

TECHNOLOGY

Home Truths

FORGET THE SOLAR PANELS AND THE RAIN BARRELS—
IF YOU WANT TO GO GREEN, LEAVE THE SUBURBS FOR THE CITY.

By Witold Rybczynski

NOWHERE HAS THE green message had a bigger impact than in the building industry. Green or sustainable architecture is all the rage—as well it should be, because buildings use a lot of energy. The construction and operation of residential and commercial buildings consume as much as 40 percent of the energy used in the United States today.

The calculation of a building's total environmental impact must factor in everything from annual energy consumption to how and where building materials are manufactured and the handling of storm water. This requires some sort of rating system, and there are currently more than 40 of them in use around the world. Most, like LEED (Leadership in Energy and Environmental Design), which has become the standard in the United States, award points based on a checklist—daylighting, water recycling, solar panels, bicycle racks, and so on.

Although it is estimated that fewer than 6,000 projects have been certified in the United States in the 10 years since LEED was established, the program has significantly raised public and professional awareness. Yet a checklist approach has drawbacks. It tends to focus attention on unusual features, such as green roofs. Growing grass on a roof is definitely photogenic, but it is not as energy- and cost-efficient as simply painting the roof white (see "The California Experiment," page 66). And checklists—even weighted checklists—may produce misleading results. Both a suburban office campus and an urban high-rise office building,

for example, can receive a high rating. As David Owen points out in his forthcoming *Green Metropolis: Why Living Smaller, Living Closer, and Driving Less Are the Keys to Sustainability*, in the office campus, people work in sprawling buildings and drive between them; in the high-rise, people work in a compact building, use elevators (which are inherently energy-efficient, since they are counterweighted), and walk to lunch.

Putting solar panels on the roofs doesn't change the essential fact that by any sensible measure, spread-out, low-rise buildings, with more foundations, walls, and roofs, have a larger carbon footprint than a high-rise office tower—even when the high-rise has no green features at all.

The problem in the sustainability campaign is that a basic truth has been lost, or at least concealed. Rather than trying to change behavior to actually reduce carbon emissions, politicians and entrepreneurs have sold greening to the public as a kind of accessorizing. Keep doing what you're doing, goes the message. Just add a solar panel, a wind turbine, a hybrid engine, whatever. But a solar-heated house in the burbs is still a house in the burbs, and if you have to drive to it, even in a Prius, it's hardly green.

Architectural journals and the Sunday supplements tout newfangled houses tricked out with rainwater-collection systems, solar arrays,

and bamboo flooring. Yet any detached single-family house has more external walls and roof—and hence more heating loads in winter and cooling loads in summer—than a comparable attached townhouse, and each consumes more energy than an apartment in a multi-family building. Again, it doesn't really matter how many green features are present. A reasonably well-built and well-insulated multifamily building is inherently more sustainable than a detached house. Similarly, an old building on an urban site, adapted and reused, is greener than any new building on a newly developed site.

A Thoreau-like existence in the great outdoors isn't green. Density is green. Does this mean that we all have to live in Manhattan? Not necessarily. Cities such as Stockholm and Copenhagen are dense without being vertical. And closer to home is Montreal, where the predominant housing form is a three- or four-story walk-up. Walk-ups, which don't require elevators, can create a sufficient density—about 50 people per acre—to support public transit, walkability, and other urban amenities. Increasing an area's density requires changing zoning to allow smaller lots and compact buildings such as walk-ups and townhouses.

In other words, being truly green means returning to the kinds of dense cities and garden suburbs Americans built in the first half of the 20th century. A tall order—but after the binge of the last housing boom, many Americans might be ready to consider a little downsizing. ■

Witold Rybczynski is Meyerson Professor of Urbanism at the University of Pennsylvania and the author of *My Two Polish Grandfathers*.