

# THE NEXT 100 YEARS

*Giving an old house new life with green building strategies that emphasize longevity, resource conservation and energy efficiency*



Built 1908, this 2,200-square-foot Berkeley home was “remuddled” a few times over the decades, but still retained much of its traditional style. Homeowner Michael Boals brought in David Grubb Construction to rebuild the back of the house while preserving its nearly 100-year-old spirit. “Green building principles were used from literally top to bottom for this project — from the photovoltaic panels on the roof down to the high flyash concrete foundation,” says Grubb.

Grubb’s crew tore out much of the back of the house, removing rot and reframing the structure from the ground floor to the roof ridge, without increasing the overall square footage. The kitchen, master bedroom and master bath have been entirely redone. Throughout the project, Boals made product and design decisions that promote the long-term health of his family as well as the building itself. “I’ve made choices during construction with the hope that the house will last another 100 years,” he says.

*“In several cases the green choices were less expensive than the comparable ‘traditional’ building materials”*

— Michael Boals, homeowner

## ENERGY SAVINGS

**Energy efficiency first.** Boals had a large solar electric system installed on his roof to generate electricity. First, however, he made sure his house was energy efficient. There’s little sense, after all, in spending a lot of money to produce electricity if you’re going to waste it with leaky windows or inefficient appliances. Low-e, double-pane windows and wall insulation made from recycled cotton keep the home comfortable and reduce heating costs. A new high-efficiency heater with programmable thermostats, a tankless water heater and Energy Star® appliances further cut energy use. Overhangs and trellises shade the south-facing windows, keeping the home cooler in the summer.

## GREEN at a GLANCE

### ENERGY & SYSTEMS

- 3.7-kW photovoltaic system (Sun Light and Power)
- On-demand water heater (Takagi)
- Recycled cotton insulation (UltraTouch)
- Low-e windows (Marvin)
- Solar attic fan
- Insulated attic ladder (Rainbow)
- High efficiency heater with programmable thermostats & high efficiency filter
- Energy-efficient clothes washer, dryer and refrigerator

### MATERIALS & PRODUCTS

- 50% flyash in much of the concrete
- Reused original wood siding
- Reclaimed wood for siding repairs
- Fiber-cement siding for eaves and under deck (Hardiboard)
- Engineered wood beams and joists (PSL and LVL by Weyerhaeuser)
- Reused original structural members
- Reused form boards and shoring
- Cabinets made from urban salvage Eucalyptus (WoodShanti)

### OTHER GREEN FEATURES

- Zero-VOC paint (Benjamin Moore Pristine Eco-Spec)
- Low-VOC wood floor finish (Bona Eon)
- Roof drains to backyard dry well to replenish groundwater
- Built-in water filter
- Built-in recycling center
- Donated building materials to Urban Ore and Adventure playground
- Recycled construction debris, including dirt, concrete, wood, metal and cardboard
- Fireplace dampers installed
- Vapor barrier under slab

## WASTE REDUCTION

**Construction and demolition waste management.** Many steps were taken to reduce waste throughout construction and demolition. Old cabinets, appliances, doors, windows and fixtures were salvaged and donated to Urban Ore and Berkeley's Adventure playground. Grubb's team separated concrete, soil, wood and metal waste for recycling. Original exterior siding that was in good condition was reused, supplemented by reclaimed wood siding in some areas and new fiber-cement siding in others. Original structural members were also reused when feasible, as were form boards and shoring lumber.

## ECO-FRIENDLY WOOD

**Urban salvage.** WoodShanti, a San Francisco cabinet and furniture-making company that uses sustainably harvested and recycled lumber, made the new kitchen cabinets using blue gum eucalyptus. Many Bay Area communities are removing these fast-growing, non-native trees because of the fire hazard they present. Salvaging the wood for residential interiors puts a waste product to good use.

**ORIGINALLY BUILT:** 1908

**ORIGINAL SIZE:**  
2,000 square feet

**REMODEL & ADDITION COMPLETED:**  
2005

**SIZE AFTER REMODEL:**  
2,200 square feet

**ARCHITECT:**  
N/A

**CONTRACTOR:**  
David Grubb

*“It has been a joy to work on this home  
which is healthy for the workers, the  
occupants and the environment.”*

— David Grubb, contractor

