Window Retention, Repair and Replacement Policy
The Rochester Preservation Board
October 5, 2011

The Preservation Board strongly prefers that historic windows and doors be retained, along with their functional and decorative elements such as sash, muntins, glass, sills, heads, hood molds, decorated jambs and shutters. The Board prefers that windows and doors are repaired rather than replaced.

The Preservation Guidelines for Designated Landmark Properties and Properties in Preservation Districts, adopted by the Rochester Preservation Board, August, 2005

The Rochester Preservation Board believes that windows and doors, the elements within and around them, and their configuration on a building significantly enhance the character and value of buildings and preservation districts. Retaining this character and value is a primary duty of the Board, as assigned by the City's preservation ordinance beginning in 1969.

The Board also believes that preservation is not just confined to buildings and landscapes, but that it also encourages the retention of community wealth and skills. Through stressing the importance of repair rather than replacement, it is hoped that the competitive market for local craftsmen can be redeveloped, thereby giving property owners more affordable options for the renovation of historical properties.

Repairing Original Wood Windows and Doors

Wood windows and doors, particularly those constructed of old-growth species typically found in historic buildings, are strong, flexible, rot-resistant, and easily repaired. Their lifetime, if properly maintained, can literally be hundreds of years. Even when abused and allowed to deteriorate, they can often be repaired at a cost less than or equal to that of replacement. When such repairs are made to historic windows and doors they should be made with in-kind materials and hardware. Where wood is deteriorated yet salvageable, consolidants or epoxies may be used.

Replacement Windows and Doors

When Appropriate

Replacement of windows, doors, and related components in a preservation district or on an individual landmark property is typically appropriate only when the original components are demonstrably beyond repair. In this case, the four visual characteristics—material, texture, color and design—of the new components must replicate the original as closely as possible. They must be visually compatible with neighboring buildings in a preservation district or with the original design of individual landmarks. Openings should not be enlarged or reduced for a replacement window, unless a case can be made that it is architecturally appropriate.

Energy Efficiency

Replacement of windows and doors is not justified simply as a means to improve an historic building's thermal performance. Many studies have shown that windows account for only about 10% of a building's thermal losses, with the greatest losses through roofs and walls. In most cases, the energy efficiency of an older window can be increased to that of a thermal pane replacement window by repairing or installing weatherstripping and by installing a storm window (see below). Simple tasks like sealing air leaks, adding insulation, adjusting mechanical systems and installing a flue damper can cut heat loss or gain more economically than replacing windows and doors. To identify the best areas for energy improvement, a comprehensive energy audit should be conducted by a provider independent of window suppliers. Financial assistance for audits is available from New York State and from some utility companies.

Buildings with Monumental Windows
In the conversion or reuse of buildings with multiple restorable monumentally scaled windows it may be impractical to install and use storm windows to achieve energy efficiency. In this case the Board may, on a case-by-case basis, determine that replacement of all window units is an appropriate alternative to restoration.

Buildings with Non-original Windows
Many historic buildings have suffered alterations to their original windows and doors, both to the opening size and to the type and/or style of window or door used as replacements. In the case of altered openings, the owner is strongly encouraged to restore them to their original sizes, if consistent with current or proposed building usage. When replacing previously replaced windows and doors, an effort should be made to return to a close approximation of the originals. Frequently, neighboring buildings provide guidance to original window size and design.

Replacement of Wood Sash
Replacement of one or both sash within the original frame may be an appropriate alternative to replacing an entire wood window. In this case it is strongly recommended that the new sash be custom made to insure correct fitment in the existing frame. Custom-made wood sash are available in the Rochester region. The use of fillers to make up for undersized sash is not acceptable. The use of vinyl jamb liners is discouraged unless their appearance will not detract from the historic character of the completed window.

Multiple Panes or 'Lights'
When replacing an original sash that has multiple panes, the new window should match the pane configuration. True or simulated divided lights (SDLs) are appropriate. Snap-in grids or grids between layers of glass are not appropriate since the reflectivity of the glass obscures the presence of the grids.

Replacement Window Units
These windows are made as units, with sash pre-installed in the frame. The preferred method of installation is to remove the existing window and frame and replace it with the new unit. When done properly, this approach can yield a close approximation to the original appearance. Inserting a new window unit within the existing frame is discouraged since it typically adds a layer of material and reduces the glass size, both of which alter the historic character of the window. For this approach to be approved, the finished installation must result in a close approximation of the original sash, frame, and trim dimensions and profiles. This favors larger windows, where the amount of reduced glazing is small relative to the overall size of the window. The addition of filler strips and other non-historic elements to compensate for gaps, misalignment, or undersizing of the replacement unit is not acceptable.

Replacement Unit Materials
<u>Solid wood windows</u>
These units are the preferred replacement for historical wood windows. Stock window components are often similar to original wood windows in design and dimension. If desired, sash and trim can be custom made to exactly match the originals. Wood windows require the same degree of maintenance as original historic windows, but provide the most authentic appearance.

<u>Aluminum clad wood windows</u>
These units, made of wood with an exterior aluminum sheathing, may be appropriate replacements for fully wood windows. The window components are often similar to wood windows in design and dimension, and the exterior is frequently available in a range of standard and custom colors.

Vinyl clad wood windows

These units, made of wood with exterior vinyl sheathing, may be appropriate replacements for fully wood windows. The window components are often similar to wood windows in design and dimension, and the exterior is frequently available in a range of standard and custom colors.

Fiberglass windows

These units may be appropriate replacements for wood or metal windows. Certain brands nearly approximate the texture, color and design of the original windows. The strength of fiberglass allows the window components to be appreciably thinner than solid vinyl or metal components.

Aluminum windows

Aluminum windows may be appropriate in post-war, mid-century buildings that originally had metal windows. The windows in these buildings are often in bands rather than in individual openings, so stock units may fit with less need for sheet metal infill. New windows can match the originals in profile, although they are usually thicker in order to allow for a thermal break and insulated glazing. Installation usually involves removal of the entire original unit, including frame, unlike the process with wood windows. The end result is a building that appears nearly the same as the original.

Although usually not appropriate, aluminum replacement windows have often been used in brick commercial or industrial buildings originally built with wood windows. The result is typically a heavier, less detailed profile in the window, and a loss or covering up of historic detail in the sill, head, lintel, and casing with sheet metal.

Steel windows

Steel casement windows that appear in buildings of various styles, including Tudor Revival, Gothic Revival and International, are essential to the historic visual character of those buildings. Rarely can they be replaced successfully with a window of a different type, such as a double-hung or slider, and their very narrow and simple profiles do not lend themselves to non-metallic alternatives. Steel windows are reparable, although they are inherently prone to condensation in our climate. Replacements are available that closely replicate the originals and can incorporate energy enhancements such as double glazing and thermal breaks.

Solid vinyl windows

Vinyl windows are generally not acceptable as replacements for historic windows for a number of reasons, including the following:

-They do not commonly match the appearance of traditional wood or metal windows.

-Due to the inherent weakness of vinyl and the commonly light gauge of the extrusion, a window's rails and stiles are broader than in traditional windows, thereby reducing the glass area of the window.

-They are limited in size and often cannot fill large, traditional window openings.

-Vinyl's strength and dimensional stability is affected by sunlight, and the resulting thermal stress potentially deforms and weakens the window unit over time.

-They cannot be repaired using the basic woodworking tools and techniques used on wood windows.

-Polyvinyl chloride is a petroleum-based material that is not biodegradable, nor is it commonly or readily recycled.

Glass Block

Some mid-century buildings were constructed with glass block, which should be retained, repaired or replaced in kind. In most buildings, however, the use of glass block to fill window openings, including those in basements, generally is not appropriate. The insulating value of glass block is very low, despite what manufacturers assert in their literature.

Storm Windows

Storm windows and storm doors are encouraged, especially on single-glazed windows, and may be of either wood or metal (usually aluminum). If metal storms are used, they should have a baked enamel finish rather than a mill or clear finish. Any mullions within the storm windows should align with equivalent features of the sash, such as the meeting rails. Storm doors should contain a maximum area of glazing and, like storm windows, should be consistent in design with the primary door.

Triple-track storm windows, while not preferred over wood storms, are appropriate in historic settings. Though to some extent they conceal the historic windows, they are not a permanent change to an historic building and they can be removed to reveal the original windows.

Storm windows should typically be installed on the outside of windows to avoid trapping moisture which may condense on the outer sash during cold weather. Trapped moisture will not readily evaporate and can damage wood or metal sash. In addition, the outer sash takes the brunt of the weather. If storm windows are necessary on casement or awning windows they would have to be installed on the interior.

Technical Advice

Detailed information on repairing and maintaining historic building components and on improving energy performance is available free from the Technical Preservation Services Division of the National Park Service, accessible via the internet. Additional information is available through the web pages of the Rochester Preservation Board.

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