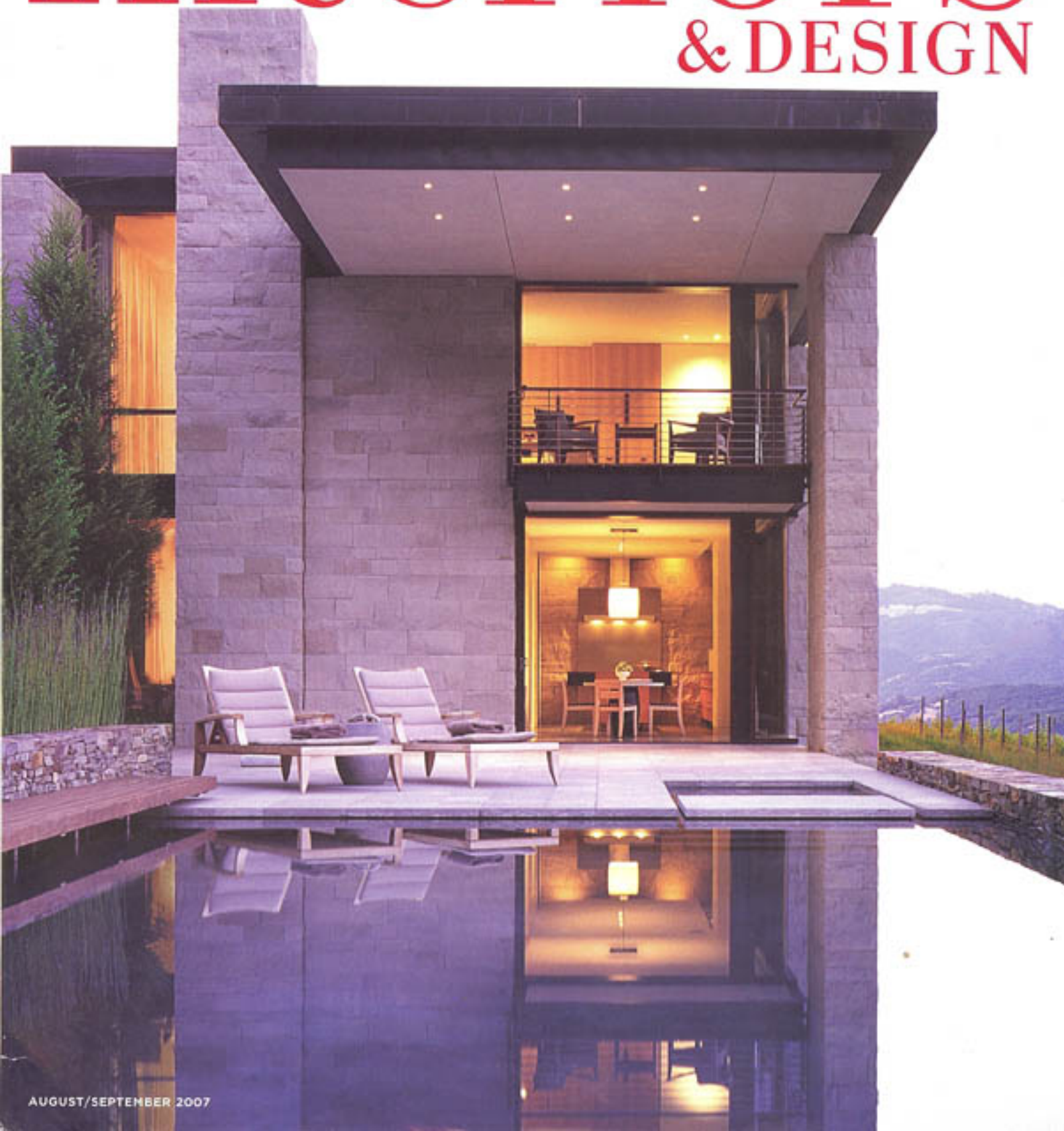


# WESTERN Interiors & DESIGN





# Smart NATURALLY

Simple strategies for making your house energy-efficient **TEXT BY AMANDA DAMERON**

"If you want to design sustainably," says Brett Nave, "you need to realize that your house isn't going to be your parents' house, and it's not going to be the house down the street—it's probably not going to be a house you've ever been in." Nave and co-principal Lori Ryker head the Montana architecture firm Ryker/Nave Design, which is recognized for its innovative projects and environmentally sensitive focus. Ryker is also the author of two recent books about sustainable design, *Off the Grid: Modern Homes + Alternative Energy* and *Off the Grid Homes: Case Studies for Sustainable Living*. Here, Ryker and Nave share their thoughts on how to begin making decisions about building a greener house.

"How you orient your house gives you the opportunity to tie yourself more closely to where you live," says Lori Ryker (top right, with Brett Nave). "All of that works together to begin to decrease your energy reliance." **above left:** A house that Ryker and Nave designed in Montana is positioned for solar gain; the angled roof collects rainwater. **above right:** A steel-and-glass door, hinged at the top, allows cooling breezes into the study.

## What's the first thing people should consider when planning a more sustainable house?

**Ryker:** Everything begins with saving energy. Start by orienting your home to the environment you'll be living in, which will prescribe how your house sits on the land. Consider where the breezes come from, where the sun sets and rises.

**Nave:** When you do that, you ensure that daylight will illuminate your house instead of energy-wasting lightbulbs. But the first question you should ask yourself is, "How green do I want to be?" Are you willing to adjust your lifestyle? Living a greener life isn't really a sacrifice, it just takes a little patience.



Ryker and Nave designed a kitchen that doubles as a greenhouse, using energy-efficient Lexan panels instead of glass.

## USEFUL GREEN TERMS

**Radiant heat:** A system in which heated liquid is circulated through tubes laid beneath the surface of the floor to warm your house. Radiant heat works most efficiently with concrete flooring because it retains heat longer than wood. (Radiant cooling systems are also available.)

**Geothermal:** By sinking a tubing system into the ground to the depth at which the earth remains at a constant temperature of about 52 degrees (the depth varies regionally), you can draw air into your house that is already warmer or cooler than the atmospheric temperature.

**Grid intertie:** If you're producing some of your own energy by using alternative sources such as solar or wind power, you can also tap into your local municipal power grid for additional power. Using the municipal infrastructure also eliminates the need for having your own battery bank.

**Photovoltaic panels:** Panels that are grouped together to collect energy from the sun.

**Wind turbines:** No longer noisy or a threat to birds, today's wind turbines have also come down in price.

**Rammed earth:** A compressed-earth mixture that includes cement and a small amount of water. The mixture is poured into a form and pressed with a ramming device to create walls. The mixture is added in layers, called lifts.

### Once you've sited your house, what's next?

**Ryker:** Think about your air-conditioning and heating needs. A geothermal system, which can be used along with forced-air or radiant heating, is ideal. Basically, you sink tubes into the ground until they reach below frost level or wherever the ground begins to be a constant temperature, about fifty-two degrees. The tubes draw air that's already at fifty-two degrees, so you're using less energy to heat or cool your house. For instance, a geothermal system in Arizona would use the benefit of the ground temperature to cool the house, whereas in Montana you'd be using it to heat your house in winter.

### How does radiant heat work?

**Nave:** A system of tubes is laid in a looped pattern beneath the surface of the floor. Liquid is run through the tubing, and it can be heated or cooled, depending on your temperature needs.

**Ryker:** With a radiant system, concrete flooring is more efficient than wood. Think of it as if you were standing barefoot on a sidewalk when the sun had just gone down—you would still feel the heat. But if you were standing on a wood deck, it would be cold as soon as the sun disappeared, because the heat that's stored in the wood dissipates rapidly.

### What about solar and wind power?

**Ryker:** You can establish a grid intertie, which is an alternative power system such as photovoltaic panels—what many people call solar panels—or wind turbines used in combination with the power supplied by the electrical grid of the municipal system.

**Nave:** If you're only producing partial energy with an alternative system, the municipal grid then supplies the rest. If you're producing more energy than you need, your alternative system adds electricity to the municipal supply, and then it's distributed to other customers. Most municipalities allow some form of net metering in which you're given either credits or money back.

### What can people do to conserve water?

**Nave:** You can irrigate your land with the water that falls out of the sky by angling your roof to collect rain and draining it into a tank for later use. We have tanks that collect water, which we use to water our landscape, so we're not pumping water out of the ground.

### What are some of your favorite green materials?

**Nave:** Instead of paint, we like to use natural pigment plaster applied over Sheetrock. The finish can last a lifetime. Our kitchen doubles as a greenhouse, so we installed Lexan as a more economical alternative to glass. We chose stone remnants from a scrap pile for our bathroom vanities. We just designed around them. We're also using rammed-earth walls in several projects.

**Ryker:** Get what's available in your community, what's close by. Think about materials that don't have to be trucked in, flown in or floated in from another country.

### Does landscaping affect a house's sustainability?

**Nave:** Absolutely. Plant something that your yard can sustain, something that you don't have to super-water. And don't forget about grass roofs. If you install one, your house won't absorb as much heat. Plus, you'll have a great place to hang out! +