


**What you  
should know  
about your  
windows,  
your home and  
air infiltration.**



**SIMONTON**<sup>®</sup>  
WINDOWS & DOORS



At Simonton, we understand how important your home is. We also know that your windows and doors play an important role in the comfort and energy efficiency of your home. That's why we build and test our products to meet or surpass industry standards for performance. One area of window performance that homeowners often have questions about is air infiltration. We created this brochure to help answer those questions.

### Defining Air Infiltration

Air infiltration is a term that relates to air leaking into or out of a home through small cracks in door frames, window frames, outlets, walls, floors, roofs and others areas. It's caused by air flow due to pressure differences inside and outside your home. A blowing wind is an extreme example of air flow under pressure.

### Tested Performance

Windows and doors are tested to ensure they fall into an acceptable range of resistance to air infiltration. In a lab, the tested unit is subjected to constant air pressure, usually from the outside face to simulate an installed window or door. The level of infiltration is determined by a high precision mass flow meter. Since air flow depends on temperature and barometric pressure, these are factored out to determine total air infiltration. To pass this test, a window or door must not allow more than 0.3 cubic feet of air to infiltrate the unit per minute per square foot, through all possible openings. The test is performed at a simulated wind speed of 25 mph.

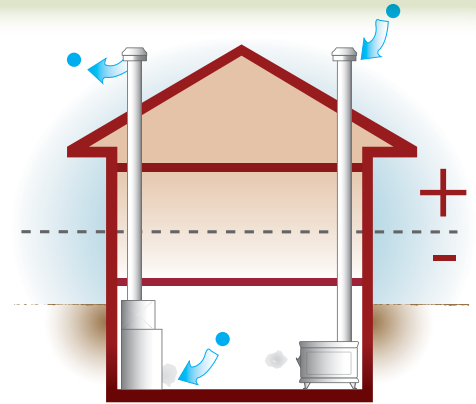
### Factors for Air Infiltration Rates

Different types of windows can allow different air infiltration rates. A fixed pane window with no operable sash is the most airtight. The location of the window or door in your home can also play a role in the level of air infiltration. For example, a window on a wall that faces a harsh north arctic winter wind should have different qualities than a southern window overlooking a sunny warm beach. No one window is suitable for every application. Many windows are available that serve different purposes. You may discover that you need different types of windows depending on where the window is located in your home and your local climate.

### Desirable Air Infiltration

Well placed windows allow for natural ventilation. This exchange of air is important for a healthy environment inside your home. Living in an airtight home is not healthy. Your home must "breathe," and if air does not properly circulate throughout your house, various undesirable health effects can result. Home ventilation is a good design practice.

Simonton understands the importance of issues regarding air infiltration and is very competitive with air infiltration rates. Many of our products outperform the standards required by the window industry. This illustration shows different paths that air escapes and enters the home.



### Frequently Asked Questions

#### Should I be able to feel air coming through my window?

The window industry recognizes that natural ventilation (a controlled air exchange) will occur in all windows. A double hung window, for instance, has four sides on two sashes which are intended to move, and this part of the designed window movement may allow some minimal amount of air in. If you place your hands by areas of weatherstripping, it may be possible to feel some of the air. Yet, the total amount of air will be designed to meet AAMA certification. Convection is another reason that some air infiltration occurs. Positive and negative pressure inside and outside of the home can pull air into or out of the home.

#### What is the relationship of negative air pressure and air infiltration?

The air being pushed out of your home by appliances such as bathroom fans, central vacuums, range hoods, clothes dryers and others can be significant. When this happens, there is often no easy way for replacement air to get back into your home. As a result, your house tries to pull air in rather than push air out. This means that more air will enter your home in areas where natural ventilation takes place.

#### Why am I only experiencing air infiltration on one side of my home?

There are several variables that can contribute to varying air infiltration rates in different parts of your home. The prevailing winds (usually northwest, from the west to north) blow directly on one side of your home, increasing the pressure and chances for more infiltration on that side than the side of the home that is sheltered from direct wind. The style of the window also plays a role. A casement or picture window will have less infiltration than a double hung.

## Frequently Asked Questions continued

### **Is there anything I can do to reduce the air coming through my windows?**

First, be sure that your windows are properly closed and locked. Proper installation plays a vital role in how effective a window is at resisting air infiltration. Installation screws and jamb adjuster screw holes should be caulked and capped. The windows should be installed plumb, level and square; if not, air could enter your home around the frame. If you suspect questionable installation, it's a good idea to have a professional examine your windows. If you have siding on the exterior of your home, be sure it provides a good seal up to the window. If you have brick, the mortar should be intact.

### **What are some things to look for to determine if the air is coming around my windows?**

A good place to start is to look for caulk against the interior trim and around the molding that goes around the frame of the window. Typically, missing or damaged caulk (dried up, shrunken or molded) will allow air infiltration. Whistling windows, or a "humming" sound through the siding can indicate an installation problem.

### **How are your windows tested?**

All Simonton products are tested and certified to AAMA 101. According to the standard, all windows must be tested and validated at maximum air flow of 25 mph (when outside air speed increases above 25 mph, chances of air infiltration will increase as well). The air infiltration test must be less than 0.3 cubic feet per minute for the unit to pass.

### **Why do some windows have more air infiltration than others?**

The style of the window may be different, such as a picture window or casement, allowing less air to pass through. It may also be in a part of your home that does not get direct wind contact. All windows have some level of air infiltration. Simonton's products are tested and in most cases perform better than the expectations of 0.3 cubic feet per minute.



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