Standards for Window Replacement

A GUIDE TO APPLYING FOR
A WINDOW REPLACEMENT PERMIT
Windows are an integral part of the design and character of most buildings, and choosing appropriate replacement windows is frequently a critical aspect of any rehabilitation project. Along with the need for energy conservation, the various window systems available today can overwhelm an owner in selecting the appropriate treatment for window replacement. Windows located on primary – the front or visible elevations – traditionally feature a higher degree of detail and ornamentation than windows located on secondary – the side or rear elevations. With such a variety of different window shapes, muntin profiles, methods of operation and configurations, seemingly minor changes can seriously damage or alter the appearance of a building, or overall neighborhood character. The Planning Department recognizes this challenge and has developed A Guide to Apply for a Window Replacement Permit, which also includes a list of frequently asked questions.

The San Francisco General Plan, the Planning Code’s Priority Planning Policies and the Residential Design Guidelines each call for protecting and enhancing neighborhood architectural character citywide. Since their revision in 2003, the Residential Design Guidelines set window requirements for all buildings within a Residential Zoning District (Page 46). To clarify the Department’s policy and serve as an additional guide to answer frequently asked questions in regard to window replacement and neighborhood character, the Department developed this Window Replacement Standards handout. This document also answers questions regarding what materials are required to be submitted to review a permit application for the repair, rehabilitation, restoration, or replacement of windows in San Francisco. Please note that rehabilitation and alteration standards for the preservation of designated City Landmark properties, including contributing buildings in historic or conservation districts, are contained in Articles 10 and 11 of the Planning Code.

This document hereinafter represents the San Francisco Planning Department’s policy in regards to this type of work and is based on the following principles:

1. Windows that are seen from the street or other public right-of-ways are an important part of neighborhood character as well as the individual architectural character of a building.

2. If replacement windows are proposed for any type of structure, the new windows visible from the public rights-of-way should be compatible with both the character of the neighborhood and the subject building in terms of size, glazing, operation, finish, exterior profiles and arrangement.

3. Historic windows and character-defining window features on architecturally significant structures should be retained and repaired wherever possible.
The information listed below can assist an owner in determining what replacement windows are appropriate for their property. If replacement is necessary, thoroughly document and investigate the structural and architectural detailing of the window and seek appropriate professional consultation. At any time, a Planner located at the Planning Information Center (PIC) can answer questions regarding window replacement. The PIC may also be reached by phone at 415-558-6377. For more information, please also review the How to Apply for a Window Replacement Permit Handout & Checklist.

**DO I NEED A BUILDING PERMIT TO REPLACE WINDOWS?**

**ALL** replacement windows that are visible from a street or other public right-of-way require Planning Department review. This includes:

- Windows on the primary elevation (commonly the street façade of the building). Please note that corner buildings are considered to have two primary elevations.
- Windows on the side of a building or in a visible recessed area near or next to the street.
- Windows on a back wall that can be seen from the street or another public right-of-way.

**CAN I REPLACE HISTORIC WINDOWS WITH VINYL, FIBERGLASS, OR ALUMINUM WINDOWS? CAN’T I GET VINYL OR ALUMINUM WINDOWS THAT LOOK VIRTUALLY THE SAME FROM THE STREET AS WOOD PAINTED WINDOWS?**

Wood windows were originally installed on the majority of residential buildings constructed up until World War II. In San Francisco, where most buildings are viewed at close range from the street, the differences between wood windows and substitute materials are almost always easily detectable. Particularly with older buildings, these alternate materials usually stand out visually, and rarely match the character of the neighborhood. They always look like what they are: plastic or aluminum – materials that are not architecturally compatible with the building.

**REMINDER:**

Do not purchase replacement windows before confirming with the Planning Department that the windows can be approved. The Planning Department will not approve inappropriate replacement windows, even if they have already been purchased or installed.
Vinyl, fiberglass, and aluminum windows almost never look similar to painted wood windows for a number of reasons. The primary reason is that these windows have a flat appearance and their exterior profiles, depth, and dimensions are not designed to match the dimensions of most common wood window sashes and moldings. In addition, windows of substitute materials have very little or no reveal between the face of the sash and the glass, have visible seams, have multi-faceted tracks, and in some windows the upper sash is often larger than the lower sash. Furthermore, most aluminum or vinyl windows cannot be painted, come in limited colors, and have an overall finish that is inappropriate to the overall character of the building and the neighborhood.

Another significant difference is that vinyl, fiberglass, and aluminum windows often do not have an important detail that is common on most older wood windows: the Ogee (pronounced Oh-jee) lugs at the bottom of the top sash (also called the meeting rail) of a double-hung window. These details are considered an important character-defining feature of older wood windows. (Please refer to the parts of a window diagram on page 8 for more information on the location and design of ogee lugs).

However, some manufacturers have recently begun producing better quality aluminum windows that come in a variety of colors and profiles. From a distance these windows can appear similar to wood painted windows. If proposed, these windows will be evaluated on a case-by-case basis.

**Need another reason?** Authentic wood windows (or, in the case of some early 20th century buildings, steel casement windows) add the appearance of warmth and beauty to the interior and exterior of a residential or commercial building, where the appearance of alternative materials commonly appears foreign to the interior architectural design. Using architecturally appropriate windows will enhance the property value of your building by improving its appearance inside and out.

**Take a Look Around:**
If you have any doubts about the difference in appearance between vinyl, fiberglass, or aluminum, and painted wood windows, take a walk around your neighborhood and notice the buildings that have wood windows and compare them to the ones that have used substitute materials (many of them installed without benefit of a permit or before the current window replacement standards). You will easily notice differences in the profile and depth of the window. The older and more elaborate the architectural style of the building, the more likely new vinyl, fiberglass, or aluminum windows will look out of place.
STANDARDS FOR WINDOW REPLACEMENT

DON'T WOOD WINDOWS COST MORE AND REQUIRE MORE MAINTENANCE, AS OPPOSED TO VINYL AND ALUMINUM WINDOWS?

It depends. The highest quality custom-made wood windows by major manufacturers may be more expensive than windows of other materials. But there are a number of manufacturers and local craftsmen that produce quality, double-paned, architectural grade, painted wood replacement windows that are competitive in price and also provide the beauty and authenticity that only comes with real painted wood sashes and assemblies.

Also, while it is often desirable to have all wood replacement windows in your building or house, in many cases, you may choose to use replacement windows of a substitute material in light wells or rear facades that are not visible from the street or other public right-of-ways. The only instance when a property owner may be required to use historically appropriate windows on all elevations is when the subject property has been determined to have historic significance. Examples of these properties are those identified as part of Article 10 or 11 of the Planning Code or as an eligible historic resource for the purposes of the California Environmental Quality Act (CEQA).

In terms of maintenance, wood windows do require painting every five to ten years, depending on their location, sun exposure, water exposure, paint quality, priming, wood quality, etc. Although vinyl and aluminum windows do not require painting, they are rarely maintenance free, and economy grade vinyl and aluminum windows can fail within a few years. Finishes on vinyl and aluminum can deteriorate through UV exposure, oxidation, and denting. Quality wood windows can last indefinitely, depending on maintenance and the quality of wood used. Double-hung painted wood windows can also be installed with metal or vinyl tracks, making them easier to open and close as they age.

WHAT ABOUT WOOD WINDOWS THAT HAVE VINYL, FIBERGLASS, OR ALUMINUM CLAD EXTERIORS?

For clarification, a clad window is part of a window system that is primarily constructed of wood but has an additional material, such as aluminum, applied to the exterior face for maintenance purposes. Generally, clad windows are not appropriate, especially on older residential and commercial properties. However, in some instances they may be acceptable, and if proposed, shall be reviewed on a case-by-case basis. Most clad window products do not have Ogee lugs, which are an important feature of older double-hung wood windows. In addition, a true divided light option is not offered for clad windows by any manufacturer. Another issue with vinyl-clad window systems is that they often show seams, as some of these windows are clad with vinyl strips on the outer surface. Aluminum and fiberglass finishes can come in a variety of colors and often have a finish that more closely resembles a painted surface.

There are a number of windows constructed of substitute materials on the market today that strive to match the styles and profiles of historic windows. The Planning Department is always open to reviewing any new products for compatibility with older properties. A quick way to get initial feedback on a new product is to bring the manufacturer’s specification sheet to the PIC for a planner to review. In some cases, the Planning Department may consider approving clad replacement windows that are visible from the street or other public rights-of-way if their architectural compatibility can be adequately demonstrated in terms of overall, size, glazing, operation, finish, exterior profiles, and arrangement.

REMINDER:
If you are required to use wood windows on the visible elevations you are often able to use replacement windows of a substitute material in light wells or rear facades that are not visible from the street or other public rights-of-way.
WHY SHOULD I LOOK INTO REPAIRING MY WINDOWS BEFORE REPLACING THEM?

Deterioration of poorly maintained windows usually begins on horizontal surfaces and at joints, where water can collect and saturate the wood. Wood windows, when repaired and properly maintained, will have an extended life while contributing to the architectural character of the building and the neighborhood. Property owners should conduct regular maintenance of window frames and sashes to achieve the longest life possible.

It’s important to note that many wood windows constructed during the late 19th- and early 20th-centuries still perform very well and may not require replacement. This is largely due to the fact that these windows were constructed out of Heartwood or the center of tree. This durable old-growth wood is denser and more resistant to fungi, insects, and rot than wood farmed to manufacture windows today. For this reason always explore the possibility of repairing the historic windows on a building before replacing them. There are a number of professional window replacement companies who can help you determine if your windows can be repaired, or if some or all need to be replaced.

SOME INFORMATION REGARDING SIMULATED DIVIDED LITE (SDL) WINDOWS.

Older windows are often made up of two sashes that include smaller panes of glass. These windows are referred to as “divided-lite windows.” The panes of glass are separated by thin wood members, or moldings referred to as a “muntin.” A true divided-lite (TDL) window is defined when the muntin separates individual panes of glass. Most TDL windows are single-paned; however, a simulated divided-lite (SDL) window often contains an insulated unit of glass with an applied exterior grid that mimics the appearance of a divided-lite window. The majority of simulated divided-lite windows do not accurately reflect the depth and the profile of a true divided-lite window.

If a property owner chooses to use an SDL window to replace a window that has true divided lites, then the replacement window must meet all of the following criteria to be considered for Planning Department approval. Please note that the Planning Department has the discretion to prohibit the use of SDL windows when the existing windows to be replaced are determined to be architecturally unique or considered to be an example of outstanding craftsmanship. In these cases, the Planning Department may ask for the existing windows to be repaired rather than replaced.

Criteria for using SDL windows in place of TDL windows:

- The SDL must match the existing window muntin in profile and depth to the greatest extent possible. This width may vary; however, the most common width for a TDL window muntin is 7/8” including glazing putty on either side of the division. The SDL muntin must have a depth of at least ½”.

- There should be an interior space bar, preferably of a dark color, within the insulated unit that visually divides the interior and exterior grilles.

- The SDL should be integral to the window sash – snap on grilles or grilles placed between an insulated glass unit are not permitted.

REMEMBER:
Simulated divided lite windows will not be approved for individually listed City Landmarks in Article 10 of the Planning Code on ANY elevation visible from a public right-of-way. Simulated divided lite windows will be reviewed on a case-by-case basis for contributors within Article 10 Districts or within and Article 11 Conservative District.

The differences between a true divided-lite (TDL) window and a simulated divided-light (SDL) window can be seen in the illustrations at left. The muntin on the TDL window (top image) separates two individual panes of glass while the muntin on the SDL window (bottom image) is applied to the interior and exterior of the window without piercing the insulated glass unit.
Be sure to evaluate **ALL** of the existing windows or hire a professional to conduct a conditions assessment to avoid spending money on windows that don’t need replacement. It may be that only certain windows on your building need replacement, while some may only need repairs or other minor refurbishments, thus significantly reducing costs. One solution for replacing deteriorated windows on visible elevations is to consolidate other windows from the rear and sides of the building that are still in good condition and relocate them to the primary façade.

**ENERGY CONSERVATION & SUSTAINABILITY.**

Windows don’t always require replacement in order to see and feel big results in reducing energy usage; however, energy conservation and sustainability is one of the primary reasons for replacing windows that are considered to be obsolete, particularly replacing single-glazed sashes with double-glazed sashes. Currently, most manufacturers’ warranties for replacement windows are from 2 to 10 years; however, historic wood windows with minimal maintenance have a performance life of 60 to 100 years. Retaining and repairing existing windows also conserves embodied energy (i.e. the sum of the energy required to extract raw materials, manufacture, transport, and install building products). Replacement window materials – primarily aluminum, vinyl, and glass possess some of the highest levels of embodied energy of all building materials.¹

Older windows are renewable and repairable; however, newer thermal windows are not repairable and once the dual glazing seals are broken, they must be totally replaced. While the advantages of double-paned windows are well known, a properly weather-stripped, single-glazed sash window can greatly reduce or eliminate air, noise and air infiltration (where most energy is lost). The cost of weather stripping is nominal when compared to the price of replacement windows.

---

**Are you planning a major renovation on a historic property?**

The California Office of Historic Preservation (OHP) administers the 20% Federal Rehabilitation Tax Credit for California in partnership with the National Park Service pursuant to federal regulations (36 CFR Part 67). This federal program provides a dollar-for-dollar income tax reduction credit equal to 20% of qualified rehabilitation expenditures on income producing properties that are certified historic structures. For more information regarding this program, please contact the OHP at 916-653-6624.

The Mills Act is designed to provide owners of both owner-occupied and income-producing property the opportunity to rehabilitate, restore, preserve and maintain “qualified historical properties” while receiving property tax relief. The Mills Act provides for a potential 50 percent reduction in property taxes on “qualified historical properties” in exchange for the owner’s agreement to maintain and preserve the resource in accordance with standards established by the Secretary of the Interior’s Standards for the Treatment of Historic Properties. For more information on the Mills Act in San Francisco, please refer to San Francisco Planning Department Preservation Bulletin No. 8.
MY WINDOWS ARE BEYOND REPAIR AND NEED TO BE REPLACED. WHAT TYPE OF WINDOW IS ACCEPTABLE FOR MY PROPERTY?

If replacement windows are required due to deterioration, those that are visible from the street or other public rights-of-way should be replaced with windows that are appropriate to the time period your building was originally constructed. For example, if the building was originally constructed in 1908 with wood double-hung windows, then they should be replaced with wood double-hung windows with similar exterior dimensions. If the appropriate window type cannot be determined, then a window that is otherwise architecturally appropriate to the building and surrounding neighborhood character, in terms of style, material, visual quality, and detailing can be considered. For example, if the building was originally constructed in 1925 and currently has vinyl sliding windows but similar neighboring buildings from the same time period have their original steel casement windows, then the appropriate replacement window would be a metal casement window.

WHAT IS THE IMPORTANCE OF BRICK MOLDS AND OTHER EXTERIOR MILLWORK?

A brick mold is the exterior molding often used to trim the edge of windows in a masonry opening. On a wood frame building this window detail is referred to as millwork. A common practice when installing replacement windows is to replace only the sashes and cover the trim and framework around the exterior of the window with capping or panning to give the window a cleaner, “updated” look. This panning, whether vinyl, fiberglass, or aluminum, is used to cover over brick molds and other exterior millwork that frame the opening and makes up part of the exterior profile of the windows. The Planning Department will not approve replacement windows where these elements are covered or obscured from view. Wherever possible, all surrounding millwork or brick molds should be retained and left exposed. When replacement is required due to deterioration or missing elements, these elements should be replaced in the original material, and a profile of the existing and proposed millwork should be included as part of the permit application drawings for review by Planning Department staff.

Mixing Window Types:

Mixing window types and materials creates an inconsistent appearance to a building’s facades. This issue becomes particularly important in dealing with condominium and apartment buildings. In general, the Planning Department will not approve partial window replacement for a building unless the replacement windows are meant to restore the windows to their historic configuration.
STANDARDS FOR WINDOW REPLACEMENT

WHO ARE SOME WINDOW MANUFACTURERS THAT SPECIALIZE IN HISTORIC OR OTHER ARCHITECTURAL GRADE REPLACEMENT WINDOWS?

As a city agency, the Planning Department cannot recommend the use of one manufacturer over another; however, a list of some commonly used window manufacturers or representatives can be obtained from the Planning Information Center (PIC) on the first-floor of 1660 Mission Street. The PIC may also be reached by phone at 415-558-6377.

If your building is protected under Article 10 or 11 of the Planning Code or is deemed an eligible historic resource, please contact the PIC for a list of the organizations that may help you find a product or manufacturer that best suits your needs.

WHAT SHOULD I DO FIRST IF I NEED TO REPLACE MY WINDOWS?

If replacement is necessary, thoroughly document and investigate the structural and architectural detailing of the window and seek appropriate professional consultation. Please refer to the following questions every applicant should review before applying for a permit to replace windows. At any time, a Planner located at the Planning Information Center (PIC) can answer additional questions regarding these standards and window replacement. The PIC may also be reached by phone at 415-558-6377.

APPLYING FOR A WINDOW REPLACEMENT PERMIT.

When applying for a window replacement permit, please bring as many of the applicable items on the How to Apply for a Window Replacement Permit as possible in order to ensure the most efficient review possible. There are a number of basic questions that a property-owner can answer when examining the windows proposed for window replacement.

MANY OF THE BUILDINGS IN MY NEIGHBORHOOD ALREADY HAVE VINYL, ALUMINUM, OR FIBERGLASS WINDOWS. WHY CAN’T I HAVE SIMILAR WINDOWS APPROVED FOR MY BUILDING?

There may be a number of reasons why a Planner may not approve vinyl, aluminum, or fiberglass windows for your building. The most common reason is that the windows in your own building and in adjacent buildings may have been installed before the revision of the Residential Design Guidelines in 2003 and the preparation of this document, Window Replacement Standards, August 2008. As the Planning Department strives to promote and enhance neighborhood character citywide, the Department acknowledges that windows may be inconsistent with the architectural features and the original design intent of older structures. In addition, it is possible that the

Basic Window Questions:

- What is the pattern of window openings and their size? (Irregular, Regular)
- What are the proportions of the frame and the type of sash operation? (Double-Hung, Casement, Pivot, Slide, Hopper)
- What is the configuration of the windowpanes? (2-over-2, 4-over-1, 6-over-6)
- What (if any) are the muntin profiles? (Shallow, Deep, Simple, Ornate)
- What is the material? (Wood, Steel, Vinyl, Aluminum, Fiberglass)
- What are the characteristics of the glass? (Decorative, Wavy, Clear, Opaque, Translucent, Leaded)
- Are there any associated details? (Decorative millwork, Brick Molds, Arched Tops, Window Surrounds or Hoods)
windows installed on adjacent buildings were done without the benefit of a permit or contrary to the scope of work outlined in the building permit.

THE PLANNER SAID THAT I HAVE TO REPLACE MY WINDOWS “IN-KIND.” WHAT DOES THAT MEAN?
If a Planner has stated that you should replace your windows “in-kind” this means that a wood double-hung window should be replaced with a wood double-hung window or a metal casement window should be replaced with a metal casement window. All details must match, including muntin profiles and exterior millwork. Please note that replacing a double-hung wood window with a double-hung vinyl window is not “in-kind” replacement.

HOW LONG WILL IT TAKE THE PLANNING DEPARTMENT TO REVIEW MY PERMIT?
→ If windows are being replaced in-kind or on non-visible elevations and all the required materials for review are submitted, an over-the-counter approval can be issued at the Planning Information Center.

→ If the windows are visible from the street and the new windows are consistent with the building’s historic window type or compatible with the building and neighborhood character, planning approval will be over-the-counter at the Planning Information Center. Please note that in some instances window replacement on an Article 10 or Article 11 property must be approved by the Historic Preservation Commission or the Zoning Administrator.

→ If installing a new window on a portion of the building that is visible from the street is desired, and the plans and photos are adequate, a planner will determine right away if the permit can be approved, or if it will require further design review.

→ In some situations such as window replacement on a historic building, further review may be required. The window replacement permit application will be reviewed at the Planning Information Center and may be referred upstairs to a Preservation Technical Specialist for review.
How to Apply for a Window Replacement Permit

The Planning Department reviews each window permit application on a case-by-case basis. The following is a list of information that may be required to process an application to replace windows. Please note that buildings listed as City Landmarks or as contributors to a historic district as part of Article 10 of the Planning Code require a Certificate of Appropriateness for any exterior work. In addition, buildings listed under Article 11 of the Planning Code must also be reviewed for historic architectural compatibility by the Zoning Administrator. Either approval must be obtained before the building permit is issued. Please note that in some instances Planning Department staff may request additional information.
Where original or historic windows exist and replacement is proposed, please submit the information on the following checklist for review:

- Photographs of the overall building taken from the curb and streetscape photos of the immediate block. Also, include close-up photos of the different types of windows to be replaced, including any millwork or brick molds between windows and surrounding the window openings.

- A site plan or a clear aerial photograph showing your building and the walls of your neighbor’s building on each side of you as well as overall photos of each elevation where the proposed window replacement is to occur.

- Please provide window details for the proposed windows (head, jamb, meeting rail, sill, etc.) with dimensions and showing exterior profiles including brick molds and surrounding exterior millwork. The Planning Department needs to know the materials, size, and appearance of both the existing and the replacement windows. The manufacturer’s product sheet may have this information for the new windows. Please note that if historic windows are to be replaced then the replacement windows should match the existing windows in overall, size, glazing, operation, material, finish, exterior profiles and arrangement.

- If the existing windows have divisions (muntins) they may be replaced with either true divided light or simulated divided light (SDL) windows provided that the replacement windows match the historic size, glazing, operation, finish, exterior profiles and arrangement and the SDL windows meet the additional requirements listed in this document.

- If proposing to replace or change the profile of exterior millwork or brick mold, please submit details of the existing and proposed new millwork or brick molds with dimensions.

When the original or historic windows no longer exist, the owner has the option of retaining the existing window or replacing it with a compatible sash. For window replacement, please submit the information above for review, the following:

- Photographs of the neighboring buildings and their windows on each side of your building

- Photographs of the neighboring buildings and their windows immediately across the street

- For corner lots, bring photos of the subject building and the building’s other three intersections, showing their windows closest to each corner.
A QUICK SUMMARY:

1. A building permit is required for ALL window replacements.
   - A permit is needed to replace windows regardless of their location on the building.
   - Failure to obtain a building permit may result in enforcement, fines and removal of windows installed without the benefit of permit.

2. DO NOT purchase windows until you have obtained a building permit for their replacement.
   - The Planning Department must review all permits for windows proposed for replacement that are visible from the street for architectural compatibility.
   - The Planning Department review applies to all buildings in San Francisco, not just historic buildings.
   - The Planning Department will not approve windows if it is determined that they are not architecturally appropriate, even if they have already been purchased and/or installed without benefit of a permit.

3. Evaluate what windows may only need repairing rather than replacing.
   - Survey all of the windows on your buildings to determine which ones actually need replacement.
   - Windows on eastern and northern facades often last longer and need less frequent replacement than windows with southern or western exposure.

4. Replacement windows should match the HISTORIC windows in size, glazing, operation, material, finish, exterior profiles and arrangement.
   - The Residential Design Guidelines, since their revision in 2003, have set requirements for windows for all buildings within residential zoning districts (P. 46).
   - If the historic window type cannot be determined, a window type appropriate to the building’s architectural period and style should be used. A Preservation Technical Specialist can help in determining an appropriate window type.
   - Please refer to pages 44-46 of the Residential Design Guidelines for more information on determining what types of windows are compatible with the architectural character of the building.
   - Where visible from the street, aluminum and vinyl windows cannot be approved as replacements for windows that were originally wood.
   - The proposed use of Simulated Divided Lites (SDLs) will be reviewed on a case-by-case basis and must meet the criteria identified in this document.
   - Replacement wood windows that have vinyl, fiberglass, or aluminum clad exteriors will also be reviewed on a case-by-case basis.

5. All exterior trim and millwork must be left exposed.
   - The underlying trim and millwork must be left exposed and be repaired in place. If beyond repair, the trim and millwork must be replaced in kind.
NOTES