

Making a Rain Barrel



Presentation prepared
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The water from a rain barrel is nonpotable (not drinkable), but it has several practical uses such as:

Hand watering plants

Watering plants with drip irrigation

Watering pets

Filling bird baths or providing water to other wildlife

Water features

Constructing a Rain Barrel

The first step: find the right container. There are several kinds to choose from. The best container is a 20- to 50-gallon barrel made of recycled, food-grade plastic. If it is food-grade you can be sure that it is strong enough to hold water and it has never contained harmful chemicals. The barrel must be opaque to keep out light (usually blue or black plastic, though it can also be painted). Barrels have various shapes and types of lids. They can have sealed lids with only small openings or completely removable lids.

Materials needed

1. Barrel - This one has a sealed lid.
2. $\frac{3}{4}$ -inch outdoor hose bib faucet
3. 8-inch round piece of window screen
4. Tube of clear silicone sealer or similar adhesive
5. Overflow pipe
6. 2-inch PVC male adapter
7. 2-inch electric conduit nut 2-inch PVC street elbow



55 gal Barrel with a sealed lid.



$\frac{3}{4}$ -inch hose bib



2-inch PVC male adapter and electrical nut



Caulking gun and sealant



2-inch PVC street elbow

Hose Bib Faucet



Caulking/Adhesive use a good grade and make sure it is waterproof

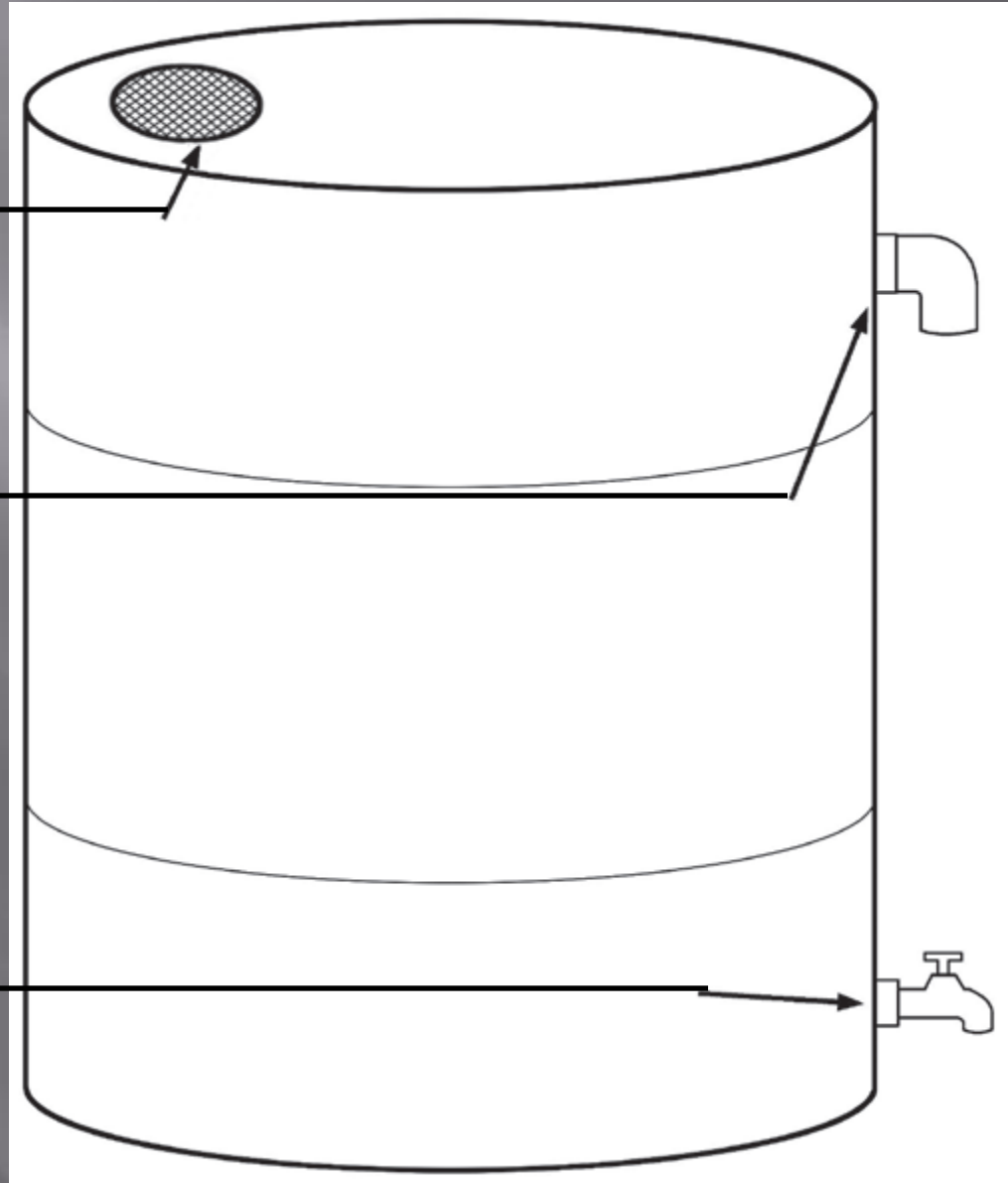


Diagram of Rain Barrel components

Inlet with Screening

Overflow

**Hose bib faucet
(outlet)**



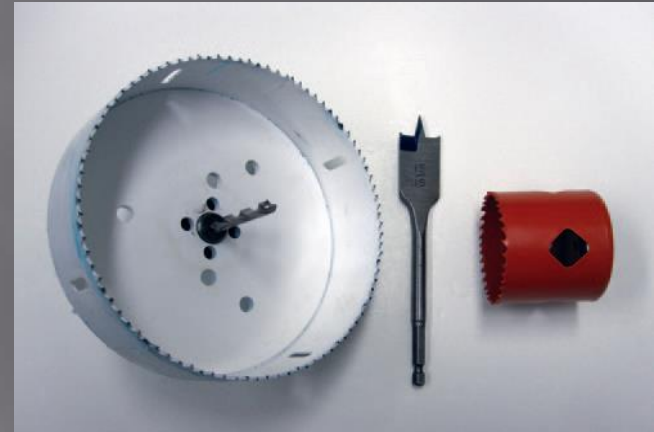
Tools needed

1. Electric or cordless drill
2. 1-inch and 2 3/8-inch hole saw or paddle drill bits
3. Caulking gun



Tools needed

4. 6-inch hole saw, sheetrock saw or jig saw
5. Pliers (optional)

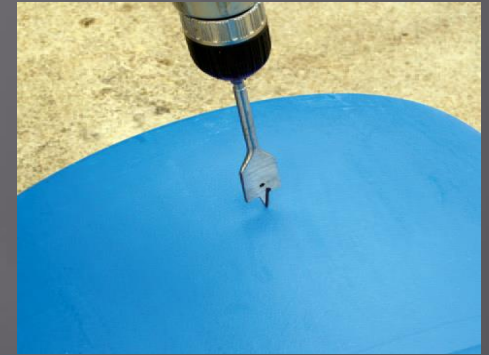


Barrel Prep

Wash the barrel inside and outside to remove any residue.

Construct the water outlet

1. Drill a hole for the hose bib with the 1-inch drill bit (or 15/16 – inch drill bit) the hole should be 3 to 4 inches from the bottom of the barrel
2. Place sealant around the hole
3. Thread the hose bib into the hole halfway and apply adhesive to the threads and continue screwing in until tight (this may require significant force to thread)



Decide which direction you want the hose bib (faucet) to face.



Hose bib facing down



Hose bib facing to the side

Place silicone adhesive around faucet and screw into drum



Going in to place the adapter onto the hose bib faucet



Connected



Add more adhesive



Let Dry



Construct the rainwater overflow

1. Drill an overflow hole with the 2 3/8-inch drill bit (for a 2-inch pipe)
2. Thread the 2-inch male adapter through the 2 3/8-inch hole
3. Attach a 2-inch electrical nut inside the barrel to the 2-inch PVC male adapter. Use pliers to hold the fitting while tightening
4. Glue the 2-inch PVC street elbow to the male adapter.
5. The overflow should also be screened to prevent mosquito entry.



Construct the rainwater inlet

1. Cut the inlet hole on the top of the barrel with the 6-inch hole saw or jig saw
2. Place adhesive around the 6-inch inlet hole with the caulk gun and place the 8-inch screen over the hole



Place on a ring of caulking



Place screen over caulking



Smooth out caulking, making
sure to cover all the way to
edges of screen



Let Dry



Screen on / Silicone Adhesive Dry



Screen on/Secured with a Gasket and Screws



Place the rain barrel near a downspout or where a roof valley drains a large amount of water. Locate the barrel near its intended use



Soaker Hose attached to Rain Barrel

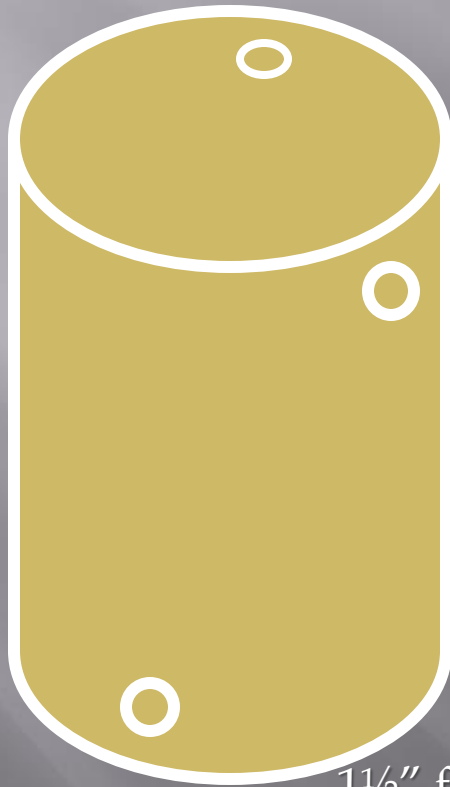




Rain Barrel Construction “How-To”

1) *Drill holes:*

1" Pilot hole to cut top off



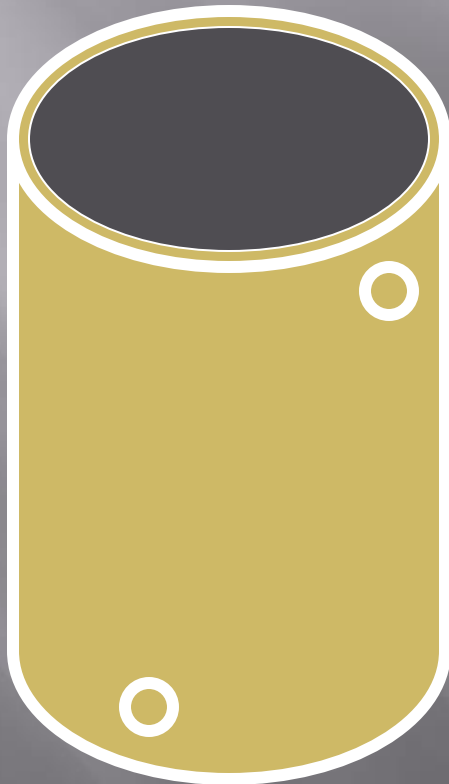
1" for
Overflow

1½" for Spigot



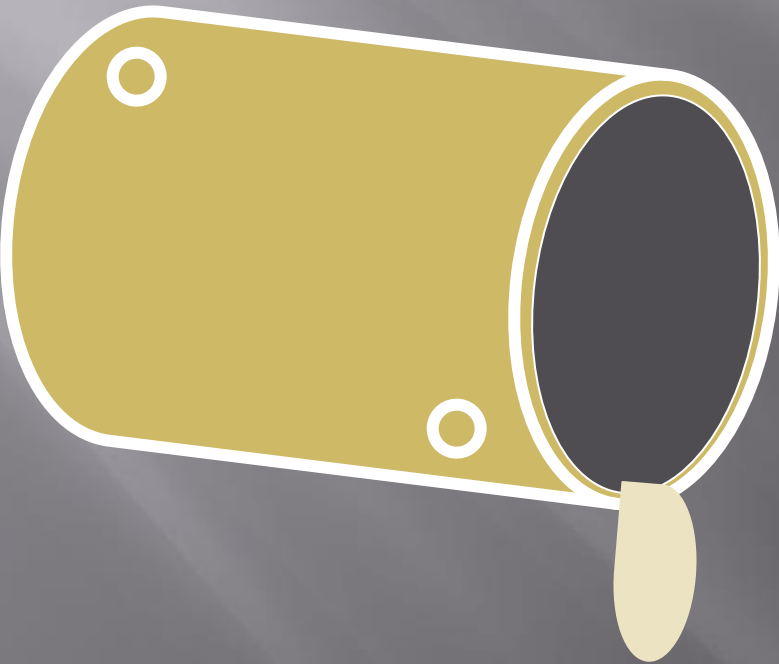
2) *Cut top off* (leave lip):

- Reciprocating saw
- Jigsaw



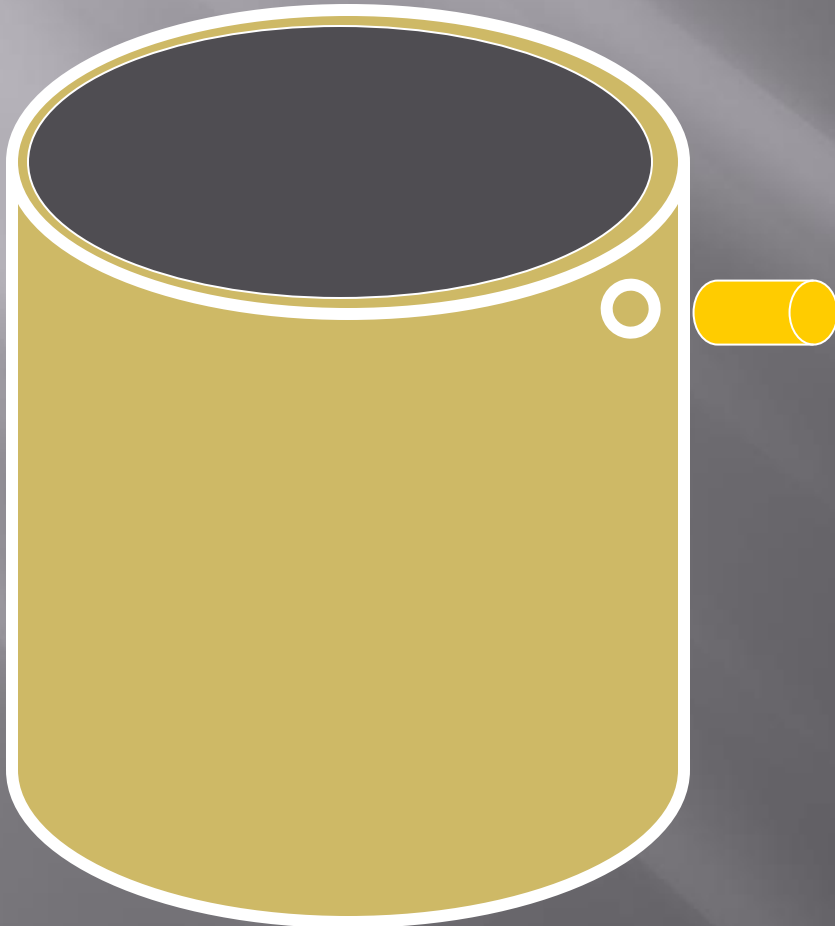
3) *Prep barrel*

- Remove/smooth plastic burrs
- Wash barrel



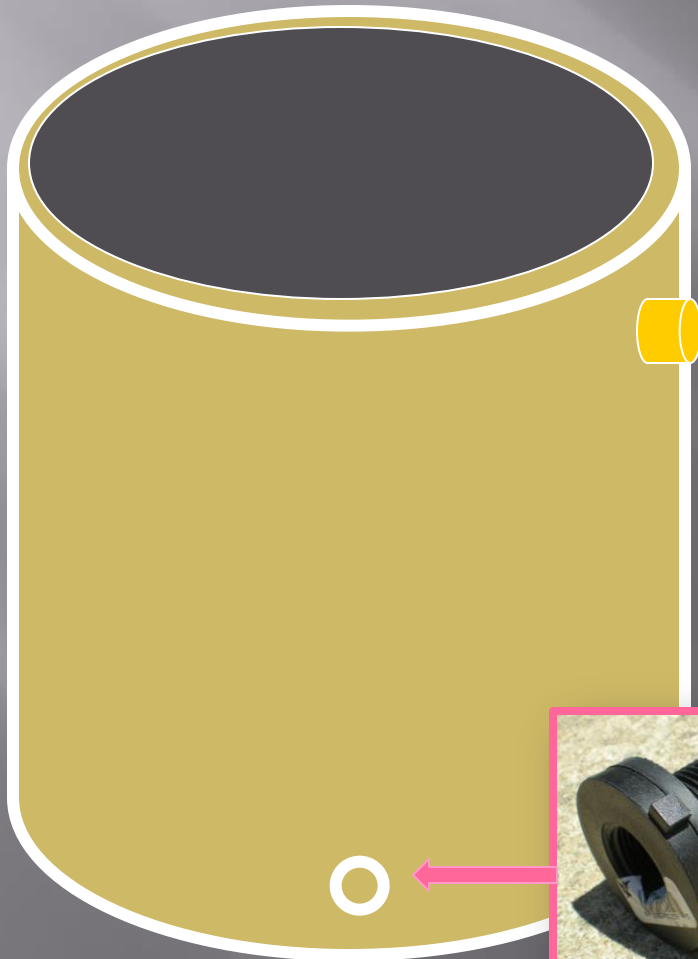
4) *Install overflow hardware*

- $\frac{3}{4}$ " Hose adapter (*narrow threads into barrel*)



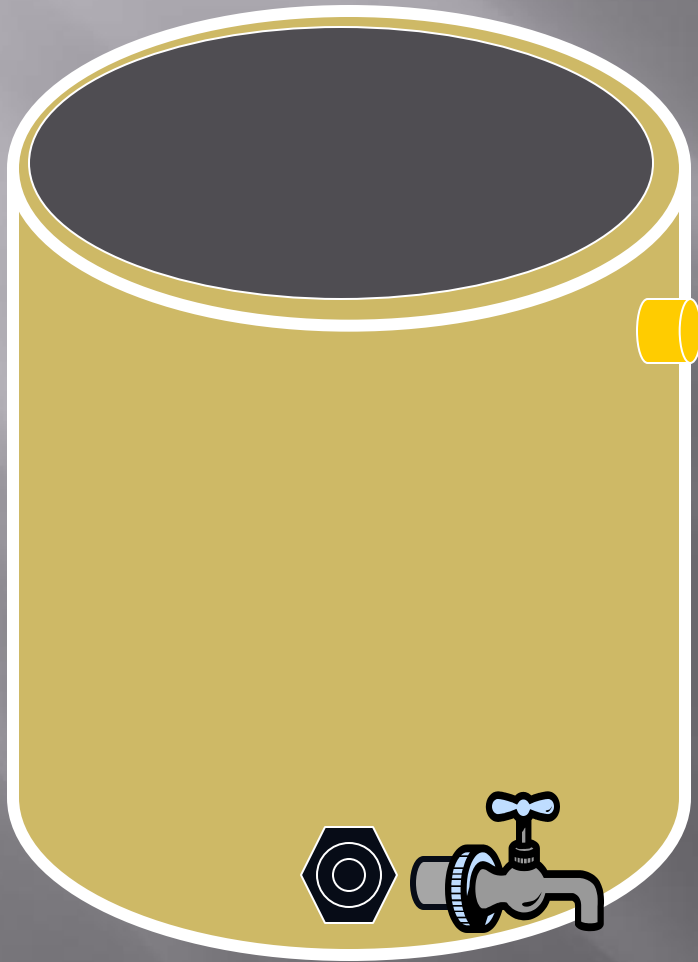
4) *Install hardware:*

- $\frac{3}{4}$ " Bulkhead tank fitting



4) *Install hardware:*

- Hose spigot



5) *Safety/mosquito control*

- Cover with fiberglass window screen
- Staple gun, trim excess



Installation



- ▣ Hacksaw cut downspout 2" above barrel inlet
 - "Flex-a-spout" ~\$10
- ▣ Elevate - head pressure (~460 lbs)
 - Bricks
 - Cinder blocks
 - Wooden stand

For easy access and increased water pressure, place the barrel on blocks (wooden or cinder). Be sure that the blocks and the soil base are sturdy because 50 gallons of water weighs about 400 pounds.



What does water weigh?

**One US Gallon of
water weighs
8.3454 pounds**

**8.3454 lbs X 55 =
458.997 lbs**

Safety

Consider safety when determining where to place the barrel. Though raising the barrel provides better water pressure, it also creates a tipping hazard. The barrel should be secured to keep children safe and prevent the barrel from being blown or knocked over by wind or heavy rain. Be sure that lids are secured to keep children and animals out.

Any opening larger than window screening can allow mosquitoes to enter the barrel and breed. Be sure all openings, including the overflow, are covered in screen.

Be sure everyone knows that the water in the barrel is not safe to drink. Put a non-potable label on the barrel or remove the faucet handle when not in use.

Maintaining a Rain Barrel

Regular maintenance will keep your rain barrel functioning properly and extend its life. Be sure that the gutters, downspout and screen on the barrel are clear of sticks, leaves and other debris. This organic matter can encourage the growth of algae in the barrel, so it must be removed. At least once a year, empty and wash out the barrel. Also be sure to check the seal around the hose bib and apply more caulking if any leaks are spotted.

Add a decorative covering



Decorative
covering made
from wooden
pickets and
metal flashing

Add a Decal



Paint the Barrel

Paint must adhere to plastic

Finely sand the barrel to apply latex paint.

If using spray paint be sure it is for use on plastics.

Painting improves aesthetics and can extend the life of the plastic.



*Paint your barrel – the
design is up to you*



Concrete tank fabricated from stacking rings of concrete



Calculations



***How much runoff is
generated by your home?***

How Much Rain Water Runs Off Your Roof?

You may be as astonished!

Take a guess--what is the volume of water that runs off a 1,000 square foot roof during a 1" rain storm?

20 gallons?

50 gallons?

100 gallons?

1000 gallons?

The answer is about 623 gallons.

To calculate the runoff from any given rainfall:

Take the dimensions of the footprint of your roof and convert them to inches. (So, a 50' x 20' roof is 600" x 240".)

Multiply the roof dimensions by the number of inches of rainfall. (In this example, 600" x 240" x 1" = 144,000 cubic inches of water.)

Divide by 231 to get the number of gallons (because 1 gallon = 231 cubic inches). (144,000/231 = 623.38).

How to Calculate Rainwater

.623 gallons/square foot of roof/1" rainfall

.623 gal. X 1,000 sq.' X 1" rain = 623 gal. water

.623 gal. X 50" rainfall per year= 31,150 gal/yr

Determine roof area:



Length x Height

Example:

Length = 25 feet

Height = 20 feet

$$25 \text{ ft} \times 20 \text{ ft} = 500 \text{ sq.ft}$$

$$500 \text{ sq. ft.} + 500 \text{ sq.ft.} = 1,000 \text{ sq.ft.}$$



How much runoff is generated by your home?



Calculate Runoff Volume

Estimate the amount of water generated from a 1" rain:

Multiply roof area (in sq.ft.) by .623



$$975 \text{ sq.ft.} \times .623 = 607 \text{ gallons!}$$

$$1,250 \text{ sq.ft.} \times .623 = 780 \text{ gallons!}$$

$$3,000 \text{ sq.ft.} \times .623 = 1869 \text{ gallons!}$$

Calculate Runoff Volume

A 0.2-inch rain on a home with a 1,200-sq.ft. roof...

1) $1,200 \text{ sq.ft.} \times .623 = 748 \text{ gallons (with 1" of rain)}$

2) *But, with only 0.2 inches of rain...*

$748 \text{ gallons} \times 0.2 = 150 \text{ gallons}$



*That is still a
LOT of water!!*

Assuming 45 inches of annual rainfall, a 1,200-sq. ft. home will generate 28,000+ gallons of runoff every year!



Capture that FREE rainwater!



**Don't let that runoff escape - - Collect it
and use it to irrigate your landscape!**

Wine / Rain Barrel



Trash Can Rain Barrel





Rain Barrels
By Laura Lynn



Rain Barrels By Laura Lynn
479-903-0251

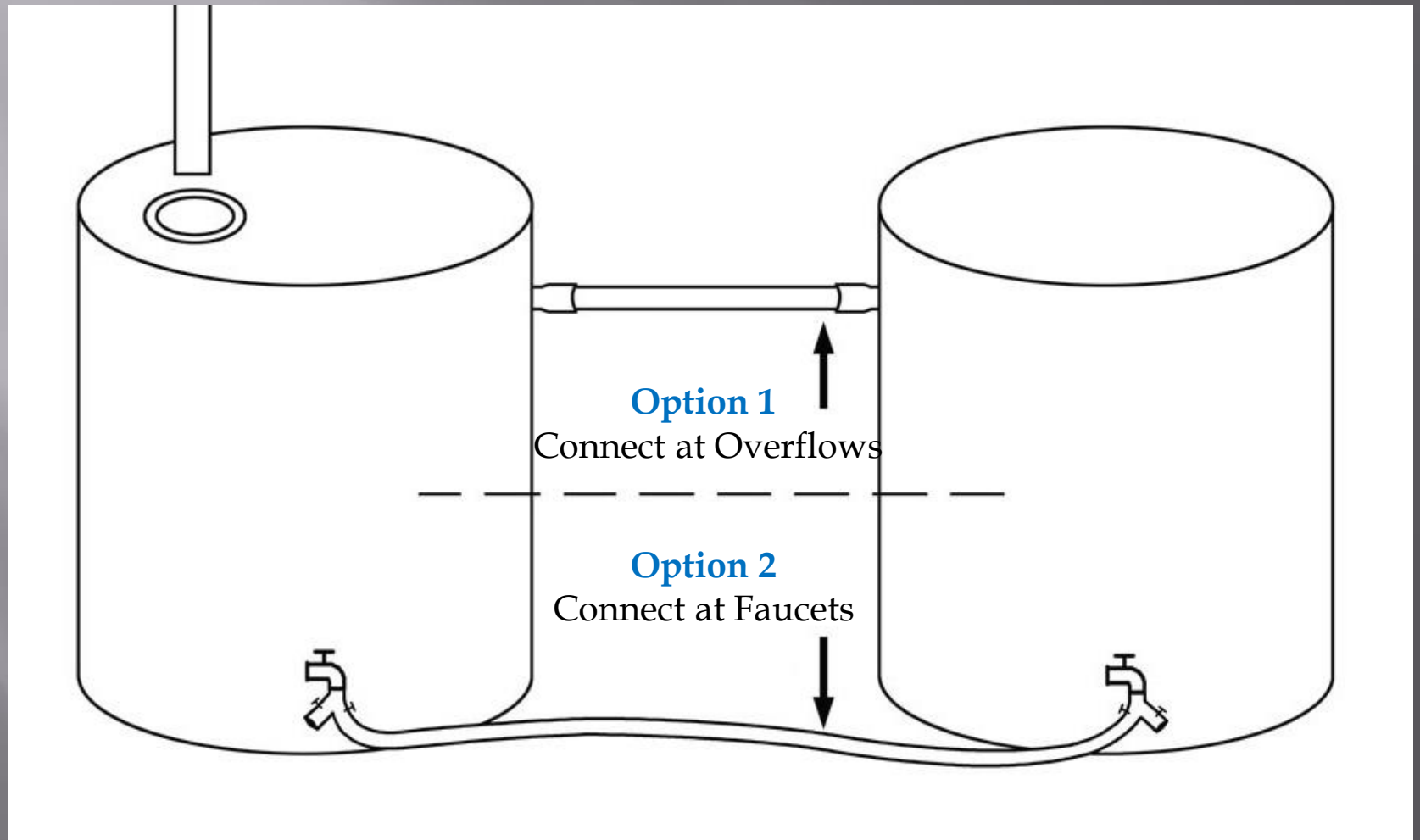




The Container to Capture Rainwater is up to you



Connect Multiple Barrels



Double Barrel System



Go Big





TEA ROOM

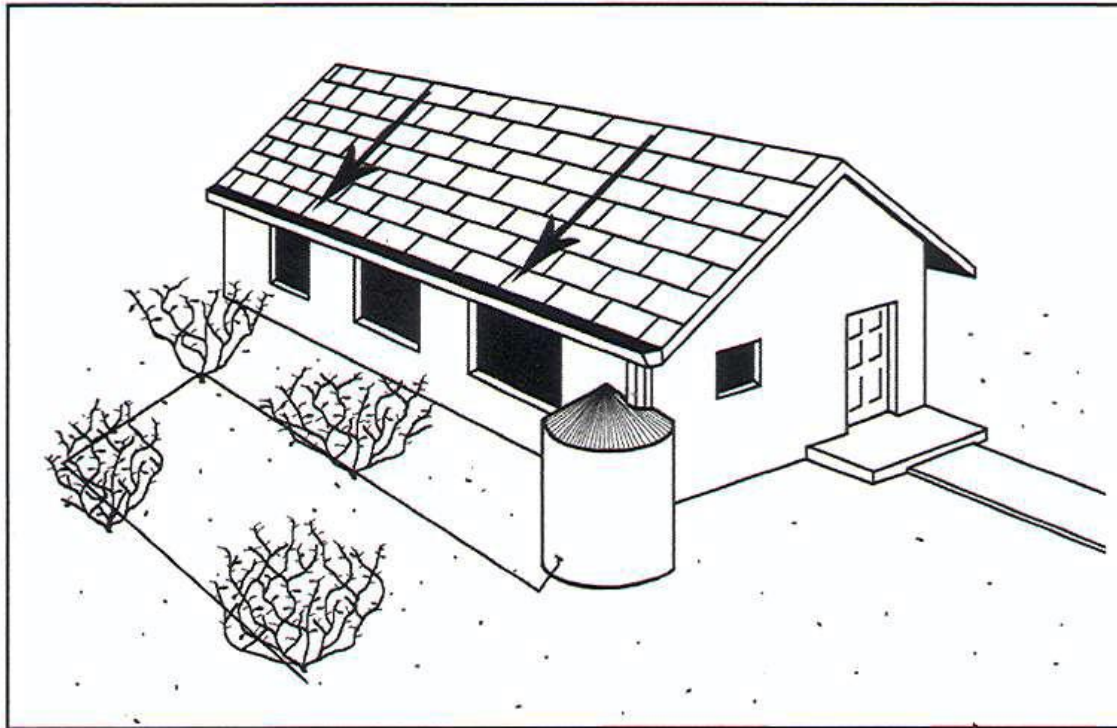
Martha's
Bloomers.com

www.WorldsLargestTeapot.com

Wildlife Water Guzzler



Complex /Active Rainwater Harvesting



Complex water harvesting system with roof catchment, gutter, downspout, storage and drip distribution system.

2013 Price Information

55 gal Drum/Barrel - \$15 - \$20

275 – 330 gal Totes - \$20 - \$90

Fiberglass Screen (36" X 84") - \$5.68

Waterproof Silicone - \$3.78

Red Rubber Packet (Gasket Material) - \$1.22

4"X3" PVC Coupling - \$6.28

#72 Clamp - \$1.84

$\frac{3}{4}$ " Bib (Tank Bung) - \$8.53

$\frac{3}{4}$ " Bulkhead Union - \$11.92

$\frac{3}{4}$ " X $\frac{3}{4}$ " Adapter - \$0.79

$\frac{3}{4}$ " PVC Female Adapter - \$0.52

$\frac{3}{4}$ " Nipple - \$0.40

How to Build a Rain Barrel Information

You Tube:

How to Build a rain Barrel by forthaysstate

<http://www.youtube.com/watch?v=U3NNaTdyW84>

www.MyKansasWatershed.com

Texas AgriLife Extension Service

<http://rainwaterharvesting.tamu.edu>

University of Arkansas

<http://www.uaex.edu>