



Dave and Jackie Smith custom-built this 100-ft. dia. horse arena on their farm, using tank covers salvaged from a local water treatment plant.



They hired a crew with a 100-ft. boom to set the 50-ft. long panels on 10-ft. high, 1-ft. thick concrete walls. Every other panel has a 3-ft. sq. opening for ventilation.

Spaceship Horse Arena “Landed” In Ohio

“The Mothership” is one of those landmarks that grabs your attention. The 100-ft. dia. round structure seems out of place on an Ohio horse farm. That’s because the spaceship-style roof actually came from a water treatment plant’s sewage tank.

Dave and Jackie Smith had talked about building an arena, and Dave recognized the potential right away when he saw an ad offering 18 water treatment tank covers for \$5,000 each. They had been removed from Akron, Ohio’s treatment plant after an upgrade, and the contractor decided to try to sell them before taking them to the landfill. What Smith didn’t know was that his estimated \$30,000 arena would end up costing \$46,000. That still turned out to be a heck of a deal considering what could have gone wrong.

“If we’d have damaged a panel, the whole thing could have been a bust,” Smith says,

explaining that the covers cost municipalities between \$300,000 and \$325,000, which would have made a panel expensive to replace. “But I did my homework and hired the right people, and I’d do it again.”

He hired a company to transport the panels in five loads on a 48-ft. drop deck trailer and stack them on his farm late last year. The 34 50-ft. long, pie-shaped panels weighed more than 18 tons.

In March, Smith dug footings and a foundation to support 1-ft. thick concrete walls. It took 162 yards of cement for an Amish crew to fill the 10-ft. tall wall forms. After letting the concrete set for three weeks, Smith hired a crew with a 100-ft. boom to set the panels.

Each panel was guided into place with the crane cable hooked to the ring on the center of each panel and a person on the ground with a rope attached to the bottom end. One stainless

steel all-thread bolt was drilled and epoxied to the wall for each panel. During the process a tractor, bulldozer and excavator were used for various tasks and to hold panels securely as more panels were added and wiggled in place. To place the last one required removing the 13-ft. door header and bringing the panel up from the inside with the use of the crane and loader tractor to tilt it in place. After placing the top cap, additional bolts were added to secure the roof.

“Once together the panels are quite rigid,” says Smith. An engineer told him that the roof is designed for a heavy snow load and won’t blow off in strong winds.

Every other panel has a 3 by 3-ft. opening. He plans to cover them with plexiglas sheets for the winter. During the summer the openings let in sunlight and circulate enough air to keep the temperature 5 to 8 degrees cooler inside than outside. Smith figures

covering the openings and installing a vinyl strip door will also keep the building warmer than the outside in the winter.

With a 25-ft. height from the floor to the top center, the building has a “wow” or cathedral effect, Smith says. With 140 tons of limestone sand spread for a floor, it’s been a perfect training arena and will be suitable for equine eventing competitions and clinics that the Smiths host.

Because the panels were used on the final phase of treatment, there is no odor, Smith notes, so the panels could be used for almost anything.

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Above Ground Root Cellar

Sidney Stubbs built his root cellar 3 ft. off the ground. More of a store room than a root cellar, it’s always clean with no visits from rodents or bugs. Best of all, it stays cool year round, but never freezes. It even has a secret entrance...right out in the open.

“I built this room for food storage onto the side of my guest cottage,” explains Stubbs. “It’s completely insulated with linoleum over the wood floor so it’s easy to clean.”

The floor and the outside walls have 10 in. of insulation. The ceiling has 18 in.

The entrance to the 6 1/2 ft. sq. storehouse is a big surprise to visitors. It appears to be a refrigerator door fitted into the wall.

“When I open it up, people are always surprised to see they can walk right into the building,” he says.

Stubbs wanted an airtight door, and the refrigerator door gave him one that was hermetically sealed and insulated. He’s even able to use the door shelves for storage.

To free the door, he went back 8 in. on the sides of the freezer and cut it in two using a ceramic-tipped metal cutting blade made by Makita.

“It’s a great blade; it can cut through Plexiglas, steel and 23-in. spikes in a 2 by 4,” says Stubbs.

Stubbs inserted 2 by 2 wood pieces in the insulated spaces in the doorframe to give it support when he connected it to the wall/doorway.

Stubbs then inserted a second large side-by-side refrigerator in the outside wall of the storeroom. He leaves the refrigerator door open, but leaves the freezer doors in place. It cools the storeroom spring, summer and early fall.

“If it gets really hot, I also open one or both freezer doors,” says Stubbs.

With the condenser side of the refrigerator

outside the wall, no extra heat is added to the room. Stubbs did build a protective shelter over and around the exposed refrigerator.

In the winter, when heat is needed to keep the room from freezing, Stubbs turns on two inexpensive hair dryers. He keeps them pointed at the floor where salvaged heat exchangers from old fridges rest on 2 by 2’s.

“Stored goods not on shelves sit on heat exchangers so they are up off the floor,” says Stubbs. “The hot air is able to get under the exchangers to keep things from freezing at floor level.”

Both the refrigerator and the hair dryers are tied into a variable temperature thermostat on the wall in the guest cottage. Stubbs uses two hair dryers so he has a backup should one quit.

“In the spring I unplug the hair dryers and plug in the fridge when the temperature reaches 46 to 48°,” he says. “The room stays an even temperature year round. I once put ice cream that was just right for scooping in the freezer compartment. It stayed that way for three weeks.”

The system has served Stubbs well. He says he paid \$300 for the second hand “cooling” fridge, and it has lasted 12 years.

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Open refrigerator door cools cellar during summer months. A pair of hair dryers provides winter heat. Back side of refrigerator extends outside the building.



Refrigerator door mounted in cellar wall was a low-cost way to provide an air-tight entrance point.

