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The Greenest Building Is One That Already Exists

Historic Preservation Is Inherently Sustainable

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Historic Building Recovery Grant Program

Photo by Tracy Nelson

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Many older urban neighborhoods include small park spaces that are ideal for recreation and relaxation. They are perfect examples of one of the many benefits of "Old Urbanism."

Preservation is the original green movement, and sustainability has been its objective for years.

Historic preservation is about saving and restoring existing structures and historic sites. By conserving the built environment, historic preservation saves valuable assets in which large amounts of energy and resources have already been invested.

Sustainability has been defined as "...using a resource so that it is not depleted or permanently damaged," (Merriam Webster's Online Dictionary) and as "...meeting the needs of the present without compromising the ability of future generations to meet their own needs." (United Nations World Commission on Environment and Development) A sustainable, or green, building is a product of a design that focuses on efficient utilization of materials and energy and a reduction of the structure's adverse impact on human health and the environment throughout the building's lifecycle.

To the newly initiated, the term green usually refers almost entirely to energy-saving efforts like weatherizing windows or buying energy saving appliances. However, this is only one aspect of the broader goal of sustainability. In the context of this article, a distinction is made between "new green" and "old green." New green represents modern technology and materials that continue to change in their approach to environmental issues. Old green, on the other hand, focuses on those materials and technologies that are already in place or have been used successfully for generations.

Both the old and new green approaches have ideas that work and ones that fail. For those good ideas that are already built into a historic house, it is important not to throw the baby out with the bathwater, so to speak, when introducing modern techniques. If an old building technology is good, it should be kept, but if it is an energy-wasting feature, it should be improved upon if possible. This should be done carefully, however, as many new technologies in use have not been tested by time. Hasty changes or upgrades with brand-new technology or features can sometimes do serious damage to historic buildings over time, whereas many time-tested construction and design techniques work very well to keep buildings comfortable in every climate. Passive strategies that do not use energy can be utilized in tandem with those strategies that do require energy. In sustainable terms, the new choices made by today's consumers are the ones that future generations will have to live with.

In addition to the energy rating of windows or appliances, there are other important things to consider in evaluating whether a building is sustainable. Every building that is already built contains what is referred to as embodied energy. This means that every material in a building has been harvested or fabricated, cut into the appropriate size or formed in a factory assembly line, bundled or packaged, and shipped to wherever the product is needed. Every step in that process requires the use of fossil fuels. The construction process itself requires human effort and the use of machines that have to be powered, and this is yet another expenditure of energy. If the material has to be transported a long distance, this can increase the energy expenditure even further. In short, the embodied energy in a structure is every material and effort that goes into the construction process, and these human and fossil fuel costs on the environment can become huge.

When considering whether to build new or to rehabilitate an existing building, strong consideration should be given to how much energy it would take to replace the building with something new versus how much energy it would take to modify or adapt what is already there. If energy has already been expended to create the building, and that building is still standing with its original materials intact, then the greenest thing to do is to acknowledge the high value of the existing structure and repair or rehabilitate it. To get the same quality materials and high

Photo by Tracy Nelson

Renovated historic properties greatly improve neighborhoods and the quality of life for residents. The house on the left, located in New Orleans' Holy Cross Historic District, was restored by PRC's Rebuilding Together program, while the adjacent property awaits much-needed repairs.

level of craftsmanship found in an older building, rehabilitation is always cheaper than new construction.

An underlying principle of all preservation work is, whenever possible, "repair, don't replace." Put into practice, this principle promotes the conservation of energy and natural resources of all types, since it uses a minimum of newly produced materials and takes advantage of the embodied energy already expended during original construction. Historic preservation is inherently sustainable as evidenced in the fact that preservation maximizes the use of already-existing infrastructure, avoids wasting materials, energy, and effort, and preserves resources for their continued future use.

When an existing building is repaired, rehabilitated or otherwise reused rather than torn down to make way for new construction, this is environmental, economic, social and cultural sustainability. Environmentally, resources and energy are saved. Economically, jobs are created and the redevelopment of older neighborhoods and districts stimulates local economies. Socially, communities and long-term social networks are preserved and strengthened. Culturally, local architecture and heritage sites are saved and refurbished, spotlighting the unique cultural resources that are integral to a community or neighborhood's identity and to its residents' sense of place. Historic buildings are cultural resources that are limited in supply — once they are gone, they are gone forever.

Photo by Tracy Nelson

Corner stores were common in urban neighborhoods, are easily adapted to other small commercial establishments, and make wonderful additions to vibrant residential areas. This former corner grocery in the Faubourg Marigny Historic District in New Orleans has been successfully converted to a restaurant, convenience store and guesthouse.

Historic Preservation Is Environmentally Sustainable

Redeveloping existing structures greatly reduces the impact on the environment by conserving their embodied energy and avoiding the generation of more waste going into landfills. Yet another sustainable aspect of preservation is the continued use of structural materials that are still viable, which also reduces the need for buying newly produced materials.

Photo by Tracy Nelson

This historic house in the Holy Cross neighborhood was renovated using both old and new green technologies. Window shutters were replaced on the house to help keep out unwanted sunlight in the summer, and solar panels lower utility bills.

In most historic buildings, the original materials are superior to newer materials sold on the market for new construction. Old-growth woods, substantial brick and masonry walls, real plaster and solid structural framing members are much higher in quality than the new growth pine, brick veneers, drywall and soft 2-by-4 framing found in most new construction. The older materials often have a much higher r-value (energy efficiency) as well, so not only are the older buildings stronger and more solid, the buildings themselves are often more energy efficient and environmentally friendly than many newer structures.

Most features of historic buildings have what is referred to as maintainable assemblies — that is, their architectural components can be repaired instead of discarded and replaced. For example, older wooden windows, doors, and shutters that are damaged can be dismantled and repaired, unlike most newer ones that usually have to be completely replaced when any part is damaged or destroyed.

In addition to differences in materials, most older buildings were also designed to work with their climates and therefore are more environmentally sound, design-wise. For example, high ceilings in hot, southern climates make a lot more sense than the eight-foot ceilings that are standard on most new construction. Windows that open and are arranged to catch breezes take advantage of natural cooling and maximize cross-ventilation. This potentially reduces the need to use air conditioning, thereby helping to conserve electricity and save the owner money on costly utility bills. Real, working shutters that are common on many older buildings can help reduce energy costs by keeping out sunlight in the hot summer months, and by providing an air-lock to help insulate windows against extremes of temperature year-round.

Historic preservation also reduces urban sprawl. By stimulating the redevelopment of urban areas and older neighborhoods, there is less need to expand cities beyond their perimeters; less need for new construction; less reliance on automobiles to reach spread-out commercial and residential areas; less destruction of forests, green space and natural habitats for wildlife; and less public expenditure on new infrastructure.

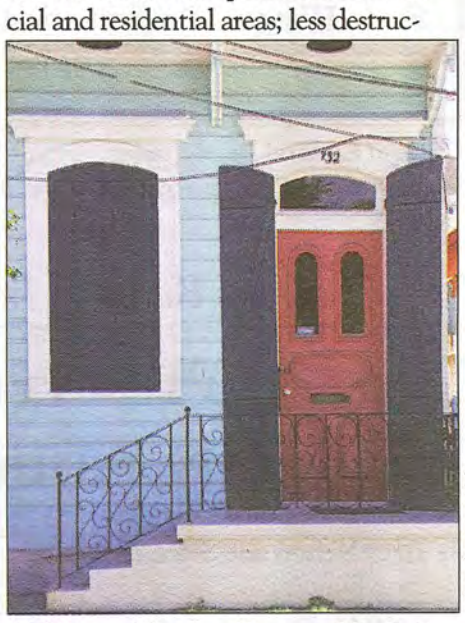

Photo by Tracy Nelson

Architectural features like operable shutters have been in use for centuries and provide an excellent way to keep out the hot sun and regulate building temperature — a good example of old green technology that not only works but can also save the homeowner money on utility bills.

Rehabilitation of older buildings has high potential for direct energy-saving advantages, too. When historic structures are repaired or renovated they can easily have state-of-the-art weatherization features added, making them more efficient consumers of energy.

Photo by Tracy Nelson

Small restaurants, coffee shops and stores are a regular feature of older neighborhoods. This coffee shop is in the heart of the Esplanade Ridge National Register Historic District in New Orleans.

Historic Preservation Is Economically Sustainable

Historic rehabilitation boosts the economy in several different ways. It strengthens neighborhoods and revitalizes economically depressed urban areas by helping to revive them as livable,

desirable and sustainable communities.

More jobs are created in rehabilitation or restoration projects on existing buildings than in new building projects. Studies by the economist Donovan Rypkema show that 60 to 70 percent of the costs associated with historic renovations go to labor, compared to only 50 percent of the costs of new construction. Additionally, the jobs created are generally filled by local contractors and craftspeople who spend their wages locally, keeping the money in the community. They also tend to be higher-wage workers, as historic rehabilitation projects usually require specialized knowledge and skills. Not only does preservation activity spur more jobs than new construction, it does so while consuming fewer natural resources, making its positive economic impact even greater.

Studies have shown that historic buildings and neighborhoods have qualities that make them attractive and suitable for small businesses. Smaller businesses fit better in smaller buildings, which are likely to have more affordable rents than found in newly constructed buildings.

Rehabilitated historic buildings can be more economical to operate than new buildings. Green renovations that add energy-efficient features to the already more substantial materials and construction practices embedded in historic buildings can greatly reduce operating costs. This makes them even more attractive as residences and businesses.

And finally, there is another very significant economic benefit of rehabilitating vacant, damaged or blighted buildings. Not only does it put nonproductive buildings back into commerce, it also returns them to the local tax rolls. As a result, public finances are augmented, helping to support the local and regional economy.

Historic Preservation Is Socially and Culturally Sustainable

Social sustainability refers to situations that foster and promote social interaction, social diversity and cultural enrichment. By revitalizing historic neighborhoods, preservation strengthens traditionally planned older communities. Many of these already include mixed uses and green spaces, are pedestrian-friendly and are often occupied by a diverse population. These characteristics are associated with a high quality of life, and are often proposed for new developments based on the "New Urbanism" model. With this idea in mind, "Old Urbanism" is better than New Urbanism.

A primary focus of historic preservation is the protection of a community's cultural resources so they can be used and enjoyed for generations to come. This not only includes protection and preservation of buildings and landmarks, but whole neighborhoods and districts that make up a community's total environment. Historic or heritage preservation can also maintain cultural diversity by preserving mixed-income and mixed-use neighborhoods. These communities are enhanced by the preservation of place and the continuity of its cultural setting and environment. Environmental and social psychologists have noted that "preservation of place" promotes psychological well being. That is, continuity and familiarity of environment plays an important part in the level of comfort and peace of mind that residents experience. It follows, then, that preserving or sustaining the historic built environment — including residential areas and commercial, urban areas — plays an important role in fostering social and cultural sustainability.

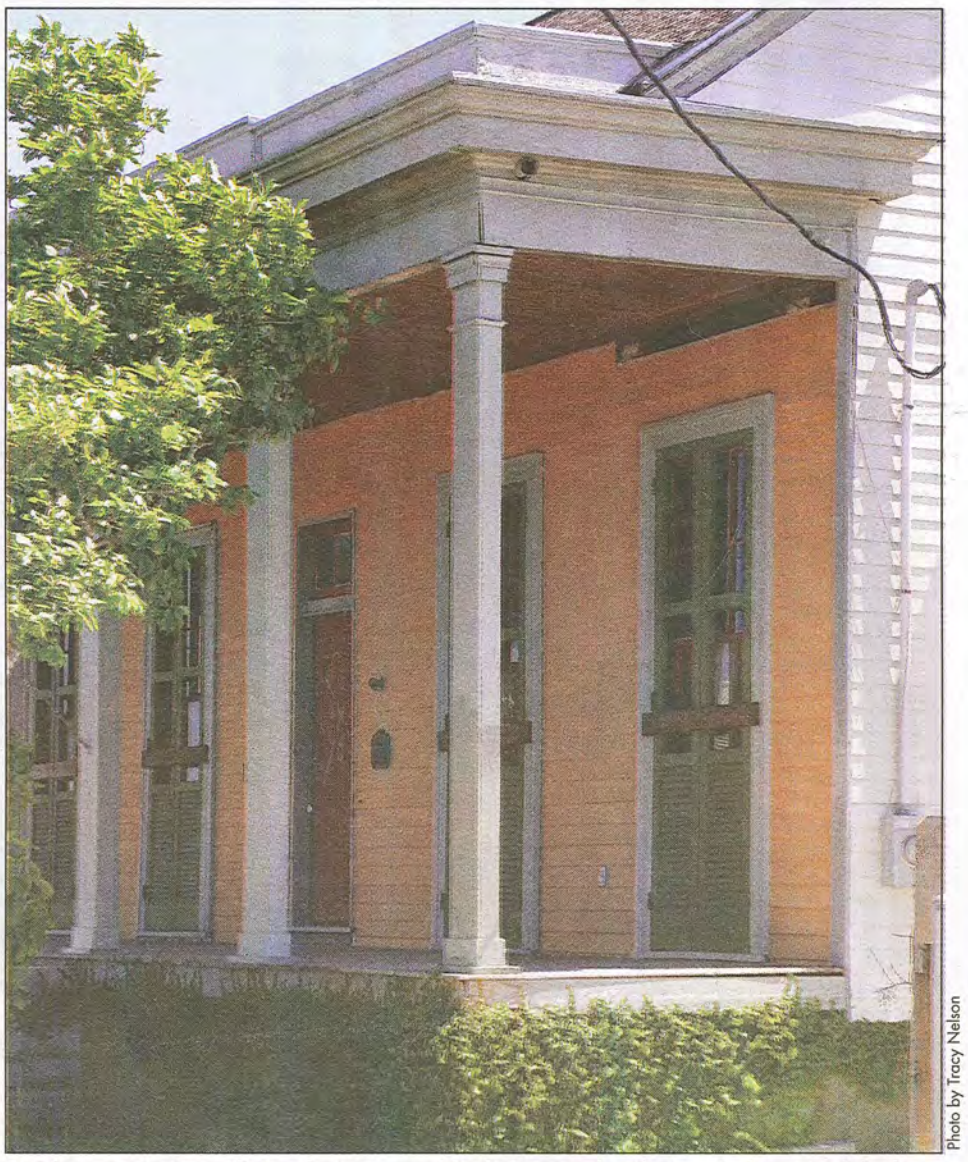

Photo by Tracy Nelson

Porches are common design features on older houses and make great places to sit in the shade and relax. They also keep direct sunlight off of the house, which helps make the indoor temperatures more comfortable in hot climates and saves money on utility bills — another good example of an old green technology.

Photo by Stephen Fowlkes

A variety of valuable, original cypress windows are shown here for sale in the PRC Salvage Store at 2801 Marais St. in New Orleans.

Measuring the Environmental Sustainability of Buildings

There are several well-developed building assessment systems that can be used to evaluate the environmental impact of buildings. They mostly have focused on designs and plans for new construction but are beginning to include information for the retrofitting of existing buildings as well. Systems widely in use include the United Kingdom's Building Research Establishment Environmental Assessment Method, or BREEAM; the International Green Building Challenge's Green Building Tool; and the Green Building Initiative's Green Globes, among others.

The U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) green building

Photo by Stephen Fowlkes

This nicely renovated house in the Central City National Register Historic District in New Orleans sits in sharp contrast to its next-door neighbor that is in need of major repairs. Historic inner-city neighborhoods are strengthened and their communities improved with every renovation project that is completed there.

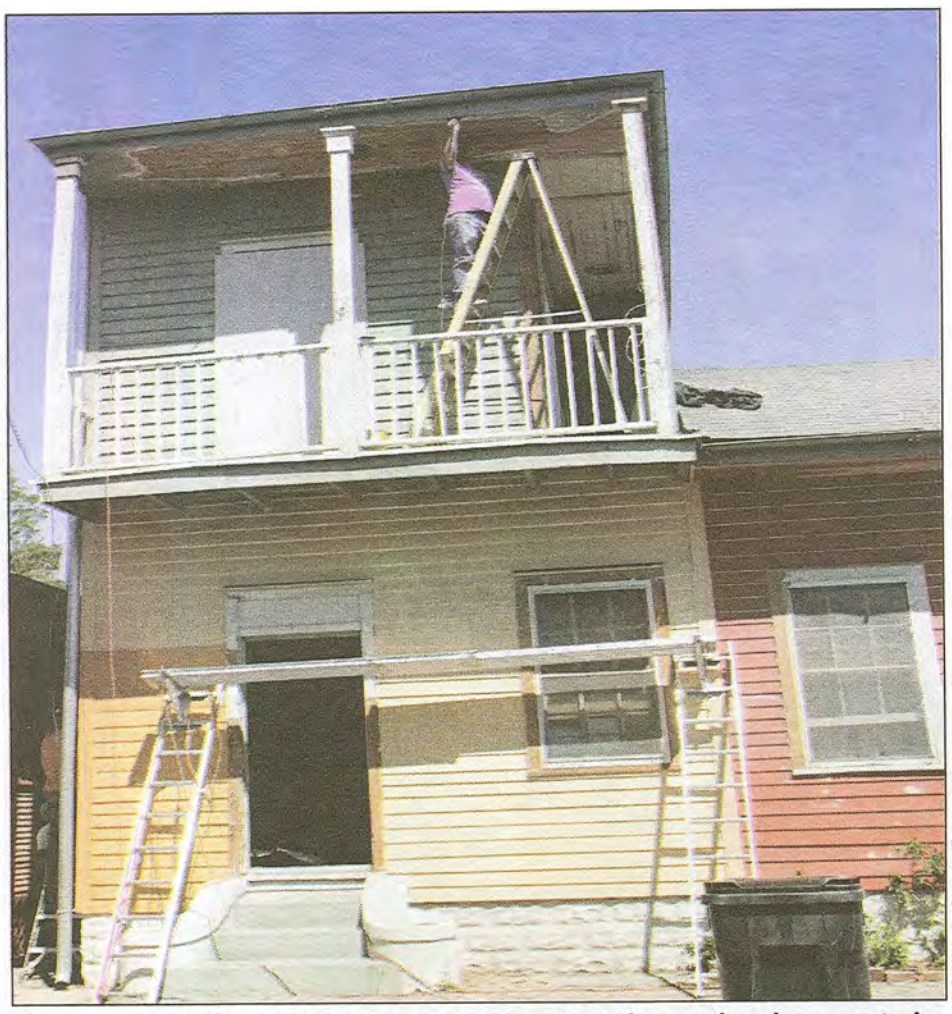

Photo by Stephen Fowlkes

This new paint job is part of a total renovation project on a long-neglected property in the Faubourg Marigny Historic District in New Orleans.

certification program has become a standard for green building practices, as it was one of the first to create a rating system in the U.S. Though the LEED system was originally developed and used for new construction projects, this standard has been increasingly adapted with great success to historic rehabilitations as well. The National Trust for Historic Preservation works with the U.S. Green Building Council to ensure that common characteristics and issues in historic rehabilitation projects are better represented in the LEED standards. These include more emphasis on use of existing buildings; "life-cycle assessment criteria" that consider the value of durable, substantial materials found in older buildings; proximity to public transportation; and development of sites in dense urban areas instead of remote areas outside of urban centers.

Newer versions of the LEED standards include "LEED for Existing Buildings," most recently updated in April 2009. Through continued collaboration and partnership, leaders in the preservation community will work to ensure that the long-recognized sustainable characteristics of historic preservation are acknowledged and emphasized by architects, developers and green building advocates. For more information on the National Trust's ongoing efforts, visit www.preservationnation.org.

Final Thoughts

The quantity of issues that have the terms sustainability and green attached to them can be confusing for anyone interested in pursuing more environmentally conscious ways of living. Smart planning and development must include environmentally focused approaches to maintaining livable communities and urban areas. Planners, developers and communities should recognize the value of the existing built environment and work to sustain these assets while taking full advantage of today's environmental ideas and technological advances.

There are many professional and academic groups that have focused on sustainable architecture, but the vast majority of their efforts deal only with new design and new construction. However, there are a number of nonprofit groups and other organizations that have focused considerable resources on sustainable practices for historic preservation. These groups are working to add the missing component into this discussion: that, in the oft-quoted words of architect Carl Elifante, the greenest building is one that already exists.

Twenty years ago, a sustainable building meant a radical design and a magazine spread. Today, sustainable building practices include a much wider range of plans and techniques that can be incorporated into the average building. These include using sustainable materials, designing for lower energy usage, and reducing embodied energy costs by using local resources and by designing for the local climate.

Historic buildings can be competitive with the lower energy usage being touted in modern sustainable building design, with the added bonus that by reusing existing buildings and revitalizing historic neighborhoods, preservation is conserving environmental resources while simultaneously sustaining valuable social and cultural assets. When debating the options of new development versus historic rehabilitation and neighborhood revitalization, the greenest solution starts with reusing the building that is already built.

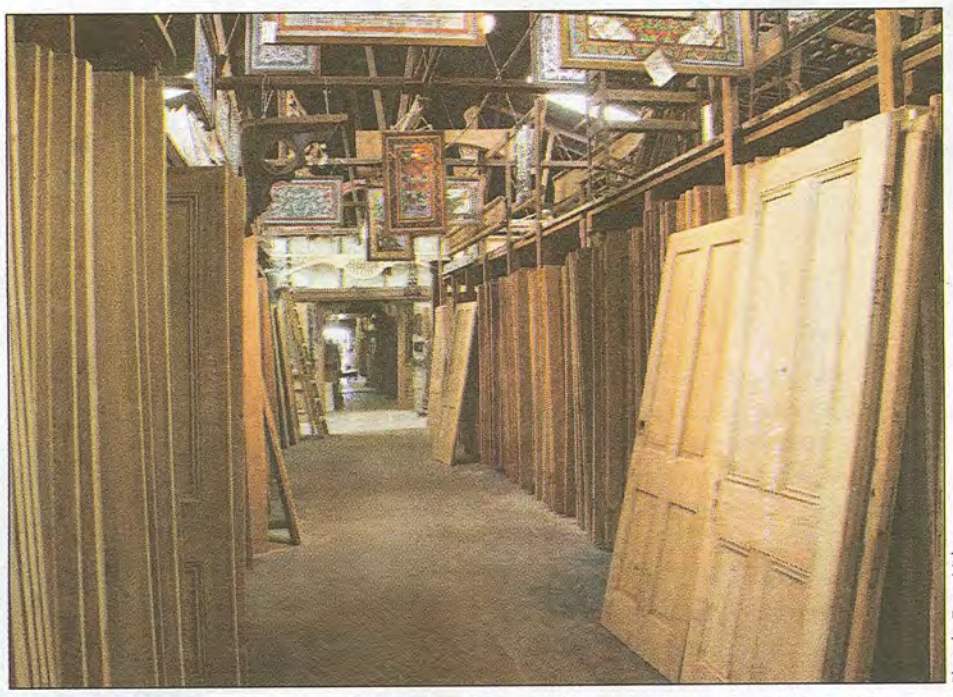

Photo by Tracy Nelson

Recycling original building materials and architectural features is another sustainable practice commonly used in renovations of historic buildings. These vintage cypress doors have been cleaned and stripped and are ready for installation in another building. [Photo was taken at The Bank Architectural Salvage Store in New Orleans.]

Resources for Further Reading and Research:

- Farwell, Jennifer. "The Latest on LEED." Preservation: The Magazine of the National Trust for Historic Preservation: Vol. 61, no. 2 (March-April) 2009, pp. 12-13.
- Frey, Patrice. "Building Reuse: Finding a Place on American Climate Policy Agendas." National Trust for Historic Preservation. September, 2008. Web site: http://www.preservationnation.org/issues/sustainability/additional-resources/buildling_reuse.pdf (Accessed Mar. 26, 2009)
- Smith, Stephanie Joy. "Climate Change: National Trust Greens American Attitudes and Practices." Preservation: The Magazine of the National Trust for Historic Preservation: Vol. 61, no. 2 (March-April) 2009, pp. 8-9.
- U.S. Green Building Council. "LEED Rating System." Web site, http://www.usgbc.org/DisplayPage.aspx?CMSPageID=222 (Accessed March 30, 2009)
- Valhouli, Constantine A. "Natural Allies: Preservation and Sustainable Development?" Urban Land: Vol. 67, no. 6 (June) 2008, pp. 144-146.

For additional suggestions for further reading, visit the HBRGP Web site: http://www.crt.state.la.us/hp/hbrgpfurtherreading.aspx.

Web sites for Researching Sustainability and Historic Preservation

A number of organizations have recognized the strong connections between preservation and sustainability. Follow these links and search these Web sites for more information about the many sustainable aspects of historic preservation.

National Trust for Historic Preservation's Sustainability Initiative http://www.preservationnation.org/issues/sustainability/

Embodied Energy Calculator http://www.thegreenestbuilding.org/teardown.html

National Park Service www.nps.gov

National Center for Preservation Technology and Training http://www.ncptt.nps.gov/

Preservation Resource Center (New Orleans) http://www.prcno.org/
See online the September 2007 issue of *Preservation in Print* devoted exclusively to "The Greenest House is One Already Built" and February 2007 issue on economic value of preservation.

Center for Sustainable Engagement & Development http://www.changemakers.net/en-us/node/19467

Building Material Reuse Association http://www.bmra.org/

U.S. Green Building Council http://www.bmra.org/

Historic Green New Orleans http://www.historicgreen.org/