

CHOSEN SASH REPLACEMENT



**Custom Energy-Efficient Sash Replacement
for Vintage Wood Windows**

CHOSEN
WOOD WINDOW
MAINTENANCE, INC.



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CHOSEN SASH REPLACEMENT

Custom Energy-Efficient Sash Replacement for Vintage Wood Windows

Chosen Sash Replacement offers an alternative to restoring original sash or fully replacing vintage wood windows. We duplicate the beautiful wood sash that are original to your home or building with options for high-performance, energy-efficient glass. Replacing sash means that they are designed to fit into the existing window opening, with no alteration to architecture and original appearance. We can also fabricate to exact vintage or historic specifications.

ABOUT CHOSEN WOOD WINDOWS

Chosen Wood Windows has a history of wood window repair dating back to the late 1990s. We began duplicating sash with high-quality vertical grain fir (VGF) to provide wood replacement sash, giving home and building owners a better alternative to expensive and poorly-fitting replacement windows. With our new line of Chosen Sash Replacement, we can create new sash to duplicate virtually any vintage wood window. Home owners, architects, contractors and builders can choose the high-quality wood window replacement sash they need to restore the appearance of homes and public buildings without the expense and time commitment of replacing the full window unit. Each sash order is custom-made to exact specifications to blend flawlessly with existing windows.

We also provide full restoration for wood and steel windows for both commercial and residential buildings in compliance with the standards set forth by the Secretary of the Interior's Standards for the Treatment of Historic Properties. To learn more about all of the products and services offered by Chosen, visit www.chosenwwm.com.





CHOSEN SASH REPLACEMENT

The Architecturally Accurate Alternative to Replacement Windows

For hundreds of years, windows have been made with natural, renewable wood. Wood is the standard for style and design versatility. Chosen Sash Replacement offers the finest craftsmanship in double-hung and casement sash, for custom vintage replacement sash with options available to enhance energy efficiency. It's the most efficient, cost-effective way to replace original wood windows in vintage homes or buildings.

Replacing only the sash minimizes material waste, preserving the original frame and reducing the amount of new materials required. This approach is more sustainable than discarding the entire window, especially in older homes where high-quality wood was used in construction. Maintaining as much of the original material as possible reduces the environmental footprint and aligns with green building practices.

WHY CHOOSE WOOD

If your home or building was originally built with wood windows, there's really no better choice. Chosen sash replacement allows you to replace your existing wood sash with sash crafted to specifically fit your home or building. They are duplicated to an architecturally matching standard to the existing sash. Vinyl or fiberglass replacement windows cannot replicate the authentic richness and beauty of wood. Plus, unlike vinyl and fiberglass, new wood sash, constructed from strong, VGF, can be repaired, if necessary in the future. They can also be stained or painted (and painted again) to reflect your current preferences or the color scheme original to the structure.

Wood replacement sash also provide advantages over clad wood windows, which, when clad with vinyl or aluminum, have thicker side lines and cannot exactly replicate the appearance of natural wood. Unlike clad sash, wood sash can be maintained and repaired on an ongoing basis. And, unfortunately, with clad windows, it is possible to experience rot under the cladding, making it challenging to discover when hidden.

WINDOWS THAT MATCH YOUR BUILDING

Replacement windows look like just that, "replacements." They are designed to fit *most* architectural styles. The appearance of the materials themselves betray the era and original architecture of vintage homes and buildings. Chosen Replacement Sash make it difficult to tell that anything has changed from the day your home or building was first built.





VERTICAL GRAIN FIR REPLACEMENT SASH

We construct all of our sash from vertical grain fir. Our VGF is a hardy, long-lasting option for replacing vintage and other hardwood sash. Clear VGF closely matches the appearance of original materials often used in older homes, providing a period-authentic look.

- **Stability and Durability:** VGF is highly stable, with straight, uniform grain patterns that resist warping and twisting. This makes it an ideal choice for windows, which are exposed to temperature and humidity fluctuations. Its tight grain pattern provides structural strength and longevity, making it suitable for high-precision joinery, which is essential for window sashes that need to withstand years of opening and closing.
- **Moisture Resistance:** VGF has a natural resistance to moisture, which helps protect against decay and rot. The vertical grain pattern further enhances this property, as it minimizes the amount of end grain exposed, reducing the likelihood of water absorption. This resistance prolongs the life of the wood and reduces maintenance needs, a critical factor in wood window selection.

WE BUILD CRAFTSMANSHIP INTO EVERY WOOD REPLACEMENT SASH

We provide beautiful, handcrafted replacement sash that will stand the test of time. Meticulous attention to detail can be seen in every sash, regardless of window style. We rely on the work of our skilled team to produce replacement sash to exact specifications. Original details are duplicated expertly – and you can be assured of a result that is not only architecturally accurate – but blends seamlessly with other wood windows in the home or building.

Every detail is duplicated to ensure that your replacement sash match the original sash of your vintage home or building.



CHOSEN DOUBLE-HUNG™ WOOD SASH REPLACEMENT

Double-hung windows are the most common type of window in the U.S., especially in residential buildings. This popularity stems from its classic appearance, functional versatility, and adaptability to various architectural styles. Double-hung windows complement traditional American architecture, like colonial and craftsman styles, and they are also common in more European styles, due to their timeless look.

Replacing only the sash is generally less invasive than replacing the entire window. It's a quicker process with minimal disruption to the surrounding trim, siding or interior finishes. This can be especially advantageous in vintage homes or buildings where walls and trim materials may be difficult to replace, if damaged during a full window replacement.



CHOSEN CASEMENT™ WOOD SASH REPLACEMENT

Casement windows were particularly popular during the 1920s through the 1940s in the U.S., aligning with the Art Deco, Art Moderne, and International architectural styles. Casements provided a more expansive view and allowed for better ventilation, especially before air conditioning became widespread.

Casement windows include:

- Awning
- Hopper
- Casement

Awning and hopper windows also became more common during this era, particularly in basements, bathrooms, and kitchens where ventilation and privacy were key. These windows allowed airflow even during rain, making them practical choices in for both residential and commercial design.

For buildings with original wood casement windows, replacing the sash only allows owners to retain the original frame, which is often integral to the architectural style. By keeping the original frame, details and proportions are preserved that may be unique to the building's period or design.

CUSTOMIZED GLASS PATTERNS AND SASH CONFIGURATIONS

We have the capabilities to reproduce virtually any glass pattern and sash configuration to meet the original specifications of vintage or historic windows. This includes both true divided lites (TDL) and simulated divided lites (SDL).

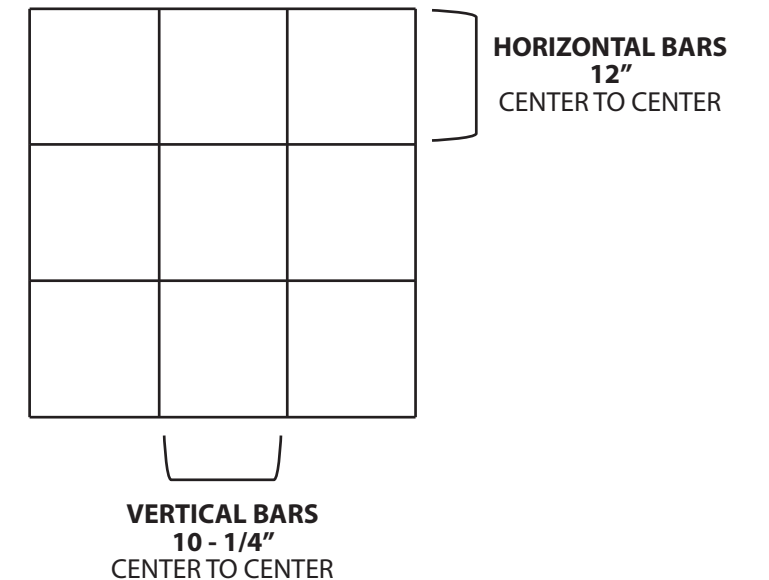
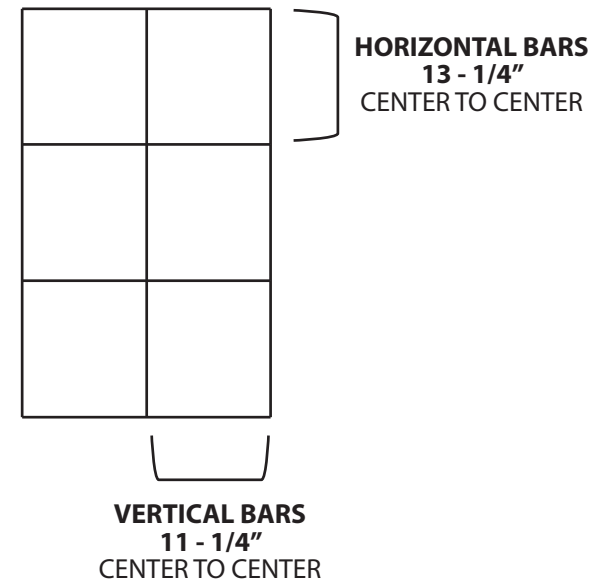
True Divided Lites – Each lite is a separate piece of glass, set into the wood frame with muntins separating them. TDLs create a timeless, authentic look often associated with vintage or historically accurate architecture. True divided lites in wood windows offer a combination of aesthetic appeal and craftsmanship that building home owners appreciate, as they help to maintain the character of the original architecture.

Simulated Divided Lites – SDLs replicate the appearance of traditional divided panes, offering several advantages in terms of energy efficiency and functionality. SDLs allow for the use of a single, insulated pane of glass, improving thermal performance. They are configured with decorative muntins applied to the surface, often paired with grilles or spacers, for a genuinely divided look. This reduces heat transfer and enhances energy efficiency. SDLs can replicate a variety of historic grid patterns, offering a highly authentic look.

Whether you choose true divided lites or simulated divided lites, we can customize the lite pattern to match the style of windows in your building or home, reproducing the appearance of vintage windows from a variety of eras and architectural styles.



EXAMPLES OF SASH CONFIGURATION AND GRID MEASUREMENTS:



Muntin / Grid Types:

Standard grids (3/8" x 1/4")

Box grids (3/8" x 7/16")

Flat grids (5/8" x 1/4")

Muntins for true divided light vintage sash are always OGEE style.



HARDWARE

Hardware is part of creating an authentic appearance for your replacement sash. Matching the type and style of hardware that was installed on your original windows helps to maintain the authenticity of the architectural era of any home or building. Proper hardware enhances functionality, complements the sash design, and reflects the craftsmanship of the original period, adding value and aesthetic harmony to your replacement project.

When selecting Chosen Replacement Sash, we provide a variety of hardware options that are designed to maintain the vintage feel and style of your windows.

- Hardware available for double-hung and casement windows
- Choice of finish and style for locks, handles and more
- Does not come pre-installed

Thoughtfully chosen locks, hinges, and handles enhance the overall appearance and function of wood windows, complementing the wood's natural beauty and the window's original design.





HARDWARE OPTIONS

Authentic hardware is an important element in maintaining the original personality and style of vintage windows. When existing hardware is in good working order, ideally, it should be saved and repurposed. If that option is not available, Chosen offers a selection of premium quality hardware that helps to preserve the vintage beauty and appearance of older windows.

We offer solid brass hardware in a wide variety of colors color / finish options:



ANTIQUÉ BRASS



BRUSHED NICKEL



OIL-RUBBED BRONZE



POLISHED BRASS



POLISHED NICKEL



LACQUER-POLISHED BRASS



DOUBLE-HUNG
LOCK



CASEMENT HINGE



CASEMENT ARM /
ADJUSTER



CASEMENT LATCH



DOUBLE-HUNG
HANDLE / SASH
LIFT



HOOK SASH LIFT



TRANSOM LATCH



DOUBLE-HUNG
PULLEY

We can also provide window sash cord and balances for double-hung windows.

SASH FINISH

When wood windows require sash replacement, we can help you meet your architectural and aesthetic goals. Our replacement sash finish options are designed to ensure that your new sash blend impeccably with existing windows and doors. Beautiful, dense VGF takes stain smoothly and evenly so that new sash are virtually indistinguishable from existing sash.

Chosen Sash Replacements are available with three finish options:

- Stain grade
- Primed, ready to paint
- Fully painted to specifications

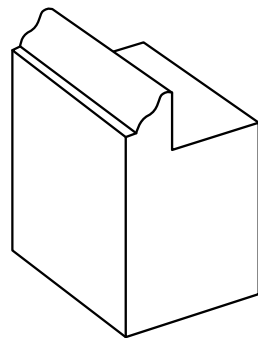




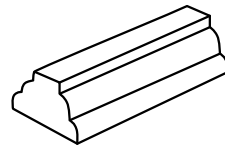
MOULDING & MUNTIN OPTIONS

We offer ogee and ovolo profiles in vertical grain fir for all of our Chosen Sash Replacement options. Ogee and ovolo mouldings are classic profiles used in wood window design to maintain architectural authenticity. Both profiles reflect historical craftsmanship and ensure a faithful replication of architectural styles, adding visual richness and maintaining the integrity of window's era.

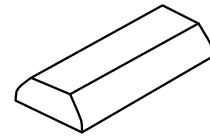
Ogee mouldings, with their S-shaped curves, are often applied to muntins and frames for an elegant, traditional look.



SASH DETAIL

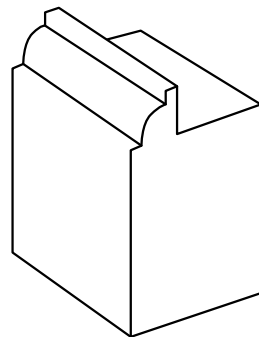


MUNTIN BAR

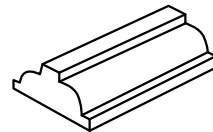


EXTERIOR BEVEL

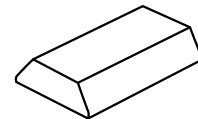
Ovolo mouldings, featuring convex, rounded profiles, soften edges and provide depth, enhancing period-appropriate detailing.



SASH DETAIL



MUNTIN BAR



EXTERIOR BEVEL



WEATHERSTRIPPING

Chosen offers weatherstripping products designed to ensure a tight seal and protection from the elements for your new window sash. We use premium quality polypropylene and metal weatherstrip products in the construction of our replicate sash.

POLYMER-BASED WEATHERSTRIPPING

The Arloc Bulb weatherstripping system is a soft, bulb-style weatherstripping that is fixed into the perimeter of the sash.

The advantages of this type of weatherstripping system include:

- Unseen when window is in an open or closed position
- Eliminates front-to-back play from the window
- Keeps window sash from being painted shut

For double-hung sash, a hard polypropylene vinyl weatherstripping is used for the stile, with Intek Poly 20876AB 100 weatherstripping kerfed into the side of the stile to provide solid contact throughout window operation.

Kerf-in and bulb weatherstripping is also an excellent option for casement windows. With polypropylene weatherstripping, casement and awning windows operate easily, yet provide a weather-tight seal, and virtually eliminate sticking windows.

Weatherstripping is available in many colors. We will work with you to make the color selection that is best-suited to your project.

INTERLOCKING METAL WEATHERSTRIPPING

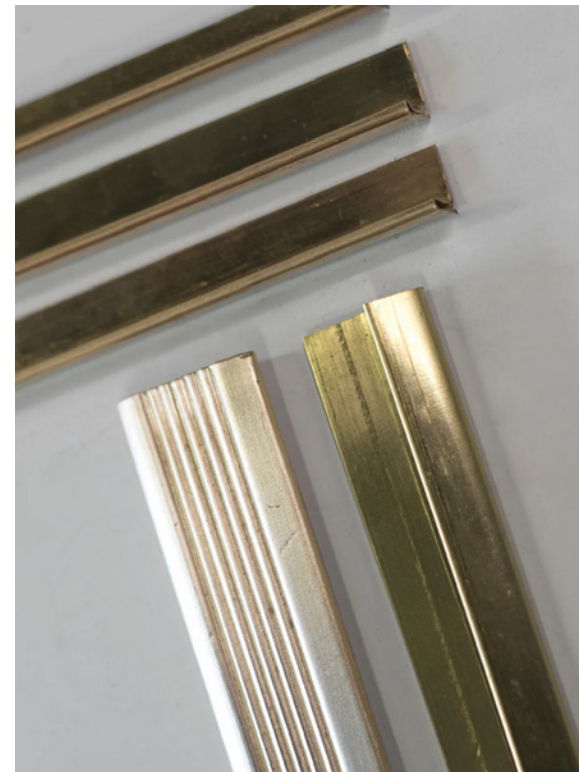
Accurate Weatherstripping is a premium quality metal weatherstripping that provides a continuous seal around double-hung or casement windows.

Metal options:

- Zinc
- Bronze
- Satin

Finishes:

- Mill
- Polished brass



LIFT SYSTEMS

REPLACING LIFT SYSTEMS

High-quality lift systems are important for the smooth operation of any window. It is especially important for managing the added weight of dense new wood or insulating glass configurations.

Chosen Sash Replacements include the following options for operating systems for double-hung vintage windows, including:

- Rope and weight operation (weight and pulley balance system)
- Spring balance

WEIGHT AND PULLEY

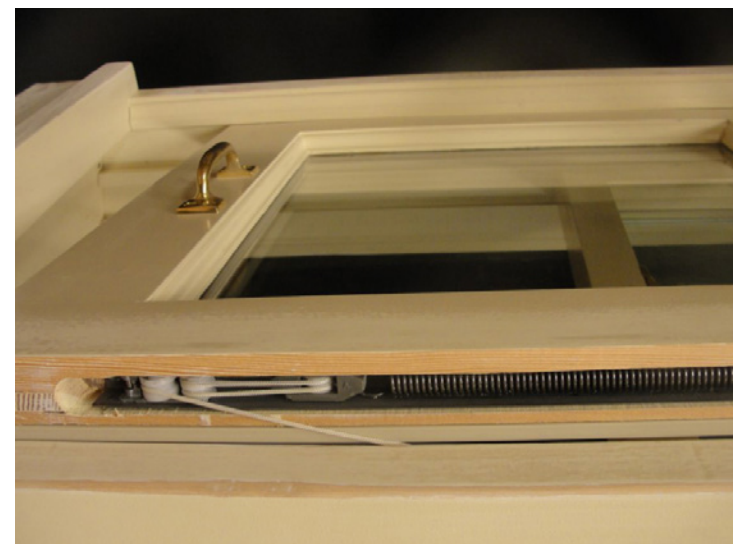
Weight and pulley lift systems operate with a simple sash cord tied to a weight that counter balances the weight of the sash. The cord runs through a pulley with the sash attached at one end and the weight at the other end. A simple and efficient system, the weight and pulley is the most common operating system in windows in historic buildings and vintage homes.



SPRING BALANCE

A spring balance system uses a metal or plastic coil spring that is concealed in the sash and attached to the jamb. The spring provides tension, counterbalancing the sash's weight to make it easier to lift and lower. This system does not require ropes and weights and is a preferred, simpler setup overall.

Spring balance systems are mortised into the sash and fastened directly to the jamb, providing a compact and low maintenance lift system.



GLASS OPTIONS

When you choose Chosen Sash Replacement, we provide many options to achieve the appearance and energy performance you prefer. These options can improve energy performance and reach contemporary code requirements. They are available for all double-hung and casement replacement sash.

GLASS TYPES

Annealed – often referred to as float glass, this is sturdy, clear glass is frequently found in vintage windows. The excellent clarity of this distortion-free glass provides a high level of light transmission and optimum vision quality.

Tempered – a strengthened annealed glass that provides additional safety by breaking into small pieces without sharp edges when shattered.

AIR OR GAS-FILLED UNITS

Insulated glass units (IGUs) filled with either air or gas are used to improve the thermal and sound performance of windows. For enhanced energy efficiency, we offer both air- and gas-filled insulating units for our replacement sash. These units consist of two panes of glass separated by a spacer, with the cavity between the panes filled with either air or a special gas. Air- or gas-filled glass units offer significant improvements over traditional single-pane glass. Selecting between the two depends on the project budget, climate conditions, and performance goals.



GLASS WITH LOW-E COATING

Our default replacement glass is Solarban 60. Solarban 60 glass is an IGU low-e replacement with an appearance that most accurately replicates that of original single-pane, clear glass. We can also install glass based on your architect's specification, or use your original, clear glass.

GLASS FINISH TYPES

Clear – available in annealed, tempered or laminated panes, clear glass is ideally suited to insulating glass configurations.

Low-E – we offer both soft-coat and hard-coat low-E glass. Soft-coat low-E glass is designed for insulating glass units. Hard-coat is an excellent option for single-pane windows. Low-E glass allows plenty of natural light to pass through the window, while reflecting ultraviolet and infrared light, keeping interiors warm in the winter and cool in the summer.

Architectural – a selection of architectural glass textures is available for replacement sash.

ENERGY PERFORMANCE

NEW SASH WITH INSULATING GLASS

Windows significantly impact a building’s personality, providing natural light, ventilation, and architectural character. However, they can be a major source of energy loss, accounting for up to 30% of heating and cooling inefficiencies. We offer several options for Chosen Sash Replacements to improve energy performance over your vintage window performance. Energy performance metrics, such as U-factor, solar heat gain coefficient (SHGC), and air leakage rates were measured to evaluate the various options available with our replacement sash. These improvements enhance energy efficiency while maintaining aesthetic appeal.

U-FACTOR

The U-factor measures the rate of heat transfer through the window, with lower values indicating better insulation. The U-factor is affected by the following:

- Glass type** – for replacement sash we offer Solarban 60 with low-e coating
- Insulating gas** – our insulating glass units include argon gas
- Spacer thickness** – spacers are available in 1/2”, 5/8”, 3/4” and 1” thicknesses

U-FACTOR PERFORMANCE FOR CHOSEN REPLACEMENT SASH		
Window Type*	Air Gap	U-Value**
Original 1/8" Glass	--	1.04
1/2" IGU	1/4"	0.32
5/8" IGU	3/8"	0.26
3/4" IGU	1/2"	0.24
1" IGU	3/4"	0.26

* Each thickness includes 2 panes of 1/8” glass with the remaining thickness representing the air gap
**U-Values were calculated with Vitro calculator using indicated window dimensions, for air gap assuming the using of argon gas, for double-paned windows assuming a standard low-e coating

SOLAR HEAT GAIN COEFFICIENT (SHGC)

The SHGC represents the fraction of solar radiation that passes through the window. This is influenced by the glass type. The values below reflect SHGC for the Solarban 60 glass we use for Chosen Sash Replacement:

SHGC = 0.41 for all thicknesses (½”, 5/8”, ¾”, 1”), representing a low SHGC, indicating good solar control.

AIR LEAKAGE (AL)

All of our replacement sash are fitted with weatherstripping to improve energy performance. Chosen Replacement Sash were tested at Straub Hall at the University of Oregon. The results demonstrated that with the addition of weatherstripping to replacement sash, air leakage standards can be achieved to meet or exceed those of new, high-performance windows.

VISIBLE TRANSMITTANCE

Visible Transmittance (VT) measures the amount of visible light that passes through a window and is typically expressed as a number between 0 and 1, with higher values indicating greater light transmittance.

Using an IGU with high-performance glass, like Solarban 60, provides excellent VT that balances natural light and comfort. Compared to standard clear glass, Solarban 60 glass has slightly lower transmittance of 0.70, which leads to a reduction in solar heat gain, an essential feature for energy efficiency. Chosen Sash Replacement can offer marked improvement in maintaining indoor light quality without sacrificing thermal performance.



ENERGY SAVINGS

To provide estimated energy savings, a standard window area of 15 square feet and a temperature difference between inside and outside of 30oF was assumed to use the following heat loss equation:

Heat Loss = U-Factor x Area of Window x Temperature Difference

Old Window:
1.04 x 15 x 30 = 468 BTU/hr lost
New Window:
0.32 x 15 x 30 = 144 BTU/hr lost

A savings of 324 BTU/hr can be accomplished, which over the course of a cold season can add up to hundreds of dollars each year.

Window Type	U-Value	SHGC*	Air Leakage (cfm/ft2)*	Visible Transmittance	Exterior Reflectance	Heat Loss Reduction (same assumptions as above)
1/2" IGU	0.32	0.41	0.10	0.72	11%	324 BTU/hr
5/8" IGU	0.26	0.41	0.10	0.72	11%	356 BTU/hr
3/4" IGU	0.24	0.41	0.10	0.72	11%	360 BTU/hr
1" IGU	0.26	0.41	0.10	0.72	11%	356 BTU/hr

*Note that SHGC and Transmittance don't have a separate energy savings calculation built in, as the improvement in the windows from higher SHGC is part of what leads to the improved U-Value. For air leakage improvements compared with standard, less efficient windows, the associated energy savings can be great but encompass many more variables related to the building's unique HVAC system and needs. Those variable are not calculated here.

Each of these energy-efficient options is available with Chosen Sash Replacements. You can choose from materials, such as glass with low-E coatings and IGUs with enhanced spacer thicknesses to improve the overall energy performance of your Chosen Sash Replacement. Your sash replacements can make a beautiful, architecturally accurate statement while contributing to lower energy costs throughout the year.

RESTORATION & HISTORIC PRESERVATION

In addition to our Chosen Sash Replacements, Chosen Wood Windows has offered restoration and historic preservation of wood and steel windows in both residential and commercial buildings for more than a decade. We work with preservationists and restoration experts to carefully assess factors to determine the most appropriate level of restoration that balances preservation goals with practical considerations. The ultimate goal is to ensure historical integrity of valuable architectural elements in historic buildings.

SECRETARY OF THE INTERIOR’S STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES

Historic windows and their functional and decorative features are an intrinsic element of defining a building’s overall historic character. Chosen Wood Windows provides full service project management to achieve your historical restoration project goals within the standards set forth by the Secretary of the Interior’s Standards for the Treatment of Historic Properties. Our goal is to protect and maintain original fabric and features of the overall window and building. We have completed more than 40 historical preservation projects to date, including the Oregon Supreme Court House Building, University of Oregon Gerlinger Hall, Portland Center Stage and many more.



We have served as the historic restoration contractor for windows on many award-winning restoration projects, including the Redmond City Hall, a winner of the Restore Oregon DeMuro Award.



The DeMuro Award for Excellence in Preservation, Adaptive Reuse and Community Revitalization was presented to the project team for the Grant High School Modernization (1923), Portland, Oregon. Chosen Wood Windows served as the window restoration contractor for this extensive project.



The Woodlark Hotel project joined two buildings, the Woodlark Building and the Cornelius Hotel, both more than 100 years old, with each listed on the National Register of Historic Places. Chosen Wood Windows served as the window restoration contractor, preserving the original architectural charm of the era, for this stunning award-winning project.



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