





When it comes to restoring or replacing your original historic windows or entrance doors, restoration is by far the best value. Restoration provides the highest return; it's the most authentic, sustainable, & energy efficient option. (this assumes you'll complement your old windows with high quality storm windows!). This informational and reference booklet is complimentary, as we hope to usher you into a new era of ownership, one that's a lifetime statement of quality, history, and enjoyment. We hope we're partners in sharing that experience with you and ensuring its success. Welcome to professional restoration!

YouTube To see a video of our process please visit YouTube and search **“Historic Window Restoration - Full Process - Mozer Works, Inc”**

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Restoration: The highest value, most authentic, sustainable, energy-efficient option that's also beautiful!

Historic wood windows and doors are original and we aim to bring them back to their glory when we restore. It's a revivalist's journey that pays homage to their high quality, classic materials and their hand-crafted authenticity and one that combines modernist elements to guarantee full-function and energy-efficiency. Our window/entrance door restoration is the best value compared to both replacements and reproductions. It's a long-term, sustainable approach that helps your local economy, saves the best of the old and takes advantage of both renewal (like new glazing and new weather stripping) and combines it with modern enhancements (like high-performing storms or repairs made with slow-cure, two-part epoxies for strength/endurance).

Authenticity does not come at the cost of beauty. Our restoration show-cases the breath-taking beauty of these olde architectural features that is befitting the original building. Our restoration of your olde windows and entrance doors is a testament, not just to history but to the time-proven durability of these classics. Bringing them back to life, even more than that, bringing you another lifetime of service from these classics is a celebration of high value, of a home, and of a neighborhood. As the eyes to the soul of a building, well-restored olde windows and doors grace a facade as a public display of fine, American craftsmanship, classic materials, and historic re-birth.

It's a statement that old-growth wood is special, as is hand-blown, cylinder, wavy, antique glass and the artisanship that made them. Our restoration work aspires to the same standards and we are honored to serve our clients

and have the opportunity to re-make and professionally restore these cherished home-furnishings. With historic metal weather stripping, good renewed glazing, and a complementary storm window (or door) these antiquities will equal or surpass energy standards of two-pane modern replacements and last for ages, not decades like the best replacements. Window or door replacements will never match this value, durability, and natural beauty. Reproductions can be made accurately with high quality materials, but their costs out-distance restoration expenses.

Olde windows/doors can be problematic. They often are lead-painted, sometimes work poorly or not at all, or they leak significantly. All of those issues can be addressed and corrected for a lifetime or more of renewed service. Meanwhile a third of replacement windows fail within ten years and the rest fail in the next decade with no recourse to their owners but to replace again. Limited warranties ensure that replacement window companies continue serial replacements and profits while America's architectural heritage rapidly disappears. It's time we make the "right" choices!

Restoration done right is not inexpensive but it's a viable, smart alternative. It's not a quick fix; it's a journey that takes time, skill, and investment but you reap the rewards, as does your home, your neighborhood and your environment. We encourage you to "check the facts" and see for yourself; weigh the options, determine the best approach with highest and most sustainable return. We're here to help you with that choice. Just ask.



Mozer Works: An Introduction

Mozer Works, Inc. is dedicated to providing high quality artisanship and customer service in restoring old windows and entrance doors. Incorporated in 2000, we have proudly restored thousands of windows and hundreds of entrance doors for:

Homeowners

Historic Preservation Organizations

County Governments

Churches

Commercial business & contractors

We work throughout the DC/MD/VA metropolitan area and beyond responding to historic restoration needs rather than limiting our operations based upon geography. Our services include full restoration, "partial" restoration, mechanical tune-ups, and restoration consultations. Our business has expanded as more and more people have discovered the beauty, viability, financial benefits, simplicity, functionality and efficiency of our professionally-restored old windows and entrance doors.

Our 4,500 square foot custom-built shop in Silver Spring, MD is open to the public and our clients to experience first-hand our quality-driven restoration process. Here one can readily see the artisanal character of our work where curative attention and highly skilled artisanship combine to resurrect the natural beauty of these antiquities. The pleasure in our work stems from this process which uncovers historic elegance but also allows us to contribute

to it. We are old window/door mechanics, expert glaziers, and professional painters.

Mozer Works, Inc. is EPA-registered and certified to conduct lead-safe practices for historic restoration and we proudly uphold the U.S. Department of the Interior's National Park Service standards for conservation, restoration and preservation.

From Colonial-era to mid-20th century, we're committed to restoring old windows and entrance doors and saving America's architectural heritage, not just locally but nationally. We're proud members of the Window Preservation Alliance, a nation-wide trade organization committed to saving and repairing olde windows. This national alliance seeks to change the conversation about old windows to highlight the benefits of preservation and to share best practices with professionals and historic building owners across the country.

Whether it's just "two olde windows" from a historic house or an entire museum's worth of sashes to save, we're here to help.

”

**Thanks to you and your team for the hard work!
We love the windows!
They're absolutely beautiful!**

”

- Kate and Elliot



Mozer Works, Inc. is EPA Certified for lead-safe practices in historical restoration and proudly upholds National Park Service standards.



Before and after. Don't assume it can't be restored. Even windows falling apart and missing pieces can be brought back to new condition.

Olde window basics: attributes and conditions

There are hundreds of kinds based upon glass configurations but the basic types are:

- double-hung (guillotine style)
- casement (swinging either in or out);
- awning (swings up and then closes by swinging down).

Common names are slightly more descriptive: for example;

a double-hung 6/6 (6 panes of glass in the upper sash over 6 in the lower), a 4-lite or 4-pane out-swing casement, or a basement, 2-lite, in-swing awning,

We commonly refer to and spend most of our time restoring window “sashes”, the moving parts of a window. The frame and its interior or exterior trim are the other non-moving parts of the entire window assembly. Our projects deal with lead-safe standards so they do include some elements of both the frame and moving parts. Or, sometimes, our clients engage us to take on more than the elementary necessities of “safe” window frames and de-leaded sashes.

See the diagram (right), as with all studies, there are terms for the details. Here are six notable basics:

1. sash stiles are the vertical sides
2. rails run horizontally and there are three types to a double-hung window:
 3. Upper most rail is the top rail found at the top of the upper sash,
 4. Midrails are found on both the upper sash and lower sash at the middle of the window opening and the two commonly meet or overlap; the upper sash midrail is at the bottom of the upper sash; and the lower sash midrail is at the top of the lower sash; and,
 5. Grills or muntins are the elements of a window sash that make up the supports for the glass panes with the sash frames' stiles and rails. They can be vertical or horizontal features that run the full length or near full-length of the sash or are tenoned or “pinned” into the frame while others, usually the horizontal elements are “coped” or coped/tenoned to intersect with the opposing grill/muntin.
6. There are three stops associated with a double-hung window frame; the sash stop which on the interior of the

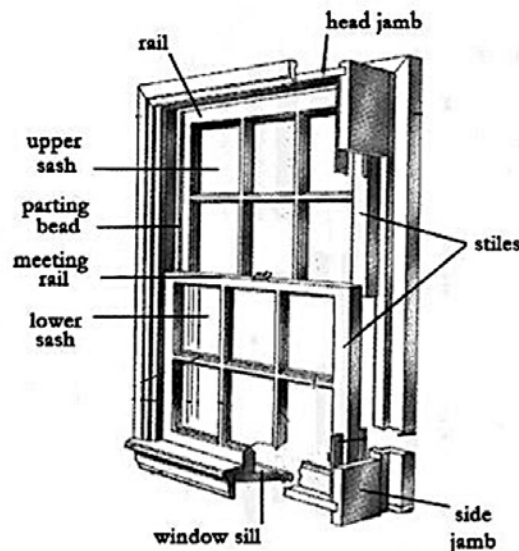
window supports and stabilizes the movement of the lower sash, the parting stop which divides the two sashes, and the blind stop which supports the movement of the upper sash towards the outside of the window frame while also serving on the exterior to attach a storm window.

7. Double-hung windows typically have a balance system like pulleys-and-weights, steel-tape balances, or spiral tube balances. The latter two have spring loaded function while the former uses Nature's gravity and pulleys with weights to achieve a balanced sash. The pockets for these weights are typically accessed via a pocket cover in the window frame at the interior side of the window.

Old-growth Wood

Your old windows, sashes and frames, are made of old-growth wood. This is America's natural resource and treasure as represented by the trees used historically to build our homes, boats, bridges, and other architecture. These trees provided the wood of a far-superior caliber compared to modern forms of forestry “management” and present-day “quality” of lumber. Old-growth forests are ecologically diverse with mature trees that are commonly 150-200 years in age, both live and dead, that provide

diverse and distinct habitats, often with little human influence. These old trees were milled to make America's historic architecture. Their “building age” often exceeds 100-200 years after their cut age of 100-200 years, proving the wood's durable nature. Modern lumber, with and without protection, commonly deteriorates in one or two decades and is described as economically viable to cut after 15-20 years of forest life. According to the World Resources Institute, 90% of the contiguous U.S. old-growth forests have been cleared since the 1600s.



Hand-blown Cylindrical Glass vs. Modern Sheet/float Glass

This is antique glass and is characteristic of many historic American homes built before the 1930s. Glass blowing evolved as a process and dates back to the ancient Phoenicians that evolved and became more and more refined in subsequent centuries. Cylinders of glass were blown, formed, cooled, scored, re-heated and then flattened. More mechanical means were subsequently



applied to hand-blown glass to achieve greater size panes although the cylindrical glass was still hand-blown.

Depending on its age, antique glass displays varying thickness, waviness, striations, and some incorporated bubbles. We love it for its natural beauty and diverseness which helps us forgive any of its imperfections based upon its history including old scratches which are bound to happen!

Modern sheet glass involves an industrialized process that provides a totally uniform outcome in terms of visibility and uniformity. Given that, it has very little "character" compared to antique wavy glass that is heterogenous in its texture, thickness, and composition of bubbles.

Balance Systems And Hardware

America's original windows were wooden sash and wooden frames with no weather strip and no balance system. Two-sash openings had two sashes but only one was operable creating a single-hung assembly. Early forms of windows were opened and secured using simple catches and hooks. A self-balancing window was not invented in America until the 1860s after which its natural popularity diffused throughout the country given simplistic elegance and full function of the pulleys-and-weight system. Cast or forged metals describe the hardware made for historic windows. To varying degrees, the old windows were built to work and outfitted with required hardware to ensure owner's or user's comfort. Given its durable nature and historical authenticity, we seek to re-use those materials that are fully functional. Sometimes such "creature comforts" are absent or missing and we will offer you appropriate next steps to address that omission.



Glazing, Weather Stripping, and Storms

All of these window elements play a key role in their energy efficiency and need for maintenance. Old windows have individual, single panes of glass each of which must be glazed with glazing putty, back and front. This putty secures the glass to the sash and creates gaskets that, with subsequent painting, firmly secure those panes from leakage of both air and water. Good sound glazing helps your glass be impermeable.

Likewise weather stripping is essential to any old or new window as a means by which drafts or air movement around the sashes is reduced or eliminated. America's original weather stripping originated at the turn of the 20th century and consisted of hard or spring metals, typically zinc or bronze. These metals also served as "gaskets" to stop drafts while allowing for sash movement. Despite the innovation, many of America's old windows constructed prior to this innovation never received this accessory.

Often, homeowners opted for storm windows as the sole agent to reduce drafts. Weather stripping is a modern standard for any old or new window. Historical metal systems were concealed; a nice "modern, 20th-century" attribute to a historic home that provided an upgrade while not changing its inherent aesthetic.

Storm windows historically were complements and more recently served to help protect and minimize maintenance of old, historic windows. Fortunately, as key essential accessories to good, restored old windows, they now are offered in a new context; "historically-sensitive" storm windows are mostly all glass, show off an old home's architecture, and are readily admissible by local preservation commissions.

Historic Artisanhip

Old-growth wood, full mortise and tenon joinery, and hand-blown glass are just a few of your olde window attributes that explain their high quality craftsmanship, inherent and often unique beauty, and enduring character. Their survival is lasting testimony to the incomparable character of these centuries-old antiques. They may now be showing signs of failure but with a "rebirth" their restoration will give them a new lease on life. In our hands, we strive to ensure their next life will be a destiny equal or even better than the last! They deserve it.

1 Repair or Replace Old Windows, a visual look at the impacts. National Trust for Historic Preservation; "Should Your Old Wood Windows Be Saved?" Fine Homebuilding, April/May 2010, pp 40-43.

Myths About Restoration & Replacement Windows

The corporate replacement window companies spend millions of dollars to convince customers that replacement is the way to go. The truth is best told by our customers who know from experience. This implies that what follows are quotes - if they aren't quotes representing your clients experience, delete this sentence. Here are some of the major myths that must be challenged:

1. Restoring is more expensive than replacing.

- Restoring is not more expensive when you consider value over time. A properly restored window can last another lifetime because it utilizes time-tested materials like old-growth wood and heavy-duty die-cast hardware.
- Replacement windows have a limited and far shorter life expectancy. They rarely are guaranteed more than 10 years (and if they are, it's "limited warranty) and they often fail sooner.
- The evidence is in the landfill where you will find stacks and stacks of replacement windows that people have had to replace again and again.

2. A quality wood replacement window must be better than restored window - (ie., 'newer is better').

Not true. The wood in your 60 to 200+ year-old sashes was one to several hundred years old when harvested.

This is what's left of a modern, high-end wood replacement window. The "new" wood failed.



3. My windows should be thrown away because the lead paint on them is potentially dangerous.

We are EPA-certified to safely remove lead from your moving window parts & frames, and we take extreme care to test and ensure we leave no trace of lead. At our workshop, we work in a hermetically sealed lead room and we dispose of the lead safely and legally as hazardous waste. Your sashes are completely stripped by our process so lead once associated with your windows will never be an issue again.

4. Old windows make for astronomical heating and cooling bills.

The largest factor in saving energy is air infiltration. We use metal interlocking weather stripping designed to give you functioning windows that prevent air infiltration. (see page 12 for details)

A properly restored historic window, when used with a storm window, is equally energy efficient as a modern replacement window. Visit our website (windowrestoration.us) for links to see the impressive results of a number of government and university research projects that have evaluated restoration vs. replacement windows.

Replacement windows may be tight when new, but over time the materials bow, twist and fail and the efficiency literally goes out the window.

Finally, studies have shown that the payback on energy savings for replacement windows requires 40 to possibly 250 years, far longer than the life expectancy of replacement windows.

5. Replacement windows are "green".

Reuse is a gold standard for green. Sustainability is not only about energy conservation. Restoration is more labor- than material-intensive. Consider the serious impact of the energy, materials, and toxic byproducts (especially aluminum and vinyl) that it takes to manufacture and transport new windows.

On the other hand, your old windows already exist (no new energy or materials are needed to manufacture new ones), they're already in your possession (no shipping from great distances), and they're made from organic materials like recyclable old-growth wood, glass, iron and bronze.

We take great care during our restoration process to use environmentally friendly materials and practices, not only to match the historical integrity of your windows, but also to reduce our carbon footprint in the modern age.

6. Storm windows are ugly and they're not allowed in the historic district where I live.

We agree, popular triple-track storm windows are not an attractive solution. We recommend "historically-sensitive storms" that are all but invisible, and approved by most governing bodies and preservation commissions of historic districts and properties. (see page 12 for details)

7. Replacement windows look just like historic windows.

It doesn't take an expert to spot the major differences of shape, size, materials, and overall design between a handcrafted historic window and one that is mass-manufactured. Likewise, hand-rolled cylindrical glass is no longer produced readily in this country; those old glass panes are often one-of-a kind and historically accurate..

8. Insulated glass has to be more efficient.

It is. First, the impact of air infiltration is far greater than the "U" value of the glass. Insulated glass is bulky, so replacements increase the mullion size to make it fit. This may reduce the glass area by 10-15% so you often lose visible sight for marginal gains. Meanwhile a good storm on your well-restored window allows you to create your own two-pane system that's equally or possibly more efficient. Also, this system is repairable per perpetuity. When the seals, the balances, hardware or the exterior cladding fail on your replacement window, you're told you have to just buy another.

Comparison Table: Restoration vs. Replacements

	MOZER WORKS	Vinyl Replacement	Wood Replacement
Life expectancy	✓ 60-80 years	✗ 2-10 warranties	✗ 10 warranties
Eco-friendly process	✓ By far best	✗ No	✗ No
Energy efficient	✓ Tests confirm can match new	✓ Yes	✓ Yes
Authentic look	✓ Best	✗ No	? Possible
Unique shapes and sizes	✓ Curves, bows, all original	✗ No	? Some possible
Historic District approved	✓ Yes	✗ No	? Possible
Cost	Similar to wood replacement	Low	Similar to restored
Return on investment	✓ Highest	✗ Low	— Medium

Mozer Works, Inc. Restoration Basics

Quality Artisanhip, Respect, Tradition & Time

Our “full” or comprehensive process builds naturally upon the fundamentals of your historic window; good materials, expert artisanship, mindfulness and enough time to get the job done right. -We pay homage to this heritage in our restoration work by:

1. Following and practicing traditional techniques including time-tested restoration practices that demand patience, care, and detail.
2. Using salvaged, old-growth wood, not modern lumber and other high-quality true-tested materials for repairs including salvaged/harvested, hand-blown cylindrical glass or reproduction “wavy” glass
3. Strict adherence to “best practices” in historic preservation, and
4. Adopting new methods and materials to enhance the value and durability of our restored work.
5. Stripping thoroughly all your sashes ensuring, with the work we do at the frame, that no lead dust will be liberated due the operation of the window.

Restoration Process Simplified & Customized

Restoring historic windows is a detailed process that’s mostly hand-work; it takes time. Hurriedness or impatience begets errors and failure. We always encourage and invite potential and existing customers to schedule a visit to our shop as seeing the process is invaluable. is believing. Generally, people are surprised at the number of required steps we’ve incorporated but the end result is well worth it; it’s evident upon first-glance when they return to their homes, naturally beautiful and fully restored. The quality and value are evident. Here are the basic phases:

1. Consultation/Estimate/Contract
2. Dis-assembly on-site (typically one day of effort)
3. Shop-based Restoration (our process takes 8-10 weeks no matter if it’s a one-window project or your entire home).
4. Installation on-site (often a one day effort)

5. Follow up (we personally check in with our clients at the end of a job, then email or phone to follow-up on the results)

We customize our projects to serve our clients’ specific needs who often discover that our services far surpass their expectations. That may explain why our business has been blessed with growth every year as more and more historic building owners seek our assistance. The basic

sound business practice of matching our clients’ needs engenders not only repeat customers, but also word-of-mouth business.

We are not “perfect” but we do strive for excellence. Sharing our passion includes sharing knowledge. While our full restoration process is labor-intensive, we also share a lot of our insights, knowledge and process with our clients to guarantee they are well informed. After all, the best clients are those that understand the work. Making this happen prior to project start, allows us to best design the work and guarantee that the owners will love it.

”

It was a pleasure to work with you these past few months. You and your guys are first-rate! Please don't hesitate to use me as a reference. I'll give you an A++

”

- Dick B., Capitol Hill

Consultation: Project Analysis, Details, and Aligned Expectations prior to a contract.

Old windows and doors may look similar, but given they were largely hand crafted, many are unique in varied ways. We work closely with our customers to review their situation, needs, and interests to determine how our skills and resources can best meet the objectives and goals of our clients so they will be more than satisfied with the results.

This is how a project typically proceeds:

- Initial on-line sharing of information regarding general goals, type of windows, and their condition. Myths are often demystified like required number or required timing. We can work with the budget you have in mind. (See page 13 for details on “Getting Started)
- After we receive your input and some digital pictures of your windows, we’ll provide a preliminary idea of the recommended and appropriate process and cost range (please check with us about those pictures; what type and how many!)

There are a number of details that will effect the estimate:

- Full restoration vs. a less comprehensive process

- Replacement glass is hard to estimate precisely until we're already in the process and can determine the exact state of your glass, its type, and qualitative condition. Some of our clients opt for a glass budget to be built in to the contract. Glass prices vary widely based upon type of glass (salvaged hand-rolled cylindrical antique, modern imitation antique/ reproduction, or basic double-strength sheet glass.
- Does any hardware need to be replaced?
Do you prefer sash chain for your pulleys & weights balance system or cotton cord?
- Do you want to do the entire project at one time, or restore the windows in phases?

When we fully understand your needs and goals, we will provide a scope of work and detailed estimate for your review. The estimate is often done by type of window allowing you to decide how many windows to restore based upon your budget. This analysis is the foundation for the work to be done and sets out the details and the tenor of the work such that a contract can be easily written and project expectations are balanced between the building-owner and practitioner.

Project timing: we schedule work after contracts are signed. A first-come, first-served rule allows us to be fair. It may take some time, but the good news is that your old-growth wooden windows or door(s) will not vanish anytime soon (although they have been calling out for help!)



Dis-assembly

- We respect our clients' homes and property. To that end, we'll ask you in advance to remove personal effects that may be at risk to create a space for us to work safely and as per the EPA-requirement. If needed, we'll ask for help with a place to park and to load and unload.
- We use thick rubber mats as floor protection at the window area so ladders and hand tools won't accidentally scratch or damage wooden floors.
- Working lead-safe is essential. We abide by the EPA/RRP Lead Law and we assure "immovables" are put away and/or covered with lightweight plastic to prevent contamination.
- Clients will be notified if we discover hidden issues with their frames or window sills.
- Once we have removed the windows or doors, we verify that there is no lead dust and leave our clients' homes clean.
- We ensure that our clients' window/door openings are secured or water/wind-proofed (with existing storm windows, plastic or plywood - owner's choice) while we perform our shop-based restoration process..

In-shop Restoration

Sizing, labeling, and stripping to bare wood

- We "size" our sashes and doors to make sure they will fit neatly in their openings with tolerances for wood expansion and historic metal weather strip.
- We mark all the sashes, and glass so re-installment is easier. All the hardware is "harvested" and secured for restoring and safekeeping. Glass, hardware, and all repairs are inventoried and are provided to you so you can determine the finer details of the restoration





process that can be customized per window, if desired.

- In our lead-safe room, we use a state-of-the-art steam stripper (instead of toxic chemicals) to loosen lead paint and glazing.
- Our mechanics carefully scrape, and then sand to ensure all window/door parts and profiles are clean of all paint, primers and glazing.
- After stripping/sanding, we vacuum and then wash the sashes and doors with TSP (tri-sodium phosphate) to ensure they are completely de-lead ed once they leave our stripping room.

Repairs/Woodworking & weather stripping modifications

- After stripping the windows/doors, we conduct a repair survey to document and catalogue what's needed cosmetically and structurally.
- We stabilize joinery so both windows and doors stay square and secure for a lifetime of service. Repairs are executed using old-growth wood or hardwood and two-part epoxies (avoiding screws and nails), as well as renewed tenons and mortises, as needed.
- We modify your sashes at the entire perimeter and at the midrails (if they are double-hung) to ensure high performance.

- We use historic hard metal weather-strip, either zinc or bronze.
- Mis-shapen parts are repaired or straightened to guarantee full function, ease of use, and energy efficiency.

Glazing, Priming & finishing

- After double-priming, we re-glaze your sash(es). Glazing is executed only after we've provided you an inventory of your existing glass that describes its type and condition. Only after you've approved the glass, do we re-bed your existing glass or its replacement. We intend to re-use your existing glass if possible (especially if its original antique) or provide replacement glass strategically based upon your desire.
- Our professional glaziers cut exterior lines for a "glass only" line of sight, holding back 1/16" from the glazing rabbet. We back-bed our glass with glazing compound (often know as glazing putty), gasketing on both sides to seal against water- or air-intrusion.
- Glass is cleaned after glazing and/or before painting in order to ensure a strong and lasting paint bond adhesion.
- Once the glazing has cured, we proceed by finishing with paint or sometimes an interior stain and sealer. Stains and sealers are always owner-approved as are paints and their finishes. Dark stains are typically used to minimize conspicuous repairs and/or blemishes.
- Hand painting with skill is an art which we take seriously. All primer coats and the first-finish paint coat are lightly sanded and surface fillers are used, as necessary to build a lasting and gorgeous finished product. The final coat is carefully applied to ensure high aesthetics but also top-notch durability at both the glass area and on all coated surfaces. The paint just touches the glass to seal the glass area from water intrusion. Quality controls are always used to ensure both glazing and painting pass inspection. This ensures both beauty and high performance especially given Mother Nature's weapons: water, snow, wind and sunlight.





Installation

- Proper installation is essential for efficiency and function. Our on-site restoration crew pays as much attention to detail in the field as we do in the shop: midrails align, sashes glide, weatherstrip slows/stops drafts without resistance, aesthetics are beautiful and the glass shows its natural beauty!

• We don't leave an installation until all stops and hardware are clean and neatly installed. We touch up our paint and make sure there are no lingering blemishes.

- We clean the glass one more time!
- Finally, we make sure to leave the home as we found it.

Follow-up, customer service: with our reputation, referrals come naturally!

Follow up

Our clients' satisfaction is important to us. We will contact you to see that everything is as you expected. We appreciate being able to work with our customers and consider every restoration job an important piece of the legacy of any home or business and of our reputation.

We are proud of what we do and are certain you will be, as well. Our customers come back time and again and are always happy to refer us to neighbors and colleagues who own historic authentic windows or entrance doors.

Our projects represent the best in restoration and customer service with the highest lasting value. This includes personalized approaches to your old windows or entrance door(s) and all those important details like the balance system, the glass, the hardware and the finishes. Our work speaks for itself: we are so well-liked, well-known and trusted that preservation institutions often turn to us. Here is an abbreviated list of some of our recent residential, institutional, and preservation society partnerships:

- Capitol Hill Restoration Society & Members (buildings ca. 1870s-1930s)
- Prince George's Heritage Foundation - Hilary-Magruder Project (ca. 1746)
- Bostwick House, City of Bladensburg (ca. 1746)
- the Old Bethesda Post Office (1936)



Before and after. A restored window is such an important feature of any historic property.

- the Rectory, Leesburg, VA of St. John the Baptist Catholic Church (ca. 1850)
- L' Enfant Trust listed historic homes, Washington, DC
- Dr. Samuel Mudd House, Dr. Samuel Mudd Foundation, (ca 1850)
- Josiah Henson Home (Uncle Tom's Cabin ca. 1890s), Montgomery National Capitol Parks and Planning

We always welcome direct referrals as we feel this is the best way to build a business and continue a strong reputation as leaders in the industry.

Quality Checklist

Dis-assembly

- Respect our clients' homes and property

- Personal/fragile items put away and/or covered with lightweight plastic

- Create lead-safe work space in accordance with EPA/RRP Lead Law

- Dis-assemble with care and mindfulness

- De-lead window frames

- Rubber mats used so ladders, and hand tools don't accidentally scratch or damage floors.

- All sashes and sash stops are marked

- Summaries of hardware and glass begin

- Clients' homes clean after our window work

- Verify there is no lead dust left

- Notify clients if unknown issues with their frames or window sills need attention

- Clients' window openings are water/wind-proofed

Shop-based Restoration: de-leading & stripping/initial sanding

- De-leading and paint stripping in our "lead room"

- Size sashes and doors to make sure moving parts move freely when weather stripped

- Mark all of our sashes, sash stops, doors, hardware, and each individual piece of glass

- Keep clean, sharp ogee profiles

- Vacuum off and wash sashes and doors with TSP to make lead-free

Repairs/woodworking & weather stripping

- Stabilize joinery so both windows and doors stay square
 - Use old-growth wood, two-part slow-cure epoxies, high quality glues
 - Avoid the use of metal fasteners (screws or nails); rely on good wood joinery techniques, epoxies/glues, and the help of lots of clamps!

- Mullions align

- Conduct repair survey/inventory for comprehensive renewal

- Repair structurally and cosmetically for function and beauty

- Straighten and modify midrails, rails, and stiles such that weather strip functions beautifully without friction

Priming, Glazing, Glass, & Painting

- Glazing lines match the glazing rabbet

- Use oil, shellac/polyurethane, and oil-based primers/paints to ensure wood is sealed

- Fill "voids" before we finish paint and check for more "skimming" as necessary prior to finish painting

- Prime 2x and paint 2x

- Glass is inventoried and new/replacement glass is client-approved, if required

- Glass is always back-bedded with glazing putty and we finish our glazing exteriors with a "glass only" line of sight, 1/16" from the glazing rabbet.

- Glass is cleaned before painting in order to ensure lasting, strong, paint-bond adhesion

- Sand and clean between coats of primers and paints for better bonding/quality finish

- Paint lines touch the glass 1/16" of an inch past glazing lines and 1/16" or less into sight lines

- Sand, prime, and paint with the wood grain

- Primer and finish paint coats are always inspected after drying to ensure quality

Accessories, Functionality, and Details

- Parting stop, typically old-growth Douglas fir, matches the historic ones but **with no paint**. They're oiled for function, like the window frames where we've stripped and then sealed the wood pores with boiled linseed oil. These stops and the frames will require periodic maintenance. (see maintenance section _____)

- Old hardware is restored for re-use, cleaned of any paint or rust and oiled for installation. Subsequent maintenance will be required periodically.

- Concealed sash edges are cleaned for removal of paint bead, sashes are weighed, and sash weights are marked for installation.

- Finally, those concealed edges are sealed with boiled linseed oil for lasting performance.

Installation

Your old historic windows or entrance door comes back home, expertly re-installed for seamless function, efficiency, and unmatched beauty.

- Window pocket weights are always re-recorded or chained to sash weights for perfect balance.

- Midrails align, sashes glide, weatherstrip does not provide resistance

- Cleanly finished stops (caulked for tightness and painted - if it's paint grade)

- Historic hardware is re-installed or, as needed, new reproduction historic hardware (pulleys, locks and lifts) which complements the historic windows perfectly.

- Final touch-up of finish paint makes sure the windows are back "at home", pristine.

- A last, glass cleaning leaves your windows proud and a "show piece"

- Final site inspection by our Field Manager ensures a job well-done.

When finished, each window, depending upon its configuration, will have been restored on average with 20-60 hours of shop labor (most of it hand-labor). This transpired over the course of 8-10 weeks to allow for curing, drying, quality-control, and other elements essential to professional work. We appreciate your patience that allows us to not compromise this necessity. In this manner, we're proud to ensure that our clients receive fully-restored windows/entrance doors that always meet Mozer Works quality standards.

Neil Mozer, Owner



The owners of this beautiful large palladian window were shocked that once restored it actually works. Both sashes glide up and down as intended. At right you see the stripped and restored sashes ready for paint.



Meet Neil Mozer

Owner and principal officer

Well before 2000, Mozer Works Inc. was recognized for its high quality remodeling and building, including work performed in many historic neighborhoods in the metro-DC area. Over forty years ago, as a budding builder-journeyman, Neil broadened his skills into the area of historic restoration and first found

his love of old things, including olde windows and doors. Recognizing the need for more dedicated specialists in old building restoration, he decided in 2010 to limit his company efforts to this specialization with a focus only on historic restoration of old entrance doors and windows.

After training with a widely recognized national leader in restoration, Neil and many of his staff have since spent years restoring old windows and doors to ensure top-quality performance and unmatched beauty. They have been the recipients of awards and acknowledgments for outstanding work in the DC-metro area by local preservation commissions, county governments, and historic societies.

Before turning to specialized restoration, Neil worked as a general contractor and master carpenter/builder for over twenty five years with a focus on quality residential projects. He apprenticed in Denver, Colorado, Aargau, Switzerland and around the DC metropolitan region. He lived and worked overseas and he loves educating people about restoration. Neil is married, has two adult sons and two large Labrador retrievers. He's lived and worked overseas and he loves educating people about restoration as part of this passion. Neil is married, has two adult sons and two large Labrador retrievers.

Educating people about window restoration is a passion of Neil's. Here he is addressing a local historical preservation group.



Essential Project Complements

Serious Weather stripping - One of our specialties

Interlocking metal weatherstripping is one of the key requirements to having a beautiful, authentic window or door that is also energy efficient. Weather stripping any window or entrance door is a modern standard. Whether new or old, all window sashes or entrance doors must be weather stripped to eliminate drafts. Metal



systems were America's original weather stripping, starting in the early 1900s.

We use the classic "hard" material that serves as a gasket or physical break to prevent the movement of air. Both the windows and doors are modified to receive this material on all four sides. We carefully size the sashes or the doors to their frames in order to ensure enough tolerance for those moving parts to operate freely with the metal system. Grooves or dados are precision-milled to ensure smooth operation. Part of the allure of this system is its concealed nature in the closed position. Both the historic entrance doors and old windows appear fully authentic when closed but when opened reveal a turn-of-the-twentieth century innovation, America's original metal weather strip. It is even LEED certified (USGBC LEED-NC v2.2 credits. Indoor Environmental Quality)

We offer both zinc or bronze, both of which were used historically. Modern windows and entrance doors come with modern weather strip materials (nylon bristles, vinyl sweeps, urethane foams and siliconized tubes. They do work, but their lifetimes are limited. Abrasion and UV-light take their toll in adversely affecting these materials. Your

hard metal system that we use will patina over time but will last as long as your windows/doors, a century if not more.

A historic practice that's been around for over a century, this elegant solution is an absolute necessity and it works.

A historic practice that's been around for over a century, this elegant solution is an absolute necessity and it works.

Beautiful storm windows save energy and protect your investment

Equal energy efficiency performance is our goal when we restore your old windows and doors when we compare them to the alternatives; replacements or reproductions. In order to exceed or match two-pane modern windows/doors, we always recommend our clients protect their restoration investment and help their old windows achieve the highest energy efficiency by installing "historically-sensitive" storms. These are a new generation of storm windows/storm doors that are not our parents' genre. They are sleek, minimalist and high performing both functionally and in terms of comfort-of-use and weather seals.

Sensitive to historic neighborhood architecture, these accessories provide unmatched physical protection. Together with your restored historic windows they produce a high-performing two-pane system that allows historic homeowners to keep their authentic architecture and show it off. Besides the sound glazing, high-quality weather strip and non-leaky weight pockets of your old windows, this accessory is an essential complementary investment that's required to match today's modern standards for energy efficiency and long-lasting performance. Permanently mounted frames recede within the historic window or door framework making these accessories nearly invisible. Historically sensitive storm windows, with removable glass and screen panels, ensure your personal enjoyment and lasting performance that parallels that of our high-quality comprehensive restoration services. You will relish decades of reduced maintenance, comfort and peace-of-mind.



Maintenance

Making sure that your restoration investment yields long-lasting returns.

While we do expect you to have decades of enjoyment with your professionally-restored old windows/entrance doors, they will require some maintenance as is normal for any historic home. Here's a checklist:

- I. Painting and glazing; while your door or windows did receive numerous coats of primer, finish paint and branded-new glazing, they will age. How rapidly will be a function of exposure including to Mother Nature's wind, water, snow and UV-light. Periodic painting of the exterior will be required and should be done based upon condition. Glazing is expected to stay sealed for decades but at some point may need attention based on exposure.
- II. Window frames & parting stops; we've strategically stripped some of your window frames so the lead paint is not an issue and full-function is achieved. Those areas that are now "natural-looking" and not covered by weather strip were oiled and will need periodic oiling with boiled linseed oil, as will your windows' parting stops. Thankfully, the surface area is minimal and oiling will take literally no more than a minute or two per window. Again, an observant eye and an occasional light touch will inform you about how well sealed the old-growth wood feels. Once a year is a likely expectation for maintenance.
- III. GLASS; your glass may be historic original or new modern replacement; regardless it requires care. Preparations for re-painting of your windows should include extra attention near the glass surface. For periodic cleaning, we typically recommend using non-ammonia type cleaners, particularly if any re-painting is planned, to ensure proper paint bond to the glass surface. We like the product Perfect Glass®. A lint-free cloth or even high quality shop towels will polish your beautiful glass to a professional standard.
- IV. Sash edges and weather strip. Your weather strip should never be painted to ensure it functions smoothly. Paint bead readily builds and impedes window performance at strategic areas. For this reason, we keep your concealed window sash edges oiled instead of painted. Again, boiled linseed oil can be applied occasionally; once a year should suffice. Your weather strip needs no oiling; it will patina handsomely without interfering with the performance.
- V. Hardware: metals need maintenance much like the wooden elements of your home that are exposed.

Your historic hardware was cleaned and its natural luster restored using WD40 oil. It now functions smoothly but it is at risk given humidity and exposure. You may choose to have the hardware sealed. If not, it will be subject to oxidation, rust, and patina. Sealing with clear polyurethane or lacquer can prevent these reactions. Again, with a little attention, you can monitor whether your hardware needs an occasional WD40 re-coating or you can opt for longer-term sealing.

VI. Minor tune-up

Given your old sash, entrance door and frames are not immutable, they may need some minor, occasional tune-ups in the future. Feel free to call us for advice or coaching, if needed. We can provide additional special service, as well, in the unlikely event that it's needed.

Stay In Touch

It's clear that restoration is hands-down the best approach! We hope you enjoy your project as much as we do! It's a pleasure to know that with more and more building owners recognizing the merits of restoration, our historic neighborhoods can revive their past glory and we'll stand in honor of their resurgence!

Regardless, please stay in touch and think of us when it looks like some historic old windows or entrance doors need some help!

Thank you.

Your restoration team,
 MOZER WORKS, INC.



Contact Us

Questions? We are happy to help. Lets talk about preserving your windows and doors!

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