

Straw bale REHAB

Retrofitting adds efficiency, lends Southwestern ambiance to old home

By **TANIA SOUSSAN**
For the Journal

Joanne Calkins so loved the thick, soft-edged straw bale wall around her home that she decided to remodel the whole house to match.

"It kind of dwarfed the house," she said of the wall. "I kind of wished the house matched the wall and then I thought, 'Why not?'"

Calkins also wanted a view of the Sandias, so she added a second story to the Southeast Heights house. Next came a sunroom/greenhouse and solar panels on the roof to fulfill her decades-long dream of having a sustainable home that doesn't use a lot of energy.

Retrofitting a home with straw bales is an economical way to add insulation, upgrade electrical and plumbing systems and give an old house a face lift, said contractor Cadmon Whitty, who has done eight retrofits, including his own house, Calkins' home and even mobile homes.

The addition of the straw bales, wrapped around the existing structure and built as the walls of the additions, did a lot to reduce the home's energy use. The house dates to 1952 and had little insulation, making it cold and drafty in the winter and hard to cool in the summer.

Even before the final layer of stucco was added to the bales, Calkins said the house felt much more comfortable and warmer.

"It's like a great big feather quilt over the house," she said.

And "you get basically a new house at a fraction of the



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TOP: Homeowner Joanne Calkins is retrofitting the existing single story of her home with straw bales and adding a second story with solar panels and straw bales. The addition of the straw bales, wrapped around the existing structure and built as the walls of the additions, have helped reduce the home's energy use. The house dates to 1952 and had little insulation. **ABOVE:** Jasmine Mayne, with Paja Construction, fills in straw bales around the windows of the second-story straw-bale addition of a home in the Southeast Heights.

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Straw bale retrofit boosts efficiency

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cost," Whitty said.

Wrapping a one-story house in straw bales and covering it with a new, and thicker, layer of stucco costs about \$100 a linear foot. However, that does not take into consideration such things as replacing windows and doors rather than reusing existing ones, moving utility meters to accommodate the retrofit and extending a pitched roof if necessary. Working on a two-story home also is more costly.

The advantages are numerous. Because straw bales have an insulation value of about R-45, well above recommended levels for walls, it's not necessary to go through the difficult process of opening up existing walls to add insulation, Whitty said.

In addition, the 16-inch-thick straw bales allow for deep window wells, nichos, benches, curved edges and other interesting architectural details that lend themselves to a Southwestern, adobe style.

"It creates a much nicer look," Whitty said.

Calkins agreed.

"You can shape it because it's a natural material," she said. "This house has evolved. I feel like it is such a handmade house. I feel like it is a sculpture."

In addition, electrical upgrades and the addition of new outlets can be done at a fraction of the cost of traditional jobs by wiring on the outside of the existing walls rather than removing and then replacing the interior sheetrock, Whitty said. The new wiring is covered by the straw bales.

Whitty started doing new home construction with straw bales almost 20 years ago. Then, about 11 years ago, he decided to experiment and wrap his own old, underinsulated home in

straw bales. There were many unknowns such as how to secure the bales to existing walls, but "being impetuous by nature, I just blindly went ahead with it," he said.

The experiment was a success and Whitty cut his gas bills by three-quarters and his electricity use in half. The house is beautiful, quieter and more comfortable.

Whitty has since gone on to offer retrofits through his company, Paja Construction Inc., named after the Spanish word for straw, and helped found the New Mexico Straw Bale Construction Association.

Calkins, a New Mexico native who retired and returned to Albuquerque after a teaching career in California, decided she wanted to use extra money from the sale of her home in California to create a home that would be easy on the environment as well as nice to live in.

The house is going from 1,500 square feet to about 2,000 square feet, but Calkins' gas and electrical bills are going way down thanks to the solar panels, the insulation of the straw bales and new insulation added to the ceiling.

A gray-water system will pipe water from her new upstairs shower to the garden, something that can be done fairly easily in straw-bale retrofits or new construction.

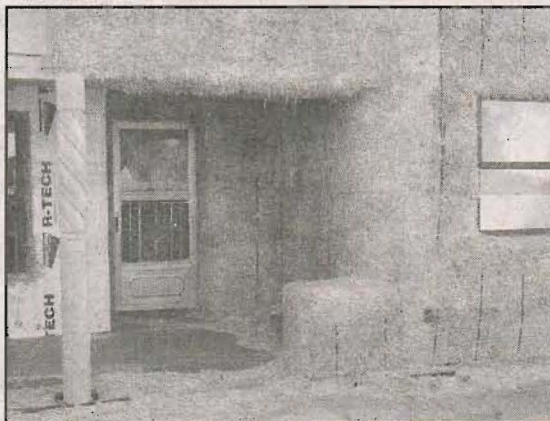
The cost for Calkins' total remodel is about \$130,000, which includes the straw-bale retrofit, enough solar panels to cover all her power needs, a new roof, electrical and plumbing upgrades and the additions.

"If you're going to do a remodel, I think straw bale is as cheap as anything else or cheaper for the value," she said.



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Chris Tafoya, right, with Paja Construction, and John Cromell, a friend of the owner of the company, use metal straps to set straw bales in place on the exterior of an existing home in the Southeast Heights. Homeowner Joanne Calkins wanted the retrofit, in part, because it was an economical and aesthetically pleasing way to add insulation to the house.



This 1950s home in the Southeast Heights is being retrofitted with straw bale. During work on the front entry, the door remained in place, but the window was moved out to accommodate the straw bales.

PHOTO COURTESY OF CADMON WHITTY OF PAJA CONSTRUCTION INC.