



CITY OF PATERSON

Downtown Commercial Historic District

DESIGN GUIDELINES

WINDOWS



Windows are a key design feature of many historic buildings. Most windows in the Downtown Commercial Historic District are double-hung and can be opened to provide natural ventilation.

PURPOSE OF GUIDELINES

- Encourage retention of historic windows, typically located at upper floors of buildings in the Downtown Commercial Historic District
- Provide design assistance in identifying key features of windows that can encourage stylistically appropriate replacement options when retaining historic windows is not longer viable
- Encourage window security options that are historically compatible, visually minimal and more pedestrian friendly

These *Guidelines* were developed in conjunction with the City of Paterson's Historic Preservation Commission (HPC) and with input of many diverse stakeholders. Please review this information during the early stages of planning your project. Familiarity with this material can assist you in moving a project quickly through the approval process, saving you both time and money. The HPC staff is available for informal meetings and to provide you with valuable information as you consider making improvements to your property.

Additional *Guidelines* addressing other historic building topics are available at 125 Ellison Street, Suite 408 and on the City's website at www.patersonnj.gov. For more information, to clarify whether your project requires HPC review, or to obtain permit applications, please call the HPC staff at (973) 321-1355.

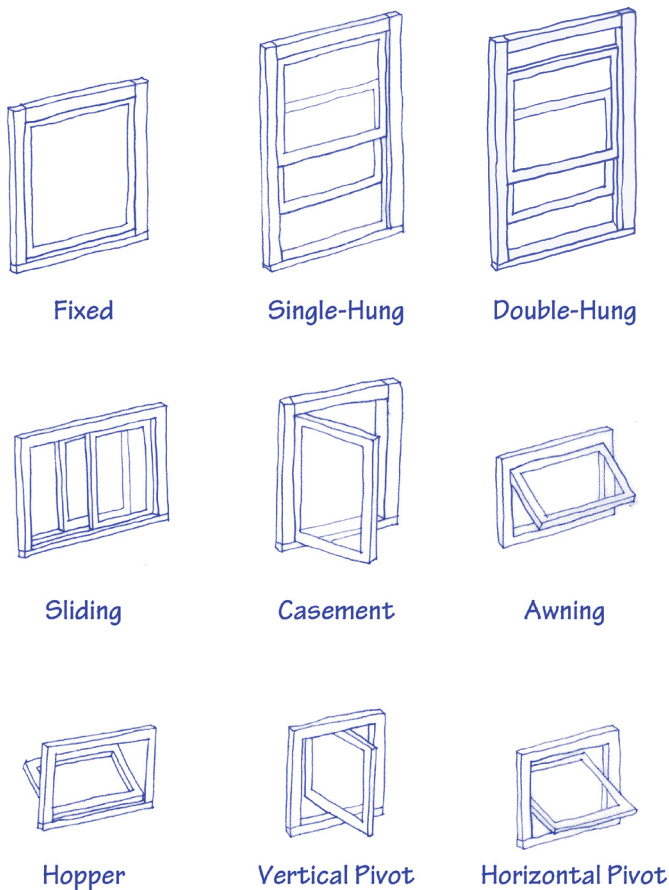
WINDOWS

Windows typically comprise at least one quarter of the surface area of exterior walls of most historic buildings. Windows and doors, in addition to their trim and associated features are important elements of historic buildings because they can:

- Define the character of each individual building and provide a visual feature on the streetscape
- Help define architectural style, and building type
- Help identify the time or period of construction
- Provide natural light and ventilation
- Act as a visual transition from the exterior to the interior of a building



Windows typically comprise one quarter of the surface area of most historic buildings and are considered a character-defining element.



COMMON WINDOW TYPES

The window types above can have different muntin patterns or configurations. Muntin patterns (or grids) are defined in terms of the number of panes of glass. For example, a six-over-one (6/1) double-hung window indicates there are 6 panes in the upper sash and 1 pane in the lower sash.

- **Fixed:** Non-operable framed glazing
- **Single-hung:** Fixed upper sash above a vertically rising lower sash
- **Double-hung:** Two sashes that can be raised and lowered vertically
- **Sliding:** Either a fixed panel with a horizontally sliding sash or overlapping horizontally sliding sashes
- **Casement:** Hinged on one side, swinging in or out
- **Awning:** Hinged at the top and projecting out at an angle
- **Hopper:** Hinged at the bottom and projecting in at an angle
- **Vertical pivot:** Pivots vertically along a central axis
- **Horizontal pivot:** Pivots horizontally along a central axis

WINDOW STYLES

Window patterns and configurations are linked to a building's period of construction and style. Late 19th century buildings, from about the 1880s, featured a variety of window shapes and more elaborated frames, casings and applied ornament and trim. When the Renaissance Revival styles were popularized beginning in the 20th century, the use of multi-paned windows with elaborate frames and casings was more prevalent; while Classical Revival buildings often incorporated simpler frames and casings, and the Art Deco style and Mid-Century Modern buildings utilized larger sheets of glass or glass block.

Since all of the components and details of a window are essential to defining a building's style, property owners are encouraged to investigate the essential elements of their windows prior to undertaking any modifications. What might be an appropriate alternative at one building, might not be appropriate at another. For guidance on window and building styles, please consult with the HPC staff prior to beginning work.

GLASS BLOCK

Glass block was popularized as a building material at the beginning of the 20th century. It is available in a variety of sizes, with the most common size being approximately 8" square and 4" thick. Although typically made of clear glass with a relatively smooth finish, some glass block can be colored and include decorative patterns.

In Paterson, glass block was historically used in Art Deco and Moderne buildings. At the exterior of buildings it offers a distinctive pattern and texture while at the interior it provides diffused translucent natural light. It also has the advantage of being burglar resistant and has a higher thermal rating than standard glass windows. Glass block is laid in mortar similar to brick and stone. Refer to *Guidelines for Masonry, Stucco & Concrete* for more information.

DEFINITIONS:

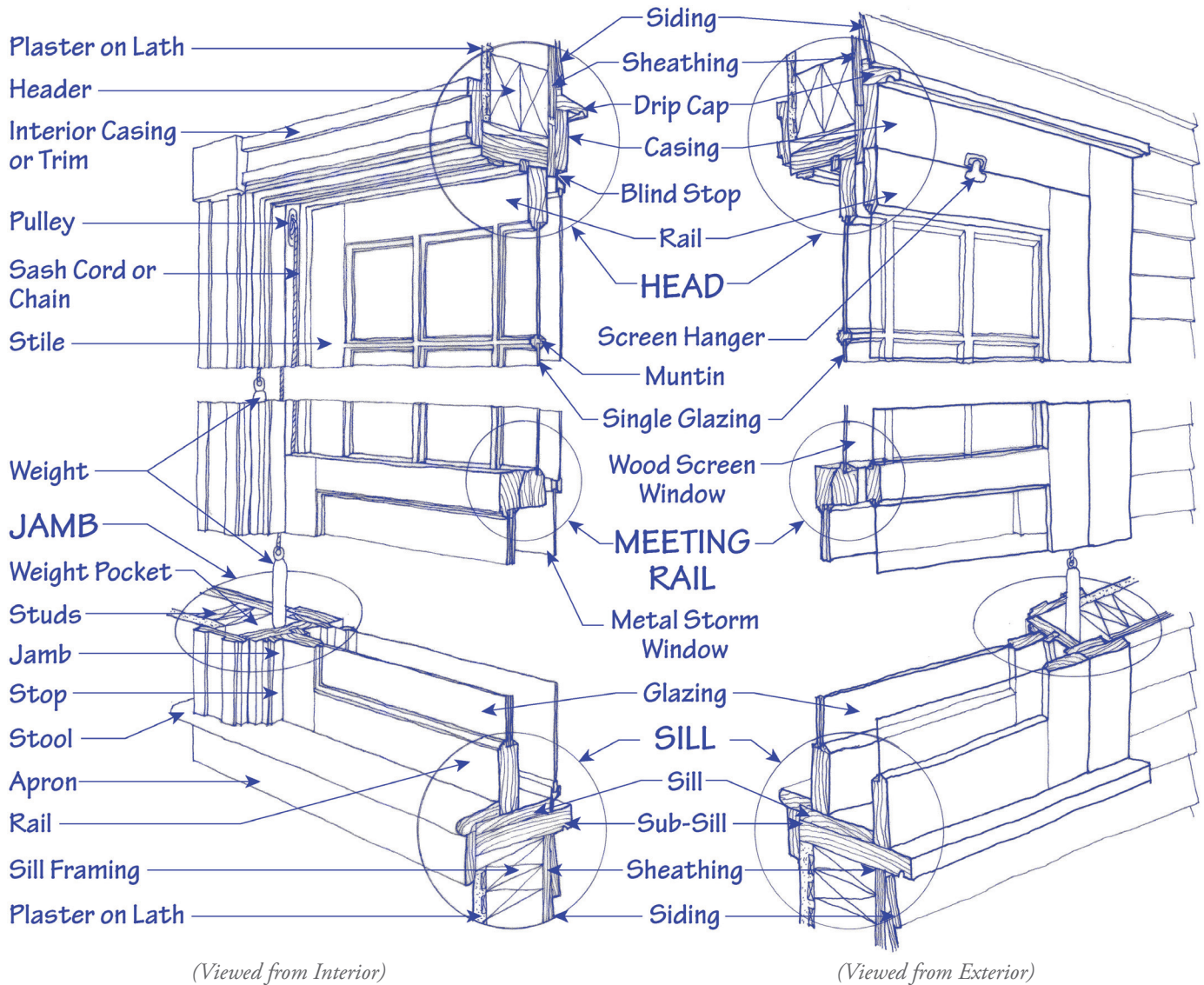
Mullion: The vertical element separating two window or door frames.

Muntin: The narrow molding separating individual panes of glass in a multi-paned window sash.

Sash: The part of the window frame that holds the glazing, especially when movable.

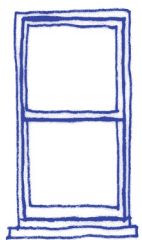
True Divided Light: A window or door in which the glass is installed as several individual small panes.

DOUBLE-HUNG WINDOW COMPONENTS

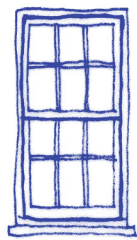


WINDOW CONFIGURATIONS

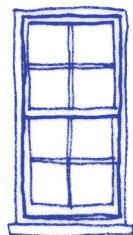
Different window configurations are appropriate for each architectural period or style. Altering the window type, style, shape, material, size, component dimension, muntin pattern or location can dramatically alter the appearance of the building.



1/1 Window



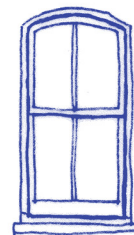
6/6 Window



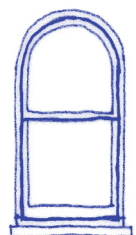
4/4 Window



6/1 Window



2/2 Arch-Top Window



1/1 Arch-Top Window

WINDOW MAINTENANCE CHECKLIST

This checklist can help property owners look over the conditions of their windows as well as to keep track of their maintenance. The checklist shows some of the most common problems and issues that come up and suggestions for repairs and follow-ups. Each checklist is most useful if it is changed to show the specific materials used in a specific building. If serious issues are discovered in a building, an architect or qualified building professional should be brought in to recommend the most appropriate options and solutions.

MATERIAL	INSPECTION REVIEW	RECOMMENDED ACTION
Windows	<ul style="list-style-type: none"> • Windows and doors do not fit or operate properly 	<ul style="list-style-type: none"> <input type="checkbox"/> Verify whether frame is wracked or out-of-square - possibly an indication of differential or uneven foundation settlement or deteriorated wall framing <input type="checkbox"/> Verify whether windows are painted shut <input type="checkbox"/> Verify that hardware (including sash cord or chains) is operational
	<ul style="list-style-type: none"> • Wood rot, particularly at sills and lower rails 	<ul style="list-style-type: none"> <input type="checkbox"/> Repair or selectively replace deteriorated components in-kind <input type="checkbox"/> Following repairs, verify deteriorated areas are well painted and joints caulked
	<ul style="list-style-type: none"> • Glass is cracked 	<ul style="list-style-type: none"> <input type="checkbox"/> Replace glazing to match existing
	<ul style="list-style-type: none"> • Glazing putty is missing, cracked or deteriorated 	<ul style="list-style-type: none"> <input type="checkbox"/> Replace glazing putty - verify compatibility with adjacent materials - older putty can contain asbestos (Asbestos is a hazardous material. Refer to the <i>Guidelines - Introduction, Page 16</i>, for additional information.)
	<ul style="list-style-type: none"> • Screen or storm windows or doors are missing, deteriorated or non-operational 	<ul style="list-style-type: none"> <input type="checkbox"/> Repair or replace deteriorated units as appropriate <input type="checkbox"/> Consider installing interior storm windows and doors - interior installation can minimize potential condensation between the storm and window, reduce drafts, are virtually invisible thus maintaining the exterior appearance of the building
Window Frames & Trim	<ul style="list-style-type: none"> • Loose, cracked, missing or open joints at decorative woodwork and window frames 	<ul style="list-style-type: none"> <input type="checkbox"/> Could lead to water infiltration and rot - repair or replace in-kind as appropriate <input type="checkbox"/> Apply caulk to open joints - verify compatibility with adjacent materials
	<ul style="list-style-type: none"> • Original wood trim has been covered with vinyl or aluminum siding 	<ul style="list-style-type: none"> <input type="checkbox"/> Vinyl and aluminum siding and capping can trap moisture and hide rot and damage - if possible, vinyl or aluminum siding and capping should be removed and woodwork inspected for damage and repaired
Painting (Refer to <i>Page 5</i> for information about <i>Paint Removal Safety</i> and <i>Exterior Paint</i>)	<ul style="list-style-type: none"> • Chalky or dull finish 	<ul style="list-style-type: none"> <input type="checkbox"/> Surface cleaning might be all that is needed <input type="checkbox"/> If repainting, additional preparation might be required
	<ul style="list-style-type: none"> • Paint surface worn 	<ul style="list-style-type: none"> <input type="checkbox"/> Wood generally needs repainting every 5 to 8 years
	<ul style="list-style-type: none"> • Peeling, curling, crazing and blistering 	<ul style="list-style-type: none"> <input type="checkbox"/> Possible indication of a moisture problem - review drainage, potential leaks and vapor barrier in the wall <input type="checkbox"/> Paint failures near roofs, downspouts and porch ceilings are often the result of drainage problems

HISTORIC WINDOW PROBLEM SOLVING

In general, property owners do not pay close attention to their windows until problems come up, such as frozen or difficult movements of the sashes, air infiltration that causes rattling, and chipping paint that looks shabby. Usually a historic window that has not been maintained for many years looks much worse than it actually is. Replacement of an entire window because of one deteriorated component - such as the sill or the bottom rail - is not necessary. Repairing or replacing the damaged or rotted parts is usually enough, along with beginning a regular maintenance schedule after the repairs. It is usually economical to upgrade existing windows that are in fair to good condition rather than replace them altogether.

To improve operation:

- Repair sash cords, chains and weights
- Remove built-up paint, particularly at jambs
- Repair or replace deteriorated components such as parting beads that separate window sash

To reduce air infiltration:

- Install weather-stripping snugly between moving parts (quality metal weather-stripping can last 20 years)
- Replace broken or cracked glass (glazing)
- Re-caulk perimeter joints
- Remove and replace missing or cracked glazing putty
- Add sash locks to tighten windows
- Insulate weight pockets if no longer in use

To reduce solar heat gain or heat loss:

- Install interior blinds or curtains
- Install UV window shades
- Install clear UV film without tint or color

Maintenance:

- Regularly review, repair and repaint windows

PAINT REMOVAL SAFETY

Paint removal is sometimes necessary but it is potentially hazardous work. Paint dust from older buildings can contain lead.

Paint removal, particularly lead based paint removal, must comply with City Health Department and Environmental Protection Agency (EPA) requirements. Keep children and pets clear of work areas. Property owners should consult a professional for work that is unfamiliar or potentially unsafe.



The window sill and jamb have peeling paint and some checking or splitting. Removal of the loose paint will allow the wood to be inspected for signs of rot.

EXTERIOR PAINT

Painting the exterior of a building is one of the most common ways to protect it from the elements. This is especially true for wood and metals that would rot and rust faster if left unpainted. When a painted surface is chipped and worn, the building materials underneath are exposed to moisture and deterioration can quicken. In addition to protecting building materials, paint colors highlight architectural features to visually tie the parts of a building together. A building's architecture, period of construction, materials and setting can all help identify appropriate paint colors.

Exterior paint adds a barrier of protection from moisture, sun, insects and other elements that rot wood and rust metals. Exterior woodwork that is not coated with a natural or chemical preservative will weather and eventually rot, and uncoated metals will rust and weaken. Even though paint is an important protective layer that provides many extended years to the life of historic buildings, it is a temporary barrier that must be replaced in order to function well. In general, exterior surfaces should be repainted every 5 to 8 years, with intermediate touch-ups of worn or deteriorated areas. High quality paints can last longer if applied according to the manufacturer's recommendations.

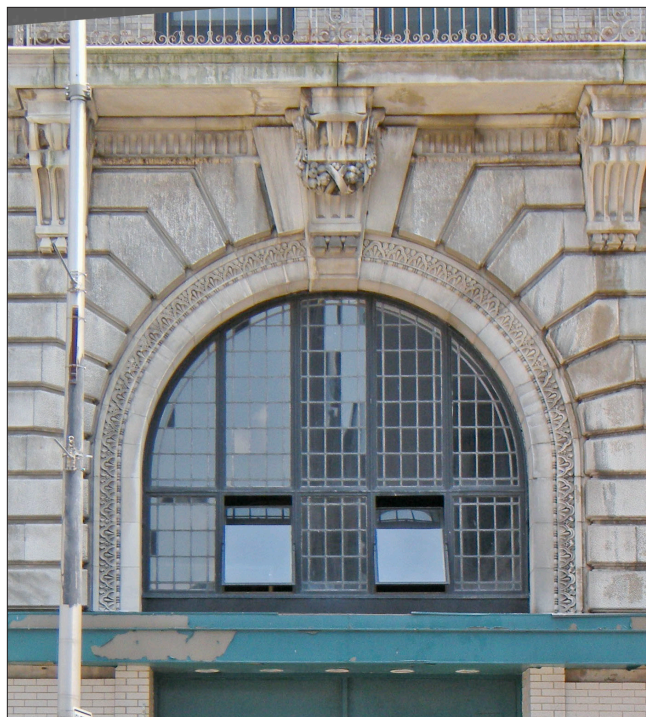
CRITERIA FOR REVIEW

Use the following guidelines when evaluating window repair or replacement:

1. **Perform routine maintenance:** Replace broken or missing components such as trim, glazing or sash cords. Verify that caulking, glazing putty and weather-stripping is securely applied and repaint.
2. **Treat or repair deteriorated components:** At the earlier stages of wood deterioration, it is possible to complete in-place treatments that do not necessitate component replacement. This includes treating wood for insects or fungus, epoxy consolidation, applying putty at holes and cracks and painting. Metal window components, particularly steel, require regular maintenance to prevent deterioration, most frequently rusting. Regular scraping of surface rust and application of a rust-inhibitive paint will allow windows to remain serviceable for a significantly longer period of time.
3. **Replace deteriorated components:** Replace either the deteriorated portion of the component with a “Dutchman”, or the entire component if very deteriorated. A “Dutchman” is a repair with a piece of the same material in a sharp-edged recessed cut and can be used for wood or metal components, although metal Dutchmen typically require a skilled metal worker. The replacement pieces should match the original in design, shape, profile, size, material and texture. New wood sills are usually easily installed, while complete sash replacement might solve problems of broken muntins and deteriorated rails.
4. **Replace window:** If the majority of the window components are deteriorated or missing and in need of replacement, replacement of the unit might be warranted.



Often, the deterioration of wood windows first occurs at the sill. Peeling paint can allow moisture to enter wood and cause rot. Regular repainting is recommended to provide a protective layer against moisture.



When windows have unique details and decorative elements that could be difficult to duplicate with replacement windows, property owners are strongly encouraged to make every effort to maintain and repair historic sash.

WINDOW REPAIR VS. REPLACEMENT

Because windows are of key importance in showing the architectural character of a building, the HPC strongly encourages repair or replacement of only the parts of windows that are deteriorated beyond repair. When considering whether to keep existing windows versus replacing them, the HPC encourages keeping the existing ones. It is important to remember that because a portion of a window is rotted, replacement of the entire unit might not be necessary, especially for wood windows.

However, it is sometimes necessary to replace an entire window due to extensive deterioration. If a property owner would like to replace existing windows, they must demonstrate to the HPC that the existing windows are beyond repair.

HISTORICALLY APPROPRIATE REPLACEMENT WINDOWS

Replacement windows can be found at several buildings in Paterson's Downtown Commercial Historic District. The HPC staff is available to provide guidance to property owners that are appropriate for a building's style and period of construction.



Historic windows were often seen as a design feature. This example includes a decorative wood surround and stained glass in the transom above an operable casement sash.

WINDOW MATERIALS: PAST & PRESENT

Wood windows were historically manufactured from durable, close, straight-grain hardwood of a higher quality that is uncommon today. The quality of the historic wood materials from the 19th century or earlier allows many of these windows to survive through today. Replacement windows tend to have much shorter life spans than historic wood windows.

Selecting replacement windows is usually challenging since manufacturers offer various grades of windows, with different types and qualities of materials and warranties. Today, lower cost wood windows are typically made from new growth timber, which is much softer and deteriorates quicker than the hardwoods used in the past. Vinyl and PVC materials, now common for replacement windows, break down in ultraviolet light, and have a life expectancy of approximately 25 years - which is much less than historic wood windows. Because of the great variety of finishes for aluminum windows, they are still being tested to determine their projected life spans.

Other areas of concern with replacement windows are the types and quality of the glazing, seals, fabrication and installation. Double glazing or insulated glass, used in most new window systems, is made up of an inner and outer pane of glass with a sealed air space between the glass layers. The space is typically filled with a gas and sealed at all edges. This seal can fail in as few as 10 years, resulting in water condensation or fogging between the glass layers. Many of the gaskets and seals that hold the glass in place also have a limited life span and deteriorate with exposure to the ultraviolet light from the sun.

Other problems with replacement windows result from poor manufacturing or installation. Twisted or crooked frames can make windows difficult to operate. Open joints allow air and water into the wall or even into the interior.



These low-quality 9-over-6 vinyl replacement windows have applied muntins, are mounted flush against the outside wall and lack the depth of traditional windows. They do not have sills to direct water away from the building wall below or exterior trim. The window to the right is wracked, or twisted in its opening and it does not appear it will close properly. They are not appropriate for historic buildings.

REPLACEMENT WINDOW QUALITY

Local lumber yards can usually provide a better selection and higher quality replacement window options than those advertised with bulk mailings or flyers. The better manufacturers also give several grades of replacement window options that can be very helpful in meeting budgets. This information can usually be found on their web sites or in product catalogues.

Keep in mind that quality replacement windows will not need to be replaced as often as lower quality units, and can save money over time.

WINDOW OPTIONS

Repair or replacement of existing components:

Deteriorated sills, sash and muntins are repairable by craftsmen with wood consolidant or replacement parts, retaining original fabric and function. In-kind replacement sash and sills can be custom-made to replace deteriorated sections if necessary. It is strongly encouraged that property owners explore repair and selective replacement parts options prior to considering sash or frame replacement.

Benefits of repair and selective component replacement:

- Original building fabric and historic character remain
- Repairs can be completed by local carpenters
- Timber, used in historic windows, can last substantially longer than replacement units

Sash replacement package: Some manufacturers offer replacement jamb liners and sash for installation within existing window frames. The system allows installation of new sash of various muntin patterns within existing frames. Because of the loss of the historic sash, this option is discouraged.

Benefits of a sash replacement package:

- Original muntin pattern can be duplicated
- Maintains the historic opening, surround and trim

Negatives of a sash replacement package:

- Historic sash are removed and become landfill debris
- Replacement sash have a limited warranty, likely needing replacement again in 10 to 25 years as seals and joints open
- Modification of the jambs is necessary
- The jamb liners do not always work well in existing window openings and might need more frequent replacement
- Out-of-plumb openings can be difficult to fit making window sash hard to operate
- Perimeter seals might not be tight

Frame and sash replacement unit: This is a complete frame with pre-installed sash of various muntin patterns for installation within an existing window frame opening. Because of the total loss of both the frame and the sash, this is strongly discouraged.

Benefits of the frame and sash replacement unit:

- Manufactured as a unit to be weather tight
- Original muntin pattern can be duplicated

Negatives of the frame and sash replacement unit:

- Historic sash are removed and become landfill debris, the historic character of the building is diminished
- The surrounding frame is modified, alteration of built-in surrounds might be required and two frames and sills are typically visible at the exterior
- The size of the window sash and glass openings are reduced due to the new frame within the old frame
- In-fill might be required for non-standard sizes



When considering replacement windows, it is important to fill the entire historic window opening. In this example, the property owner installed two small windows within a larger opening, and infilled the remainder with wood paneling.

REPLACEMENT WINDOW COSTS

If planning to replace windows, the following costs should be considered:

- Labor to remove old windows
- Environmental costs of disposal including transportation and landfill fees
- Purchase price and delivery of new windows
- Environmental costs of new window manufacturing and transportation from the factory
- Labor and materials to modify existing frames for new windows
- Labor to install new windows
- Life-cycle costs associated with more frequent replacement of new windows as they deteriorate



Selecting better quality replacement windows, such as this paired 6-over-6 example with a profiled exterior aluminum muntins will require less maintenance and less frequent replacement over time.

MAINTAINING REPLACEMENT WINDOWS

One of the selling points of replacement windows is that they do not require maintenance. With the relatively short life expectancy of many of the materials and components, this is an optimistic viewpoint.

As joints or seals in replacement windows deteriorate, openings can be formed that allow air and water to enter into the window frame, wall cavity and/or building interior, causing additional damage. Repair of these openings typically requires replacement of the deteriorated parts. This can present a problem if the manufacturer has modified their designs or is no longer in business, necessitating custom fabrication of deteriorated elements or replacement of the window.

As previously described, double-glazing has similar problems over time with the deterioration of the perimeter seal. In addition, if the glazing unit is cracked or broken, it will require full replacement. This is even more difficult when a double-glazed window has a grid within the space between the two glass panes. By contrast, a good carpenter can generally repair a historic wood window with single pane glazing and install an interior or exterior storm window to improve thermal performance.

ALUMINUM REPLACEMENT WINDOWS

When the majority of windows in commercial buildings are deteriorated, property owners often seek a quality replacement window that will not require a high level of maintenance. One option that is often considered is aluminum replacement windows. Because aluminum replacement windows are typically custom made to fit within existing masonry openings, they are typically used in larger applications such as commercial buildings rather than replacement windows for single-family homes.

Some of the advantages of aluminum replacement windows is that they can usually be made to replicate historic wood windows while including insulated glass for better thermal performance. As shown in the example to the left, this replication includes the operation of the sash and exterior profiled muntins matching the historic configuration. In addition, because they have a factory-applied, baked on paint finish, which can be selected to match historic paint colors, they do not require the regular repainting associated with wood windows.

Because of the strength of aluminum and ability to fasten the parts of the window together with strong connections, aluminum replacement windows can easily outlast the lifespan of vinyl alternatives by two to three times depending on the quality of each product. Although the initial costs associated with aluminum replacement windows is typically greater than vinyl, the life-cycle costs associated with more frequent replacement of lower-quality windows might provide overall costs savings in the long run. In addition, the overall thermal performance of an aluminum replacement window tends to be higher than most vinyl windows, allowing for energy costs savings for the building occupants.

MODIFYING OR ADDING WINDOW OPENINGS

The arrangement, size and proportions of window openings are key components of a building's style and character.

As a result, the HPC strongly discourages the modification or addition of window or door openings, particularly on more prominent building façades. This includes the infill of all or part of an opening to make it smaller or to visually remove it. It also includes increasing the size of a door opening to provide a larger opening for a display window, garage or other use.

WEATHER STRIPPING & CAULK FOR WINDOWS & DOORS

Proper application of weather stripping and caulk around windows and doors can greatly reduce air infiltration and drafts. When selecting weather stripping or caulk, it is important to choose the material appropriate for each location and follow manufacturer's installation recommendations for the best results.

Because weather stripping is used between the moving parts of windows and doors, it is highly susceptible to damage and can become loose, bent or torn. It is important to inspect weather stripping on a regular basis, preferably every fall, and replace it as needed. For high use installations such as entrance doors, it may be beneficial to install more durable weather stripping such as spring metal or felt.

Recommended locations for weather stripping:

- Behind window sash track
- Between window meeting rails
- At perimeter of doors and windows

The installation of caulk or other sealants should occur throughout the exterior of the building. Locations include where two dissimilar materials meet; where expansion and contraction occur; or where materials are joined together. In some instances caulks and sealants can be sanded and/or painted to minimize their visual appearance. It is important to select the appropriate type for each location and exercise care when removing old caulk that might contain lead.

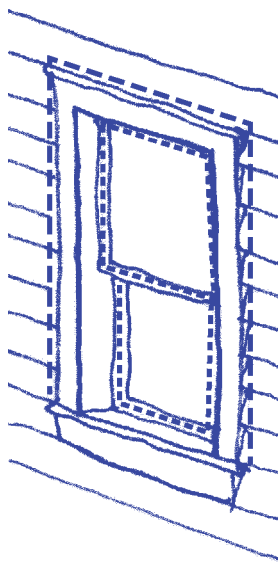
Recommended locations for caulk:

- Between window or door frame and adjacent wall
- Between abutting materials such as corner boards and siding, porch and wall surface
- Between dissimilar materials such as masonry and wood, flashing and wall surface

DEFINITIONS:

Weather Stripping: A narrow compressible band used between the edge of a window or door and the jambs, sill, head and meeting rail to seal against air and water infiltration; of various materials including spring metal, felt, plastic foam and wood with rubber edging.

Caulk: Flexible sealant material used to close joints between materials; of various materials including tar, oakum, lead, putty, and modern elastomerics such as silicone and polyurethane.



Recommended weather-stripping locations:

- Behind window sash track
- Between window meeting rails
- At perimeter of doors/windows

Recommended caulk locations:

- Between door/window frame and adjacent wall
- Between abutting materials such as corner boards and siding, porch and wall surface
- Between dissimilar materials such as masonry and wood, flashing and wall surface

SCREEN & STORM WINDOWS

Screen windows can provide a barrier for insects allowing occupants to enjoy natural ventilation, while storm windows can reduce air infiltration and improve the comfort of occupants in the winter.

Since many screens and storms are located on the exterior of buildings, they should conceal as little of the historic window as possible and should be selected to complement each window type. This generally means selecting a screen or storm window that has rails that coincide with the rails and glazing pattern and overall configuration of the associated window.



The installation of weather stripping and caulk is often completed with regular window maintenance such as repainting.

WINDOW GUIDE

Although the condition of each window installation is unique, the following provide general recommendations when addressing window issues. Property owners are invited to consult with the HPC early in the process when contemplating window modifications.

THE HPC ENCOURAGES:

- Maintaining existing windows including regular repainting rather than replacement
- Reopening previously infilled windows
- Installing caulk, weather stripping, and storm windows to improve thermal performance
- Following the *Criteria for Review on Page 6* when considering replacement as outlined to determine whether window replacement is warranted

WINDOW REPLACEMENT GUIDE

THE HPC STRONGLY ENCOURAGES IF REPLACEMENTS ARE WARRANTED:

- Matching the original material, size, shape, configuration, type, operation, materials, muntin pattern, dimensions, exterior profiles and detailing to the greatest extent possible with a salvaged or new replacement window
- Reusing serviceable trim, hardware or components
- Installing clear glass at all openings unless replacing historic colored, beveled or frosted glass in-kind
- Reviewing grades of windows offered by manufacturers and install quality wood or aluminum windows when replacement is deemed necessary using quality materials in the process
- Understanding the limits of the warranties for all components and associated labor for replacement
- Selecting reputable manufacturers and installers who are likely to remain in business and honor warranties

THE HPC ENCOURAGES IF REPLACEMENTS ARE WARRANTED:

- Relocating historic windows to the publicly visible elevations and install replacement windows or doors in less visible areas
- Installing quality replacement windows to match the historic materials, although wood windows with exterior wood or aluminum cladding or aluminum windows are often an acceptable option for historic wood windows
- Reusing serviceable trim, hardware or components or use salvaged materials

THE HPC DISCOURAGES:

- ✗ Replacing a window component or unit if repair and maintenance will improve its performance and preserve historic elements
- ✗ Decreasing the original window opening size or shape with in-fill to allow for installation of stock unit size
- ✗ Installing vinyl or vinyl-clad windows
- ✗ Installing an inappropriate window type, such as putting a casement window in the place where a double-hung window was before
- ✗ Increasing window sizes or altering the shape to allow for picture or bay windows
- ✗ Installing glass block at buildings where it was not found historically
- ✗ Installing translucent daylight building systems at window and door openings
- ✗ Infilling existing window openings at publicly visible elevations
- ✗ Installing new openings at publicly visible elevations
- ✗ Installing window with only interior or internal grid that is in the space between the two panes of glass
- ✗ Installing single hung where the upper unit is glass mounted directly in the frame instead of in a fixed sash
- ✗ Installing reflective or other films on window glass

STORM / SCREEN WINDOW GUIDE

THE HPC ENCOURAGES:

- Simple screen / storm windows with large screened openings that reveal as much of the historic window as possible and fit historic openings
- Removable screen / storm windows to facilitate maintenance of historic windows
- Screen / storm that minimize the change to the exterior appearance
- Painting the wood screen / storm window frame to match the adjacent window trim
- Wood screen / storm windows custom fit to match the size and configuration of the window opening

THE HPC DISCOURAGES:

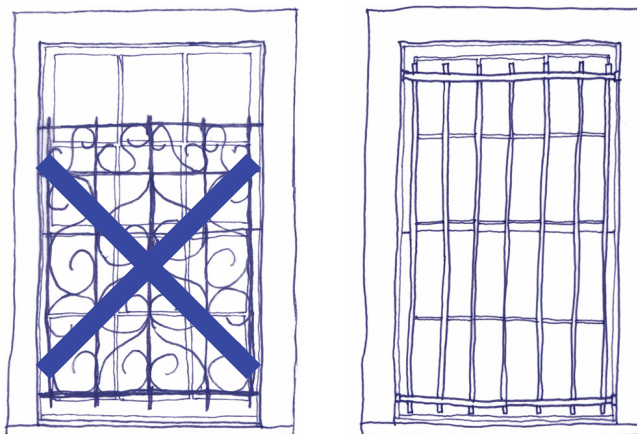
- ✗ Visually opaque screen material
- ✗ Plexiglas, or similar material, fastened to window frames or screens
- ✗ Storms / screens adhered or fastened directly to window trim
- ✗ Half or stock storm / screen windows that are too small or a different shape than the window opening and require in-fill trim or panels

WINDOW SECURITY

Window security is an issue in some locations where the window openings are accessible from the ground, building elements such as fire escapes, and adjacent structures and roofs. Historically, decorative metal grilles have been installed at several locations that are easily accessible from the ground. (Refer to *Guidelines for Architectural Metals* for additional information.)

When installing new security measures, every effort should be used to minimize the appearance from the public way. More recently, re-glazing, particularly tempered glass, has been used as a deterrent, providing a barrier that is difficult to break and shatter. Electronic security systems and warning devices can be installed at the interior of doors and windows without altering the historic appearance of the building's exterior.

If metal bars or grilles are considered the only acceptable method for securing a building, the HPC encourages property owners to install them at the interior of the window, door or display window. If metal bars or grilles are installed at the exterior, the HPC only permits the use of simple barrier grilles without decorative detailing. The bars or grilles should be properly sized to fit the opening and align with the frame opening and muntin configuration. No acrylic panels or metal mesh will be permitted to be attached to the security screens.



If metal bars or grilles are installed at the exterior, they should be sized to fit the opening and align with frames and muntins with simple barrier grilles and no decoration.



Simpler security grilles without decorative elements are generally less visibly obvious than those with scroll work or contrasting colors.

WINDOW SECURITY GUIDE

THE HPC STRONGLY ENCOURAGES:

- Installing security systems that do not alter the exterior appearance of windows

THE HPC ENCOURAGES:

- Installing security systems that minimize the change to the exterior appearance
- Painting exterior security grilles to match the adjacent window trim

THE HPC DISCOURAGES:

- ✗ Installing highly decorative or ornate security screens
- ✗ Installing visually opaque security material that do not allow the window to remain visible
- ✗ Installing window security that is too small or a different shape than the window opening and require in-fill trim or panels
- ✗ Installing acrylic panels or metal mesh to exterior security screens.



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PREPARATION

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