



# Groundbreakers

By Kelly Flaherty Curley  
Photos by Kerry Paul

## Life is greener at Villa Terra

A SAN JOSE ARCHITECT BUILDS HIS DREAM HOME IN WILLOW GLEN

**D**espite the rising popularity of “green” or environmentally friendly building practices, San Jose architect Noel Cross still has some difficulty selling innovative techniques to his clients.

“If I say the words ‘rammed earth,’ some people think I’m talking about an underground house,” says Cross, standing in the airy entry hall of his own 3,200-square foot rammed-earth house in San Jose’s Willow Glen neighborhood.

The technique used to build his house is also described as “sprayed earth.” Cross says the construction method is a bit like building a swimming pool. A mixture of dirt, sand and concrete is sprayed onto a frame of metal rebar to create the 18-inch thick walls.

Although he had been fascinated with sustainable building practices since his days at Cal Poly, he says that turning 40 and becoming a father made him more committed to protecting the environment — both indoors and out.

Tired of trying to convince clients of the virtues of dirt as a building material, Cross decided to build a house for himself. Far from the hobbit burrow that some imagined, Cross’ home resembles a 300-year-old French country estate, complete with soaring ceilings, arched entryways, wrought-iron balconies and a tile roof. The style was inspired by the

homes the Crosses saw on their honeymoon in southern France. They even imported two antique stone fireplace surrounds from Europe.

Every aspect of Villa Terra, as Cross calls it, has been constructed with reclaimed or environmentally friendly materials. The experience has made him an expert on the use of many innovative products, from rammed earth to ground-source heat pumps and recycled

insulation. Because the home’s exterior walls are so thick, the house provides its own insulation, except for the attic, which is insulated with recycled blue jeans.

A ground-source heat pump, also called geothermal heat, provides hot water for both radiant heat (warm water to heat the floors in winter) and washing. The ground pump, the most efficient means of heating a home, is run by electricity provided by solar panels on the roof.

Although Cross admits that the heating system was expensive to install (the equipment alone cost \$20,000), he says it will pay for itself in 20 or 30 years, particularly if energy costs continue to rise. While some innovative or reclaimed materials added to the budget, others provided savings. Cross reused the interior doors from his previous house and outfitted the bathrooms with sinks and a claw-foot tub from a salvage yard. Not only is the claw-foot tub beautiful, it cost about half as much as a new one.

All of the floors in the house are made from rammed earth or hardwood approved by the Forest Stewardship Council, and all of the timber used in the building process was salvaged from other construction sites.



The Cross’ sprayed-earth house resembles the homes they saw on their honeymoon in the south of France.



But Cross isn’t only concerned with exterior environmental issues; he says indoor pollution can be equally dangerous. Aside from cutting down trees and using valuable energy resources, new homes use toxic materials, from glues and fiberglass to formaldehyde.

To cut down on dangerous fumes, Cross used integral-color plaster in his daughters’ bedrooms instead of paint. Wheat board, which is made from a natural waste product, replaced particle board, which contains formaldehyde.

Despite some continued pockets of resistance, usually concerning cost, Cross says he has seen attitudes toward green building change since his college days in the 1980s. “Contractors no longer look at you like you have three heads if you specify something non-toxic,” he says. “Even the disbelievers are starting to think differently about it.”

He estimates that building with earth cost him 10 to 15 percent more than building a typical wood-frame house. But Cross says the home will last for hundreds of years, unlike typical wood homes that last about 100. And with the energy savings and peace of mind that he expects to get, he says the investment will more than pay off in his lifetime. ↑



Noel Cross with wife Amy Wagner and daughters Logan (left) and Dane (right).