

CASE STUDY:

A SOLAR HOME

THAT'S AHEAD OF THE CURVE

The founders of a solar power company find out what it takes to modernize an older home and make it independent of fossil fuels.

“Our goal was that no fossil fuels be required to sustain and operate the house after the remodeling was finished.”

– TOM McCALMONT, *homeowner*

Tom and Darlene McCalmont knew that their small bungalow needed extensive updating. But as co-founders of Regrid Power, a company that installs solar power systems, they were committed to remodeling sustainably.



ENERGY USE

In addition to making their home more energy efficient, the McCalmonts installed a solar electric system. They also insulated the entire building envelope with closed-cell spray foam, installed energy efficient LED lighting, and used passive solar design to help with temperature regulation. And as part of their quest to reduce fossil fuel consumption, they wired the garage for electric vehicles.



INDOOR AIR QUALITY

The home's heating and air conditioning system includes heat recovery ventilation, which is programmed to automatically circulate fresh air at a low level on a continual basis. The back of the house has a 16-foot wide section of accordion doors that can be pushed open to naturally ventilate the house on mild days. When it's too warm inside, several operable skylights provide a thermal stack effect, drawing warm air up and out of the house. To reduce indoor air pollution, zero VOC paints and water-based clear finishes were used throughout the home.



PROJECT STATS

LOCATION: **Palo Alto, CA**

GREENPOINT RATED SCORE: **122**

YEAR BUILT: **1951**

ORIGINAL SIZE: **3,162 square feet**

NEW SIZE: **3,723 square feet**

PROJECT SCOPE:

Whole house remodel to modernize systems and spaces and create a home that is independent of fossil fuels.

ARCHITECT/BUILDER:

Peter Lyon General Contractor, Inc.

INTERIOR DESIGN:

Vision Design

GREENPOINT RATER:

Kevin Beck

WHOLE HOUSE LABEL



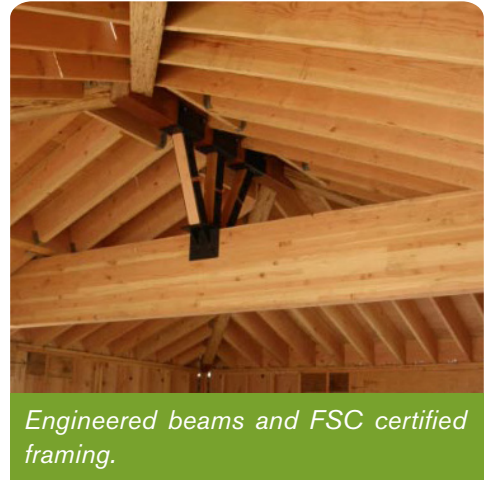


32

RESOURCE CONSERVATION

More than half of the existing house was retrofitted with a new foundation for earthquake safety, which involved shoring up the framing, pouring a new foundation, and setting the framing back down. Seismic retrofitting increases the likelihood that the building will remain usable for many generations.

For the new framing, all the major timbers are engineered lumber, and most of the solid lumber and plywood is certified by the Forest Stewardship Council (FSC) to have been sustainably harvested. The builders reused many of the existing framing members. The old exterior redwood siding was sandblasted, clearcoated and reused in the home's interior.



Engineered beams and FSC certified framing.



5

WATER CONSERVATION

The home's new water distribution system uses small diameter, flexible cross-linked polyethylene (PEX) pipes that run directly to the fixtures from manifolds located near the water heaters. This alternative to typical branched piping decreases the volume of water in individual pipes and saves water and water heating energy. The project installed high efficiency toilets that use 1.28 gallons per flush, low-flow showerheads and bathroom faucets, a water-efficient washing machine, and an on-demand recirculation control pump. Outside, the McCalmonts are planning new water-conserving landscaping. Instead of turf, the property will be planted with mostly California native and Mediterranean species that require little irrigation water.



A durable roof with 24" overhangs to preserve the building envelope.



8

COMMUNITY & LIVING GREEN

The project received GreenPoint Rated points for being located in a built urban setting with utilities already in place. Accessibility features include a zero step entrance, interior doors and passageways on the main floor that have at least 32-inch clear passage space, and blocking for grab bars in main floor bathrooms.



Solar panels on roof serve 100% of electrical needs.