



Historic Hawai'i Foundation

Preservation Brief No. 5

ENERGY EFFICIENCY IN HISTORIC BUILDINGS

Preservation and Sustainability

"The Greenest Building is the One Already Built"

The construction, operation, and demolition of buildings account for 48% the United States' greenhouse gas emissions. Meaning that demolishing and constructing new buildings is not sustainable, but re-using and retrofitting existing buildings can lower those emissions dramatically. In fact, our existing buildings are one of our greatest renewable resources (see www.preservationnation.org for a sustainability calculator). "Reduce, Reuse, Recycle" applies not only to the materials and objects we use every day, but to the materials that make up our built environment.

Enhancing the energy-efficiency and sustainability of a historic building is as important as incorporating energy-efficient features into new structures. Yet, it is also important to consider the historic integrity of the structure prior to making alterations. Following the Secretary of Interior (SOI) Standards for Rehabilitation when making energy-efficient modifications ensures that the structure will retain its character defining features while gaining additional energy efficient capabilities.

In Hawai'i, the main concern for most historic buildings is how to keep them cool. Some homeowners consider replacing historic double-hung wooden windows with vinyl because they suspect that the new windows would be more energy efficient. However, vinyl is not generally considered to be a green building material. This is primarily because polyvinyl chloride (PVC) is a petroleum product that is not easily recycled into other products. PVC tends to persist in landfills rather than degrading naturally like wood products. Research has also shown that vinyl can produce toxic gasses when burned. Studies have shown that single-glazed, double-hung windows that are otherwise in good condition can be upgraded to meet and even exceed the energy performance of modern replacement windows. Additionally, the life of vinyl windows is considerably shorter than that of wood windows; wood windows last longer and can be just as or more energy efficient.

Solar panels are also a good way to increase the energy-efficiency of your home with a minimal and reversible impact to its historic character. Solar panels should be installed following the SOI standards on a side of the house that is not visible from the street, thereby causing the least amount of visual impact to the historic home. See HHF Preservation Brief: Installing Solar Panels on Historic Buildings.

Conflicts between preservation and green building techniques, most of them can be resolved using creative design strategies. Developing a plan for how to make your home more energy-efficient will make it easier to develop ways to deal with these issues and preserve the historic character of your home.

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Historic Hawai'i Foundation was established in 1974 to encourage the preservation of historic buildings, sites and communities on all the islands of Hawai'i. As the statewide leader for historic preservation, HHF works to preserve Hawai'i's unique architectural and cultural heritage and believes that historic preservation is an important element in the present and future quality of life, environmental sustainability and economic viability of the state.

For further resources regarding preservation visit the National Parks Services website at:
<http://www.nps.gov/history/publications.htm>

Check out Historic Hawai'i Foundation's Resource Center for more information!
<http://historichawaii.org/resource-center-2/>

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