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# HISTORIC *Preservation* BULLETIN

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- Natural & Historic Resources • Historic Preservation Office •

*How Green Is New Jersey?  
A Sampling of Eco-Friendly  
Historic Preservation Projects,  
Large and Small*

**A**cross New Jersey, increasing priority is being directed toward embracing environment-friendly building designs and practices, fueled by concerns to conserve natural resources, reduce waste, improve energy efficiency and promote healthy “livable” communities. Some communities are adopting sustainable building standards as a matter of public policy. Architects and developers are incorporating eco-friendly systems into the rehabilitation of historic buildings to meet their clients’ desires for efficient and sustainable living and working spaces. Individual organizations that are stewards of historic resources are adopting materials, technologies and practices that put them on the cutting edge of historic preservation – demonstrating that older buildings can indeed be part of the “green building” revolution.

### *LEED certification*

The accepted standard for recognizing and measuring green building practices is the LEED (Leadership in Energy and Environmental Design) green

building rating system, which was developed by the US Green Building Council, a nonprofit coalition of building industry professionals. The LEED goal is to promote building design and construction that reduces negative environmental impacts, improves the efficiency of building maintenance and operation, and ensures healthful living and working environments for the building users.

While the initial rating system was specifically created to address new construction, a new rating system for existing buildings has been developed, again with the goal of minimizing environmental impacts while improving the efficiency and sustainability of the resource. These building practices are natural to the historic preservation planning process, emphasizing the reduction of harmful chemicals, recycling buildings materials and incorporating energy efficient systems.

### *Public Policy*

While not specifically citing the LEED rating system, the New Jersey



**JON S. CORZINE**  
Governor  
STATE OF NEW JERSEY



**LISA P. JACKSON, COMMISSIONER**  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION

### MISSION

The Department of Environmental Protection, Historic Preservation Office is committed to enhancing the quality of life for the residents of New Jersey through preservation and appreciation of our collective past.

Our mission is to assist the residents of New Jersey in identifying, preserving, protecting and sustaining our historic and archaeological resources through implementation of the state's historic preservation program.

We provide assistance through our annual conference, consultation with professionals, training workshops, co-sponsorship of history and historic preservation related activities, the Historic Preservation Bulletin and other free publications.

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This publication has been financed in part with federal funds from the National Park Service, U.S. Department of the Interior, and administered by the New Jersey Department of Environmental Protection, Historic Preservation Office. The contents and opinions do not necessarily reflect the views or policies of the U.S. Department of the Interior. This program receives federal financial assistance for the identification and protection of historic properties. Under Title VI of the Civil Rights Act of 1964 and Section 504 of the Rehabilitation Act of 1973, the U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, or handicap in its federally assisted programs. If you believe that you have been discriminated against in any program, activity, or facility as described above, or if you desire further information, please write to: Office of Equal Opportunity, National Park Service, 1849 C. Street NW (NC200), Washington, D.C. 20240

Assembly in February passed a bill to amend the act concerning municipal master plans in order to authorize communities to adopt green buildings and environmental sustainability as an element of their master plans. The act already includes direction for a historic preservation plan element that addressed historic landmarks and districts and this element compliments the goals of the green buildings and environmental sustainability element to "provide for, encourage, and promote the efficient use of natural resources; consider the impact of buildings on the local, regional and global environment; allow ecosystems to function naturally; conserve and reuse water; treat storm water on-site; and optimize climatic conditions through site orientation and design." The bill is now being considered by the Senate.

Other communities have already adopted standards for green buildings at the local level. In 2005 the Princeton Borough and Township amended its master plan to encourage the use of LEED in all design, construction, and operation of all public facilities and publicly-funded projects. In the same year, the Township of Cranford passed an ordinance in 2005 that requires for all township-funded facilities projects and township-owned facilities to meet a minimum LEED Silver Certification. In addition, it required all township-owned existing facilities to adopt LEED for Existing Buildings (LEED EB). It further adopted an incentive program for redevelopers to request density bonuses for achieving LEED Certification. A community that boasts a core National Register historic district, Cranford has set a consistent policy for environmental sensitivity that incorporates open space, energy conservation and pest management, among other areas and received the Green Town award in 2004.

### *Going Green Large and Small*

Thus far, the largest project in New Jersey to endeavor LEED certification while rehabilitating a historic resource is the creation of Garden Street Lofts (GSL) in Hoboken. The old coconut warehouse is being converted into luxury condominiums. It is one of several industrial buildings in Hoboken that are seeing new use as residences along the waterfront, re-energizing this former industrial district.

The developer, Bijou Properties, is addressing many environmentally sensitive design issues in the rehabilitation of the historic white brick warehouse. The project is using building materials and paints that emit little or no harmful gases; the warehouse windows were saved and reglazed; materials removed from areas of the building were salvaged for reuse; and a planted "green" roof will help moderate temperatures in the building, making the units more energy efficient and affordable.

On a smaller scale, Conservation Development restored a c. 1860 farmhouse in Rosemont, Hunterdon County, and designed a sensitive addition to the original building using green building principles for both areas of the building. The farmhouse retains its original windows (with energy-efficient custom storm windows), clapboard siding and original interior moldings, floors and doors. The restoration is complimented by the new construction that is sited to take advantage of natural lighting and passive solar energy and landscape design that will ensure proper drainage and help maintenance of the property.

### *One resource at a time*

Green building practices do not only apply to substantial historic preservation projects, but can be incorporated into the planning for any historic building, or improvements to historic buildings. It may be as simple as a nonprofit organization stating clear and firm goals for its project as part of responsible stewardship.

The New York-New Jersey Trail Conference (TC) with assistance from Bergen County and Mahwah Township has acquired the historic Darlington Schoolhouse and plan to rehabilitate the 1891 stone and shingle structure for its headquarters. The project has been several years in planning, with support from two matching grants from the New Jersey Historic Trust. In December, the TC issued a request for proposals for architectural services that clearly stated its intention to combine historic preservation with good environmental stewardship.

The RFP states: "The TC intends to maintain the historical character of

the building, preserving as many of the original elements as practical. The TC intends that the building and its site will be restored, to the greatest extent possible as it is put to adaptive reuse. The TC expects to operate in an environmentally low impact manner, minimizing the building and site's carbon impact, minimizing operating costs and using local materials and recycled materials where feasible."



*Vanderveer House*

When the Friends of Jacobus Vanderveer House in Bedminster sought to reconstruct the 18<sup>th</sup> century kitchen wing of the c. 1760 Dutch colonial house, it looked at alternative energy-saving approaches. The house, which

served as the headquarters of General Henry Knox during

the 1778-79 Pluckemin encampment, was restored to its 18<sup>th</sup> century appearance. The reconstructed kitchen wing, however, is designed for contemporary needs. It is handicapped accessible, and houses exhibits, comfort facilities, administrative offices and program space. The Friends selected a Geo-thermal heating system that is efficient, quiet has low CO2 emissions and environmentally sensitive. This project was supported in part by a grant from the New Jersey Cultural Trust.



*Reconstructed Kitchen Wing*

*Catherine Goulet  
Principal Historic Preservation Specialist  
New Jersey Historic Trust*

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## CALENDAR

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**June 8-11**—The Pennsylvania Downtown Center hosts its annual conference in Gettysburg. This year's conference, "Safe, Clean & Green in Your Community: Bringing the Future into Focus," offers four tracks during each session timeslot, so attendees can tailor education sessions to their interests. <http://www.padowntown.org/>

**June 12** - "Green by Design" Conference - Alexandria, VA . The Product Development and Management Association (PDMA) in partnership with GreenBiz.com and Global Executive are collaborating for the first time. The conference is being created to fill an unmet need in the marketplace for deep insights and best practices on building sustainability into the product development process. Attendees will include corporate directors of sustainability and environmental stewardship; directors of product development and design; executives responsible for supply chain management, business strategy and marketing as well as students and educators from prominent design schools.

<http://ethisphere.com/jun-13-greenbiz-conference/>

**September 15-17** - 2008 National Healthy Homes Conference - Baltimore, MD. This conference will focus on key themes that together build the framework necessary to make homes safe, healthy, and efficient for everyone. For more information:

<http://www.hud.gov/offices/lead/2008NHHC.cfm>

**October 21-23** - Green East (New York City) brings together the entire spectrum of green products and services together under one roof giving corporate, government, and individual buyers alike the opportunity for synergistic purchasing across the full spectrum of suppliers. <http://www.greeneastexpo.com/>

**November 8-9** - Green Festival. Washington Convention Center, Washington, DC. At Green Festivals, we're celebrating what's working in our communities—for people, business and the environment. Here, green means safe, healthy communities and a strong local economy. You'll enjoy more than 125 renowned authors, leaders and educators; great how-to workshops; cutting-edge films; fun activities for kids; delicious vegetarian cuisine and diverse live music. Shop in our unique marketplace of more than 300 eco-friendly businesses.

<http://www.greenfestivals.org>

**November 19-21** -Greenbuild International Conference and Expo. Boston - the historic cradle of the American Revolution, home to innovations that have far-reaching impact and the perfect place to celebrate Greenbuild 2008's theme of "Revolutionary Green: Innovations for Global Sustainability." Buildings play a critical role in protecting and improving our environment and the health of the people who occupy them. USGBC's Greenbuild conference and expo is an unparalleled opportunity to connect with other green building peers, industry experts, and influential leaders as they share insights on the green building movement and its diverse specialties.

<http://www.greenbuildexpo.org>

### Ongoing

The New Jersey State League of Municipalities' Mayors' Committee for a Green Future on occasion sponsors events and meetings. For more information:

[http://www.njslom.com/Green\\_Future\\_committee.html](http://www.njslom.com/Green_Future_committee.html)

New Jersey American Planning Association Sustainable Design Committee

[http://www.njapa.org/sustainable\\_design.html](http://www.njapa.org/sustainable_design.html)

# The Greenest House Is The House Already Built

*Reprinted with the permission of Preservation magazine.*

**T**he greenest house is the house already built. But that doesn't mean you shouldn't make your old house even more ecofriendly. Here are 10 tips to green your home while maintaining its historic integrity.

1. Keep original windows intact. Studies show that older windows can perform as well as vinyl replacements. Weatherstrip them so that they seal tightly, caulk the exterior trim, and repair cracked glazing or putty around glass panels. You'll reduce landfill waste and the demand for vinyl, a nonbiodegradable material that gives off toxic byproducts when it's made.
2. Use light paint colors for your house's exterior. Lighter colors reflect heat better than darker ones.
3. Insulate the attic, basement, and crawl space. About 20 percent of energy costs come from heat loss in those areas.
4. Reuse old materials such as brick, stone, glass, and slate when making home improvements. If you're rebuilding a staircase, for example, use wood from the summer kitchen or shed that couldn't be saved.
5. Install fireplace draft stoppers, attic door covers and dryer vent seals that open only when your dryer is in use. An open dampener in a fireplace can increase energy costs by 30 percent, and attic doors and dryer vent ducts are notorious energy sieves.
6. Plant trees. Evergreen trees on the north and west sides of your house can block winter winds, and leafy trees on the south and west provide shade from the summer sun. Using old photos of your house, try to match the historic landscaping.
7. Have an energy audit done by your local utility company, or visit Home Energy Saver (<http://hes.lbl.gov>). Audits can help pinpoint problem area and measure energy savings after you improve your home's efficiency.
8. In summer, open the windows and use fans and dehumidifiers, which consume less energy than air conditioning. Many old houses were designed with good cross-ventilation; take advantage of your home's layout.
9. Keep doors airtight by weatherstripping, caulking and painting them regularly. Recent studies suggest that installing a storm door is not necessarily cost effective.
10. Restore porches and awnings. Porches, awnings, and shutters were intended for shade and insulation. To save energy, draw shades on winter nights and summer days.



*Stockton Street District, Hightstown,  
Middlesex County*



*Phoenix Hall, Mendham,  
Morris County*

# *Historic Preservation, Adaptive Reuse, and Sustainability...a natural fit.*

In the last five years, it is safe to say that the public's attention to issues of sustainability, energy conservation, and carbon neutrality has greatly increased, particularly as they relate to human impact on and resulting changes to the environment. Recent efforts, such as former Vice President Al Gore's documentary, "An Inconvenient Truth" and Leonardo DeCaprio's "11th hour", have clarified the implications of our past actions and potential future challenges as a result of continued use of fossil fuels and unsustainable living habits.

Many efforts are under way throughout the world to curb fossil fuel consumption and raise public awareness as to more sustainable ways to live. Throughout the United States, at all levels of government and within many communities, similar efforts are in progress. The formation of the American Institute of Architects (AIA) 2030 Challenge, the American College and University's Presidents Climate Commitment, and US Green Building Council's LEED™ Green Building rating system are some of the more prominent responses that affect the operation of existing facilities and construction of new ones.

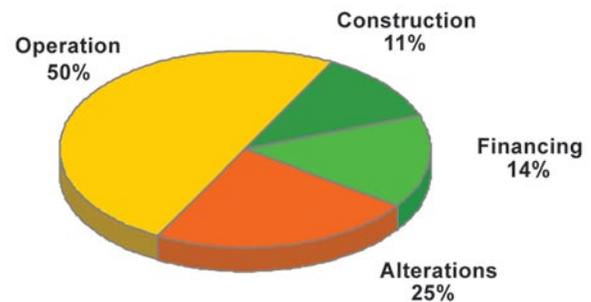
The historic preservation movement is older than any of these recent, concerted efforts. The policy of saving and reusing historic buildings is inherently more sustainable, which is surprisingly to many who do not understand the connection. Since the fateful destruction of Penn Station in New York in 1963, an event that galvanized advocates of older architecture and livable communities, historic preservation has become an integral part of our daily lives. However, its tremendous contribution to a sustainable culture has gone highly underestimated.

If you search the internet for the term "sustainability", you will get 40 different definitions. The United Nations defines sustainability as the ability of our current generation to meet its needs without jeopardizing future generations' ability to meet their needs. What is missing is that we must be stewards not only of human kind's needs but also the needs of the ecosystems that sustains all life. Therefore, the definition of sustainable design should include being a steward of the environment that we rely on to meet our needs and all living things' requirements by ensuring clean water, air, land, and food.

In the United States, the buildings in our environment are responsible for 12% of all potable water consumption, 39% of all CO2 emissions, consumption of 70% of all electricity, and production of 65% of our landfill waste. These environmental impacts are a clear indication that the design and construction industries are major contributors to the current and future problem of creating a sustainable culture. It is also clear from these indicators that the adaptive reuse of our existing building stock and preservation of older buildings are key components to drastically reducing our impact on the environment while preserving our history and communities.

The first questions I am usually asked about sustainable design are what the costs and what are the benefits, including the return on any investment? In thinking about costs and benefits, one has to also consider the life cycle cost (carbon impact) perspective of a building. First cost alone is not necessarily a deciding factor, although designing and building within an established budget are obviously important.

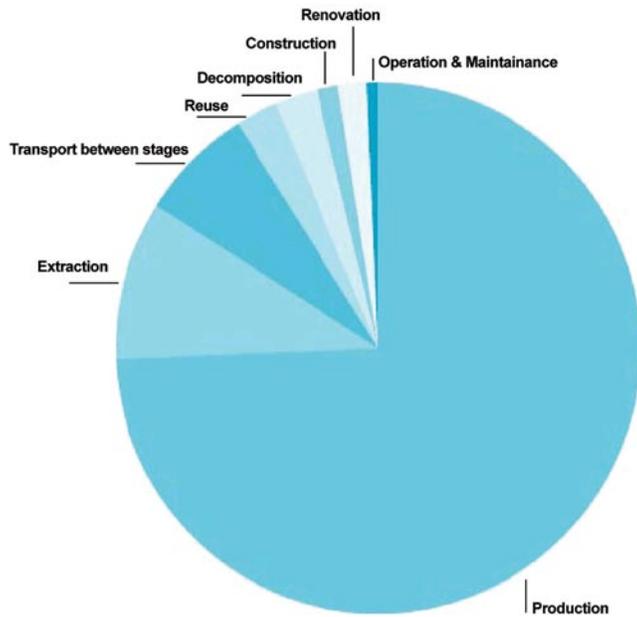
When you look at the typical 40-year life cycle cost of a building as demonstrated in the pie chart above, it



becomes apparent that the most expensive part of owning a building is operation/maintenance, not construction. Energy, operations, and employees are ultimately more expensive than the initial cost to build in the long run. Yet, all of the decisions that affect the great majority (89%) of the cost of building ownership are made in design, which accounts for a small percentage (only 6 to 8%) of the 11% initial construction cost. This is why it is so critical to think about sustainability early in a new project.

1. [www.architecture2030.org](http://www.architecture2030.org)
2. [www.presidentsclimatecommitment.org](http://www.presidentsclimatecommitment.org)
3. [www.usgbc.org](http://www.usgbc.org)

In examining the next chart, it is apparent that the largest environmental impact in a building's life cycle is



the production of the materials for construction, not its operation and maintenance. For example, the production of concrete as a building material was responsible for creating 829 million metric tons of CO<sub>2</sub> in 2000, or 3.4% of all global CO<sub>2</sub>. Again, it is increasingly clear that the preservation of our existing infrastructure and buildings, and maintaining the materials inherent in those structures, is significantly more sustainable, long term from a carbon footprint perspective, than just building 'less bad' new buildings.

As an example, while employed with DF Gibson Architects, P.C., I worked on the restoration, preservation and adaptive reuse of Thomas Edison State College Historic Townhouses in Trenton, which share a lawn with the State House. The 20,000 square foot project represents hundreds of millions of tons of avoided CO<sub>2</sub> emission to demolish the existing town houses and the extraction/ production/ transportation materials for a new construction.

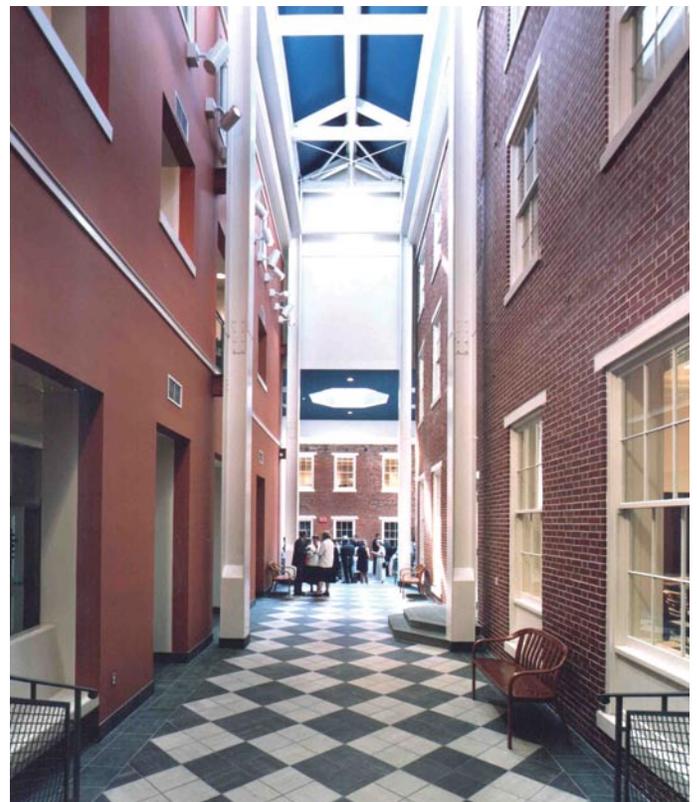
The project involved the adaptive reuse and preservation of five early 19th century row houses as administrative offices for the college coupled with a 30,000 square foot distance learning center addition on the rear of the row houses. Both areas interconnect to the original five-story college buildings and are fully compliant with the ADA.

While the primary goal was not sustainability, the project accomplished just that. By reusing existing urban buildings, specifying non-toxic interior finishes, using an energy efficient HVAC system, natural day

lighting, and creating large community spaces that were easily accessible, the project design and construction incorporated the basic principles of sustainable design on time, within the budget, and to the great satisfaction and pleasure of the owner and end users. This facility has won two awards since opening in June of 2000, including the NJ Downtown Redevelopment Grand Prize and the American School & University Award for Design Excellence, proving that preservation, adaptive reuse, and sustainability are a natural fit.



*Exterior View of Townhouses after renovation and addition, DF Gibson Architects, PC Architect of Record*



*Great Hall connecting existing townhouses and addition, DF Gibson Architects, PC, Architect of Record*

*By Jason Kliwinski, AIA, LEED AP is Director of Sustainable Design for the Spiegle Architectural Group, located in Trenton and serves as Chair for the AIA-NJ Committee on the Environment and First Vice President*

4. US Green Building Council

5. [www.epa.gov/ttn/chieff/conference/ei13/ghg/hanle.pdf](http://www.epa.gov/ttn/chieff/conference/ei13/ghg/hanle.pdf)