

Guide for Window Routing Device



Window Routing Device Turns Existing Single-Pane Wood Windows into Energy-Efficient, Double-Pane Low-E Windows

Renovating homes, especially historic homes, is a tricky and onerous task. The desire to retain the character of the building, and in some cases, the actual historic material, competes with the desire to improve energy performance. With a grant from the Department of Energy's Inventions and Innovation Program, Bi-Glass Systems developed a tool guide to control the operation of a router for converting single-glazed wooden-framed windows into double-glazed windows. Single-pane glass can thus be replaced with panes that are more energy-efficient without replacing the sash members or the entire window.

In a Bi-Glass conversion, the original window sash is removed from the frame by a trained technician. The sash is taken to a mobile workshop. Here the technician uses the patented tool package to route out the old window putty and glass. This makes room for the new, insulated glass, which is installed using glazing tape and caulking. The interior grillwork remains intact and virtually unchanged. In addition, technicians install new jamb liners, weather-stripping, insulation, and locks to eliminate all drafts. The sashes are then reinstalled into their openings and adjusted to fit snugly. The result is an estimated 20% annual reduction in energy costs for a house where all windows are upgraded.

Benefits

Ease of Installation

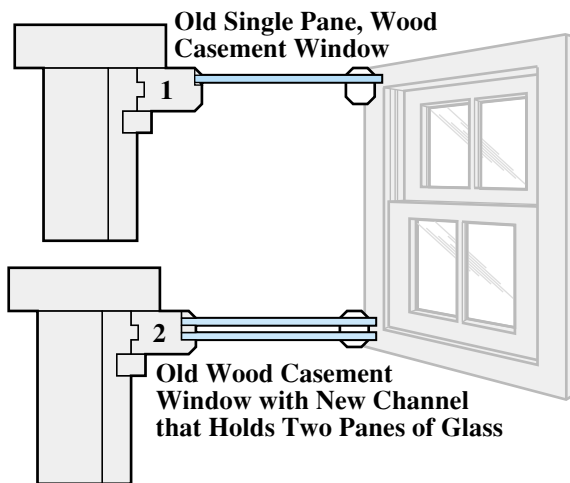
The window sash is quickly removed and replaced. The Bi-Glass window conversion takes place in a mobile workshop within hours.

Pollution Control

With the Bi-Glass System, the home's existing window-sash is reused instead of sending debris to the landfill or using virgin materials.

Productivity

The labor is more for Bi-Glass, but materials costs are much lower. The typical Bi-Glass conversion is priced 25% to 100% below traditional vinyl, aluminum or wood/wood-clad installed prices.



Before and After Cross Section of Treated Window

Overview

- ◆ Available from Bi-Glass Systems
- ◆ About 10 United States and 4 British licensees
- ◆ Commercialized in 1993

Energy Savings

(Trillion Btu)

Cumulative through 2002	2002
0.520	0.103

Emissions Reductions

(Thousand Tons, 2002)

Particulates	SO _x	NO _x	Carbon
0.0	0.013	0.013	1.79

Applications

- ◆ All window installations, especially those wishing to maintain the "look" of existing windows
- ◆ Allows renovating an old sash instead of replacing the window with a new one
- ◆ Approved for use in historic districts

Capabilities

- ◆ The Bi-Glass System works with all styles of wooden windows. Classic structures are easily restored to earlier beauty with newfound efficiency, while meeting the strictest of historical guidelines.
- ◆ Patented router guide increases the size of the rabbit joint in a single-pane wooden window for double-glazing.