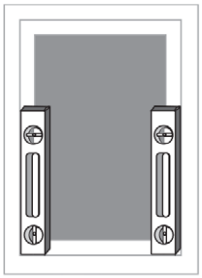
Air Infiltration Diagnostic Check Guide for Single Hung & Double Hung Windows

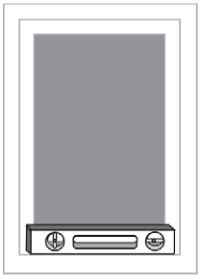
The following are some guidelines to help identify key areas of installation that can directly affect the amount of air that can pass through a window, as well as overall functionality and ease of operation. In order for a window to seal properly, it must be correctly installed in a way that allows the weatherstripping to make proper contact and compression in all areas of the frame and sash while still permitting the window to function.

Ideally a window should be installed perfectly plumb, level and square, but it is important not to rely entirely on exact measurements. Identifying areas where the weatherstripping may not be making proper contact is also a very useful tool in diagnosing potential issues.

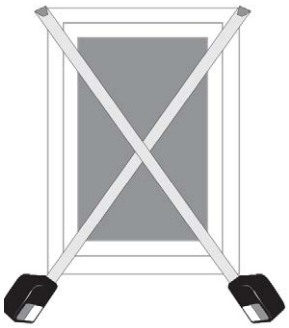
To Check Plumb



To Check Level



To Check Square

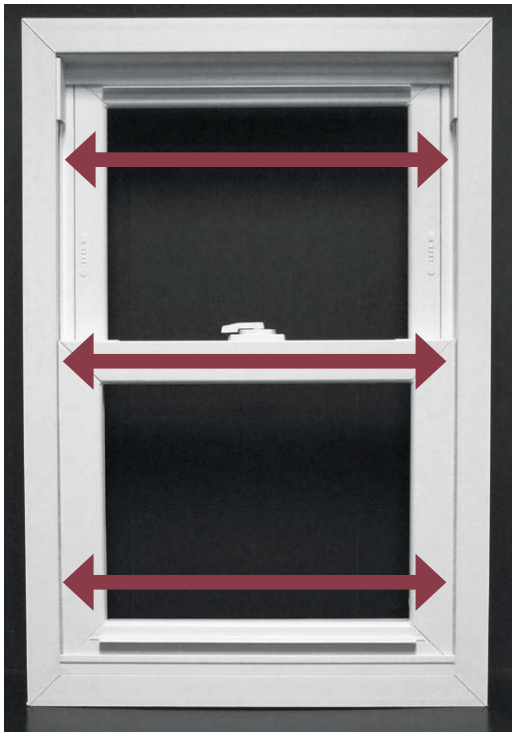


Step 1 - Check for bowed jambs

In the closed and locked position, visually inspect the reveals of the fin seal weatherstripping located between the sides of the frame and the sash of the window.

Both side jambs of the window frame should be plumb and straight without a bow in or out that could prevent the window from sealing or operating normally.

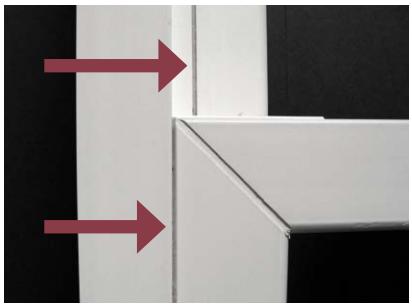
Using a tape measure, carefully measure the width between the interior side jambs in the following three locations:



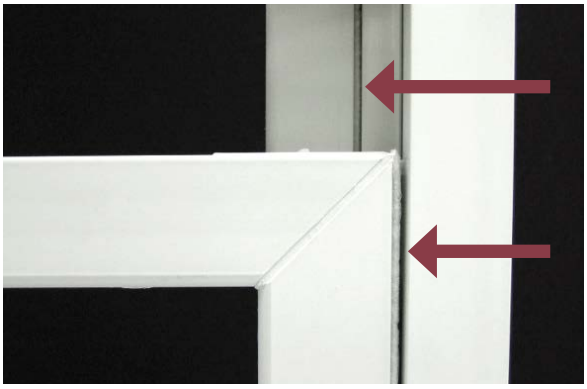
What do you see?

- Do the reveals appear relatively even?
- Does the weatherstripping make good contact and compression with the frame along both sides of the sash in all areas? For a proper seal the weatherstripping should be adequately compressed against the frame equally from top to bottom

Seals along the sides of the top and bottom sash must make adequate contact with the frame.



- Are there gaps or even visible daylight between the sash weatherstrip and frame? Either of the two could indicate that the side jambs of the frame have not been properly shimmed at the middle of the window. This will prevent the weatherstripping from properly sealing against the frame.



Inadequate seal compression in these areas will result in excessive air leakage

Step 2 - Check the window for squareness

Measure the window diagonally in both directions, from the top left inside corner to the lower right inside corner. Compare that reading with a measurement from the top right inside corner to the lower left inside corner. If the measurements are equal, the window is square.

NOTE: Accurately hold both ends of the tape measure and be sure to double-check your measurements.

To Check Square

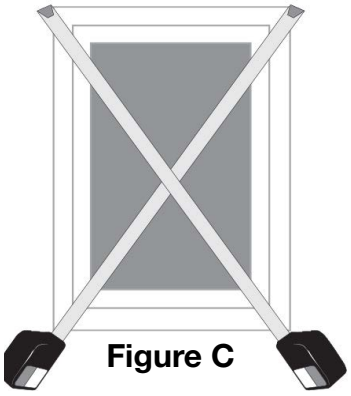


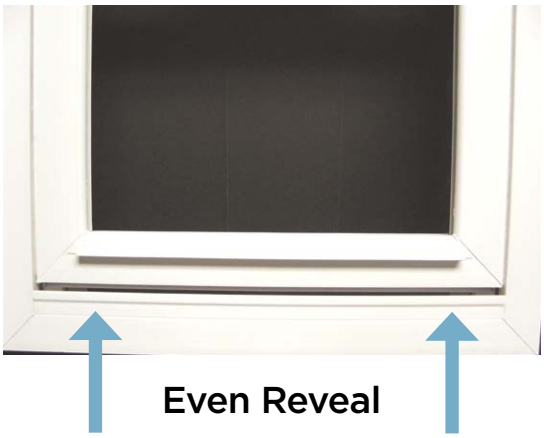
Figure C

Step 3 - Visually inspect the window for squareness

Unlock the double hung or single hung window and raise the bottom sash and also lower the top sash on the double hung to a point where there is a slight gap between the sash and the frame. Inspect the distance between the sash of the window

What do you see?

- Does the space appear to be equal along the width of the window? A noticeable difference in this distance from left to right can indicate that the window frame is out of square.
- Does the weatherstripping make good contact and compression with the frame along both sides of the sash in all areas? For a proper seal the weatherstripping should be adequately compressed against the frame equally from top to bottom



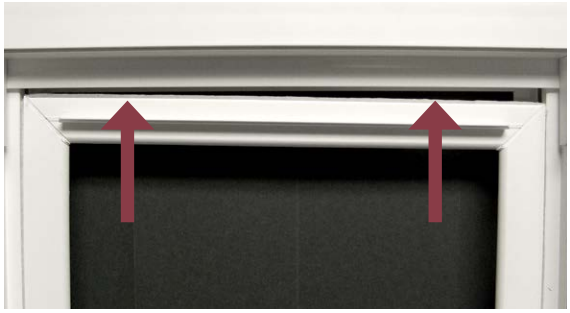
Even Reveal



Uneven Reveal



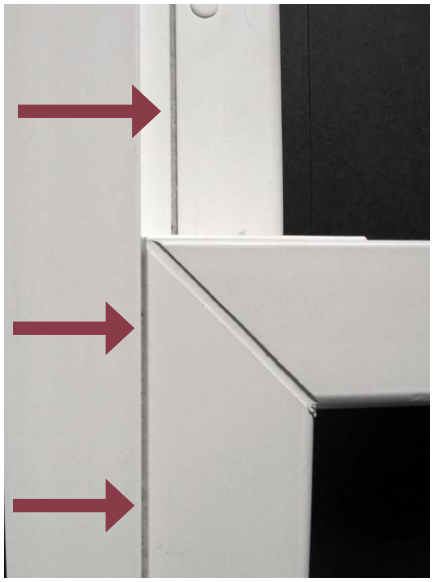
Even Reveal



Uneven Reveal

What do you see?

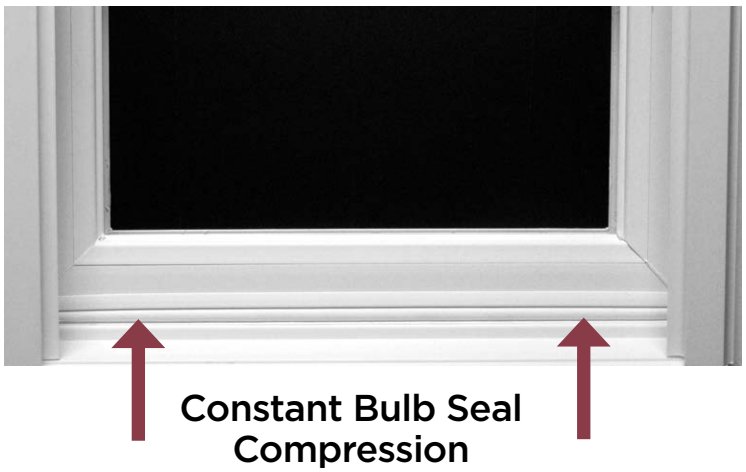
- Does the weatherstripping make proper contact and compression with the frame along both sides of the sash in all areas?



For a proper seal the weatherstripping should be adequately compressed against the frame from top to bottom

Step 4 - Visually inspect the exterior of the window while the window is closed and locked

When possible inspect the bulb seal on the outside of the bottom sash where it seals against the frame. Is the bulb seal on the bottom sash sealing along the entire width of the window?



What do you see?

- If the seal is not making contact at either corner it could indicate that the window frame is out of square.



Inadequate Bulb Seal Compression

- If the bulb seal is making contact in the center of the window but not at the ends, this could indicate that the sill of the window frame is bowed up in the middle, preventing the window from sealing properly.



Inadequate Bulb Seal Compression

NOTE: In this case, the window could still measure to be perfectly square from corner to corner, but the sill of the window frame must remain reasonably straight after installation in order for the bulb seal to function properly.

Step 5 - Inspect the perimeter of the window where the interior trim or drywall meets the window frame

If there is a draft coming from this area, it is usually an indication that air is coming around, not through the window. Any air that is coming around the window usually indicates that there is an inadequate perimeter seal or a lack of insulation between the frame and the window opening.



These troubleshooting tips are intended as a general guide for identifying how basic steps of window installation can affect the ability of the window to seal properly.

Whether the installation involves new construction windows installed in a brand new home or replacement windows in an existing home, the same basic principles of plumb, level and square must be followed even though the opening that the window is going into may not be any of these.