



COLD CLIMATE HOUSING RESEARCH CENTER

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ENERGY FOCUS

Keep Your Garden Happy with Water Catchment System

By Adam Wasch

The worms are squirming, the pollen is flying, and your XTRATUFs are muddying. Gardening is a great outdoor activity. Yet, gardens require a lot of water. So, if it doesn't rain regularly, you can find yourself in a bit of a bind. If you have plumbing, watering is a snap. But what if you want to conserve resources, save money, or don't have a ready supply of water? Simple: Build a water catchment system.

Water collection systems can be as simple as a rain gutter directed into a barrel or as sophisticated as a buried tank supplied by multiple sources and equipped with filtration and pump systems. The easiest way of collecting rainwater is catch it as it drops from your roof and eaves. Of course, this works best if your home has large roofs fitted with gutters. But even a small roof can collect significant amounts of rain.

For every square foot of roof, you can collect a little more than a half gallon of water per inch of rainfall. Fairbanks has an average of 10 inches of rainfall a year (some years much more, others much less). This means a smallish cabin in Fairbanks with a 1,000 square foot roof can collect about 5,000 gallons of water per year. More if you collect snowmelt in the spring.

A basic cistern system involves a series of gutters connected to conduits and as big a tank as you want or can afford fitted with a faucet. You can let gravity do its work provided the tank is on a stand, or you can use a submersible pump. Over time, the tank will fill with sediment, which will require cleaning periodically. Also, it's a good idea to empty and clean the tank each year. This will help control algae growth, but also prevent damage due to freezing in winter. Be sure you support the tank adequately – just one gallon of water weighs around 8 pounds.

The acidity and content of your rainwater will vary depending on the makeup of the rainwater itself (rainwater is affected by sulfur and other pollutants in the air), your roofing material, and other debris that may collect in the catchment system such as leaves, pollen, and other unwanted stuff like accumulations of bird droppings. Downspouts, gutters, or the tank opening can be fitted with screens to keep large debris out of the system.

Consider what your roof is made of. For example, aluminum is great, but sod just won't work. Also, be sure your roofing materials are not toxic – ask the manufacturer. It's possible, though unlikely, that old roofs may use asbestos shingles or other toxic materials.

More advanced systems include a trap to minimize unwanted stuff from getting into your main tank. A trap is basically a smaller tank containing baffles. Water enters this smaller tank first and filters out sediment and other materials before they can flow into the main tank. You may want a way to divert water from the collection system until a good rain has had chance to wash your roof of heavy pollen or other accumulations. Also, it is important to anticipate overflow and direct surplus water away from your home or other structures.

If you go through all the work of building an advanced water catchment system, consider going just a few steps further. Fitted with additional filters and plumbing, a cistern can provide grey water for indoor use. Yet more treatment and it's possible to have a source of drinking water. For more information about water catchment systems, check out UAF's Cooperative Extension Service, which has produced a pamphlet on the subject. This topic and more is available online at:

<http://www.uaf.edu/ces/pubs/catalog/>

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For questions or comments please contact CCHRC at (907) 457-3454