

Weatherizing Historic Houses in the Green Impact Zone:

A Guide to Significant Historical Features



With every passing year it is increasingly important that energy efficiency become a priority in households across America. With rising energy costs, limited resources and the damage done to our environment, it is important that we all take an active role in conserving energy. With historic houses, the architectural character that defines the old house should also be conserved. The following is a guide to the historic features of common Green Impact Zone houses to assist both the homeowner and contractor when undertaking weatherization projects.

Preparer:



Partners:

CITY OF FOUNTAINS
HEART OF THE NATION



KANSAS CITY
MISSOURI



Sponsor:



Common House Styles



BUNGALOW

Usually 1 story, rectangular in plan, porch with substantial columns, low pitched roof, eave overhangs with exposed rafters

SHIRTWAIST

2 story house, porch, front gable, exposed brick or stone on the first story. Houses of this type that do not have brick or masonry on the first story are simply known as Four Square



COTTAGE

Modest in size, high pitched roof, asymmetrical facade, irregular floor plan. Can be in various styles such as Tudor or English

PRAIRIE

Low pitched roof, overhanging eaves, often large square porch supports. Emphasis on horizontality



FOLK VICTORIAN

Modest, folk house with Victorian details. Porches and side and front gables are common. High pitched roof, no overhanging eaves

NOTE: All photographed houses are found in the Green Impact Zone

Resources

The **National Trust for Historic Preservation's** weatherization site is a comprehensive resource on greening older and historic homes, offering information on improvements to building envelope and mechanical systems. They also offer an a guide to federal and state incentives and identify old building-friendly contractors in the area. <http://www.preservationnation.org/issues/weatherization/>

Kansas City's **Metropolitan Energy Center** provides technical assistance, holds training programs, and offers grants and rebates. For more information: <http://www.kcenergy.org/>

The **Green Impact Zone** website offers a comprehensive look at their programs, efforts and progress. For more information: <http://www.greenimpactzone.org/>

For a technical resource, see the **National Park Service's Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings.** <http://www.nps.gov/history/hps/tps/download/guidelines-sustainability.pdf>

Working Families' Friend is providing a free weatherization assistance program to the Kansas City community. To see if you qualify, please contact Connie Mann at 816-842-5600 ext. 304 or email connie@wffriend.org. Website: www.wffriend.org



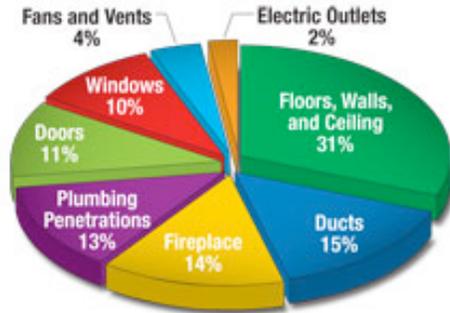
234 W. 10th Street
Kansas City, MO 64105
816-931-8448

www.historickansascity.org

The Issue:

How Does Air Escape?

Air infiltrates into and out of your home through every hole and crack. About 1/3 of this air infiltrates through openings in ceilings, walls, and floors.



Source: US Department of Energy

Porches: Open porches are a defining feature of most GIZ houses

Original Windows: Repair when possible and add storm windows if necessary



Architectural Details: Retain whenever possible

Construction Materials: Repair and replace with the same. Avoid new, pre-fabricated cladding

Historical Features: Taking Advantage of What's There

It's no surprise that residential energy use before 1940 was considerably different than it is today. Coal and wood were the predominant fuels, and central heating and cooling systems were not available. However, many features of old houses were designed to *take advantage* of passive heating and cooling. Thus, we can use these systems and designs to reduce our energy consumption.

Porches: A sheltered buffer to shield the house from harsher elements, whether it be snow and ice or heat. Don't enclose them to enjoy a livable, breezy area!

Operable Windows: Open windows to create a cooling air flow, and transoms provide even additional ventilation

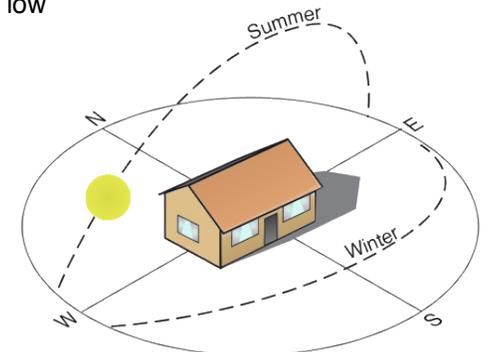
Vestibules: Keeping one door closed while entering and exiting prevents heating and cooling loss

Overhanging Eaves: Provide shade and prevent passive solar gain through windows and walls

Shutters: Open or close to regulate amount of solar heat gain

Brick Walls: Have a great thermal mass to reduce energy needed for heating and cooling

Building Orientation: Most houses in the area have a ridge line oriented east-west, which allows the house to minimize passive solar gain in the summer while the sun is high, and maximize it in the winter when the sun is low



Graphic: EcoWho.com

Historical Features: Keeping What Matters

When undertaking a weatherization project in a historic house, it is important that the owner, contractor, and any subcontractors are aware and mindful of the historic features of the house. Such significant features include the massing, height, roofline, construction materials, finishes, textures, color, porches, windows and architectural details. Separately, these features might not seem like much, but together they are what gives an old house its integrity, and what gives entire neighborhoods their character.

Fortunately, there are many weatherization strategies and soft technologies that will dramatically increase the energy efficiency of your home without compromising historic integrity. Some of these soft technologies are:

- weather stripping
- caulk as a space filling insulator
- window shades or draperies
- fans

The diagram and picture on the following page identifies some of those features to be mindful of when undertaking a more intensive weatherization project.

S P O T L I G H T O N W I N D O W S

One of the most common weatherization practices is to replace old windows. There is even a thriving industry built upon the notion that it is more "green" to replace rather than repair old windows. However, a growing number of studies show that a historic wood window that is properly maintained, weather stripped, and has a storm window can be just as energy efficient as a new window.

One can also look at the dollars and cents of the issue... After spending about \$12,000 dollars on properly installed, high-quality replacement windows (for 24 - 30 windows), a typical household might save \$50 a month on heating and cooling bills. However, if a house is actively heated or cooled for an average of six months a year, the savings is only \$300 a year. At this rate, it would take **40 years to begin to recoup** in energy savings the amount spent on the new windows.

In reality, window replacements have one of the lowest Return On Investment (ROI) ratios of any energy upgrade!

For more information on historic windows and window repair, visit:
<http://www.preservationnation.org/issues/weatherization/windows/>