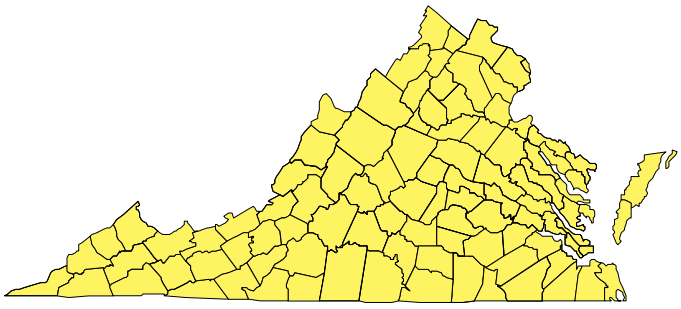
Energy Code Compliance Guide to Window Selection in Virginia

Code: 2009 International Energy Conservation Code

This guide is designed to help select windows, doors and skylights that will meet the requirements of the 2009 IECC for residential buildings as it relates to Virginia. The requirements in the 2009 IECC are the same for windows used in new buildings, remodeling & additions to existing buildings, and as replacements of existing windows.



Step-by-Step Instructions

1. Using the climate zone map or table, match the jurisdiction to the appropriate IECC climate zone. Use the "IECC Prescriptive Window Energy Efficiency Requirements" (on the back of this sheet) to determine the window performance requirements associated with the climate zone.
2. Construct the home with windows that have area weighted average U-factor and SHGC values less than or equal to the values for the climate zone and meet the code maximum air leakage requirements.

IECC CLIMATE ZONE 4			
Accomack	Danville	Lancaster	Prince William
Albemarle	Dickenson	Lee	Pulaski
Alexandria	Dinwiddie	Lexington	Radford
Alleghany	Emporia	Loudoun	Rappahannock
Amelia	Essex	Louisa	Richmond
Amherst	Fairfax	Lunenburg	Roanoke
Appomattox	Falls Church	Lynchburg	Rockbridge
Arlington	Fauquier	Madison	Rockingham
Augusta	Floyd	Manassas	Russell
Bath	Fluvanna	Manassas Park	Salem
Bedford	Franklin	Martinsville	Scott
Bland	Frederick	Mathews	Shenandoah
Botetourt	Fredericksburg	Mecklenburg	Smyth
Bristol	Galax	Middlesex	South Boston
Brunswick	Giles	Montgomery	Southampton
Buchanan	Gloucester	Nelson	Spotsylvania
Buckingham	Goochland	New Kent	Stafford
Buena Vista	Grayson	Newport News	Staunton
Campbell	Greene	Norfolk	Suffolk
Caroline	Greensville	Northampton	Surry
Carroll	Halifax	Northumberland	Sussex
Charles	Hampton	Norton	Tazewell
Charlotte	Hanover	Nottoway	Virginia Beach
Charlottesville	Harrisonburg	Orange	Warren
Chesapeake	Henrico	Page	Washington
Chesterfield	Henry	Patrick	Waynesboro
Clarke	Highland	Petersburg	Westmoreland
Clifton Forge	Hopewell	Pittsylvania	Williamsburg
Colonial Height	Isle of Wight	Poquoson	Winchester
Covington	James	Portsmouth	Wise
Craig	King & Queen	Powhatan	Wythe
Culpeper	King George	Prince Edward	York
Cumberland	King William	Prince George	

The 2009 International Energy Conservation Code

The 2009 IECC was developed by the International Code Council (ICC) and is currently available to states for adoption. The IECC is the national model standard for energy-efficient residential construction recognized by federal law. The American Recovery and Reinvestment Act of 2009 makes funds available to jurisdictions that have committed to adopt and implement the 2009 IECC. Users of this guide are strongly recommended to obtain a copy of the IECC and refer to it for any questions and further details on compliance. IECC compliance training is also available from many sources. To obtain a copy of the 2009 IECC, contact the ICC or visit www.iccsafe.org.

IECC Prescriptive Window Energy Efficiency Requirements

Code: 2009 International Energy Conservation Code

This table of window, door and skylight requirements is from the 2009 IECC and does not necessarily reflect the version of the IECC that may have been adopted by the state or any state-specific amendments. These requirements apply to all fenestration products in residential buildings, including those used in new residences, in additions and to replace existing windows. For a definition of "fenestration" see Note 2 below. The IECC specifies additional requirements for other parts of the building envelope not listed here, such as insulation for walls and ceilings.

Package	Fenestration U-factor	Skylight U-Factor	Glazed Fenestration SHGC
Climate Zone 4	**0.35**	**0.60**	**NR**

"NR" means no requirement is specified for this package.

NOTES:

1. This table applies to residential buildings as defined in the IECC for compliance under the prescriptive compliance option. The 2009 IECC permits unlimited window area, so long as the prescriptive requirements are satisfied.
2. "Fenestration" refers to glazed window and door products in exterior walls of buildings, including glass doors and glass block, along with the accompanying sashes, frames, etc. and opaque doors. "Skylight" refers to glazed products installed at a slope of 15 degrees or more from vertical. "Glazed Fenestration" includes all glazed fenestration and all skylights.
3. U-factor is a number, generally between 0.2 and 1.20, that indicates the rate of heat loss (or gain) through a window. A lower U-factor demonstrates a greater resistance to heat loss and gain, i.e., better insulating value of the window. As a result, a lower number produces greater winter comfort.
4. SHGC, or Solar Heat Gain Coefficient, is a number between 0 and 1 that indicates the fraction of radiation (heat) from the sun that is transmitted through the window; the lower the SHGC, the less the amount of solar radiation that is allowed to pass through the window and become unwanted additional heat in the summer. As a result, a lower number produces greater summer comfort.
5. Window and skylight U-factor and SHGC values are maximum acceptable levels. An area-weighted average of fenestration products shall be permitted to satisfy the U-factor and SHGC requirements.
6. Up to 15 square feet of glazed fenestration is permitted to be exempt from the U-factor and SHGC requirements. One side-hinged opaque door assembly up to 24 square feet is exempted from the Fenestration U-factor requirement. These exceptions apply in the prescriptive path only. Certain impact rated fenestration may be permitted to have a higher U-factor in climate zones 2 and 3. Special exceptions may apply for fenestration U-factor requirements in thermally isolated sunrooms.
7. Window, door and skylight U-factors and SHGCs must be determined from a National Fenestration Rating Council (NFRC) rating that is independently certified and set forth on a label on the product or from a limited table of product default values in the IECC. See www.nfrc.org for more details on the NFRC rating system.
8. Windows, doors and skylights must be labeled in a manner to determine that they meet the IECC's air infiltration requirements.
9. The labeled product U-factor and SHGC should also be used in calculation procedures to properly size the home's HVAC equipment. The IECC requires the use of an appropriate computational procedure to size equipment.

Look for the NFRC Label!

The 2 most important values to look for are:
U-factor & Solar Heat Gain Coefficient (SHGC)

Efficient Windows Collaborative

See the Efficient Windows Collaborative (EWC) web site for more information.
www.efficientwindows.org

Limitations

This guide is an energy code compliance aid for window selection in Virginia based upon the simple prescriptive option of the 2009 IECC and reflects the prescriptive values from Table 402.1.1 of that code. This guide only addresses window requirements and not the requirements applicable to the rest of the home. It does not provide a guarantee that a home meets the IECC. This guide is not designed to reflect the actual energy code, with amendments, if any, adopted in Virginia and does not, therefore, provide a guarantee for meeting the state energy code. For additional details on Virginia's energy code, including how it may differ from the IECC, please contact your local building guide official.