



WEB BASED APPLICATION SPECIFIC INSTALLATION INSTRUCTIONS



Cavity and Pocket Insulation

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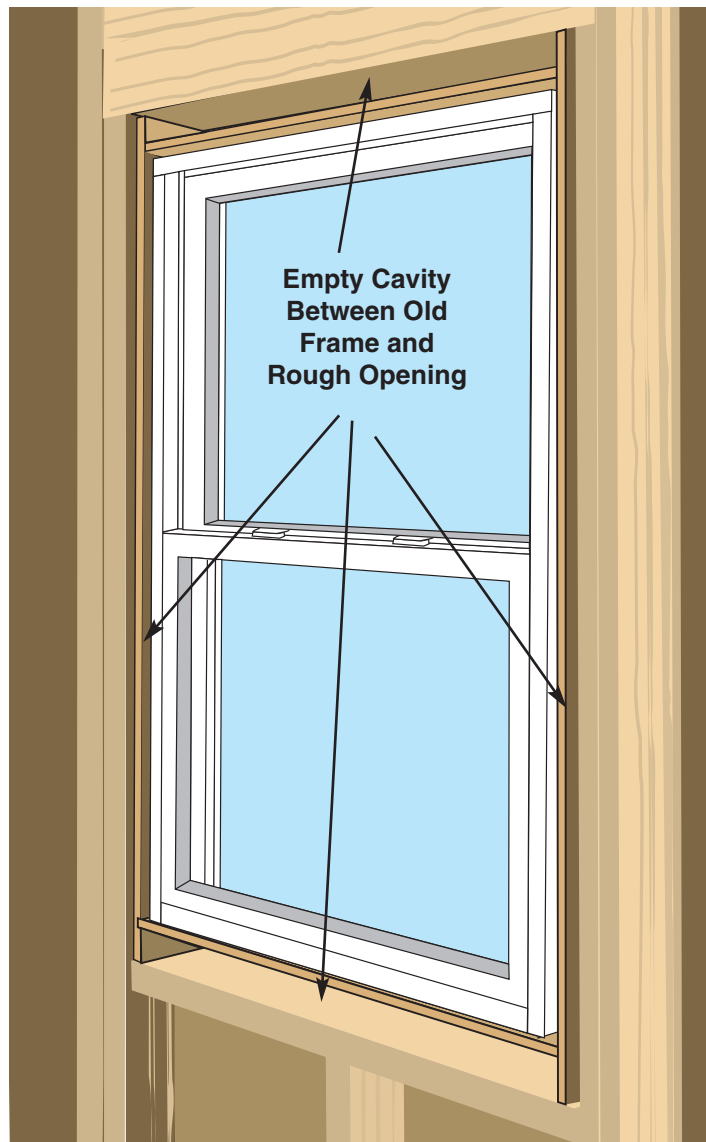
Insulating the Frame and Sash Pockets

There are 3 major performance problems associated with old windows and doors. Convection, Conduction and Radiance are usually well handled by replacing the old operating window or door with a modern, well manufactured new window with high performance glazing.

The real culprit, in most poorly performing old windows, is air infiltration. It is well documented, that a crack, 1/16", around the perimeter of the old sash or the old window frame will cause drafts, and the feeling of "cold" as if there were a hole in the wall the size of a brick. 10 windows or more, and the hole is like 10 bricks, and that can make a cold winter day feel unbearably cold and drafty.

Too often, replacing old drafty windows with new, high efficiency replacement windows, doesn't change much in the way of drafts and comfort. In fact, the air-tight replacement window magnifies the air leaks around the new window.

Uninsulated sash pockets and window frame cavities are the number one complaint. The new window may be well insulated but the hidden space between the old window frame and the rough opening needs to be insulated if the replacement is to succeed.



Before Replacement

Figure 1:

Most older windows were installed when energy costs were lower and building codes were not so stringent.

Air could come into the home and heat could escape through joints in the window frame and the rough framing and siding and wall board.

Also leaking air and heat are the joints between the sash and the window frame and the interlock of the sash. Even well weatherstripped windows wear out eventually.

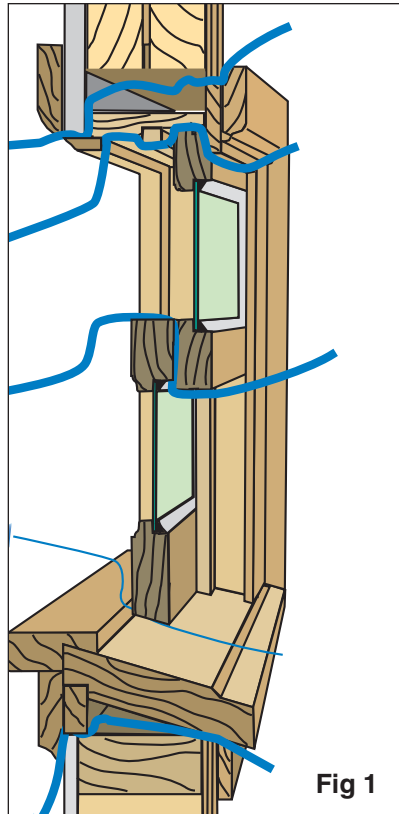


Fig 1

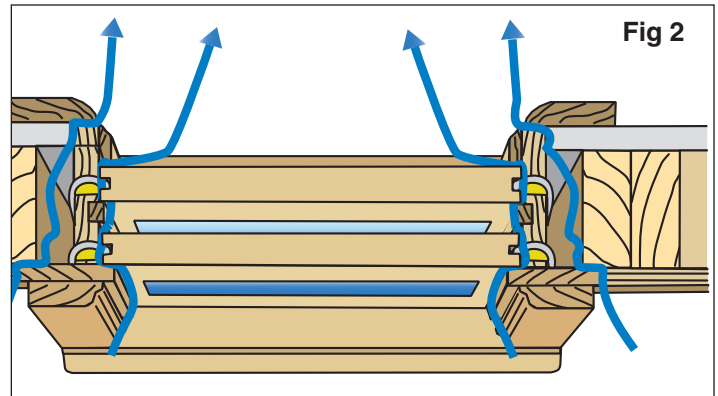
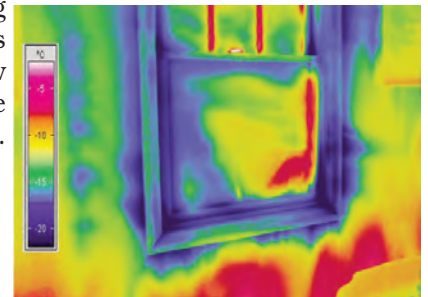


Fig 2

Figure 2:

Adding to the air leak and heat escape is the lack of insulation in the interior pockets. There are pockets of empty space where the old weights and balances were hidden, and between the tapered sill and the flat rough sill, and above the window header — as well as the side jamb cavities.

Thermal imaging shows the heat loss through the window and through the frame around the window.



After Replacement

Figure 3:

Modern Replacement Windows have tighter tolerances in the weatherstripping and at the interlocks. This better design and construction cures most of the window caused air and heat transfers because the gaps have been closed.

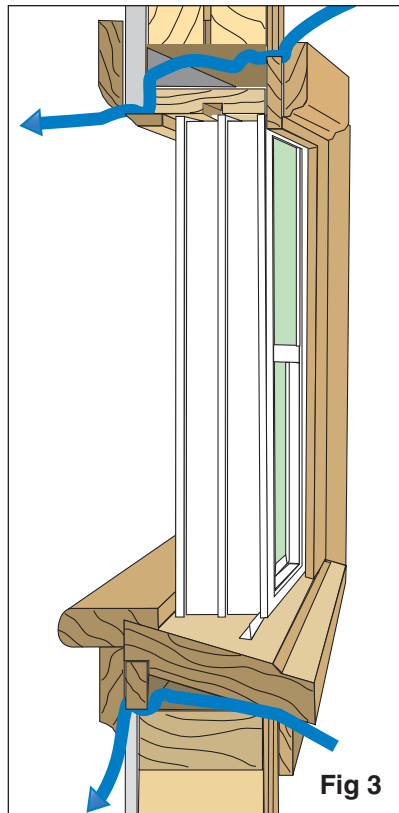


Fig 3

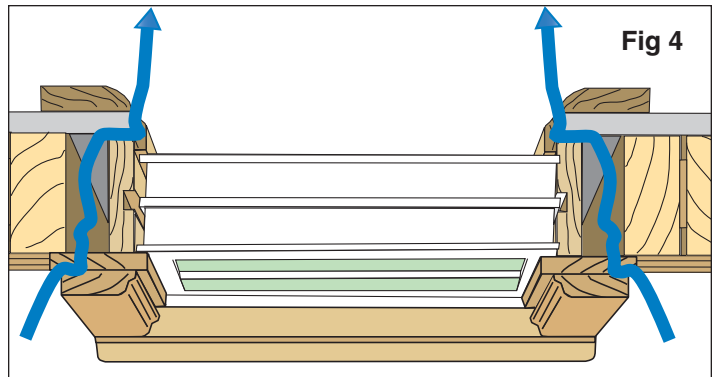
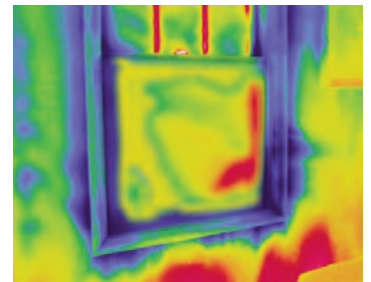


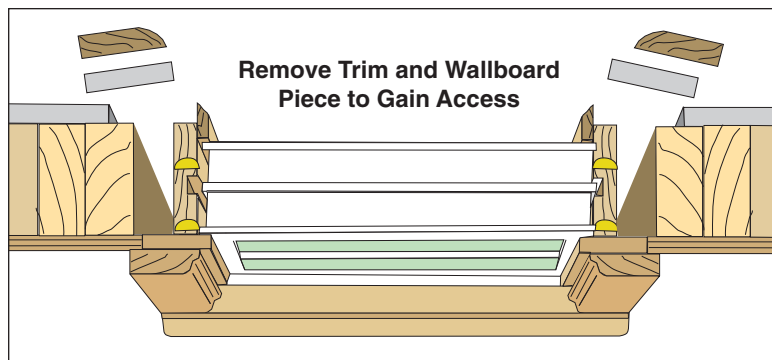
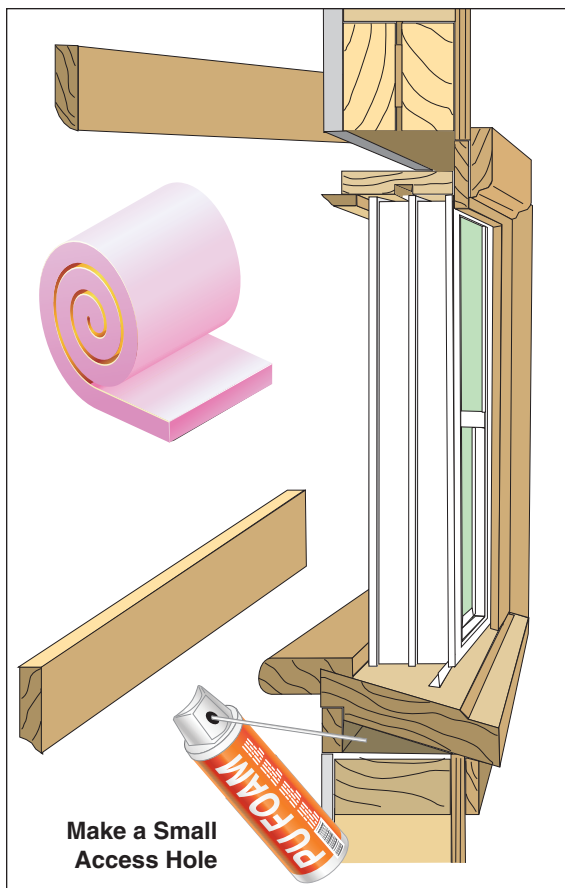
Fig 4

Figure 4:

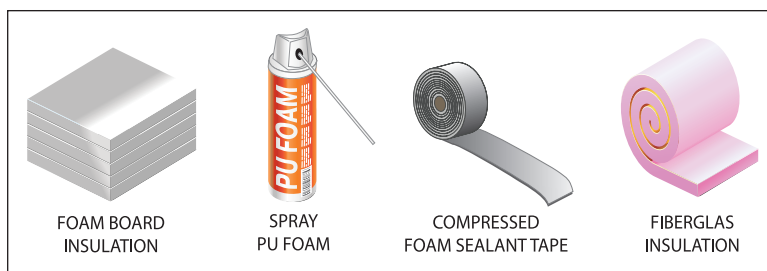
Too often the new window is fit to the left-in-place old window frame without insulation in the weight/balance pockets, below the sill and above the header - or in the jamb cavities. This leaves significant drafts, heat loss and dissatisfaction of the new windows. Thermal images show the cold around the new window even though the window itself is “warmer”.



Insulate the Cavities



There are a number of choices to insulate inside the cavities between the old window frame and the rough framing.

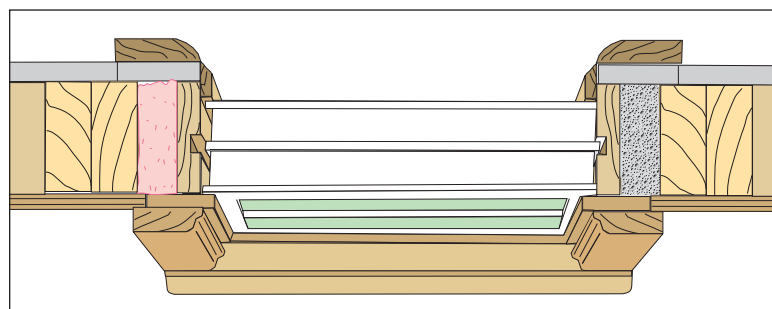
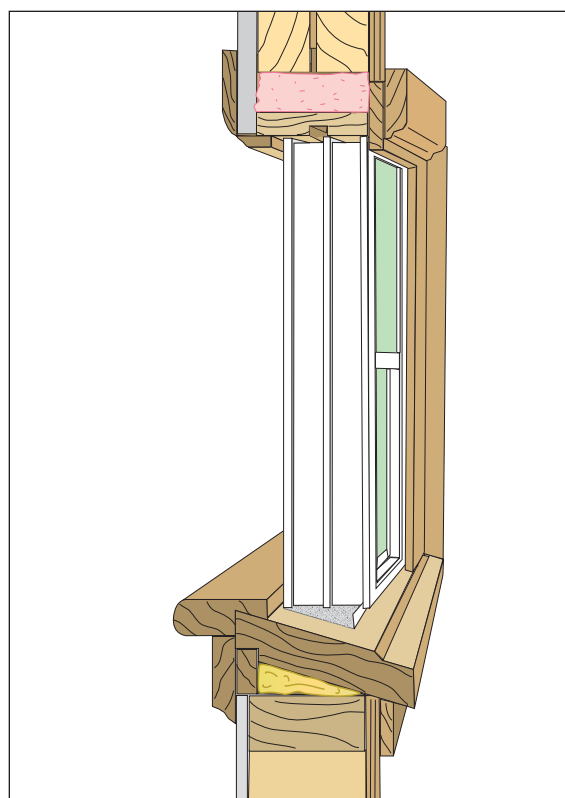


Spray PU Foam is the easiest because it doesn't require full removal of the trim if the nozzle can be inserted into the gap.

However, Spray PU Foam expands and you must be careful not to have it expand to where it deforms the window and wall parts.

Foam board needs to be cut precisely, while fiberglass batts can be inserted more easily.

Compressed foam conforms to the contours between the rough opening and the new window, best.



Thermal Images of fully insulated gaps, using any of a variety of material choices, demonstrate that the total opening will block air infiltration and heat loss as well as the new window.

