Mike Bauer wanted a deck that wouldn't deteriorate over time. "I didn't attach it to the house because the steel will contract and expand," he says.

Metal Deck Built To Last 100 Years

"I've seen a lot of wooden decks that have deteriorated over time and are unsafe. I didn't want that to happen at my place," says Mapleton, Minn. farmer Mike Bauer. "I'm building this deck to last for 100 years."

Bauer used 5-in. steel tube posts with 1/4-in. sidewalls. Each support is either embedded in concrete below the frost line or bolted onto a concrete wall. The stringers for the deck flooring are made with channel iron, I-beams and tubular steel that's welded rather than bolted in place. "I didn't attach it to the house because in our weather, with temperatures ranging from 100 above to 30 below, the steel will contract and expand 3/8 in. It's self-supporting so it won't move the house."

Measuring close to 800 sq. ft. and reinforced by angled braces welded to the posts and stringers, Bauer says his deck will support 200 people and still be strong enough that a chain hoist anchored underneath can lift a good size farm tractor. The deck support structure is similar to those he used to build to hold 100-ton presses at a large printing company in the town where he worked.

"I learned to weld before I could drive," says Bauer. "So I spent a lot of time making things before I could go anywhere on my own. Now that I'm slowing down a little, I still like to build things and repair machinery or equipment in my spare time."

Stringers for the deck flooring are made with channel iron, I-beams and tubular steel that's welded in place.

Building the deck has been nearly a 2 year project that he hopes to finish in 2014. It'll have metal railings and spindles and be made with nothing that can deteriorate or rot. Decking will be bolted onto the flanges of the I beam stringers.

"I saw a metal deck once in South Dakota that was 125 years old and still solid as a rock, and I'd like mine to last just as long, " says Bauer.

Contact: FARM SHOW Followup, Mike Bauer, 12644 615th Ave., Mapleton, Minn. 56065 (ph 507 380-2447).

Jerry Cleveland surrounded his concrete dome cabin with metal mesh from an ear corn crib and fills the space with leaves each fall. As the leaves compost, they provide heat.

Concrete Cabin Heated By Composting Leaves, Lightbulbs

Jerry Cleveland has a concrete dome cabin out in the Minnesota woods that he heats with composting leaves and the light bulbs in a chandelier.

"The chandelier can handle up to 500 watts of bulbs," says Cleveland. "When it gets colder, I just screw in an extra light bulb or two and the dome stays warm all winter. Heating it in the coldest weather costs about $1 to $1.25 a day."

What makes the 12-ft. dia. EcoShell dome so energy efficient is the composting leaves around the outside. Cleveland surrounded the dome with metal mesh from an ear corn crib and fills the space with leaves each fall.

"I fill it in the fall, and as the leaves compost, they provide heat. When it gets too cold, the leaves stop composting, but they continue to insulate the dome."

By the next fall, he explains, the leaves have pretty much broken down. He then repeats the process with fresh leaves.

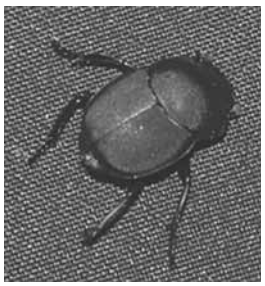
Cleveland built 2 of the 12-ft. domes as a demonstration for a neighboring school district, which eventually put up five 150-ft. domes to house grades K to 12. Each took about 5 yards of concrete, not counting the floor. The domes were constructed using an air-filled form. He laid a rebar skeleton over the form and put concrete over that.

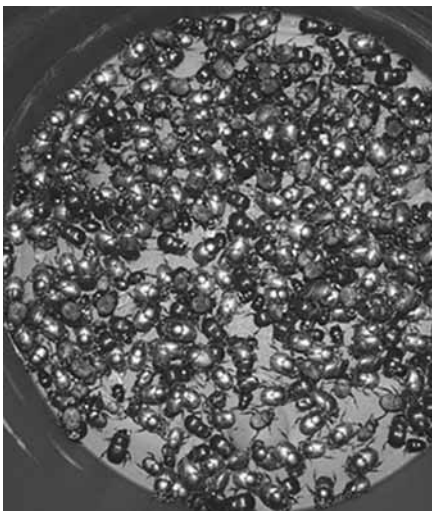
Cleveland's demonstration domes were moved to an abandoned gravel pit near his home. He uses the first dome for a private getaway and the second dome for storage.

The storage dome remains uninsulated, except for a similar coat of leaves each fall. Instead of continuous lights to heat it, Cleveland uses a small hand-held hair dryer once a week in the winter to warm it. "Over the course of a week, the temperature in the dome will only fall about 4 degrees," he says.

Cleveland estimates that the domes cost only about $600 each. He notes that they can be insulated to R60 and can withstand anything up to a 300-mph wind.

Contact: FARM SHOW Followup, Jerry Cleveland, 510 S. Hudson Ave., Spring Valley, Minn. 55975 (ph 507 346-2119; cell ph 507 421-3450).





Sandra Marvel says there's a significant market for dung beetles, which she sells to fellow ranchers, zoos, pet owners and even graduate students, who buy them for research.

Dung Beetles Provide Extra Ranch Income

You wouldn't really expect an attractive ranch lady to spend her day collecting dung beetles out of manure piles to sell, but then you probably don't know Sandra Marvel. A few years ago this Florida rancher learned there was a significant market for the little critters, so she started her dung beetle business.

First step: find them. Second step: trap and identify as many as 300 to 400 a night. Third step: keep them happy and well fed in 5-gal. containers with screened tops for a week or more. Fourth step: sell them to livestock producers, zoos, pet owners and fellow ranchers. Fifth step: ship them overnight in ventilated plastic containers with shredded bedding and cooling packs. The going price: 400 for $100, or 25 cents apiece.

Graduate students occasionally buy beetles for research and pet owners are making more requests every year.

All of Marvel's beetles originate on the Marvel Ranch, where she and her husband Dan raise registered Red Brangus cattle. Their stock operation is first class, producing 3 national breeding champions in recent years. They sell animals, semen, embryos and now dung beetles.

"It's probably not the business everyone wants to get involved in, but there's definitely opportunity," says Sandra. In the past few years she's sold about 35 to 40 orders a year. She says there might be as many as 39 different types of beetles on her ranch, so collecting and sorting them is important. She sells the Ohthophagus gazella and the Ohthophagus taurus beetles, both of which are tunnelers. The gazella was imported from Australia in 1970 to improve pasture conditions in Texas. Since the beetles reside in manure and can fly, and cattle are transferred from one area to another, there are dung beetles just about everwhere there are cattle.

Marvel says a healthy population of dung beetles will quickly devour the fecal matter in a fresh patty in 10 to 12 hrs. If the patty's on fresh pasture, the cattle will be eating where the patty was in 2 weeks or less. It's a win-win situation for ranchers because the beetles break up fly and worm reproduction, so pest populations are reduced.

Marvel says beetles tunnel into the ground and move the manure down with them. The tunnels aerate the soil and allow moisture to infiltrate easier, and roots then absorb the recycled nutrients. Other types of beetles dwell in the dung patty or roll the fecal matter into a ball and move it. "Nature has some really incredible creatures and beetles are a part of the mix, just like earthworms and microbials," says Marvel.

Preserving and enhancing a dung beetle population requires management. "Cattle producers should rotate the types of de-wormers they use and only de-worm one part of the herd at a time," Marvel says. "That way the beetles won't be decimated by chemicals that pass through animals' digestive systems." Also, there are beetle friendly de-wormers that are safer to use during the warm months when beetles are more active.

Marvel says the healthy dung beetle population on their ranch cuts down on horn flies and face flies. They limit de-wormers when ambient temperatures are in the high 60's or higher, when dung beetles become active. During winter months the beetles are inactive.

"I've heard that I'm the only person selling beetles in the U.S. so the door's really wide open for a little competition," says Marvel.

Contact: FARM SHOW Followup, Sandra Marvel, 28616 N.W. 142nd Ave., High Springs, Fla. 32643 (ph 386 454-3488; marvelfarms@windstream.net; www.dungbeetles.biz).