

# Wine Barrel Conversion for Rainwater Harvesting

## Materials

- Wine barrel(s) - Wine barrels can be installed one for each downspout or they can be "daisy-chained together"
- 1 "Leaf eater" filter
- 1 First flush diverter - see figures 1 and 2 below \*Optional\*
- Teflon Tape
- 3/4 inch nipple, ball valve and hose adaptor

- Brackets or plumbers tape to hold diverter, downspout, and barrel securely to your wall
- Purple Primer & All-Purpose PVC glue

## Tools

- Hack saw or Sawzall
- Drill
- Hole cut saw bit for inlet: 3 inch
- Spade bits: 1 1/4 inch and 1 inch (figure 4)
- PVC pipe cutter
- Level



Figures 1 & 2: Leaf eater, top and bottom of first flush diverter



Figure 3: Inlet filter made of atrium grate, screening and rubber fernco



Figure 4: 3/4 inch nipple, ball valve and hose adaptor, 1 inch spade bit for hole

## **Selecting locations for your barrels:**

Each 100 square feet of roof will provide 60 gallons of water in a one-inch storm. So if you have a roof section at least 20 feet by 20 feet that drains into a single downspout you will have a full wine barrel in even our more common 1/4 inch rainfall. Site your barrels where it will be easy for you to use the water between rain events so the barrels are available to catch the next rain.

There is a balance between placing the barrels high enough to allow filling water jugs and to gravity drain in a hose to your garden, and not so high as to be a tipping hazard (though barrels should be strapped for security).

If you are placing the barrels on soil, dig out at least 8 inches of soil from your chosen location and fill with base tamped rock so that you have a solid platform. Use concrete blocks or other flat rocks to place under the barrels to raise them to your desired height. Place the barrel on the platform and level it before measuring and cutting your downspout.

### **Inflow:**

**Option 1:** Homemade filter (Figure 3 & 5)

Drill a 3" hole in the top of the barrel to fit the atrium grate. Use 3" drain pipe to run the full flow of water into barrel.



Figure 5: Drilling Input Hole

**Option 2:** Open Input (Figure 6)

Drill a 3" hole in the top of the barrel, secure mesh or filter over hole. Cut the downspout and place a 45° or 90° elbow on the bottom to direct water into top of barrel.



Figure 6: Input Option 2

**Option 3:** Combined Inlet/ Overflow (Figure 7)

Drill a hole in the side of the barrel as close to the top as possible. Drill a hole in downspout. Use kit (figure 12) to connect downspout to barrel. A rubber hole cover and be purchased.



Figure 7: Input/ Overflow

### **Leaf Eaters:**

There are downspout diverter kits that require only a hole be cut in the downspout (Option 3). In order to avoid clogging, and to provide cleaner water to the barrels, we recommend cutting the downspout and placing a leaf eater filter to catch large debris and downspout diverter to catch fine sediment. This is important if you plan on using an irrigation system. (Figure 13)

### **Filter and first flush diverter:**

Assemble your first flush diverter (Figures 1 & 2) and connect to a "leaf eater" filter. Hold these in place above your barrels so you have adequate height to drain into the barrel and mark where to cut your downspout. Drill and screw your filter into place and use brackets or plumbers tape to lash the diverter to your wall.

**Outlet:** (if daisy chaining, use a T with option 2 to connect barrels)

**Option 1:** Buy a spigot designed for wood barrels (special tapping bit required)

**Option 2:** Drill a 1" hole at least a few inches off the bottom of barrel (this will depend on part how high you placed the barrel and where the metal rings are placed on the barrel). Screw in a 3/4 inch brass nipple, 3/4 inch brass valve, and 3/4 inch brass pipe thread-to-hose thread converter (Figure 4).

### **Overflow:**

**Option 1:** Drill a 1 1/4" hole close to the top of the barrel. Screw in a 1 inch brass nipple, attach a one inch female slip to female threaded PVC adapter, and a 90° 1" PVC elbow. Use about 6 feet of 1 inch PVC pipe and a second 1 inch 90 degree PVC elbow to run the overflow away from barrel (Figure 9).

**Option 2:** Combined Input/ Overflow

If you chose Input option 3, you do not need an additional overflow.



Figure 8. Overflow brass nipple sealed with teflon tape



Figure 9: Overflow running out from top of barrel



Figure 10: Outlet using ball valve

**Assembly:**

Assemble all the piping and make sure everything fits well before gluing. Note that drain pipe is rigid and requires a lot of Multi-Purpose PVC glue to make a tight fit. Teflon tape around brass nipples or threaded PVC makes the seal tighter and reduces leakage. (See overflow closeup in Figure 8 and finished project in Figure 11)

**Use:**

Enjoy using the rainwater you collect! There will be no chlorine to harm your soil microbes making for healthier plants. It also feels so good to know you are saving water for the ecosystem (for much of the Peninsula, you are saving Tuolumne River water for the fish it supports!) You can use a pump to speed up watering, or use gravity feed into a hose, drip system, or simply to fill a watering can.



Figure 11. Finished product ready to catch rain!



Figure 12: Full diverter kit for Input option 3



Figure 13: Leaf Eater