

# Conservation Magazine

Fall/Winter 2007  
Boulder Solar Week Edition  
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2007 Tour of Solar and Green-Built Homes — Home Profile

What the Heck Is a REC?

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Solar and Homeowners  
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Can't We All Just Get Along?

A publication of the:



CENTER FOR  
**ReSource**  
CONSERVATION



Year Built: 1955  
 Home Size: 2800 sq.ft.  
 Contractors:  
 SolSource (see ad on page 14)  
 Blue Sky Energy Solutions (see ad on page 20)  
 Bernie's Plumbing  
 Excel Electric  
 Waste Not Recycling  
 Merten Homes

## The Tree House

### Imag ineering Architecture

by Donna Merten & Brad Duckham

Take one 1955 ranch-style home. Mix in a dynamite designer/builder and her screwball husband. Then petition the High Performance Building Gods. "Well, we never knew anyone could have a slice of paradise in Martin Acres but, dang blast it, we did it," says Brad, owner of the newly converted 2800 sq. ft. modern-style, net-zero home. Taking inspiration from their participation in the Green Building movement (Donna owns her own design/build company and Brad is a realtor), the couple wanted to test the limits of their imagination, patience, and checkbook. The result is a home that contains many unique materials and technologies – all of which contribute to a home that simply defies categorization.

The modern-style home features yellow and orange stucco, a blue metal roof, and both roof-flush and rack-mounted sleek black photovoltaic panels. (The 5.59kW system delivers ample juice for both Donna's design studio equipment and Brad's insomniac travels throughout horrid late night television programming...not to mention their daily electrical needs.) The home also features geothermal heating/cooling with a heat recovery ventilator. "As a builder, I didn't want to go the typical route of radiant floor heat. More important, the geothermal fit best with our heating/cooling needs." And although the finished product contains more ducting than originally planned, the High Performance Building Gods were very generous with their inspirational lightbulbs (compact fluorescents, of course), and Donna was able to flush out deep interior soffits and decorative coffers to mask long runs of ducting. More-

over, every wall and ceiling in the house is sheathed in zero-VOC natural plaster designed and manufactured by Merten Homes. Select reclaimed solid-core doors have zero-VOC AFM Safecoat paint, while others have been inset with an eco-friendly recycled plastic resin. The result is a home that exudes an exceptionally warm, natural glow.

The long list of highlights include: reclaimed hardwood, structural insulated panels (SIPs) and insulated concrete forms (ICFs), concrete countertops, polished concrete floors with a soy-based stain, and a kitchen that was recently featured on the Kitchens on Fire Tour. "The kitchen is my wife's bread and butter," says Brad. "In fact, our concrete specialist recommended I leave the room while he persuaded my wife to purchase and then inset a piece of petrified wood into the concrete. My wife did so. And now we have some nebulous-looking, red swirly thingamabob my wife insists is a cutting board." The cabinets are wheatboard and bamboo, and the Bosch appliances are Energy Star rated. The aforementioned ICFs and upper level SIPs ensure a tight thermal envelope, while the spray-in SoyFoam on the main level exterior walls corrects the 1955 method of installation – "Ha! What insulation!?" Meanwhile, on the construction recycling side of things, Brad and Donna managed to recycle over 9,500 pounds of construction waste. There is reclaimed cork flooring from an old church in the project room, reclaimed trestlewood from the bottom of the Great Salt Lake in the loft, and decorative, reclaimed aspen trunks and beetle-kill pine slabs throughout the home as well.

Home sponsored by:



#### ENERGY FEATURES

- Passive solar design with sunroom & overhangs
- 5.59 kW PV system
- Groundsource heat pump for domestic hot water, space heating and cooling
- Heat recovery ventilator
- Low-e, double-paned windows
- SIPs and ICFs
- CFLs
- Recycled denim & SoyFoam insulation
- Energy Star appliances
- Clerestory windows

#### GREEN FEATURES

- Bamboo and cork flooring
- Polished concrete countertops
- Concrete floors with soy-based stain
- Bamboo and wheatboard cabinets

#### WATER FEATURES

- Dual-flush toilets

#### RE-USE/SALVAGE FEATURES

- Original structure deconstructed
- Reclaimed doors from ReSource
- Reclaimed corrugated metal for soffits
- Reclaimed trestlewood, karri wood, beetle-kill pine and aspen
- Reclaimed cork flooring
- Recycled over 9500 pounds of construction waste



Donna Merten & Brad Duckham