

**Green Building Practices and the Secretary of the Interior's
Standards for Historic Preservation:
A White Paper prepared in advance of the 2008 Pocantico Symposium**

This White Paper was prepared in advance of a November 2008 Symposium, “Sustainability and Historic Preservation—Making Policy.” This convening is organized by the Friends of the National Center for Preservation Training and Technology and the National Trust for Historic Preservation, and is intended to **develop core elements of a Sustainability and Preservation Charter that acknowledge the inherent contributions of historic preservation to sustainability, call for the full integration of sustainability principles into historic preservation policy and practice, and identify ways to achieve this that are consistent with the fundamental values of historic preservation.**

A previous white paper, “*Making the Case: Historic Preservation as Sustainable Development*” addresses the contributions of historic preservation in promoting development that is environmentally, economically, and socially sustainable. This paper, in contrast, looks specifically at the relationship between green building (environmental sustainability) and the The Secretary of the Interior’s Standards, the most widely used preservation standards in the United States. It is hoped that this white paper will help guide discussion regarding the integration of environmentally sustainable practices into historic preservation policy and practice.

The issue of environmental sustainability and preservation was first raised during the energy crisis of the 1970s, when the National Park Service issued Preservation Brief on conserving energy in historic buildings and second Brief regarding the insulation of historic buildings. While the issue of energy conservation was dormant for two decades, in recent years climate change and energy security issues have prompted renewed interest in the subject.

An increasing number of historic preservation projects are going green, and have earned green building certification under the U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) rating system. Yet there is the persistent belief – held by some preservationists and many outside the preservation field – that there are inherent conflicts between green building standards such as LEED and historic preservation standards, specifically *the Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Building(the Standards)*.

This paper briefly explores the genesis and use of the Standards, analyzes language in the Standards regarding energy efficiency, and assesses the application of these standards in recent green building historic rehabilitation projects. A number of interviews were conducted with State Historic Preservation Officers, developers, architects, and homeowners to explore the integration of green building practices and the use of the Standards. The paper finds that there are usually not large conflicts between green building and preservation, and in fact the Standards can be quite flexible in accommodating green practices.

But achieving increased energy efficiency and other green practices often comes only after a great deal of negotiating that can result in lengthy delays in the development process. Furthermore, including on-site renewable energy such as solar and wind seems

to present particularly difficult challenges and cannot be accommodated by the Secretary's Standards. This paper leaves open for discussion the question of whether existing language in the Standards regarding energy efficiency should be modified, and/or whether other principles of sustainable development should be more explicitly incorporated into the Standards.

Section 1: Overview of the Secretary of the Interior's Standards

The Secretary of the Interior's Standards were developed to provide guidance on determining the best treatment for alterations to historic buildings. In creating this document, the National Park Service (the agency of the Dept. of Interior responsible for historic preservation) has established a set of professional standards for the protection of significant cultural resources. The Standards and Guidelines apply to all historic resource types including buildings, sites, structures, objects and districts.

The Standards are not prescriptive; they do not specifically state what changes should be made to resources, and what elements must be saved. Instead they "provide philosophical consistency to the work" once a treatment for the building is chosen.¹ The Standards are meant to "promote responsible preservation practices that help protect our Nation's irreplaceable cultural resources."²

The Secretary's Standards address four treatment types: Preservation, Rehabilitation, Restoration, and Reconstruction. For each type there are 6-10 general standards and a large number of guidelines. Guidelines address the building exterior materials, building exterior features, building interior, building site, setting, and special requirements. The guidelines are divided into actions that are recommended and those that are not recommended.

- The Standards define **preservation** as "the act or process of applying measures necessary to sustain the existing form, integrity, and materials of a historic property."³ The standards for preservation are the most restrictive of the four categories, and advise that preservation projects retain as much of the historic fabric, form, features, and detailing as possible. In the preservation standards and guidelines, "protection, maintenance, and repair are emphasized while replacement is minimized."⁴
- The Standards define **rehabilitation** as "the act or process of making possible a use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values."⁵ These standards are less restrictive than

¹ National Park Service, *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, 1.

² National Park Service, *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, 1.

³ National Park Service, *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, 18.

⁴ National Park Service, *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, 19.

⁵ National Park Service, *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, 61.

the preservation standards, and advise that projects retain the building's character, but acknowledge that the historic fabric may need to be altered or added to accommodate the new use for the building. The rehabilitation standards and guidelines allow for replacement of damaged features using traditional or substitute materials, and also allows for alterations and additions to buildings.⁶

- The Standards define **restoration** as “the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.” The standards and guidelines give guidance on how to portray the building as it looked during the most significant period in its history.
- The Standards define **reconstruction** as “the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.”⁷ Because there is usually a lack of physical evidence, and the chance of an incorrect depiction, reconstruction projects occur with the least frequency.⁸

This paper will focus primarily on the **rehabilitation** standards as these are the most commonly used standards.

The Standard's Current Treatment of Energy Efficiency Issues

The Standards and Guidelines currently address energy efficiency, but do not *encourage* energy efficiency measures. Instead, the Standards suggest that energy conservation techniques have potentially negative effects on resources.

“[energy efficient practices are] usually not part of the overall process of protecting or repairing character defining features; rather, such work is assessed for its potential negative impact on the building's historic character. For this reason, particular care must be taken not to radically change, obscure, damage or destroy character-defining materials or features in the process of meeting...energy requirements.”

This phrase is repeated throughout the document, and prefaces a section of the Rehabilitation Guidelines called *Energy Efficiency*.

While the recommendations in the guidelines for energy efficiency are practical and informative, they are far from comprehensive and do not specifically address many current green building practices. Some of these guidelines include:

⁶ The Secretary of the Interior's standards, 63

⁷ National Park Service, *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, 165.

⁸ National Park Service, *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, 167.

Interior Features

Recommended: “Retaining historic interior shutters and transoms for their inherent energy conserving features.”

Not Recommended: “Removing historic interior features which play an energy conserving role.”⁹

Entrances and Porches

Recommended: Maintaining porches and double vestibule entrances so that they can retain heat or block the sun and provide natural ventilation.”

Not Recommended: “Changing the historic appearance of the building by enclosing porches.”¹⁰

Windows

Recommended: “Improving thermal efficiency with weatherstripping, storm windows, caulking, interior shades, and if historically appropriate, blinds and awnings.”

Not Recommended: “Replacing historic multi-paned sash with new thermal sash utilizing false muntins.”¹¹

There are many green practices that preservationists tend to recommend and not recommend which are not mentioned in the guidelines. Some of these practices have been developed after these standards were last revised.

Use of the Secretary of the Interior’s Standards

The Secretary of the Interior’s Standards are the most well-regarded and frequently used set of preservation standards and guidelines in the United States. The standards are tied to the federal tax credits for historic rehabilitation; for a project to receive a tax credit it must be a certified rehabilitation project in conformance with the Secretary of the Interior’s Standards for Rehabilitation. State Historic Preservation Officers and the Advisory Council on Historic Preservation also use the Standards in Section 106 review cases to determine whether an adverse effect has occurred.¹²

Easement maintenance standards are also tied to the Secretary’s Standards. Owners of historic resources may voluntarily enter into a legal agreement with a historic preservation organization to put an easement on their property to ensure that it will be preserved in the future. The property owner (and subsequent owners) must maintain and preserve the property to a certain standard, and in return they can get substantial tax benefits. If an easement holder wants to make changes to their building that are

Many states and local municipalities adopt the Secretary’s Standards into their preservation ordinances in order to regulate how private property owners modify their historic properties. And if such groups do not adopt the actual standards, many times

⁹ National Park Service, *The Secretary of the Interior’s Standards for the Treatment of Historic Properties*, 111.

¹⁰ National Park Service, *The Secretary of the Interior’s Standards for the Treatment of Historic Properties*, 111.

¹¹ National Park Service, *The Secretary of the Interior’s Standards for the Treatment of Historic Properties*, 110.

¹²

states and local groups will base the preservation standards they create on the Secretary's Standards.

Green Building and LEED

This paper is not an attempt to assess the specific relationship between the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) green building certification system and the Secretary of the Interior's Standards, but instead will address the more general green building practices, many of which are encouraged by the LEED rating system. However, a discussion of green building in America cannot occur without an understanding of the United States Green Building Council (USGBC) and their LEED third party certification systems, which are introduced briefly here.

LEED is the primary third-party green building rating system in the United States, and has a number of rating "products" for various types of buildings at different stages in their life cycles. LEED for New Construction (NC) was the first system to be created by the USGBC and remains the most popular. LEED-NC can be used for new construction projects and for buildings undergoing major renovation; in recent years, a number of historic rehabilitation projects have been certified under LEED-NC. LEED for Existing Building (EB) provides certification for the operation and maintenance of buildings, and has been used less frequently for historic projects.

The LEED rating system is made up of six categories, each of which is composed of prerequisites and credits. The six categories are: Sustainable Sites (SS), Water Efficiency (WE), Energy and Atmosphere (EA), Materials and Resources (MR), Indoor Environmental Quality (IEQ), and Innovation & Design Process (ID). There are four levels of certification: certified, silver, gold, and platinum.

Section 2:

Overview of Conflicts between the Secretary's Standards and Green Building Practices

It is often believed that there are conflicts between green building practices and technologies and the Secretary of the Interior's Standards. Interviews with State Historic Preservation Offices, architects, property owners, and developers were conducted in preparation for this paper to examine the relationship between green building and the Secretary of the Interior's Standards. Overall, there is consensus among those interviewed that few actual conflicts exist. Furthermore, interviewees believe that the conflicts that do exist are not insurmountable, and these problems are small in relation to the entire building project. Those interviewed believed that designers and preservationists can overcome most potential conflicts through creative design.

While integrating energy efficiency practices into historic buildings can be challenging, numerous projects have proven that it is possible to successfully merge green building components into high quality historic rehabilitation projects. Sometimes it is relatively easy to integrate green components, while sometimes those involved with the projects need to be creative in their designs. Many historic buildings have even achieved

LEED Gold, which is the second to highest LEED rating, and at least three have received the highest level of certification, platinum.

Some SHPOs find that reviewing projects that incorporate green features takes longer and requires a more in-depth review. Despite this longer process, SHPOs and owners can usually work through conflicts and compromise on solutions. For example, a group of homeowners in a Maryland historic district had high goals for efficiency in their homes and they were content with the compromises that they made with their local review board. Through negotiations with the Board, owners were allowed to complete almost all of their proposed components with the exception of some features that were visible from the public right-of-way and that were not in keeping with the character of the house.

Windows

The majority of those interviewed said that windows represent the single largest challenge related to green building and preservation. Specifically, many believe that improving energy efficiency in historic buildings requires the replacement of historic windows. However, historic windows are integral to the character and fabric of historic buildings, and the Secretary's Standards and Guidelines advise that they be retained whenever possible.

Preservationists and architects cite a number of effective ways to increase the efficiency of windows while retaining their fabric and character. These include placing storm windows either on the interior or exterior of the historic window, adding a nanoceramic film on the window, or replacing the original glass with insulated glass units while maintaining the historic wood sash. In fact research suggests that rehabilitated traditional windows can perform as effectively as new, thermally resistant windows. Importantly, unlike most modern replacement windows, traditional windows can be repaired.

Another issue that arises in addition to replacing historic windows with new windows is that of owners wanting to make larger openings in the walls of the building to allow more daylight to enter into the building. Increasing daylight in a building is advocated by the USGBC because ample daylight reduces the need for energy-intensive artificial lighting, and has been shown to improve occupant well-being and performance. Typically the Secretary of the Interior's standards would not allow for new openings in exterior walls.¹³ However, the Vermont SHPO office recently reviewed and approved such a request for a project that converted a historic horse barn into office space. The owners wanted to create large window openings on the south and west exterior walls to allow natural daylight to enter the building. The SHPO compromised with the owners and allowed them to create the larger openings if they retained the other historic components of the barn, and if they made the new windows look indistinct by making the sash the same color as the existing walls.¹⁴

Sometimes windows are deteriorated beyond repair, and in those cases review boards approved efficient replacement windows with the same muntin structure. Also, if

¹³ Fran Weld, personal interview with author, October 6, 2008

¹⁴ These new windows were also allowed was because some windows had been installed in the 1970s, which had already negatively affected the original integrity of the structure¹⁴.

windows in historic buildings were not historic themselves, then there is usually not an issue with replacing them with new efficient windows.

Roof

Because there are a number of popular and well-known green treatments for roofs such vegetative roofs and highly reflective roofing materials, and because the majority of roofs of historic buildings can be seen from the public right of way, roofs are one of the areas of the building where the greatest conflicts can arise. Increased interest in generating renewable energy on-site through the use of solar panels is also an issue of concern.

Solar Panels

The addition of solar panels to a visible section of historic roof is one of the potential conflicts between green practices and the Secretary of the Interior's Standards that may be hardest to overcome. Research for this paper revealed that most projects requesting the addition of visible solar panels were denied. Solar panels on the side of roofs that do not face the street in historic districts tend to be approved by local review boards. In one case, a project in a historic district that proposed putting solar panels that sit between the standing seams in a standing seam roof that faced the street was approved because the seams of the roof made the solar panels unnoticeable. However, the Maryland SHPO denied the George Washington House, a colonial era house with an easement on it, from putting solar panels in between the seams in their standing seam roof because the blue color of the panels against the black roof was not in keeping with the Secretary's Standards.¹⁵

Green Roofs

Green roofs are yet another area of potential conflict. Pasadena City Hall, a 1927 mission-style building on the National Register, recently received a LEED Gold certification, but was unable get a LEED credit for reducing the heat island on the roof. This credit was impossible to achieve by adding an element such as a vegetative roof because this would require the replacement of the clay barrel tile and fish scale roofing materials. These changes would have damaged the historic integrity of the building, and would not be supported by the Secretary of the Interior's Standards.¹⁶

In many other instances, however, Green roofs have been successfully integrated into historic preservation projects. For example, the recently rehabilitated Cobb Building in Seattle, Washington integrates substantial vegetation on the roof to help reduce stormwater runoff and reduce the heat island effect.

Insulation

Owners may want to increase insulation on the walls or roof/ceilings of their buildings because such a large amount of heat can leave the building through these areas. The Secretary of the Interior's Standards advise that insulation must be added only to the interior of the exterior walls, and not on the exterior of the building. Sometimes adding

¹⁵ Beth Schminke, email communication with author, October 10, 2008; Elizabeth Hughes, personal interview with author, October 3, 2008.

¹⁶ Karen Balchunas, email communication with author, October 7, 2008.

insulation to the interior of these walls presents a challenge, since walls sometimes have significant features such as exposed brick or plaster that would be obscured by the addition of insulating materials.

Adding insulation to ceilings sometimes presents similar challenges. Many times owners will want to increase the R-value of their roof and ceilings through thermal insulation such as batts, or through insulated drop ceilings. However, sometimes the ceiling structure is significant to the character of the building, and therefore the Secretary's Standards would not allow the owners to add increased insulation to the ceiling.¹⁷

Sites

It is rare for conflicts to arise regarding the site of the building. One example of a project where site-related conflicts between green practices and the Secretary's Standards arose was in the Pasadena City Hall Project. Because the courtyard and the grounds surrounding the City Hall are an integral part to the National Register listed property, and part of the Pasadena Civic Center Historic District, it was important for the project to maintain the existing trees, and re-create the original landscape elements. Because of this emphasis, the project was not able to incorporate large quantities and types of native and drought-tolerant plants that would require less water.¹⁸

The Pasadena City Hall project was also unable to decrease the building's light pollution to the extent required by LEED. There are a number of significant historic lighting features on exterior of the building in the loggias, the arcade, and in the courtyard which could not be altered to decrease light pollution. In addition to these features, the building was historically lit to enhance its status as the "beacon of the city" and so the project did not want to turn off the historic fixtures and change the character of the building. The project did, however, put energy efficient light bulbs into all fixtures, and also set a timer for when the lights would be automatically turned off at night.¹⁹

Part 3: Conclusions

*The case **against** changing the Standards*

A number of those interviewed believed that the Secretary of the Interior's Standards should *not* be changed, and offered alternatives to help decrease the conflicts between green building and the Standards. A number of people, including SHPOs, believe that there needs to be **greater communication** between the preservation community, those in other fields, and property owners. Preservationists need to stress the inherent sustainable features of buildings, and educate others about the environmental benefits associated with reusing buildings.

The preservation community must also communicate that there are few conflicts between green building and historic preservation, and that the conflicts that do exist can be resolved through **creative design**. Some interviewed SHPOs pointed out that one of

¹⁷ Art DeMuro, email communication with author, October 13, 2008; Fran Weld, personal interview with author, October 6, 2008.

¹⁸ Karen Balchunas, email communication with author, October 7, 2008.

¹⁹ Karen Balchunas, email communication with author, October 7, 2008.

the best ways to communicate these ideas is through case studies because there have been so many projects that have successfully integrated green design into historic buildings.

Many of those interviewed also pointed out that **education** is of central importance. According to this line of thinking, it is essential for people and green building rating systems to understand and acknowledge the embodied energy in historic buildings, and that restoring and re-using a building is essentially recycling a building. Many believe that this needs to be better communicated, and also acknowledged more in green building rating systems such as LEED.

Education is key in yet another way as well. Since most conflicts between green building and preservation standards can be resolved through creative design, some believe that the way that architecture is taught in architecture schools should be altered to integrate these creative approaches. Instead of teaching future architects about how to create new green buildings, courses should emphasize how architects can successfully incorporate green building practices into historic buildings.

The Case for Changing Standards

Even among those who advocate for changing the Standards, most believe that the Secretary of the Interior's Standards should *not* be changed to ease conflicts with green building practices. Rather, the Standards could be changed to encourage the use of green practices while rehabilitating the building. The Standards might also be altered to provide more guidance on how to merge green building practices with historic buildings, particularly the technologies that have been created since the last time the Standards were reviewed.

The most obvious area to incorporate these changes is in the *Energy Efficiency* part of the Rehabilitation section. Some of those interviewed believe that if the Standards gave guidance on creative solutions to potential conflicts they could greatly help those working on historic buildings to better integrate green building practices into historic buildings. Yet all changes made to the Standards should be flexible and not be prescriptive in order to be in keeping with the nature of the existing standards.

Interviews:

Harvey Kaplan (office of New Mexico SHPO)
Mike Jackson (office of Illinois SHPO)
Roger Roper (office of Oregon SHPO)
Karen Balchunas (City of Pasadena, Public Works Department)
Thomas Liebl (Marks Thomas Architects)
Fran Weld (Struever Brothers. Eccles & Rouse)
Elizabeth Hughes (office of Maryland SHPO)
Joy Sears (office of Oregon SHPO)
Jonah Cohen (Thomas Hacker Architects Inc.)
Elizabeth Schminke (office of Maryland SHPO)
Arthur Demuro (Venerable Properties Inc.)
Stephen Mathison (office of Washington SHPO)
Charles Perry (Perry Rose LLC)
Takoma Park Historic District Homeowners

Resources from answers to SHPO Questionnaire:

Vermont SHPO
California SHPO
Arkansas SHPO

DRAFT