More information on rainwater harvesting products

It is best to do your own research when it comes to the quality of product you want to use. Rainwater harvesting is still new in Iowa. This list will help you start your search for rainwater harvesting products.

Rain Barrels

Many Iowa Soil and Water Conservation Districts are selling rain barrels. Contact your local SWCD, or visit the Rainscaping Iowa website for a listing of counties that currently have a program.

Rain Barrels Iowa is the only known wholesale supplier of rain barrel products in Iowa (www.rainbarrelsiowa.com). They also sell retail. Many other retail outlets (garden supply stores, hardware stores, lumberyards) are now selling rain barrels.

Rainscaping Iowa will maintain a listing of suppliers and available information on these technologies, but will not endorse any specific product or company. Vendors wishing to be added to this listing should contact www.rainscapingiowa.org.

Did You Know?

- American households use about 146,000 gallons of water per year.
- Of this amount, 42 percent is used indoors (mostly for flushing, bathing and washing clothes), and the remaining 58 percent is used outdoors.

Cisterns

Cypress Designs
www.cypressdesigns.com

National Tank Outlet
www.ntotank.com

Norwesco
www.norwesco.com

Plastic Mart
www.plastic-mart.com

Rain Tank Depot (also has bladder tanks)
www.raintankdepot.com

The Tank Depot (also has bladder tanks)
www.tank-depot.com

Bladder Tanks

AIRE Industrial
www.aireindustrial.net

Eco Sac
www.ecosac.com

Original Rainwater Pillow
www.rainwaterpillow.com

Rain Harvesting
www.rainharvesting.com

Rainscaping Iowa promotes methods & practices to create landscapes that protect & improve water quality.

www.rainscapingiowa.org

Iowa Storm Water Education Program

Polk Soil & Water Conservation District

Iowa Department of Agriculture and Land Stewardship

Rainscaping Iowa
Landscapes for clean water

Brochure created by the above partners.
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June 2010

Rainwater Harvesting

What can we do with rainwater?

Rainwater is often treated like wastewater in our communities. Our rooftops and yards are designed to shed rainwater runoff to the street, down the storm drain, and into receiving streams, rather than absorbing and infiltrating it. Then, we use drinking water to water our lawns and gardens. Rainwater harvesting is a way to capture rainwater for such uses and conserve treated drinking water.

In the past, many homes in cities had a cistern to capture and utilize rainfall for household purposes. Concerns over safe drinking water led us away from rainwater harvesting practices. While treated drinking water remains an important modern benefit, harvesting rainwater for non-drinking water uses is gaining momentum.

The simple way to start harvesting rainwater is to install a rain barrel. There are more elaborate rainwater harvesting storage systems available to capture rooftop water, such as modern cisterns and bladder tanks. It is even possible for these large scale systems to meet all non-drinking water uses, such as toilet flushing, and laundry.

Rain barrels for capturing rooftop runoff

Rain barrels collect and store rainwater from rooftops for watering lawns and gardens.

A single rain barrel is used in this yard to water vegetables and flowers.

Purchase rain barrels from a local garden center, a city stormwater program, a local Soil and Water Conservation District or a company that specializes in rain barrels. You can also create your own rain barrel out of a food grade plastic barrel.

Food grade plastic barrels may not weather the elements as well as more expensive, durable systems unless they are coated with something to protect against the sun.

Typically, food grade plastic rain barrels may capture up to 60 gallons of water. High density plastic barrels that are weather and ultra-violet resistant can be purchased from numerous companies and stores. Prices for rain barrels range from $75 to $300.

Did You Know?

That 60 square feet of roof will fill a 50 gallon rain barrel with only 1 inch of rain!

Rainscaping Iowa
Landscapes for clean water

MORE ON RAIN BARRELS...

Purchased barrels usually have a removable lid that has holes and a protective screen. The downspout is redirected onto the top of the barrel. Some manufactured barrels have downspout adapters. For others, a flexible plastic elbow is attached at the end of the downspout and placed on the top of the barrel. A garden hose can be attached at the top to decant the overflows. A rain barrel will fill up quickly and require an overflow for frequent drainage. Consider having the overflow drain to a rain garden. Multiple rain barrels can be installed to increase storage capacity. Barrels must be emptied or have the valves opened during the winter weather to prevent damage from freezing and cracking.

A triple set of rain barrels, connected to each other and draining to a garden or lawn area.

Source: www.ne-design.net

GOING BEYOND RAIN BARRELS

Rainwater can be harvested on a larger scale, depending on needs, budget, and the size of area generating runoff. In Georgia, drought conditions brought about the need to consider alternatives to using drinking water for such needs as irrigation in residential and commercial areas. They have developed rainwater harvesting guidelines that provide design and installation guidance for above and below ground systems. Texas, Arizona, and Washington have similar guidance documents.

These larger harvesting systems collect, store and use precipitation collected from rooftops and other impervious surfaces. They can be used to supplement non-potable (non-drinking) water uses. Filters, pumps, pipes and controls must be designed to redirect harvested rainwater for multiple uses within a household. However, it is important that local, city, county and state codes be complied with to prevent cross contamination of drinking water.

Winter conditions in the Midwest require cisterns be located in heated areas or placed below ground if harvested rainwater is to be used year-round. It is important to consider the weight of water when siting an above or below ground tank. Consider that water weighs just over 8 pounds per gallon, so even a small 1,500 gallon tank will weigh about 12,000 pounds. Tanks need to be placed on a level, stable surface.

A below ground cistern installed for water harvesting storage and use.

Source: Georgia Rainwater Harvesting Guidelines

SIZING AND ROOFTOPS

To determine the size of containment unit needed for harvesting rainwater, first assess the plans/needs for the harvested water.

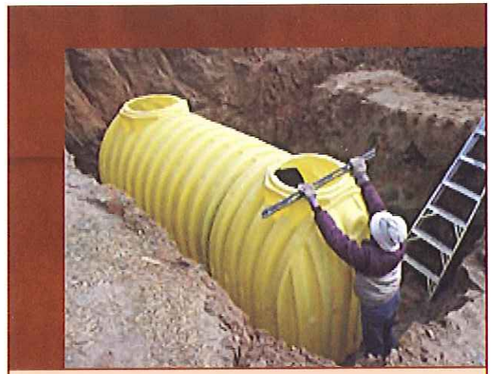
Determine the gallons of water needed then use the following calculation to determine the amount of water yielded from the area generating runoff:

Harvested Water (gal) =
Rooftop Surface (sq.ft.) x Ave. Rainfall Event (in.) x 0.623

Observe local city and/or county regulations pertaining to the indoor use of captured rainwater from cisterns, bladders or other systems.

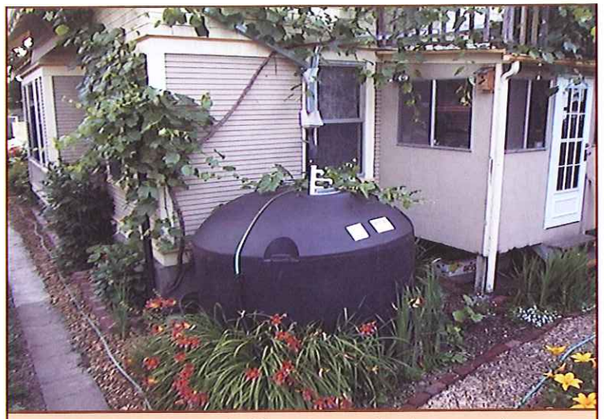
OPTIONS FOR CISTERNS

Cisterns can be used as a secondary source of water for gardening in residential areas. Larger cisterns can be adapted for use to supplement non-potable (non-drinking) water systems. As stormwater reuse and water conservation becomes more widespread, the use of cisterns for non-potable water use for commercial and industrial applications will grow. Cisterns can either be above ground, below ground, stored inside a heated storage area, or anywhere outside that is deemed appropriate. Small cisterns can be as easy to install as a rain barrel. Larger systems will require a contractor.



This buried cistern will be used for flushing the toilet, cold water washing, and outdoor watering. A backhoe was used to dig the hole, the tank was pushed into position, plumbed, and covered with dirt. A pump is used to pressurize the water.

(Source: www.buildingwithawareness.com)



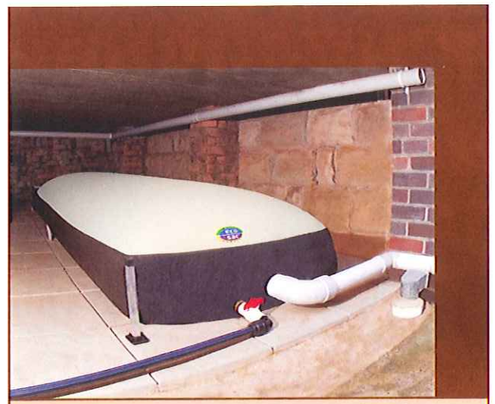
A 1500 gallon cistern fed from two gable downspouts.

(Source: Experiments in Sustainable Urban Living)

OPTIONS FOR BLADDER TANKS

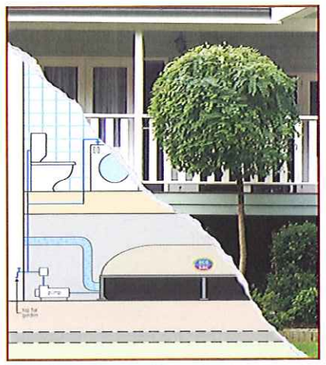
Bladder tanks are a relatively new technology that consists of a reinforced synthetic bag, that is supported by a frame, and stored beneath a deck, porch, or other below-building location. They come with inlet and outlet pipes and can generally store between 500 and 5000 gallons of water. The sizes and capacity vary according to length and width of the bladders. The bladders are sealed yet flexible, with an enormously high puncture resistance.

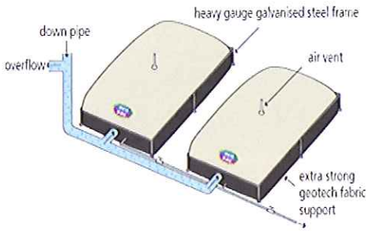
If space permits, multiple bladder tanks can be installed either end-to-end or side-by side for maximum storage, as demonstrated in the diagram below. Bladders are typically designed to fill to a maximum height of 24 inches.



This 2000 gallon bladder captures all rooftop runoff and recycles for non-drinking water uses.

(Source: www.ecosac.com.au)





(Source: www.rainharvesting.com)