

Preserving Forest Grove

Newsletter of the Historic Landmarks Board

Sustainability in Historic Homes

A perspective by George Cushing, Historic Landmarks Board

Communities across the country - including Forest Grove - are adopting sustainable principles as an overarching ethic, and preservationists are making the case that preserving and maintaining historic buildings are essential parts of a sustainable community approach. In the past decade, the National Trust, the National Park Service, the Secretary of the Interior, as well as many local and state governments have focused their attention on the connection between historic preservation and sustainability. Historic preservation guidelines have always emphasized reuse, recycling, repairing, and replacement with in-kind building materials and construction practices, all of which stand for some of the most basic principles of sustainable design.

Sustainable principles include conserving energy and increasing energy efficiency, using recyclable material, minimizing the use of non-renewable resources while keeping what is already there. Most design guidelines are inherently “green” through their overall emphasis on preserving original material, repairing rather than replacing historic elements, and if replacement becomes necessary, using materials to match the original building. While sustainability is inferred within these principles, the explicit connection is a recent development.

While nineteenth century and early twentieth century houses are often considered difficult to heat and cool, the fact remains that older houses can be energy efficient. Many historic homes offer high ceilings, transom windows over doors,

and operable double-hung windows that promote air circulation. Many offer broad eaves and large porches that provide shade protection from sun. Older houses can be also made more heat energy efficient by adding attic and floor insulation, sealing cracks around openings, and insulating ductwork. Smaller and two-story homes are generally most efficient to heat. Most houses lose energy primarily through their ceiling and floors, which are generally easy to insulate in older homes. Next to floors and ceilings, the next major source of heat loss comes through fireplaces, plumbing and electrical penetrations, and ductwork. Sealing and insulating these openings are generally easy and inexpensive and do not negatively affect the historic dwelling’s architectural character. Studies show that only 10 to 15 percent of energy loss happens through windows, and that by adding exterior storm windows or using the relatively new indoor storm windows, tremendous energy savings can be achieved.

True sustainability transcends energy conservation and includes three elements - Environmental, Economic, and Cultural. With proper consideration and respect for all three of these elements, historic preservation balances both environmental and economic responsibility.

Secretary of Interior Standards

The Secretary of the Interior provides standards (search the Web for “secretary of interior standards”) for preservation, rehabilitation, restoration and reconstruction that guide work undertaken on historic properties. These standards

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have been embraced by historic preservationists at all levels, from the national level all the way down to individual cities and historical societies.

Before even considering work on historical properties, any existing energy-efficient characteristics of the building should be carefully assessed. Buildings are more than the sum of their individual components. The design, materials, type of construction, size, shape, site orientation, surrounding landscape, and climate all play important roles in how buildings perform. Historic building construction methods and materials often maximized natural sources of heating, lighting, and ventilation to best respond to local climate conditions and availability of materials. The key to any successful rehabilitation project is to identify and understand both existing energy-efficient features of the historic building, as well as any energy-efficient features that have been lost over time.

Many times, the most sustainable building may be one that already exists. Numerous studies suggest that even sustainability constructed new structures do not recoup the cost of energy outlays for approximately 30 years when measured against a renovated existing building. Re-using older buildings results in immediate and lasting environmental benefits as well as keeping discarded building materials out of landfills.

Sustainability recommendations offered by the Secretary of the Interior include but are not limited to the following points:

- One of the first and most important recommendations is to carefully analyze the condition of inherently sustainable features of the historic building and then include them in energy audits. Such features include shutters, storm windows, awnings, porches, vents, skylights and light wells, transoms, and naturally-lit corridors. There are professional firms that can perform energy audits as well as homeowner procedures to locate and assess energy-saving needs.
- Cost-effective savings frequently result from regularly maintaining historic buildings to preserve their historic fabric

and maximize their operational efficiency. Often repairs -- even major repairs -- can be extremely cost-effective, while preserving the history of the home in ways that could never be duplicated with new materials.

- Retaining and properly maintaining functional and efficient HVAC (heating and cooling) systems can also provide significant savings to historic building owners. The use of less energy-intensive products such as programmable thermostats, attic and ceiling fans, louvers and vents, along with appropriate insulation, can lead to tremendous savings. If new systems are required, careful consideration of their installation and ductwork needs can still enable retention of a home's historic features.

Landscaping can also play a big part in the energy efficiency of historic homes. Consider retaining historic landscape features, especially the current size and location of trees and shrubs, for their natural cooling and heating effects. Storm water runoff must be considered with gutters and downspouts, in addition to site topography and vegetation to ensure optimal preservation of historic homes.

Experts recommend that on-site solar technology should only be considered after implementing all other appropriate measures to improve a building's energy efficiency, as other measures often have a greater life-cycle cost benefit than on-site renewable energy. If use of solar energy is desired, building owners should carefully consider ways to avoid compromising the historic character of the building, site, and surrounding historic district.

Historic building owners should consider that, by retaining and repairing durable, character-defining, historic roofing material, their roof will remain water tight, and will allow drains, gutters, and downspouts to function properly.

All of the above and many more items should always be considered with any work on historic buildings to ensure both sustainability as well as preserving the historic aspects of the home.

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Sustainability and Wood Windows

Retaining original components is an important part of preserving historic buildings. Historic wood windows were milled from old-growth lumber that can last centuries when properly maintained. They were usually constructed with quality mortise and tenon joinery, tightly fit the window openings, and are sustainable because they are easily repairable. Alternatively, modern replacement windows, even if constructed with wood, often have plastic and metal parts that become obsolete over time making them difficult to repair.

With proper repair and maintenance, plus

weather stripping and a quality storm window, the energy efficiency of a single glazed historic wood window with its extra dead air space will compare well to a double-glazed replacement window.

Replacing wood windows adds unnecessary waste to landfills and avoids the creation of a number of toxic by-products from vinyl alternatives. While it is claimed that replacement windows are greener in terms of energy efficiency, sustainability and environmental impact, careful analysis shows that restoration of existing wood windows can be both environmentally and economically responsible.

New Guidebook for Window Repair and Weatherization in Historic Homes

The Architectural Heritage Center has just completed a 20 page guidebook on window repair and weatherization for owners of vintage Pacific Northwest homes. This concise booklet identifies repair and maintenance solutions that maintain historic integrity while improving your home's energy efficiency. Included in the booklet is a bibliography and contact information for Portland area contractors who work on wood windows and those that offer other weatherization solutions, such as storm windows.

The guidebook can be downloaded for free at:

http://www.visitahc.org/files/pdf/AHC_WindowRepairGUIDEBOOK.pdf

Window Repair and Weatherization Guidebook



Image Courtesy of Potty Spencer

A Handy Guide for Owners of Portland, Oregon Homes

Bosco-Milligan Foundation/Architectural Heritage Center
With support from the Irvington Community Association
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PRESERVATION FAIR - APRIL 2013

The Historic Landmarks Board is planning to hold its annual Preservation Fair in April, with the date to be firmed up in January. The Fair is an opportunity for historic property owners to interact with a wide variety of preservation professional and organizations.

EXHIBITORS WANTED - if you are interested in this low-cost opportunity to interact with the public, and want more details, please contact George Cushing at greenacres2@frontier.com, or call him at 503-357-2767.

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Preserving Forest Grove is a quarterly newsletter published by the Forest Grove Historic Landmarks Board to help fulfill its duty of public education regarding the preservation of cultural resources. If you would like to be on the mailing list, please call James Reitz at 503-992-3233, or jreitz@forestgrove-or.gov.

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In this Issue:

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Window Repair and Weatherization Guidebook

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The activity that is the subject of this publication has been financed in part with federal funds from the National Park Service, U.S. Department of the Interior, as provided through the Oregon State Historic Preservation Office. However, the contents and opinions expressed herein do not necessarily reflect the views or policies of the Department of the Interior, nor does the mention of any trade names or commercial products constitute endorsement or recommendation by the U.S. Department of the Interior.