

The Outlook on Windows: New Threats, New Strategies

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Name the hottest national issues of 2009. How to reduce greenhouse gas emissions and how to revive the battered economy are both likely to be at the top of your list. Tapping into both concerns, debates about whether owners of older buildings should replace or retain their existing windows—conversations preservationists have been engaged in for years—got a lot hotter as well.

Good or bad, windows have become the lightning rod for a growing debate at the national, state, and local levels about how best to save energy and stimulate the economy. The latest catch phrase in this discussion is “weatherization.”

This controversy about windows was stirred up by a series of programs funded through the American Recovery and Reinvestment Act of 2009 (ARRA), otherwise known as the “stimulus program.” For starters, ARRA set in motion a massive influx of new dollars for a 32-year-old federal weatherization program, as well as reinstating and expanding tax credits for energy-efficient home improvements. Now a new federal incentive program to stimulate job growth through home weatherization activities is under consideration.¹

Tightening up buildings against the elements to save energy and advance sustainability goals all sounds good—but, as they say, the devil is in the details.

Weatherization has come to mean lots of different things. For some, it’s all about buying new energy-saving products—such as new windows—and discarding the old. Policy makers and others see the added benefit that the demand to produce new products will create new jobs.

For preservationists, discussion of weatherization usually means dealing with a lot of misleading information and false assumptions. The truth is, the most economically and environmentally responsible way to weatherize a building may include retaining the existing windows.

But a central and often repeated message—given by National Public Radio stories, the U.S. Department of Energy, and even Al Gore—is that replacing windows will save significant amounts of energy. A constant barrage of aggressive marketing from window manufacturers coast to coast spreads this idea. Even a new video game about green building issues called RETROFITS encourages players to start by ripping out existing windows.

Although there is much evidence that does not support this claim—even from some of the federal agencies promoting window replacement—the result is that a lot of older and historic buildings, and their original windows, are vulnerable and at risk due to this growing perception.

How did we get here?

It might be helpful to start by putting the window replacement debate in a larger context. As some of the most visible, yet commonly under-appreciated, components of older and historic buildings, windows are easy targets, all too often blamed as the main culprits for energy loss. We hear that older windows are inherently inefficient, leaking air and causing drafts. A thriving window manufacturers’ industry has grown up around the perception that building owners must replace their windows, rather than repair them, to solve these problems.

To counter, preservationists can easily cite solid statistics that support reusing and retrofitting existing windows, including these:

- The Department of Energy finds that only 10 percent of air leakage in homes is attributable to windows. In the average home 14 percent of air escapes through fireplaces and upwards of 30 percent occurs through floors, walls, and ceilings.²
- Studies demonstrate that properly weatherized windows with storm units can reduce heat loss through windows by 50 percent, resulting in performance and energy savings comparable to or even better than new windows.³
- Replacement windows typically fail 10-20 years after installation, and usually after the warranty period has ended.⁴
- Embracing replacement windows as a matter of national policy will escalate the environmental impacts of repeatedly manufacturing, replacing, and throwing away windows.⁵

With these facts in place, you have to ask, how has public opinion become so skewed over time against retaining older windows? Several things led to the current predicament. Remember back to the 1970s, when the oil crisis played out daily in the national news? In 1979 President Carter encouraged American citizens to do what they could to reduce their use of energy. To lead by example, Carter had solar panels installed on the roof of the White House. Then—and now—a lot of old windows were replaced in the name of energy efficiency. For instance, a look at nearly any older school building in operation during the 1970s and early '80s reveals a legacy of ill-fitted and poorly performing replacement windows.

If you fast forward to the mid-1980s and '90s when gas was again cheap, you will find that the nation—and many preservationists—went to sleep on energy issues. And Carter's solar panels on the White House? In 1986, during President Reagan's term, they were quietly removed during a roofing project.

Playing catch up

Now preservationists must scramble to address a variety of challenges.

First of all, current and proposed federal economic stimulus programs primarily focus on providing incentives to buy and install new products, such as windows, rather than do repairs and retrofits. Shining the spotlight on replacement windows for their job creation benefits is a diversion from talking about the viable, low-cost, big-impact ways to meet the goals of greater energy efficiency.

And it can be tempting for homeowners to install new windows because they'll see an obvious and immediate "improvement" to their property (whether or not that is really the best way to stem energy loss). Window manufacturers and installers urge them on, blanketing neighborhoods all over the country with mass mailings and door fliers touting the federal tax credit and the urgency to act now to save money and energy.

Buying replacement windows can also be the easier option. Many homeowners are just not do-it-yourselfers, or they lack the knowledge and skills needed to make window repairs. And in most areas of the country there is a shortage of skilled craftspeople able to meet the demand for this work.

What can preservationists do?

Energy education

While not every old window can or should be saved, there are often more effective, low-cost ways for making a home energy efficient that do not call for replacing the windows. This is an often-repeated message heard by National Trust for Historic Preservation staff when talking with energy auditors across the country. Tom Schlotter of Allied Home Inspections in Danbury, Conn., says it best: "Saving energy

does not necessarily need a major investment or a total overhaul of the home, such as replacing windows.”

Mike Jackson, of the Illinois Historic Preservation Agency, notes: “The best way to measure an energy saving investment is that of payback, i.e., how many years does it take to pay for an energy improvement with the savings. For example, replacement windows typically have a very long payback period, whereas caulking and storm windows have a much shorter payback period.”⁶

To avoid unnecessary window replacement, there needs to be more emphasis on energy audits, which can pinpoint the true energy deficiencies for a given property and then recommend a corresponding strategy for addressing those specific problems.

Research

Preservationists need more solid statistics based on scientific research to point to when making their arguments in favor of retaining rather than replacing windows. Such a [study just released](#) by English Heritage demonstrates that window retrofits can meet their country’s targeted energy efficiency goals. The National Trust for Historic Preservation, working in partnership with the U.S. National Berkeley Labs, and with funding from the National Center for Preservation Technology and Training, is currently conducting research to compare the energy performance of repaired historic wood windows and new replacement windows at two of its Historic Sites. More such studies are needed to provide data that preservationists can use to make their case.

Training for property owners

Hands-on workshops, seminars, and other learning opportunities increase property owners’ awareness of the historic character and continued viability of older windows, as well as teaching them maintenance and repair skills.

All over the country workshops are being offered on window repair, as well as painting and caulking, insulation, and overall weatherization. Workshops on windows, whether presented alone (in one or a few sessions) or as part of a larger series on home repair, are gaining in popularity, most likely in direct response to the increased pressure for replacements. An [informal scan](#) of activity across the country shows nearly 75 different workshops on windows alone in the last couple of years and scheduled for 2010.⁷ Most are sponsored by nonprofit preservation organizations, with a handful of local municipalities also organizing workshops. Historic Landmarks Foundation of Indiana, for instance, has scheduled a dozen workshops statewide on windows from 2009 through 2010, in follow-up to its placement of historic windows on Indiana’s 10 Most Endangered list.

The majority of such workshops are geared toward homeowners and do-it-yourself people who want to learn the basics and gain a comfort level as they undertake the work. A handful are specifically for historic preservation commissions, helping to train members on how to address controversial applications for replacement windows within historic districts. Sessions last anywhere between two to eight hours. Some workshops are focused solely on wood, double-hung sash windows. Others feature training on repairing metal casement windows, and how to choose the right type of storm window. Topics may also relate to regional architectural characteristics and climate. While workshops vary greatly, there are some common characteristics that tend to be effective:

- Scheduled for either an evening during the week or on a weekend afternoon.
- Feature one to three highly knowledgeable and experienced speakers, usually including a local contractor, craftsperson, preservationist, and/or architect.

- Have an agenda that is well developed to address major points but also allows for good audience interaction and engagement, often including a discussion about the value of repairing windows, energy efficiency goals, and a breakdown of the different window types and elements.
- Include hands-on and up-close demonstrations of window repairs and techniques using an actual window unit or building, showing aspects such as removing sash units, repairing broken weights, replacing damaged glass, glazing, priming and painting, and reinstalling the repaired window.

Training for professionals

A second category of training focuses on developing skilled preservation trades people with a special knowledge of windows. Just as policy makers are currently pushing for incentives to fuel new manufacturing jobs, these types of workshops are also all about job creation—preparing a workforce to be hired by property owners in need of window repairs and retrofits. When it comes to stimulating the economy, this approach is much more likely to have a long-term impact on local communities, as well as offering benefits to the environment.

One of the best examples of this kind of training is the two-week program for 36 unemployed or under-employed contractors and carpenters that was offered last July by the Michigan Historic Preservation Network, in partnership with the State Historic Preservation Office and the City of Kalamazoo. More such programs are planned for 2010.⁸

In 2010 we all should expect to hear a lot more about windows. Preservationists will have to continue to explain, and to demonstrate, that being “green” and stimulating the economy through job growth does not have to translate into a national policy supporting and providing incentives for the removal of windows. Preservationists have a huge stake in this discussion with a lot to gain and to lose.

The National Trust for Historic Preservation has launched an online guide offering homeowners a one-stop resource with the latest information about how to make their homes more energy efficient and comfortable – without spending a lot of money or compromising the historic character of their home. Called the “Weatherization Guide for Older and Historic Buildings,” the interactive guide can be found on PreservationNation.org.

Notes

¹ Follow developments at www.preservationnation.org/take-action/advocacy-center/homestar.html.

² U.S. Department of Energy, Energy Saver Tips for Saving Energy & Money at Home, www1.eere.energy.gov/consumer/tips/air_leaks.html.

³ Mattison, DePaola, and Arasteh, "What Should I do About My Windows," www.homeenergy.org/hewebsite/19-4.html, July/August 2002; Joseph H. Klems, *Measured winter performance of storm windows* (2002), <http://escholarship.org/uc/item/05p5881m>; Wood, Bordass, and Baker, *Research into the Thermal Performance of Traditional Windows: Timber Sash Windows*, English Heritage, October 2009, www.climatechangeandyourhome.org.uk/live/content_pdfs/579.pdf.

⁴ Cluver, “Still No Substitute,” *Period Homes*, Vol. 7, No. 6 (November 2006), pp. 12-14.

⁵ Sedovic and Gotthelf, “What Replacement Windows Can’t Replace: The Real Cost of Removing Historic Windows,” *APT Bulletin: Journal of Preservation Technology*, Vol. 36, No. 4 (2005).

⁶ Jackson, “A Preservation Perspective on Green Home Rating Systems,” *Forum Journal*, Vol. 23, No. 3 (Spring 2009), p. 47.

⁷ For a list compiled by the author go to www.preservationnation.org/forum/resource-center/forum-library/In-Progress-Survey-of-Training-Workshops-on-Windows.pdf.

⁸ For more information see O'Connor, "Window Rehab Training: A Win-Win for Environmental and Economic Sustainability," *Forum News*, December 2009, www.preservationnation.org/forum/resource-center/forum-library/public-articles/window-rehab-training-a.html.