purchased for as low as $0.50/gallon of capacity (i.e. a 1,500 gallon cistern costs about $750).

Cisterns allow you to capture the THOUSANDS of gallons of water running off your roof annually!

SETTING UP YOUR COLLECTION SYSTEM

- Tightly cover any barrels or cisterns to keep debris, animals, and children from falling in.
- Locate rain barrels or the cistern as close to where you plan to use them as possible.
- Put gravity to work for you! Raise barrels up on cinder blocks. This will also help with hose and bucket access to the spigot. Locate the cistern at the highest possible point of your yard so you'll have as much downhill flow as possible.
- Irrigation, such as a drip system or soaker hose, can be used but may require a pump because gravity alone may not provide enough pressure.
- Collected rainwater could be beneficially re-used for some non-potable indoor uses, such as cold water clothes washing and toilet flushing. Contact your local county, town, or city jurisdiction to find out if it is permitted in your area.

Do Not Drink Collected Rainwater

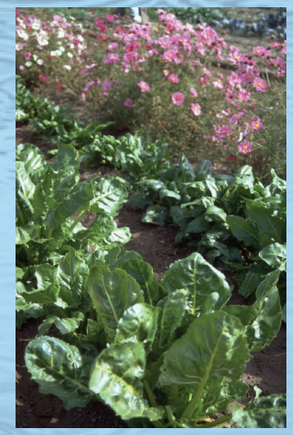
Rainwater is great for plants, but not for drinking.

Many wood (cedar) and some asphalt shingles are treated against rot, which may make them toxic. Avoid using any roof runoff from a treated roof for vegetable watering purposes.

Moss-killing methods, from zinc strips to zinc or copper-based moss killer and copper gutters can leach into roof runoff. If you use any of these moss-killing methods, roof runoff should not be used on your plants.

Watering Your Vegetable Garden

Rainwater is great for watering trees, lawns and flowers. However, if you are using this water on your vegetable garden, exercise caution. Use it with drip, furrow, or trickle irrigation, and do not use it for overhead irrigation, particularly with leafy greens. Read "How clean is the water?" to better understand when your rainwater might pose a special risk to vegetable gardening. Always thoroughly wash vegetables with fresh tap water before consuming.



Regular soil testing is recommended where edible plants are irrigated with collected rainwater. To further reduce the risk of contamination, you can divert the "First Flush." The "first flush," or first few minutes of a rain storm, can be diverted away from your collection system. Most literature cites 5-10 gallons of water per 1,000 square feet of roof area should be diverted. This can be accomplished through a manual valve that you open and close, or a diverter tank or receptacle that is plumbed into the line from the downspout prior to the tank or barrel. Diverting the first flush is especially important if a moss removal or other treatment was recently applied to the roof.

HEALTH & SAFETY TIPS

THERE ARE SEVERAL RULES OF THUMB WHEN IT COMES TO RAINWATER COLLECTION:

- **Permits & Modifications** - The size and cmplexity of your system may require a building or plumbing permit or modification approval from your local city, town or county. For example:
  - Above-ground cisterns 5,000 gallons or larger
  - Irrigation systems or excessive pipe runs

  Electrical permits may be required for pump systems connected to a 110 volt system. Contact Labor & Industries at http://tinyurl.com/LOCALLNI.

- **DO NOT drink rainwater** - County Health Departments agree that collected rainwater is not fit for human consumption and should be used only for non-potable uses such as:
  1. Irrigation – lawn and garden
  2. Car washing
  3. Power washing
  4. General non-potable outdoor usage
  5. House plants

- **Secure the barrel(s) to the house** - When full, a 50 gallon rain barrel can weigh well over 400 pounds. Be sure the barrels are sitting on top of a strong, safe base, like cinder blocks, and strap the barrels to the house with metal straps screwed to studs (not just siding), similar to what you do to make your hot water heater earthquake-proof.

- **Always direct the overflow runoff away from your house foundation!** Use a splash block under the overflow pipe or hose, or route it to a vegetated area.

- **Be sure to use window screening** at all openings to prevent mosquitoes from getting in and out.