

## MEM INFORMATION BULLETIN - AUG. 2015 REVISED

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.

This circular includes updates to the Energy Efficiency Standards Regulation (EESR) for windows, glazing, doors and skylights that were approved July 21, 2011. Note that products manufactured for export from B.C. are exempt from these regulations.

Information on the EESR standards for fenestration products is maintained at the following webpage:

<http://www.empr.gov.bc.ca/EAED/ENERGYEFFICIENCY/Pages/EEAct.aspx>

This information circular is intended to help stakeholders understand the current requirements. It is organized according to the following 4 product types:

1. Windows, glazing and sliding glass doors for low-rise buildings:
  - 4 storeys or less for residential
  - 600m<sup>2</sup> or less for non-residentialand skylights for all buildings
2. Windows, glazing and sliding glass doors for high-rise and large buildings
3. Glazing for installation in manufactured door slabs, side lites and transom lites
4. Door slabs

Following the descriptions for the four product types, information is provided on labelling, testing and a flexibility provision for windows designed for a specific building.

### **1. Windows, glazing and sliding glass doors for low-rise buildings and skylights for all buildings**

#### **Scope**

- Applies to all products that are manufactured on or after the effective date (see below) for the product. This includes products being installed by builders.
- Includes products that separate heated space from non-heated space.
- Applies to new and existing residential buildings that are 4 storeys or less and non-residential buildings with equal to or less than 600m<sup>2</sup> of floor space.
- This includes all "Part 9" buildings in the B.C. Building Code and some additional residential buildings that are 4 storeys.



# B.C. ENERGY EFFICIENCY REGULATIONS FOR: Windows, Glazing, Doors, Skylights

## Test standards

- All products must be tested with one of the following standards:
  - CSA A440.2-04, Energy performance of windows and other fenestration systems
  - NFRC 100-2004, Procedure for determining fenestration product U-factors

## 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)	(U-value) BTU/ (hr·ft <sup>2</sup> ·K)	Effective Date
Vinyl and fibreglass framed windows	2.0	(0.35)	March 1, 2009
Metal framed windows, sliding glass doors, curtain walls, window walls or storefront windows, with or without thermal break	2.0	(0.35)	January 1, 2011
Wood framed windows and sliding doors	2.0	(0.35)	January 1, 2011
Skylights of all material frame types	3.10	(0.54)	March 1, 2009
Hinged or bi-folding doors which are fully glazed into aluminum, fibreglass or steel sash construction	2.0	(0.35)	January 1, 2012

## Exemptions

- All ENERGY STAR® for Canada qualified windows.
- Windows and sliding glass doors in residential high-rise buildings 5 storeys and higher (see regulation #2 below).
- Decorative windows that have stained glass panels, iron inserts or blinds, 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.
- Products installed in buildings that are compliant with ASHRAE 189.1 (2014).

## 2. Windows, glazing and sliding glass doors for high-rise and large buildings

### Scope

- Applies to all products that are manufactured on or after the effective date (see below) of the product.
- Includes products that separate heated space from non-heated space.
- Applies to new and existing residential buildings that are 5 storeys or more and non-residential buildings with more than 600m<sup>2</sup> of floor space.
- Excludes products installed in new buildings that are compliant with ASHRAE 189.1 (2014) as per the BC Building Code (effective 2008), or required under the City of Vancouver Green Building Bylaw.

# B.C. ENERGY EFFICIENCY REGULATIONS FOR: Windows, Glazing, Doors, Skylights



## Test standards

- All products must be tested with one of the following standards:
  - CSA A440.2-04, Energy performance of windows and other fenestration systems
  - NFRC 100-2004, Procedure for determining fenestration product U-factors

## 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)	(U-value) BTU/ (hr·ft <sup>2</sup> ·K)	Effective Date
Windows, sliding glass doors, curtain walls, window walls and store front windows with framing materials other than metal (e.g., vinyl, fibreglass, wood), with or without metal reinforcing or cladding	2.0	(0.35)	January 1, 2011
Metal framed windows and sliding glass doors, curtain wall, window wall or storefront, with or without thermal break	2.57	(0.45)	January 1, 2011

## Exemptions

- Products installed in buildings that are compliant with ASHRAE 189.1(2014) Energy standard for buildings except low-rise residential buildings. For existing buildings that meet ASHRAE 189.1(2014), a professional engineer or architect can produce a signed and sealed letter of assurance that confirms the building's compliance with ASHRAE 90.1.
- 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 installed in buildings designated as heritage buildings.<sup>1</sup>

## 3. Glazing for installation in manufactured door slabs, side lites and transom lites

### Scope

- Applies to all products that are manufactured on or after the effective date (see below) of the product.
- Includes products that separate heated space from non-heated space.

### Test standards

- The standards are prescriptive – therefore no test procedure is required.
- Minimum energy efficiency standards and effective dates.
- The following prescriptive standards apply.

# B.C. ENERGY EFFICIENCY REGULATIONS FOR: Windows, Glazing, Doors, Skylights

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)</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 1, 2009

## Exemptions

- All ENERGY STAR® for Canada qualified doors.
- Products installed in hung door assemblies that have a maximum U-value of 2.0 W/m<sup>2</sup>/K, tested with NFRC 100-2004 or 2010; Procedure for determining fenestration product U-factors.
- 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.<sup>i</sup>
- Products installed in buildings that are compliant with ASHRAE 90.1 (2004, 2007 or 2010) Energy standard for buildings except low-rise residential buildings.

## 4. Door slabs

### Scope

- Applies to all products that are manufactured on or after the effective date (see below) of the product.
- Includes products that separate heated space from non-heated space.

### Test standard

- ASTM C518-04 Standard test method for steady-state thermal transmission properties by means of the heat flow.

### Minimum energy efficiency standards and effective dates

- The following prescriptive standards apply.

Product Type	Prescriptive Standards	Effective Date
Door slabs	<ul style="list-style-type: none"> <li>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</li> </ul>	June 1, 2009

## Exemptions

- Solid wood door slabs.
- Products installed in buildings designated as heritage buildings.<sup>i</sup>
- All ENERGY STAR® for Canada qualified doors.
- Doors slabs in pre-hung door assemblies with a maximum U-value of 2.0 W/m<sup>2</sup> K, tested and certified with NFRC 100-2004 or 2010; procedure for determining fenestration product U-values.
- Door slabs installed in buildings that are compliant with ASHRAE 90.1 (2004, 2007 or 2010) Energy standard for buildings except low-rise residential buildings.



# B.C. ENERGY EFFICIENCY REGULATIONS FOR: Windows, Glazing, Doors, Skylights


## Labelling for all products

### Permanent labels

- Permanent labels are required for all products.
- They must have the registered trademark, word mark or symbol of the certification organization or other tester designated to test under the *Energy Efficiency Act*.
- 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.
- 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 door slabs, 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 Window and Door Manufacturers Association of BC (<http://wdma-bc.org/>) has developed a standardized label which has been adopted by B.C. based certification companies. For more information, contact Intertek Testing Services [Rcqa@intertek.com](mailto:Rcqa@intertek.com) or Quality Auditing Institute (see contact information below).
- Removable labels for windows and glazing installed in high rise buildings and large buildings can be in the form of a single “certificate” listing each product provided for a specific building, provided by the supplier of the products and posted in plain view at the building project for a period of at least 120 days after the last product has been installed. For example, qualified professional engineers or architects or the NFRC Component Modelling Approach can produce such a certificate: <http://www.nfrc.org/CMAprogram.aspx>

 <b>Canada • Zones</b> <b>A B C D</b> energystar.nrcan-nrcan.gc.ca		
U Factor Régime <b>1.10</b>	Solar Heat Gain Coefficient Coefficient de gain de chaleur solaire <b>0.35</b>	Visual Transmittance Transparence visuelle <b>0.63</b>
Energy Rating Performance énergétique <b>36</b>	Air Leakage Fuite d'air <b>0.55</b>	
<b>Window Company Ltd.</b> Triple X Operable Casement Vinyl frame, Triple glaze, Low-e coating (2+0.022, 53, 56), Krypton/Arg filled (both cavities), Genta 4x12mm NT0909-090909-03		
CERTIFICATION AGENCY LOGO	Thermal performance and visual transmittance ratings certified to CSA A440.2-08. Ratings are determined for a broad set of environmental conditions and a specific product. Certification agency does not recommend or warrant product for any specific use. Les taux de performance thermique et de transparence visuelle sont certifiés CSA A440.2-08. Les taux sont déterminés selon une série de conditions environnementales fixes et une série de produits particuliers. L'agence de certification ne recommande ni ne garantit le produit aux fins d'utilisation particulières.	
LOGO D'AGENCE DE CERTIFICATION	CSA A440.0-00 <b>A3 B5 C3 S1 F2</b>	

### Testing agencies for all products

The following agencies can certify the U-value of products for the purpose of this regulation:

- Canadian Standards Association (CSA) International, Toronto, ON, Damtew Tesfaye, 416-747-2509 [www.csa-international.org](http://www.csa-international.org)
- Intertek Testing Services NA Ltd., Coquitlam, B.C., 604-520-3321 <http://www.intertek-etlsemko.com>
- Quality Auditing Institute Ltd., Port Moody, B.C., 604 461-8378, [www.qai.org](http://www.qai.org)
- LabTest Certification Inc., Delta BC, 604 247-0444, [www.labtestcert.com](http://www.labtestcert.com)

# B.C. ENERGY EFFICIENCY REGULATIONS FOR: Windows, Glazing, Doors, Skylights



"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*

- Agencies accredited by the National Fenestration Rating Council (NFRC), Greenbelt, MD, <http://nfrfc.org/>. These agencies include: WDMA, NAMI, Keystone and AAMA.
- Professional engineers, registered with the Association of Professional Engineers and Geoscientists of British Columbia and architects authorized to practice in British Columbia (only for the products described below).

## Flexibility provision for windows and glazing designed for a specific building

- Flexibility is provided for windows, skylights and sliding glass doors (excluding doors) for low-rise and high-rise buildings 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., 2.0 W/(m<sup>2</sup>·K)).
- Instead, proof must be provided by a professional engineer or architect that all products in the specific building meet the U-value requirement on average.
- The professional must use the test standards to verify the average performance – CSA A440.2 or NFRC 100.
- Also, 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.
- The Ministry does not require routine submission of proof of compliance for these products, but during enforcement may require a letter of assurance from the professional.

## Specific Text in the Regulation

Specific Text in the Regulation: <http://www.bclaws.ca/>

- click on "Statutes and Regulations"
- click on "E"
- scroll down to "*Energy Efficiency Act*"
- click on 389/93 Energy Efficiency Standards Regulation

## Contact

For further information, please contact:

Energy Efficiency Branch , Electricity and Alternative Energy Division,  
Ministry of Energy and Mines, PO Box 9314, Stn Prov Govt, Victoria,  
B.C., V8W 9N1

Email: [energy.efficiency@gov.bc.ca](mailto:energy.efficiency@gov.bc.ca) Fax: 250 952 0258