

The Windows Have It

Architectural Elements

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Editor's Note: This is the first of a series of Elements articles about windows, to be continued through the year.

Going Green

If you've spent much time around historic architecture enthusiasts, you may have noticed that we are obsessed with old windows. Like eyes, windows serve as a portal between outside and within, offering a glimpse into the soul of a building. Windows can tell us a building's construction date, architectural style, and function. This article is the first in a series about historic windows and will focus on myths surrounding window replacement. Future articles will discuss window components, types, and how a building's windows inform its architectural style.

Historic windows lend beauty and character to a building and are evidence of the incredible craftsmanship that once went into the building trades. Even the modest, working-class homes built during the Great Depression boasted well-crafted windows with intricate details. To create a comparable window on such a large scale would be prohibitively expensive for builders today.

Most historic windows have frames constructed of old-growth wood that is more durable and longer-lasting than new wood, as evidenced by the fact that many of these windows have been in service for more than a century. These days, it is essentially impossible to fabricate new building components—including windows—using old growth wood, making historic wood windows a non-renewable resource. Metal windows, especially those built with steel, are similarly precious and nearly impossible to replicate using modern materials and methods.

Once a regular schedule of inspecting and maintaining windows is established, upkeep is a cinch. Common



This Craftsman style cottage retains its original wood windows with divided upper lights, often referred to as "Craftsman windows."

maintenance issues might include deteriorated weatherstripping or glazing putty, which are easily addressed by removing the damaged weatherstripping or putty and re-applying a fresh layer. Another issue might include the painting-over of functional components such as sashes and levers, rendering a window inoperable. This is also an easy fix that involves carefully removing the obstructing layer of paint and repainting with care to prevent this issue in the future.

Historic windows are easy to repair. Because they are comprised of separate components—individual lights of glass, independent mechanical pieces, and separate sections of wood or metal—it is simple and inexpensive to simply replace that component if it breaks, as opposed to replacing the entire window. For example, if the proverbial baseball comes flying through a historic sash window, breaking a single light of glass, it can be fixed by installing one new light of glass. On the other hand, the components of modern windows are so interconnected that the intruding baseball would require a full window replacement—from the sash to the glass to the various mechanical pieces.

In spite of these advantages, historic windows are often scapegoated for a building's energy loss. A booming industry has benefitted from the misconception that replacement windows will improve the energy efficiency of a building, keeping it cool in the summer and warm in the winter. However, this is a myth that has been debunked by a number of studies. Windows only account for approximately 20% of a typical house's heat loss, whereas 50% of heat loss is through the house's walls (25%) and roof (25%) and can be remedied by the addition of insulation. Floors account for 10% of heat loss, which can also be mitigated by insulation efforts. The remaining 15% of heat loss is attributed to air infiltration, which is easily and inexpensively solved by weatherstripping.



This Tudor Revival house retains its original metal casement windows.



This Period Revival cottage's original metal casement windows have been replaced with vinyl sliders with prefabricated grids to resemble muntins. Note the flat profile of the window and its components compared to the deeper profiles seen in historic windows.

The National Trust for Historic Preservation conducted a study that culminated in the creation of the report *Saving Money: Evaluating the Energy Performance of Window Retrofit and Replacement* in 2016. The report found that retrofitting historic windows offer the same energy savings as full window replacement, but at a fraction of the cost. In 2017, Mohawk College in Ontario, Canada proved that restored 200-year old windows are as airtight as brand new replacement windows.

Despite pressure from the window industry, there is no need to replace priceless historic windows with new, "energy efficient" models. Historic windows are handcrafted pieces of art, custom-made and fitted for its respective building. The modern, simulated plastic versions of the same windows simply do not compare, nor do they offer an improvement in energy savings.

Moreover, historic windows represent embodied energy that has no place in the landfill. The energy needed to restore an old window is negligible and primarily consists of labor—which benefits the local economy. In comparison, new windows require energy in the extraction of raw materials and direct energy for the manufacture and transportation of the new window. Plus, these new windows do not possess the quality craftsmanship or materials to ensure durability. In general, they need to be replaced every 30 years, resulting in yet another non-biodegradable vinyl window in the landfill and additional expenditures of energy for the new windows.

Historic preservation-related organizations like the National Trust for Historic Preservation, National Park Service, and local preservation non-profits like HRPS encourage the rehabilitation of historic windows over replacement. Not only is it more environmentally conscious, but it also maintains a building's overall historic character and integrity. However, in some cases, a window may be so deteriorated that replacement is unavoidable. In this instance, it is recommended that replacement window match the original windows in materials and design, including dimensions and profiles.



This Colonial Revival cottage retains one historic window in its facade. It is the wooden "Craftsman" window with divide upper lights on the left side of the first story. The other first-story window has been replaced with a vinyl slider, and the dormer windows have been replaced with vinyl casements and fanlights.

Old windows have value beyond their age. They are an increasingly precious example of handcrafted building traditions that employed precise detailing, handsome aesthetics, and rare materials. They deserve our appreciation and thorough consideration before a decision is made to scrap them in favor of replacement windows that may not last three decades. If you have questions about repairing your historic windows, or if you are considering replacement, HRPS is happy to assist you. Email us at board@historicreno.org or give us a call at (775)747-4478.

HRPS also offers grant funding through our Reno Heritage Fund (RHF), which can be used for historic window rehabilitation. For additional information about the RHF grant program, please visit <http://historicreno.org/index.php/programs/neighborhood-preservation-fund/grant-guidelines>.

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