Glazing Performance – Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S. Zone				Canada[2] ER	Canada[2] Zone
Vent										N	NC	SC	S		CA
11/16"	Clear IG	PEL-N-277-00225-00001	3	3	air	0.44	0.55	0.58	44						
	with grilles-between-the-glass	PEL-N-277-00226-00001				0.45	0.50	0.52	44						
11/16"	Clear IG	PEL-N-277-00229-00001	4	4	air	0.45	0.53	0.57	43						
	with grilles-between-the-glass	PEL-N-277-00230-00001				0.46	0.49	0.52	43						
1"	Clear IG	PEL-N-277-00001-00001	5	5	air	0.43	0.53	0.57	44						
	with grilles-between-the-glass	PEL-N-277-00002-00001				0.43	0.48	0.51	44						
1"	Clear IG	PEL-N-277-00005-00001	6	6	air	0.43	0.51	0.56	44						
	with grilles-between-the-glass	PEL-N-277-00006-00001				0.43	0.46	0.50	44						
11/16"	Advanced Low-E IG	PEL-N-277-00235-00001	3	3	argon	0.28	0.26	0.49	60						
	with grilles-between-the-glass	PEL-N-277-00236-00001				0.29	0.24	0.44	60						
11/16"	Advanced Low-E IG	PEL-N-277-00239-00001	4	4	argon	0.30	0.26	0.48	58						
	with grilles-between-the-glass	PEL-N-277-00240-00001				0.31	0.24	0.44	58						
1"	Advanced Low-E IG	PEL-N-277-00019-00001	5	5	argon	0.28	0.26	0.48	59						
	with grilles-between-the-glass	PEL-N-277-00020-00001				0.28	0.24	0.43	59						
1"	Advanced Low-E IG	PEL-N-277-00023-00001	6	6	argon	0.28	0.25	0.47	58						
	with grilles-between-the-glass	PEL-N-277-00024-00001				0.28	0.23	0.43	58			SC	S		
11/16"	SunDefense™ IG	PEL-N-277-00243-00001	3	3	argon	0.28	0.20	0.45	60			SC	S		
	with grilles-between-the-glass	PEL-N-277-00244-00001				0.29	0.18	0.41	60				S		
11/16"	SunDefense™ IG	PEL-N-277-00247-00001	4	4	argon	0.29	0.20	0.45	58				S		
	with grilles-between-the-glass	PEL-N-277-00248-00001				0.30	0.18	0.41	58				S		
11/16"	SunDefense+ IG	PEL-N-277-00835-00001	3	3	argon	0.25	0.19	0.44	48		NC	SC	S		
	with grilles-between-the-glass	PEL-N-277-00300-00001				0.25	0.18	0.40	48		NC	SC	S		
11/16"	SunDefense+ IG	PEL-N-277-00303-00001	4	4	argon	0.26	0.19	0.44	46			SC	S		
	with grilles-between-the-glass	PEL-N-277-00304-00001				0.27	0.18	0.40	46			SC	S		
1"	SunDefense™ IG	PEL-N-277-00059-00001	5	5	argon	0.28	0.20	0.44	59			SC	S		
	with grilles-between-the-glass	PEL-N-277-00060-00001				0.28	0.18	0.40	59			SC	S		
1"	SunDefense™ IG	PEL-N-277-00063-00001	6	6	argon	0.28	0.20	0.44	59			SC	S		
	with grilles-between-the-glass	PEL-N-277-00064-00001				0.28	0.18	0.40	59			SC	S		
1"	SunDefense+ IG	PEL-N-277-00867-00001	5	5	argon	0.25	0.19	0.43	47		NC	SC	S		
	with grilles-between-the-glass	PEL-N-277-00868-00001				0.25	0.18	0.39	47		NC	SC	S		
1"	SunDefense+ IG	PEL-N-277-00871-00001	6	6	argon	0.25	0.19	0.43	46		NC	SC	S		
	with grilles-between-the-glass	PEL-N-277-00872-00001				0.25	0.18	0.39	46		NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-277-00827-00001	3	3	argon	0.25	0.26	0.48	48		NC				
	with grilles-between-the-glass	PEL-N-277-00260-00001				0.26	0.24	0.43	47						
11/16"	AdvancedComfort Low-E IG	PEL-N-277-00263-00001	4	4	argon	0.26	0.26	0.47	45						
	with grilles-between-the-glass	PEL-N-277-00264-00001				0.27	0.23	0.43	45			SC	S		
1"	AdvancedComfort Low-E IG	PEL-N-277-00859-00001	5	5	argon	0.25	0.25	0.47	46		NC				
	with grilles-between-the-glass	PEL-N-277-00860-00001				0.25	0.23	0.42	46		NC	SC	S		
1"	AdvancedComfort Low-E IG	PEL-N-277-00863-00001	6	6	argon	0.25	0.25	0.46	46		NC				
	with grilles-between-the-glass	PEL-N-277-00864-00001				0.25	0.23	0.42	46		NC	SC	S		
11/16"	NaturalSun Low-E IG	PEL-N-277-00251-00001	3	3	argon	0.29	0.48	0.55	59						
	with grilles-between-the-glass	PEL-N-277-00252-00001				0.30	0.44	0.50	59						
11/16"	NaturalSun Low-E IG	PEL-N-277-00255-00001	4	4	argon	0.30	0.47	0.55	57						
	with grilles-between-the-glass	PEL-N-277-00256-00001				0.32	0.43	0.50	57						
11/16"	NaturalSun+ Low-E IG	PEL-N-277-00819-00001	3	3	argon	0.26	0.44	0.54	47	N					
	with grilles-between-the-glass	PEL-N-277-00820-00001				0.26	0.40	0.49	47	N					
11/16"	NaturalSun+ Low-E IG	PEL-N-277-00823-00001	4	4	argon	0.26	0.43	0.54	45	N					
	with grilles-between-the-glass	PEL-N-277-00824-00001				0.27	0.39	0.49	45						
1"	NaturalSun Low-E IG	PEL-N-277-00075-00001	5	5	argon	0.29	0.47	0.54	58						
	with grilles-between-the-glass	PEL-N-277-00076-00001				0.29	0.43	0.49	58						
1"	NaturalSun Low-E IG	PEL-N-277-00079-00001	6	6	argon	0.29	0.45	0.54	58						
	with grilles-between-the-glass	PEL-N-277-00080-00001				0.29	0.41	0.49	58						
1"	NaturalSun+ Low-E IG	PEL-N-277-00851-00001	5	5	argon	0.26	0.42	0.53	46	N					
	with grilles-between-the-glass	PEL-N-277-00852-00001				0.26	0.39	0.48	46						
1"	NaturalSun+ Low-E IG	PEL-N-277-00855-00001	6	6	argon	0.26	0.41	0.52	45	N					
	with grilles-between-the-glass	PEL-N-277-00856-00001				0.26	0.38	0.47	45						

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500. ENERGY STAR® values are updated to 2023 (version 7) criteria.
(2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative.
For center-glass values, see the Product Performance section.
Visit www.energystar.gov for Energy Star guidelines.

R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating

Glazing Performance – Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values[1]				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Middle	Int.		U-Factor	SHGC	VLT	CR	U. S. Zone				Canada[2] ER	Canada[2] Zone
											N	NC	SC	S		CA
Vent — Triple Pane																
1"	Advanced Low-E IG	PEL-N-277-00167-00001	3	3	3	argon	0.23	0.24	0.43	67		NC				
	with grilles-between-the-glass	PEL-N-277-00168-00001					0.24	0.22	0.39	67		NC	SC	S		
1"	SunDefense™ IG	PEL-N-277-00179-00001	3	3	3	argon	0.23	0.18	0.40	67		NC	SC	S		
	with grilles-between-the-glass	PEL-N-277-00180-00001					0.23	0.17	0.36	67		NC	SC	S		
1"	NaturalSun Low-E IG	PEL-N-277-00155-00001	3	3	3	argon	0.23	0.40	0.49	66	N	NC				
	with grilles-between-the-glass	PEL-N-277-00156-00001					0.24	0.36	0.44	66	N	NC				
Vent — Triple Pane with Foam Insulation																
1"	Advanced Low-E IG	PEL-N-277-00499-00001	3	3	3	argon	0.22	0.24	0.43	67	N	NC				
	with grilles-between-the-glass	PEL-N-277-00500-00001					0.23	0.22	0.39	67		NC	SC	S		
1"	SunDefense IG	PEL-N-277-00511-00001	3	3	3	argon	0.22	0.18	0.40	67	N	NC	SC	S		
	with grilles-between-the-glass	PEL-N-277-00512-00001					0.22	0.17	0.36	67	N	NC	SC	S		
1"	NaturalSun Low-E IG	PEL-N-277-00487-00001	3	3	3	argon	0.22	0.40	0.49	67	N	NC			35	CA
	with grilles-between-the-glass	PEL-N-277-00488-00001					0.23	0.36	0.44	67	N	NC				
Vent — Triple Pane with High Altitude Glazing																
1"	(HA) Advanced Low-E IG	PEL-N-277-00165-00001	3	3	3	air	0.26	0.24	0.43	63						
	with grilles-between-the-glass	PEL-N-277-00166-00001					0.27	0.22	0.39	63			SC	S		
1"	(HA) SunDefense IG	PEL-N-277-00177-00001	3	3	3	air	0.26	0.18	0.40	63			SC	S		
	with grilles-between-the-glass	PEL-N-277-00178-00001					0.27	0.17	0.36	63			SC	S		
1"	(HA) NaturalSun Low-E IG	PEL-N-277-00153-00001	3	3	3	air	0.27	0.40	0.49	63						
	with grilles-between-the-glass	PEL-N-277-00154-00001					0.27	0.36	0.44	63						
Vent — Triple Pane with High Altitude Glazing and Foam Insulation																
1"	(HA) Advanced Low-E IG	PEL-N-277-00497-00001	3	3	3	air	0.25	0.24	0.43	63		NC				
	with grilles-between-the-glass	PEL-N-277-00498-00001					0.26	0.22	0.39	63			SC	S		
1"	(HA) SunDefense IG	PEL-N-277-00509-00001	3	3	3	air	0.25	0.18	0.40	63		NC	SC	S		
	with grilles-between-the-glass	PEL-N-277-00510-00001					0.26	0.17	0.36	63			SC	S		
1"	(HA) NaturalSun Low-E IG	PEL-N-277-00485-00001	3	3	3	air	0.26	0.40	0.49	63	N					
	with grilles-between-the-glass	PEL-N-277-00486-00001					0.26	0.36	0.44	63						

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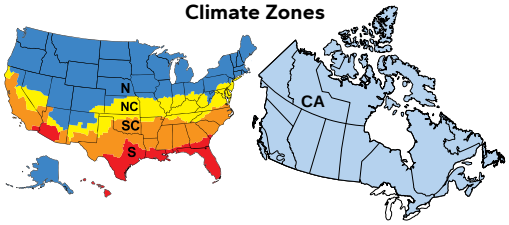
Climate Zones