

# The Greening of U.S. Architecture

By LAUREN MONSEN

## Students are promoting the eco-design trend, say educators.

With many residential and corporate clients now requesting an environmentally friendly approach to their design needs, “green” architecture has become an increasingly hot commodity. A number of U.S. universities have responded by developing sustainable-design courses for their architecture programs.

Most often, students themselves are driving that trend, say two prominent educators.

Architecture professors Linda Keane of the Art Institute of Chicago and Walter Grondzik of Ball State University in Muncie, Indiana explain how architecture is evolving to meet new energy requirements—and how young architects-in-training are learning new skills to meet the challenges of the 21st century.

Although public awareness of “green” architecture is a relatively recent phenomenon, Keane says that its foundations can be traced to the 1970s, when a small vanguard of progressive architects began creating “passive solar” buildings that drew upon renewable energy sources.

“There were firms practicing this way, but they were on the fringe,” Keane recalls, “and it wasn’t called ‘green architecture’ then.” She cites the “age-old principles of natural ventilation and use of sunlight,” which were already being incorporated into certain designs—and which have been rediscovered and embraced by today’s environmentally conscious practitioners.

A few schools “were teaching sustainable principles 30-40 years ago, ahead of the curve,” Grondzik says. These days, more schools are offering courses on energy-effi-

cient design and the use of sustainable materials, but Keane and Grondzik both caution that the “greening” of U.S. architecture programs is in its infancy. Grondzik estimates that “maybe 10 percent of U.S. architecture schools do a fairly good job” of grounding students in the precepts of sustainability.

“It’s a slow process,” he says. “And it’s definitely not mandatory” for students to address environmental concerns in most architecture programs. But in the years to come, he predicts, the sustainable-design movement “will be gaining momentum” as a new, “greener” crop of architects enters the work force.

“It’s all about generational change,” he says. “I think the stronger architecture programs have been student-initiated. Schools have responded to student demand” for more instruction on sustainability.

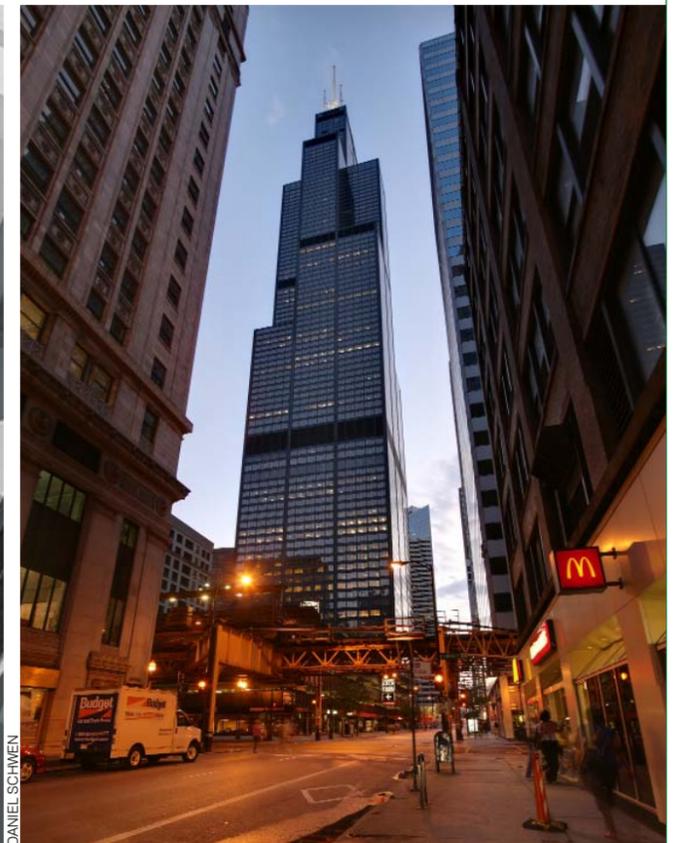
Keane agrees. “It takes time to change behavior; people are often resistant to change,” she says. “But a lot of younger people are attuned to the concept of sustainable design, and this will probably turn the tide in the years ahead.”

Even at architecture schools that excel in teaching sustainability, requirements for graduation may vary—but most programs expect students to undertake internships so that they acquire some hands-on design experience, whether eco-related or not. “A broad internship is a linchpin of our program” at Ball State University, Grondzik says.

At the Art Institute of Chicago, “we have a series of courses known collectively as The Green Zone,” Keane says. “These are a cluster of courses that focus



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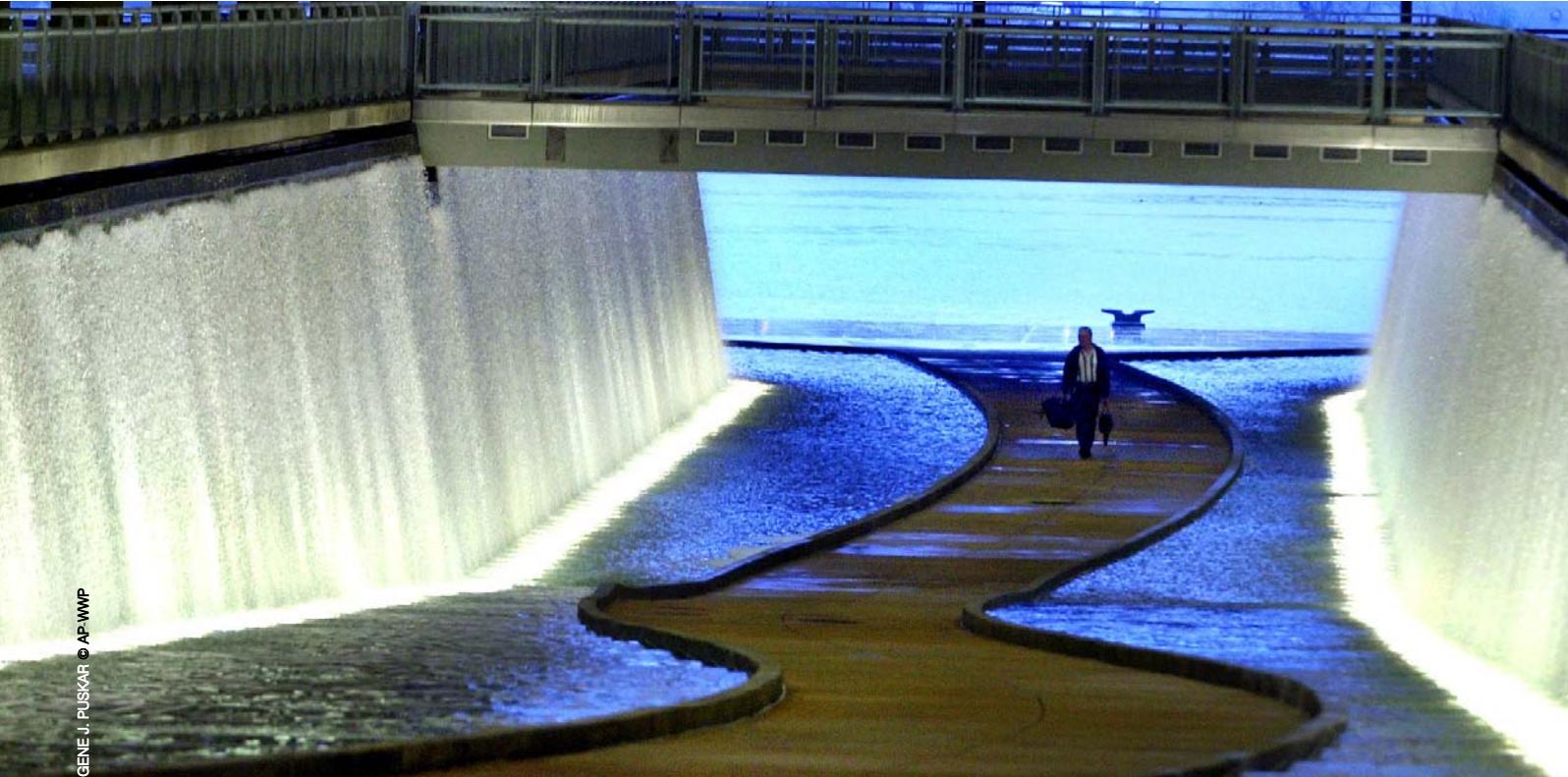


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Above left: An architectural rendering of Chicago's Sears Tower, recently renamed Willis Tower (above), with proposed solar panels and wind turbines. The 110-story skyscraper will undergo a \$350 million green remodeling effort. Far left: A skylight is surrounded by sedum plants which help hold rainwater on the roof of Brown & Jones Architects, Inc. in Raleigh, North Carolina. Left: Layers of water-conserving padding on the roof of Brown & Jones Architects, Inc.



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*Above: Twin waterfalls at the David L. Lawrence Convention Center in Pittsburgh, Pennsylvania. The center's sloping roof is designed to pull cool air from the Allegheny River into the building.*

*Right: Solar panels and a cooling pond at NRG Systems' energy-efficient building in Hinesburg, Vermont.*

*Below: New York's Empire State Building has recently undergone a multi-step conversion process to become more energy-efficient.*



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on energy-efficient design, and students who are interested can take them all." Moreover, "some schools offer LEED courses," she says, referring to a rating system that recognizes outstanding sustainable design. LEED stands for Leadership in Energy and Environmental Design. "Many of our students are LEED-certified as they graduate. We also have a historic preservation program" that emphasizes the retrofitting of existing structures to reduce their carbon footprint.

Retrofitting is an important aspect of sustainable architecture; no less a landmark than New York's Empire State Building has recently undergone a multi-step conversion process to become more energy-efficient. While academic programs tend to focus on designing new buildings that are sustainable from the start, "a lot of practitioners are aware of retrofitting as a potential growth industry," Grondzik says.

According to Keane, bringing sustainable design to urban areas can restore a sense of connection to the natural world. "The most visual change has been the green roofs" that often feature grass, trees and plants, she says. "It's an amazing thing to be on a green roof in the middle of surrounding skyscrapers. Everything else in the city is paved in hard surfaces. It's a return to trying to live more gracefully."

Grondzik observed that there is much confusion about terms such as "green" and "sustainable," which are closely related but

not synonymous. "Sustainability is really our ability to live within our environmental means," he says. "A sustainable project cannot pollute, and cannot rely on nonrenewable resources. Green is a step towards sustainable, but it's not completely carbon-neutral."

Whether merely "green" or fully sustainable, architecture is adapting to meet the needs of the modern world. "I read an article that says more than 50 percent of clients initiate the demand for sustainable design," Grondzik says. "In many cases, they're actually pulling the architects along."

Adds Keane: "It's an exciting time. When I came to the Art Institute of Chicago in 1985, no one was interested in sustainable design. Now, artists, architects, designers and scientists—everyone's interested. It feels like we're on the cusp of change."



*Lauren Monsen is a staff writer with [America.gov](http://America.gov)*



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