

Perfect Placement

A unique hillside location helps a Pennsylvania home achieve LEED Gold status.

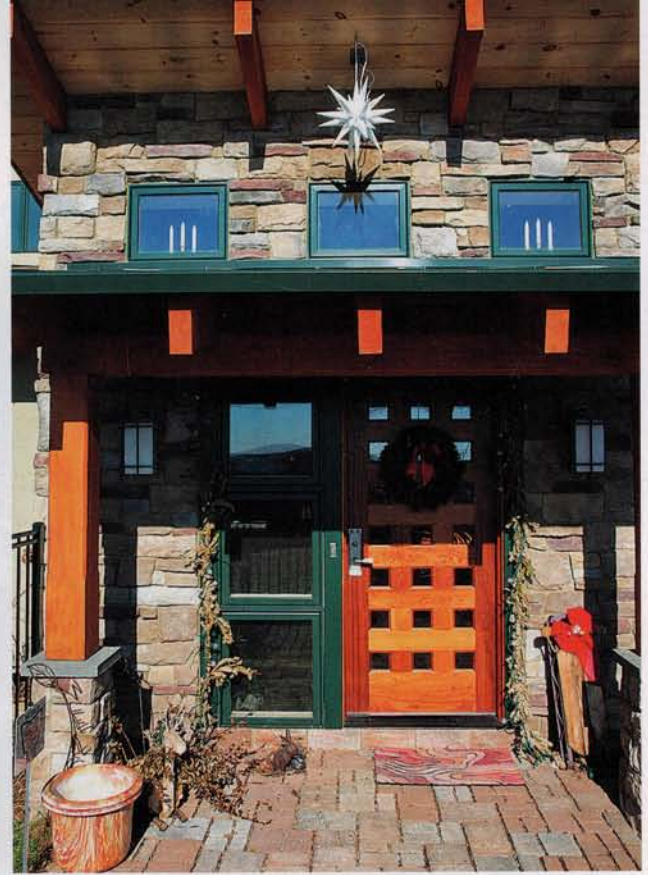
ask Steve Ember why he decided to build an energy efficient home in Kissel Hill, Pennsylvania, and he'll admit, it was a little bit of trial and error.

"About six years ago, my wife and I decided that we wanted to retire and build a lakefront home, but soon after we moved in we decided it was too far from everything and everyone that we loved," he says. So they sold it, moved back closer to home and bought a south-facing hillside lot not too far from where they'd always lived.

"It was the mistakes we made building that first retirement home that steered us in the design direction of our current house."

And the right direction it was. The 3,700-square-foot home that was built by Longview Structures in Manheim, Pennsylvania, was positioned perfectly on the lot to maximize passive solar gain and was actually built into the side of that south-facing hill. Because of this design decision, the first-floor master bedroom is located about eight feet below ground level, using the Earth as a natural insulator.





“It’s kind of like we’re living in a day-lit basement, but it doesn’t feel like that,” says Steve. “You get the thermal benefits of the ground outside that makes the house quieter and much warmer — it actually stays a consistent 70 to 73 degrees year round.”

Other energy-efficient elements that helped the home achieve LEED Gold status include:

- A 2,000-gallon rainwater cistern that collects 60 percent of the home’s roof water. The cistern feeds all of the outdoor hose connections.
- Twenty-four electric solar panels that help the home produce about half of its needed electricity.
- Tile and hardwood floors (no carpet) to help maximize air quality. Most of the walls and ceilings are finished in American Clay, a non-toxic, all-natural plaster product.
- In the galley way, south-facing windows heat a poured-concrete trombe wall that is 3 feet high and 10 inches thick. The wall gradually collects heat over the course of the day, and releases the energy slowly into the home’s interior spaces.
- Radiant in-floor heating and a geothermal system heat and cool the home when needed.
- Because the home’s envelope is so tight, a heat recovery ventilator was installed to keep fresh air in the house.



So, after living there for more than a year, is there anything Steve would change about the home? There just isn’t, he admits. “I think we were fortunate because we went through the building experience in our previous house. The kitchen is perfect. The bedroom is dark and quiet. We can shut off the upstairs and keep it insulated away from the ground floor when no one’s visiting. It’s a smart plan and a comfortable house. We’re really proud of it.” **EEH**

opposite: Even with a full-size pool and koi pond in the front yard, the Embers’ monthly electric bills are never much more than \$100.

clockwise from top left: Because the back of the house is positioned against the hill, the home’s amenities are located in the front yard. The home’s windows were positioned to maximize passive solar gain. Steve Ember describes the home’s impressive kitchen space as “perfect.”