In 2007, Helene Marsh (MESM 2004) moved to the San Francisco area and launched a search with her partner, Don Love – first for a house to buy in Marin County, and then for a lot on which to build. They finally settled on a small plot of land in the bayside town of Tiburon. “It was long and skinny and occupied by an old 1200-square-foot home that was described to me as ‘move-in ready’ but was actually smelly and vile,” she recalls.

Two years later, that house is a memory, replaced by a gleaming, space-efficient LEED Platinum-certified home distinguished by clean modern lines and a series of green features that could make a sustainable-building wonk weep.

Marsh’s platinum journey began while she was living in the former Soviet bloc nation of Czechoslovakia. “It was after the fall of the Soviet bloc, and I saw the environmental degradation in many areas,” she says. “Then I came to Santa Barbara in 1998 and saw how pristine it was here compared to central Europe. It made me want to understand more about the environment. I found the Bren program, but my kids were one and three and I was going through a divorce, so I waited until 2001 to start, when I could manage better.”

Marsh, who has always been interested in architecture and green building, took a class on the subject at Bren and then “put it in the back of my mind, thinking that if I were ever to build a home, I’d like to do it the right way.”

She graduated, moved north, found her hillside plot, and set to work on what would be a full-time job for the next two years.

“It was a real intellectual exercise for me,” she says. “The experience of going through the academic courses at Bren helped me to take on the research approach to this project because I had been taught to drill down and not take information at face value. I really used my analytical skills.”

She hired a San Francisco–based architect, Lewis Butler, who shared her modern design sensibility, and a contractor who had completed a LEED Platinum house in Oakland. Her goal was ambitious: “If it took 92 points to be Platinum, I wanted to be in the 110 range,” she says.

The first step was to deconstruct the existing house piece by piece, saving the old lumber and donating it to re-use facilities or organizations similar to Habitat for Humanity. She then tore out the old driveway, which had to be re-graded to meet a local ordinance, leaving her with a mass of broken concrete.

“I was tormented by this huge pile of concrete,” she says. “I kept thinking, What am I going to do with it?”

The solution came in the form of the retaining walls she needed for the driveway and the back yard, and involved building not a wall, but a series of linked galvanized-steel “cages” that could be stuffed with the old concrete, then faced with new stone to make them attractive. Now, the curving 3-foot-deep, 6-foot-high caged-concrete stone wall runs attractively along the whole 120-foot-long driveway, with another edging a 50-foot stretch of the back yard.

The 3,973-square-foot house was sited to take advantage of natural airflow and light. The eaves extend out from the walls far enough so that when the sun is high in summer, the interior is shaded. But when the sun is low in winter, it hits a four- to six-foot-wide band of the interior floor, warming the lightweight concrete, which also has a solar-heated radiant water-tube system running through it. The concrete then releases the heat throughout the evening.

“The result is a nearly constant temperature,” says Marsh. “It can be 95 degrees outside and the house might get to 80. You don’t get the stifling heat or unbearable cold.”

Marsh purchased everything she could from within a 500-mile radius of her home and used FSC-certified wood, reclaimed concrete, and solar power to bring LEED Platinum to Tiburon.
Platinum
continued from page 15

for everything from framing and siding to cabinets. All steel in the house is 80-percent recycled, the concrete contains 30- to 35-percent fly ash (a residue of coal combustion), and the walls were made from Eco Stucco, lime-based plaster that absorbs CO₂ as it dries.

Solar panels are used to generate hot water, with a rarely needed on-demand gas heater available for winter duty. A separate 5kW photovoltaic system provides enough electricity in the spring through fall that Marsh receives a monthly credit from Pacific Gas & Electric.

The house has three water-reuse systems. A first captures rainwater to flush toilets and run the washing machine. A gray-water system captures water from the bathroom sinks, the showers, and the laundry and then disperses it into the yard through a drip irrigation system, including under the no-mow lawn. The third captures spring water that had been spilling onto the driveway year-round and pumps it to the gray-water system.

The house was one of two homes in the Bay area to receive a 2011 American Institute of Architects (AIA) award in the category of energy and sustainability, and Marsh has opened it to the public on several occasions.

"I want it to be a showcase for people who are interested in what you can do in the green-building dimension," she says. "I want to host environmentally oriented people who are doing interesting work and can interact and network here."

The award pleases Marsh, but she’s even happier with the house’s livability.

"It’s exciting to walk into it every day," she says. "It’s comfortable, the climatic experience is great, and the views are amazing. I get satisfaction knowing that I’m using all my space every day. The objective was to create a beautiful, comfortable home without it screaming ‘earthy, crunchy,’ and we did. It’s sophisticated and also top-of-the-line LEED.

"It has been a fascinating journey and it’s all thanks to Bren," she adds. "It was an inspiring program, and as a result of getting my degree, I understood more about environmental science, climate change, and the built environment. I came away thinking about what I could do to walk the walk within the framework of my responsibilities in life. I see the house as a platform for other things I’ll do."

Bren alumni are welcome to come visit the house, which can also be viewed at www.tiburonbayhouse.com.

In This Issue

**Painterly PhD**
Striking a balance between science and art
*Page 7*

**Eco-E Evolves**
The leading edge of green entrepreneurship
*Page 8*

**Bren Links to AB 32**
Connections to California’s climate law
*Page 10*

**Oran Young – Emeritus**
40 Years on the intellectual frontier
*Page 12*