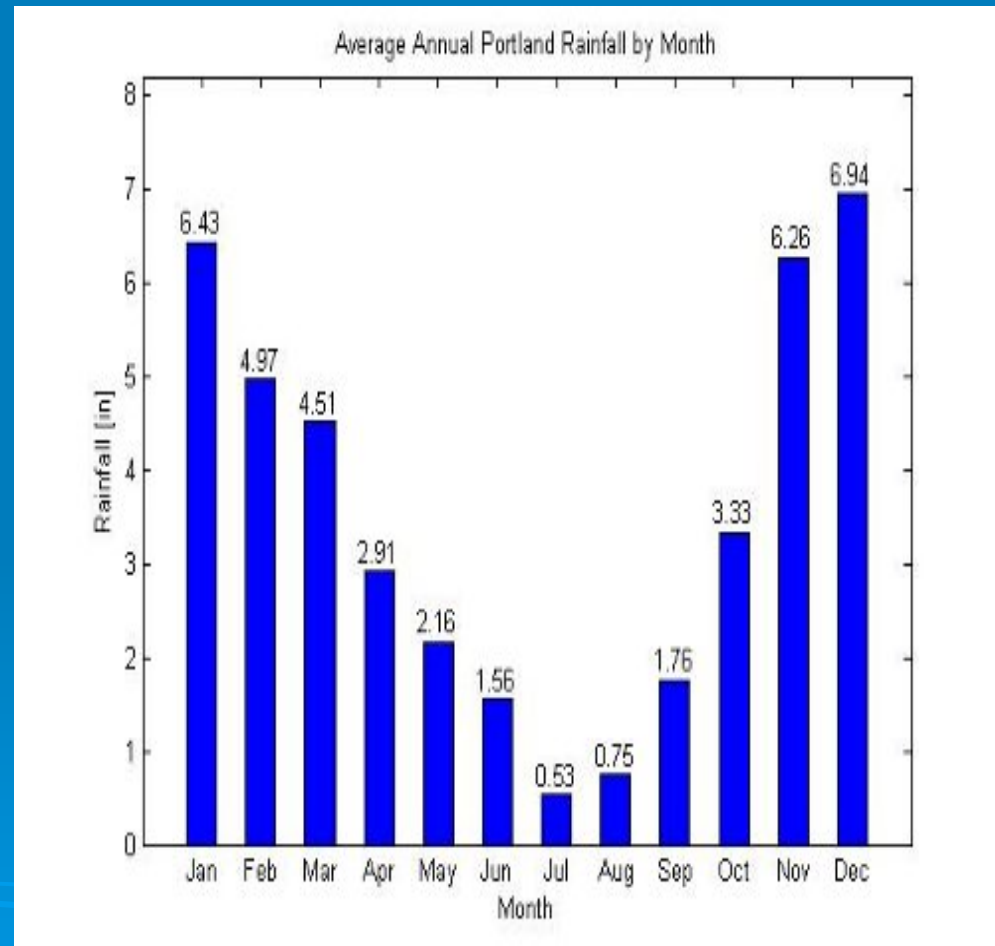


Residential Rainwater Catchment Systems in Portland, OR

**Lisa Petersen, Reiki Young, Keith
Nevison, Larissa Figley**

Opportunity

- Portland area receives an average rainfall of about 40 inches per year
- During the wet season this water could be collected to serve water needs throughout the dry season
- No permit required to use rainwater outside the house

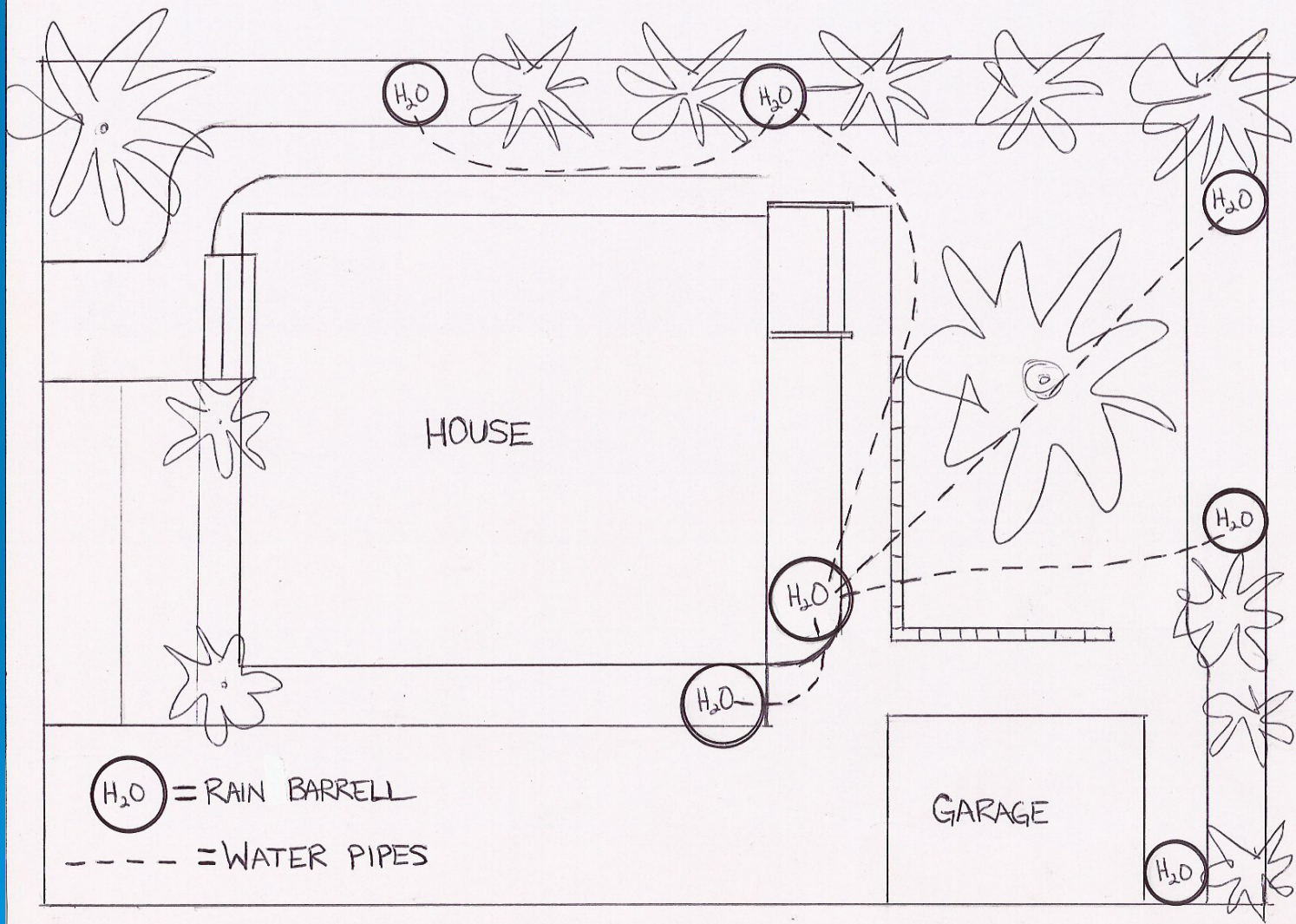


Residence

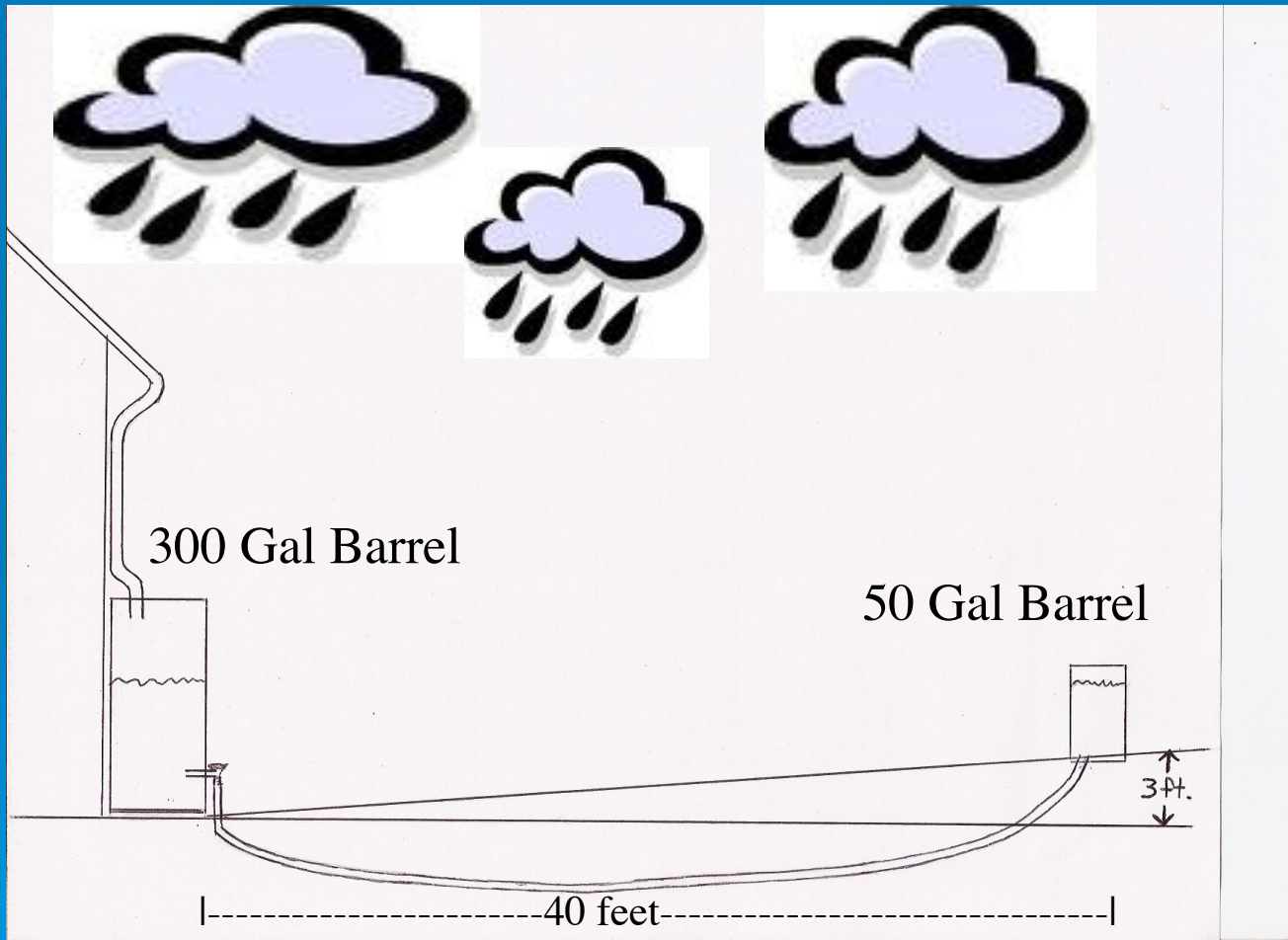
- In this model home the roof has an area of 1,350 square feet
- This could catch approximately 30,000 gallons per year
- Calculating estimated water supply:
Collection Area (sq.ft) x
Rainfall (in/yr.) / 12 (in/ft) = Cubic
Feet of Water/Year
Cubic Feet/Year x 7.43 (Gallons/
Cubic Foot) = Gallons/Year

For example, a 500 sq. ft roof that gets 36 in/yr. will produce 1,500 Cubic Feet or 11,145 Gallons of water per year.





Elevation Diagram



Total Dynamic Head

- 5% Friction Loss
- 3 foot vertical incline
- Approximately 5 foot head (2 meters)
- Flow rate 3 gallon/minute (.2 Liters)
- Power (W)=TDH x Flow Rate x 9.81
- 4 Watts= 2 meters x .2L³/s x 9.81m/s²

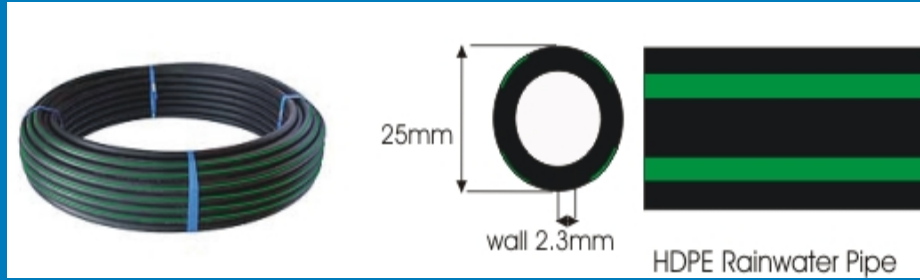
Water Needs

- Catchment system for gardening purposes only
- The amount of water needed for gardening during the dry season of four months would be 30 gallons a day or 3,600 gallons for the season



Materials

- Little Giant 5-MSP 1/6 HP, 1200 GPH - Submersible Utility Pump, 10' power cord (505086) \$90



- 3- Rainwater Pipe HDPE 25mm Black Green, 25 meter coil- (RWH-HDPE25/25) \$50 ea.

- 45 Watt Solar Panel Kit, Chicago Electric Item # 90599 \$230



- 2- 300 Gallon Above Ground Water Storage Tank, Polyethylene Plastic (TC4560IW) \$240 ea

- 5- 50 Gallon Reconditioned Water Barrels, HDPE \$45 ea



- Garden Hose Shut Off Ball Valve, Gilmour 07 VGT \$8 ea



- 1/4" micro-line drip line, 100 ft. drippers every 9" .57 GPH at 15 PSI \$10 ea



Total cost:
\$1,250

Sources

- Portland Bureau of Planning and Sustainability
<http://www.portlandonline.com/bps/index.cfm?a=114750&c=42113>
- Portland Bureau of Environmental Services
<http://www.portlandonline.com/BES/index.cfm?c=43081>
- Portland Bureau of Planning and Sustainability
<http://www.portlandonline.com/bps/index.cfm?a=114750&c=42113>
- Portland Bureau of Environmental Services
<http://www.portlandonline.com/BES/index.cfm?c=43081>
- Rainwater Harvesting Company
<http://www.rainwaterharvesting.co.uk>
- Rain Exchange <http://www.rainxchange.com/>
- Build-It Solar- Rainwater Catchment
<http://www.builditsolar.com/Projects/Water/Water.htm>
- The Rainwater Harvesting Community <http://www.harvesth2o.com/>