

2011 CH+D AWARD FOR
**SUSTAINABLE
ARCHITECTURE**



JOHN LUM
JOHN LUM ARCHITECTURE INC., SAN FRANCISCO
LIM KIMBERG RESIDENCE

The graceful angle of the butterfly roof on this Noe Valley home is a reminder of its function—the roof doubles as a rainwater-catchment system, channeling the water for household use. “Not many people know this, but about 20 percent of the energy used in California is expended by moving water around,” says John Lum, the

architect of this sustainable remodel. “The clients were dedicated to a low-carbon footprint and really promoted the idea of doing something to conserve water, which appears to be the next hurdle the world will face.”

The designer of one of the first LEED-certified renovations in the U.S., the 2007 Sunset Idea House, Lum is familiar with

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BEFORE



AFTER

California's many benchmarks for sustainable design, from the Title 24 building code to various certification programs. But this house set a new benchmark: It is the first home in San Francisco to have an officially permitted rainwater-harvesting system. The clients and architect worked with the city's departments of public works and public health to make it a demonstration project that other homes can emulate. The UV-purified water is stored in cisterns that can hold up to 2,500 gallons, and is currently used for graywater purposes (irrigation, laundry, showers and toilets). It can also be used as potable water, but the system is awaiting full testing before it gets the city's stamp of approval.

Rainwater reuse was just a small part of this environmentally conscious remodel. The clients, a couple with two preteens, were hoping to gain a bit more space and modernize their 1950s home, a modest affair with two bedrooms and one bathroom. Lum expanded the second floor—reorganizing it into an open, spacious gathering place—and created a third-floor addition, which contains three bedrooms. A new glass-walled atrium runs through both levels, bringing light and natural ventilation into the center of the home and making artificial lighting unnecessary during the day. The home's electricity is largely provided by a rooftop photovoltaic array; solar panels also heat the home's water supply, both the recycled water and that pumped in from the city's pipes. Altogether, Lum added about 800 square feet to the home's original 1,800 square feet. "Sometimes in remodels, people want to max everything out. That was definitely not the case here," says Lum. "The concept for this project was not to overbuild; it was important to be restrained and not grow the house in an excessive way."

During the remodel, walls and structural elements were carefully deconstructed in order to salvage as much of the wood as possible. Some of the home's original

Apart from the butterfly roof, the biggest change to the exterior of this Noe Valley home was the addition of colored stucco and Heath Ceramics tile to the facade. RIGHT: Inside, a new atrium and storage built into the stairs make the formerly cramped home more spacious. OPPOSITE: The repurposed attic paneling was used near the kitchen.





ABOVE: The operable windows in the atrium offer natural daylight and ventilation. RIGHT: Cisterns in the garage hold up to 2,500 gallons of water, collected and funneled from the butterfly roof via a rainwater-catchment system. OPPOSITE: The water for the shower and bath is filtered and heated by rooftop solar panels.



redwood sheathing is now prominently featured in a large wall next to the kitchen, and the exterior now sports a modern mix of low-maintenance stucco, laminated natural wood panels and jaunty stripes of Heath tile. It's not surprising to hear that the house—which is currently being evaluated by Build It Green, the largest green building program in California—is expected to receive one of the highest scores for sustainable homes in this region. —Lydia Lee



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