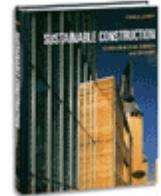


Join the Green Revolution

There's a definite green revolution sweeping the United States construction industry. It began on the west coast and is quickly moving east. The added costs of green building are falling and business leaders are discovering an increase in employee productivity at green workplaces.

Rows of little plastic domes dot the roof of the new Wal-Mart Supercenter in Aurora, CO, looking like a marching band of "Star Wars" R2-D2s. Inside each dome, a trio of computer-aimed mirrors tracks the sun and bounces its light down a reflective shaft and through a milky white lens, illuminating the stockroom below.

**Sustainable
Construction:
Green Building
Design and Delivery**



Understand green building as it applies to larger commercial & institutional buildings

The skylight idea is centuries old. But the mirrors, the lenses and dozens of other energy- and environment-saving innovations are new, and they're showing up not just at Wal-Mart but at other companies, schools and public agencies.

In addition to the Wal-Mart's legion of skylights, for example, the store's foundation is made of ground-up chunks of runway recycled from Denver's old Stapleton International Airport. Porous paving in its parking lot soaks up and filters polluted storm-water runoff. Huge north-facing windows provide most of the store's interior light. Used motor oil from the tire and lube shop helps heat the store, as does old vegetable oil from the deli.

The folks at Wal-Mart are happy with their new Aurora store because it is good for the environment and good for business. That's the mantra of the so-called green building movement that's sweeping the nation. Among the adherents are financial institutions such as Citigroup, PNC and Bank of America; automakers such as Toyota, General Motors, Ford and Honda; and such retailers as Wal-Mart, Target, Home Depot, Lowe's, Chipotle and Patagonia.

The next two new Major League Baseball parks, in Minneapolis and Washington, D.C., are poised to go green. So is the biggest privately financed development under way in the United States: MGM Mirage's \$7 billion Las Vegas City Center, due in 2009.

Future federal buildings will be green, too. The General Services Administration, the nation's biggest landlord, announced last spring that it was applying stringent green-building standards to its \$12 billion construction portfolio of courthouses, post offices, border stations and other buildings.

States also are cracking down. Washington state began requiring in April 2005 that all state-funded construction projects larger than 5,000 square feet, including school district buildings, be built green. Many other states -- including California, Arizona, Arkansas, Colorado, Connecticut, Florida, Michigan and Nevada -- have followed suit. So have nearly 60 cities and counties nationwide.

Scores of colleges and universities -- including Emory, Pennsylvania State, the University of Florida, the University of South Carolina and the University of California-Merced -- also have taken the pledge. Harvard University alone has 12 green buildings.

Scads of students at architecture and interior design schools share the green zeal. The job market for grads with green credentials varies widely from city to city, reflecting the trend's ongoing spread from West to East. In general, green grads do well, as many firms are looking for expertise in green buildings at all levels.

The key to the movement is a new set of standards that's far more demanding, environmentally speaking, than local building codes. The movement invites innovation because it's based on environment-protecting performance standards, not rules. That leaves it up to architects, builders and designers to decide how best to reduce energy and water consumption, for example, or workers' dependence on cars.

**Advanced Energy
Design Guide For
Small Office Buildings**



Develop energy efficient
buildings with this
essential design guide

The U.S. Green Building Council, a Washington, D.C. -based alliance of some 7,200 architects, builders, land use planners and academics, issued the first set of standards in 2000, covering big commercial construction projects. Standards for existing buildings and commercial interiors came out in 2004. Criteria for new single-family homes, public schools, hospitals and cookie-cutter commercial buildings such as bank and retail store branches will come in the next year or two.

The council's goal is to "transform the marketplace" in real estate in the United States and globally. It can truly be considered transformed when it is no longer called green building; when it's just the way building is done and they are simply called buildings.

In fact, council-certified green buildings have been spreading like wildfire since 2000. In that year, about \$790 million in new commercial construction met the council's standards. This year, about \$7.2 billion does. In 2000, a few hundred projects sought council approval. Today, more than 4,900 have registered for certification.

The council's determinations are based, like a report card, on a numeric calculation of improvements in building performance. Relocating executive offices from a building's

outer shell to its core so that more employees work in natural sunlight, for example, helps to earn a point.

Building on a cleaned-up former hazardous-waste site or vacant inner-city lot helps, too. So does recycling an old building's rubble and using renewable bamboo flooring rather than oak. So does planting rooftop vegetation for its insulating and runoff-reducing effects and seeding the building with motion detectors that turn off lights and computers when they're not being used.

Independent outside contractors grade the applications and the council awards certificates to projects that earn at least 26 points under its Leadership in Energy and Environmental Design program. Those that rate 33-38 points earn LEED-Silver, 39-51 points LEED-Gold and 52-69 points LEED-Platinum.

It's easy to imagine a green building rout in the next few years, based on the virtually unchallenged logic that buildings in an era of global warming need to be designed to minimize their environmental impact. Already, some retailers, such as Patagonia and Chipotle, are marketing their greenness as an attribute that sets them apart from competitors.

That's likely to accelerate with the council's upcoming release of a performance-rating system for generic store designs that retailers such as Starbucks and Whole Foods rely on for their new construction nationwide. If the council influences those portfolios, thousands of green buildings will start popping up across the country at viral speed.

Ecodesign: A Manual for Ecological Design



Learn how to help save the environment from continued devastation by our built environment

Headwinds of resistance to the movement also are building, however. For one thing, building green, at least until recently, was presumed to cost more upfront but to pay off in the long run through lower operating expenses. You will spend more on insulation and windows, but you'll save on electrical costs by downsizing the air-conditioning and heating systems.

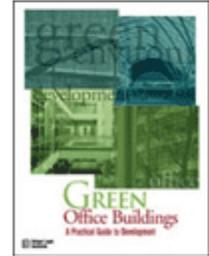
That takes patience. Governments and universities have it because they tend to own their buildings and keep them for generations. For the same reason, retailers such as Wal-Mart, Home Depot and Target, which generally own their real estate, find it relatively easy to go green.

But for retailers such as T J Maxx, Pottery Barn and legions of others who lease their properties, there's little to gain from greening. Any savings on properties that they lease generally would go to landlords. And landlords, who often own properties only briefly and do business in highly competitive markets, will be hard to excite about green building.

A variant of that problem arises with new-home buyers. Whatever the long-term savings on heating and cooling bills, buyers rarely choose to spend more up front on energy-efficient appliances and extra insulation. Most people consider the paybacks too far down the road. LEED is currently considered a viable option only for the affluent, not the majority of Americans out there.

But that may be changing. The added costs of green building -- long assumed to be 10 to 20 percent more than traditional construction -- are falling and may have been exaggerated, according to some who've built green recently. Business leaders who've gone green are discovering that their work forces are enthusiastic about their workplace. In turn, their investment in natural light, radiant heat and high-exchange air circulation, among other measures, will be repaid with better productivity.

Green Office Building



Your guide to cost-effective commercial sustainable development

\$29.95