

WELCOME TO  
Grants to Green  
Auditor Training

For Audio Please Call  
1-800-791-2345  
Code # 26345

Once you have called in  
please mute your line.

We will begin promptly at  
7:30am



# Grants to Green Maine

A Training Guide for  
building auditors  
*with helpful information  
for property owners*



**GRANTS TO  
GREEN**



# *Introducing* Grants to Green Maine

Putting Maine's newest  
national pilot program into  
context...



# *Introducing* Grants to Green Maine



- Thanks to a \$1.2 million grant from The Community Foundation for Greater Atlanta, Maine nonprofits will have a chance to improve the energy efficiency of buildings in downtown areas across the state.
- The Maine Community Foundation is one of just two community foundations nationally chosen to replicate the program with support from the Kendeda Fund of The Community Foundation for Greater Atlanta.
- Grants to Green provides environmentally focused knowledge and funding to strengthen nonprofits.

# *Introducing* Grants to Green Maine



“One of the Maine Community Foundation’s strategic priorities is improving the quality of life and economic vitality of Maine’s downtown centers. This grant will help nonprofits maximize the use of important downtown buildings and reduce energy costs, allowing them to redirect scarce resources to other operations and programming.”

*Meredith Jones, president and CEO  
Maine Community Foundation*

# Lead Partners Grants to Green Maine

- The Maine Community Foundation will partner with the Maine Development Foundation/Maine Downtown Center and Efficiency Maine to replicate the Grants to Green program.
- Efficiency Maine is the key partner in this program, providing direct hands-on training for auditors and contractors involved in the Grants to Green Maine program.



# How Grants to Green Maine Works

- This is a three-year program that provides funding and technical assistance to Maine nonprofit organizations to undertake energy audits and make efficiency investments in owned or operated historic downtown buildings that serve as venues for cultural, civic, educational or residential activities.

# Grants to Green Eligibility



- 501 (c)(3)
- own building or long-term lease (5 yrs +)
- located in downtown :(a community's traditional center that features a dense mix of commercial, cultural, educational, and recreational opportunities within walking distance to surrounding residential neighborhoods.)
- historic building (National Register preference, but not required)
- operating budget of \$100,000 or more one full-time staff person or FTE

An eligibility form can be found at:  
[www.grantstogreenmaine.org](http://www.grantstogreenmaine.org)

# Grants to Green Assessments



Grants to Green Maine will accept **assessment applications** on a rolling basis beginning on June 15, 2014. Online applications are currently available.

**Assessment applications are for funding ASHRAE Level II energy audits in preparation for larger energy projects.**

The building professionals will provide organizations with a holistic approach to building efficiency that prioritizes rehabilitation decisions and establishes short, middle and long-term phasing for goals, access to incentive applications and assessment of pay back.

# Grants to Green Implementation

REUSE BUILDINGS.  
REUSE ENERGY.



The greenest building is the one that's already built.

**Implementation awards** will range from \$10,000 to \$100,000 with a 1:1 match either cash, in-kind or government or industry incentives identified by Efficiency Maine.

**To be eligible, the applicant must have completed an ASHRAE Level II audit and used the results to develop a board approved energy efficiency plan for their historic building.**

# Grants to Green Implementation



Grants to Green Maine will accept Implementation award applications no later than September 15, 2014.

Applicants should complete the on-line application and submit all supporting materials at the same time.

Online applications are currently available.

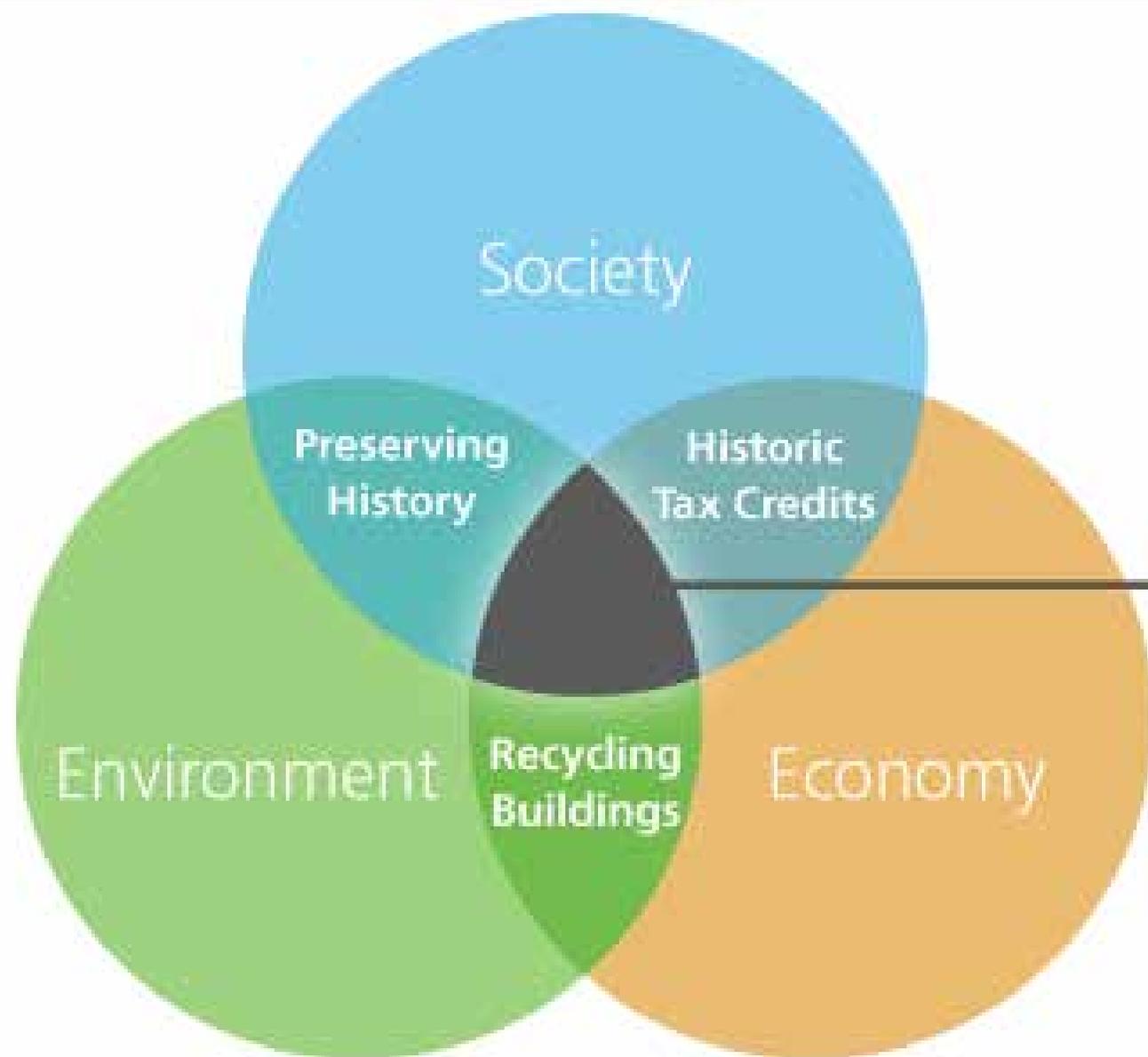
# Let's Get Started!

*Estimated time with suggested reading options: 90 minutes.*

- **This Auditor training webinar** is designed as a resource to assist building professionals gain new understanding and appreciation for the special challenges often inherent in historic building energy efficiency projects.
- The Grants to Green Maine Advisory Committee members and staff encourage your questions and feedback! We're all in this together with the end goal of saving energy while protecting and enhancing Maine's character-defining downtowns and village centers and strengthening nonprofit organizations statewide.

# Objectives of the Grants to Green Auditor Training program

- Overview of Grants to Green grant program and eligibility requirements.
- Make recommendations that are in keeping with basic historic preservation standards.
- Auditors will receive a Certificate of Training Completion following this webinar



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**Sustainability**  
is the nexus of society,  
the environment and  
the economy.

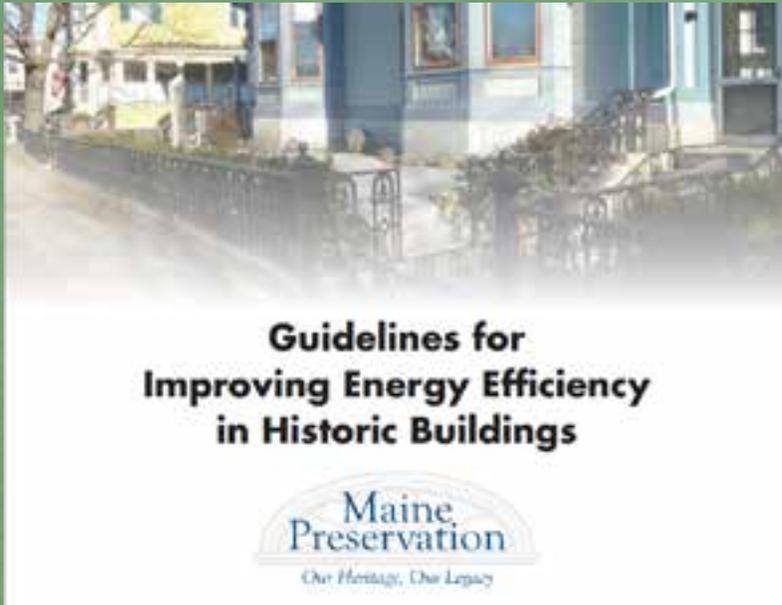


**Guidelines for  
Improving Energy Efficiency  
in Historic Buildings**



*Report  
Highlights:*  
Top 8 Historic  
Preservation  
Guidelines

[www.maine Preservation.org](http://www.maine Preservation.org)  
to download a copy



Historic buildings have great potential to achieve substantial energy efficiency improvements that save money while preserving historic character. A common sense, simple and holistic approach to energy efficiency works well with historic buildings as well as with other existing buildings. When considering improvements to historic buildings, it is vital to use careful planning and a flexible approach to solving energy, building code, and rehabilitation issues.

This research and publication have been paid for by a grant from the US Department of Energy administered by the Maine State Planning Office.

**Authors**

Anne Ball, Anne G. Ball Consulting  
Greg Paxton, Maine Preservation

1. Identify and Evaluate Historic Features
2. Evaluate Building Performance
3. Retain features
4. Determine savings
5. Develop long-range plan
6. Material durability
7. Reversibility and Monitoring
8. Moisture control



## Top 8 Historic Preservation Guidelines for Energy Efficiency

1. Begin by identifying and evaluating the historic features of the building.





# 1. Begin by identifying and evaluating the historic features of the building.

- § Conduct a thorough survey of all existing materials to avoid needless or wholesale replacement.
- § Selective repair of character-defining features saves labor, materials, expense, and historic integrity, while preserving property valuation.

Every old building is unique, with its own identity and its own distinctive character.

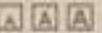
Character refers to all those visual aspects and physical features that comprise the appearance of every historic building.

Character-defining elements include the overall shape of the building, its materials, craftsmanship, decorative details, interior spaces and features, as well as the various aspects of its site and environment.

1. Begin by identifying and evaluating the historic features of the building.



Home » How to Preserve » Preservation Briefs » 17 Architectural Character



## Preservation Briefs

See Preservation Briefs 1-47

Some of the web versions of the Preservation Briefs differ somewhat from the printed versions. Many illustrations are new and in color; captions are simplified and some complex charts are omitted. To order hard copies of the Briefs, see [Printed Publications](#).

### PRESERVATION BRIEFS

## 17

### Architectural Character—Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving their Character

Lee H. Nelson, FAIA

Three-Step Process to Identify the Visual Character

Step 1: Overall Visual Aspects

Step 2: Visual Character at Close Range

Step 3: Interior Spaces, Features and Finishes



Close-up of stone wall, showing craftsmanship. Photo: NPS files.

[NPS Technical Preservation Services Brief #17](#)  
provides excellent guidance

## 2. Conduct a building performance evaluation.



Photo Credit Zack Bowen for Horizon Maine

An energy audit needs to provide an energy improvement plan that establishes priorities and alternatives. Grants to Green requires an ASHRAE Level II Audit.

The best solutions save the most energy using the least destructive, invasive, and costly means.



3. Seek to retain historic features that were designed to save energy and increase comfort. Consider restoring original systems and use patterns rather than introducing new ones.

*Commercial districts across Maine including downtown Bath utilized awnings effectively year round.*

# Retaining historic features...

- ü Before modifying historic systems, be sure to fully understand how they operate. This will allow for better integration of new and old, leading to greater energy savings.
- ü Consider the orientation of the structure with respect to passive solar heat gain and lighting. Optimize these factors by retaining and utilizing design elements that contribute to them.
- ü Consider how the original ventilation system worked, prior to installation of a heating system.
- ü Consider not just individual systems, but also the interconnectivity of the building's systems.

Retaining historic features...



The Emerson School in Portland was built in 1899.

*Example:*

This former school has thick masonry walls that store thermal energy and each classroom has a wall of large windows to provide natural light and ventilation.

The dormers and cupola provide ventilation. The circlehead window above the entry and the skylight provide natural lighting.



# 4. Determine Savings



## **Where possible, avoid replacement windows.**

Replacement windows are expensive, can seldom be repaired or rebuilt, are not recyclable and have a limited life span. Once original windows are replaced (and usually discarded) this decision is not reversible.

Replacement windows have a long payback period (up to 250 years) that typically exceeds their relatively short service lifetime (15-30 years).

Installation of stock replacement windows often requires costly alteration of the rough opening, meaning either enlargement or reduction in the size of the window frame.

Independent research in upstate New York, Vermont and Boston, Massachusetts has found that new windows do not save enough energy in their lifetime to warrant replacement.

## 5. Develop a prioritized plan



Develop a long-term energy efficiency plan that prioritizes rehabilitation decisions and establishes short-, middle- and long-term phasing for desired goals.

6. Employ durable and repairable materials with a lifetime of 30 years or more.



### **Old Growth Wood**

In the photo above, the top board is in the ballpark of 300 years old with up to 30 growth rings per inch. The second board is 175 years old with 10 growth rings per inch. The bottom board is current lumber sold at a major home improvement supplier with 6 growth rings per inch. (The older wood was salvaged from demolished buildings.) Consider return on investment over the lifecycle of materials and the value that durable materials add to a building.

Photo credit: Robert Neal Clayton Attribution: [HistoricHomeWorks.com](http://HistoricHomeWorks.com)

6. Employ durable and repairable materials with a lifetime of 30 years or more.

Example: Historic Alna Meeting House  
Alna, Maine



When new materials are introduced, determine their compatibility with retained historic materials, and the projected life expectancy of these assemblies. Use long lasting materials that are repairable and that perform effectively with historic materials while allowing measurement of energy-efficiency. Consider the embodied energy of historic materials. Retain and repair historic materials instead of demolishing and replacing with new materials

Changes in technology can introduce new materials that are not fully tested, particularly for their application in older buildings.

New materials may require unexpected replacement or unintended consequences may arise from their use. As such, strive to make changes that can, if necessary, be easily reversed and restored to the previous condition or prior function.



Urea Formaldehyde Foam Insulation

7. Make changes that are reversible and can be monitored and inspected. Be wary of unproven materials on the market.

*Only implement changes that will allow continued future inspection and monitoring.*

8. Control for moisture, particularly in walls and basements, and for unhealthy air quality.



Identifying mold or mildew inside wall cavity from cultivated warm, damp environment and water stains from condensed water vapor in wall cavity

Photo Credit D'Arcy Norman

## 8. Control for moisture, particularly in walls and basements, and for unhealthy air quality.

- Monitor and manage roof runoff from precipitation.
- Monitor and manage interior moisture generation and ventilation.
- Before adding or changing insulation or installing air conditioning in any part of a building, evaluate the dew points in the walls and ceilings as well as vapor ventilation characteristics of the structure and the insulation. Failure to do so could result in condensation within walls or in the building—contributing to eventual structural deterioration.
- It is possible to insulate an older building safely (with air quality in mind) provided the weatherization plan also contains provisions to control moisture.

*Example:*

Mildew on the exterior of this early 19th century house appears to be the result of insulation installed in the wall cavities without an adequate internal vapor barrier, as the structural framing (corner braces, studs) is not discolored.



Photo provided by Historic New England

# Grants to Green Maine

*Advisory Committee*



## Advisory Committee Members

Anne Ball, Maine Development Foundation

Steve A. Cole, CEI

Elizabeth L. Crabtree, Efficiency Maine

Lelia DeAndrade, Maine Community  
Foundation

Roxanne Eflin, Preservation Planning  
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Lorain K. Francis, Maine Downtown Center

Kirk Mohny, Maine Historic Preservation  
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245 Main Street  
Ellsworth, ME 04605  
877-700-6800 ext 1117

# Additional Resources and Training Tools



## The Greenest Building: Quantifying the Environmental Value of Building Reuse

A REPORT BY:

**Preservation  
Green Lab**  
NATIONAL TRUST FOR  
HISTORIC PRESERVATION

WITH SUPPORT FROM:

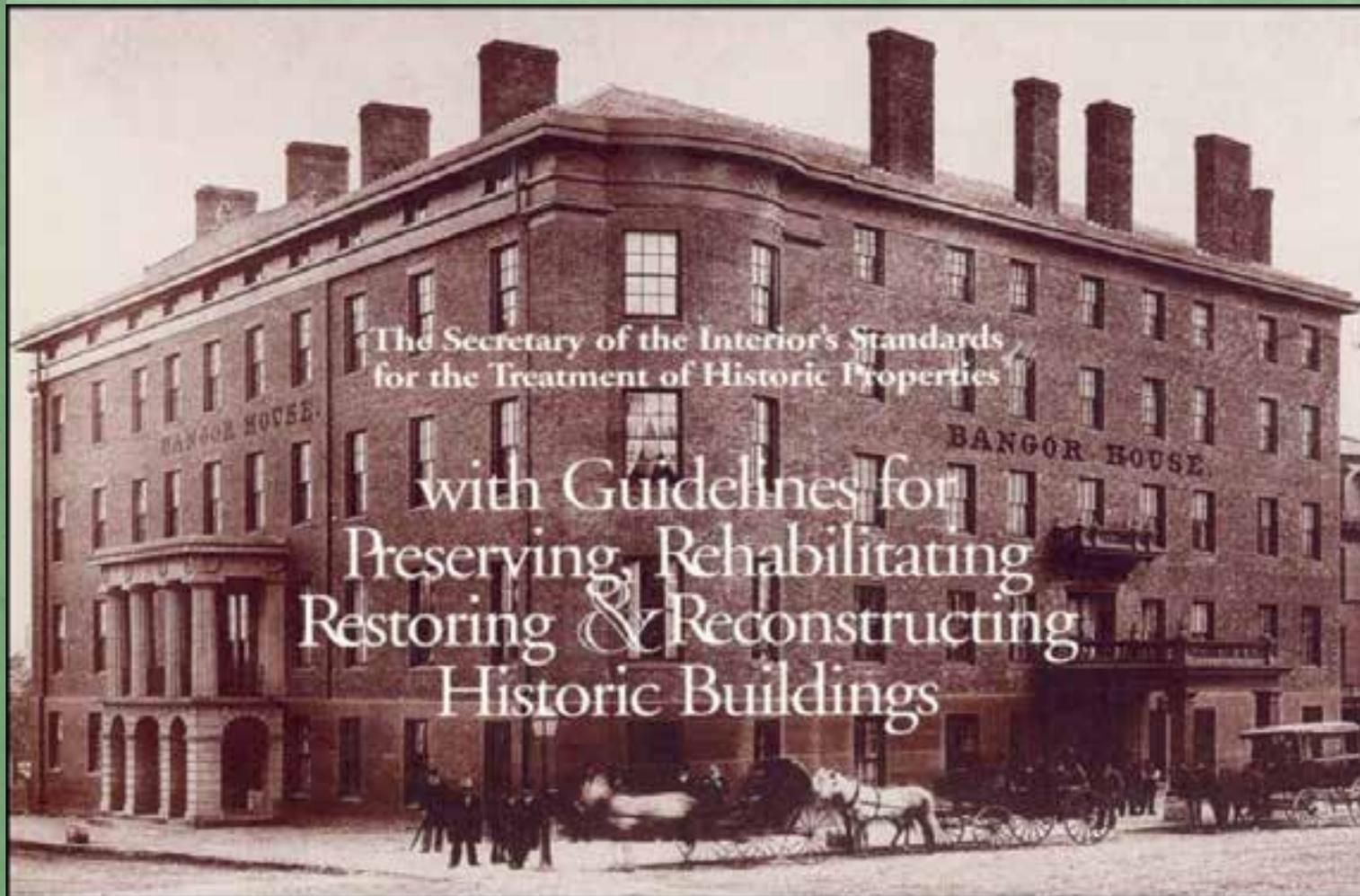


OR ENGINEERED WITH:



# The Secretary of the Interior's Standards for the Treatment of Historic Properties

Publication and online illustration  
guide of the National Park Service –  
accepted as the national standard



<http://www.nps.gov/history/hps/tps/standguide/>

# The Secretary of the Interior's Standards for the Treatment of Historic Properties

Publication and online illustration guide of the National Park Service – accepted as the national standard



The screenshot shows a webpage from the National Park Service. At the top right, the logo and text 'NATIONAL PARK SERVICE' are visible. Below the header, there are two main navigation tabs: 'Introduction to Standards and Guidelines' and 'Historical Overview'. The 'Introduction to Standards and Guidelines' tab is active, showing a sub-section titled 'SPECIAL REQUIREMENTS' with the heading 'energy efficiency'. To the right of this heading is a small image of a building's interior with a window. Below the heading, there are two paragraphs of text. The first paragraph states that work to meet accessibility, health, and safety requirements or retrofitting for energy efficiency is usually not part of the overall process of protecting historic buildings. The second paragraph explains that some features of a historic building, such as cupolas, shutters, transoms, skylights, sun rooms, porches, and plantings, can play an energy-conserving role, and that retrofitting should be done with care to retain the building's historic character. On the right side of the page, under the 'Historical Overview' tab, there is a list of sub-sections: '-INTRODUCTION-', 'Choosing Treatment', 'Using the Standards + Guidelines', '-Historical Overview-', 'Exterior Materials' (with sub-links for Masonry, Wood, and Architectural Metals), 'Exterior Features' (with sub-links for Roofs, Windows, Entrances + Porches, and Storefronts), 'Interior Features' (with sub-links for Structural System, Spaces/Features/Finishes, and Mechanical Systems), 'Site', 'Setting', and 'Special Requirements' (with sub-links for Energy Efficiency, Accessibility, Health + Safety, and New Additions).

NATIONAL PARK SERVICE

Introduction to Standards and Guidelines

Historical Overview

SPECIAL REQUIREMENTS

## energy efficiency

*Work that must be done to meet accessibility requirements, health and safety requirements or retrofitting to improve energy efficiency is usually not part of the overall process of protecting historic buildings; rather, this work is assessed for its potential impact on the historic building.*

Some features of a historic building or site such as cupolas, shutters, transoms, skylights, sun rooms, porches, and plantings can play an energy-conserving role. Therefore, prior to retrofitting historic buildings to make them more energy efficient, the first step should always be to identify and evaluate existing historic features to assess their inherent energy conserving potential. If it is determined that retrofitting measures are appropriate, then such work needs to be carried out with particular care to ensure that the building's historic character is retained.

**-INTRODUCTION-**

[Choosing Treatment](#)

[Using the Standards + Guidelines](#)

**-Historical Overview-**

**Exterior Materials**

[Masonry](#)

[Wood](#)

[Architectural Metals](#)

**Exterior Features**

[Roofs](#)

[Windows](#)

[Entrances + Porches](#)

[Storefronts](#)

**Interior Features**

[Structural System](#)

[Spaces/Features/Finishes](#)

[Mechanical Systems](#)

[Site](#)

[Setting](#)

**Special Requirements**

[Energy Efficiency](#)

[Accessibility](#)

[Health + Safety](#)

[New Additions](#)



THE SECRETARY OF THE  
INTERIOR'S STANDARDS FOR  
REHABILITATION &

## ILLUSTRATED GUIDELINES ON **SUSTAINABILITY** FOR REHABILITATING HISTORIC BUILDINGS

Guidelines Home

Introduction >

**Sustainability**

Planning

Maintenance

Windows

Weatherization

Insulation

HVAC

Solar Technology

Wind Power

Roofs

Anne E. Grimmer  
with Jo Ellen Housley | Liz Petrella |  
Austrey T. Tepper  
National Park Service  
Technical Preservation Services  
2013

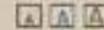
Download the print version

# Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings

Publication of the  
National Park Service



- Published in 2011, the Guidelines on Sustainability are the first set of official guidelines on how to make changes to improve energy efficiency and preserve the character of historic buildings. The Guidelines are an important addition to current discussions about sustainability and achieving greater energy efficiency, which have focused primarily on new buildings to date.
- The Guidelines on Sustainability stress the inherent sustainability of historic buildings and offer specific guidance on recommended rehabilitation treatments and not recommended treatments, which could negatively impact a building's historic character. Illustrations of both types of treatments are included. The Guidelines are designed to assist building owners in planning rehabilitation projects that will meet the Secretary of the Interior Standards for Rehabilitation.



## Preservation Briefs

See Preservation Briefs 1-47

Some of the web versions of the Preservation Briefs differ somewhat from the printed versions. Many illustrations are new and in color. Captions are simplified and some complex charts are omitted. To order hard copies of the Briefs, see [Printed Publications](#).

### PRESERVATION BRIEFS

## 3

# Improving Energy Efficiency in Historic Buildings

By Ellen Hensley and Antonio Aguilar

Inherent Energy Efficient Features of Historic Buildings

Energy Audit

Actions to Improve Energy Efficiency

What about moisture?



Today with energy resources being depleted and the concern over the effect of greenhouse gases on climate change, owners of historic buildings are seeking ways to make their buildings more energy efficient. These concerns are key components of sustainability—a term that generally refers to the ability to maintain the environmental, social, and economic needs for human existence. The topic of sustainable or “green” building practices is too broad to cover in this brief. Rather, this preservation brief is intended to help property owners, preservation professionals, and stewards of historic buildings make informed decisions when considering energy efficiency improvements to historic buildings.

# Preservation Green Lab

[www.preservationnation.org/greenlab](http://www.preservationnation.org/greenlab)

A program of the



**National Trust for  
Historic Preservation**  
*Save the past. Enrich the future.*

A department of the National Trust for Historic Preservation, the Preservation Green Lab strengthens the fabric of communities by leveraging the value of existing buildings to reduce resource waste, create jobs, and bolster a strong sense of community. The Preservation

Green Lab integrates sustainability with historic preservation by developing research, demonstration projects, and policies that decrease demolition and promote building reuse. Guided by a belief that historic preservation is essential to sustainable development, the Preservation

Green Lab works with partners to create new pathways to shared prosperity and to bring people together around a common vision for their neighborhoods, towns, and cities

# For more information...

- **Maine Preservation's guide:**

[Guidelines for Improving Energy Efficiency in Historic Buildings](#)

- **New England specific energy report:**

[Energy efficiency, renewable energy and historic preservation: A Guide for Historic District Commissions](#)

# For more information...

- **The Environmental Value of Building Reuse**

<http://www.preservationnation.org/information-center/sustainable-communities/green-lab/valuing-building-reuse.html#.U3J4FxBdVv8>

- **More sustainability reports and research results published by the National Park Service**

<http://www.nps.gov/tps/sustainability/research.htm>

# Additional resources

## Maine Historic Preservation Commission

55 Capitol Street (65 State House Station – mailing)

Augusta, ME 04333

(207) 287-2132

## Maine Preservation

233 W. Main St.,

Yarmouth, ME 04096

(207) 847-3577

[www.maine Preservation.org](http://www.maine Preservation.org)

# Additional resources

## Coastal Enterprises, Inc.

36 Water Street  
Wiscasset, ME 04578  
(207) 882-7552

## Maine Department of Economic and Community Development

Office of Community Development  
Burton Cross Building, 3<sup>rd</sup> Floor  
111 Sewall St  
Augusta, ME 04330  
(Mailing: 59 State House Station, Augusta, ME 04333)  
(207) 624-9800

# Congratulations and Thank you!



MAINE  
DEVELOPMENT  
FOUNDATION

Empowering Maine people  
to power Maine's economy



- Your completion of this Grants to Green Maine training program will be recognized in two ways:
  - 1) You will be listed as a qualified auditor for this grant program
  - 2) You will receive a Certificate of Training, ready-for-printing and framing, via return email.

In order to do this you must have attended one of our live webinars or viewed the training on [www.grantstogreenmaine.org](http://www.grantstogreenmaine.org) and completed the survey on the web site.

This Grants to Green Maine training presentation was created by Roxanne Eflin, owner, [Preservation Planning Associates](#) for use by the Maine Community Foundation and its program collaborators

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GRANTS TO  
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