GREEN BUILDING in Alameda County
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CONTEMPORARY GREEN

Energy-wise features, daylighting and green materials enhance a Berkeley home's modern design

Architect and homeowner Chris Parlette transformed a tiny, nondescript house into a light-filled home that's energy efficient, spacious and stylish. He gutted the 800-square-foot pre-war building and reused much of its structure, but the home is "99 percent brand new," he says. Adding a second story allowed Parlette to double his home's square footage while only expanding its footprint by 50 square feet.

Many of the materials Parlette selected — from bamboo flooring to reclaimed wood beams to countertops that blend concrete and recycled plastic — are as good for the environment as they are pleasing to the eye.

Today Parlette's electricity bills are about the same as when the house was half the size, thanks to a combination of good insulation, high performance windows, and passive and active solar strategies.

"The quality of wood reclaimed from old buildings is so much higher than most of today's new lumber."

—Chris Parlette, homeowner

ENERGY

Energy efficiency. Parlette chose Icynene spray-foam insulation for the ceiling cavity. Compared to typical batt insulation, spray-foam insulation does a better job of stopping unwanted air leaks. He selected a new furnace with a 95% efficiency rating and an outside air intake.

Solar electric system. A 3.2-kW rooftop photovoltaic array produces electricity that feeds back into the utility grid. In the first year after installation, the system produced more electricity than Parlette used.

Passive solar heating. Passive solar design warms the south-facing master bathroom in the winter and keeps it cool in the summer. A slate wall and a thick mortar bed below the shower floor provide thermal mass to store and slowly release the sun's warmth. A roof overhang shades the south side of the house in the summer.

GREEN at a GLANCE

ENERGY & SYSTEMS

- 3.2-kW photovoltaic system (Sharp panels, Sunny Boy inverter, installed by Sun Light & Power)
- Passive solar heating in master bath
- Spray-foam ceiling insulation (Icynene)
- 95% efficient furnace with outside air intake
- Operable skylight and low-e windows oriented for daylighting and natural ventilation
- Tankless water heater (Rinnai)
- Energy Star® refrigerator and dishwasher

MATERIALS & PRODUCTS

- Exposed beams are salvaged Douglas fir (Crossroads Recycled Lumber)
- Concealed beams are engineered lumber (Ashby Lumber)
- OSB subfloors and sheathing
- Custom concrete counters with recycled plastic chips in master bath and upstairs half-bath (Concreteworks Studio)
- Downstairs flooring and cabinets in master bedroom and bathroom are bamboo
- Recycled plastic/wood fiber composite (Trex) for window trim, deck & landscape edging
- Recycled-content resilient flooring in laundry and upstairs half-bath (Yemm & Hart)
- 100% recycled carpet pad underneath wool carpet (Natural Home)
- Low or no-VOC interior paint (Benjamin Moore EcoSpec)

OTHER GREEN FEATURES

- Built-in recycling center
- Drought-tolerant plants
- Concrete pavers with gaps reduce stormwater runoff

DAYLIGHTING & NATURAL VENTILATION

Design for natural cooling and ventilation. An operable skylight helps cool the house on hot days through what's known as the "stack effect." As cooler air on the first floor warms up, it rises and escapes through the open skylight. Windows placed low to the floor and high on the walls also promote cross ventilation.

Daylighting. Parlette's home, like many in the area, is on a narrow lot with houses on both sides. To provide natural lighting throughout the day, Parlette added large expanses of glass to the front and rear of the building. Windows are double-pane with a low-e coating for energy efficiency and comfort. A skylight lets daylight into the core of the home.

SALVAGED WOOD

Salvaged beams. For the entry porch ceiling and new second-story ceiling, Parlette used Douglas fir beams reclaimed from deconstructed buildings. Using reclaimed wood reduces pressure to harvest trees. Parlette also likes reclaimed lumber because of its superior quality and dryness compared to most new lumber.

ORIGINALLY BUILT: 1920

REMODEL & ADDITION COMPLETED: 2004

ORIGINAL SIZE: 800 SF

SIZE AFTER REMODEL: 1,600 SF

ARCHITECT: CHRIS PARLETTE

CONTRACTOR: CHRIS PARLETTE

"The house actually produces more electricity than it uses."

—Chris Parlette