

What's to know about buying windows?

Window types:

Sliders

One fixed plus one slider or double sliders, non-protruding, easy cleaning from inside the home. Also available in a triple lite configuration.



Casements

Opens outward horizontally, these windows are more economical than sliders or hung windows and allow for the largest surface area and highest energy efficiency of all operational windows.

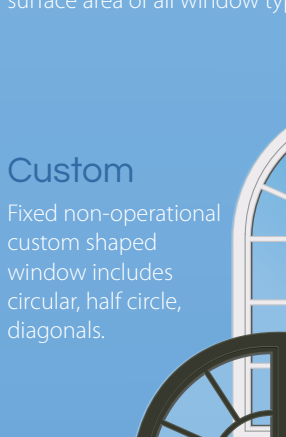
Awning

Hinged at the top, opens from below, great ventilation solution.



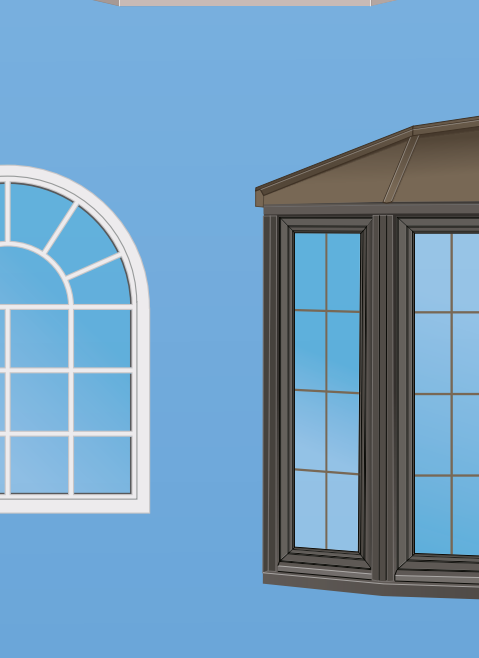
Hung

One or two operational windows, that slide up or down, non-protruding, easy tilt-in cleaning from inside the home.



Pictures

Fixed non-operational window, most energy-efficient of all window types, offering largest possible surface area of all window types.



Bay

A three sided protruding extension, mix and match window types within configuration to create a personal and functional space.

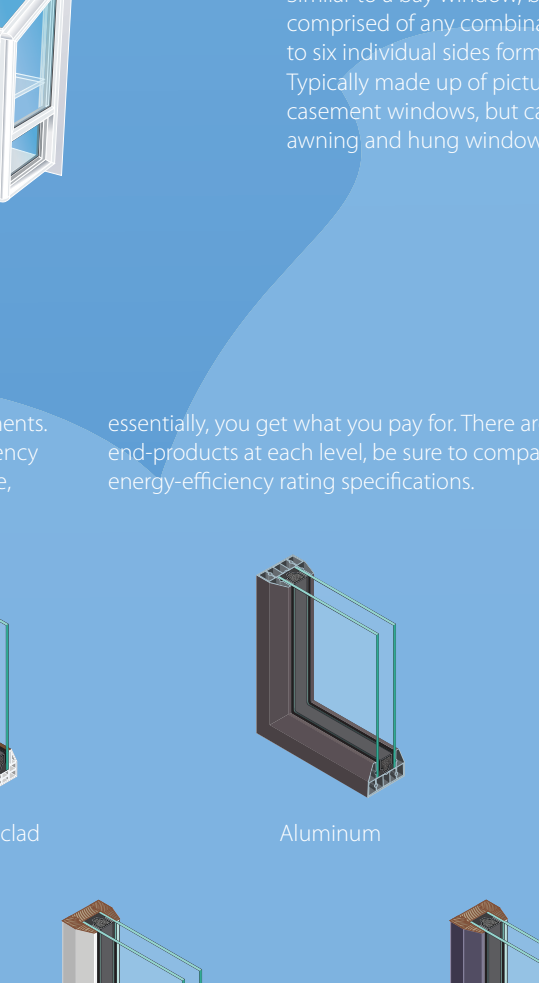
Garden

Protrudes from home to add another dimension to room, fitted with proper glass allows UV rays in for small plants and herbs.



Bow

Similar to a bay window, but may be comprised of any combination of four to six individual sides forming a semi circle. Typically made up of picture and casement windows, but can include awning and hung windows as well.



Framing materials:

Windows are available in several materials to meet consumer requirements. Offering a range in cost, colour flexibility, durability, style, energy efficiency and comfort. Not all windows within each category are made the same,

essentially, you get what you pay for. There are high-end and low end-products at each level, be sure to compare warranties and energy-efficiency rating specifications.



Vinyl or fiberglass



Vinyl aluminum clad



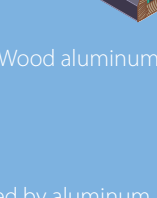
Aluminum



Wood



Wood vinyl clad



Wood aluminum clad

Exterior colours

Best assortment of window colours are available with wooden windows which are virtually limitless (stains), followed by aluminum which is typically available from various manufacturers in about 30 colours (powder coated), then vinyl/fiberglass which is limited to about 8-10 standard colours (vinyl spray or laminant). Colour warranties vary from manufacturer to manufacturer. And prices vary considerably depending on your preferred material, so when looking at prices, be sure you are comparing like materials.

Interior colours

The standard colour for all interior windows is white, but many manufacturers offer, various woods, simulated wood, vinyl wrapped wood, or stainable vinyl materials providing plenty of interior window colour flexibility. Again, prices vary depending on your preferred material.

Efficiency & ratings:

Energy Star climate zones

Effective February 1st, 2015 window zone classification in Canada changed from 4 zones to 3 zones. Each zone is represented by a range in HDD (heating-degree day). The higher the HDD value the cooler the location. Ottawa (4500 HDD) is in Zone 2, as such windows that are certified for zone 2 meet the minimum certification requirements.

However, not all zone 2 certified windows are equal, and windows with ratings exceeding minimum standards or that are certified for zone 3 will perform better. Comparisons of U-factor and SHGC values will reveal most energy-efficient windows. Be sure to look at full window specs, not just the glass specifications.



- Zone 3: >= 6000 HDDs
- Zone 2: >= 3500 to < 6000 HDDs
- Zone 1: < 3500 HDDs

Solar heat gain coefficient (SHGC)

The SHGC is the solar heat allowed into a home through a window. The higher the SHGC, the more solar heat is getting into your home.

For mixed climates such as Ottawa, choosing different levels of glazing for different areas of your home 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. Choosing a low SHGC will keep the room cooler and a high SHGC will keep it warmer.

U-value (U-factor)

The U-factor is a measurement of HEAT TRANSFER 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 .22 U-value is 35% more efficient than a .30 U-value.

R-value

The R-value is the measurement of the THERMAL RESISTANCE to conductive heat transfer. The higher the R-value, the greater the insulating effectiveness.

Energy rating (ER)

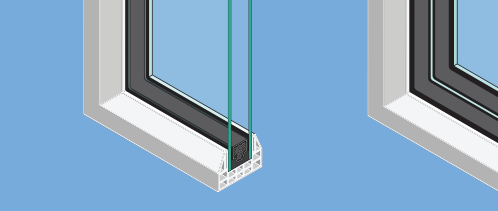
The ER rating is a measurement that expresses the overall performance of a window. The higher the number, the more energy efficient the window.

Condensation resistance (CR)

The higher the window CR measurement, the less likely condensations is to occur on a window.

Visible transmittance (VT)

The higher the window VT measurement, the more daylight is allowed into the home.



Double-glazed

Triple-glazed

Privacy

Many window manufacturers offer an assortment of obscure glass options to provide privacy. There are 4-5 standard patterns, but many manufacturers offer more.



Rain

Glue Chip

Acid-Etched

Frosted

Tints

Tinted glass (grey, green, bronze & blue) is produced by adding metal oxides to float glass (untreated glass) during manufacture. Tinted glass absorbs and re-radiates light and solar energy, reducing heat, brightness and glare in the summer, but lose heat in the winter at the same rate as untinted windows.



Coatings (Low-E/LoE)

Low Emissivity Glass has a special microscopically thin layer of silver applied to the surface which acts to reduce the amount of heat that is going through the glass itself. It reflects heat in both directions keeping heat out in the summer and in during the winter. It is available in several configurations to produce a desired balance between solar gain, light transmission and UV blocking.

LoE 180 glass

- highest Energy Star energy rating
- U-factor of 0.31
- maximized solar gain of SHGC 0.68
- allows for 79% light transmission
- blocks 70% of damaging UV rays
- reduces energy costs in the winter

LoE 272 glass

- balanced option when room is hot in summer and cold in winter
- U-factor of 0.30
- maximized solar gain of SHGC 0.41
- allows for 72% light transmission
- blocks 84% of damaging UV rays
- moderate solar gain in winter and controls heat in the summer

LoE 366 glass

- best insulation option, keeps heat and sun out of home and hot/cold inside the home
- U-factor of .29
- maximized solar gain of SHGC 0.27
- allows for 65% light transmission
- blocks 95% of damaging UV rays

Dynamic performance products

Dynamic windows have integrated insulating blinds that can be used to reduce heat loss in winter and solar gain in summer.



Smart windows

Smart windows have special coatings that react to natural light levels by increasing reflection or darkening or both. This smart function can be activated manually or programmed to control heat gain, lighting, and add privacy. ENERGY STAR qualified smart products are available, but are qualified based on ratings achieved without using the smart features.

Safety

In today's window market, dual pane glass is pretty much the standard for new home and replacement windows. Dual pane, also known as double glazed makes entry into a house difficult and loud.

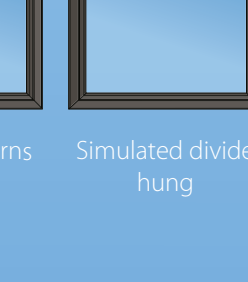


If security is a concern toughened tempered glass or laminated safety glass is available from most window manufacturers.

Between the panes

Gas

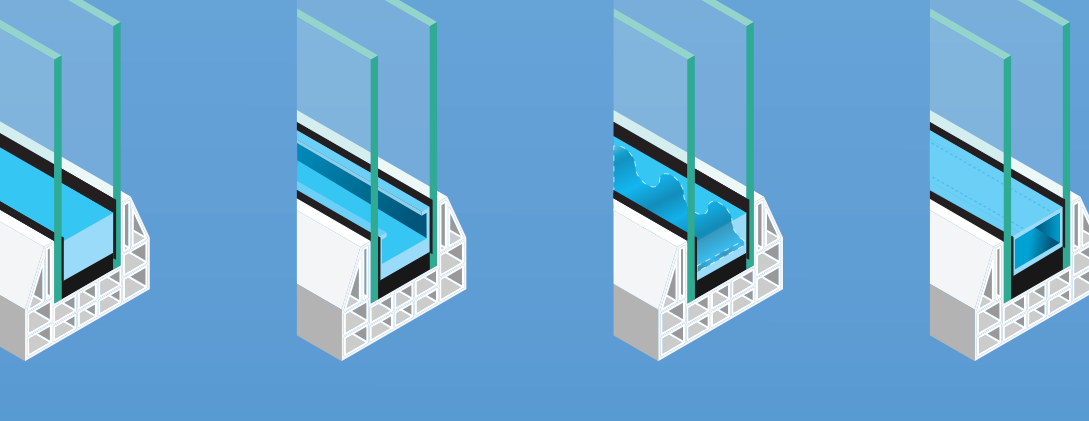
To increase the insulation of a window, inert gases such as Argon and Krypton are used to fill the spaces between glass panes. These odorless, colorless, non-toxic gases are less conductive than air, reducing heat transfer (lowering the U-factor) and improving the performance of the glazing.



Argon is the more widely used gas as it is readily available and much less expensive than krypton. Krypton is typically used for applications where the total glazing unit thickness must be minimized. In combination, argon gas and Low-E coatings will quickly yield energy savings exceeding their cost.

Grills

Grills are a great way to add style and elegance to your windows. And with today's multiple window pane technology, many manufacturers offer standard and custom configurations between the panes, and even simulated divides on the exterior of the glass to provide a more traditional look. Below, are some of the more common grill styles.



Colonial

Prairie frame

Prairie glass hung

Traditional hung

Simulated hung

Fractional

Diamond

Custom patterns

Simulated divide hung

Simulated divide

Spacers (warm edge spacers)

Spacers separate panes of glass. Typically the older technologies utilize metal spacers which conduct heat and can encourage the formation of condensation (year round) and ice crystals (winter).

Newer spacer technologies focus on providing durability, gas retention and thermal performance, with the goal of keeping the edges of the window glass warmer inside the home through the reduction of heat transfer.

Different spacer technologies are used by different manufacturers, and many companies claim to have superior technologies. When comparing windows, look at CR values and overall performance of the window.

Super Spacer® - warm edge spacer system that uses a high-performance acrylic adhesive and foam spacer as along with a moisture vapor seal that provides a structural seal.

Intercept® Spacer - uses a one-piece, tin-plated or stainless steel, U-channel design that absorbs flexing when temperatures shift.

Swiggle® Spacer System - seal consists of a aluminum or stainless steel "swiggle" between a butyl rubber seal.

Aluminum Spacer - One of the first materials used as a spacer because it was rigid, however creating sealant stress and stress cracks that ultimately lead to seal failure. If you are replacing windows at this time, they most likely have aluminum spacers.



Super Spacer®



Intercept® Spacer



Swiggle® Spacer



Aluminum Spacer

Typical Hardware

Standard and optional window hardware is usually offered by most window manufacturers. Standard hardware comes in white only, and performs basic functions such as locking and opening.

Optional hardware is usually available in metallic finishes such as nickel, pewter and brass; nested handles remove clutter and self-locking locks ensure ease of mind locking with a click, or a colour indicator.

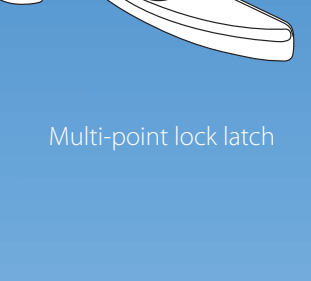
Typical hung & sliding window hardware



Cam-lock



Self-locking lock



Finger tilt latch

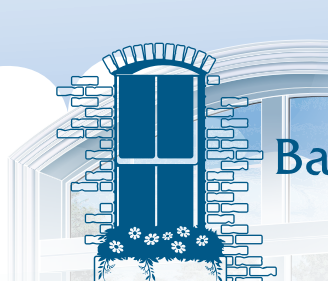
Typical casement & awning window hardware



Standard handle



Hide-away handle (handle folds in)



Multi-point lock latch