

## No Well Needed At This Rural Home

Why spend \$22,000 drilling a well to get water you can't drink when water is free from the sky? For Christian Milaster there was no question. Rainwater was the way to go.

"Wells in this area are going down 600 feet and getting water with high levels of nitrate," says Milaster, who lives in a part of southeastern Minnesota where sinkholes are prevalent.

The answer makes even more sense if you consider that his home is also off the electric grid. His small wind turbine generates enough power for the house, but not enough for a 240-volt pump for a well. A low power pump to fill a cistern would have required its own solar panel. To go on grid with his location would have cost him another \$12,000.

To design his water storage system, Milaster calculated daily needs and then added capacity for an eventual family. He determined his 2,500 sq. ft. roof would supply him with 1,500 gal. of water from each 1-in. rain.

The only constraint would be having enough storage to carry him through winter. A friend who relies on a cistern for house water suggested having enough storage for 100 days.

Milaster decided to go with 7,500 gal. of storage. He acknowledges that his system is overbuilt for a one-person household. While he only uses around 40 gal./day, he hopes to eventually have a family, so he installed three 2,500 gal. tanks in his basement. A fourth smaller tank installed outside stores over-run for potential yard and garden use.

"I started this past December with a full system, and it never dropped below 4,800 gallons," he says. "We had a little rain in Janu-

ary and some snow melt bringing it back up to 6,600 gal. by late March."

Milaster credits little things like the snow rakes he installed on his steel roof. They catch and hold snow until it can melt, rather than slide off the roof. He also has water efficient appliances and even bought special toilets developed in Australia. They give him a choice of flushing with either 0.8 or 1.6 gal. of water.

"I also have a backup system with a pipe inlet in my garage so I could have a tank truck bring in water in the case of an extended dry period," says Milaster.

Debris has been kept to a minimum in the system, thanks to leaf guard gutters. He still plans to install a first flush diversion system that would divert initial rainfall until the roof had been flushed clean. However, he notes that his 300-gal. settling tank has not collected any material to date. Water flows from the settling tank into the three main storage tanks, which are connected in line, maintaining equal levels at all times.

Milaster's only regret with his system is not installing an in-ground cistern away from the house. High humidity in his water tank room has resulted in mold on the walls and ceiling that he is working to contain, if not eliminate.

"Once I have my full solar power system in place, I hope to get the humidity down in the room," he says.

Milaster plans to install a photovoltaic panel to add capacity to his current system. At this time, he still relies on a backup generator when wind power is insufficient.

The only change ahead for the water system is a plan to install a reverse osmosis fil-



Christian Milaster designed a water storage system that collects rain water from his home's roof. He installed three 2,500-gal. tanks in his basement.



Snow "blocks" on steel roof (left) catch and hold snow until it can melt. A fourth smaller tank installed outside stores over-run for potential yard and garden use.



tration system for drinking water. Currently he fills jugs with filtered water at nearby supermarkets.

"I haven't tested water quality yet, as a complete analysis would cost \$120," he explains. "As a single person, I only spend about \$80 a year to bring in drinking water."

Milaster maintains a web page with exten-

sive information about his off-well, off-grid home.

Contact: FARM SHOW Followup, Christian Milaster, 100 Hidden Valley Drive, Lanesboro, Minn. 55949 (ph 507 467-3088; www.lichtstein.org, christian@lichtstein.org).

David Hunt bolted a 1/2 hp electric motor in place of the engine on his Sears rototiller. Pulley on motor belt-drives rototiller gearbox.



## Gas Rototiller Converted To Electric Power

When the gasoline engine on his Sears Craftsman rototiller quit running, David Hunt of Pass Christian, Miss., remembered an idea he saw in FARM SHOW'S "Encyclopedia of Made It Myself Ideas". It told how to "re-power" a rototiller with an electric motor.

"It only took a couple of hours to do and it works great. It's useful for small gardens that are within a short distance from electricity," says Hunt.

After removing the old 5 hp engine, Hunt made a platform from pressure-treated plywood and bolted it on in place of the engine using four 6-in. stove bolts. Next, he bolted a 1/2 hp electric motor to the platform using 1 1/2-in. bolts. The pulley on the motor belt-drives the gearbox. He then ran the motor's electrical cord to a switch he mounted on the handle.



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"My electric tiller is quiet and always starts, and I'm amazed at how much power it has," says Hunt. "The pulley on the electric motor and the pulley on the gas engine were both the same size so matching it up to the gearbox was no problem."

Contact: FARM SHOW Followup, David H. Hunt, Pass Christian, Miss. 39571.



California firm turns steel shipping containers into temporary or even permanent housing. The 8-ft. wide buildings are up to 40 ft. long and can be connected together.

## Shipping Containers Turned Into Portable Housing

If you need living quarters quick, check out Global Portable Buildings, Inc. The Santa Rosa, California, company turns steel shipping containers into temporary or even permanent housing.

According to vice president Sean Taylor, the buildings range in size from 8 by 20-ft. to 8 by 40 feet.

"Their modular design also makes it possible to connect as many of the 8 by 40 units together as needed," Taylor says.

Global Portable Buildings are ideal for such things as bunk houses, workshops, tack rooms, shower and toilet units, offices, and storage spaces, just to name a few.

The company offers basic features such as large, 5 mm-thick windows with screens, blinds, removable metal window shutters, fully finished rigid 2-in. insulated walls and ceilings, finished linoleum floor, a utility room, a complete 110/220-volt electrical system with fluorescent light fixtures, wall plug receptacles, ventilation fan with on/off switch, and a telephone connection with stan-



Company offers basic features including fully finished insulated walls and ceilings, electrical system, etc.

dard modular hookup.

The buildings can be shipped to any location. The price for a 6-person bunkhouse is \$26,545.

Contact: FARM SHOW Followup, Global Portable Buildings, Inc., 3000 B Dutton Ave., Santa Rosa, Calif. 95407 (ph toll-free 888 547-0840 or 707 547-0840; sean@globalportablebuildings.com; www.globalportablebuildings.com).