

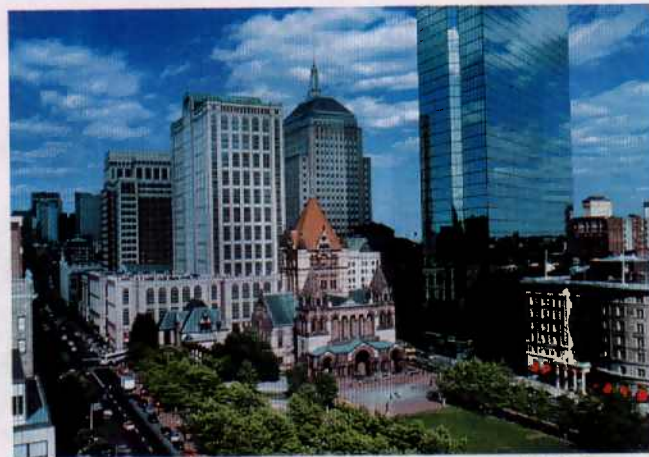
Finding Common Ground

Historic preservationists have long touted the sustainable aspects of their work, but now a coalition is working to reflect this fact in the LEED sustainable rating system.

By Kim A O'Connell

With its castellated roofline and rifle slits, the First Regiment Armory Annex in Portland, OR, retains much of the Romanesque detailing that warranted the 1891 landmark's inclusion on the National Register of Historic Places. Inside, exposed brick walls and massive trusses hewn from old-growth trees give the building an imposing presence, far different from the more typical modern office buildings nearby. Last fall, the Armory gained another distinction – becoming the first National Register-listed historic building to earn the coveted platinum designation under the U.S. Green Building Council's (USGBC) LEED rating system.

Originally erected to serve the Oregon National Guard, the building has now been transformed into the Gerding Theater, which includes a 600-seat main theater and a 200-seat studio theater, as well as a lobby, mezzanine and offices. In seeking the LEED certification, the renovation team was careful to preserve historic



Surrounded by the glass and concrete office towers, Trinity Church is a bastion of traditional design in Boston, presenting a special challenge to the architects charged with rehabilitating – in a sustainable manner – the space for offices and meeting rooms. Photo: Peter Vanderwarker

architectural features while incorporating sustainable elements such as skylights for natural daylighting and a displacement ventilation system to improve air flow. The project – led by GBD Architects, Green Building Services, Glumac, and Hoffman Construction – combined several disparate financing methods, including tax credits for new market development, historic rehabilitation, and energy efficiency. “We really take a whole-building approach to our built environment,” says Alan Beard, FAIA, principal of Portland-based GBD Architects, “with the resulting benefits to our natural environment.”

The Gerding Theater has been hailed as the latest example of how the LEED system can be successfully and rigorously applied while preserving a historic building. For years, the historic-preservation community has touted the inherently environmental aspects of saving older structures and supporting traditional construction practices. Yet a growing coalition of preservation and sustainable-design advocates is pushing the USGBC to go further to recognize the value of historic preservation in its increasingly popular LEED system.

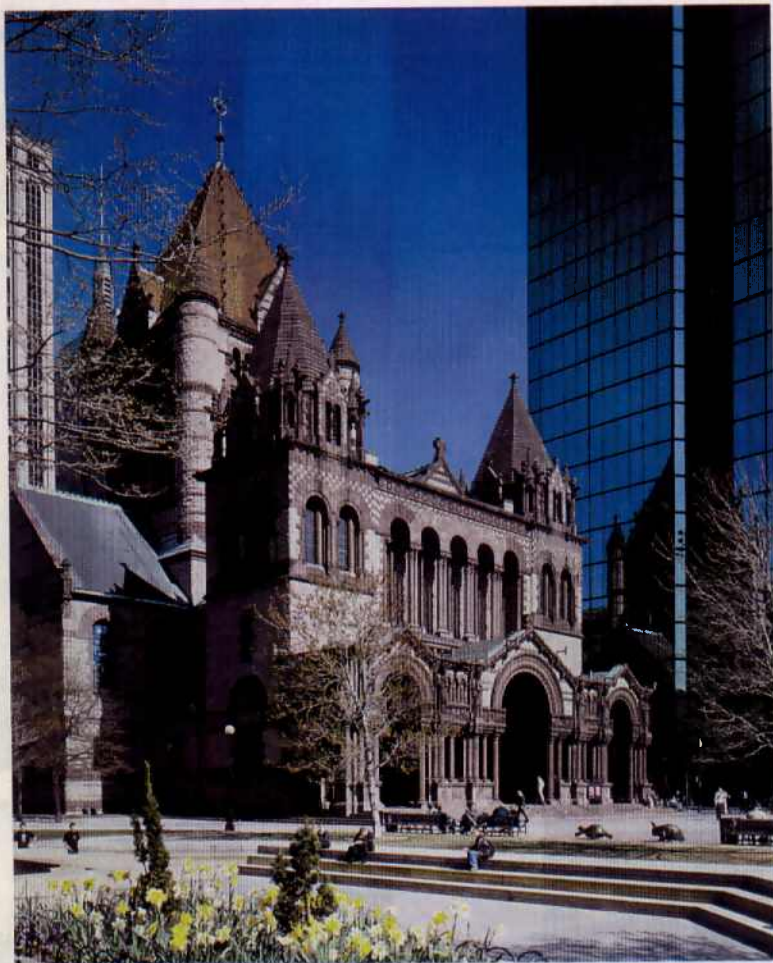
Laying the Foundation

Launched in 2000, LEED, which stands for Leadership in Energy and Environmental Design, is a third-party rating system designed to encourage the implementation of green-building practices in commercial, institutional and residential structures. LEED criteria emphasize sustainable site development and maintenance, water efficiency, energy conservation, renewable or recycled materials and resources, indoor environmental quality and design innovation. These criteria are broken down into checklists through which projects can earn basic certification or silver, gold and platinum ratings. Currently, LEED standards are available for new construction and major renovation projects, existing building operations, commercial interiors, core and shell projects, homes and neighborhood development.

In the past, historic preservationists have supported the general concept of sustainable design – noting that reusing an older building is the ultimate kind of recycling – while remaining wary of the green-building community's emphasis on new technologies and novel materials. Green builders, they have argued, often miss the forest for the trees – routing the reuse of salvaged materials, for example, while discounting the economic, environmental and cultural value of saving an entire structure from demolition. By contrast, sustainable-design advocates have been frustrated by preservation standards and guidelines that they feel are rigid and outdated.

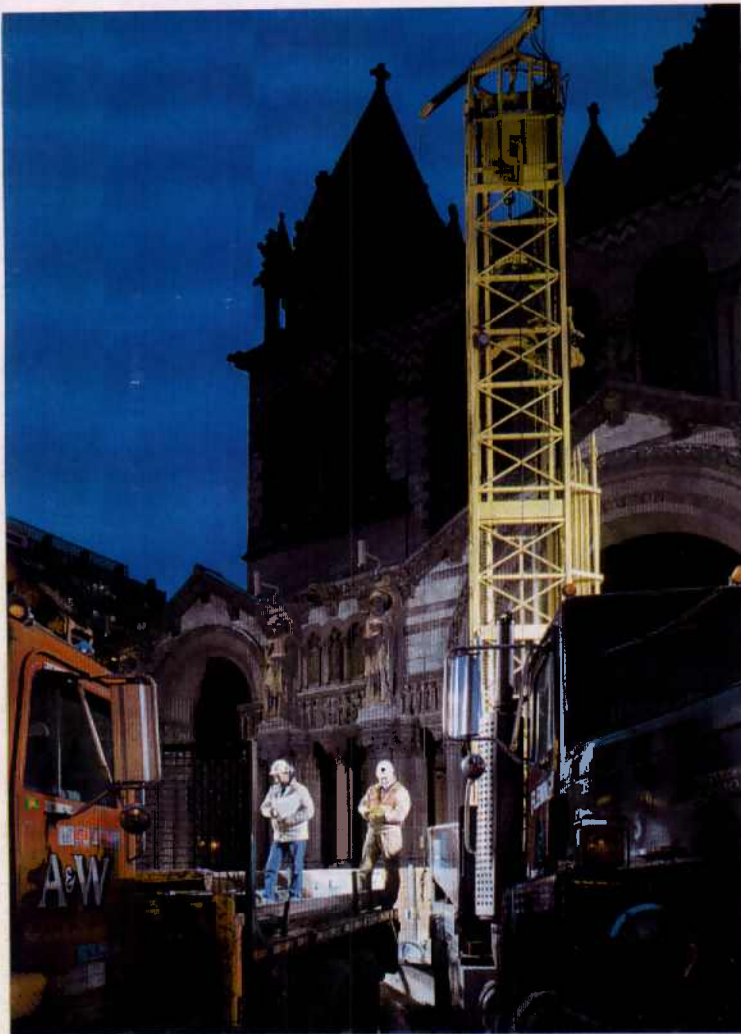
Without clear guidance, projects run the risk of becoming a mish-mash of quasi-historical green design. In Seattle, for example, the developers of the LEED-eligible Alley24 office/apartment building thought they were being sensitive when they incorporated the shell of the 1920s-era Richmond Laundry building, a city landmark,

The design team from Goody Clancy needed to install updated mechanical systems to heat and air-condition the new meeting spaces, but the steep roofs and spires of the church – designed in 1877 by H.H. Richardson in the Romanesque style named for him – prohibited a typical roof-mounted cooling system. Photo: Peter Vanderwarker



June 2007

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workers got ready to install a subterranean geothermal energy system at Trinity, in which water is pumped through four-in.-dia. tubes at a depth of 1,800 ft., providing a constant source of 50- to 55-degree water for heating and cooling. Photo: Peter Vanderwarker

Other projects have not necessarily followed the LEED system while crafting careful solutions to tricky sustainable design problems. In Boston, Goody Clancy has undertaken a difficult rehabilitation of Trinity Church, an 1877 landmark designed by H.H. Richardson in the rugged Romanesque style for which he is known. There, the design and engineering teams created a new undercroft meeting space beneath the sanctuary, but they struggled with where to put the new mechanical systems to condition the space. The church's steep roofs and spires prohibited a typical roof-mounted cooling system. Instead, the team conceived of a subterranean geothermal energy system in which water is pumped through four-in.-dia. tubes at a depth of 1,500 ft., providing a constant source of cool (50- to 55-degree) water as a source of heating and cooling.

"The Trinity Church project is the essence of sustainability without ever winning a sustainable award or following a checklist," says Carroon. "It was finding space below the building in the old basement [instead of adding on to the building]. Geothermal wells were really driven by the idea that we needed air conditioning in the new space, not the old space. Traditional mechanical systems would have had a severe architectural impact, so the geothermal system evolved out of an attitude of stewardship for the building. It was finding the appropriate solution."

Conflict and Consensus

Although green preservation projects have been undertaken for more than a decade, the last two years have produced particularly thoughtful dialogues, beginning with a groundbreaking symposium in Halifax, Nova Scotia, in September 2005, hosted by the Association for Preservation Technology International (APT). Meetings on the subject now occur across the country, all year long. In December 2006, for example, the U.S. Department of Energy hosted a two-day workshop on historic preservation and energy efficiency in federal buildings.

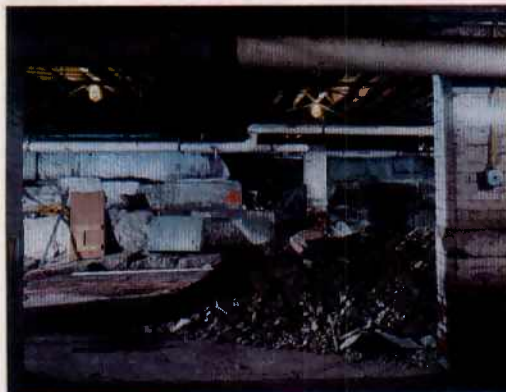
The groundswell reached a high point last October, when more than 80 practitioners participated in the Greening of Historic Properties National Summit in Pittsburgh, held just prior to the National Trust for Historic Preservation's annual conference. Afterwards, the Pittsburgh History & Landmarks Foundation and the Green Building Alliance circulated a draft white paper among interested groups, summarizing the key points of the summit.

To the chagrin of some observers, the paper expends considerable space discussing the challenges to green preservation and the conflicts that its authors contend are inherent between the two disciplines. "The standards governing historic preservation projects have been questioned – or even disputed – by a number of groups throughout the years," the authors write. "Within the past 15 years, green building initiatives have challenged existing historic preservation standards with new approaches to building reuse, restorations, materials selection and system retrofits."

Major challenges, according to the authors, include the lack of coordinated public policy encouraging green/historic initiatives; the lack of significant public investment and interest in these undertakings; the inflexibility between green-building guidelines and preservation standards; the cultural focus on short-term

into the new façade. In the process, however, the building's distinctive sawtooth roof was removed and the original windows replaced with energy-efficient double-paned glass. Although the local landmarks board required the developers to partially reconstruct the roof, preservationists felt the damage had been done.

Despite these potential hurdles, several recent renovations of historic buildings have become pioneering projects in the field. Jean Carroon, AIA, a LEED-accredited preservation principal with Goody Clancy in Boston, MA, estimates that nearly two dozen old and historic buildings have been certified through the LEED system. Two of the best-known projects are the Jean Vollum Natural Capital Center and the Balfour-Guthrie building, both historic warehouses in Portland, OR, that were sustainably rehabilitated to earn the gold and silver ratings, respectively (*Traditional Building*, July/August 2003).



The new undercroft at Trinity Church makes the most of "found space" beneath the sanctuary. The structure's mammoth stone foundations are still visible in the completed space, which has a contemporary feel in keeping with its less formal purpose. Photo: Peter Vanderwarker



