the hammersmith group
research report
january 2008

Historic preservation and sustainable development

the hammersmith group
259 south main street
bradford, ma 01835
t 917 447 8800
f 978 372 2949
thehammersmithgroup.com

Is it feasible to balance historic preservation with sustainable design? Most of the high-profile green projects that have received national press — such as Manhattan's Bank of America tower and the Riverhouse, or San Francisco's Arterra — are new construction. A growing number of developers, preservationists and design professionals are demonstrating that historic preservation and sustainable development are a natural alliance.

Since 2001, over 40 historic buildings have been certified under LEED-NC. These include the EcoTrust and Armory buildings in Portland, OR and the Cobb Building in Seattle. "These pioneering projects are models for how developers can effectively combine the rehabilitation of historic buildings with LEED certification," said Patrice Frey, Director of Sustainability Research for the National Trust for Historic Preservation.

There is a growing demand for such projects, driven in part by rising energy costs and the increased attraction of city living. Consumers should not have to choose between living in a green building or a historic one. But developers are finding that complying with both LEED and the historic tax credit requirements can mean navigating two different — and sometimes contradictory — systems that have not yet been fully integrated.

"One of the biggest challenges is overcoming the misperception that you can't be both green and historic," said Frey. "They should not be separate goals. Preservation is not an obstacle to sustainability — and in fact, historic preservation is inherently sustainable development."

Conflicting systems don't always produce the desired outcomes

Historic tax credits were introduced in 1976 in order to make adaptive reuse of historic buildings an economically-feasible alternative to demolition. Today, they have become a familiar tool for developers. In 2000, the U.S. Green Building Council creating standardized performance criteria to evaluate green buildings. Today, their LEED system has raised awareness and encouraged broader adoption of green building practices. Many cities are even offering incentives such as expedited permitting for LEED-certified projects.

The two systems were developed independently and possess very different structures. LEED is a point-based system, while historic tax credits are guided by the Secretary for the Interior's Standards. "While they share similar goals, they weigh different methods and outcomes differently," said Lisa Kersavage, Director of Advocacy and Policy for the Manhattan-based Municipal Art Society. "As a result, they can occasionally come into conflict or produce results that are at odds with each other."

Awarding LEED points for the demolition of the historic Ward Bakery in Brooklyn, NY illustrates this disconnect. The historic building, which was eligible for listing on the National Register of Historic Places, sat within the boundaries of the Atlantic Yards project which is pursuing LEED certification. A press release by the developer noted that the demolition of the building contributed to the project's LEED points because "at least 75% of the demolition debris is expected to be recycled."

"When the demolition of a historic building adds LEED points to a project, it's a sign that we need to work on better integrating historic preservation into sustainable development," said Kersavage.

"There ought to be a LEED debit system that offsets credits and penalizes developers for decisions which don't contribute to the building or neighborhood sustainability," said Anca Novacovici, founder of Washington, DC-based consulting firm Eco-Coach.

Historic buildings are inherently sustainable.

"Green buildings in and of themselves are not sustainable development.They are just one aspect of overall sustainability, but they are being touted as the whole thing," said Donovan Rypkema, principal of Place Economics. "Historic preservation is an inherent — and overlooked — component of sustainable development."

A common misperception is that historic buildings are energy-inefficient. Not so, said Keenan Hughes, preservationist with the Municipal Art Society. Hughes cited a recent Department of Energy study that compared the energy-efficiency of commercial buildings built before 1900 with those built in the last decade: "They were pretty much the same."

Traditional building techniques often incorporated features that we would now consider energy-efficient or sustainable. A well-designed historic building considered site, climate, daylighting, and natural ventilation. "When historic features such as awnings, operable shutters, cisterns, and reflective roofing are restored, these preserve historic integrity and contribute to energy savings," said Hughes.

By contrast, many buildings built after World War 2 were inherently inefficient. They were sited without consideration for natural lighting or ventilation, and lack proper insulation or thermal mass. Electricity, gas, and oil were inexpensive at the time, so these buildings relied on mechanical systems for climate control.

Most new construction, including green buildings, is not designed to last. In a recent speech, National Trust president Richard Moe noted that "it takes approximately 65 years for a green, energy-efficient new office building to recover the energy lost in demolishing an existing building. And let's face it: most new buildings aren't designed to last anywhere near 65 years."

Historic buildings were designed to be durable, and therefore sustainable. An complete and accurate comparison of the energy savings between a historic building and new construction needs to include the embodied energy of the historic building, the direct savings of not having to periodically rebuild (as the newer building will have a shorter lifecycle), as well as the indirect costs of landfill and to the environment for each re-construction. Above all, we need to consider the multiplier effect of the historic building's longer lifespan on its energy-efficient features.

However, it is difficult to make informed development or policy decisions without accurate energy modeling and assumptions. This is reflected in the tension between historic preservation and sustainability recommendations.

For example, original windows are character-defining elements of historic buildings and districts. But there are incentives to replace original historic wood windows with vinyl. "Upgrading from single-paned wood windows to double-paned vinyl windows may create an energy savings on paper. But it doesn't take into consideration the longer lifecycle of wood windows over vinyl, or that the manufacturing process for vinyl is much more toxic and energy-intensive," said Patrice Frey. "When all these elements are considered, wood windows win hands down."

Developers and preservationists are hoping that future versions of LEED will acknowledge the inherent sustainable qualities of historic buildings.

"LEED should make a clearer distinction between existing and historic buildings," said Anca Novacovici of Eco-Coach. "They should also take into account building scale when weighting certain credits. Reusing a shell and interior is worth 3 points. But there should be more points awarded for reusing 400,000 sf of space versus 40,000 sf of space.

The Monarch Lofts project north of Boston converts a 1.3 million square foot mill into a mixed-use development. The project features the largest geoexchange system in New England, 60 wells in all. "We didn't receive proportionately more LEED points for having 60 wells than for having a single well," said Shaw Rosen, COO of sustainable development company MassInnovation. "The entire geothermal system contributed roughly the same amount of LEED points as our bicycle rack."

"Look beyond the lot line."

"Green buildings in and of themselves are not sustainable development," said Donovan Rypkema. Development will not become sustainable if it simply layers green features over the sort of disposable sprawl that is too common today. Rypkema urges developers to look beyond the lot line: "Over the long term, what makes a site valuable is its context, its relationship to other buildings."

This is particularly critical for historic downtown neighborhoods in places like Providence, Nantucket or San Francisco, according to Jack Gold, past president of the Providence Preservation Society. "The historic fabric of the city is part of the draw for residents, businesses, and tourists." He cited adaptive reuse projects such as Streuver Brothers Eccles & Rouse's Dynamo House, and Cornish Associates' conversion of the Peerless Department store by architects Durkee, Brown, Vivieros & Werenfels — which used historic tax credit financing and also incorporated sustainable features including a green

roof. "These projects incorporated historic preservation and sustainability, and served as catalysts for their neighborhoods."

"Development without historic preservation is not sustainable," said Rypkema. "I can't identify a single example of successful downtown revitalization where preservation wasn't a key component of that strategy."

Gold, Kersavage, and Rypkema all echoed a central theme: it is in the best interest of cities to recognize, preserve, and enhance that context in order to attract development that reinforces the qualities that make it attractive and desirable.

"People are drawn to a specific neighborhood character," said Lisa Kersavage. "If too much change happens, the neighborhood can lose what made it desirable in the first place." She noted that it is possible to balance growth and preservation, but steps must happen early in the development process. "After a rezoning, there is often increased development pressure. Buildings are increasingly threatened unless they are designated as landmarks."

"For the past 60 years, we have ignored 3,000 years of collective wisdom about how to create efficient buildings and how to plan sustainable urban space," said Rypkema. "We're finally realizing that we're not pleased with the built environment that we've developed since the 1940s."

The National Trust is working with the U.S. Green Building Council to develop preservation metrics for the next version of LEED, to better integrate historic preservation into sustainable development, and to make the two processes less cumbersome and more complementary. Patrice Frey noted that sustainability has been a central theme of historic preservation long before the current term came into vogue: "Many of the goals of smart growth, new urbanism, and sustainable development can be achieved through historic preservation."

Constantine A. Valhouli *is a principal with The Hammersmith Group, a firm which advises developers of luxury and sustainable properties and which consults to cities on reviving their historic downtowns. He holds an MBA from Columbia Business School and is a Charles G. Koch Fellow at the Institute for Humane Studies. His firm and projects have been featured in CNN/Money, CNBC,* Dwell, Fortune, Forbes, *MSNBC,* Newsweek, *NPR,* Oprah, People, Washington Post, *and* USA Today. *Additional research provided by Senior Associate* ***Nathaniel Dean*** *and Associate* ***Erin Thurlow.***

