

Deciphering the Guidelines: Window Preservation

By Cory Edwards, OHP Planner

Why are Windows Important?

A value of a historic home is equal to the sum of its parts. As original materials are removed from a historic property, it begins to lose its integrity and ultimately its historic value. Historic windows greatly contribute to a property in terms of character and craftsmanship. They were expertly designed and constructed from high-quality materials. Preserving historic windows in place keeps original, high quality materials with the property and out of the landfill.

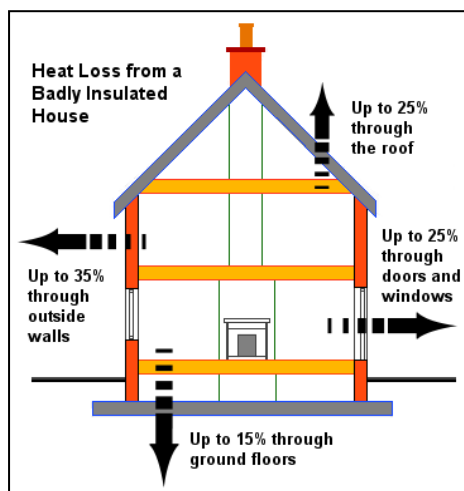
In historic homes, the windows are an integral part of the design. They were designed to not only be aesthetically pleasing, but were necessary as a functioning component to the building by providing light and ventilation. The loss of original windows also has great potential to negatively impact the appearance of a historic home. Building facades lose proportionality and depth as modern replacements are introduced.



Historic wood windows can certainly be maintained or restored to working order. Preservation of original architectural features, including windows, is encouraged in the City of San Antonio Historic Design Guidelines. Nevertheless, there is an abundance of replacement window products that are too often used by historic home owners seeking to “upgrade” their aging properties.

Why the Replacement Craze?

In an age where energy reduction is at the forefront of every homeowner’s mind, windows are often blamed as the leading culprit of heat gain/loss. The criminalization of “drafty old windows” is nothing



new; window manufacturers have long been pointing out the faults of old windows while promoting attractive solutions (their products). New low-e, gas-filled and triple pane replacements may seem like an exciting solution for homeowners coping with their monthly energy bill. Walk into any home-improvement store, and you may be feeling the pressure to replace. Imagine the savings!

In reality, heat gain/loss occurs evenly throughout the home, with windows only accounting for a small percentage of waste. Poorly insulated walls and attics are probably the greater culprit, especially locally. The San Antonio climate offers many days of full sun. While we enjoy these sunny days in the winter,

during the hot summer months that same sun bears down on rooftops, turning attics into ovens. Trying to solve an energy problem by only addressing the windows is like trying to hold water in a leaky bucket and only patching a few of its holes.

The Real Costs

Because many historic windows feature single pane glass, a multi-pane, energy efficient replacement will, in fact, reduce heat/gain loss through the windows of a home, and most homeowners experience 20-25% annual savings in energy costs. The preservation community has not denied the ability of replacement windows to be energy efficient. However, there is a very real economic tradeoff between the costs of replacing windows, their lifespan, and the actual energy savings that must be considered. Studies provided by the National Trust for Historic Preservation indicate that replacement windows offer a relatively low return on investment compared to traditional window maintenance and shading.

In determining the true savings achieved through window replacement, one should assess:

- 1) The initial replacement costs: The cost of an in-kind (wood) replacement window can range between \$250-\$1,000 per window. Including installation and general construction costs, homeowners undertaking full window replacement may spend anywhere from \$10,000 to \$20,000 depending on the quality, glazing options and number of windows.
- 2) Annual savings: Assuming that full window replacement yields a 25% reduction in annual energy costs, the average homeowner would save approximately \$400-\$600 per year. However, no assumptions about energy savings should be made until an energy audit has been performed to determine where heat gain/loss is really occurring.
- 3) The lifespan of the replacement: Historic wood windows were constructed using high-quality, “old growth” hardwoods. These materials are extremely durable and naturally resistant to deterioration. In many cases, wood windows in historic properties have withstood the elements for over 100 years. A repaired historic window that is maintained over time can easily last for another 100 years. Replacement windows have a much shorter lifespan, with aluminum or vinyl products on the lower end. Even the most reputable wood window manufacturers only offer limited 10-year warranties on their products. Keep in mind, when a replacement window fails, the entire factory unit must be replaced again (and again).
- 4) Payback period or return on investment: Assuming an annual savings in the \$400-600 range (which is probably generous), the average historic homeowner would experience a payback period of at least 20 years in order to see a return on investment. The payback period may be greater depending on the size of the home and number of windows that were initially purchased. After more than 20 years, it will most likely be time to replace again!

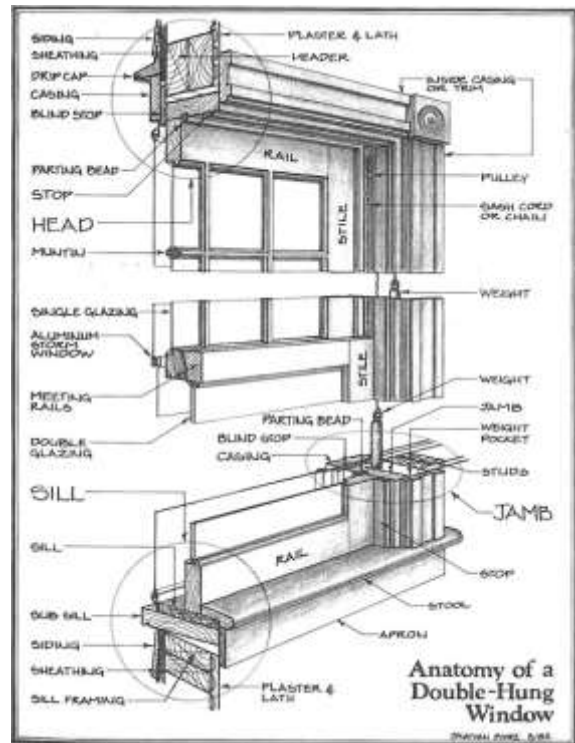
Window Repair

In most cases, window repair is not only the more affordable solution upfront, but offers a much greater return on investment than replacement. Repairing and maintaining an old wood window may seem like a daunting task. It is important for historic property owners to familiarize themselves with the anatomy of their windows and standard practices of maintenance and repair. By educating themselves on these practices, repairs can become something that any homeowner can tackle one window at a time (although feel free to obtain the services of a professional!)

Each window should be assessed for its individual performance. Consider the following:

- Is the window operable?
- Are there any noticeable gaps in between meeting rails, sills or stops?
- Do the joints between the rails and stiles seem soft or spongy?
- Is the glazing loose or missing?
- Is the paint cracked, peeling or faded?
- Is there trapped or infiltrating moisture?
- Are there any rotted or broken components?
- Is hardware intact and functioning?

By identifying and addressing problem areas, any window can be made improved in both efficiency and function. Remember that historic windows were intended to be taken apart so that if one piece fails, only that piece can be replaced. Check out the resources section at the end of this article for guidance on window repair.



Other Solutions

Even windows in the best condition can be made more energy efficient. Heat gain/loss through windows occurs in three different ways: air infiltration, heat transfer (conduction) and solar gain (radiation). There are a number of low cost, reversible and historically appropriate strategies that can be used to reduce heat gain/loss. It should be noted that implementing a combination of any of these techniques can be just as effective in arresting heat gain/loss as a brand new window.

Weather stripping is perhaps the cheapest and easiest solution for improving window efficiency. Proper weather stripping drastically reduces air infiltration at meeting points in the window. This can easily be done by any homeowner and offers a great return on investment.

Storm windows can be used to provide an additional transparent barrier between the outside and inside of a historic home. Their installation creates an insulating air pocket which reduces heat transfer. Storm windows can be hung from the interior of a window and simply clipped or wedged into place (some even use magnets) for easy removal and cleaning. Some exterior storm windows may be appropriate provided that they have a thin frame and are used with either a decorative screen or in a manner that does not obscure any architectural details.

Shades, Shutters and Screens can all be used to prevent solar gain during the hot summer months or seasons where windows receive direct sunlight. Some interior shades also have insulating qualities that can reduce heat transfer. Solar screens are gaining in popularity, but are only appropriate



when installed on the rear of a building as to not have a visual impact from the street.

Interior window films can be applied to reduce the impact of solar gain, and are another affordable, easy solution. A wide variety of products are available, but homeowners should be cautious to avoid films that are deeply tinted or reflective as they have the potential to alter the exterior appearance of the glass.

When You Must Replace

Not every historic building will have repairable windows. In instances where windows have been neglected or poorly maintained over time, original wood windows may have deteriorated beyond repair. When 50% or more of the original window components must be replaced with new material, a full replacement may be considered. Office of Historic Preservation staff is available to meet on your property to help you determine if your windows are repairable or if replacements are appropriate.



According to the Historic Design Guidelines, new windows (when approved) should match the historic or existing windows in terms of size, type, configuration, material, form, appearance, and detail. The Office of Historic Preservation recommends searching through architectural salvage yards or online markets before paying for expensive custom replacements. Only in-kind replacements are recommended; replacing wood windows with cheap aluminum or vinyl alternatives (pictured left) should be avoided.

In instances where original windows are no longer intact or have previously been replaced with inappropriate materials, look for replacements that restore the look and feel of the original construction. Use nearby historic buildings that are similar in style to make your selections. Restoring historically-appropriate wood windows to a property is encouraged by OHP and can usually be approved administratively by staff.

Resources

OHP periodically hosts a Historic Window Restoration Workshop. The workshop is open to all, and for a small tuition participants receive hands-on training in window repair. Past workshops have been held at the Fire Station No. 1 and the Acosta/Halff House in Hemisfair Park. To date, over 45 historic wood windows have been restored by workshop participants. Stay tuned for announcement of the next workshop!



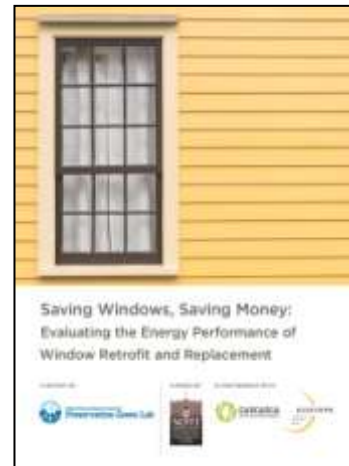
There are countless online resources from a number of reputable sources. Perhaps some of the best materials come from the National Trust for Historic Preservation and National Park Service:

http://www.preservationnation.org/information-center/sustainable-communities/buildings/weatherization/windows/additional-resources/nthp_windows_repair_replace.pdf

<http://www.preservationnation.org/information-center/sustainable-communities/green-lab/saving-windows-saving-money/>

<http://sanantonio.gov/historic/Docs/2009-Revised-Window-Tip-Sheet.pdf>

<http://www.nps.gov/tps/how-to-preserve/briefs/9-wooden-windows.htm>



Of course, OHP staff is always available for consultation. We look forward to helping you find appropriate solutions for you and your property!