# Energy Efficiency

(Window & Door Labels & Ratings)

Even though windows and doors do not consume energy, they can be a significant source of heating and cooling loss in a home. The ENERGY STAR® program rigorously tests and rates products to help consumers choose energy efficient products based on standardized performance ratings.

## ENERGY STAR (ES) Labels



Energy Star certified window labels must include at least 4 performance value ratings (U-factor, SHGC, ER, VT). Door labels may only include U-factor & the Solar Heat Gain Coefficient. Some products may also include a National Fenestration Certification.

Some manufactures may also include optional air leakage (AL) and condensation resistance (CR) ratings as well as CSA certification information.

ENERGY STAR certified windows will:

- save you money by reducing overall annual energy costs
- help keep the home more comfortable all-year-round
- may produce less condensation in cold weather

ENERGY STAR & climate zones The New Energy Star Climate Zones Jan 2020 - One Zone for all of Canada

The Energy Star window program which includes standards for Canadian manufacturers, installation and residential home builders has been simplified so that the consumer no longer needs to verify that the windows they are ordering are suitable for their respective climate zone (all ES windows must meet only one zone requirement).

#### U-value (U-factor)



The U-factor is a measurement of HEAT TRANSFER (loss) through a window. The lower the U-value, the better a window is at insulating. When comparing U-values between different window manufacturers, be sure you are comparing the entire window not just the glass. A 0.22 U-value is 35% more efficient than a 0.30 U-value.

#### Solar heat gain coefficient (SHGC) 3 1.0

the larger the number, the higher the heat gain 0.9 0.8 0.7 0.6 0.4 0.3 0.2 0.1

The SHGC is a measurement of the solar heat that passes through a window. For seasonal hot/cold climates such as Ottawa, choosing appropriate levels can help control temperatures in different areas of your home and will maximize your interior home comfort.

Rooms that are exposed to the sun during the day in all seasons will be warmer than rooms that are not.

### Energy rating (ER)



The ER value is a measurement that expresses the overall performance of a window (a balance between U-factor, SHGC and air leakage).

#### Visible Transmittance (VT) 1.0 0.9 the larger 0.8 the number, 0.7 0.6 the more 0.5 visible light 0.4 passes through 0.3 0.2

Tints, coatings, glazing and even gas fills will decrease the amount of light that can enter a home. The VT rating is a measurement of the amount of light that passes through the IGU (insulated glass unit).

0.1



passing through a square foot of window area. This rating must be 0.30 or less to qualify for ENERGY STAR Certification.



#### Condensation Resistance (CR)

the larger the number the greater the resistance to condensation

Although not required to meet ENERGY STAR certification, Condensation Resistance (CR) measures the potential formation of condensation on the inside of a window.



window certification is a voluntary process that randomly pulls and tests windows from production. The appearance of this certification on a window label is optional.

- windows are tested to assure that they perform to the published tests
- process qualifies products for international markets
- appeases the construction industry



Although it is not an ENERGY STAR requirement, some window sales people may refer the R-value instead of statndard ENERGY STAR ratings as a way to measure and compare insulating performance. An R-value is the measurement of the THERMAL RESISTANCE to conductive heat transfer. It provides a good unit of measurement when comparing various window configurations and insulated areas.



#### Making the right choices

When buying windows, it is important to think about how they will affect each room, and the overall comfort in your home. Every home is unique, and depending on it's position relative to the sun may present room-to-room challenges that may actually require a compromise when considering the energy efficiency.

If energy efficiency is important, but you don't want to sacrifice comfort, be sure to tell your window consultant about rooms that you feel are too warm, or too cold and they will help you find a perfect balanced solution.



