



**ENERGY STAR® Technical Specification for
Residential Windows, Doors, and Skylights
Sold in Canada
Version 4.0 – February 1, 2015**

This technical specification determines how residential windows, doors, and skylights sold in Canada qualify for the ENERGY STAR initiative. This specification is issued by Natural Resources Canada (NRCan). NRCan has been authorized by the U.S. Environmental Protection Agency (EPA) to promote and administer the ENERGY STAR name and symbol in Canada. A product must meet this specification in order to be promoted as ENERGY STAR qualified in Canada by its manufacturer or authorized agent. Manufacturers must also sign a Fenestration Administrative Arrangement with NRCan.

1) Definitions

Product Types:

- A. Window: An assembled unit consisting of a frame/sash component holding one or more pieces of glazing functioning to admit light and/or air into an enclosure and designed for a vertical installation in an external wall of a residential building. Includes all transoms greater than 700 mm (27 in.) in width.
- B. Door: A sliding or swinging entry door system designed for and installed in a vertical wall separating conditioned and unconditioned space in a residential building. The primary function of a door is to allow for egress. All transoms equal to or less than 700 mm (27 in.) in width and all sidelites are considered part of the door system.
- C. Skylight: A window designed for sloped or horizontal application in the roof of a residential building, the primary purpose of which is to provide daylighting and/or ventilation.
- D. Sliding Door: A door that contains one or more manually operated panels that slide horizontally within a common frame.
- E. Swinging Door: A door system having, at a minimum, a hinge attachment of any type between a leaf and jamb, mullion, or edge of another leaf or having a single, fixed vertical axis about which the leaf rotates between open and closed positions.
- F. Sidelite: A fenestration product consisting of a glazed frame or a sash within a frame that is used as a companion product installed on one or both sides of a door.
- G. Transom: A fenestration product consisting of a glazed frame or a sash within a frame that is used as a companion product installed above a door or a window.
- H. Tubular Daylighting Device (TDD) or tubular skylight: A non-operable device primarily designed to transmit daylight from a roof surface of a residential

building to an interior ceiling surface via a tubular conduit. The device consists of an exterior glazed weathering surface, a light transmitting tube with a reflective inside surface and an interior sealing device, such as a translucent ceiling panel.

- I. Dynamic Glazing Product: Any fenestration product that has the fully reversible ability to change its performance properties, including U-factor, SHGC, Visual Transmittance or Energy Rating. This includes, but is not limited to, shading systems between the glazing layers and chromogenic glazing.
 - i. Chromogenic glazing: A broad class of changeable glazings that have means to reversibly vary their optical properties, including active materials (e.g., electrochromic and Suspended Particle Device/SPD) and passive materials (e.g., photochromic, thermochromic, etc.).
 - ii. Internal Shading System: Operable blinds or shades positioned between glass panes in a window, door, or skylight.

Performance Metrics:

- J. U-Factor: The heat transfer per time per area and per degree of temperature difference in $W/m^2 \cdot K$ ($Btu/h \cdot ft^2 \cdot ^\circ F$). The U-factor multiplied by the interior-exterior temperature difference and by the projected fenestration product area yields the total heat transfer through the fenestration product due to conduction, convection, and long-wave infra-red radiation. The U-factor in $W/m^2 \cdot K$ divided by 5.678263 equals the U-factor in $Btu/h \cdot ft^2 \cdot ^\circ F$.
- K. Solar Heat Gain Coefficient (SHGC): The ratio of the solar heat gain entering the space through the fenestration product to the incident solar radiation.
- L. Energy Rating (ER): a unitless value derived from a formula that balances heat loss (U-factor), air leakage loss and potential passive solar gain of a fenestration product. The ER is applied to fenestration systems intended to be installed in a vertical orientation in low-rise residential buildings. The simplified ER equation is as follows:

$$ER = (57.76 \times SHGC_w) - (21.90 \times U_w) - (1.97 \times L_{75}) + 40$$

where

- i. $SHGC_w$ = fenestration system solar heat gain coefficient
- ii. U_w = fenestration system U-factor
- iii. L_{75} = fenestration system air leakage rate at a pressure difference of 75 Pa, established in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 (North American Fenestration Standard) in $L/s \cdot m^2$.
The L_{75} shall be the average of the infiltration and exfiltration measurements.

A complete explanation of the ER equation may be found in the CSA A440.2 Standard.

- M. Decimal Precision: If necessary, values will be rounded using the arithmetic method prior to any calculation and to the decimal precision defined in Table 1.

Table 1: Decimal Precision

Value	Decimal Precision
Air leakage (infiltration)	1
Air leakage (exfiltration)	1
L75	1
U-factor and SHGC	2
Energy Rating	0

Other Definitions:

- N. Residential: For the purposes of ENERGY STAR, “residential” refers to products designed to be installed into buildings that meet Part 9 of the National Building Code of Canada. These buildings are three stories or less in height and less than 600 square metres in area.
- O. Insulating Glass Unit (IGU): A preassembled unit, comprising of lites of glass, which are sealed at the edges and separated by dehydrated space(s).
- P. Private labeller: A company that markets under its own name window, door, or skylight models manufactured by a different company.
- Q. Standards Council of Canada (SCC): a Canadian federal Crown corporation that accredits standards writing organizations, test laboratories, certification agencies, quality management and environmental management registration bodies.
- R. U.S. National Fenestration Rating Council (NFRC): an organization in the U.S. that develops energy performance standards for fenestration products and provides independent third party verification of energy performance and other related values for fenestration products.

2) **Scope**

- A. Included Products: Products that meet the definition of a residential window, door, or skylight as specified herein are eligible for ENERGY STAR qualification, with the exception of products listed in Section 2.B.
- B. Excluded Products: Products that are assembled onsite, including but not limited to sash packs or sash kits; windows, doors, or skylights that are intended for installation in non-residential buildings; window, door, or skylight attachments that are not included in a product’s certified energy performance rating.

3) **Qualifying Criteria**

The Canadian climatic zones are defined in Appendix A. The qualification for each climate zone is determined by using the tables in this section. Where applicable, qualification may be determined by using the qualifying criteria table

or alternate qualifying criteria table for the same product type or sub-type. The highest zone achieved would be the zone qualification. The qualification is accumulative. For example, a model that qualifies for Zone 3 also qualifies for Zones 1 and 2. Dynamic glazing products shall meet the qualifying criteria while in the minimum tinted state for chromogenic glazing products or the “fully open” position for internal shading systems.

A. Windows

Table A1: Energy Rating Qualifying Criteria for Windows

Zone	Minimum Energy Rating Unitless	Maximum Air Leakage L/s/m ²
1	25	1.5
2	29	1.5
3	34	1.5

Table A2: Alternate U-factor Qualifying Criteria for Windows

Zone	Maximum U-factor W/m ² ·K (Btu/h·ft. ² ·°F)	Minimum Energy Rating Unitless	Maximum Air Leakage L/s/m ²
1	1.60 (0.28)	16	1.5
2	1.40 (0.25)	20	1.5
3	1.20 (0.21)	24	1.5

B. Doors

Table B1: Energy Rating Qualifying Criteria for Swinging Doors, Sidelites and Door Transoms

Zone	Minimum Energy Rating Unitless	Maximum Air Leakage L/s/m ²
1	25	1.5
2	29	1.5
3	34	1.5

Table B2: Alternate U-factor Qualifying Criteria for Swinging Doors, Sidelites and Door Transoms

Zone	Maximum U-factor W/m ² ·K (Btu/h·ft. ² ·°F)	Maximum Air Leakage L/s/m ²
1	1.60 (0.28)	1.5
2	1.40 (0.25)	1.5
3	1.20 (0.21)	1.5

Table B3: Energy Rating Qualifying Criteria for Sliding Glass Doors

Zone	Minimum Energy Rating Unitless	Maximum Air Leakage L/s/m ²
1	25	1.5
2	29	1.5
3	34	1.5

Table B4: Alternate U-factor Qualifying Criteria for Sliding Glass Doors

Zone	Maximum U-factor W/m ² ·K (Btu/h·ft. ² ·°F)	Minimum Energy Rating Unitless	Maximum Air Leakage L/s/m ²
1	1.60 (0.28)	16	1.5
2	1.40 (0.25)	20	1.5
3	1.20 (0.21)	24	1.5

C. Skylights

Table C1: Qualifying Criteria for Flat-glazed and Domed Skylights

Zone	Maximum U-factor W/m ² ·K (Btu/h·ft. ² ·°F)	Maximum Air Leakage L/s/m ²
1	2.60 (0.46)	1.5
2	2.40 (0.42)	1.5
3	2.10 (0.37)	1.5

Table C2: Qualifying Criteria for Tubular Skylights

Zone	Maximum U-factor W/m ² ·K (Btu/h·ft. ² ·°F)	Maximum Air Leakage L/s/m ²
All	2.60 (0.46)	1.5

4) Test and Certification Requirements

- A. All models for ENERGY STAR shall be certified for their energy performance using the following standards as indicated:
CSA A440.2-09 Fenestration Energy Performance
 and/or
NFRC 100-10 Procedure for Determining Fenestration Product U-factors
 and
NFRC 200-10 Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence
- B. All models for ENERGY STAR shall be tested to and meet the minimum requirements of the following standards:
AAMA/WDMA/CSA 101/I.S. 2/ A440-08 North American Fenestration Standard/Specification for windows, doors, and skylights (NAFS)
 and

*Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440-09
Standard/Specification for windows, doors, and skylights*

- C. All Insulating Glass Units for ENERGY STAR qualified models shall be certified using the following standards as indicated:
*ASTM E2190-10 Standard Specification for Insulating Glass Unit
Performance and Evaluation*
and/or
CAN/CGSB 12.8-97 Insulating Glass Units Standard
- D. The model selected for testing or simulation shall be representative of that which is intended to be marketed and labeled as ENERGY STAR. Qualification of a product family is not permitted under this specification.
- E. Certification for energy performance must be done by an organization accredited by the SCC for the scope of the product being certified, or, certification must be done by the NFRC.
- F. Testing to NAFS and the Canadian supplement must be done by an organization accredited by the SCC or other signatories to the Asia Pacific Laboratory Accreditation Cooperation (APLAC) and/or the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement for the scope of the product being tested.

5) **Model Registration and Labelling**

- A. Product models must be registered with NRCan using the designated submission form in order to be labelled and considered ENERGY STAR qualified in Canada.
- B. Product models registered with NRCan for ENERGY STAR must be labelled in accordance with the current ***Labelling and Promotional Guidelines for ENERGY STAR® Qualified Windows, Doors and Skylights Sold in Canada*** in order to be considered ENERGY STAR qualified in Canada.

6) **Installation Instructions**

Products shall have installation instructions readily available online or packaged with the product. Electronic versions of instructions may be provided on the website of a retailer, manufacturer, and/or industry association. Disclaimers may be included to limit liability.

7) **Effective Date**

The effective date for Version 4.0 is February 1, 2015 and supersedes all previous versions. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in effect on the model's date of manufacture. The date of manufacture is specific to each unit and is the date on which a unit is considered to be completely assembled.

8) **Future Criteria Revisions**

NRCan reserves the right to change the specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. In keeping with current policy, revisions to the specification are arrived at through industry discussions. In the event of a specification revision, please note that the ENERGY STAR qualification is not automatically granted for the life of a product model.

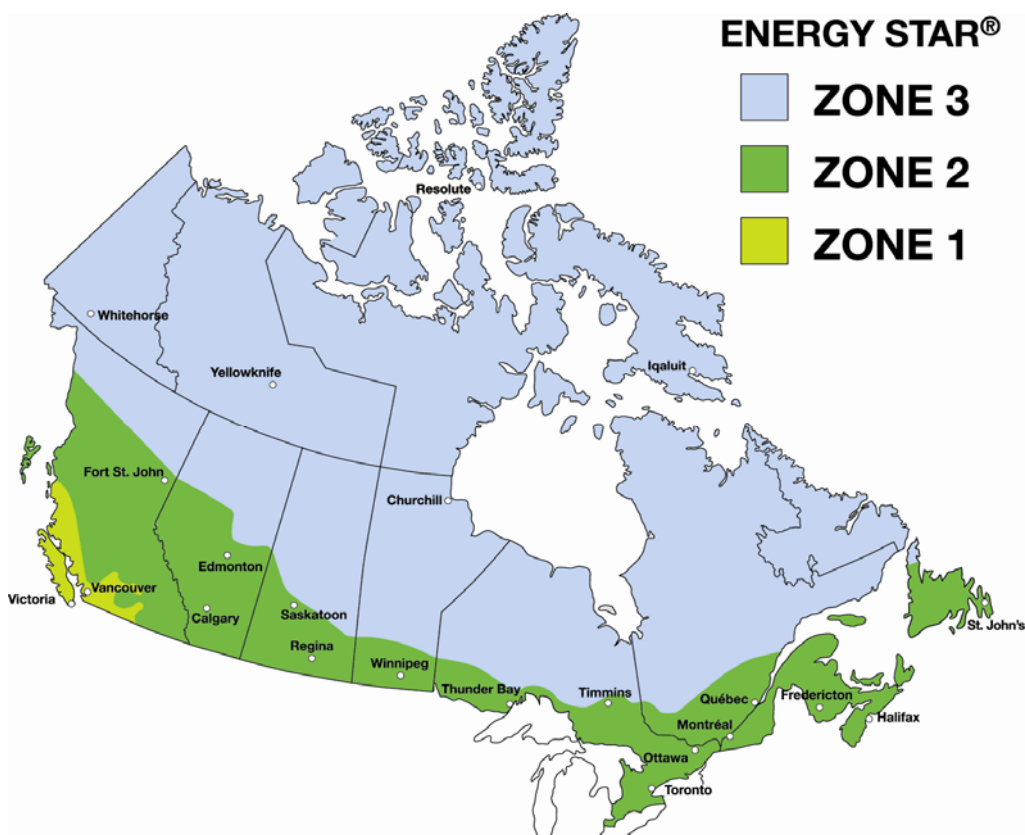
Appendix A

The climate zones are determined by heating degree day (HDD) values as found in the Model National Building Code (2010). Specific locations, their HDD values and climate zone are shown below the map. If the location has an asterisks appended to it, the location has been assigned a colder zone to maintain market integrity.

Zone 3: ≥ 6000 HDDs

Zone 2: 3500 to <6000 HDDs

Zone 1: <3500 HDDs



Model National Building Code (2010) Heating Degree Day Values and Climate Zones For Specific Locations in Canada

Province / Territory	Location	MNBC HDD Value	Zone
Alberta	Athabasca	6000	3
Alberta	Banff	5500	2
Alberta	Barrhead	5740	2
Alberta	Beaverlodge	5700	2
Alberta	Brooks	4880	2
Alberta	Calgary	5000	2
Alberta	Campsie	5750	2
Alberta	Camrose	5500	2
Alberta	Canmore	5400	2
Alberta	Cardston	4700	2
Alberta	Claresholm	4680	2
Alberta	Cold Lake	5860	2
Alberta	Coleman	5210	2
Alberta	Coronation	5640	2
Alberta	Cowley	4810	2
Alberta	Drumheller	5050	2
Alberta	Edmonton	5120	2
Alberta	Edson	5750	2
Alberta	Embarras Portage	7100	3
Alberta	Fairview	5840	2
Alberta	Fort MacLeod	4600	2
Alberta	Fort McMurray	6250	3
Alberta	Fort Saskatchewan	5420	2
Alberta	Fort Vermilion	6700	3
Alberta	Grande Prairie	5790	2
Alberta	Habay	6750	3
Alberta	Hardisty	5640	2
Alberta	High River	4900	2
Alberta	Hinton	5500	2
Alberta	Jasper	5300	2
Alberta	Keg River	6520	3
Alberta	Lac La Biche	6100	3
Alberta	Lacombe	5500	2
Alberta	Lethbridge	4500	2
Alberta	Manning	6300	3
Alberta	Medecine Hat	4540	2
Alberta	Peace River	6050	3
Alberta	Pincher Creek	4740	2
Alberta	Ranfurly	5700	2
Alberta	Red Deer	5550	2
Alberta	Rocky Mountain House	5640	2

Province / Territory	Location	MNBC HDD Value	Zone
Alberta	Slave Lake	5850	2
Alberta	Stettler	5300	2
Alberta	Stony Plain	5300	2
Alberta	Suffield	4770	2
Alberta	Taber	4580	2
Alberta	Turner Valley	5220	2
Alberta	Valleyview	5600	2
Alberta	Vegreville	5780	2
Alberta	Vermilion	5740	2
Alberta	Wagner	5850	2
Alberta	Wainwright	5700	2
Alberta	Wetaskiwin	5500	2
Alberta	Whitecourt	5650	2
Alberta	Wimborne	5310	2
British Columbia	100 Mile House	5030	2
British Columbia	Abbotsford	2860	1
British Columbia	Agassiz	2750	1
British Columbia	Alberni	3100	1
British Columbia	Ashcroft	3700	2
British Columbia	Bamfield	3080	1
British Columbia	Beatton River	6300	3
British Columbia	Bella Bella	3180	1
British Columbia	Bella Coola	3560	2
British Columbia	Burns Lake	5450	2
British Columbia	Cache Creek	3700	2
British Columbia	Campbell River	3000	1
British Columbia	Carmi	4750	2
British Columbia	Castlegar	3580	2
British Columbia	Chetwynd	5500	2
British Columbia	Chilliwack	2780	1
British Columbia	Cloverdale	2700	1
British Columbia	Comox	3100	1
British Columbia	Courtenay	3100	1
British Columbia	Cranbrook	4400	2
British Columbia	Crescent Valley	3650	2
British Columbia	Crofton	2880	1
British Columbia	Dawson Creek	5900	2
British Columbia	Dease lake	6730	3
British Columbia	Dog Creek	4800	2
British Columbia	Duncan	2980	1
British Columbia	Elko	4600	2
British Columbia	Fernie	4750	2
British Columbia	Fort Nelson	6710	3
British Columbia	Fort St. John	5750	2

Province / Territory	Location	MNBC HDD Value	Zone
British Columbia	Glacier	5800	2
British Columbia	Gold River	3230	1
British Columbia	Golden	4750	2
British Columbia	Grand Forks	3820	2
British Columbia	Greenwood	4100	2
British Columbia	Haney	2840	1
British Columbia	Hope	3000	1
British Columbia	Jordan River	2900	1
British Columbia	Kamloops	3450	1
British Columbia	Kaslo	3830	2
British Columbia	Kelowna	3400	1
British Columbia	Kimberley	4650	2
British Columbia	Kitimat Plant	3750	2
British Columbia	Kitimat Townsite	3900	2
British Columbia	Ladner	2600	1
British Columbia	Ladysmith	3000	1
British Columbia	Langford	2750	1
British Columbia	Langley	2700	1
British Columbia	Lillooet	3400	1
British Columbia	Lytton	3300	1
British Columbia	Mackenzie	5550	2
British Columbia	Masset	3700	2
British Columbia	McBride	4980	2
British Columbia	McLeod Lake	5450	2
British Columbia	Merritt	3900	2
British Columbia	Mission City	2850	1
British Columbia	Montrose	3600	2
British Columbia	Nakups	3560	2
British Columbia	Nanaimo	3000	1
British Columbia	Nelson	3500	2
British Columbia	New Westminster	2800	1
British Columbia	North Vancouver	2910	1
British Columbia	Ocean Falls	3400	1
British Columbia	Osoyoos	3100	1
British Columbia	Parksville	3200	1
British Columbia	Penticton	3350	1
British Columbia	Port Alberni	3100	1
British Columbia	Port Alice	3010	1
British Columbia	Port Hardy	3440	1
British Columbia	Port McNeill	3410	1
British Columbia	Port Renfrew	2900	1
British Columbia	Powell River	3100	1
British Columbia	Prince George	4720	2
British Columbia	Prince Rupert	3900	2

Province / Territory	Location	MNBC HDD Value	Zone
British Columbia	Princeton	4250	2
British Columbia	Qualicum Beach	3200	1
British Columbia	Queen Charlotte City	3520	2
British Columbia	Quesnel	4650	2
British Columbia	Revelstoke	4000	2
British Columbia	Richmond	2800	1
British Columbia	Salmon Arm	3650	2
British Columbia	Sandspit*	3450	2
British Columbia	Sechelt	2680	1
British Columbia	Sidney	2850	1
British Columbia	Smith River	7100	3
British Columbia	Smithers	5040	2
British Columbia	Sooke	2900	1
British Columbia	Squamish	2950	1
British Columbia	Stewart	4350	2
British Columbia	Surrey (88 Ave & 156 St.)	2750	1
British Columbia	Tahsis	3150	1
British Columbia	Taylor	5720	2
British Columbia	Terrace	4150	2
British Columbia	Tofino	3150	1
British Columbia	Trail	3600	2
British Columbia	Ucluelet	3120	1
British Columbia	Vancouver (City Hall)	2825	1
British Columbia	Vancouver Granville & 41 Ave)	2925	1
British Columbia	Vancouver Region Burnaby (Simon Fraser Univ.)	3100	1
British Columbia	Vernon	3600	2
British Columbia	Victoria	2650	1
British Columbia	Victoria (Gonzales Hts)	2700	1
British Columbia	Victoria (Mt Tolmie)	2700	1
British Columbia	West Vancouver	2950	1
British Columbia	Whistler	4180	2
British Columbia	White Rock	2620	1
British Columbia	Williams Lake	4400	2
British Columbia	Youbou	3050	1
Manitoba	Beausejour	5680	2
Manitoba	Boissevain	5500	2
Manitoba	Brandon	5760	2
Manitoba	Churchill	8950	3
Manitoba	Dauphin	5900	2
Manitoba	Flin Flon	6440	3
Manitoba	Gimli	5800	2
Manitoba	Island lake	6900	3
Manitoba	Lac du Bonnet	5730	2

Province / Territory	Location	MNBC HDD Value	Zone
Manitoba	Lynn Lake	7770	3
Manitoba	Morden	5400	2
Manitoba	Neepawa	5760	2
Manitoba	Pine Falls	5900	2
Manitoba	Portage la Prairie	5600	2
Manitoba	Rivers	5840	2
Manitoba	Sandilands	5650	2
Manitoba	Selkirk	5700	2
Manitoba	Split Lake	7900	3
Manitoba	Steinbach	5700	2
Manitoba	Swan River	6100	3
Manitoba	The Pas	6480	3
Manitoba	Thompson	7600	3
Manitoba	Virden	5620	2
Manitoba	Winnipeg	5670	2
New Brunswick	Alma	4500	2
New Brunswick	Bathurst	5020	2
New Brunswick	Campbellton	5500	2
New Brunswick	Edmundston	5320	2
New Brunswick	Fredericton	4670	2
New Brunswick	Gagetown	4460	2
New Brunswick	Grand Falls	5300	2
New Brunswick	Miramichi	4950	2
New Brunswick	Moncton	4680	2
New Brunswick	Oromocto	4650	2
New Brunswick	Sackville	4590	2
New Brunswick	Saint Andrews	4680	2
New Brunswick	Saint George	4680	2
New Brunswick	Saint John	4570	2
New Brunswick	Shippagan	4930	2
New Brunswick	St. Stephen	4700	2
New Brunswick	Woodstock	4910	2
Newfoundland / Labrador	Argentia	4600	2
Newfoundland / Labrador	Bonavista	5000	2
Newfoundland / Labrador	Buchans	5250	2
Newfoundland / Labrador	Cape Harrison	6900	3
Newfoundland / Labrador	Cape Race	4900	2
Newfoundland / Labrador	Channel-Port-aux-Basques	5000	2

Province / Territory	Location	MNBC HDD Value	Zone
Newfoundland / Labrador	Corner Brook	4760	2
Newfoundland / Labrador	Gander	5110	2
Newfoundland / Labrador	Grand Bank	4550	2
Newfoundland / Labrador	Grand Falls	5020	2
Newfoundland / Labrador	Happy Valley-Goose Bay	6670	3
Newfoundland / Labrador	Labrador City	7710	3
Newfoundland / Labrador	St. Anthony	6440	3
Newfoundland / Labrador	Stephenville	4850	2
Newfoundland / Labrador	St-John's	4800	2
Newfoundland / Labrador	Twin Falls	7790	3
Newfoundland / Labrador	Wabana	4750	2
Newfoundland / Labrador	Wabush	7710	3
Nova Scotia	Amherst	4500	2
Nova Scotia	Antigonish	4510	2
Nova Scotia	Bridgewater	4140	2
Nova Scotia	Canso	4400	2
Nova Scotia	Debert	4500	2
Nova Scotia	Digby	4020	2
Nova Scotia	Greenwood (CFB)	4140	2
Nova Scotia	Halifax (Dartmouth)	4100	2
Nova Scotia	Halifax (Halifax)	4000	2
Nova Scotia	Kentville	4130	2
Nova Scotia	Liverpool	3990	2
Nova Scotia	Lockeport	4000	2
Nova Scotia	Louisbourg	4530	2
Nova Scotia	Lunenburg	4140	2
Nova Scotia	New Glasgow	4320	2
Nova Scotia	North Sydney	4500	2
Nova Scotia	Pictou	4310	2
Nova Scotia	Port Hawkesbury	4500	2
Nova Scotia	Springhill	4540	2
Nova Scotia	Stewiacke	4400	2

Province / Territory	Location	MNBC HDD Value	Zone
Nova Scotia	Sydney	4530	2
Nova Scotia	Tatamagouche	4380	2
Nova Scotia	Truro	4500	2
Nova Scotia	Wolfville	4140	2
Nova Scotia	Yarmouth	3990	2
North West Territories	Aklavik	9600	3
North West Territories	Echo Bay / Port Radium	9300	3
North West Territories	Fort Good Hope	8700	3
North West Territories	Fort McPherson	9150	3
North West Territories	Fort Providence	7620	3
North West Territories	Fort Resolution	7750	3
North West Territories	Fort Simpson	7660	3
North West Territories	Fort Smith	7300	3
North West Territories	Hay River	7550	3
North West Territories	Holman / Ulukhaqtuuq	10700	3
North West Territories	Inuvik	9600	3
North West Territories	Mould Bay	12900	3
North West Territories	Norman Wells	8510	3
North West Territories	Rae-Edzo (Behchoko)	8300	3
North West Territories	Tungsten	7700	3
North West Territories	Wrigley	8050	3
North West Territories	Yellowknife	8170	3
Nunavut	Alert	13030	3
Nunavut	Arctic Bay	11900	3
Nunavut	Arviat / Eskimo Point	9850	3
Nunavut	Baker Lake	10700	3
Nunavut	Cambridge Bay / Iqaluktuuttiaq	11670	3
Nunavut	Chesterfield Inlet / Igluligaarjuk	10500	3
Nunavut	Clyde River / Kanngiqtuqaapik	11300	3
Nunavut	Coppermine (Kugluktuk)	10300	3
Nunavut	Coral Harbour / Salliq	10720	3
Nunavut	Eureka	13500	3
Nunavut	Iqaluit	9980	3
Nunavut	Isachsen	13600	3
Nunavut	Nottingham Island	10000	3
Nunavut	Rankin inlet (Kangiqiniq)	10500	3
Nunavut	Resolute	12360	3
Nunavut	Resolute Island	9000	3
Ontario	Ailsa Craig	3840	2
Ontario	Ajax	3820	2
Ontario	Alexandria	4600	2
Ontario	Alliston	4200	2
Ontario	Almonte	4620	2
Ontario	Armstrong	6500	3

Province / Territory	Location	MNBC HDD Value	Zone
Ontario	Arnprior	4680	2
Ontario	Atikokan	5750	2
Ontario	Attawapiskat	7100	3
Ontario	Aurora	4210	2
Ontario	Bancroft	4740	2
Ontario	Barrie	4380	2
Ontario	Barriefield	3990	2
Ontario	Beaverton	4300	2
Ontario	Belleville	3910	2
Ontario	Belmont	3840	2
Ontario	Bracebridge	4800	2
Ontario	Bradford	4280	2
Ontario	Brampton	4100	2
Ontario	Brantford	3900	2
Ontario	Brighton	4000	2
Ontario	Brockville	4060	2
Ontario	Burk's Falls	5020	2
Ontario	Burlington	3740	2
Ontario	Cambridge	4100	2
Ontario	Campbellford	4280	2
Ontario	Cannington	4310	2
Ontario	Carleton Place	4600	2
Ontario	Cavan	4400	2
Ontario	Centralia	3800	2
Ontario	CFB Borden	4300	2
Ontario	Chapleau	5900	2
Ontario	Chatham*	3470	2
Ontario	Chesley	4320	2
Ontario	Clinton	4150	2
Ontario	Coboconk	4500	2
Ontario	Cobourg	3980	2
Ontario	Cochrane	6200	3
Ontario	Colborne	3980	2
Ontario	Collingwood	4180	2
Ontario	Cornwall	4250	2
Ontario	Corunna	3600	2
Ontario	Deep River	4900	2
Ontario	Deseronto	4070	2
Ontario	Dorchester	3900	2
Ontario	Dorion	5950	2
Ontario	Dresden	3750	2
Ontario	Dryden	5850	2
Ontario	Dundalk	4700	2
Ontario	Dunnville	3660	2

Province / Territory	Location	MNBC HDD Value	Zone
Ontario	Durham	4340	2
Ontario	Dutton	3700	2
Ontario	Earlton	5730	2
Ontario	Edison	5740	2
Ontario	Elliot Lake	4950	2
Ontario	Elmvale	4200	2
Ontario	Embro	3950	2
Ontario	Englehart	5800	2
Ontario	Espanola	4920	2
Ontario	Exeter	3900	2
Ontario	Fenelon Falls	4440	2
Ontario	Fergus	4300	2
Ontario	Forest	3740	2
Ontario	Fort Erie	3650	2
Ontario	Fort Erie (Ridgeway)	3600	2
Ontario	Fort Frances	5440	2
Ontario	Ganagoque	4010	2
Ontario	Geraldton	6450	3
Ontario	Glencoe	3680	2
Ontario	Goderich	4000	2
Ontario	Gore Bay	4700	2
Ontario	Graham	5940	2
Ontario	Gravenhurst (Muskoka Airport)	4760	2
Ontario	Grimsby	3520	2
Ontario	Guelph	4270	2
Ontario	Guthrie	4300	2
Ontario	Haileybury	5600	2
Ontario	Haldimand (Caledonia)	3750	2
Ontario	Haldimand (Hagersville)	3760	2
Ontario	Haliburton	4840	2
Ontario	Halton Hills (Georgetown)	4200	2
Ontario	Hamilton*	3460	2
Ontario	Hanover	4300	2
Ontario	Hastings	4280	2
Ontario	Hawkesbury	4610	2
Ontario	Hearst	6450	3
Ontario	Honey Harbour	4300	2
Ontario	Hornepayne	6340	3
Ontario	Huntsville	4850	2
Ontario	Ingersoll	3920	2
Ontario	Iroquois Falls	6100	3
Ontario	Jellicoe	6400	3
Ontario	Kapuskasing	6250	3
Ontario	Kemptville	4540	2

Province / Territory	Location	MNBC HDD Value	Zone
Ontario	Kenora	5630	2
Ontario	Killaloe	4960	2
Ontario	Kincardine	3890	2
Ontario	Kingston	4000	2
Ontario	Kinmount	4600	2
Ontario	Kirkland Lake	6000	3
Ontario	Kitchener	4200	2
Ontario	Kitchenuhmaykoosib (Big Trout Lake)	7450	3
Ontario	Lakefield	4330	2
Ontario	Lansdowne House	7150	3
Ontario	Leamington*	3400	2
Ontario	Lindsay	4320	2
Ontario	Lion's Head	4300	2
Ontario	Listowel	4300	2
Ontario	London	3900	2
Ontario	Lucan	3900	2
Ontario	Maitland	4080	2
Ontario	Markdale	4500	2
Ontario	Markham	4000	2
Ontario	Martin	5900	2
Ontario	Matheson	6080	3
Ontario	Mattawa	5050	2
Ontario	Midland	4200	2
Ontario	Milton	3920	2
Ontario	Milverton	4200	2
Ontario	Minden	4640	2
Ontario	Mississauga	3880	2
Ontario	Mississauga (Lester B. Pearson Int'l Airport)	3890	2
Ontario	Mississauga (Port Credit)	3780	2
Ontario	Mitchell	4100	2
Ontario	Moosonee	6800	3
Ontario	Morrisburg	4370	2
Ontario	Mount Forest	4700	2
Ontario	Nakina	6500	3
Ontario	Nanticoke (Jarvis)	3700	2
Ontario	Nanticoke (Port Dover)	3600	2
Ontario	Napanee	4140	2
Ontario	New Liskeard	5570	2
Ontario	Newcastle	3990	2
Ontario	Newcastle (Bowmanville)	4000	2
Ontario	Newmarket	4260	2
Ontario	Niagara Falls	3600	2

Province / Territory	Location	MNBC HDD Value	Zone
Ontario	North Bay	5150	2
Ontario	Norwood	4320	2
Ontario	Oakville	3760	2
Ontario	Orangeville	4450	2
Ontario	Orillia	4260	2
Ontario	Oshawa	3860	2
Ontario	Ottawa (Barrhaven)	4500	2
Ontario	Ottawa (City Hall)	4440	2
Ontario	Ottawa (Kanata)	4520	2
Ontario	Ottawa (M-C Int'l Airport)	4500	2
Ontario	Ottawa (Orleans)	4500	2
Ontario	Owen Sound	4030	2
Ontario	Pagwa River	6500	3
Ontario	Paris	4000	2
Ontario	Parkhill	3800	2
Ontario	Parry Sound	4640	2
Ontario	Pelham (Fonthill)	3690	2
Ontario	Pembroke	4980	2
Ontario	Penetanguishene	4200	2
Ontario	Perth	4540	2
Ontario	Petawawa	4980	2
Ontario	Peterborough	4400	2
Ontario	Petrolia	3640	2
Ontario	Pickering (Dunbarton)	3800	2
Ontario	Picton	3980	2
Ontario	Plattsville	4150	2
Ontario	Point Alexander	4960	2
Ontario	Port Burwell	3800	2
Ontario	Port Colborne	3600	2
Ontario	Port Elgin	4100	2
Ontario	Port Hope	3970	2
Ontario	Port Perry	4260	2
Ontario	Port Stanley	3850	2
Ontario	Prescott	4120	2
Ontario	Princeton	4000	2
Ontario	Raith	5900	2
Ontario	Rayside-Balfour (Chelmsford)	5200	2
Ontario	Red Lake	6220	3
Ontario	Renfrew	4900	2
Ontario	Richmond Hill	4000	2
Ontario	Rockland	4600	2
Ontario	Sarnia	3750	2
Ontario	Sault Ste. Marie	4960	2
Ontario	Schreiber	5960	2

Province / Territory	Location	MNBC HDD Value	Zone
Ontario	Seafort	4100	2
Ontario	Shelburne	4700	2
Ontario	Simcoe	3700	2
Ontario	Sioux Lookout	5950	2
Ontario	Smiths Falls	4540	2
Ontario	Smithville	3650	2
Ontario	Smooth Rock Falls	6250	3
Ontario	South River	5090	2
Ontario	Southampton	4100	2
Ontario	St. Catharines	3540	2
Ontario	St. Mary's	4000	2
Ontario	St. Thomas	3780	2
Ontario	Stirling	4220	2
Ontario	Stratford	4050	2
Ontario	Strathroy	3780	2
Ontario	Sturgeon Falls	5200	2
Ontario	Sudbury	5180	2
Ontario	Sundridge	5080	2
Ontario	Tavistock	4100	2
Ontario	Temagami	5420	2
Ontario	Thamesford	3950	2
Ontario	Theford	3710	2
Ontario	Thunder Bay	5650	2
Ontario	Tillsonburg	3840	2
Ontario	Timmins	5940	2
Ontario	Timmins (Porcupine)	6000	3
Ontario	Toronto (City Hall)	3520	2
Ontario	Toronto (Etobicoke)	3800	2
Ontario	Toronto (North York)	3760	2
Ontario	Toronto (Scarborough)	3800	2
Ontario	Trenton	4110	2
Ontario	Trout Creek	5100	2
Ontario	Uxbridge	4240	2
Ontario	Vaughan (Woodbridge)	4100	2
Ontario	Vittoria	3680	2
Ontario	Walkerton	4300	2
Ontario	Wallaceburg	3600	2
Ontario	Waterloo	4200	2
Ontario	Watford	3740	2
Ontario	Wawa	5840	2
Ontario	Welland	3670	2
Ontario	West Lorne	3700	2
Ontario	Whitby	3820	2
Ontario	Whitby (Brooklin)	4010	2

Province / Territory	Location	MNBC HDD Value	Zone
Ontario	White River	6150	3
Ontario	Wiarton	4300	2
Ontario	Windsor*	3400	2
Ontario	Wingham	4220	2
Ontario	Woodstock	3910	2
Ontario	Wyoming	3700	2
Prince Edward Island	Charlottetown	4460	2
Prince Edward Island	Souris	4550	2
Prince Edward Island	Summerside	4600	2
Prince Edward Island	Tignish	4770	2
Quebec	Acton Vale	4620	2
Quebec	Alma	5800	2
Quebec	Amos	6160	3
Quebec	Asbestos	4800	2
Quebec	Aylmer	4520	2
Quebec	Baie-Comeau	6020	3
Quebec	Baie-Saint-Paul	5280	2
Quebec	Beauport	5100	2
Quebec	Bedford	4420	2
Quebec	Beloeil	4500	2
Quebec	Brome	4730	2
Quebec	Brossard	4420	2
Quebec	Buckingham	4880	2
Quebec	Campbell's Bay	4900	2
Quebec	Chambly	4450	2
Quebec	Coaticook	4750	2
Quebec	Contrecoeur	4500	2
Quebec	Cowansville	4540	2
Quebec	Deux-Montagnes	4440	2
Quebec	Dolbeau	6250	3
Quebec	Drummondville	4700	2
Quebec	Farnham	4500	2
Quebec	Fort-Coulonge	4950	2
Quebec	Gagnon	7600	3
Quebec	Gaspé	5500	2
Quebec	Gatineau	4600	2
Quebec	Gracefield	5080	2
Quebec	Granby	4500	2
Quebec	Harrington Harbour	6150	3
Quebec	Havre-St-Pierre	6100	3
Quebec	Hemmingford	4380	2
Quebec	Hull	4550	2
Quebec	Iberville	4450	2
Quebec	Inukjuak	9150	3

Province / Territory	Location	MNBC HDD Value	Zone
Quebec	Joliette	4720	2
Quebec	Kuujuuaq	8550	3
Quebec	Kuujuarapik	7990	3
Quebec	La Pocatière	5160	2
Quebec	Lachute	4640	2
Quebec	Lac-Mégantic	5180	2
Quebec	La Malbaie	5400	2
Quebec	La Tuque	5500	2
Quebec	Lennoxville	4700	2
Quebec	Léry	4420	2
Quebec	Loretteville	5200	2
Quebec	Louiseville	4900	2
Quebec	Magog	4730	2
Quebec	Malartic	6200	3
Quebec	Maniwaki	5280	2
Quebec	Masson	4610	2
Quebec	Matane	5510	2
Quebec	Mont-Joli	5370	2
Quebec	Mont-Laurier	5320	2
Quebec	Montmagny	5090	2
Quebec	Montréal (Beaconsfield)	4440	2
Quebec	Montréal (City Hall)	4200	2
Quebec	Montréal (Dorval)	4400	2
Quebec	Montréal (Laval)	4500	2
Quebec	Montréal (Outremont)	4300	2
Quebec	Montréal (Pierrefonds)	4430	2
Quebec	Montréal (Ste-Anne-de-Bellevue)	4460	2
Quebec	Montréal (St-Lambert)	4400	2
Quebec	Montréal (St-Laurent)	4270	2
Quebec	Montréal (Verdun)	4200	2
Quebec	Montréal-East	4470	2
Quebec	Montréal-Nord	4470	2
Quebec	Nicolet (Gentilly)	4900	2
Quebec	Nitchequon	8100	3
Quebec	Noranda	6050	3
Quebec	Percé	5400	2
Quebec	Pincourt	4480	2
Quebec	Plessisville	5100	2
Quebec	Port-Cartier	6060	3
Quebec	Puvirnituq	9200	3
Quebec	Québec (Ancienne-Lorette)	5130	2
Quebec	Québec (Lévis)	5050	2
Quebec	Québec (Québec)	5080	2
Quebec	Québec (Sillery)	5070	2

Province / Territory	Location	MNBC HDD Value	Zone
Quebec	Québec (Ste-Foy)	5100	2
Quebec	Richmond	4700	2
Quebec	Rimouski	5300	2
Quebec	Rivière-du-Loup	5380	2
Quebec	Roberval	5750	2
Quebec	Rock Island	4850	2
Quebec	Rosemère	4550	2
Quebec	Rouyn	6050	3
Quebec	Saguenay	5700	2
Quebec	Saguenay (Bagotville)	5700	2
Quebec	Saguenay (Jonquière)	5650	2
Quebec	Saguenay (Kenogami)	5650	2
Quebec	Saint-Eustache	4500	2
Quebec	Saint-Hubert-de-Rivière-du-Loup	5520	2
Quebec	Saint-Jean-sur-le-Richelieu	4450	2
Quebec	Salaberry-de-Valleyfield	4400	2
Quebec	Schefferville	8550	3
Quebec	Senneterre	6180	3
Quebec	Sept-Îles	6200	3
Quebec	Shawinigan	5050	2
Quebec	Shawville	4880	2
Quebec	Sherbrooke	4700	2
Quebec	Sorel	4550	2
Quebec	Ste-Agathe-des-Monts	5390	2
Quebec	St-Félicien	5850	2
Quebec	St-Georges-de-Cacouna	5400	2
Quebec	St-Hubert	4490	2
Quebec	St-Hyacinthe	4500	2
Quebec	St-Jérôme	4820	2
Quebec	St-Jovite	5250	2
Quebec	St-Lazare-Hudson	4520	2
Quebec	St-Nicolas	4990	2
Quebec	Sutton	4600	2
Quebec	Tadoussac	5450	2
Quebec	Témiscaming	5020	2
Quebec	Terrebonne	4500	2
Quebec	Thetford Mines	5120	2
Quebec	Thurso	4820	2
Quebec	Trois-Rivières	4900	2
Quebec	Val-d'Or	6180	3
Quebec	Varennnes	4500	2
Quebec	Verchères	4450	2
Quebec	Victoriaville	4900	2
Quebec	Ville-Marie	5550	2

Province / Territory	Location	MNBC HDD Value	Zone
Quebec	Wakefield	4820	2
Quebec	Waterloo	4650	2
Quebec	Windsor	4700	2
Saskatchewan	Assiniboia	5180	2
Saskatchewan	Battrum	5080	2
Saskatchewan	Biggar	5720	2
Saskatchewan	Broadview	5760	2
Saskatchewan	Dafoe	5860	2
Saskatchewan	Dundurn	5600	2
Saskatchewan	Estevan	5340	2
Saskatchewan	Hudson Bay	6280	3
Saskatchewan	Humboldt	6000	3
Saskatchewan	Island Falls	7100	3
Saskatchewan	Kamsack	6040	3
Saskatchewan	Kindersley	5550	2
Saskatchewan	Lloydminster	5880	2
Saskatchewan	Maple Creek	4780	2
Saskatchewan	Meadow Lake	6280	3
Saskatchewan	Melfort	6050	3
Saskatchewan	Melville	5880	2
Saskatchewan	Moose Jaw	5270	2
Saskatchewan	Nipawin	6300	3
Saskatchewan	North Battleford	5900	2
Saskatchewan	Prince Albert	6100	3
Saskatchewan	Qu'Appelle	5620	2
Saskatchewan	Regina	5600	2
Saskatchewan	Rosetown	5620	2
Saskatchewan	Saskatoon	5700	2
Saskatchewan	Scott	5960	2
Saskatchewan	Strasbourg	5600	2
Saskatchewan	Swift Current	5150	2
Saskatchewan	Uranium City	7500	3
Saskatchewan	Weyburn	5400	2
Saskatchewan	Yorkton	6000	3
Yukon	Aishihik	7500	3
Yukon	Dawson	8120	3
Yukon	Destruction Bay	7800	3
Yukon	Faro	7300	3
Yukon	Haines Junction	7100	3
Yukon	Snag	8300	3
Yukon	Teslin	6770	3
Yukon	Watson Lake	7470	3
Yukon	Whitehorse	6580	3

