

Godfather of Green

Want to outfit your home with the edgiest in eco-tech? Just ask engineer Jerry Yudelson.

GREEN BUILDING and carbon-neutral living might seem like recent ideas, but engineer Jerry Yudelson has been in the environmentally friendly building business for 14 years. Today he directs a consulting firm in Tucson, Arizona, and his name is on a dozen books about green design. Before LEED certification (that's Leadership in Energy and Environmental Design, to us non-pros) was a glimmer in any architect's eye, Yudelson was pushing for solar houses. And he still is. He offers his thoughts on where the field is headed, what new tricks are cutting energy use, and which technological leaps may yet take green homes mainstream. — *N.B.*



You can hardly think of a green house without imagining solar panels. How has solar changed in recent years?

You're getting solar a lot cheaper now. And it's being incorporated into roof shingles, so you can actually have solar-powered roofs without putting on separate panels. You've got to put a roof on anyway, so if you can effectively make the roof itself a solar collector, you get two for one.

Bill Gates recently called rooftop solar "cute." He seemed to think it was a rich person's toy. Production housing is where it's getting interesting. The big home builders are starting to put on 2- or 3-kilowatt systems as a standard feature, and it's just part of the price of the house. There's no add-on cost. That's a real breakthrough.

What about the systems that really run a house, like heating and cooling?

The real key is the windows. There's some revolutionary nanotechnology that's about to go into the glass—different kinds of coatings that make them five to 10 times more energy-efficient than double-paned windows. These windows are as energy-efficient as walls.

Right now, most of a home's energy is used to control temperature. You're going to solve the problem with fancy insulation? Most of the energy demand in new homes is going to come from appliances—not the structure of the house itself but all the stuff we put into it. So there's going to be a whole generation of smart appliances—smart water heaters and more—that you can control on the web. You tell it what to do; it tells you what it's doing. That's going to come in the next five years, maybe sooner.

But will people actually care about

how much juice their DVRs suck up?

When you make energy monitors standard in new construction—when you integrate them with a smart thermostat system—you can make them something people will want to use. You know the old saying: You can't manage what you can't measure. You've got to have good information, and you've got to have it in real time. If you do, you'll be in much better shape to manage.

So, dream a little: Imagine everything you think is coming is actually here.

What do you build into your ideal home? Solar on the roof. More indigenous plants instead of lawns. Thirty or 40 percent less water use inside, packaged with a gray-water system for flushing toilets and a rainwater-harvesting system. And one other important thing: It's going to be smaller.

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