

Grass-roots campaign

Earth-minded advocates join forces to erect the first straw building in an urban San Diego neighborhood

By Ann Jarmusch
ARCHITECTURE CRITIC

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On a hilltop, above endless streams of vehicles roaring along I-15 near downtown San Diego, a peaceful, Earth-reverent building is slowly taking shape.

Sometime next spring, a truck will deliver 1,000 straw bales picked up near Sacramento from a rice growers association that would otherwise be forced to destroy the wispy waste product. Then, 100 or more volunteers may turn out for a community "wall raising," stacking the donated bales to form walls within the building's steel frame.

The Friends Center, a joint project of two churches and two nonprofit groups, is the first straw-bale, steel-frame structure to be given a building permit in an urban area of San Diego. It will also be one of the greenest of our region's new, "green" buildings in its energy efficiency, water conservation and use of renewable natural and recycled materials.

While more than two dozen straw-bale homes, guest houses and a winery have been built legally in outlying areas of San Diego County in recent years, there is only one other officially permitted straw-bale building within the city limits. It's the San Diego Wild Animal Park's five-year-old, native-plant seed bank building, which includes an office, two laboratories and refrigerated storage.

- [Count the many ways bale construction is good to the last straw](#)



SCOTT LINNETT / Union-Tribune

Volunteers recently poured concrete foundations for the Friends Center, a "green" building rising near downtown San Diego.

The appeal of building with straw bales lies partly in its low-tech construction technique and the wall's insulating and sound-deadening properties. About 24 inches thick after plastering, straw-bale walls are also comfortably organic and malleable, and allow for carving out niches, bookshelves and window seats.

Much of the credit for reviving this century-old, low-tech construction technique and enhancing its credibility with local building officials goes to artist-designer James Hubbell and his son, architect Drew Hubbell. Hubbell & Hubbell Architects designed the Friends Center, the seed bank and straw-bale homes in Borrego Springs, Jamul and Ramona, including a boulder-strewn site near Mount Woodson.

A small, straw-bale visitors kiosk – "gateway to the land," as its designer James Hubbell calls it – opened recently at the Earth Discovery Institute, part of the 2,600-acre Crestridge Ecological Preserve in Crest. Like many straw-bale structures, the kiosk was borne of a community spirit: volunteers worked alongside a building crew from the Urban Corps of San Diego, a nonprofit job-training program for young people.

The Friends Center, which is being built to last 200 years, will integrate more Earth-friendly features than any other Hubbell & Hubbell project to date. Living in harmony with nature for the benefit of present and future generations is among the values the architects and four collaborating groups share.

The groups include San Diego First Church of the Brethren, which owns the vacant land in south City Heights where the new center will be part of its campus; the San Diego Friends Meeting (Quakers); the Peace Resource Center of San Diego; and the American Friends Service Committee U.S./Mexico Border Program.

At the urging of the late David Neptune, a local Quaker, co-founder of the Peace Resource Center and civil rights activist, the Friends Center will be a public showcase for sustainable building and design. Neptune participated in planning and designing the center, until his death at age 85 in 2003.

Old, yet new

The project has been in the works for at least six years, and may take two more to complete. The slow pace isn't only a reflection of funds yet to be raised and a reliance on unskilled, volunteer labor, Drew Hubbell said. The building permit wasn't easy to come by, taking months longer than expected as the architects presented evidence of human safety from tests and studies of other contemporary straw-bale buildings.

It seemed to Hubbell as if some city building officials ignored the precedent set when the city issued a permit for the Wild Animal Park's seed bank. Ultimately, Hubbell prevailed upon the city to drop its requirement for an extra step, called a special materials review, given the seed bank's clearance.

"Part of what we do is educate building departments," Hubbell said. He recommends California Straw Bale Association publications for building officials and builders alike (see sidebar).

Gary Lau, the city's structural plan checker who reviewed the Friends Center project, stressed the city's overriding concern for human safety. Accordingly, the city required a steel structure to support the roof of this straw-baled building in an earthquake zone, although in a few other states and counties, a wood post-and-beam structure or no structural reinforcement at all may be sufficient.



The building was designed by Hubbell & Hubbell Architects with members of the two churches and two groups that will use it.

"Straw-bale is not included in the city building code," Lau said. Projects using this alternative material are reviewed individually. In this case, he said, "The straw bales are being used for insulation, not structural value. They are being used as an architectural finish."

Hubbell and other self-described "baleheads" look forward to the day when building officials and home builders have gained more experience and data on straw-bale construction's load-bearing strength and, if properly maintained, durability.

As these advocates look ahead, they also look back in history. Our innovative and practical ancestors in Nebraska and other Great Plains states were the true pioneers of building with bales, a readily available natural material. A century later, a few of their straw-bale houses, built to withstand harsh winds and extreme temperatures, remain standing.

The Friends Center will combine lowly straw bales and earthen or stucco plaster with sophisticated, high-tech devices. In the high-tech column: hot-water sensors, motion sensors that turn on room lighting when occupied, water-recycling pumps, radiant-heat flooring, and, if funding permits, solar-tracking, photovoltaic panels to generate all of the center's electricity.

In the low-tech realm: rainwater collection, drought-tolerant plants including food-producing citrus and avocado trees, and the thick, cozy walls of straw bales sealed in plaster, which act as passive solar collectors, staying warm in winter and cool in summer.

Steel skeleton

Today, if you visit the center's building site, which lies within a triangle trapped by the 15, 805 and 94 freeways, you won't see anything much different from most steel-framed structures in the early stages of construction. A soaring, silver skeleton suggests the form and height of the centerpiece: the future Friends Meeting Room, a serenely simple, round chamber for Quaker meetings and special events.

When completed, daylight will flood this room through a skylight high overhead and clerestory windows, which will open to allow natural ventilation. (Air-conditioning gobbles energy.) Bamboo, that fast-growing plant that embodies the concept of sustainability, will partially panel walls to baffle sound during quiet, contemplative Friends meetings.



DREW HUBBELL

Construction-grade straw bales, like those shown in this photo of a straw-bale house by Hubbell & Hubbell, will form the Friends Center's walls within a steel frame.

Today, the last of the recently poured concrete footings "outline" two future wings that will flank the round meeting room. These wings – curved to embrace a courtyard with an origami-style sculpture of a peace crane by James Hubbell – will house American Friends Service Committee and Peace Resource Center offices, a children's room, Friends library and a studio apartment for one or two interns.

An unusual feature embedded in one wing – shower stalls entered from outdoors – will be welcomed by active members and volunteers, whose labors include helping Mexico's poor, and constructing and landscaping the Friends Center.

The joint venture represents "a way we can come together and share our values and our resources for the health of all," said Carol Jahnkow, the Peace Resource Center's executive director and a member of the Building Steering Committee. "None of us (four groups) could do this alone."

Building change

The 10 or so steering committee members already are planning educational tours and exhibits on the center's sustainable systems, materials and techniques once the building is finished.

They'll also monitor the center for energy efficiency, power generation and use, comfort, durability and the like, and make the data they collect available to individual and commercial builders, building officials, designers and students. They'll keep records to show whether the higher upfront costs of building "green" are recouped within seven to 10 years of operation, as some advocates have found.

"Part of our mission is to effect change in the building industry," said Hal Brody, the Building Steering Committee member who oversees day-to-day construction and volunteer workers.

A mechanical engineer and former Peace Resource Center board member, Brody and Hubbell & Hubbell architect Juergen Zierler have successfully appealed to ecologically committed manufacturers, suppliers and professionals for donations of materials and services.

These partners, which number 15 so far, have contributed design services for the electrical, plumbing and floor-heating systems, landscape architecture and acoustical studies. The Hubbell & Hubbell staff is working for a reduced fee with many donated hours on top of that.

Partners also donated all the steel (for structural framing and the roof) and steel processing, even as they watched the price of steel rise sharply since they pledged goods and services two years ago.

"The light-gauge steel we're getting (for non-load bearing use) is probably the greenest in America," Zierler said. A new manufacturing process saves energy by eliminating one step in rolling steel, which requires hellishly high heat.

Brody noted the generosity of another corporate partner along with outstanding needs: "We have (all) the windows donated, but not the doors." One Peace Resource Center member bought a small earthmover for his personal use, but "it's been living here" on the construction site, Jahnkow noted, where the center's builders are free to use it.

Pitching in

As with many buildings commissioned by nonprofit and religious groups, realizing the center is a long, slow labor of love. The project's uncommonly slow pace depends on fundraising, skilled and unskilled labor, affordable materials and fair weather. The San Diego Peace Corps Association, the U.S. Green Building Council's local chapter and University of California San Diego student members of Engineers Without Borders are among the volunteer groups that have already pitched in.

The center's low-key fundraising campaign has attracted cash donations ranging from \$5 to a \$200,000 pledge from a San Diego family who wish to be identified only as Peace Resource Center members.

But the four groups still need about \$200,000 to complete their U-shaped, roughly 7,500-square-foot building, which will provide a permanent home for the Friends, who had rented meeting space for years; the American Friends Service Committee, which lost its affordable East Village office to ballpark-related redevelopment; and the Peace Resource Center, currently operating out of a trailer next to the First Church of the Brethren.




FINDING OUT MORE: To learn more about the Friends Center and how you can help finish the building, see www.sandiegofriendscenter.org, or call (619) 263-9301. To contribute to the building fund, send a check marked "For the Friends Center" to The Peace Resource Center, 3850 Westgate Place, San Diego, CA 92105. To volunteer to work or to donate materials or services, call Hal Brody at (619) 549-3826, or e-mail hbrody@sbcglobal.net.

Only a determined builder-owner like this consortium could have come this far with such a "forward-looking and backward-looking" building plan, Zierler said.

"I think they've broken open the possibility for more straw-bale homes to be built in the city," as long as they're designed with structural steel, he added. "Of all the projects I've worked on, this is probably the most meaningful."

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