

“Ol’ House Experts”

Window Brief- Summary of Historic Window Economics

Historic windows vs. new contemporary replacement windows.

R value-

All insulation carries an R-value number. The higher the number the better insulative value you receive. The insulation in an attic is R 38 – 60+. With the current fuel costs and climbing electrical rates more pressure will be on homeowners to upgrade the insulation of their building. Many times, this includes attending to the repair and maintenance of existing windows.

You will here a lot about generalities and R-values of new window units. What is really important is the R-value of the glass itself. Single pane glass gives you an R-value of 0.89. Two panes of glass equal to R-value of 1.78. You need to also add a little for the gas that is found in insulated glass. As you can see by the numbers, glass in and of itself is not insulating! If you want good insulation—don’t install windows! Having said that, we know that windows provide light and air flow throughout our homes. A repaired historic wood window with a good quality storm will give you the same as or better R-value as the two panes of insulated glass as mentioned above. So why even go to all the cost to replace the historic windows?

Air infiltration-

The largest source of heating and cooling problems are through the windows. Historic homes were designed for natural airflow. New homes, however, have been designed for air conditioning. Typically, newer windows have newer style weather stripping drastically reducing air infiltration. Historic windows can be easily weather-stripped with equally as energy efficient weather stripping and/or storm windows can be added to the historic window, which will do the same job as well as protect it from the elements. The added bonus of a good quality storm is a screen. Interior storms are also available, but they usually are just storm windows (no screens) and need to be maintained to reduce the level of condensation that may build up between the storm and the window. These types of storms may work well in a museum situation where staff is available to maintain them on

a routine basis. Remember, that just installing a quality storm window will stop air infiltration problems that might be happening.

Maintenance free-

There is no such thing! Even new replacement windows will cause you problems down the road. The vast majority of replacement windows are the typical “20 year window” lasting only about 7 years. The 7-year lifespan is in a sense the maintenance cycle of the window. This is the “maintenance free” part sold to the consumer. Anotherwards, “You take it out and throw it away!” Filling landfills with vinyl windows is not considered sustainable. We must not forget that replacement windows can also fog, cannot be repaired, and are difficult to replace with the exact type if needed.

Quality-

There are good quality wood replacements windows available at a price! The windows in historic buildings are typically as old as the building and will last far into the future if maintained properly. They are constructed of old growth wood, wavy glass, and made with few fasteners. Organic in nature! Old growth material has a close grain pattern, the wood is straight and true, and usually is already as old as the building. The lumber available today is not of this quality; it is plantation grown and is not stable.

Glass- old glass has character, dimples, waves, and is very distinctive in nature. You have to admit that the house looks different with old wavy glass then without it!

Historic style-

Restoring historic windows retains the historic character and integrity of the home as it provides historical context to the property in ways that a new vinyl replacement window would not.

Procedure for restoring windows- (Ask for procedure list)

Costs-

The cost for restoring wood windows depends on the size and type of window. Overall costs for a standard restored window and storm will be **lower** vs. using quality replacement windows available today that are comparable in size and shape.

Window frames-

The homeowner or a painting contractor typically does scraping, cleaning, and painting. In cases where sills and frames are deteriorated, most repairs can be done from the interior unless the entire frame needs to be pulled and taken back to a shop.

Remember that a window has to be more than 85% gone before we think about replacing it. Please refer to a salvage depot in your area if replacement is the only option. The cost at a salvage area is usually \$5.00 - \$8.00 a square foot depending on the style.

Information Gathered From-

Window article- "The Truth about Windows"- <http://oldhouseguy.com/windows.html>

Mattinson, B., DePaola, R., & Arasteh, D. (2002). *What should I do about my windows?* Home Energy, pp.24-31. Online [<http://www.homeenergy.org>].

Sedovic, W. & Gotthelf, J.H. (2005). *What replacement windows can't replace: The real cost of removing historic windows.* APT Bulletin: Journal of Preservation Technology. Vol. 36: 4.

Products and URL resources that we use-

West System Epoxy- available at most marinas <http://www.westsystem.com/>

Advanced Repair Technology epoxy- <http://www.advancedrepair.com/>

Mon-Ray high-end storm windows- <http://www.monray.com/>

Artisan Glass Works- <http://www.artisanglassworks.com/>

Silent Paint Remover- <http://www.eco-strip.com>

The Steam Box- <http://www.steamstripper.com/>

Dap Latex Window Glazing- <http://www.dap.com/>

Dap 230-elasto paintable caulk- <http://www.dap.com/>

Accurate Metal Weatherstrip- <http://www.accurateweatherstrip.com>

Benjamin-Moore paint- <http://www.benjaminmoore.com/index.asp>

Building Science- <http://www.buildingscience.com>

John Leeke's Historic Homeworks- <http://www.historichomeworks.com>

National Park Service- Preservation Briefs- <http://www.nps.gov>

More Defense!

Cited from:

Forum Journal. (Winter 2006). *Sustain America: Vision, Economics, Preservation*.
Volume 20:2.

An excerpt from Donovan D. Rypkema *Economics, Sustainability, and Historic Preservation*. pp. 27-38.

- “ 1. The vast majority of heat loss in homes is through the attic or uninsulated walls, not windows.
2. Adding just three and one-half inches of fiberglass insulation in the attic has three times the R factor impact as replacing a single pan window with NO storm window with the most energy efficient window.
3. Properly repaired historic windows have an R factor nearly indistinguishable from new, so-called “weatherized” windows.
4. Regardless of the manufacturers “lifetime warranties” 30 percent of the windows being replaced each year are less than 10 years old.
5. One Indiana study showed that the payback period through energy savings by replacing historic wood windows is 400 years.
6. The Boulder house was built more than a hundred years ago, meaning those windows were built from hardwood timber from old growth forests. Environmentalists go nuts about cutting down trees in old growth forests, but what’s the difference? Destroying those windows represents the destruction of the same scarce resource.
7. Finally, the diesel fuel to power the bulldozer consumed more fossil fuel than would be saved over the lifetime of the replacement windows.”