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# Living On Sunshine

A Croton-on-Hudson couple designs an energy-efficient home back when most of us thought “carbon footprint” had something to do with fossil dating. Meet the Bluestones.

**BY: H.M. EPSTEIN** PUBLISHED JUNE 21, 2008 AT 12:00 AM

The Bluestones’ open kitchen/living room features Bombo stools by Magis and several Neinkamper pieces, including two royal purple Ultrasuede Kimono lounge chairs and small round tables.

It started with a PennySaver and a dream at the dawn of the new “green” age. Real estate developer Steve Bluestone found a small ad for 3.78 acres of gently rolling land in the hills of Croton-on-Hudson. It was uniquely developed: a shack, an outhouse, and a propane tank. The landscaping was also quite singular, mainly bare dirt with mounds of boulders liberally sprinkled with trash.

For almost 20 years, ever since he attended architecture school at SUNY Buffalo and the State College at Buffalo in the late 1970s, Bluestone had held fast to a burning desire to build a passive solar home. When he saw the acreage, he knew it was the right spot to build an energy-efficient home that would harness the powers of the sun, water, and earth before him. Yet a decade ago, true green architecture was a rarity in Westchester. Even a real estate professional like Bluestone had trouble finding someone experienced with designing passive solar homes.

Then he remembered his lifetime membership to the Northeast Sustainable Energy Association (NESEA) and used its website’s search feature. “That’s how we found [Yorktown Heights architect] Peter Alusitz,” Bluestone says. Luckily, Alusitz, who lived only one mile away at the time, shared his passion for solar energy. The dream began to take shape.

Kathy and Steve Bluestone jumped on it. They bought the land in the early summer of 1999; by December, they had approved architectural plans and broke ground. In November 2000, the Bluestones—along with Steve’s daughter, Ruth, now an incoming freshman at Boston University—moved into their new 3,200-square-foot, three-bedroom, three-bath passive solar dream house. As anyone who’s ever built a home from scratch knows, that’s lightning fast.

So fast, Kathy Bluestone says, that when they moved in "we had no furniture, except an antique sofa that didn't fit a contemporary house like this. We had to buy everything from scratch." Luckily, Alusitz, who designed the main house, and his wife Michelle Mariash gave a helping hand with the interior design. Alusitz designed the round, glass-top dining table and had it custom-manufactured. Mariash developed the subtle paint palette for the walls and found the vivid purple Ultrasuede fabric to cover the Neinkamper Kimono lounge chairs.

The view from the entrance foyer shows Zoe, a young hyperactive Vizsla, in a rare moment of re- pose on the Poltranova charcoal leather sofa from Palazzetti. Steel and stone table lamps are by Festa & Co. The sun's heat shin-ing through the two-story glass walls is stored by the Kashmere cleft slate floor tile during the day and released at night when it's cooler. In the summer, when the sun is higher, it's prevented from coming more than one foot into the room, which helps the space stay cool.

Kathy describes herself as a "minimalist" who prefers to limit the amount of clutter in her life as well as in her home. "Because we're in such a natural setting," she says, "I wanted the inside to feel naturalistic and not contrived. I wanted lots of organic shapes, stones, and plants and to keep it very simple." Her home's overall contemporary design is a case of form following function—and judging from the form, luckily so.

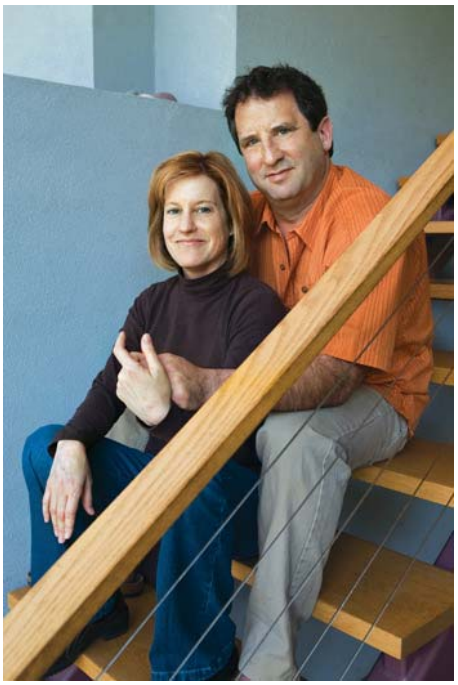
A framed quilt by artist Carol Sara Schepps hangs in the sun-drenched entryway over a natural walnut and stainless steel bench. The Bluestones' exposed the ductwork to keep with the contemporary home's gallery loft feel.

Passive solar energy requires soaring glass windows. To make the technology work, the house must be sited so the glass walls primarily face south and any tall trees that block the sunlight must be removed.

Then, an experienced architect or engineer must crunch the numbers for your location and calculate exactly where the sun will be at any point in the day throughout the year. That dictates the height of the walls—the Bluestones' range from 12 to 18 feet tall—and the little secret that makes it all work: the depth of a small lip of wood at the top of the exterior walls carefully calculated to block the summer sun from coming more than one foot into rooms. The high ceilings, Kashmere slate floors, and concrete walls help keep the rooms cool during those warm-weather months.Solar energy also means that, in the heart of winter, the sun lights up the kitchen all the way to the back wall. Those same slate floors and concrete walls store the sun's heat all day. In the evening, when it's most needed, the stone and concrete release the heat, helping bring warmth to the rooms.

Still, with all of its increased efficiency, passive solar energy alone is not enough to heat and cool a house. The Bluestones dug down into the bowels of the earth for their open-loop geothermal system; their well is 650 feet down, to be exact. The basic principle of geothermal is that the temperature of the earth and the water circulating in it remain a constant 45 to 55 degrees Fahrenheit, regardless of the season. "We draw water from underground, extract the heat from it, and use that to heat the house," explains Kathy, a direct-marketing consultant for Disney who works from the second-floor home office Air conditioning is the reverse In the summer a compressor cools the water and releases

the heat back into the ground rather than the air. Unlike traditional air-conditioning systems, no Freon gas is released into the air.



Homeowners Kathy and Steve Bluestone on the steps of their main staircase.

"The geothermal system takes care of most of our heat and air conditioning," Steve reports. The radiant heat is also supplied by the geothermal system, which is powered by electricity. While their electrical bills are higher than most, their total energy costs are far lower, up to two-thirds lower for a comparable house with central air and a furnace. In 2007, the Bluestones' actual energy costs were $4,250 for electric and $950 for gas, including cooking, dryer, and emergency back-up. (The current house size is 3,700 square feet as a result of an addition in 2005.) No water costs, no oil costs.

The natural insulation of the earth is also employed to boost energy effectiveness. The house is partially earth-bermed, meaning the northern side is built into a hill, so once the ideal temperature is achieved, it's easier to maintain it. At this location, an earth-bermed house means the room flow is flipped, with the main entrance on the second floor, where the bedrooms are, overlooking the open two-story public rooms with floor-to-ceiling windows a flight below. From the front door, visitors are graced with a grand view through the house all the way to the back hills of Grammy award-winning opera singer—and neighbor—Jessye Norman's vast acreage.

Those two-story windows mean nature is not just glimpsed, it's the ever-present backdrop. The Bluestones give much of the credit for the property's remarkable transformation from trash dump to tranquil setting to landscape designer Robert George. George, whose answering machine refers to him as "Mother Nature's Art Director," preferred to start with the resources already available on their property, enhancing, rearranging, and revealing their natural beauty. "Most of the plantings were already there, but were 'art directed' to where they are now," he says.

When ordering materials, George prefers local sources. For the Bluestones, he also often used "leftovers" from other projects that happened to fulfill their specific property's needs. For example, he built dry-look stone walls with a chinked flagstone remaining from a large

The Ashland Low Post king-size bed in cherry from Scott Jordan sits in the brightly lit bedroom. Throughout the house, tall narrow window slits provide lots of natural light and reduce electric usage.

project in Garrison because “the horizontal line helps anchor the vertical nature of the house, helps it feel planted in the earth.” The same stone was used to create the outdoor fireplace and the front garden sculpture, a gift from the landscaper to the homeowners. The locust trees that artfully support the roofline of the wood-burning sauna or serve as fence posts for the vegetable garden are dead standing wood harvested from other clients’ properties, including the grounds of a Catholic seminary in Garrison.

The Croton-on-Hudson house, for Steve Bluestone, has been both the fulfillment of a youthful fantasy and a huge laboratory for testing residential energy-saving approaches. Those earth-friendly methods will find a practical application for the Bluestones’ second green home, this one in Columbia County. “We’re hoping it will be ‘net zero,’ which means it uses no more energy than it produces,” Kathy says. “As you can see, my husband is very committed to being green.”

What he’s learned in his own backyard is being applied to the construction and management of affordable housing built by the Bluestone Organization, the family-owned real-estate development company based in Fresh Meadows, Queens.

“We’re going full-fledged in this direction, getting greener and greener.” Steve says. “When Kathy and I built this house, the term ‘carbon footprint’ wasn’t the prevailing concern. Now, we worry about where we get the clay for bricks.”

The kitchen, Kathy Bluestone’s favorite room of the house, is home to a work triangle so well designed that four chefs can comfortably work together. The backsplash behind the Viking six-burner stove uses custom handmade ceramics from Artistic Tile in White Plains. The sleek countertop is Silestone-brand quartz, which has earned the GREENGUARD Environmental Institute’s indoor air-quality certification.

**How It Works:**

Geothermal heat pumps (GHPs) use the constant temperature of the earth as the exchange medium instead of the outside air temperature. While in many parts of the country—including Westchester—summers can be sweltering and winters ice-cold, the ground remains at a relatively constant temperature (from 45 to 75 degrees Fahrenheit). The GHP takes advantage of this by exchanging heat with the earth through a ground heat exchanger.

Passive solar technology employs the sun’s warmth and its seasonal arcs to help control the temperature of a house. It’s based on the fact that winter sun is low in the sky and summer sun is high, so homes are built to capture the sun in the winter and avoid its heat in the summer. In the cooler months, high glass walls permit the sun’s warmth to enter the house. Stone or concrete floors and walls absorb the heat during the day and release it at night when it’s cooler.