

willing to build less

California design firm Arkin Tilt Architects pushes the architectural envelope through a frank commitment to the environment over its buildings

by Suchi Rudra

USING STRAW AND EARTH MIGHT BE ONE OF THE most ancient methods of building, but Berkeley, California-based design firm Arkin Tilt Architects (ATA) is finding that these materials also might be one of the newest ways to develop ecologically sound design. Husband and wife owners, David Arkin and Anni Tilt, pride themselves on pushing the architectural envelope, and the firm has designed about 40 straw-bale and earth projects so far. According to Arkin, straw-bale building is advantageous because:

- it is the least expensive thick wall option;
- it is entirely an agricultural waste product and is naturally carbon-sequestering;
- it is breathable and has excellent acoustic properties;
- bale walls offer both high insulation levels and thermal mass; and

BELOW: The Hidden Villa Hostel and Summer Camp was named one of the AIA/COTE Top Ten Green Projects. It is heated with a ground-source heat pump, and volunteers helped to build the rammed-earth thermal mass wall between the dining area and kitchen. Photos: Edward Caldwell, edward-caldwell.com

- owners can be part of the construction process through a bale-raising.

However, Arkin adds that bale walls are often a bit more expensive than wood frame, due to the “wider footings and lack of familiarity by most contractors and subs.” But lower energy bills have enabled some homeowners to qualify for a higher mortgage that can help cover such costs, and one of ATA’s bale home designs sold for more than 25 percent over the asking price.

Alternative materials and passive and active solar have always been important components of ATA’s work, “but the basis has always been a strong sense of design,” Tilt says. “What is appropriate? How can this be comfortable and lyrical, and, ideally, inspirational?”

The design work that Tilt does now is simply “an extension of her childhood,” she says, which centered on nature and a passion for art and math. Arkin too grew up exploring nature, and by fifth grade, when he discovered the work of Frank Lloyd Wright, he knew that architecture would become his life’s pursuit. The designing duo met in graduate school at University of California—Berkeley, and three years later saw them married and working out of a cottage in their back yard.



“If you want to increase energy efficiency and material efficiency, it just makes sense to build, and condition, no more than is necessary.”

—Anni Tilt, Principal

Achieving the most ecologically sound design possible for every project can actually place a design firm such as ATA in a tough position: sometimes the best solution is no building at all. As Tilt puts it, building sustainably means “building as little as possible, which is perhaps a little audacious, given that it is our livelihood. However, if you want to increase energy efficiency and material efficiency, it just makes sense to build, and condition, no more than is necessary.”

The firm is currently working on a partially pro-bono project for Heifer International (one of their Global Learning Villages) at Hidden Villa in Los Altos Hills, California. Arkin says that it has been challenging “to navigate the regulatory climate and meet their needs efficiently and artfully,” but that he’s pleased with the direction the project’s taken: a large, round, inverted roof, open in the middle, with support structures in separate spaces beneath it. “It straddles a flood zone and mediates the public and program halves of the site,” he notes. “The actual heated space is minimal, with the gathering spaces in an open porch.”

Environmentally friendly design is only one way that ATA incorporates its mission of sustainability. The couple’s home and office also reflect their belief in a simple, energy-efficient lifestyle. “We’ve always tried



ABOVE: While neighboring homes have heating and cooling bills approaching \$1,000 per month, this Eastern Sierra home utilizes passive and active solar strategies to meet 100 percent of its heating, cooling, and electrical needs. RIGHT: The obligatory truth window—in this case a salvaged butt-glazed unit—reveals walls insulated with straw-bales. The wall finish is PISE, an earth-cement featuring soil excavated at the site.

to live a low-impact lifestyle,” Arkin says. “We outfitted the house with a solar hot-water collector and installed photovoltaic panels and a wind generator over 10 years ago. We’ve owned a [Volkswagen] Beetle converted to electricity for about as long and more recently have been involved in a startup that distills ethanol fuel from waste wine, which we run another car on.”

In addition to its obvious desire for personal eco-consciousness, the architects’ office was renovated largely with salvaged materials, is solar powered, and uses LED lighting. Add to this the fact that Arkin and Tilt, as well as most of their employees, bike to work, and it’s not surprising that such dedication to a mindful office culture hasn’t gone unnoticed. In 2000, ATA won a Sustainable Business award from Acterra, a local environmental organization, which remains the only trophy that Arkin

keeps on his desk since it was made out of recycled materials—but also because of its significance to him: “We’re as interested in our own ecological footprint as we are in that of our clients.”

As ATA moves closer to lessening both, the firm continues to be motivated to make buildings “better in ecological terms than anyone else,” Arkin states. Already, the firm has subscribed to the goals of The 2030 Challenge; has several LEED, PassiveHaus, and net-zero projects; and is paying close attention to the toxicity of chemicals in building products (including halogenated fire-retardants, organohalogens, formaldehydes, and endocrine disruptors), as well as the embodied energy of materials and systems. Arkin hopes that ATA and similar firms can keep designing to avoid these chemicals and help to change fire codes and industry standards.

ATA does almost no formal advertising, so Tilt and Arkin rely on word of mouth, often give lectures on ecological design, and try to get the firm’s projects published. “Architecture has the ability to close you off from the world around you or open you up to it,” Tilt says. “I think it is an

enormous opportunity to show how you can work with and enhance your place in the environment without ruining it in the process. I feel like we do this one building at a time.”

But Arkin has his sights set on a “personal Holy Grail” of design—a building completely without mechanical systems, “one so tuned to its climate and setting that at any time of day or year, it remains a comfortable living environment.” gb&d

A MESSAGE FROM MELINE ENGINEERING CORPORATION

Meline Engineering Corporation is a licensed mechanical engineering consulting firm located in Sacramento, California. For the past 15 years, Meline Engineering has provided energy-efficient mechanical system designs for commercial and residential buildings and is considered the West Coast industry leader in designing geoechange and related applications. Projects have included correctional facilities, business parks, educational institutions as well as large custom homes.

Providing
energy efficient
mechanical
system designs
for commercial
and residential
buildings



HVAC SYSTEMS DESIGN • GEOEXCHANGE CONSULTING, SYSTEMS DESIGN & CONSTRUCTION
SUPPORT • BUILDING LOAD CALCULATIONS • PLUMBING SYSTEMS DESIGN
THIRD PARTY DESIGN REVIEWS • FEASIBILITY STUDIES



As a mechanical engineering firm, **Meline Engineering** is a west coast industry leader in designing Geoechange HVAC and related applications.

Celebrating 15 Years in Business | (916) 366-3458 | www.meline.com



meline engineering