



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
HISTORICAL PRESERVATION & HERITAGE COMMISSION

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## Policy on Window Replacement for Historic Houses

RIHPHC frequently is asked to consider window replacement as part of historic building rehabilitation projects subject to RIHPHC review. RIHPHC review includes projects subject to regulatory review in accordance with Section 106 of the National Historic Preservation Act or in accordance with provisions of the RI Historic Preservation Act. RIHPHC review also includes projects that apply for federal or state historic preservation investment tax credits or the RI Historic Homeownership tax credit. Therefore, RIHPHC's policy on window replacement takes into account varying requirements of these separate programs, and RIHPHC's policy

Historic windows are an important character-defining feature for historic houses, and therefore preserving and maintaining historic window sash is the RIHPHC's goal in every case. Historic window details all contribute to the overall character and quality of the windows and the historic house as a whole: the original configuration of sash lights, the original material (wood in most cases), the original structure (generally single-glazed double hung sash with individual lights set in true divided muntins), the original profiles (putty bevel on the exterior muntins, stiles and rails and molded interior profiles), and the original finish material (generally a painted surface).

In many cases, historic windows can be successfully preserved through repair and maintenance. Common problems that lead to consideration of replacing window sash include:

- the historic windows are missing
- replacement of non-historic later windows to restore the historic appearance
- replacement of damaged or deteriorated historic windows
- dealing with the hazard of lead paint
- thermal efficiency
- maintenance and easy operation

Cost is usually an important consideration whatever the problem that window replacement is intended to solve. Affordable housing grants and historic preservation tax credits are intended to off-set the cost of solutions that meet approval criteria.

1) When the historic windows no longer exist or if the historic windows were replaced in the past by non-historic and inappropriate windows, RIHPHC will approve a new replacement. The replacement should match the historic window as closely as possible.

2) When the historic windows have become too damaged or deteriorated to repair, RIHPHC may approve replacement "in-kind." Replacement "in-kind" means that the original configuration of sash lights, the original material (wood in most cases), the original structure (generally single-glazed double hung sash with individual lights set in true divided muntins), the original profiles (putty bevel on the exterior muntins, stiles and rails and molded interior profiles), and the original finish material (generally a painted surface) will be replicated in the new windows. This replacement alternative will only be approved if convincing evidence is presented to RIHPHC that repair and maintenance cannot address the window problems.

(In the case of the Historic Homeownership tax credit, applications usually are submitted after the work has been completed. If the homeowner presents documentation that the historic sash were missing or were so damaged and deteriorated that they could not be repaired, RIHPHC will approve a tax credit for replacement in-kind. If the homeowner is not able to document that the historic sash were missing or so damaged and deteriorated that they could not be repaired, RIHPHC will not approve a tax credit for the replacement windows. However, if the replacement windows are appropriate to the historical architecture of the house, RIHPHC may approve a tax credit for other historic rehabilitation work completed.)

3) RIHPHC recognizes the need to remediate the hazard of lead paint on windows. Generally RIHPHC recommends that historic window sash be stripped of all paint and repainted in a non-lead latex paint. Painted surfaces on the window frame may also be stripped of all paint and be repainted using latex paint. New jamb liners can be installed in the window frame to protect friction surfaces. In unusual cases, the build-up of many layers of lead paint (and sometimes severe deterioration of the sash) may justify RIHPHC approval for replacement of some or all sash. When the historic sash are to be replaced, they should be replaced "in-kind." When non-historic sash are to be replaced, they should match the historic window as closely as possible.

4) Good windows block cold air from entering the house and conserve heat. Historic windows that are drafty or loose generally can be improved by adding weather stripping (sometimes incorporated into new jam liners) and by adding storm windows. The thermal efficiency of a well-maintained historic window with a storm window is often better than for a new window. RIHPHC generally does not consider thermal efficiency to be a sufficient reason to replace historic windows.

5) Some new windows on the market today offer the promise of easy maintenance through use of vinyl coatings and easy operation by tilting open for cleaning. Unfortunately, new windows that offer these features rarely are designed to match the appearance of historic windows. Tax incentives and grants approved by the RIHPHC give highest priority to preserving the features that give historic buildings their special architectural character, and new replacement windows that cannot meet historic preservation criteria are not approved. Solid vinyl and vinyl clad windows and so called "tilt-pack" windows are not an "in-kind" replacement for historic windows, and they generally do not preserve the historic character of a historic house.

6) The cost of the different repair and replacement options can vary significantly between different contractors and manufacturers and in different buildings and window types. RIHPHC can provide information from projects that have been approved in the past. However, procedures, products, and contractors constantly change. Affordable housing grants and historic preservation tax credits are intended to off-set the cost of solutions that meet approval criteria. Property owners who choose not to apply for grants or tax credits are not required to receive RIHPHC approval for their project. In exceptional cases, federal regulations allow the RIHPHC to make an exception to the usual approval criteria for a subsidized affordable housing project with a very limited budget. However, a project that receives such an exception will not be approved for historic preservation tax credits.

**THE PROBLEM WITH MOST REPLACEMENT WINDOWS** is that they do not accurately replicate the existing window's overall design. A typical historic window design consists of

- muntins,
- sash,
- frames
- and moldings

which have a molded relief. All too frequently the profiles of these elements in a new window are flatter and wider, or conversely narrower and thinner, than the historic profiles. Different materials and various frame liners add bulk to the window sash, which results in an even greater deviation from the appearance of the historic sash. Even though the new window may duplicate the number of existing window panes, the character of the historic window is lost because of the change in relief, or dimensions which diminishes the overall character of the building. In reviewing a replacement window we assess how well the proposed window matches the appearance of the original sash. It should be a very close match. There are plenty of options available, so it is not necessary to settle for a product that is not a good match.

The ideal always is to replace in-kind. In-kind means to exactly replicate the original window in material, dimension, and profile. This type of replacement sash would look like a brand new version of the historic window that you have. Anything short of an exact replication should meet some minimum criteria.

See Attached: **"How Close a Match Does It Have to Be"**

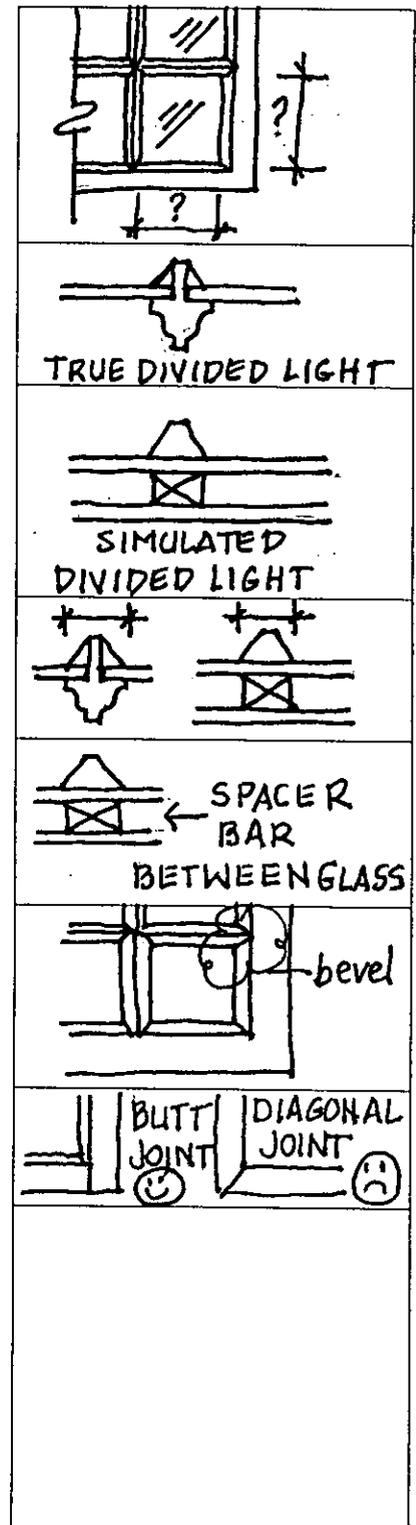
There are a number of reasons why many, or most, stock replacement windows don't meet these standards.

- Insulated glazing is thicker and heavier than single-glazing so requires a more substantial sash to hold it.
- The additional thickness of the glass takes away from the depth of the muntin on the outside, and reduces its "authentic" appearance.
- Many replacement sash come with their own frames. All vinyl windows come with their own frame to give them stiffness. Others come with their own frame to account for the existing window being out of square, and to insure a tight fit and smooth operation.
- Most replacement sash come with the tilt-pack option standard.
- The single sheet of insulated glass has a flat reflective quality that can't duplicate the appearance of true-divided lights.

There ARE windows out there that can reasonably replicate your historic sash. However, since window manufacturers are constantly tweaking their products, the window that we really like this year may not be available next year.

## HOW CLOSE A MATCH DOES IT HAVE TO BE?

- Match glass area.** In general, you should pay close attention to keeping the same glass area. By maintaining the same glass area, you are more likely to get window panes that are a correct match to the original window pane size, and also the stiles and rails are likely to be similar in dimension to the original. When the glass size gets reduced, the pane size gets narrower, or shorter, and the proportion of height to width changes.
  - No Tilt-Packs.** You cannot match the glass size of the historic sash with a tilt-pack window. By definition, the sash must be narrower than the existing opening in order for it to pivot in or out. So, if it the proposed window is a tilt-pack, the sash will automatically be narrower.
- Match Muntin Profile.** You should look at the profile of the proposed muntin. It should be triangular in shape, with a flat part on the face. This is called a putty bevel. Ideally, the muntin will be at least ½" deep from the glass to the flat part of the muntin. This will insure that you will get the most realistic shadow line on the glass.
- Match Muntin Width.** The width of the muntin should match the width of the original muntin. Since most simulated divided light windows have plastic or aluminum grids which are completely non-structural, this dimension should be easy to replicate.
- Trapezoidal Muntin Must be Applied to Exterior of Glass.**
- Simulated Divided Light Grids must have a sandwiched grid between the panes.** To create an accurate illusion that an SDL is a true divided light sash, there must be a grid between the panes as well as applied to the exterior.
- Have Beveled Stile & Rail Edge Profile.** The manner in which the stiles and rails meet the glass is important. It should be a beveled shape, so that the muntin will intersect with it in the correct way. If it is a square edge, and the muntin butts into it, it is not a good match for a historic wood window.
- Stile & Rail Joint should be a Butt Joint.** Whether the window is all wood, or is aluminum or vinyl clad, the joint line where the stile and rail intersect should be vertical, and not diagonal.
- Jamb Liners Should Not Be Visible.** Vinyl jamb liners should not be visible on the outside of the window, between the sash and the frame. This is especially important if the window will be a color other than white.
- Glass Must Be Clear.** The glass must not have any colored tints or reflective coatings. Low-E glass is generally okay.
- The Window Should Not Come With Its Own Frame.** If a replacement window comes with its own frame and is intended to fit inside the existing window frame, then the sash size and glass size will automatically be narrower than the original, and will not be a good match.



**RHODE ISLAND HISTORICAL PRESERVATION & HERITAGE COMMISSION**  
**MEMORANDUM**

**DATE:** June 15, 2003  
**FROM:** Virginia Hesse, R.A., Principal Historical Architect  
**TO:** Bill Penn, Block Island HDC  
**SUBJECT:** Vinyl Replacement Windows

The Rhode Island Historical Preservation & Heritage Commission is often asked to approve vinyl windows or vinyl clad windows for historic or existing windows in historic buildings. Only in extremely limited circumstances have we approved a vinyl or vinyl clad windows.

- If there are already non-historic vinyl, vinyl clad or aluminum windows in the building.
- If there are no windows remaining in the building.
- If a building has another structure built close to it on either side so that the side elevation is not easily visible, then vinyl clad windows could be allowed on the obscured elevations (buildings must be 6 feet or less apart.) Historically appropriate sash would still be required on the front and any other visible elevation.

Vinyl or vinyl clad windows are never allowed in historic buildings where there are existing historic sash, or replacement sash that are historically appropriate to the building.

If a building falls into any of the above categories, then the proposed replacement window must still be reviewed for their overall appearance, and similarity to the historic sash. For example, if a building has always had double-hung windows, but the current windows are double-hung though not original, then the new windows should also be double-hung. If existing non-historic sash are inappropriate to the historic building (awning or jalousie windows), the proposed replacements should be more historically appropriate to the building than those that they are replacing (if 6/6 double-hung were original, then replacements might be 1/1 double-hung, but not casements).

Never is it appropriate to replace an original historic sash with a vinyl or vinyl clad window. If original sash cannot be repaired, then they should be replaced in kind. Replacement sash can sit in vinyl tracks for ease of installation and weather-tightness, but the sash should be wood inside and out.

Also, tilt-pack windows are not recommended (unless they are replacing already non-historic windows described in scenarios above), because in order for the tilt function to work, the sash size must be made narrower than the window opening to be able to swing clear of the jambs. By reducing the sash width, the glass width is also reduced, resulting in a much heavier sash and less glazing. This problem is exaggerated when the window has muntins, because the proportion of the glass "panes" become taller and skinnier.

Features and details to pay close attention to include:

- Putty bevel detail. This occurs where the glass meets the sash stiles and rails, and at the muntins. The best replacement windows will have an artificial putty bevel around the glass so that the trapezoidal muntin will intersect convincingly with the stiles and rails. Many windows have square edges where these components meet the glass, and therefore do not resemble a historic window.
- Trapezoidal Muntin. The muntins must be trapezoidal in shape to resemble a puttied true-divided light muntin. The depth of the muntin should be 3/4" or greater to cast a shadow line. There should be a spacer bar between insulated panes of glass to make the muntin appear to be a true-divided light. Interior grids are recommended but not mandatory. Sandwiched grids without an exterior applied grid is never, never, ever appropriate.
- Width of stiles and rails. Vinyl windows, and clad windows tend to have wider profiles than historic wood sash. These dimensions must match as closely as possible dimensions of the historic sash. As a general rule of thumb, the increased dimensions of the stiles should not reduce the width of the glass by more than 5%.
- Gaskets. Gaskets around the glass and between the panes of glass (also called spaced bars) should match the color of the sash. Black gaskets, spacers or shiny aluminum spacers are dead give-aways that a window is a replacement sash.

These details should be evaluated for any proposed replacement windows, and vinyl should not be relieved of these same minimum requirements. Manufacturers of good quality solid vinyl or vinyl clad windows have accommodated these features that are distinctive of historic windows.