

COVER STORY

San Jose couple promotes city's first straw structure

By Mary Gottschalk

The concept of building a house out of straw calls to mind *The Three Little Pigs* and that big, bad wolf who huffs and puffs, easily blowing the straw house down.

Still, Rosemary DiNardo isn't worried about wolves, winds or anything else as she and husband Michael Kenniston are nearing completion of the first structure in San Jose built out of straw--rice straw bales to be specific, each measuring 18 by 16 by 26 inches and weighing between 65 and 70 pounds.

It's a 200-square-foot art studio for fine art painter DiNardo, being built in the back yard of their Shasta Hanchett Park home.

Approximately 100 straw bales are being used as infill, inside a post-and-beam wooden frame supporting the roof. The structure is quake-proof with or without the bales.

Over the weekend of April 12 and 13, the couple was joined by volunteers who paid to participate in the building.

When finished, the structure will be just as sturdy as one conventionally built, say those involved in the project.

DiNardo says her environmentalism "goes way back." She and Kenniston had already installed solar panels on their 1930s bungalow when they decided to build a studio. This new construction gives them the chance to do as green a building as possible.

First, a neighbor recommended an architect. When the architect learned they were looking for alternative building materials, she recommended Noel Cross of Noel Cross Architects in Campbell.

"I've been leading the charge in green architecture in San Jose," says Cross, who built his own Willow Glen two-story, 3,000-square-foot home of rammed earth.

It was the first rammed earth house permitted in San Jose, and the studio he designed for DiNardo and Kenniston will be the first permitted straw bale structure in the city.

"Rosemary and Mike originally wanted a cob building, but it's not real mainstream. Even rammed earth and straw bale are mainstream compared to cob. They would never get a permit for it," Cross says of cob, a building material made of clay, sand, straw, water and earth, similar to adobe.

"I nudged them toward straw bale as an alternative that makes sense and you can get a building permit for it," he says.

Still, he says, getting the permit from the San Jose Building Department "wasn't a slam dunk. They made us jump through a lot of technical hoops, and we did more work than you would normally have to do.

"They were all for it, but the burden of proof was clearly on us. We had to cite 15 years of history of straw bale buildings, prove it would work and pass the building codes."

The question that most arises about straw bale construction is moisture, he says.

"There is some moisture in the straw, and it needs to be able to get out. When built correctly, it breathes and it allows moisture to travel in and out. The normal moisture barriers you put in a house would keep moisture inside the wall," Cross says.

As long as the finishes, usually a plaster or stucco, are done properly, the

straw bales will "breathe," he says. If not done properly and moisture is trapped inside without a way to breathe, the straw itself will mold and turn into mush.

Kenniston says the walls of their structure "all rest on a layer of gravel, which ensures any water which might condense inside the wall will have a way to escape into the foundation without the bales getting their feet wet."

Cross sees straw bales as one of the more accessible natural building systems.

"The rammed earth I did on my house is a little more technical and not something you can do yourself. With straw bales, you can do it yourself, and it's accessible to the general public.

"Really the best thing about straw bale is it's a fundamentally green building system. You're not using very much wood to build your house. You're putting up a structure and infilling with straw bales."

Among the pluses Cross sees to straw bale construction is the insulation factor, which he calls "incredible. The insulation value of a straw bale house is 50 compared to 13 for a normal construction house."

He's also enthusiastic about the straw itself.

"You're using a waste product," Cross says. "They're made out of rice straw, which up to 15 years ago was just burned in the fields after harvesting.

"Nowadays they harvest the straw because they can't burn it anymore. It's now a waste resource being used for a number of things, like straw bales and a composite board version of plywood and sheeting.

"The cool thing about it is you're using a waste product to build from, and it doesn't have the toxic overtones of using something like recycled tires."

Cross found Michele Landbegger of Boa Constructor Building & Design Inc. in Watsonville to be the contractor on the project.

Landbegger, who explains her company name by saying, "I like word play," built her first straw bale structure in 1995 for herself. She has since built eight more.

"I started with a small straw bale structure, and the next year I started my house," she says.

"I'd been a carpenter for more than 15 years, and in 1994 I was given a copy of *The Straw Bale Book*. It was like the light went on in my consciousness. I'd first gotten into construction because I was interested in alternative energy."

Landbegger says she was drawn to straw bale construction "for lots of reasons. It was sustainable, using a waste product and it uses a whole lot less wood, more than 30 percent less wood.

"You still have wood in the roof structure, but much less in the wall structure and no plywood. I liked the idea it was natural and nontoxic."

Landbegger started working on her home in 1996 and finished it in 2006.

"I love my house so much, like this morning when I walked downstairs I was in wonder," she says. "It's comfortable to live in, and it has an inherent feeling of being in the right place at the right time."

The thickness of the walls, dictated by the width of the straw bales, lends itself to sculptured detailing, Landbegger says.

"You can do wonderful detailing around doors and windows because of the depth of the walls," she says.

In many of the straw bale structures she's built, Landbegger has put in wooden window seats to take advantage of the depth of the ledges.

While the plaster is what allows the walls to breathe, it is also, she says,

"sensitive to abrasion but easy to touch up."

Landbegger says the questions she is most often asked about straw bale construction are about water and rodents.

The water issue is no different than in conventional building, she says. "You have to detail windows and doors to divert water away, because if it isn't done properly, any house will leak. Having the house up off the ground on a good foundation with good waterproofing around the doors and windows is important."

As for rodents, Landbegger says, "straw bales are so densely packed, they are less inviting than a wood frame structure."

DiNardo and Kenniston decided to offset their construction costs by inviting the general public to a free lecture Landbegger gave on April 11, and then they charged those who wanted to get hands-on experience by participating in the building on April 12 and 13.