



Historic Fredericksburg District Window Policy

Architectural Review Board

715 Princess Anne Street, Fredericksburg, VA 22401 • (540) 372-1179 • ksschwartz@fredericksburgva.gov

Windows, the elements within and around them, and their configuration on a building significantly enhance the character and value of buildings and the Historic Fredericksburg District. Retaining this character and value is a primary duty of the Architectural Review Board, as assigned by the City's preservation ordinance beginning in 1972. The City of Fredericksburg *Historic District Handbook* specifies that historic windows should be retained, along with their functional and decorative elements such as sash, muntins, glass, sills, heads, hood molds, decorated jambs, and shutters. In general, windows should be maintained and repaired, restored when necessary, and only replaced when all other treatment options have been eliminated.

A. General

1. Direct replacement of any window must be considered by the Architectural Review Board in a public hearing and granted approval in the form of a Certificate of Appropriateness in accordance with §72-23.1 of the City of Fredericksburg Unified Development Ordinance. A building permit is also required for the replacement of any windows in the Historic Fredericksburg District (HFD).
2. Where staff determines that a window is not visible from a public right-of-way, the window is not regulated by the ARB and may be replaced with any suitable window allowed by the Virginia Construction Code. However, whether visible or not, a building permit is required to replace a window in the HFD.
3. The ARB will evaluate proposed replacement windows to determine whether they are architecturally compatible and historically appropriate for use in the HFD. Each case will be evaluated on the merits of the particular building and the window product proposed. Refer to the section on windows in the *Historic District Handbook* for additional information.
4. Any appropriate and compatible modern window permitted by this Window Policy or approved by the Board as part of the overall building's Certificate of Appropriateness approval may be used on new buildings and additions.
5. The use of storm windows is strongly encouraged to protect historic windows and to conserve energy. Storm windows are not regulated by the ARB and do not require a building permit, but they should be installed so as not to damage historic material and to be visually minimally obtrusive. Additionally, a number of new storm window products can be installed on the interior of buildings to increase efficiency and preserve historic single-pane windows in place.
6. **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 weather-stripping and by installing a storm window. 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 an independent provider not associated with window suppliers.

7. New glazing should be clear, non-reflective, and without tint. Low-E (low emissivity) glazing is encouraged for energy conservation but the glass should have minimum visible light transmission of 72% and reflectance of less than 10%. Low-E 272 generally meets these criteria.
8. Any request for window replacement should be accompanied by a window assessment form and thorough photo documentation to determine the need for replacement. The form is available online or in the Office of Community Planning and Building, Room 209, City Hall.
9. These policies may be amended by the ARB as new materials become available but will be reviewed and updated at least every five years.

B. Repairing Original Windows

1. Wood windows, 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 they should be made with in-kind materials and hardware. Where wood is deteriorated yet salvageable, consolidants or epoxies may be used.
2. Metal windows, typically made of steel or aluminum, are often mistakenly not deemed worthy of preservation due to the assumption that they cannot be repaired or made energy efficient except at great expense. Repair and retrofit of these windows can be more economical than wholesale replacement, and all too often, replacement units are unlike the originals in design and appearance. Rust and flaking paint on steel windows can be removed and elements repainted using a rust-inhibiting primer. Missing screws, fasteners, and hinges can often be replaced through a variety of suppliers, and operating performance can be improved through lubrication of hinges or other moveable parts. Elastomeric caulk can be used to seal surrounds and prevent air infiltration.

C. Replacing Original Wood Windows

1. Replacement of windows and related components 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. Openings should not be enlarged or reduced for a replacement window, unless a case can be made that it is architecturally appropriate.
2. If extensive replacement of parts is necessary and the job becomes prohibitively expensive, it may be more practical to purchase new sash which can be installed into the existing frames. Replacement of one or both sashes 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 ensure correct fitment in the existing frame. 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.
3. 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.
4. If both sashes and frames are deteriorated beyond repair, replacement units with sash pre-installed in the frame may be appropriate. 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 of this type 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 under-sizing of the replacement unit is not acceptable.

D. Replacing Non-Original Windows

1. Many historic buildings have suffered alterations to their original windows, both to the opening size and to the type and/or style of window used for replacement. 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, 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. However, it should be noted that previously replaced windows may have attained significance in their own right, and their treatment should be based on thorough consideration of a building's historic significance and character-defining features.

E. Replacement Materials

1. **Solid wood windows** – 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. When insulated glass is used, the muntin profiles of true divided light units will be necessarily wider than those used traditionally and cannot typically match the appearance of historic muntins.
2. **Aluminum-clad wood windows** – 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.
3. **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.
4. **Fiberglass windows** – These units may be appropriate for use on new construction. 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.
5. **Aluminum windows** – These 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.
6. **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 repairable and replacements are available that closely replicate the originals and can incorporate energy enhancements such as double glazing and thermal breaks.
7. **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.

8. **Solid vinyl windows** – Vinyl windows and windows with removable muntins (“grilles”) or muntins sandwiched between the glass panes are not considered appropriate or compatible in any location in the HFD. 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.

9. **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.

Interior storm windows are recommended for use due to their minimal visual presence. These glass inserts typically fit into the inside of existing window frames with a rubber gasket or compression system that requires no mounting hardware. They are easily removable, do not change the exterior appearance of structures, can increase energy efficiency, and dampen outside noise. It should be noted however, that the potential for damaging condensation problems must be addressed. Moisture which becomes trapped between the layers of glazing can condense on the colder, outer prime window, potentially leading to deterioration. The correct approach to using interior storms is to create a seal on the interior storm while allowing some ventilation around the prime window.



Window Assessment Evaluation Matrix

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If your application for a Certificate of Appropriateness includes the replacement of windows on an elevation visible from a public right-of-way, please complete this evaluation form and submit with your application. The evaluation is used to determine the need to replace existing windows based on their condition.

Demonstrated need is shown in the form of a window assessment. The assessment needs to correspond to numbered photos of each window to be replaced. Items such as window glazing, glass, or finishes (paint) are typically easily repairable and as such are not considered conditions that warrant window replacement. Lintel and sill conditions are structural issues and could warrant window replacement depending on severity. Repair of existing elements does not require a Certificate of Appropriateness or permit approval.

Property Address: _____

Instructions

Please make sure completed form is legible. Forms that are not legible will be returned and the review of the application could be put on hold. Using one line per window, evaluate each window proposed for replacement. Evaluate each window based on the overall condition and not just one component. For further information concerning the preservation of historic wood or metal windows, please refer to the *National Park Service Preservation Brief #9: The Repair of Historic Wooden Windows* and the *National Park Service Preservation Brief #13: The Repair and Thermal Upgrading of Historic Steel Windows*.

Frame and Sash Section Value Explanations

Repair Class 1: Window component needs only normal routine maintenance to upgrade a window to “like new” condition. This normally includes: some degree of interior and exterior paint removal, removal and repair of sash (including reglazing where necessary), simple repairs to the frame, weather stripping and reinstallation of the sash, and repainting. *If these types of repairs are required, enter the number 1 in the cell.*

Repair class 2: The window is operationally sound, but shows some additional degree of physical deterioration than repair type 1. Components can be repaired using simple processes, such as patching or consolidation, and then painted to achieve a sound condition, good appearance, and greatly extended life. *If these types of repairs are required, enter the number 2 in the cell.*

Repair class 3: Components are so badly deteriorated that they cannot be stabilized. Repair would involve replacing the deteriorated parts with new matching pieces, or splicing new wood into existing members. Most cases could involve removal of the sash and/or the affected parts of the frame and reproduction of damaged or missing parts by a carpenter or woodworking mill. *If these types of repairs are required, enter the number 3 in the cell.*

Name of Applicant/Representative: _____

Address: _____

E-Mail: _____

Phone: _____

Years of Experience in Historic Window Repair: _____

Window Assessment

Description of Window				General Information						Frame		Sash					Proposed Treatment	
Window #	Style	Width & Height	Material	Historic?	Paint Condition?	Square?	Operable?	Glazing Condition?	Weather-stripping?	Sill & Lintel	Jambs	Sash Only Replacement?	Bottom Rail	Rails & Stiles	Muntins	Meeting Rail	Total Value	Proposed Treatment
3a	Double-Hung 1:1	36"x78"	wood	Yes	Poor	Yes	No	Very Poor	No	2	2	No	3	1	1	1	10	Replace deteriorated bottom rail, use epoxy repair on rotten sill and jambs, repair glazing and add weather-stripping

EXAMPLE

*Reprint additional sheets as needed



Window Comparison—Single and Double-Hung

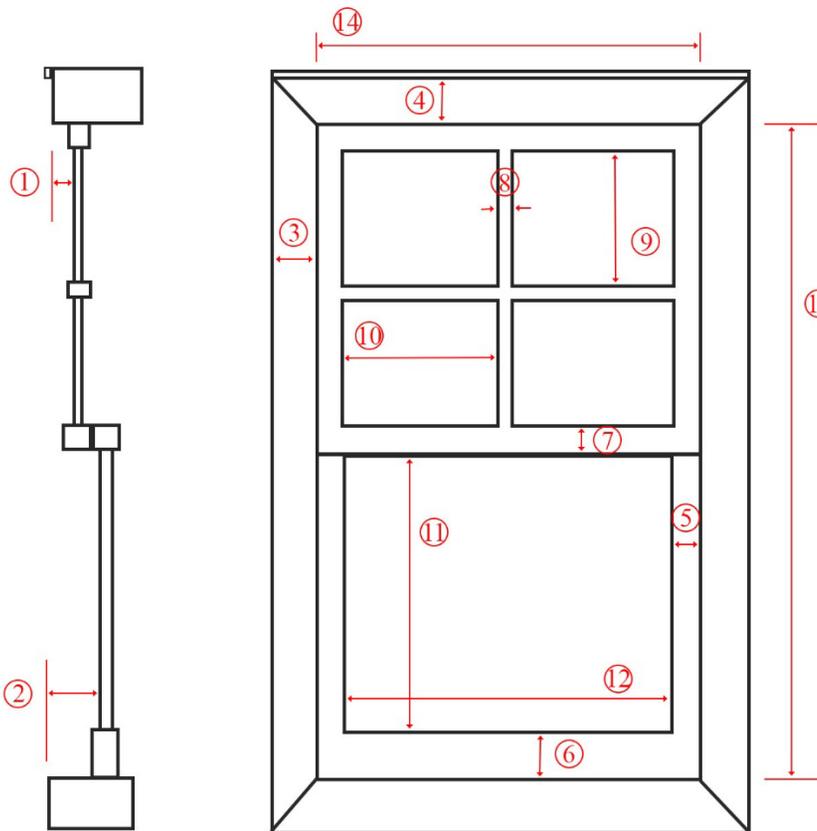
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Frame and Sash Comparison - Single and Double-Hung Windows

Instructions: To effectively evaluate replacement windows, it is important to understand how the physical characteristics of the existing and proposed windows compare. Please fill in each value, in inches. Feel free to notate any other measurements you feel are important to the replacement discussion.

Existing Frame and Sash Exterior Material _____

Proposed Frame and Sash Exterior Material _____



	Existing	Proposed
1. Upper Sash Depth/Shadow Profile (from exterior façade to glass)		
2. Lower Sash Depth/Shadow Profile (from exterior façade to glass)		
3. Side Trim Measurement		
4. Top/Bottom Trim Measurement		
5. Stile Width Measurement		
6. Bottom Rail Height Measurement		
7. Meeting Rail Height Measurement		
8. Muntin Width Measurement		
9. Glass Height Upper Sash		
10. Glass Width Upper Sash		
11. Glass Height Lower Sash		
12. Glass Width Lower Sash		
13. Overall Sash Height		
14. Overall Sash Width		



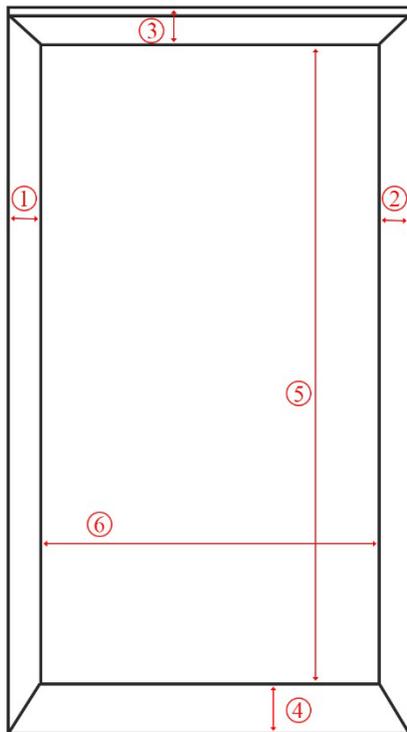
Window Comparison—Casement Windows

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Window Comparison – Casement or Fixed Windows

Instructions: To effectively evaluate replacement windows, it is important to understand how the physical characteristics of the existing and proposed windows compare. Please fill in each value, in inches. Feel free to note any other measurements you feel are important to the replacement discussion.

Existing

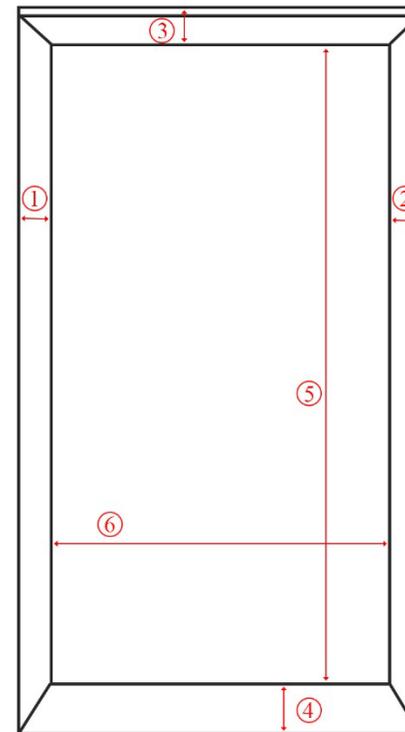


Window Location _____

Exterior Material _____

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Proposed



Window Location _____

Exterior Material _____

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____