Code Green

New **building mandates** aim to give city skylines a **smaller carbon footprint.**

By Zach Patton

Nothing looks particularly avant-garde about the historic building at the corner of Lincoln and Beach streets in Boston's Leather District. Built in 1899, the five-story Beaux-Arts structure hunkers on the corner and fills the whole block. But the old building's unassuming façade belies an important fact: It's about to become one of the most earth-friendly buildings in Boston. A developer is renovating the structure, and is including green-building innovations such as dual-flush toilets, more efficient heating and cooling systems and a rooftop tank that collects precipitation and slowly returns it to the groundwater system.

179 Lincoln Street is one of the first commercial structures to be subject to Boston's green-building law. Since January 2007, all construction or renovation projects of more than 50,000 square feet must meet industry-accepted standards for green building. Boston wasn't the first city to pass such a mandate on developers—that distinction goes to Washington, D.C.—but Boston's law was the first to go into effect. It's working pretty much as intended. Six private buildings, including a live/work development for artists and a new bio lab and suite of offices at the University of Massachusetts, are now under construction, incorporating the law's implicit demands for energy efficiency, renewable building materials and non-toxic paints.

Six buildings may not sound like much. But for eco-conscious cities, this represents a great green leap. Up to now, state and local governments have viewed green buildings as trophy properties, intended to make showy, if piecemeal, statements of environmental awareness. They built green city halls (Austin, Texas), green high schools (Ft. Collins, Colorado) and green libraries (Fayetteville, Arkansas), among other civic structures. Boston's experience regulating private-sector construction suggests that municipalities can push the green-building movement further and faster, by burrowing its principles into the mundane details of their building codes.

Buildings are responsible for 38% of greenhouse-gas emissions in the U.S.

Source: U.S. Energy Information Administration

More cities have followed suit. Last April, Los Angeles became the largest city in the nation to adopt green mandates for the private sector. Then in August, San Francisco adopted the strictest codes of any U.S. city so far, requiring green construction for any residential building taller than 75 feet and any commercial building of more than 5,000 square feet. Washington, D.C.'s law takes effect in 2012. Each city is mandating green building in slightly different ways, but all of them have settled on the U.S. Green Building Council's well-known "LEED" certification as the standard for what it means to be green.

The cities point to a host of reasons why green is good. Public health is one of them: Green buildings tend to be better ventilated than conventional construction, and use non-toxic construction materials. Green buildings use less water, thanks to features such as low-flow toilets and showerheads. But the biggest impetus is climate change, and the pledge that many mayors have made to severely cut back on their greenhouse-gas emissions. Nationwide, buildings account for 72 percent of electricity consumption. Depending on how that power is made, buildings can account for

anywhere from 30 percent to 70 percent of a city's carbon dioxide emissions.

Indeed, as mayors set out to translate lofty climate-change goals into real reductions of greenhouse-gas emissions, they'll quickly find they have no choice but to scrub the whole skyline clean. Ultimately, they'll have to rewrite local building codes with a bright green pen—so that all new construction and retrofits of older buildings such as the one on Lincoln Street use less energy. "They're realizing they can't meet these goals just through new city operating initiatives," says Ron Hubert, a researcher at the Center for Sustainable Environments at Northern Arizona University. "They know they've got to figure out how to make the city as a whole less of a polluter. And that means focusing on the buildings."

New Tools

What's most surprising about this wave of green regulation is that private developers, for the most part, support it. A few years ago, when a Boston task force began meeting to draft the green building law, the cast wasn't filled with the sort of people you usually think of as environmentalists. The group of real estate lawyers, labor union officials, developers and major property owners looked more like a corporate board of directors than Earth Day marchers. "These were staid, suit-clad industry leaders and shareholders," says John Dalzell, a senior architect at the Boston Redevelopment Authority who helped lead the group. "There wasn't a single Birkenstock-wearing tree-hugger in the room."

The task force looked at the tools other cities were using to encourage green building. Most of them were carrots—incentives intended to coax developers into building green by compensating them for the trouble. Many cities were offering financial benefits, such as tax incentives, grants and reduced permitting fees. The most popular green incentives were ones that cost municipalities nothing: bonus density allowances—exempting a green building project from height restrictions, for example—and expedited permitting.

Boston's task force, however, quickly coalesced around the idea that whatever the city's green-building law looked like, it needed to be mandatory. That was the only way to drive a real transformation among developers, and to drive down the costs of green-building practices and materials, which can add up to 4 percent to the cost of a typical project.

Planners in Los Angeles came to similar conclusions. "A lot of the drive [for a mandatory component] actually came from the private sector," says Claire Bowin, head of the city's green-building program. "There was consensus early on that if we didn't make it mandatory, we weren't going to wake up the community."

Elusive Metrics

Reliance on LEED as a de facto green-building standard poses some conundrums. For one thing, the U.S. Green Building Council never intended for LEED to be used as a building code. To rectify that problem, the USGBC is working with other building-industry groups to develop something called "Standard 189." The intent is to translate the ideas behind green building into the technical language of building codes. Localities could then import all or parts of Standard 189 directly into their own local codes. The USGBC also has been working to refine LEED to suit more specific local needs. A new version of LEED takes regional differences into account—for example, water conservation is a more pressing green goal in the Southwest than it is in the Northeast. In addition, greenhouse-gas reductions are weighted more heavily in the new standard, reflecting the overwhelming interest in using green building as a tool to combat climate change.

As localities keep taking up that cause, they'll need to find metrics to measure their progress. It's easy to say that green building starts are growing—from $10 billion in 2005 to somewhere between $36 billion and $49 billion in 2008, according to McGraw-Hill Construction. What's harder to measure is the actual impact of all this construction on greenhouse-gas emissions. "Nationally, we're all at the beginning of this," says Boston's Dalzell. "I don't think there's any agreed-upon science yet."

For now, the only bottom line is this: Green building is no longer just about grand municipal structures that showcase the latest in green gadgetry. Increasingly, it's simply the way buildings will be built. "Five years ago," says Hubert, "you had to justify why you were building green. These days, you have to justify why you're not."

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