

The home captures warmth and daylight in the winter months. Radiant heat gives a gentle, even heat—perfect for twins Joy and Sonia, who often sit on the living room floor when at play.

Opposite: Most of the glass windows faces the south and is protected from the summer sun with deep roof overhangs. Solar panels collect and convert the sun's energy into electricity.





# Living Green

**Rick Alfandre and Vicki Koenig have made energy efficient living the top priority in their Hudson Valley home**

**R**ick Alfandre had a head full of ideas when the time came to build a home for his family. The house had to be energy efficient and so did all the appliances. It had to be architecturally beautiful and inviting. Most important, it would harvest as much free energy from the sun as possible.

"Energy has to come from somewhere, and we can reduce our impact on the environment and on the atmosphere. It's good for the planet and for the future," says Rick, who is the principal of Alfandre Architecture, a firm that specializes in environmentally responsible construction.


Rick and his wife, Vicki Koenig, purchased the land in 2001 and took their time before they began construction. The 2,500-square-foot house, completed in 2006, is located on 45 acres in New York's Hudson Valley, on the crest of a hill near the Shawangunk Ridge. The acreage is dotted with woods, fields, a small stream and a pond.

"It's important to see the land through the seasons," says Rick, explaining how winter offers the real views when the trees are bare and the slope of the land becomes apparent.

Rick sited the driveway on the crown of the land and the house on a solar southeast-facing

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*Story and Photography by Jennifer May*

A photograph of a dining room. In the foreground, a glass-topped dining table is partially visible, supported by metal legs. Two dark wood chairs with cane backs are tucked under the table. In the background, a large window with a wooden frame looks out onto a green landscape. A large, light-colored vase filled with white flowers sits on a surface in front of the window. The room is brightly lit by natural light from the window.

**The dining room is made more comfortable with insulated walls, eight inches thick with dense pack cellulose.**

slope. A smaller footprint reduces excavation and disturbance to the surrounding environment. The slope affords more opportunities for proper light and ventilation, which helps with managing water and vapor in the home. Properly managing moisture addresses the issues of mold and decay—a boon to anyone who suffers from mold allergies.

Energy efficiency in the residence begins at the entrance to the home. The front door opens into an enclosed mudroom where shoes and jackets can be stored. The mudroom is shut off from the main house by a secondary door. This air lock prevents unwanted heat exchange: During cold winters warm air stays in; during hot and humid summers cool air is safeguarded.

Step through the mudroom and you are greeted with soaring ceilings, exposed beams on walls painted striking shades of dark apricot, poinsettia and pale green, and a wall full of windows spanning two stories. The windows are triple-glazed, well-insulated and air-sealed. The amount of sunlight the house takes in is one of Vicki's favorite elements.

"I love the light: The light and shadows that move across the house, the walls, and that plays with the colors. The colors make me happy," she says. She also loves to gaze through the windows at the wild turkeys that roam in the forest surrounding the home.

An open kitchen plan with a breakfast table is informal enough that the couple's twin daughters, Joy and Sonia, spend much time there doing homework, as one of the parents prepares meals.

Vicki, a nutritionist for Stonyfield Farm, loves to cook for her family. For the new kitchen, she chose a gas stove with six elements. The exterior fan is mounted on the outside wall and it has a back draft damper which closes when the fan is not in use—thereby reducing cold air from being sucked inside (the bathroom fans are sealed the same way). The refrigerator-freezer is not only quiet but energy efficient. Their dishwasher is one of the quieter models available, and it has a start delay, which is convenient as they wash their dishes (and their laundry) with water heated by the sun. They put a load in at 8 a.m., and it starts



**In the kitchen, solar sun tube lights the breakfast table area without need for electricity. The appliances are Energy Star rated.**

seven hours later. "It gives a lot of pleasure, knowing that," says Vicki, noting that low electric bills that are one of the rewards of living in an environmentally responsible home.

"We chose the floors because they are beautiful," says Rick. The red birch planks are from a nearby state, as is the red birch of the cabinet doors. Radiant heat floors were installed throughout the house for maximum energy efficiency.

"Every lifestyle decision has an impact. You have to ask, where does it come from, where does it go, and what type of energy and impact did it take to get here," says Rick. For example, bamboo flooring is a renewable resource but it comes from China and takes a lot of energy to ship. "Is it better to use bamboo than hardwood oak or ash from the Northeast or Michigan?"

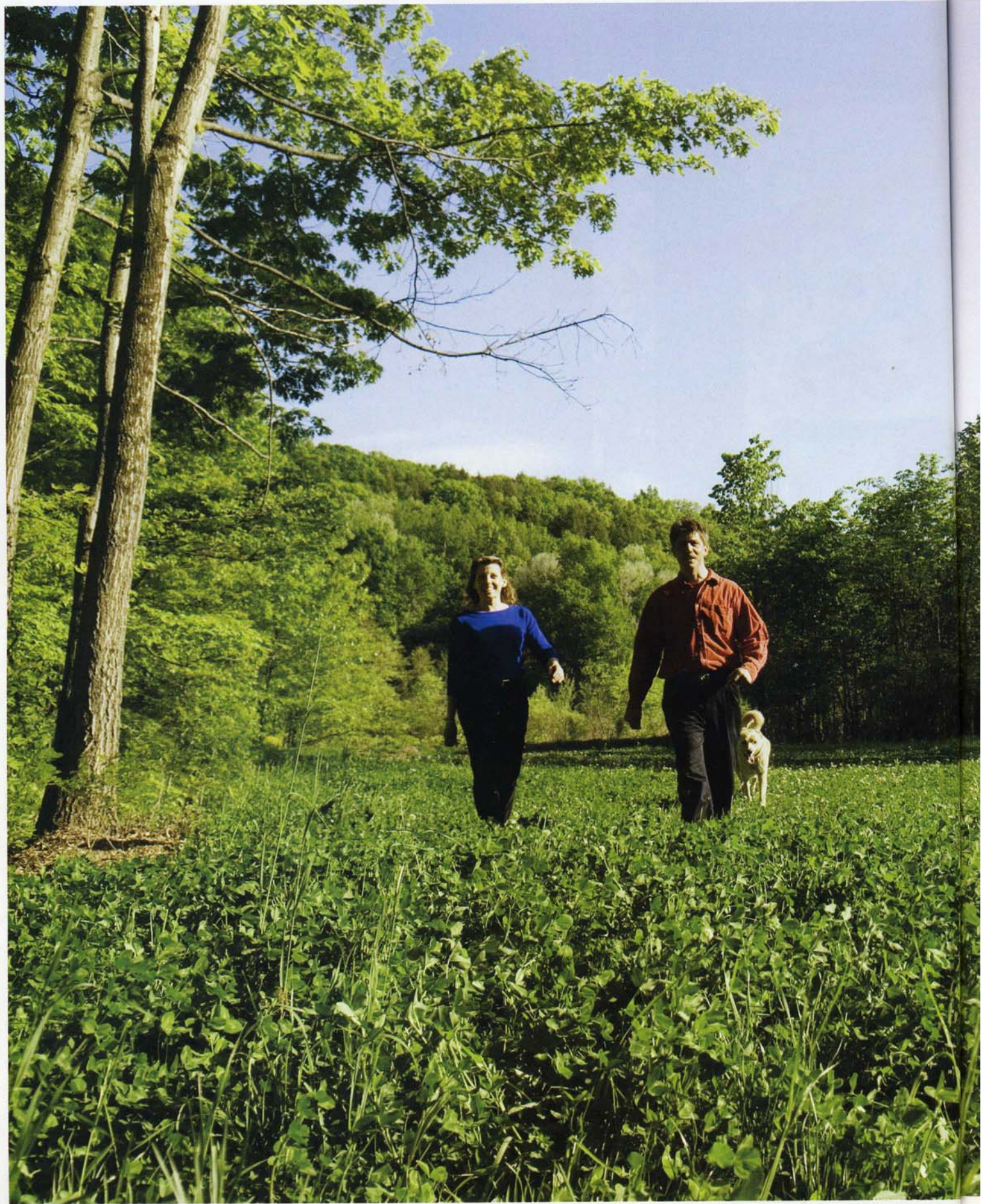
One of the most pleasing elements of the kitchen is the solar tube above the breakfast table. "At lunch it's like a light is on," says Rick. Solar tubes are used when the roof is so far away from the interior ceiling

to render a regular skylight useless. The interior of the tube is covered in a highly reflective Mylar, which funnels light to the interior space without burning electricity. A second solar tube lights the stairway leading to the second floor where the bedrooms, the master bath and the laundry room are located. Most of the rest of the lighting in the home is compact fluorescent.

The open floor plan means the kitchen, dining area and living rooms are all visible and accessible to each other. The main feature, which unites the three areas, is the massive Rumford fireplace. The family lights it on weekends in winter, and when they do they have to crack open a window to create a draft because the house is so airtight. There is also a wood stove as a backup heat source.

The living room is the spiritual center of the house, says Rick. Because the home is so connected to the sun's energy, his family has become connected to the cycles of the sun and moon—and nowhere

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A photograph of a lush green field in the foreground, with a dense forest of tall trees in the background. The sky is clear and blue. The field is filled with various green plants and grasses. The trees in the background are tall and have dense green foliage.

Vicki Koenig,  
Rick Alfandre and  
their dog Pearl  
stroll through a  
field they planted.

The Rumford fireplace is lit on weekends during winter. The woodstove on the side is for back up heat in case of power outages.





## Here Comes the Sun

The residence is Energy Star Rated and has a Home Energy Rating System (HERS) score of 41, which means it is 59 percent better than the model energy code home. Approximately 40 to 50 percent of the home's annual electricity is generated by the sun, using photovoltaic and solar-electric systems. They use approximately 750 kwh of electricity per month in the winter and 500 kwh in the summer—depending on how many people are home and what equipment is running.

## Heat from the Bottom Up

Radiant floor heating is installed throughout the residence and customized control panels (left) regulate the temperature. In addition, a high-efficiency propane boiler heats the water that circulates in the tubes beneath the flooring. Radiant heat provides an even heat throughout a home and because there is no blowing air; dust and mold circulation is minimized.

## Rays: The Roof

Solar hot-water panels (left) capture energy from the sun and heat water for bathing, laundry, and the dishwasher. The thermometer on the hot water tank reads between 90 degrees and 145 degrees, depending on if the day is overcast or bright and sunny. Financial aid towards adding solar electric systems to a home is available from the New York State Energy Research and Development Authority. State and federal tax credits are also available.

## Picture Perfect Windows

Site a new construction to the solar southeast to collect passive solar gain, particularly in the winter. Rick used triple glazed designer series windows (left) with tight seals on eight-inch-thick walls insulated with dense-pack cellulose made from recycled newsprint. The effective R-value of the glass is nearly an R-4. The exterior of the house is sided with a fiber cement board made with recycled wood fiber. The board uses less wood and is more durable—it won't rot or burn and it only needs to be repainted every 15 to 20 years.

## Resources

### Windows

**Pella**  
800-374-4758  
pella.com

### Dishwasher

**Bosch**  
800-944-2904  
boschappliances.com

### Radiant heat flooring

**Advanced Radiant Design**  
845-687-0044  
radiant-design.com

### Builder

**Mountain Valley Builders**  
845-706-5648  
845-657-6431  
mtnvalleybuilders.com

### Design

**Alfandre Architecture, PC**  
845-255-4774  
alfandre.com

are these more evident than in front of those massive living room windows. "The house is not just climatically responsive. It has trained the consciousness of the people who live here," he says.

If the living room is the spiritual center, the outdoors is an esteemed place of worship. As the house has been built to create harmony between the interior and the exterior, Vicki and Rick strive to create harmony in their landscape. Every place where excavation equipment disturbed the earth the family planted a conservation mix of clover and legumes to return nutrients to the soil—and to provide food for wildlife.

Rick plants trees—hundreds of trees every year. The family keeps a garden to ensure the freshest seasonal vegetables and berries including cherries, strawberries, blueberries, gooseberries, and indigenous black walnuts and Russian olives. Kiwis and grapes grow on trellises made of cedar posts cut from the property. They also keep bees.

Rick echoes his wife when he describes the things he loves most

about the home. He loves the light, the sun views, and the tranquility. He also finds solace in working in harmony with the planet at large. He strives not to take too much and to give back as much as possible.

"There is a tremendous amount of energy to be saved when building old and new homes. And there is a tremendous amount of renewable energy to be harvested from the sun every day," says Rick.

There is perhaps no finer spot to contemplate all this hard work and resulting beauty than on the small balcony off the dining room. The balcony overlooks the forest and on summer evenings the family dines in the cool shade of the house. They enjoy Vicki's basil pesto (picked fresh from the garden) followed by berry smoothie for dessert. Outside, the woodpeckers drum on trees, deer slip through the shadows, and the frogs leap toward the pond. It is a place of harmony and balance, where every living creature is encouraged to build its home, and no one takes more than their share. ■