

### **WINDOWS**

#### ***Repair and Restoration***

Courtesy the Fairmont Park Conservancy

Windows are a particularly important feature, often defining an architectural style. Rarely do we describe a building without reference to the type of window and its placement on the façade of the house. Much of the early history of windows and associated styles in America are inextricably linked to the history of glass making. The earliest houses (late 17<sup>th</sup> early 18<sup>th</sup> centuries) relied mostly upon the use of casement windows that contained small, often diamond shaped panes that were sometimes locked into lead cames. By the early 18<sup>th</sup> century however, houses began to employ both single hung and double hung windows in the “new” Georgian style. Window pane sizes ranged from 6X8 inches to as large as 10X12. These sizes dominated most of the 18<sup>th</sup> century. By the 19<sup>th</sup> century window sizes increased to a range from 8X10 to as large as 10 or 12X14 inches. Consequently, 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 the 1830’s imported glass from the development of the plate glass

process in England permitted the installation of relatively large sheets. 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. Although it was possible to produce single panes of glass for any residential window, the choice of size and style became one of choice with the revival of many colonial styles in the early 20<sup>th</sup> century.

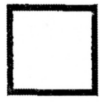
#### ***Describing windows***

Windows in residential architecture usually fall into 3 categories: casement, single hung and double hung. There are other varieties that might be found in attics basements and industrial and commercial buildings. These include: hopper, awning and pivot windows.

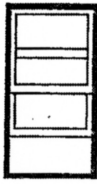
Casements are the simplest window configuration. They are hinged along one edge and simply open and close like doors. They can open into the room or out.

Single hung windows, on the other hand consist of 2 sash mounted one above the other. The upper sash is fixed in place and hence

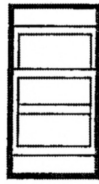
## Window Identification



Fixed



Single-hung



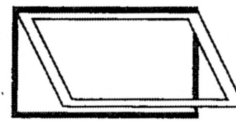
Double-hung



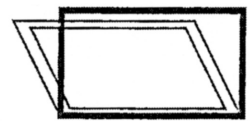
Sliding



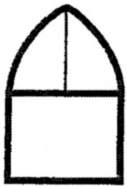
Casement



Awning



Hopper



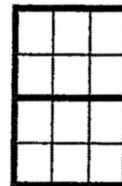
Pointed Arch



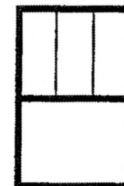
2-over-2 Segmental Arch



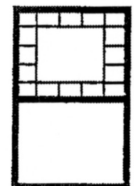
1-over-1 Arch



6-over-6



Craftsman 3-over-1



Queen Anne

courtesy of Old House Journal

immoveable, 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 had been designed to accomplish this. This might include everything from a stick to a strip of wrought iron that springs into preset grooves in the window jamb. Double hung windows are designed to allow both sash to slide up and down in the jamb. They slide past each other. For all of the convenient ventilation that they provided, the double hung window was difficult to maintain airtight during the cold months due principally to the complex interlocking strip of millwork along the rails where both sash met. A weathertight opening here relied

heavily upon a mechanical fastener (the window lock) that was needed to keep both sash joined tightly to prevent air infiltration.

### *Repair vs. replace*

Advertising claims of 20, 30 and even 50% reductions in annual heating costs make it seem that replacement would be a wise investment.

Add to this various government sponsored tax credits, and it seems that the decision to replace is financially sound and socially responsible.

Sadly, it is often a misguided decision.

In an article by Rob Yagid that once appeared in the May 2010 issue of

*Fine Homebuilding* he cites the results of several cold weather performance studies that indicate that the difference in heating costs between replacement windows and restored original windows with storm windows was only a few dollars. Michael Blasnik, an independent consultant specializing in energy efficiency and weatherization program evaluation, is quoted as saying that “There is actually little data that supports the idea that replacement windows save any significant amount of energy in typical homes.” Further, a small study comparing houses that had replacement windows with those which did not, found that on average homeowners saved about \$40.00 per year! Accordingly, these homeowners will not see a payback for over 250 years!

Unlike their “new” counterparts, original sash are designed to be maintained. They are a sustainable element. 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.

### ***Repairs***

Most “repairs” to wooden windows actually amount to routine maintenance. Over any 5-10 year period, it is reasonable to assume that a window will certainly need

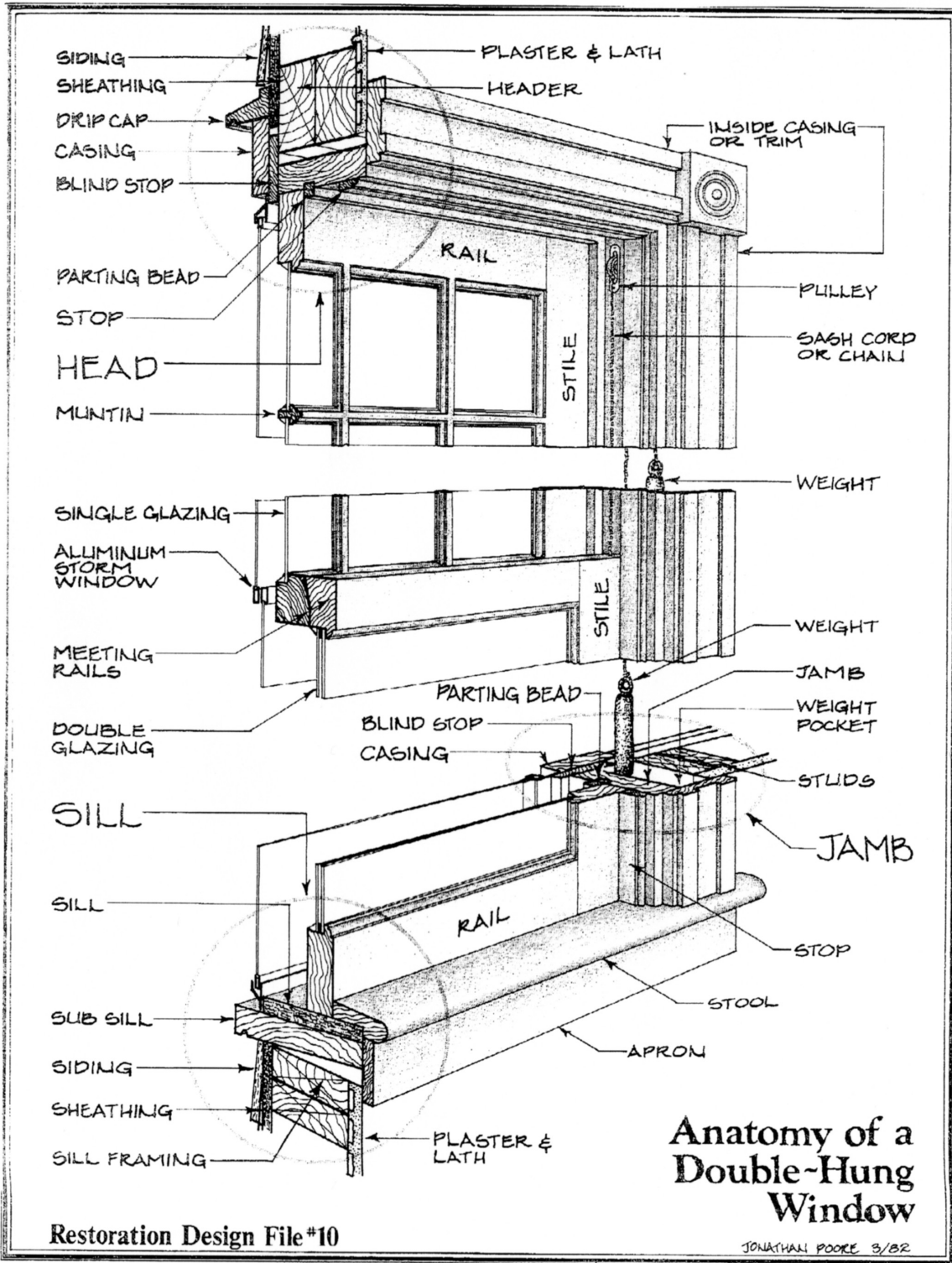
paint. This requires scraping and sanding of course, so lead paint safety should be practiced. During this same period of time, a pane of glass may need to be replaced or a new cord/chain will need to be installed. Loose glazing “putty” can also be partially replaced as a part of regular maintenance. Finally, weatherstripping may need to be renewed since it is not designed to last forever.

A step beyond routine maintenance would include the use of epoxy wood consolidants and fillers to resurface areas that have deteriorated as a result of limited rot, or cosmetic scars and chips. Windowsills and the lower portions of the side jambs are often candidates for this type of repair.

Finally, after long periods of deferred maintenance, it may be necessary to replace wooden elements of the sash or even the jamb. This will require a certain amount of millwork that the advanced do-it-yourselfer could attempt. Alternatively, pieces can be reproduced by local mills.

The beauty of these traditional windows is in their ability to be repaired. All wooden sash can be completely disassembled and reassembled repeatedly in order to preserve their function and aesthetics.

# Window Anatomy



courtesy of Old House Journal April, 1982