



**SINGLE PANE TO DOUBLE PANE TRANSFORMATION**

[www.windowslip.com](http://www.windowslip.com)

Update and insulate your windows to modern standards with this reliable long term solution.

CHOSEN  
WOOD WINDOW  
MAINTENANCE, INC.

## Introducing the Slim Line Insulating Pane | SLIP™

Over 20-years of experience restoring wood windows has made this product come to life. Modernize your single pane windows and make your building more comfortable with the SLIP™ (Slim Line Insulating Pane). This update is an innovative and cost-effective way to retain the original, and valuable, wood windows; while making them more efficient, saving money, and enhancing comfort.



### How it Works

We have made it possible to add a *tempered*\* pane directly to each sash overlaying your current glass setup. Essentially, turning your single pane window into a simulated double-paned window. The frame of the SLIP™ is an attractive, low-profile, pressed metal extrusion. This simple solution can rejuvenate single-hung, double-hung, casements, picture windows, and more. This modernization is a long-term solution that does not need seasonal reinstallation.



### Value of Original Windows

Original vintage windows fit the vintage building they are in. Care was taken to match the style of window to the building, the trim, etc. The building can seem at odds with itself and its surroundings if the original windows do not match styling features.

Chances are your windows have done their job for 50-100 or more years already. Sure, they may be a little creaky and may not be as attractive as they once were, but it's a far better investment to repair a proven performer than to sink money into a new window that only has a 20-year warranty at best. With proper maintenance, the original windows should last another 100 years.

\*Tempered or toughened glass is a type of safety glass processed by controlled thermal or chemical treatments to increase its strength compared with normal glass.



Replacement windows have a rigid structure that fits within your window openings. Old houses move and shift over time, and frequently the gaps that open up around replacement windows and the window openings result in more drafts than the original windows.



When installing SLIPs on double-hung windows, the weight of the balances needed for window operation may need to be adjusted. This can be done simply by adding weights into the weight pockets when operating with ropes and pulleys. Hidden balances can be fitted to the window if a modern window operation method is requested.



Vintage wood windows are composed of old-growth timber. The wood is much denser and more weather resistant than today's tree farmed softwoods. Even with years of neglect, the reason these windows are still around is due to the very high-quality wood, requiring no cladding or additional materials to give them weather resistance.

- **Increased energy efficiency**
- **Sound reduction**
- **Maintains original window glass**
- **Windows can stay historically accurate and functional**
- **Interior or exterior install**
- **Options of Clear, Obscure, or Low-E**
- **Extremely low future maintenance cost**
- **No loss in outside viewing space**

## Benefits

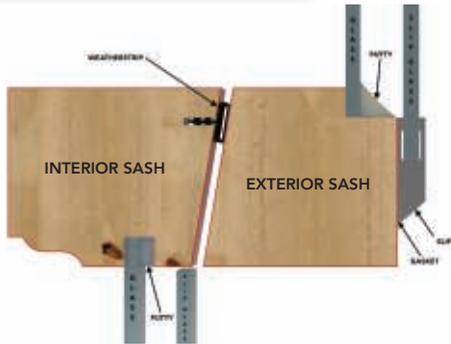
SLIPs have been tested and are comparable with insulated glass units. However, unlike true insulated glass, SLIPs will not fog up and succumb to seal failure and require periodic glass replacement, meaning *lower* future maintenance costs.

SLIPs have a sleek look and feel with a low profile that blends into the sash; you will hardly know they are there. Another key aspect is that SLIPs will ensure your window sash remains fully operable, without the need to open two sets of windows or remove any components as you sometimes get with storm windows or inserts.



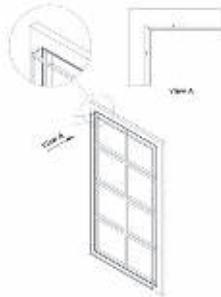
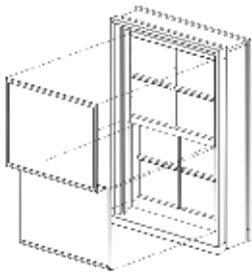
*SLIPs can come in versions of 1/8" and 1/4" glass and can also provide options of clear, Low-E and obscure glass finishes*

## Doublehung SLIP Meeting Rail Detail



Doublehung Window Attachment

Casement Window Attachment



## Noise Reduction

SLIPs have been highly effective on downtown buildings when used to fade outside noise from vehicle traffic and loud neighbors.

## Value Engineered

When looking at options to update vintage windows, insulated glass conversions are a popular choice. When doing this you will need to remove the original glazing, ensure a large enough channel, and re-glaze the window; this can be very costly on multi-lite configurations. It is much more cost-effective to insulate all the original glazed windows with a single overlying layer rather than alter the original window.



## Functionality

When using SLIPs, your original window will continue to function in the same manner regardless if it is a casement or a double/single hung.

## Protection

A SLIP™ protects the vintage window glass and the hours of window glazing work against the elements with a tempered layer of glass.



Before

After

**The Slim Line Insulating Pane is a sleek, low-profile addition to Single Pane Windows.**

## Historic Product

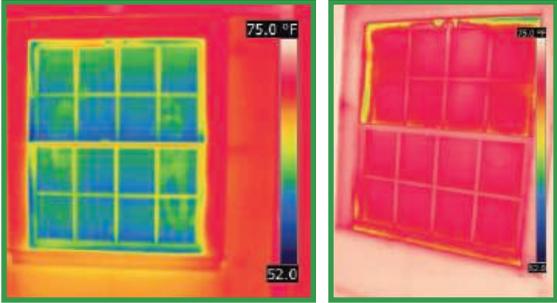
While coming up with the idea of the SLIP, we wanted to keep the original window characteristics. With the SLIP,™ the original sash AND glass can be preserved, maintaining the uniqueness and charm of the window. The SLIP is very sleek and low to the sash, blending right in. This product can be installed on the interior or exterior of the sash.

Although SLIPs are a long-term product with little to no maintenance, they can easily be removed.

*Perimeter Weatherstripping is highly recommended on all operable sash*

## Tested and Proven Product

SLIPs are a proven product and have been used on large projects such as Fort Vancouver, University of Oregon - Gerlinger Hall, Oregon State University - Bexel Hall, and many more. SLIPs have been used on many different types of projects, residential and commercial alike.



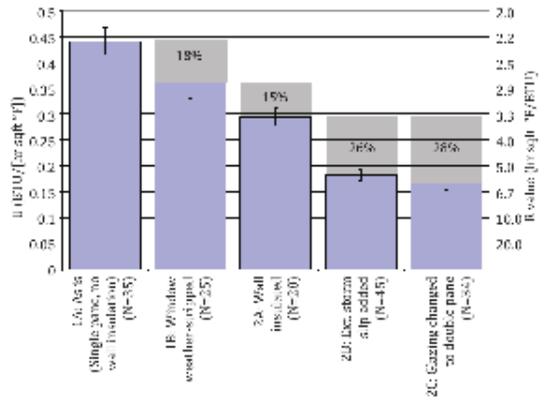
## Performance

Energy testing was performed by: Energy Studies in Buildings Laboratory, Department of Architecture at the University of Oregon. The results of this study can be seen on our website. Results from this study were taken to conclude that SLIPs can yield a cost reduction of 72.9% concerning windows in an average household.

- **Single pane windows...454 therms\*\* and 474kWh**
- **Single pane window with added SLIP™... 123 therms and 129kWh**
- **Single pane window with SLIP™ and weatherstripping...93 therms and 97kWh**

\*\*A therm is a unit of measurement of energy (more specifically thermal energy). The therm is used to measure gas consumption as well as consumer cost.

## U-value results



*Increase the Function and Comfort of Your Building*

"Based on the energy modeling that we did for the building, including live mock ups, the study showed that the SLIPS were very close to the energy performance of the IGU option, and given the lower cost the decision was made to go with the SLIP system. We are now three years into occupancy and have had no issues with the windows. The SLIPS are very unobtrusive, and we were able to save hundreds of historic windows and still met our stringent standards of energy performance that exceeds Oregon State Code."

George Bleekman, Owner's Representative, Capital Design & Facilities Management

## University of Oregon Straub Hall

### Secondary Window Attachment Case Study



The project team debated over multiple approaches to the building's windows during the first year (2011-2012) of renovation planning:

#### Option 1: Complete Window Replacements

The proposed window replacements would be double-pane, divided light windows that would have created a similar appearance to the original windows when installed. However, university officials disregarded this option. While the new windows were similar to the original windows, they felt that the replacements were not similar *enough* to the original design.

#### Option 2: Adding Film to Existing Windows

As both the frames and panes were in an excellent condition, the second option was to replace the glazing on the current windows with an insulated film. However, while this would maintain the original appearance of the windows, this method was projected to be both more expensive than other options and more time-consuming.

#### Option 3: SLIP Window Attachments

The SLIP attachments were cheaper than replacements, maintained the look of the original windows, and allowed the windows to remain operable. However, the attachments would add weight to the windows, which could potentially interfere with the weight system that operated the windows.

The University of Oregon hired the on-campus Energy Studies in Buildings laboratory to test the effectiveness of the following scenarios: the original windows, windows with one layer of insulated film, insulated glass conversions, and Chosen Windows's SLIP attachments. Analyses from the UO energy lab confirmed the following:

1. Even one layer of insulated film provided significantly better insulation than the original windows.
2. The insulated glass conversion option and the SLIP attachments provided nearly identical levels of insulation.



UO Energy Lab testing windows in Straub Hall

The full energy report can be found at <https://windowslip.com/commercial/> by clicking on the energy testing tab. This report allowed the team to move forward with the cheaper SLIP attachment option.

## How to get SLIPs on your windows

The creator and manufacturer of the product, Chosen Wood Window, has been, and still does, install SLIPs on commercial and residential buildings in the Northwest for over a decade.

For people further out who are looking to modernize their windows, we highly recommend our SLIP™ Kit. We assemble, sell, and ship custom-made DIY SLIP™ Kits. These kits contain all the custom-sized materials that are necessary for a successful install. Contractors are encouraged to install SLIPs on their projects! We have a full-length installation instruction video as well as a tutorial video on how to measure for your custom-sized SLIPs.



### DIY SLIP Kit



### SLIPs, Balances, Weatherstripping, Etc





*Door SLIP*



*Interior SLIP*



*With and Without Comparison*



*Great for Leaded or Stained Glass*



*No loss in outside viewing space*



*SLIP Profile*



*Obscure Glass SLIP*

