

“Floating Foundation” Keeps Cabins From Getting Flooded

Custom cottage builder Devin Dupont got tired of watching waterfront vacation cabins get flooded. So he designed a “floating foundation” that uses telescoping posts and air-over-hydraulic jacks, permanently bolted to wooden beams, to raise buildings up before water arrives.

The idea is still in the testing stage and is part of an experiment Dupont is working on in an area that allows such testing. Otherwise, regulations require that such buildings be set on concrete foundations.

“It lets me quickly raise a cabin any time there’s a threat of flooding. The building can be raised up to 4 ft. off the ground,” says Dupont. “I use 4 hydraulic jacks, one at each corner, to raise the building.”

“I’m using lightweight buildings that measure only 36 ft. long by 16 ft. wide, but I think the same idea would work on larger buildings if you used larger posts and jacks.”

The telescoping posts used are normally used to support wooden beams in basements. The bottom part of each telepost is sunk 3 ft. into the ground and is welded to a 16-in. sq. steel plate, which rests on top of the ground. The top of the telepost is lag bolted to a wooden beam that carries the weight of the cabin. Two or three beams are used per building, with the teleposts spaced 6 ft. apart.

To raise the cabin, Dupont simply hooks up hydraulic jacks to the teleposts. He keeps

4 hydraulic jacks on hand so he can lift each corner of the building simultaneously.

“It’s easy to use and it works,” says Dupont. “There’s no concrete involved, and it takes just a few hours to set up the foundation for each building. Each telepost can carry almost 9,000 lbs. The 16-in. plates are the same size footing you’d put in for concrete so they’re more than enough to carry the buildings.”

“I’m using lightweight buildings, but I set the buildings on either 2 or 3 beams, with a total of 5 plates per beam. With some modifications, there’s no reason you couldn’t lift a building up to 8 ft. off the ground.”

He had a local fabricating shop cut each telepost to the length he wanted, and then welded a 3/8-in. thick, 16-in. sq. steel plate to the middle part.

“I’ve used this system on 3 different cottages for more than a year, and the buildings haven’t moved even 1 in.,” says Dupont. “One time, the steel plates were underwater for 3 weeks but didn’t sink at all.”

“I pre-assemble the buildings and then haul them on trailers to the site, where I’ve already dug the holes for the teleposts and bolted the beams to them. Each telepost has a series of small holes in it spaced 3 in. apart. As the telepost goes up, I insert a steel pin through the holes for the height I want.”

He says the cost varies depending on the number of teleposts. “A building set on 3



Cabin’s floating foundation uses telescopic posts and air-over-hydraulic jacks, permanently bolted to wooden beams, to raise building up before water arrives.

beams sells for \$4,000 to \$5,000, depending on the terrain and how long it takes to drill holes in the ground.”

Dupont uses standard plumbing with his cabins but adds flexible rubber at the joints. “All the cabins I build are off grid so I use tanks and hoses, which get hauled away and drained,” he notes.

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To raise the cabin, Dupont hooks up hydraulic jacks to telescopic metal posts.



Cargo Gard bracket protects front of tractor. It also holds suitcase weights.

“Cargo Gard” Fits Deere Garden Tractors

Al Zimmerman’s newest Deere garden tractor attachment, the Cargo Gard (\$139), serves three useful purposes. It protects the front of the tractor. The bracket can hold suitcase weights. And, when lowered, it can carry a toolbox, cooler or other items up to 40 lbs.

“I try to come out with something new every year,” says the Brownnton, Minn., manufacturer who also collects Deere garden tractors.

“A group of John Deere collectors (www.weekendfreedommachines.com) really gave me my start,” Zimmerman says.

While most customers own Deere tractors, his attachments can also be made for other models if he has the measurements.

He builds heavy-duty attachments made of the best steel. “The Loadlifter (\$239) is my best seller,” Zimmerman says.

It has 24-in. long forks rated to 300 lbs. that are handy to move pallets. He suggests that customers store seldom-used items such as snow blowers on pallets and move them around with the Loadlifter.



Hinged bracket can be lowered to support a toolbox, cooler, or other cargo.

Another popular item, the Hydraulic Angle Kit (\$259), comes with brackets, a cylinder and hoses to transform a single action blade into a four-way hydraulic angling blade operated from the seat of the tractor.

All his attachments are easy to take on and off with quick-tach, bolts or 2-in. receiver hitches. Check out his website for videos of some of them in action.

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Bloom Energy’s fuel cell power generator comes with a solid oxide fuel cell that’s designed to use natural gas or biogas.

Fuel-Cell Power Plant Catching On Fast

Bloom Energy’s fuel cell power generator offers large commercial users a new kind of independent power. Designed to use natural gas or biogas, the solid oxide fuel cell (SOFC) is a lower cost alternative to other fuel cell technologies as well as conventional generators.

Bloom Chief Executive KR Sridhar suggests that a new leasing program may make access to the company’s Energy Servers more affordable. This may allow the company to expand to serving groups of residential customers over the next decade.

A single Bloom Energy Server provides 100 kW of power, enough for 100 average homes. The completely integrated power plant and power delivery system is packaged in a unit the size of a standard parking space. To get more power, just add another unit. Users only need to attach a fuel source and plug the power into their internal grid.

Fuel cells produce electricity through an electrochemical process instead of combustion. SOFC fuel cells use low cost silicone instead of the precious metals required for other types of fuel cells. SOFCs operate at temperatures typically above 800°C, giving them extremely efficient energy production and fuel flexibility.

The Bloom Energy Server can also be reversed to produce hydrogen using electricity from wind generators and solar cell arrays. This gives users the option of producing and storing energy from those sources for later electricity generation.

At \$800,000 each, the mini-power plants aren’t cheap. Current customers include large energy users such as Walmart, Staples, Coca Cola, FedEx and others. To offset the upfront cost of purchasing a plant for smaller companies, Bloom has set up a leasing arrangement called Bloom Electrons. It lets customers lock in their electricity costs for the 10-year lease.

Leasing customers can expect to reduce energy costs by as much as 20 percent immediately and more over time as grid power costs rise. Under the plan, Bloom handles all service and maintenance, but the customer selects and secures the fuel source.

In addition to cost control, the on-site power plants offer users cleaner, more reliable power for sensitive computers and other electronic equipment.

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