

# Rainwater Harvesting for Landscape Irrigation



**Dick Peterson**  
[www.DickPeterson.com](http://www.DickPeterson.com)

# Our Most Precious Resource



# Supply & Demand



# Supply & Demand



# Storm water Run-off

## Just how much?

- 1" of rain on 1 acre generates 27,000 gal. of water
- 1" of rain on a 20 x 50 mile heavily urbanized city will generate 17.4 billion gal. of water!
- 1" of rain on a 1,000 sq. ft. roof can STORE 600 gal. of water!

This...



or This?



# The Perfect Marriage of Two Effective Strategies



Rain Barrels

+

Rain Gardens

# Green Solutions for Stormwater Runoff



# The Perfect Marriage of Two Effective Strategies



Rain Barrels

+

Ponds



# Rainwater Through The Ages

- 🌐 Rainwater harvesting practiced for over 4,000 years in desert of southern Israel
- 🌐 Ancient Roman had cisterns and aqueducts
- 🌐 Early 1900's farms and ranches had cisterns
- 🌐 Current resurgence of rainwater collection:
  - Lady Bird Johnson Wildflower Center
    - 🌐 At one time, the U.S. largest 72,000 gallon capacity Advanced Micro Devices
      - 🌐 1,500,000 gallons!
  - 🌐 Many Caribbean nations mandate rainwater harvesting



# Ancient Concepts



# Why Collect Rainwater?

- 🌍 Rainwater pH is almost neutral
- 🌍 Plants, Ponds and Pescados love it
- 🌍 Rainwater does not have dissolved minerals from the soil
- 🌍 Or chemicals from water treatment plants
- 🌍 Harvesting reduces erosion
- 🌍 Reduces water bill – you do not use as much expensive potable water on your landscape and water features

# In Texas, rainwater harvesting systems are sales tax exempt

Tax Code Section 151.355(1) provides an exemption for the recycling system if purchased on or after September 1, 2001.

## *Sec. 151.355. WATER-RELATED*

*EXEMPTIONS. The following are exempted from taxes imposed by this chapter:*

*(1) **rainwater** harvesting equipment or supplies, water recycling and reuse equipment or supplies, or other equipment, services, or supplies used to reduce or eliminate water use....*

# Recycled drums come in various shapes, sizes and materials



# These IBC Totes are covered with landscape fabric and plastic fence



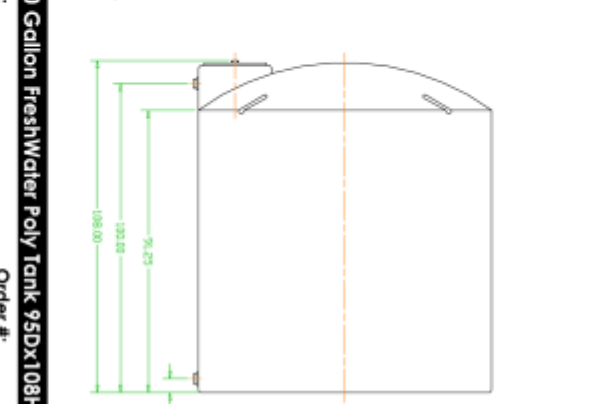
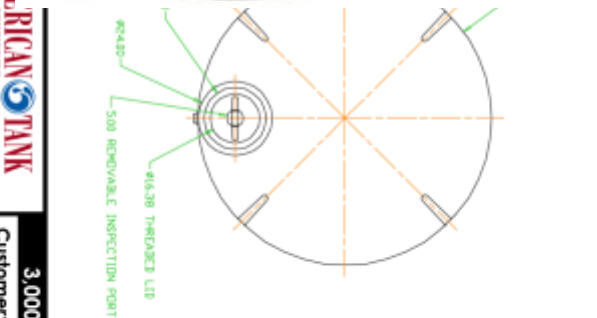
STORE REFRIGERATED. DO NOT FREEZE.  
86001868  
HAWAIIAN PUNCH  
HAWAIIAN PUNCH FRUIT JUICY RED 80X BASE

# Recycled drums come in various shapes, sizes and materials



Larry Gilig

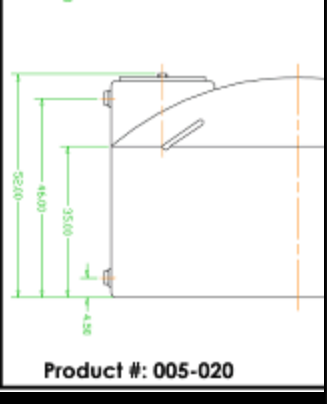
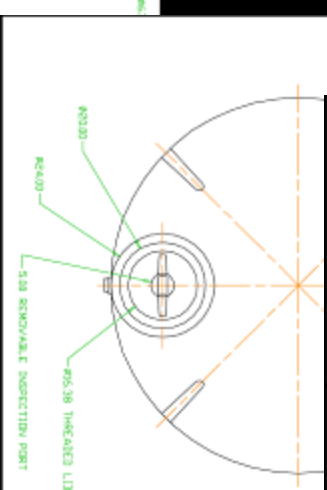
# Tanks are available in many sizes and configurations



Product #: 005-040

**AMERICAN TANK COMPANY INC.**  
(800) 455-9100 [www.american-tank.com](http://www.american-tank.com)  
Customer: \_\_\_\_\_ Order #: \_\_\_\_\_  
Approvdl: \_\_\_\_\_ Date: \_\_\_\_\_

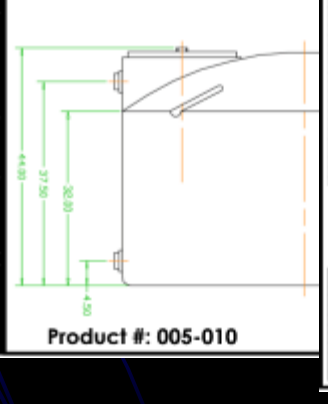
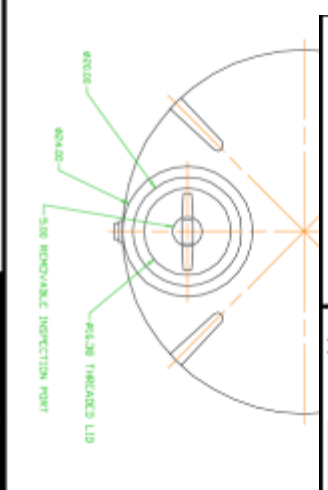
3,000 Gallon FreshWater Poly Tank 95Dx108H



Product #: 005-020

**AMERICAN TANK COMPANY INC.**  
(800) 455-9100 [www.american-tank.com](http://www.american-tank.com)  
Customer: \_\_\_\_\_ Order #: \_\_\_\_\_  
Approvdl: \_\_\_\_\_ Date: \_\_\_\_\_

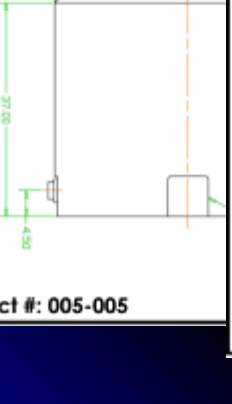
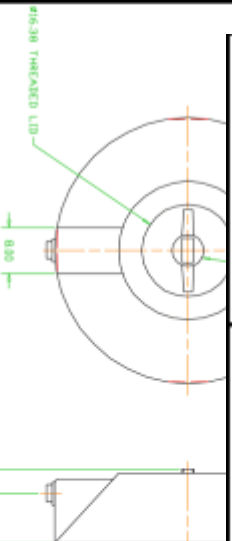
1,100 Gallon FreshWater Poly Tank 87Dx52H



Product #: 005-010

**AMERICAN TANK COMPANY INC.**  
(800) 455-9100 [www.american-tank.com](http://www.american-tank.com)  
Customer: \_\_\_\_\_ Order #: \_\_\_\_\_  
Approvdl: \_\_\_\_\_ Date: \_\_\_\_\_

550 Gallon FreshWater Poly Tank 67Dx44H



Product #: 005-005

**AMERICAN TANK COMPANY INC.**  
(800) 455-9100 [www.american-tank.com](http://www.american-tank.com)  
Customer: \_\_\_\_\_ Order #: \_\_\_\_\_  
Approvdl: \_\_\_\_\_ Date: \_\_\_\_\_







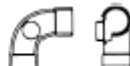









305 Gallon FreshWater Poly Tank 46Dx49H

Product #: 005-005



# Components

## 🌐 PVC Drain-Waste-Vent Fittings

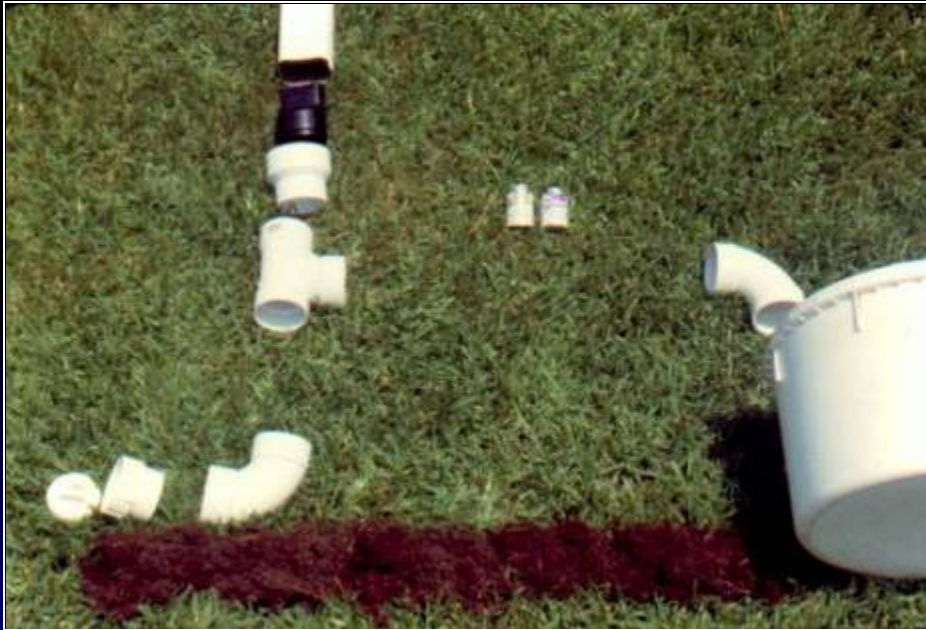
<p><b>ADAPTER</b></p> <p>FITTING CLEANOUT SP x FPT (W/PLUG)</p> 	<p><b>TEE</b></p> <p>TEST W/PLUG H x H x FPT</p> 	<p><b>CLOSET BEND</b></p> <p>ALL HUB (1/4 BEND)</p> 
<p><b>90° ELBOW</b></p> <p>ALL HUB (1/4 BEND)</p> 	<p><b>TEE</b></p> <p>SANITARY STREET SP x H x H</p> 	<p><b>T-Y</b></p> <p>LONG TURN ALL HUB</p> 
<p><b>90° ELBOW</b></p> <p>SIDE INLET ALL HUB (1/4 BEND)</p> 	<p><b>90° ELBOW</b></p> <p>LOW HEEL INLET ALL HUB (1/4 BEND)</p> 	<p><b>PIPE INCREASER</b></p> <p>ALL HUB</p> 
<p><b>22 1/2° ELBOW</b></p> <p>ALL HUB (1/16 BEND)</p> 	<p><b>ELBOW</b></p> <p>DOUBLE ALL HUB</p> 	<p><b>TEE</b></p> <p>CLEANOUT 2-WAY ALL HUB</p> 
<p><b>45° ELBOW</b></p> <p>ALL HUB (1/8 BEND)</p> 		<p><b>60° ELBOW</b></p> <p>ALL HUB (1/8 BEND)</p> 
<p><b>PVC TRUE UNION</b></p> <p>THREADED OR SOLVENT</p> 		<p><b>PVC BALL VALVE</b></p> <p>THREADED</p> 

# Components

## 🌐 First Flush “Poor Man’s Roof Washer”

🌐 PVC pipe with fittings running to the ground with a screw on cap at the bottom for clean out

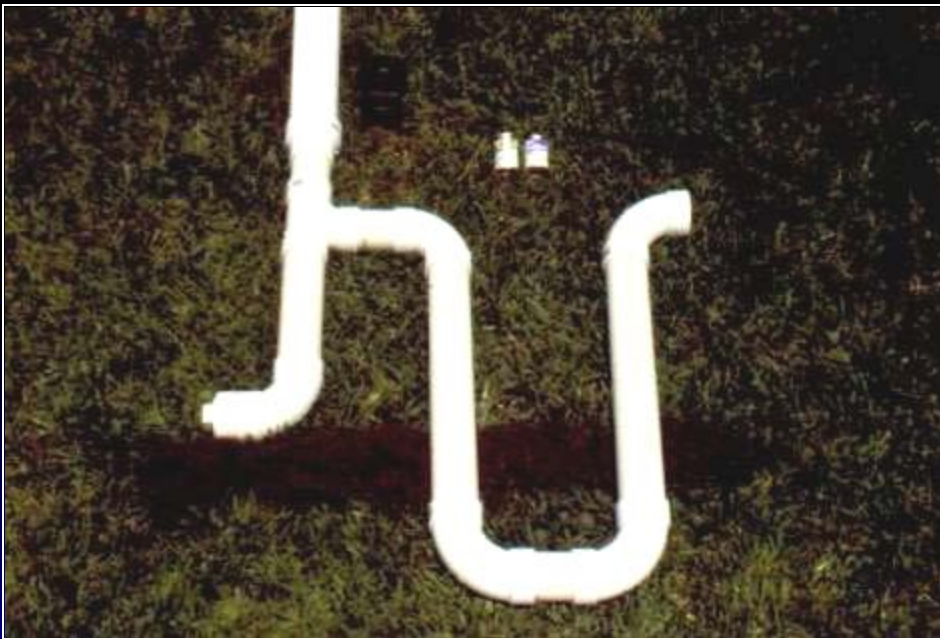
🌐 First 8-10 gallons collects debris from roof and gutters -- diverted by first flush before tank inlet



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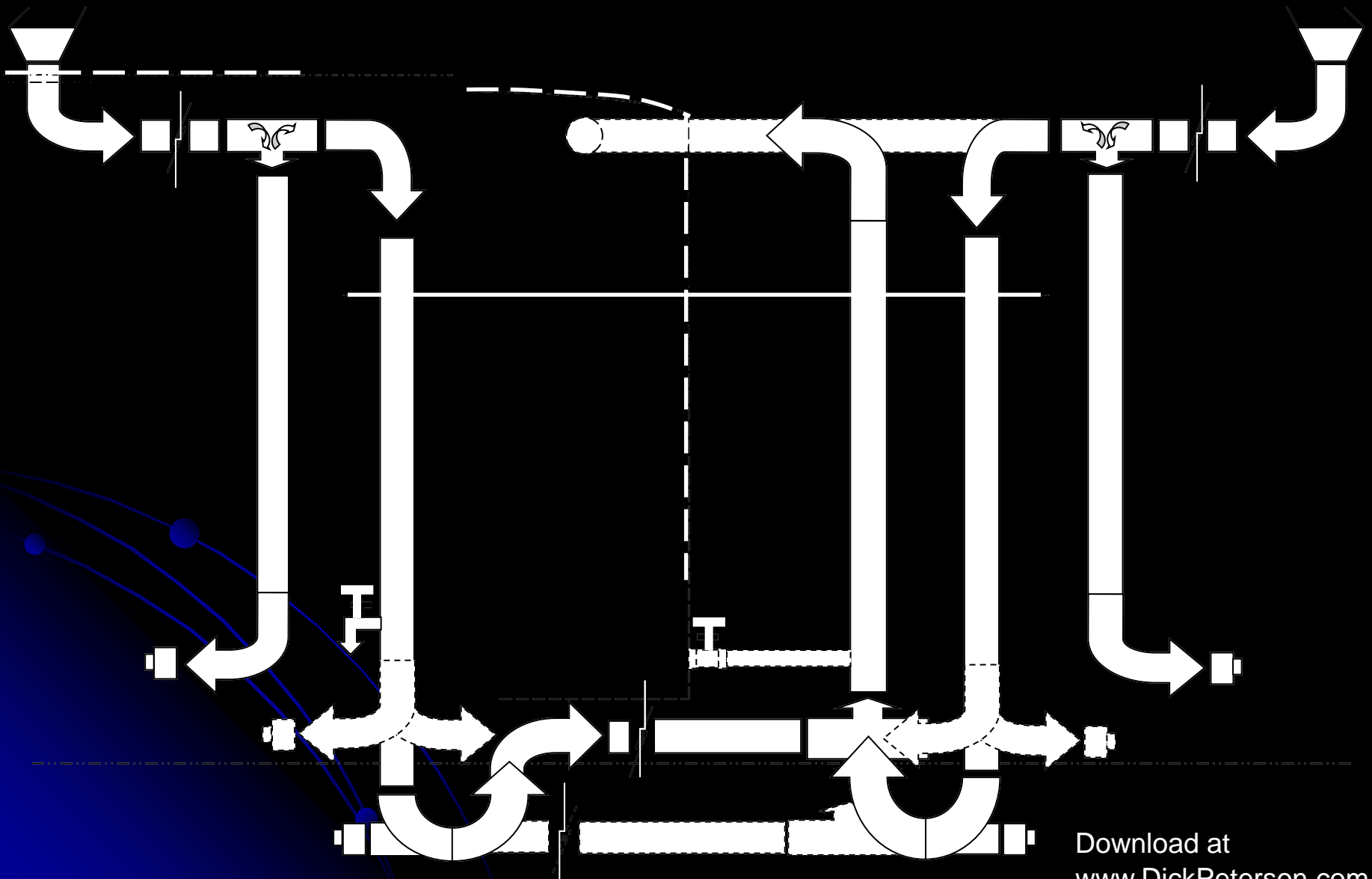
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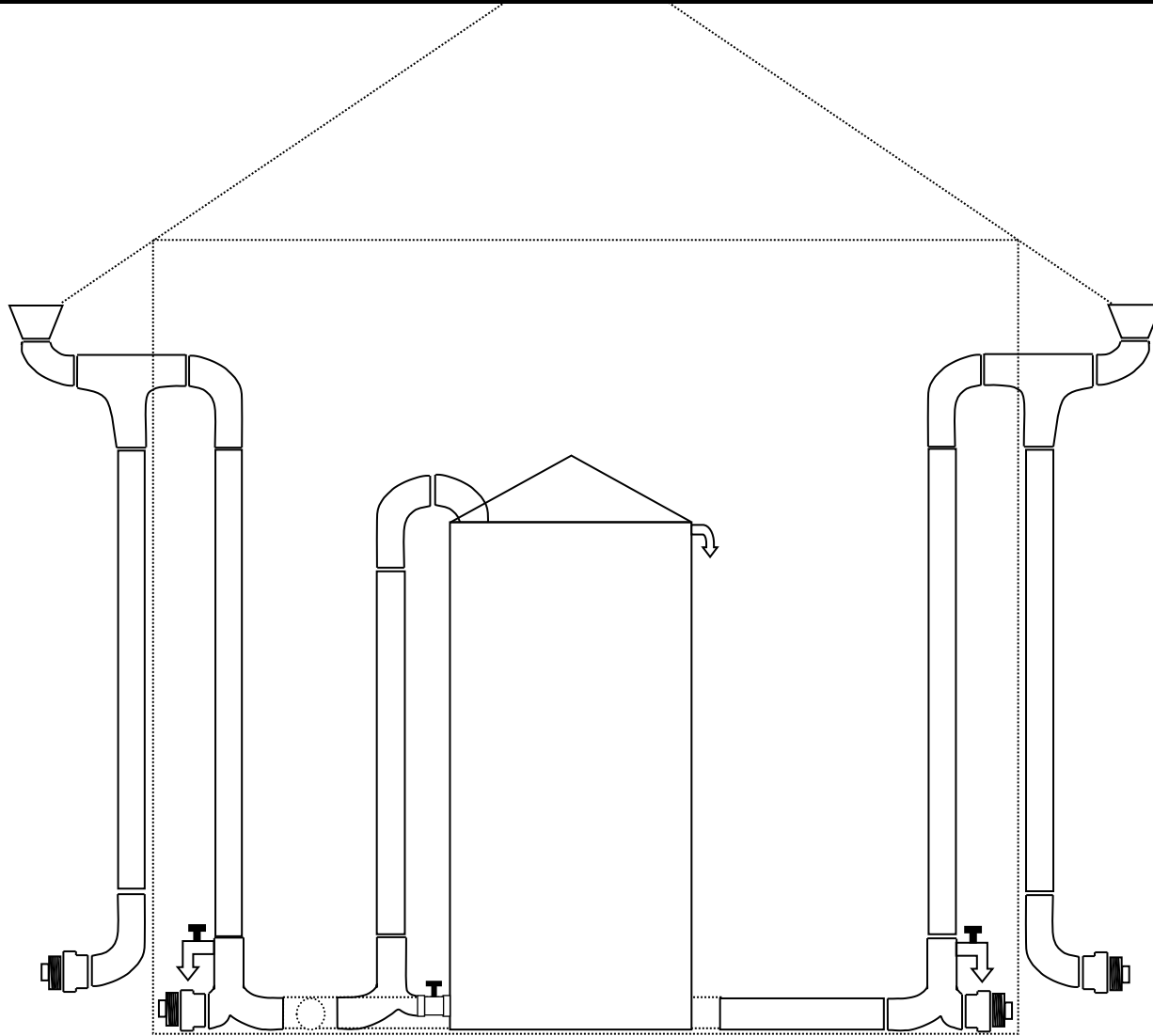
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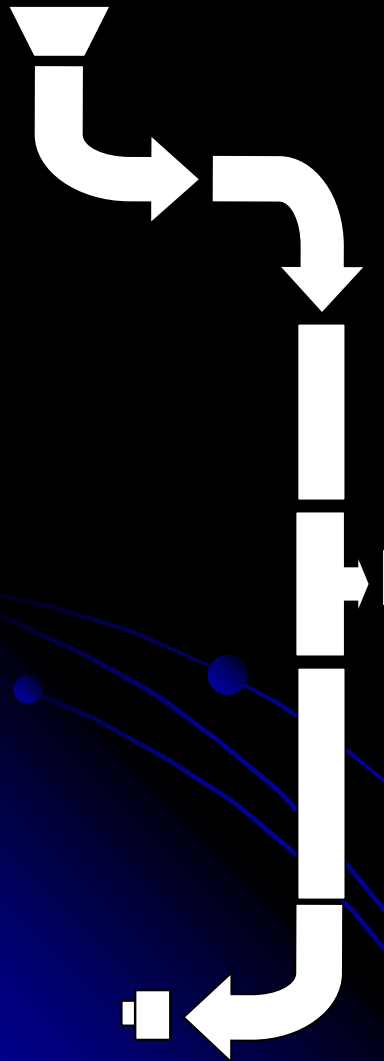
# Simple System Options



# Simple System Diagram



# How about a fishpond tank?



# Components

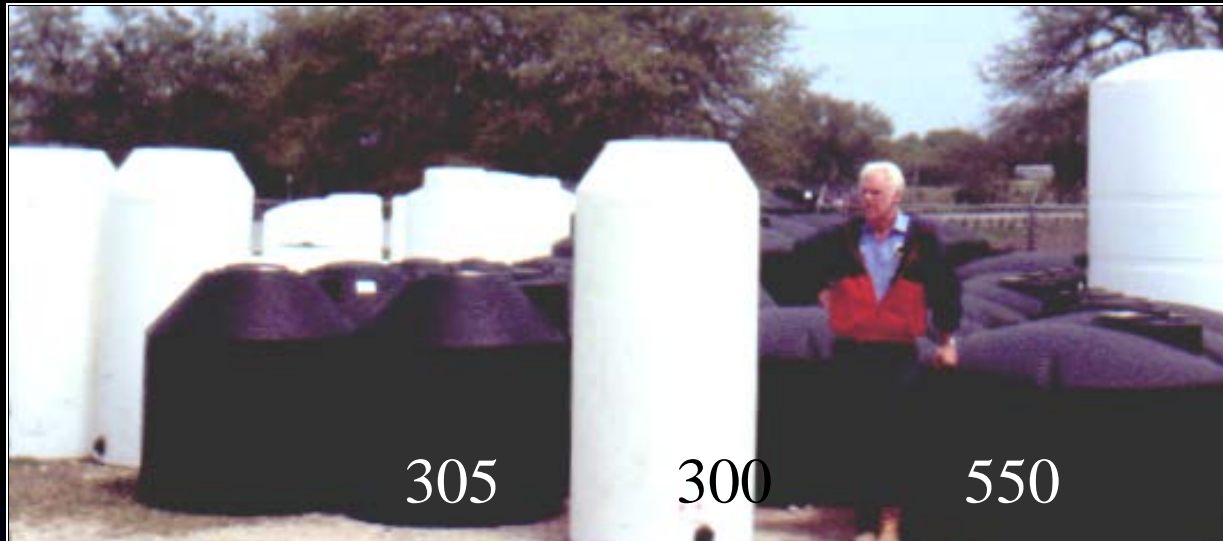


Vortex Filter

complements  
Joe Wheeler



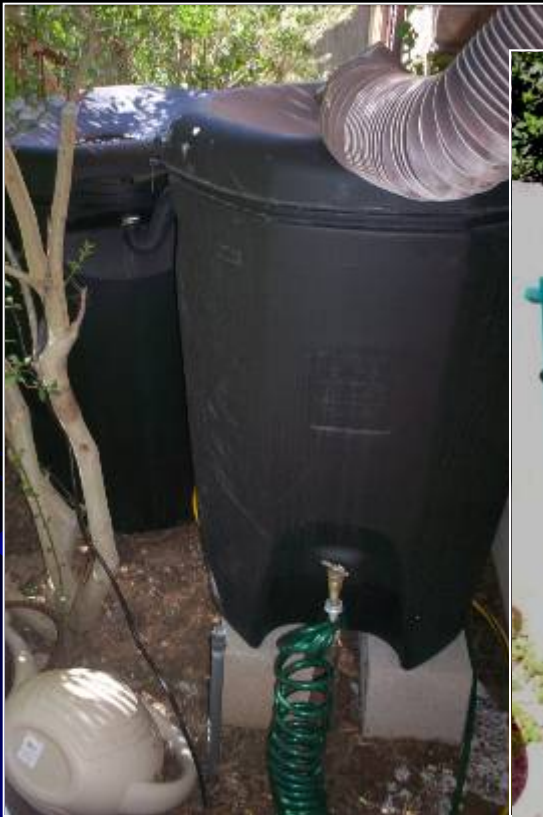
# Good source of tanks are “feed and ranch” stores



# To reduce algae, tanks should be black, green, covered, or painted



# Our Other Containers



# Zilker Botanical Garden Master Gardener Greenhouse



A 10' x 10' garden shed can collect  
60 gallons in just a 1" rain



750 gallon fiberglass tank

# New Underground Systems

Rainwater harvesting with Aquascape's



shown with  
Pondless® Waterfall

Please note: The numbers represented in this drawing show the stages of rain water harvest.

## 1 IRRIGATION SYSTEM

- Natural water is loaded with micronutrients and compounds that will make your plants flourish.
- A healthy garden consumes more greenhouse gases and properly irrigated soils allow for greater water infiltration and better overall soil profiles.

## 3 AQUATIC PLANTS

- Providing food and shelter for a great number of birds, insects and amphibians and the cornerstone for maintaining our biodiversity.

## 4 BIOLOGICAL FILTER

- Beneficial bacteria and enzymes reduce organic wastes and pollutants to less toxic substances that can be absorbed by plants, thereby creating a perfect cycle of nutrient re-use.

## 2 CONNECTING PIPE

- Carries the water via gravity to the main storage chamber. (sold separately)

## 3 MODULAR STORAGE BASIN

- Modular design can be configured to fit a wide variety of applications and settings.
- The storage basin consists of modular plastic tanks that are assembled on-site.
- EPDM rubber membrane creates a water-tight basin.

## 1 RAIN FILTER

- Captures and removes pollutants flushed into the system during a rain event.
- Coarse filter screen removes leaves, twigs, and seeds.
- Smaller suspended particles are captured in a fine mesh which can easily be removed for cleaning.

## 6 FLEXIBLE PVC

- Easy installation with minimal head pressures, which equates to overall efficiency.

## 4 SNORKEL™ VAULT & CENTIPEDE™ MODULE

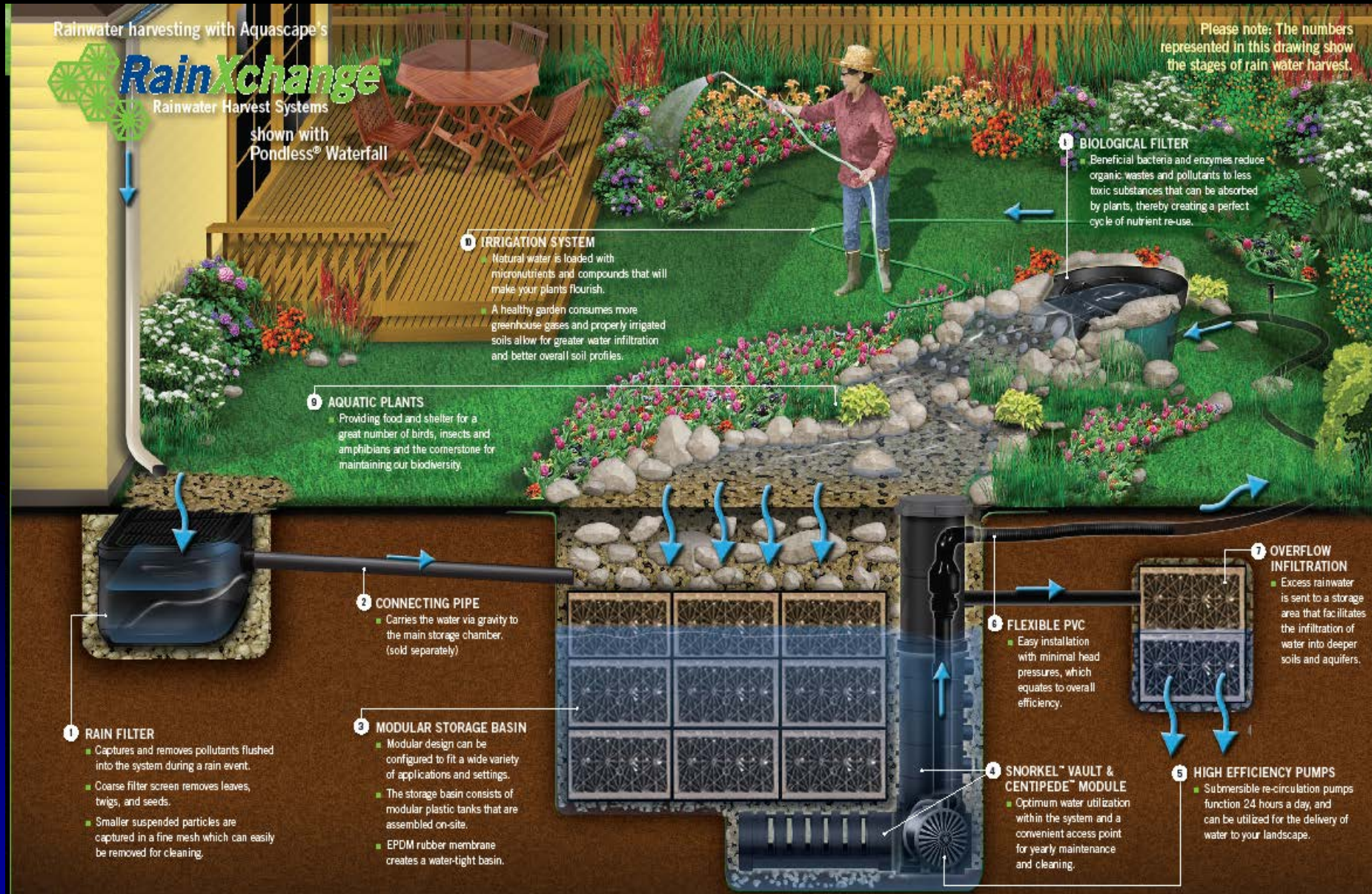
- Optimum water utilization within the system and a convenient access point for yearly maintenance and cleaning.

## 7 OVERFLOW INFILTRATION

- Excess rainwater is sent to a storage area that facilitates the infiltration of water into deeper soils and aquifers.

## 5 HIGH EFFICIENCY PUMPS

- Submersible re-circulation pumps function 24 hours a day, and can be utilized for the delivery of water to your landscape.



# Design Options



# Design Options



Joe Wheeler



# Design Options



Joe Wheeler

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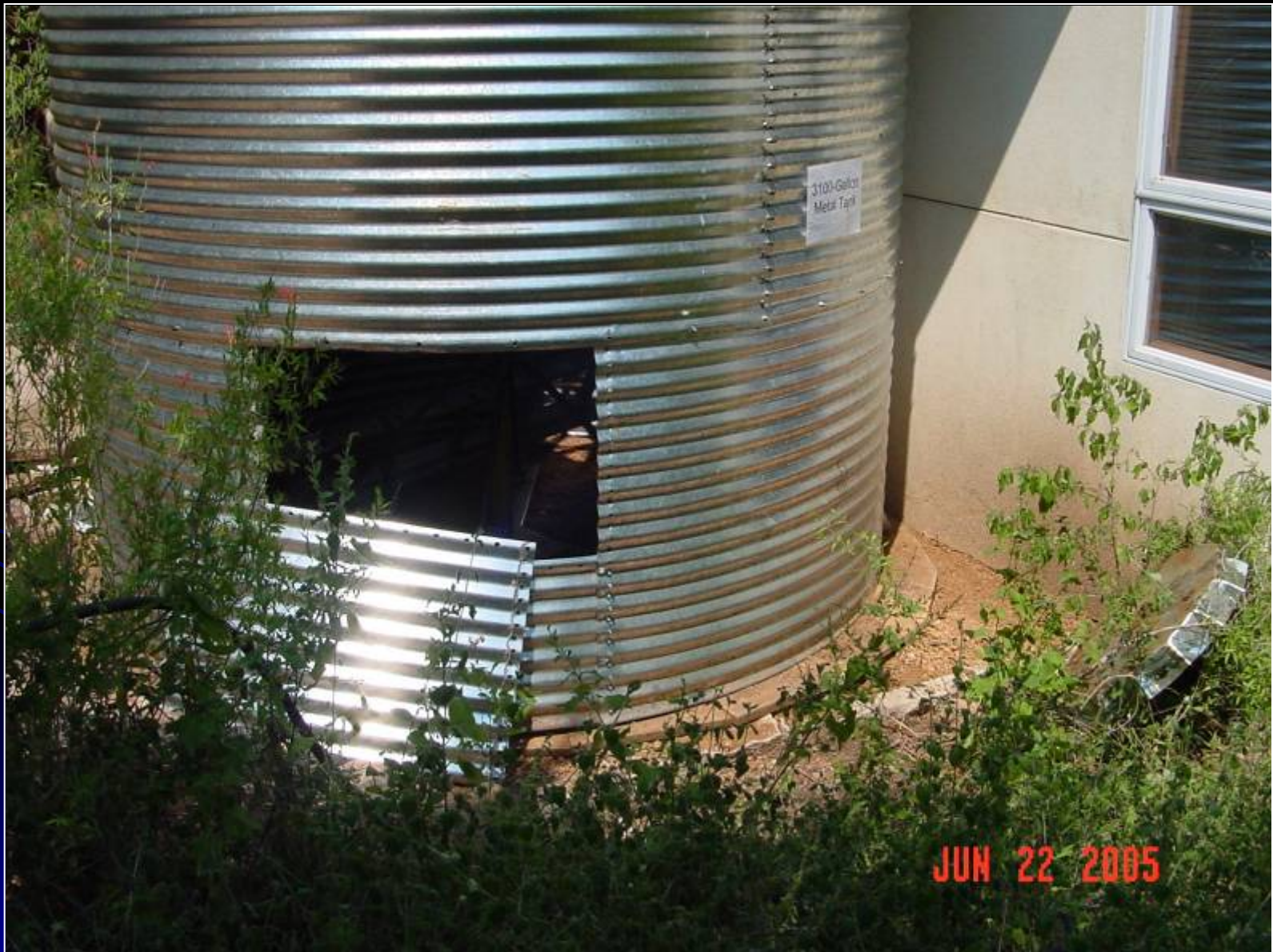
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# Components



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# Components



“My Cistern. My plan is to mount a 55-gal barrel around 10-ft off the ground, and pedal if full every other day or so (I’m pretty sure I can pump that high at better than 2 gpm) – then have a drip irrigation system to allow it to seep out on the garden. I hooked a water pump to a bicycle trainer and use it to pump water out of my rainwater catchment’s cistern. It takes about 30 minutes to empty a COA rain barrel at a fairly leisurely pace.” Larry Gilig ([gilg@dieproducts.org](mailto:gilg@dieproducts.org))

# Bt-Biological Mosquito Control



Whisky is for drinkin'...  
Water is for fightin' over!

Mark Twain

Water is a precious resource...

Use it wisely...

**Harvest rainwater!**



Austin History Center, St. Edward's cadet straddling Lake Austin

And remember, there's  
**ALWAYS** room for a FISH POND!



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