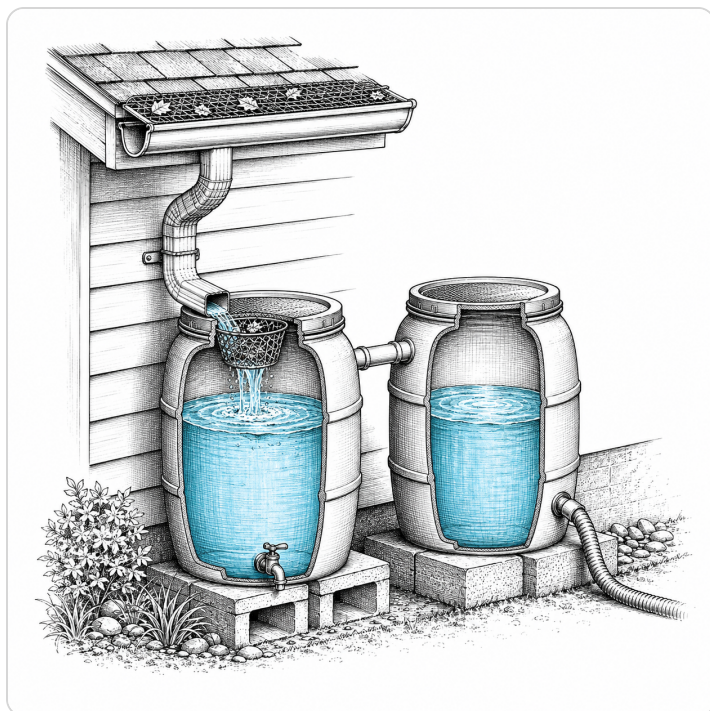


FREE WATER FROM YOUR ROOF

15,000

gallons a year, average roof

Your roof is the biggest bucket you own, and it has been plumbed since the day the house was built to throw water at the storm drain instead of at you. For about **100 dollars** in parts and one afternoon, you flip whose side it is on. This sheet has the one rule, the build order, the treatment chain, and the state rules on one printable page.



The full catch: screened gutter, first flush diverter, sealed food grade barrel, overflow routed away from the foundation.

1 THE 0.623 RULE

$$\text{roof area (sq ft)} \times \text{inches of rain} \times 0.623 = \text{gallons}$$

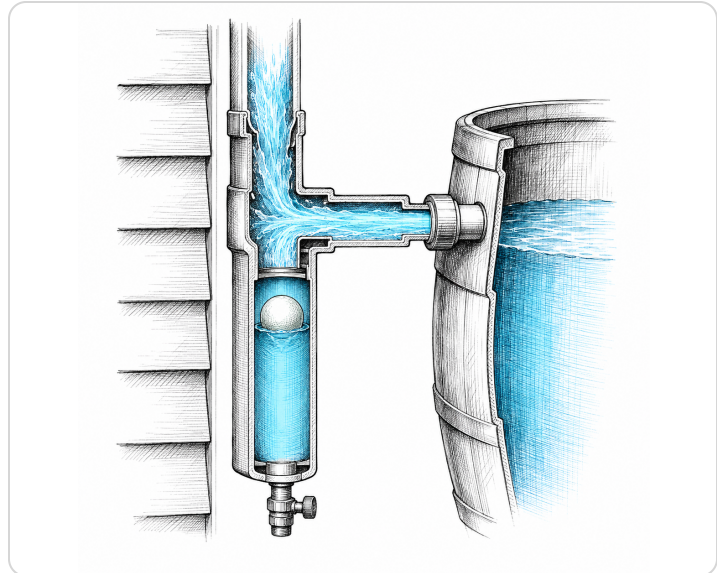
- ▶ One inch of rain on **1 square foot** is 144 cubic inches. A gallon is 231 cubic inches. Divide them and every inch drops **0.623 gallons** on every square foot it touches.
- ▶ That is the entire science of rainwater harvesting in one line you can do on a napkin.

2 WHAT YOUR ROOF ACTUALLY CATCHES

- ▶ Ordinary **1,000 square foot** roof, one inch of rain: **623 gallons** from a single storm. That is **11 full 55 gallon barrels**.
- ▶ Across a normal American year, about **30 inches** of rain, that roof catches almost **19,000 gallons**. After splash, evaporation, and overflow you still clear around **15,000 gallons** a year.
- ▶ **1,500 square feet** of footprint clears past **20,000 gallons** a year. **2,000 square feet** clears close to **30,000**. One Texas homesteader built storage past **30,000 gallons**, all rain.
- ▶ Slope does not matter. Rain falls straight down, so only the **footprint** counts. Pace off the outside walls, multiply length by width. Measure the shadow, not the shingles.
- ▶ Roof material takes a cut: a **metal** roof hands you about **85 percent** of what lands, **composition shingle** closer to **75 percent**.

3 THE BUILD, IN ORDER

- ☐ **Screen the gutter.** A mesh screen along the gutter, plus a screened basket where the downspout meets the tank, keeps out leaves, grit, and mosquitoes.
- ☐ **Add a first flush diverter.** The most important cheap part. A vertical dead end pipe fills first with the dirty first water off the roof, a float ball rises and seals it, and the clean rain flows past into the barrel. Crack the bottom valve after the storm to drain the dirty slug. Skipping this is the classic beginner mistake.
- ☐ **Use the right barrel: food grade, opaque, sealed.** Food grade so no old chemicals leach in. Opaque so algae gets no light. Sealed with a screened inlet so mosquitoes cannot breed.
- ☐ **Add a spigot near the bottom.** Link a second barrel with an overflow kit for more storage.
- ☐ **Route the overflow away from the foundation.** A full 55 gallon barrel spills over in minutes in a real storm, and you do not want that water working on your basement wall.



The first flush diverter: the dirtiest water fills the dead end pipe, the float seals it, clean rain flows on to the barrel.

4 THE PARTS LIST

Gutter mesh screen and a screened downspout basket	keeps debris out
First flush diverter, pipe, tee, and float ball	do not skip
Food grade, opaque, sealable 55 gallon barrel	the core
Bottom spigot and an overflow kit	draw and link
Second barrel, optional, for more storage	expandable
Whole basic backyard system	about \$100

5 MAKING IT DRINKABLE

- ▶ **For the lawn, flower beds, and ornamentals,** barrel water is fine as it is. Plenty of backyard systems rightly stop here.
- ▶ **For drinking, it is the full chain or nothing.** Step one, filter: a sediment filter for the particles, then a fine countertop gravity filter or a reverse osmosis unit for the small stuff. Step two, disinfect: boiling, chlorine drops, or an ultraviolet light unit. **Filter first, then disinfect.**



Drinking chain: sediment filter, then a fine or reverse osmosis filter, then disinfection. Filter first, then disinfect.

! SAFETY, READ BEFORE YOU DRINK A DROP

NEVER DRINK IT RAW. Straight from the barrel, roof water carries dust, bacteria, and bird droppings. Rain is naturally soft and slightly acidic, so it dissolves metals it touches on the way down.

LEAD DISQUALIFIES A ROOF. Old lead flashing, or ancient galvanized pipe joined with lead solder, rules a roof out for drinking water completely. That soft acidic rain strips lead into your tank one storm at a time.

TEST THROUGH A CERTIFIED LAB. When in doubt, a test through a state certified lab settles the argument with numbers instead of guesses. Treat all of this as education, and test before anyone drinks.

FOOD CROPS. The environmental agency says to be more careful using raw roof water on food crops you eat uncooked.

6 THE STATE RULES

- ▶ **Legal in all 50 states today.** Around **19 states** set some kind of limit, which leaves roughly **30** with no permit and no cap for a home system. Texas even encourages it with tax incentives.
- ▶ **Colorado** banned an ordinary rain barrel until **2016**, the last holdout, under prior appropriation water law. Now legal but capped: **two barrels, 110 gallons combined**, homes of four units or fewer, **outdoor use only**.
- ▶ **Utah:** up to **200 gallons** with no paperwork, register free above that up to **2,500 gallons**.
- ▶ **Nevada:** rooftop collection allowed for outdoor use, not drinking. Bigger systems give the county more say.
- ▶ **Oregon, Washington, California:** rooftop harvesting is fine. Only very large cisterns, in California typically above **5,000 gallons**, start triggering permits.

GRAB MORE FREE SHEETS

Watch the full build: youtube.com/@SketchySurvival101

More free sheets: sketchysurvival101.com/free

Subscribe so the next drought does not catch you paying for water that was landing on your own roof.

0.623
THE ONLY RULE