Green Living

BY SAMANTHA RICKETTS

ALTHOUGH THE MOUNTAIN STATE is primarily known for the use of coal and natural gas to heat and light houses, some West Virginians are taking a different route by using solar, geothermal and other green energy technologies to run their homes. The homes of Chip and Jan Pickering in Williamstown and Jason and Halcyon Moses in Huntington are two in particular that stand out. The Pickering home is the first Leadership in Energy and Environmental Design (LEED) platinum-certified home in the state, and the Moses home is a zero net energy home.

The Moses Home

Halcyon Moses always strives to be as environmentally conscious as possible, but she never imagined it would be the driving factor in the building of her family's new home.

While house hunting, she and her husband Jason searched for a home convenient to both his workplace and their children's schools. Instead of a house, though, they came across a property for sale and fell in love.

Halcyon created the floor plan, and Ed Weber, then of Silling Associates and current owner of Ed Weber Architects in Charleston, developed the plans for construction to meet the family's needs and make the house sustainable. Silling Associates, with the help of Jarrett Construction and David Pray, began constructing the home in 2009, and the family moved in a year later. "My philosophy for years has been sustainability, but I had never done a house where the commitment level from the clients was such that I could do a whole house," Weber says of the project. "This is a unique, fully-integrated home."

The Moses family wanted to keep the trees and landforms on the property intact, so the house was specifically placed for the least impact. They used locally and sustainably harvested wood, as well as recycled and low-voltaic organic compound (VOC) or no-formaldehyde products. They also incorporated energy star appliances, LED lighting and low-flow water faucets, shower heads and dual flush toilets. They used quality windows, spray insulation and insulated concrete forms. For heating and cooling, a geothermal system was incorporated, and adequate ventilation ensures the cleanest air possible. The house also includes a 5,000-gallon rainwater cistern system that collects the water for the household.

"All these elements together make a synergy, and the house becomes kind of a living organism," Weber says.

Halcyon says she sleeps better at night knowing the knobs on the doors and cabinets are made in the U.S. and are free of dangerous chemicals, that no fumes are leaking from the wood and drywall and that the water is cleaned in-house. The only worry the Moses family has in their new home is the possibility of running out of water occasionally. Because they rely completely on rainwater, they must control their water use when rain is scarce.

"We've run out once or twice out of carelessness," Halcyon says, "but a supplemental supply is easy to get and very inexpensive."

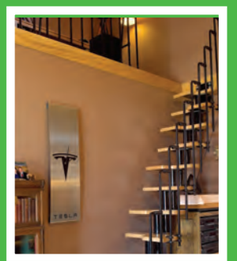
The family now has no water bill and pays $240 per month for the heating and cooling of their 5,000-square-foot home. They are also in the process of planning a system of solar panels as another form of energy production. Even without solar panels, their home is now considered a zero net energy building.

"Zero net energy homes have zero energy consumption and carbon emissions," explains Weber. "You don't have to bring the energy to it; it just uses what it has. Some homes even produce more energy than they use, so they have a completely positive effect."

Halcyon says sustainable living is worth the effort. "Most people think building sustainably is too expensive or that products would be impossible to find in this area, but while some aspects of building sustainably may be more expensive up-front, the long-term savings make up for it."

Because of its positive environmental impact and long-term financial benefits, sustainable housing is on the rise. "It's been slow to reach the marketplace here, but in other parts of the country there's an expectation that your house will be designed in a sustainable fashion," Weber says. "The trend is here and it's going to stay; it's not a fad."

"What's nice to see today is that we have more and more clients asking what it's going to cost to operate the building instead of how much to build it," Mike Moore, director of business development for Silling Associates, says. "This shows us that sustainability is becoming a major priority in planning for residential and commercial properties."



The Pickering Home

Chip Pickering, CEO of Pickering Associates, wanted to "walk the walk" after having worked on other LEED projects in the past. With the help of Traci Stotts, lead architect and vice president of marketing and development at Pickering, and Nick Arnold, architectural designer at the firm, Chip began designing his family's future LEED house in early 2010.

One main goal of the LEED program is to introduce these new techniques to people and workers in the area, so when it came time to build the house, several contractors and suppliers were utilized. Mondo Construction of Marietta, Ohio; Waters Construction of Williamstown, WV; Steers Heating of Parkersburg, WV and Davis, Pickering & Co., Inc. of Marietta were all involved in the project. It was also a learning process for Pickering's firm, which provided project management and construction managers.

Chip says sustainability has always been in his blood. His first home used lots of insulation and little heat and air conditioning, and his second home was a recycled barn with geothermal heat, structural insulated panels (SIPs) and efficient windows and doors. "I've been focused on sustainable living practices for many years—I can't tell you when that started, but I was probably green before being green was cool."

Chip and Jan had owned a piece of property for 10 years with the desire to build a home there, and when the idea for this project came up, they knew the design was perfect for the fairly compact space. The 3,000-square-foot home was made using locally and naturally processed and manufactured materials designed for durability, including tile floors and cabinets made from urea-formaldehyde-free substrate, and all wood products were sustainably harvested and certified by the Forestry Stewardship Council.

The house maintains rainwater onsite and uses a geothermal heat pump, the waste heat from which also provides most of the hot water used. The family uses low-flow water faucets, shower heads and toilets, as well as Energy Star appliances and low energy-in quartz countertops. They also used low-VOC paints and finishes and bio-based polymer carpeting in consideration of the indoor air quality.

For the overall efficiency of the building, they used SIPs in the exterior walls and floor and oriented strand board-based I-joists for flooring. They used glue-lam beams instead of large trees for timber, recycled roofing materials and natural pest-proofing. They also incorporated dedicated recycling areas for the home, and 80 percent of the waste from construction was recycled.

"In my opinion, the most interesting part of this home is the vegetated roof with drought-tolerant turf and a sitting area," Stotts says. "This is a part of the LEED process that everyone can actually see and enjoy."

Passive solar arrangement and features were used, including a grid-tied solar photovoltaic power system that provides the home's energy, as well as charges their electric car.

On top of being Energy Star- and Indoor Air Quality Program-certified, the home is also LEED platinum-certified, the highest possible rating. Through the U.S. Green Building Council, LEED certification ensures the home's location, water use, energy use, indoor air quality and building materials are at the highest sustainability standards.

This type of living is not only environmentally-friendly, but also wallet-friendly. All electrical energy is solar, so the family only pays $5.20 a month, the required minimum metering charge from the power company. Their water bills are about $30 per month. In addition, the home requires little maintenance, with only the vegetated roof needing minimal upkeep and the solar panels requiring annual cleaning.

Chip definitely recommends sustainable living. "The cost is still a premium—probably an additional 25-40 percent over an average home, but over the lifetime of the home, you would return these additional costs in energy savings and maintenance. People need to think more in terms of a long-term investment that saves energy and all the negative environmental aspects of the energy generation, transmission and use." ■

Photography by Mike Adkins Photography, Rick Lee, Tracy Toler and JB Meadows Photography