

# WINDOWS

## Repair and Restoration

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Windows are a defining feature of architectural style. Rarely do we describe a building without reference to the type of window and its placement on the façade of the house. In residential architecture, windows usually fall into three categories: **casement, single hung and double hung.** Other varieties that might be found in attic basements and industrial and commercial buildings include **hopper, awning, and pivot windows.**

Much of the early history and associated styles of windows in America is linked to the history of glass making. Before advances in the industry enabled the production of larger sheets of glass, windowpanes were small. For example, late 17<sup>th</sup> and early 18<sup>th</sup> century houses relied mostly on the use of casement windows, which swing in and out on hinges. These contained small, often diamond-shaped panes that were sometimes locked into lead cames. By the early 18<sup>th</sup> century,

single and double hung windows, in the “new” Georgian style, which move up and down on a track, used larger windowpane sizes ranging from 6X8 to as large as 10X12 inches. These windowpane sizes dominated through most of the 18<sup>th</sup> century. By the 1830’s, the U.S. was importing plate glass in relatively large sheets from England. Window sizes increased to a range from 8X10 to 10 or 12X14 inches. Predictably, the number of lights per sash decreased as the panes grew larger. Eight over eight and eight over twelve at the beginning of the 18<sup>th</sup> century evolved to six over six by the early years of the 19<sup>th</sup> century. By mid century, this process had found domestic roots so that by the mid 1860’s it was possible to produce sizeable one over one windows. By the 20<sup>th</sup> century, it was possible to produce single panes of glass for any residential window, but the revival of many colonial styles saw a diverse choice of size and style of windows and panes.

## Describing windows.

**Casements** are the simplest window configuration. They are hinged along one edge and simply open and close like doors. They can open into the room or out.

**Single hung** windows consist of two sash mounted one above the other. The upper sash is fixed in place and hence immovable, while the lower sash is free to slide up and down in the window jamb. Before weights were used to counterbalance windows so that they stayed in place at any height, many ingenious devices were designed to accomplish this.

**Double hung** windows are designed to allow both sash to slide up and down and past each other in the jamb. Although they provide convenient ventilation, they are not airtight due to the complex interlocking strip of millwork along with a mechanical fastener that is to keep both sash joined against the cold weather.

## Repair vs. replace

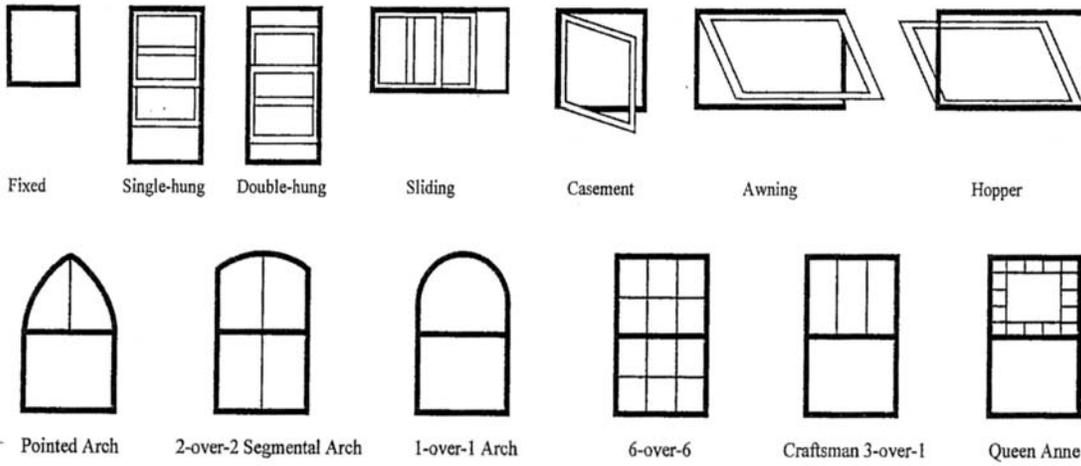
Advertising claims of 20, 30, and even 50% reductions in annual heating costs suggest that replacement windows are

a wise investment. Add to this a government sponsored tax credit, and it seems as if the decision to replace windows is financially sound and socially responsible.

Sadly, it is a misguided perception. Several cold weather performance studies, discussed by Rob Yagid in the May 2010 issue of *Fine Homebuilding*, indicate that the difference in heating costs between replacement windows and restored original windows with storm windows was only a few dollars. Another small study comparing houses that had replacement windows with those that did not, found that on average homeowners saved only \$40.00 per year!

Unlike replacement windows that last only a few years and cannot be repaired, original sash are a sustainable element, designed to be maintained through repairing. This and the fact that they are milled from high quality, dense, fungal resistant, old growth lumber contributes to their longevity. No new sash will ever be able to make that claim.

## Window Identification



Courtesy of North Wales HARB

## Window Anatomy

Courtesy of Old House Journal April 1982

NOTES: