

A year in the life of a green home

The bills are low and the spirits are high for owners who moved into their five-star home last fall.

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The scent of fresh artisan bread baking doesn't waft through every energy-efficient house. But this one off Cuernavaca Drive belongs to Simone and Geoffrey Leavenworth, who mingle comfort, aesthetics and grace with green living.

Since last fall when they moved into their home, which earned a five-star rating from Austin Energy's Green Building Program, friends have been wondering: What is it like living in a green house?

Geoff Leavenworth ("Only my mother calls me Geoffrey.") answered briefly on his Green Building Journal blog (statesman.com/greenbuildingjournal), then led a tour of the compact, two-story courtyard home with panoramic views in West Austin.

In the summer of 2006, the couple began interviewing architects for what became Casa Conejo, named for the many rabbits that bounce around the property. "Size matters," says Geoff Leavenworth. "One of our exercises was to decide what rooms do we live in and what do we need beyond that."

Designing and building a space-efficient, not-so-big home is key to green living. "We're always trying to get people to build less, not more," says architect Christy Seals. "We make small spaces seem larger."

The Leavenworths' children are grown, so they were ready to downsize. They identified the spaces they would use the most as a modest-sized kitchen ("So we can both cook and not elbow each other"), laundry room, powder room, living space, master bedroom and bathroom.

"And that's exactly what we have on the first floor," Geoff Leavenworth says. "Upstairs we have a bathroom and an office and yoga room or contemplative space that open onto the balcony and can double as guest rooms."

To help create a green dwelling reminiscent of the haciendas they admire in San Miguel de Allende, Guanajuato, the Leavenworths hired 4-year-old Loop Design in Austin. It was a match made in Burnt Orange Heaven.

Geoff Leavenworth is special assistant to the University of Texas president. Simone Leavenworth is a career counselor at the UT School of Law. And Loop Design general partners Seals and Maria Smith hold master's degrees from UT's architecture school, where Smith teaches full time.

Besides school ties, Seals and Smith share an intense concern for energy-efficient, sustainable building with rainwater collection systems and landscapes that honor their clients' lifestyles and connect with the site.

"Everything has a price tag," Geoff Leavenworth says. "But orientation doesn't cost you anything but thought." In Central Texas, proper positioning for comfort and economy is north-south, which minimizes direct east-west sunlight. North-south orientation also takes advantage of prevailing breezes that typically come from the southeast.

Blue Horse Building & Design of Dripping Springs, which collaborated with Loop Design to finalize the design and meet the budget, completed construction in about 30 weeks. But fine-tuning the energy consumption at the all-electric home took longer.

"The plumbing was a battle," Geoff Leavenworth says. "On-demand hot water was causing unacceptably high electricity consumption. So we took out the recirculating pump and made it a conventional system." Also, he says, "The variable-speed, two-zone high-efficiency HVAC system had to be rewired several times."

Eventually, the tweaking paid off. According to Austin Energy, the average single-family home in Austin used a record 2,157 kilowatts of electricity in July, for an electric bill of \$235. The Leavenworths' 1,990-square-foot home used only 1,225 kilowatts in July, well below the 1 kilowatt per square foot that Austin Energy considers a benchmark of efficiency. Their electric bill, which includes the electric appliances and water heater, was \$128.87 in July.

"Based on six-months' performance," Geoff Leavenworth says, "ours is 30 to 50 percent more efficient than that of the average Austin Energy customer."

One way people can learn, he says, is by reading their meter. "That way you can find anything in the house that's wasteful. Ask your neighbor what he or she pays. Try to get a grip on performance."

Until the drought worsened, rainwater collection worked great. Two cisterns at the home can hold a total of 2,900 gallons for use in the landscape, and for every inch of rain, they collect 1,435 gallons. To further conserve, they're installing a drip-irrigation system.

"We're a low consumer, using only a total of 3,000 or 4,000 gallons of water a month," says Geoff Leavenworth, who expects those numbers to drop when their son graduates from college and stops doing his laundry at home on Sundays. An average Austin household uses about 8,500 gallons of water a month, more in hot weather, less in cold.

In keeping with its Mexican motif, the micro-hacienda has wide verandas, covered porches, an enclosed courtyard, parapet and balcony, all built with native Texas materials.

To get a five-star Austin Energy rating, a home must score more than 150 green points. With features such as Marvin's Integrity wood-sash windows with low-E glazing to reduce the transfer of heat through the glass and a reflective steel roof insulated with Agribalance spray foam, Casa Conejo racked up 181 points.

Spray foam is more expensive than fiberglass insulation, Seals says. "But it's a tighter form of insulation. It's more efficient and it makes it quieter."

Other green features include heating and air-conditioning ducts that are inside the thermal envelope (the insulated interior of a building) and the stained concrete foundation that serves as flooring. "Ours is more fragile than I expected," he says, eyeing some scratches and Frida, the sleeping dog.

The house also has a carport instead of an enclosed garage, roof overhangs that shade windows facing east and west and a driveway of permeable black gravel to reduce runoff.

Geoff vowed to leave his mower behind, but their lot, once a junk car graveyard, was rocky and dry. "We had to truck in soil and couldn't fill the courtyard with plants fast enough to prevent erosion." Now healthy tufts of Palisades zoysia anchor the soil.

Only one tree, a gnarly chinaberry, fell to construction. The new ones they planted — Mexican sycamore, Mexican white oak, Mexican olive and goldenball leadtree — are drought-tolerant, native and adapted species.

But Casa Conejo isn't obsessively green. The house has a skylight, which is not considered green, and does not have solar panels because Geoff Leavenworth thought they would not be cost-efficient for their situation. "The payout on them is a little slow," he says.

Nor is the house in the rugged, caliche hills above the Colorado River within a short walking distance from public transit, a food store or public hike-and-bike trail, which would have earned points toward a green rating from Austin Energy.

"The flip side is there's good hiking through the deep woods. We don't have to drive to hike. We just snap the leash on the dog and go. Besides, Frida gets carsick."

In the light-washed kitchen, with its granite-topped island and warm cherrywood cabinets, Geoff Leavenworth pulls two fragrant loaves from the oven and uncorks the wine.

"You don't have to give up anything in terms of comfort or function for a green house," Simone Leavenworth says. "It makes us a little more attuned to our environment, a little more aware of weather, and I love the way you can sit here and look at the treetops."

Green feature highlights:

- Compact, space-efficient (1,990 square feet) floor plan
- North-south orientation for summer shade and winter sun
- Energy-efficient wood-sash windows with low-E glazing
- Rainwater collection system for landscape use
- Metal roof insulated with spray foam
- Carport instead of enclosed garage
- Heating and air-conditioning ducts inside insulated spaces
- Flooring is stained concrete foundation
- Only native plants used in yard
- Low-flow plumbing and Energy Star fixtures