

VICTORIAN GREEN

Renovating their West Oakland house gives a couple hands-on experience with green building



Home under construction at press time.

Enthusiastic owner-builders, Stefanie Parrott and Dixon Beatty “take their sustainable building seriously while approaching the daily grind of their owner-built project with a real sense of humor,” says their architect, Geoffrey Holton. The owners’ green goals started with the purchase of a Victorian house in the Oakland Point Historic District. Their premise is that reinvesting in this transit-friendly urban neighborhood (two and a half blocks from BART) and restoring deteriorating old housing stock are good environmental strategies. This home will still be under construction on our day and provides an opportunity to see the work in progress.

The project respects the integrity of the Victorian house and its historic neighborhood while integrating many green strategies. The interior was entirely renovated, with the living space expanded from 1,300 square feet to 1,900 square feet (plus a 430-square foot garage). Parrott and Beatty’s interest in creating a modern interior “allowed us to open up a dramatic interior space,” says Holton, “that provides both daylighting and natural ventilation through a thermal chimney effect.” The couple’s do-it-yourself approach to the project has given them expertise in everything from ground-source heat pumps to grid-tied photovoltaics to the lifecycle analysis of exterior siding materials.

“The south-sloping roof area...may be the most valuable square footage of the building.”

—Dixon Beatty and Stefanie Parrott, homeowners

GREEN PRODUCTS

Daylighting and natural ventilation. A new 29-foot-tall central open space and stairwell topped with skylights illuminates the home’s interior with daylight. This design also naturally cools the house by creating what’s known as a thermal chimney effect. Warm air rises and escapes through the operable skylights, drawing cooler air into the home from lower levels.

GREEN at a GLANCE

Energy & Systems

- 3.1-kW photovoltaic system (AstroPower)
- Solar hot water system (Heliodyne)
- Hot water storage tank (High Sierra Drainback by Morley Mfg.)
- Ground-source heat pump (Climate Master)
- On-demand hot water circulation pump
- Hydronic radiant-floor heat
- Operable skylights for natural ventilation
- Cementitious foam insulation in wall and ceiling cavities (Air Krete)
- Low-e windows (Marvin)
- Energy Star® appliances
- Compact fluorescent light bulbs with airtight, insulation-compatible recessed fixtures
- Insulated cold and hot water pipes

MATERIALS & PRODUCTS

- Recyclable, maintenance-free copper siding on addition
- Recycled gym flooring in office and guest room
- Salvaged fir flooring to match existing floor (stairs, library and other areas)
- Natural linoleum flooring in kitchen and mudroom/pantry (Marmoleum)
- Victorian trim is medium-density fiberboard with no added formaldehyde

OTHER GREEN FEATURES

- Transit-friendly neighborhood
- Preservation of existing house in historic district

RENEWABLE ENERGY

Solar thermal system and ground-source heat pump. Solar collectors heat water for household use as well as the radiant-floor heating system. A ground-source heat pump provides back-up heat for times when the sun isn't shining. Wells for the heat pump were drilled under the new driveway. (Ground-source heat pumps are initially expensive to install and relatively uncommon in the Bay Area.)

Solar electric system. The household's electricity needs are fully met by a grid-intertied 3.1-kW photovoltaic system. "We urge those seeking to incorporate alternative energy systems to plan and maximize the south-sloping roof area. It may be the most valuable square footage of the building," the couple states.

RESOURCE EFFICIENCY

Site planning. The addition was carefully planned to preserve an existing coast live oak on the site.

Reduced waste and reused materials. From the beginning, the owners have been diligent about reducing and recycling jobsite waste and reusing materials from the existing house, including framing and sheathing. Reused materials purchased from other sources include fir and maple flooring, salvaged gymnasium flooring in the home office and guest room, and salvaged interior doors.

ORIGINALLY BUILT: 1875

REMODEL & ADDITION COMPLETED:
In progress

ORIGINAL SIZE:
1,300 SF

SIZE AFTER REMODEL:
1,900 SF (+ 430 SF garage)

ARCHITECT:
GEOFFREY HOLTON & ASSOCIATES

CONTRACTOR:
OWNER BUILT

"It was both an opportunity and a challenge to think about sustainable design from the ground up in the context of a quirky old building."

—Geoffrey Holton, architect

