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Re-imagining the house

Architect Jon Stoumen thinks about homes like clocks, cars, plants

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A chicken is cooking inside a solar contraption in architect Jon Stoumen's Palo Alto back yard. It's a Frankenstein of a device made out of what appears to be an old, rusty barbecue from the 1970s with a glamorous, high-tech solar array grafted onto it.

But it's working beautifully, and the aroma is wafting over to the shaded table where Stoumen is waxing philosophical about green building.

The solar device is almost a metaphor for Stoumen's vision of working with nature to build living spaces that are easy to live in and easy on the environment.

He wants people to think about houses differently, and to think differently about energy consumption and what it means to heat and cool a home.

"If as many day-use rooms as possible can be oriented towards the sun and, in addition, if possible, they can be organized towards a view and, in addition, towards a garden then you have a sunny indoor-outdoor relationship where the architecture of the building works like a clock — it's in the kitchen in the morning; it's in the living room during the day," Stoumen said.

"During the day, the house can absorb the sunshine to help heat it — in the case of this chicken — or help cool it. If we were to take that thing (solar oven) and turn it around, it would immediately lose 200 degrees because of the shade," Stoumen said.

He uses the chicken to illustrate architectural-design concepts such as envelope, shape, orientation, time of day and thermal mass. But if one looks at the small, Mediterranean-style Palo Alto house he shares with his wife, O'Malley, it's filled with lessons and brimming with ideas.

One gets the sense it's as much of a laboratory as a home. Yet it doesn't feel contrived. The spaces are inviting, lush with plant life and birdsong, and they don't betray the house as being "green."

"Architecture is about what architecture has always been about: making beautiful buildings. That doesn't go away when you make something more efficient," Stoumen said.

"It's a matter of taking those things and integrating them so the house doesn't look like a science-fair project."

That said, the LEED-certified architect (for Leadership in Energy and Environmental Design) strives for high-performance in his homes, much as auto makers do in their cars.

"Some of my buildings are super high-performance, like a Tesla (electric racing car) and some of them are moderately high-performance. Whatever the case, I shoot to make each house at least like a Honda Civic hybrid," Stoumen said.

In his yard, permeable concrete pathways lead through gardens. He sprays some water from a hose onto the concrete, and it is quickly absorbed.

A host of lashed bamboo structures provide climbing surfaces for tomato plants and vines.

A berry garden is thriving nearby with blueberries, raspberries and blackberries. The blueberry bushes will produce fruit for 40 years, Stoumen happily announces.

On the house itself, table-grape vines cast dense, leafy shade over windows. Stoumen thinks of them as living curtains that provide shade during the summer and let light in during the winter after their leaves fall.

He's just as excited about the vines and their potential as he is about cutting-edge, high-tech solutions for green building.

"They're natural sun filters. It's one green idea anyone can start using right now, regardless of budget."

Though green building is a bandwagon many are just now boarding, Stoumen has been doing this — and thinking like this — for a long time.

He studied architecture at Cornell University and at Berlin Technical University in Germany and was a graduate fellow at the Institute for Architecture and Urban Studies.

In 1972, he and O'Malley built an "off the grid" house and compound in Humboldt County, generating their own electricity from a windmill hooked up to a Dodge truck alternator. They experimented with organic gardening, growing wine grapes and dairy.

Stoumen went on to design residential, commercial and agricultural projects in Hawaii, British Columbia, Idaho, Massachusetts, Pennsylvania and Connecticut.

He has his fans in Palo Alto, though. Next door to his home is a recently completed Stoumen-designed remodel, in which they "doubled the size of the back yard" — rather than shrinking it. It was not a typical Palo Alto remodel.

On a mid-June afternoon the week of Palo Alto's public high school graduations, it was in the high 80s outside. The home's owner smiled and reported that it was a cool 74 degrees inside — *sans* air conditioning.

Nearby, Stoumen is building a house nearly from scratch. Crew members from Warren Construction are finishing the wood framing on the upstairs and Stoumen leads an impromptu tour through the building's skeleton.

Walking up to the house, he talks about de-emphasizing the role of the car in the design of the house. A small, one-car garage will eventually be reached by a permeable surface. The pervious concrete and interlocking pavers won't interfere with the root system of a huge front-yard oak tree, around which Stoumen has designed many features of the house.

He points out a massive, two-story sunroom that will serve as the home's entryway as well as showcasing a staircase to the second level.

The bank of windows will catch the sun under the canopy of the oak in the morning, and the oak will shade the area when the sun is higher in the sky.

"It's like in the game 'Clue.' That room in the game they call the conservatory — it's a big glass sunroom. This is the conservatory of this house. It's a sun space integrated to give energy to the building."

In colder months, radiant heating built into the concrete slab will warm the house.

At the home's core, an open two-story shaft illustrates another of Stoumen's philosophies.

"Eventually, that will house an elevator, but when we finish construction, it's going to be a closet," Stoumen said.

"We're going for universal access, so we've laid the groundwork for the elevator, but the clients won't need it for a long time. When they do need help getting up to the second floor, they'll be able to put the elevator in because we've planned for it with the infrastructure.

"It's one of the things about this house that will allow the owners to age in place. And I can't think of anything greener

than aging in place. When you move, you throw a bunch of stuff away, new people move in and they remodel everything and throw a bunch more stuff away," Stoumen said.

For that reason, the ground floor of the home is at grade. In the future, wheelchair access will not be a problem.

The model of planning for the elevator also follows Stoumen's idea that taking small steps toward greener living is a healthy way to think about environmental improvements.

"People see all that you can do to make a home greener, and they think, 'I want it all now.' But not everyone can afford to do it all now. I think it's better to do what you can now and plan for the future," Stoumen said.

He uses wastewater as an example.

"Are we in a drought right now? Some people are saying we are, but it doesn't matter. It's unwise not to plan for the eventuality because we just don't get that much rain here," Stoumen said.

Building a house from scratch, a homeowner could install a split drainage system — one for the toilets and the dishwasher, and another for the showers and sinks. The unusable wastewater goes to the sewer system while the gray water goes to an underground irrigation system for the garden, Stoumen said.

For a water-saving retrofit on an existing house, he recommends a hot-water delivery system that recirculates the cold water until the hot water reaches the tap.

"When you're waiting for the shower to warm up, you're not wasting water," he said.

Aesthetic considerations don't have to run contrary to green ideals in Stoumen's world. In fact, many of his creations radiate old-world charm.

It could be the lime-plaster he favors for finishing his interior and exterior surfaces.

Manufactured from limestone mined in St. Astier, France, the plaster has been produced by the same company for more than 800 years. It is a kind of plaster that dates back to Ancient Rome and that grows stronger with age, Stoumen notes.

Inside the porch area of Stoumen's house, the ceiling radiates a translucent cool blue. The colored lime plaster seems to glow even in the shade.

"It will never need to be painted," Stoumen said.

And it has the additional benefit of absorbing carbon dioxide — a "greenhouse gas" that is a large part of global warming — as it tries to turn back into limestone.

"It absorbs carbon and releases oxygen, just like plants," Stoumen said.

Back in Stoumen's garden, the chicken has finished cooking, and O'Malley has taken the evening's dinner into the kitchen. The sun has sunk a little in the sky, and his back yard is scattered with dappled sunlight. Birds sing and bees buzz among the various crops.

The ecosystem Stoumen has created seems to be in perfect harmony. And in Palo Alto's housing market — where bigger is better, and ostentatious new construction draws conspicuous attention — Stoumen is bucking the trend.

His homes seem to grow out of the landscape as naturally as the vines he has planted in his garden.

"People need outdoor spaces. You lose so much when you build out to the lot lines. You need plants, birds, bugs and critters," Stoumen said.

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