

## Energy Efficiency Standards for Residential Windows, Skylights, Doors and Glazing

The purpose of this regulation is to improve the energy efficiency of manufactured fenestration products for all new and existing buildings. These products are a key component of a building's exterior envelope that affects the energy usage required to heat and/or cool the conditioned space. Improved energy efficiency can reduce energy costs for homeowners and businesses and reduce greenhouse gas emissions. This circular includes updates to the Energy Efficiency Standards Regulation (EESR) for windows, glazing, doors and skylights. These updates were approved February 16, 2021.

For further information on Energy Efficiency Standards, including detailed guidance on specific products, visit:

[British Columbia | Energy Efficiency Standards](#)

### *Overview*

This information circular is intended to help stakeholders understand the current requirements. It is organized according to the following 5 product types:

1. Windows and sliding glass doors for residential buildings that are:
  - Less than 4 storeys, or
  - Have a floor space of 600m<sup>2</sup> or less
2. Skylights
3. Hinged Doors
4. Door slabs
5. Glazing for door slabs, side lights and transom lights.

This bulletin provides product-specific requirements as well as information on labelling, testing and a flexibility provision for windows designed for a specific building.



## Residential Windows and Sliding Glass Doors

### Regulated Products

All metal and non-metal framed windows and sliding glass doors that are:

- Installed in residential buildings that are less than 4 storeys or have a floor space of 600m<sup>2</sup> or less;
- Installed in new buildings, additions, renovations or as replacements;
- Installed to separate heated space from non-heated space; and
- Manufactured on or after the effective date (see below) for the product.

### Test Standards

All products must be tested with one of the following standards:

- CAN/CSA A440.2-14/A440.3-14;
- CSA A440.2-19/A440.3-19;
- NFRC 100-14;
- NFRC 100-17.

### Minimum Energy Efficiency Standards and Effective Dates

The following maximum heat transfer rate (U-value) performance standards apply, in metric units of watts per square meter of product area Kelvin.

Product Type	USI-value W/(m <sup>2</sup> ·K)	Effective Date
Windows and sliding glass doors	1.61	January 1, 2022



### Exemptions

- Decorative windows that have stained glass panels, iron inserts or blinds, and are contained in a sealed, insulating glass unit;
- Windows installed in buildings designated as heritage buildings;
- Glazing replacements in an existing sash and frame provided the U-value of the replacement glazing is equal to or less than the U-value of the original glazing; and
- Products *manufactured specifically for export* from BC.

## Skylights

### Regulated Products

Skylights that are:

- Installed to separate heated space from non-heated space;
- Installed in new buildings, additions, renovations or as replacements;
- Installed in any building, other than energy compliant buildings which are compliant to ASHRAE 189.1, ASHRAE 90.1, the National Energy Code for Buildings (NECB) or the B.C. Energy Step Code; and
- Manufactured on or after the effective date (see below) for the product.

### Test Standards

All products must be tested with one of the following standards:

- CAN/CSA A440.2-14/A440.3-14; or
- NFRC 100-14;

### Minimum Energy Efficiency Standards and Effective Dates

The following maximum heat transfer rate (U-value) performance standards apply, in metric units of watts per square meter of product area Kelvin.

Product Type	USI-value W/(m <sup>2</sup> ·K)	Effective Date
Skylights of all material frame types	2.90	June 2, 2018

### Exemptions

- Glazing replacements in an existing sash and frame provided the U-value of the replacement glazing is equal to or less than the U-value of the original glazing; and
- Products *manufactured specifically for export* from BC.

## Fully Glazed Hinged and Bi-Folding Doors

### Regulated Products

All hinged and bi-folding, pre-hung door assemblies that are:

- Fully glazed with aluminum, fibreglass or steel sash construction;
- Installed in residential buildings that are less than 4 storeys or have a floor space of 600m<sup>2</sup> or less;
- Installed in new buildings, additions, renovations or as replacements;
- Installed to separate heated space from non-heated space; and
- Manufactured on or after the effective date (see below) for the product.

### Test Standards

All products must be tested with one of the following standards:

- CAN/CSA A440.2-14/A440.3-14; or
- NFRC 100-14;

### Minimum Energy Efficiency Standards and Effective Dates

The following maximum heat transfer rate (U-value) performance standards apply, in metric units of watts per square meter of product area Kelvin.

Product Type	U-value W/(m <sup>2</sup> ·K)	Effective Date
Hinged or bi-folding doors	1.80	June 2, 2018

### Exemptions

- Glazing replacements in an existing sash and frame provided the U-value of the replacement glazing is equal to or less than the U-value of the original glazing.
- Products *manufactured specifically for export* from BC.

## Doors

### Regulated Products

Door slabs and pre-hung partially glazed and opaque door assemblies that are:

- Installed to separate heated space from non-heated space; and
- Manufactured on or after the effective date (see below) for the product.

### Test Standard

Door panels insulation must be tested to ASTM C518-04 Standard test method for steady-state thermal transmission properties by means of the heat flow.

Pre-Hung door assemblies must be tested to NFRC-2014.

### Minimum Energy Efficiency Standards and Effective Dates

The following prescriptive standards apply.



Product Type	Prescriptive Standards	Effective Date
Door slabs	Door panels must be insulated with products rated to a thermal resistance (RSI) greater than or equal to 0.875 (m <sup>2</sup> K)/W	June 2, 2009
Pre-hung door assemblies	U-Value ≤ 1.80 W/(m <sup>2</sup> ·K)	March 6, 2018

### Exemptions

- Solid wood door slabs;
- Products installed in buildings designated as heritage buildings; and
- Products *manufactured specifically for export* from BC.

## Glazing for Door Slabs, Sidelites and Transoms

### Regulated Products

Glazing for door slabs, sidelites and transoms that are:

- Installed to separate heated space from non-heated space; and
- Manufactured on or after the effective date (see below) for the product.

### Test Standards

- The standards are prescriptive – therefore no test procedure is required.



### Minimum Energy Efficiency Standards and Effective Dates

- The following prescriptive standards apply:

Product Type	Prescriptive Standards	Effective Date
Glazing for door slabs, sidelites and transoms	<ul style="list-style-type: none"> <li>• Multiple glazed (2 or more panes)</li> <li>• Low-E coating between glazing</li> <li>• 90% argon gas fill level with a compatible edge sealant system</li> <li>• Spacer bars other than non-thermally broken aluminum box spacer bars</li> </ul>	June 2, 2009

### Exemptions

- Products installed in compliant pre-hung door assemblies;
- Decorative glazing that have stained glass panels, iron inserts or blinds, contained in a sealed, insulating glass unit;
- Products installed in buildings designated as heritage buildings; and
- Products *manufactured specifically for export* from BC.

## Labelling

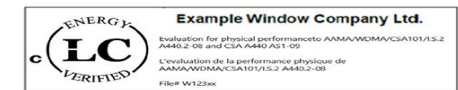
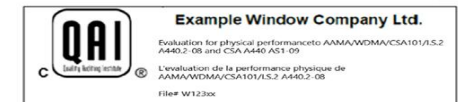
### Permanent Labels

- Permanent labels are required for all products; and
- Labels must have the registered trademark, word mark or symbol of the designated tester (i.e. testing agency or, in some cases, a professional engineer or architect).

For windows, glazing for doors, skylights and transoms, the permanent label must:

- Be affixed to the frame or a spacer bar of the product so that the label is visible at all times; or,
- Be affixed to the frame or sash of the product so that the label is visible when the sash is open; or,
- Be affixed as a transparent adhesive label to the glass of the product; or,
- Be etched into the surface of the glass.

Examples of compliant labels are shown to the right.



For door slabs, the permanent label must:

- Be affixed to the door slab so that the label is visible at all times; or,
- Be affixed to the edge of the door slab so that the label is visible when the door slab is open.

### Temporary Labels

- All windows, glazing, skylights and sliding glass doors require a removable label;
- Glazing for transoms and door slabs do not require a removable label;
- The label must set out the U-value, as verified by a certification organization or other designated tester under the *Energy Efficiency Act*, expressed in metric units;
- The label must identify the manufacturer and product;
- The label must include the testing agencies mark; and
- The Window and Door Manufacturers Association of BC developed a standardized label which has been adopted by B.C. based certification companies. For more information, contact one of the testing agencies below.



An example of a compliant temporary label is shown to the right.

## Testing Agencies

The following agencies can verify the U-Value of products for the purpose of this regulation:

- Canadian Standards Association (CSA) Toronto, 416-747-2509 [www.csagroup.org](http://www.csagroup.org)
- Intertek Testing Services NA Ltd., Coquitlam, 604-520-3321 [www.intertek.com](http://www.intertek.com)
- Quality Auditing Institute Ltd., Port Moody, 604 461-8378, [www.qai.org](http://www.qai.org)
- LabTest Certification Inc., Delta, 604 247-0444, [www.labtestcert.com](http://www.labtestcert.com)
- Agencies accredited by the National Fenestration Rating Council (NFRC) including:
  - Window and Door Manufacturers Association (WDMA);
  - National Accreditation & Management Institute Inc (NAMI);
  - Keystone Certifications Inc.; and
  - American Architectural Manufacturers Association (AAMA).

## Flexibility Provision for Windows and Glazing Designed for a Specific Building

Flexibility is provided for windows, skylights and sliding glass doors (excluding doors) that are designed for a specific building or fall outside of the scope of existing certification programs. Some products may be permitted that do not meet the maximum U-value requirements noted above (e.g., 1.61 W/(m<sup>2</sup>·K)).

In this compliance pathway, proof must be provided by a professional engineer or architect that the average U-Value of all of that type of product (i.e. windows or doors) in the specific building meets the U-value requirement. The professional must use the regulated test standards to verify the U-Values – CSA A440.2 or NFRC 100. The products can be simulated or tested by the professional using the actual size of the product, not necessarily the size provided by the test standard.

A certificate setting out all applicable U-values as determined by the professional engineer or architect must be posted at the building site for a period of 120 days after the products are installed. A certificate from the professional engineer or architect must be provided each time this flexibility provision is used.

## Designated Heritage Buildings

“Designated heritage building” means a building that is:

- a) A provincial heritage site within the meaning of the Heritage Conservation Act or otherwise included in the Provincial heritage register under that Act;
- b) Protected through heritage designation or included in a community heritage register by a local government under the Local Government Act;
- c) Protected through heritage designation or included in the heritage register by the Council under the Vancouver Charter; or
- d) Protected through heritage designation or included in a community heritage register by the Trust Council or a local trust committee under the Islands Trust Act.