

The Untapped Green Within Graying Buildings

[Tilde Herrera, GreenerBuildings.com](#)

She rose 14 stories in 1929 as part of a development wave that established Seattle's downtown commercial district.

Nearly 80 years later, the Art Deco office building erected by lumber tycoon Joseph Vance and prominent architect Victor V. Voorhees rides the crest of another architectural wave slowly washing over many U.S. cities.

The [Joseph Vance Building](#) is getting a green face-lift from a New York company that bets on its ability to wring value from old buildings through environmentally friendly upgrades. The [Jonathan Rose Companies LLC](#) launched its \$100 million Rose Smart Growth Investment Fund in 2006 to buy existing buildings, make them green -- and profit.

The trend toward retrocommissioning existing commercial structures using green building principles is quietly taking shape behind the louder activity of the new construction sector. More than 5,000 new buildings await LEED certification, compared to 480 existing buildings on the waiting list, according to the [U.S. Green Building Council](#) (USGBC). Only 7 percent of buildings that have earned LEED certification are existing buildings.

Part of this can be explained by the fact that the LEED-Existing Buildings (LEED-EB) guidelines were released in 2000, four years after LEED-New Buildings (LEED-NB).

Existing buildings also present their own unique needs and obstacles. Yet the growing awareness of buildings' contribution to climate change, combined with a large existing building inventory and the potential of fattening the bottom line, promises to cast a brighter spotlight on this sector.



"In terms of the building stock, only 1 percent is new construction annually, so it is critical to focus on the existing 99 percent, which are huge consumers of energy," said Nathan Taft, who manages acquisitions for the Rose Smart Growth Investment Fund.

Green renovations of existing buildings, he said, are economically viable. In the case of the Joseph Vance building, the green renovation has allowed the company to command higher rent: before the renovation, tenants paid between \$16 and \$20 a square foot; the value has grown by at least \$4 to \$6 a square foot, and the renovation will cut overall operating costs.

"We believe that our green strategy, combined with our focus on mass-transit accessibility, is just

a smart real estate strategy that will increase building operation efficiency, decrease expenses, increase marketability and the top line, and lead to improved net operating income and value," Taft said.

The Fund paid \$23.1 million for the Joseph Vance Building -- and the smaller, adjacent Sterling Building -- in April 2006. Both were located in close proximity to mass transit but the Joseph Vance Building needed to be "repositioned," Taft said. The Fund embarked on its \$3.5 renovation of the Joseph Vance Building using Energy Star and LEED-EB as guidelines.

It weighed installing new windows against restoring existing windows. Since operability was key for tenant comfort, the company chose to restore the existing wood windows because the sashes of many had been nailed shut. Weather stripping was added, as well as mecco shades and light shelves to the south and west facades for proper interior shading.

Due to Seattle's climate, which is conducive to using windows, ceiling fans and proper shading for cooling, the company ruled against a mechanical cooling system in favor of a natural ventilation strategy. It screened its existing HVAC package units for harmful refrigerants and decommissioned some units.

It retained the building's steam system after deciding this heating strategy was most carbon friendly. The system's commissioning included replacing traps to prevent condensation leaks at individual radiators and installing valves that allowed tenants the ability to regulate their temperature instead of the previous arrangement that had only one temperature control per building facade.

Old carpets requiring heavy cleaning in elevator lobbies and corridors were torn out, revealing original terrazzo floors that are easier to clean. The low drop ceilings in elevator lobbies, corridors and vacant tenant suites were removed to expose the building's original high ceilings. "We've taken those out to great benefit," Taft said. "It gives more light."

All common area lighting was replaced, and the company implemented a system to replace lighting in all tenant spaces once leases renew. The roof was replaced with a LEED-approved roofing membrane.

The building lounge, where tenants eat lunch, and two conference rooms gained new chairs with highly recycled content, new carpet, low VOC paint and ceiling fans.

Motion sensor faucets and low flow toilets replaced existing water fixtures in the common area bathrooms. A low flow shower was placed in the newly built bicycle shower and change facility.

A tenant improvement manual stresses the use of green materials in the build-out phase. A waste disposal program was instituted, allowing the company the ability to monitor waste outputs. Composting and recycling programs also were introduced.

"You can't force it on everyone but you can educate and provide lots of opportunity," Taft said.

About 82 percent of the building is currently leased with a number of leases pending, Taft said. The company has renovated about 20,000 square feet of vacant office space so far, as well as about 15,000 square feet of tenant occupied space.

The response has been favorable. "People are attracted to the green features," Taft said.

Though extensive, the Joseph Vance Building renovation didn't involve stripping down everything between the floor and ceiling. These gut jobs tend to concentrate in heavily urban areas, such as Washington, D.C. and New York, said Brendan Owens, USGBC's director of LEED technical development.

"In urban areas, there's a tendency to retain the fabric and continuity of the landscape," Owens said.

For example, the [Friends Committee on National Legislation](#), a non-partisan Quaker lobbying group, embarked in 2003 on a \$6 million, two-year renovation that cut its energy consumption in half. The group expects to recoup the renovation costs in five years.

That project began with a partial demolition of its Civil War-era building across the street from the Senate. The contractor underpinned and waterproofed the foundation, added a new roof and reconstructed the interior walls. New features include a geothermal ground-coupled heating and cooling system was installed, as well as a vegetated roof to control rain runoff and absorb heat. Light scoops on the southern facade capture and funnel natural light to the building's central core. Bamboo, a renewable resource because it grows faster than trees and needs no replanting, covers the floors.

The building earned LEED Silver certification in late August. Owens estimates there are at least a half dozen similar projects currently taking place in Washington, D.C.

The Reality and the Low-Hanging Fruit

Using the existing building inventory goes to the heart of a core sustainability argument: it is often more wasteful to tear down and replace buildings, even if the replacement is green, than it is to improve what's already there. "One of the most beneficial aspects is you're using existing infrastructures and not adding to sprawl," said David Lehrer, director of partner relations and communications at [Center for the Built Environment](#) (CBE) at the University of California, Berkeley.

There's huge interest in green buildings but a big gap in how much people know and what they do, according to Jonathan Boyer, a principal and co-director of [Farr Associates](#) in Chicago.

The essence of sustainable design is an integration of components. You can't add a few features to a conventional design, he said, and call it "green."

"What we're worried about are people who think they can do a green building by attaching a couple of green components," Boyer said.

His company, Boyer said, won't consider projects that don't involve sustainable design, and it tries to use LEED guidelines for every project. Farr Associates has already designed two LEED Platinum buildings, including the [Chicago Center for Green Technology](#), a former brownfield site.

Not everyone, however, has the ability or resources to use LEED guidelines when renovating existing commercial buildings. The USGBC recommends project teams tally a potential point total using the rating system checklists to see if all prerequisites can be met and enough credits earned to achieve LEED certification.

If following LEED guidelines for green renovations is not feasible, there are smaller improvements -- the low hanging fruit -- that building owners can perform to soften their buildings' environmental impact, such as shifting to daytime janitorial services to cut energy consumption.

Part of the beauty of rehabilitating existing buildings is preventing all that construction waste from being torn down, Lehrer said.

It's important to retain as much of the material as you can. Lehrer noted a trend toward salvaging materials, and even some non-profit organizations will take and recycle used building materials.

"Everything from doors to ceiling tiles and carpets can be donated and re-used," Lehrer said.

Some manufacturers will even take old product and recycle it into new product. Environmentally friendly products, in general, are more readily available.

"We're finding even if we substitute typical materials, manufacturers have brought those materials up to a much better standard," said Dan Meza, an architect with the Emeryville, Calif.-based firm [Ratcliff](#) and recent GreenerBuildings.com contributor. "Almost by doing nothing, manufacturers and vendors have stepped up" because of demand from users, designers and the building industry as a whole.

Those green materials, in many cases, have reached cost parity with their conventional counterparts, Boyer said.

"The market has caught up...In the last five years, I would say the market has recognized the economic viability of this," Boyer said.

A smart tree planting strategy can save energy and water, Meza said.

"You can up the air conditioning or buy shading elements but an easier and more economical solution might be to plant some trees," he said. "Some (tree) leaves flower in the spring providing shade and fall in the winter to let in light and warmth."

Replacing conventional concrete and asphalt with gravel or pervious materials, Meza said, also can lessen rain runoff and can reduce the amount of water needing treatment.

USGBC's Owens recommends targeting the building envelope to minimize the energy load. "You've got to create a tight envelope to make sure the building doesn't leak," he said.

Lehrer recommended upgrading insulation with an eco-friendly alternative. "Even with standard fiberglass insulation, it's possible to specify recycled glass content," he said.

Replacing single pane windows can address one of the most important parts of the building skin in terms of energy performance and impact on occupants, Lehrer said. Upgrading the lighting in a commercial building, such as installing adjustable lights only in places they're needed, can have a huge impact.

For example, the campus installed an inexpensive wireless lighting control system in one the university's buildings. Devices were installed in the lights that allowed users to adjust them using a desk remote control or desktop computer setting.

"People tended to turn the (individual) lights off," Lehrer said. "The savings was huge, like a 65 percent energy savings. It was simple to install. For a renovation of a building that's not a complete gut job, this would be ideal."