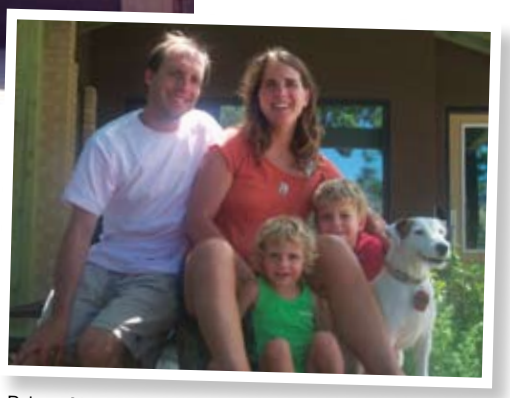
Garland Tree House

Reclaiming the '60s Ranch

by Brian Hludzinski



Brian, Margell, and family

Year Built, Remodeled: 1964, 2007–2008

Home Size: 3,400 sq. ft.

Contractors:

- Bella Energy (PV System) (see ad on page 8)
- Energy Logic, Inc. (Energy Consultant)
- Fuentes Design (Architect)
- Next Generation Energy (Solar Thermal)

Energy Features

- Active solar design
- Grid-tied 5.25kW PV system
- Solar thermal array for hot water
- Radiant floor heat (with tankless water heater), wall radiators
- Evaporative cooler and ceiling fans
- Daylighting and CFLs
- High-performance windows
- Heat-recovery ventilator with air filter
- Icynene foam insulation in whole structure, walls, and attic
- Zoned heating: 8 zones
- ENERGY STAR appliances

Green Features

- Use of engineered lumber, composite lumber, and fiber-cement exterior siding
- Bamboo flooring, wool carpet, recycled pop-bottle carpet, marmoleum
- Low-VOC laminated kitchen cabinets, interior primer, and paint
- Kitchen counter is made from compressed paper (100% recycled)
- Metal roof with high solar reflectivity

Water Features

- Drip irrigation
- Low-water lawn
- Relocated turf and planters and reduced existing irrigation system
- Low-flow plumbing fixtures

Re-Use/Salvage Features

- Recycled most construction waste, metal, cardboard, and wood
- Used old roof truss lumber in framing new shed on property
- Reused old brick for patchwork
- Buried unused brick and mortar onsite

In the heart of Boulder, this story begins with the news from our neighbors that they planned to move and sell their home. It was a 1964 ranch that hadn't had many upgrades over the years. We knew we lived in a great location within Boulder, accessible to everything by bike or walking, but the neighbor's backyard was a hidden gem of mature trees and lush vegetation. With two preschoolers and a dog rounding out the family, we took the ambitious task of purchasing our neighbor's home with the goal of doing an extensive remodel, including a second floor, and selling our existing house within a few months of that initial conversation.

We had a number of goals in mind from the start, including reusing most of the existing structure, making it super-energy-efficient with as minimal of an environmental footprint as possible, all within a budget. Good luck.

Despite the short timeline, we did have a couple of things going for us. The first was Brian Fuentes, who happened to be a cycling buddy and a local leader in natural, energy-efficient design. Also, the USGBC had just published its LEED for Homes pilot program. We now had a guidebook for a green home. The guide became an integral part of our house systems approach and gave us a stretch goal.

We opted to favor an active solar design to maximize the solar PV and thermal systems, while incorporating passive solar design where possible. The south-facing roof was maximized to hold a 5.2kW PV system, and three solar thermal panels were mounted horizontally on a second-floor deck.

A lot of effort went into the envelope. We felt we could upgrade interior finishes later, but that wouldn't be the case with the structure. We addressed exterior durability by keeping the original brick, using fiber-cement siding and stucco. The fiberglass window frames, doors, and stucco construction provide a good thermal break. The existing exterior walls were widened and the whole shells, including the basement walls, have a layer of insulating foam that also helps reduce air leakage.

Indoor air quality was very important because it has great potential for negative affects on our health. The paints, most cabinetry, and finishes are all low-VOC. We installed a heat-recovery ventilator with an air filter to provide fresh air during the winter and circulate air from every bedroom and the main living areas.

It wasn't a perfect project by any means. The lack of time to adequately investigate all our options was disconcerting. But having since been able to tour a number of local net-zero homes thanks to the BGBG, I think we did incredibly well in addressing the whole picture of building a green home. It's a great feeling to be able to take a structure that was heading towards obsolescence and make it viable for another 50 years while reducing our impact on the environment. All in all, we are happy to have survived the process and are grateful for the luck to have such a beautiful home for our young family. •