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CLIENT: Aegis Building Supplies
120 - 5811 Cedarbridge Way
Richmond, BC,
V6X 2A8
Canada

Test Report No: QA-2265-DW-A	Issue Date: November 3,2025

SAMPLE ID: Aegis Building Supplies 80 Series Fixed, Awning, Casement Windows.

SAMPLING DETAIL: Test sample information was submitted directly to QAI for evaluation.

DATE OF RECEIPT: Documentation was received October 27, 2025, from Aegis Building Supplies.

TESTING PERIOD: Evaluation was conducted October 31, 2025 - November 3, 2025.

AUTHORIZATION: Proposal QAI-2032 signed by Yvonne Yu, signed on July 2, 2025.
Proposal QAI-3275 signed by Yvonne Yu, signed on September 5, 2025.

TEST PROCEDURE: Thermal simulation evaluation was performed following the methods outlined in the following standard:

CSA A440.2-22 *Fenestration Energy Performance.*

TEST RESULTS: Based on evaluation conducted by QAI, energy performance values for Aegis Building Supplies 80 Series Fixed, Awning, and Casement Windows are as found in Test Results section of this report for glazing options evaluated.

Prepared By

Florenz Somigao
Project Specialist

Reviewed By

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by Jose Sanchez
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Jose Sanchez
Fenestration Reviewer

Signed for and on behalf of QAI Laboratories, Ltd.

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TEST METHODS:

CSA A440.2-22

QAI Laboratories Ltd. (QAI) has performed energy performance thermal modeling in accordance with CSA A440.2-22. This thermal modeling was performed using software THERM 7.8 and WINDOW 7.8, with inputs outlined below for the noted 80 Series Fixed, Awning, and Casement Windows evaluated.

Table 1. Aegis Building Supplies 80 Series Fixed, Awning, and Casement Windows evaluated to CSA A440.2-22.

PRODUCT	WIDTH (mm)	HEIGHT (mm)
80 Series Fixed Window	1200	1500
80 Series Awning Window	1500	600
80 Series Casement Window	600	1500

Air Leakage values of Aegis Building Supplies 80 Series Fixed, Awning, and Casement noted above are included in Table 2 as shown below.

Table 2. Aegis Building Supplies 80 Series Fixed, Awning, and Casement Windows were evaluated to AAMA/WDMA/CSA 101/I.S.2/A440-22 NAFS - North American Fenestration Standard / Specification for windows, doors and skylights.

PRODUCT	TEST REPORT	REPORT DATE	TESTED SIZE		INFILTRATION (L/s·m²)	EXFILTRATION (L/s·m²)
			WIDTH (mm)	HEIGHT (mm)		
80 Series Fixed Window	250821010SHF-003	July 24, 2024	1900	2200	0.0	0.0
80 Series Awning Window	250821010SHF-002	July 24, 2024	1500	800	0.0	0.1
80 Series Casement Window	250821010SHF-001	July 24, 2024	900	1500	0.0	0.1

For the above noted products, the U-value, Solar Heat Gain Coefficient (SHGC), Visual Transmittance (VT) and Energy Rating (ER) were determined for the glazing options outlined in the Test Results section below, in accordance with CSA A440.2-22 with the software noted.

All drawings used in the modeling of the above noted fenestration products can be found in Appendix A to this report.

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TEST RESULTS SUMMARY:

80 Series Fixed Window
Size: 1200 mm x 1500 mm

Glass / Grille Bar Option #	Model Code	Number of Layers	Exterior Layer (mm)	Middle Layer (mm)	Interior Layer (mm)	Emissivity Surface 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Emissivity Surface 5	Emissivity Surface 6	Cavity 1 and 2 (mm)	Spacer Bar Type	Grille Bar	Reinforcement or Foam Insulation	Visual Transmittance Total Product	Product U-Factor (W/m2K)	Product SHGC	Energy Rating (ER)
G01	ABS-80FX-6,X187(2)-6,CL-12AR90T13-R1-G1	2	6 XYG Glass XETN0187	-	6 Clear Tempered	-	0.094	-	-	-	-	12 90% Argon	T13	G1	R1	0.53	1.56	0.40	29
G02	ABS-80FX-6,Y146(2)-6,YEA(4)-12AR90T13-R1	2	6 SYP Glass YRE0146 Tempered	-	6 SYP Glass YEA 6 Tempered	-	0.060	-	0.146	-	-	12 90% Argon	T13	-	R1	0.31	1.26	0.21	25
G03	ABS-80FX-6,Y146(2)-6,YEA(4)-12AR90T13-R1	2	6 SYP Glass YRE0146 Heat-Strengthened	-	6 SYP Glass YEA 6 Heat-Strengthened	-	0.060	-	0.146	-	-	12 90% Argon	T13	-	R1	0.31	1.26	0.21	25
G04	ABS-80FX-6,LB60(2)-6,CL-12AR90T13-R1	2	6 CSG LB60-1	-	6 Clear Tempered	-	0.036	-	-	-	-	12 90% Argon	T13	-	R1	0.44	1.46	0.24	22
G05	ABS-80FX-6,LB60(2)-6,CL-12AR90T14-R1	2	6 CSG LB60-1	-	6 Clear Tempered	-	0.036	-	-	-	-	12 90% Argon	T14	-	R1	0.44	1.46	0.24	22
G06	ABS-80FX-8,Y670(2)-8,CL-16AR90T13-R1	2	8 SYP Glass YTE0670 Tempered	-	8 Clear Tempered	-	0.024	-	-	-	-	16 90% Argon	T13	-	R1	0.48	1.47	0.23	21
G07	ABS-80FX-8,Y156T(2)-8,CL-16AR90T13-R1	2	8 SYP Glass YTE0156T Tempered	-	8 Clear Tempered	-	0.030	-	-	-	-	16 90% Argon	T13	-	R1	0.38	1.48	0.19	19
G08	ABS-80FX-10,Y152(2)-10,CL-16AR90T13-R1	2	10 SYP Glass YTE0152 Tempered	-	10 Clear Tempered	-	0.033	-	-	-	-	16 90% Argon	T13	-	R1	0.35	1.48	0.20	19

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Glass / Grille Bar Option #	Model Code	Number of Layers	Exterior Layer (mm)	Middle Layer (mm)	Interior Layer (mm)	Emissivity Surface 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Emissivity Surface 5	Emissivity Surface 6	Cavity 1 and 2 (mm)	Spacer Bar Type	Grille Bar	Reinforcement or Foam Insulation	Visual Transmittance Total Product	Product U-Factor (W/m2K)	Product SHGC	Energy Rating (ER)
G09	ABS-80FX-5,S116(2)-5,CL-5,S116(5)-12AR90T14-R1	3	5 SJSTS Optilite S1.16	5 Clear Tempered	5 SJSTS Optilite S1.16 Tempered	-	0.076	-	-	0.076	-	12 90% Argon	T14	-	R1	0.55	0.94	0.38	41
G10	ABS-80FX-5,S116(2)-5,CL-5,S116(5)-12AR90T14-R1	3	5 SJSTS Optilite S1.16	5 Clear Tempered	5 SJSTS Optilite S1.16 Tempered	-	0.076	-	-	0.076	-	12 90% Argon	AL	-	R1	0.55	1.01	0.38	40
G11	ABS-80FX-6,XD221(2)-6,X179(4)-5,CL-12AR90T13-R1	3	6 XYG Glass XD221266-01 Tempered	6 XYG Glass XDTN0179 Tempered	5 Clear Tempered	-	0.061	-	0.048	-	-	12 90% Argon	T13	-	R1	0.35	0.92	0.20	31
G12	ABS-80FX-6,XD221(2)-6,X179(4)-5,CL-12A100T13-R1	3	6 XYG Glass XD221266-01 Tempered	6 XYG Glass XDTN0179 Tempered	5 Clear Tempered	-	0.061	-	0.048	-	-	12 100% Air	T13	-	R1	0.35	1.08	0.20	28
G13	ABS-80FX-6,XD221(2),-6,X179(4)-6,CL-12AR90AL-R1	3	6 XYG Glass XD221266-01 Tempered	6 XYG Glass XDTN0179 Tempered	5 Clear Tempered	-	0.061	-	0.048	-	-	12 90% Argon	AL	-	R1	0.35	0.99	0.20	30
G14	ABS-80FX-6,X150(2)-6,X150(4)-6,CL-12AR90T13-R1-G1<1	3	6 XYG Glass XDTS0150-01	6 XYG Glass XDTS0150-01	6 Clear Tempered	-	0.067	-	0.067	-	-	12 90% Argon	T13	G1	R1	0.15	0.94	0.12	26
G15	ABS-80FX-6,X150(2)-6,X150(4)-6,CL-12AR90T13-R1	3	6 XYG Glass XDTS0150-01	6 XYG Glass XDTS0150-01	6 Clear Tempered	-	0.067	-	0.067	-	-	12 90% Argon	T13	-	R1	0.17	0.94	0.13	27
G16	ABS-80FX-6,X187(2)-6,CL-6,CL-12AR90T13-R1	3	6 XYG Glass XETN0187	6 Clear Tempered	6 Clear Tempered	-	0.094	-	-	-	-	12 90% Argon	T13	-	R1	0.53	1.22	0.40	36

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Glass / Grille Bar Option #	Model Code	Number of Layers	Exterior Layer (mm)	Middle Layer (mm)	Interior Layer (mm)	Emissivity Surface 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Emissivity Surface 5	Emissivity Surface 6	Cavity 1 and 2 (mm)	Spacer Bar Type	Grille Bar	Reinforcement or Foam Insulation	Visual Transmittance Total Product	Product U-Factor (W/m2K)	Product SHGC	Energy Rating (ER)
G17	ABS-80FX-6,Y146(2)-6,YEA6(4)-6,CL-12AR90T13-R1	3	6 SYP Glass YRE0146 Tempered	6 SYP Glass YEA Tempered	6 Clear Tempered	-	0.060	-	0.060	-	-	12 90% Argon	T13	-	R1	0.27	0.98	0.19	30
G18	ABS-80FX-6,Y152(2)-6,YEA(4)-6,CL-12AR90T13-R1	3	6 SYP Glass YRE0152	6 SYP Glass YEA	6 Clear Heat-Strengthened	-	0.033	-	0.060	-	-	12 90% Argon	T13	-	R1	0.30	0.97	0.18	29
G19	ABS-80FX-6,Y175(2)-6,Y175(4)-6,CL-12AR90T13-R1	3	6 SYP Glass YNE0175 Heat-Strengthened	6 SYP Glass YNE0175 Heat-Strengthened	6 Clear Heat-Strengthened	-	0.050	-	0.060	-	-	12 90% Argon	T13	-	R1	0.39	0.92	0.24	34
G20	ABS-80FX-6,Y175(2)-6,Y175(4)-6,CL-12AR90T13-R1	3	6 SYP Glass YNE0175	6 SYP Glass YNE0175 Tempered	6 Clear Tempered	-	0.050	-	0.060	-	-	12 90% Argon	T13	-	R1	0.39	0.92	0.24	34
G21	ABS-80FX-6,S52N(2)-6,CL-6,CL-12AR90T13-R1	3	6 CSG SJ52sn-1	6 Clear Tempered	6 Clear Tempered	-	0.036	-	-	-	-	12 90% Argon	T13	-	R1	0.35	1.16	0.18	25
G22	ABS-80FX-6,Y175(2)-6,Y175(4)-6,CL-12AR90AL-R1	3	6 SYP Glass YNE0175	6 SYP Glass YNE0175 Tempered	6 Clear Tempered	-	0.050	-	0.060	-	-	12 90% Argon	AL	-	R1	0.39	0.99	0.24	32
G23	ABS-80FX-6,Y152(2)-6,YEA6(4)-6,CL-12AR90AL-R1	3	6 SYP Glass YRE0152	6 SYP Glass YEA Tempered	6 Clear Tempered	-	0.033	-	0.060	-	-	12 90% Argon	AL	-	R1	0.30	1.04	0.18	28
G24	ABS-80FX-6,S52N(2)-6,S52N(4)-6,CL-12AR90T14-R1	3	6 CSG SJ52sn-1	6 CSG SJ52sn-1	6 Clear Tempered	-	0.036	-	0.036	-	-	12 90% Argon	T14	-	R1	0.22	0.90	0.14	28

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Glass Layers	80 Series Fixed Window – Frame Representative Values (used for SHGC and VT calculations)						
	Model Code:	U-factor Center-of-glass (1000 mm x 1000 mm IGU)	U-factor Total Product	Dividers	NONE	<1”	≥1”
3	ABS-80FX-6,S52N(2)-6,S52N(4)-6,CL-12AR90T14-R1	0.715922	0.901898	$SHGC_0$	0.003358	0.006141	0.008766
				$SHGC_1$	0.796974	0.714525	0.636756
				VT_0	0.000000	0.000000	0.000000
				VT_1	0.793616	0.708384	0.627990

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80 Series Awning Window
Size: 1500 mm x 600 mm

Glass / Grille Bar Option #	Model Code	Number of Layers	Exterior Layer (mm)	Middle Layer (mm)	Interior Layer (mm)	Emissivity Surface 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Emissivity Surface 5	Emissivity Surface 6	Cavity 1 and 2 (mm)	Spacer Bar Type	Grille Bar	Reinforcement or Foam Insulation	Visual Transmittance Total Product	Product U-Factor (W/m2K)	Product SHGC	Energy Rating (ER)
G01	ABS-80AW-6,X187(2)-6,CL-12AR90T13-R1	2	6 XYG Glass XETN0187	-	6 Clear Tempered	-	0.094	-	-	-	-	12 90% Argon	T13	G1	R1	0.32	1.57	0.24	19
G02	ABS-80AW-6,Y146(2)-6,YEA(4)-12AR90T13-R1	2	6 SYP Glass YRE0146 Tempered	-	6 SYP Glass YEA 6 Tempered	-	0.060	-	0.146	-	-	12 90% Argon	T13	-	R1	0.18	1.40	0.13	17
G03	ABS-80AW-6,Y146(2)-6,YEA(4)-12AR90T13-R1	2	6 SYP Glass YRE0146 Heat-Strengthened	-	6 SYP Glass YEA 6 Heat-Strengthened	-	0.060	-	0.146	-	-	12 90% Argon	T13	-	R1	0.18	1.40	0.13	17
G04	ABS-80AW-6,LB60(2)-6,CL-12AR90T13-R1	2	6 CSG LB60-1	-	6 Clear Tempered	-	0.036	-	-	-	-	12 90% Argon	T13	-	R1	0.26	1.51	0.15	15
G05	ABS-80AW-6,LB60(2)-6,CL-12AR90T14-R1	2	6 CSG LB60-1	-	6 Clear Tempered	-	0.036	-	-	-	-	12 90% Argon	T14	-	R1	0.26	1.51	0.15	15
G06	ABS-80AW-8,Y670(2)-8,CL-16AR90T13-R1	2	8 SYP Glass YTE0670 Tempered	-	8 Clear Tempered	-	0.024	-	-	-	-	16 90% Argon	T13	-	R1	0.29	1.48	0.15	16
G07	ABS-80AW-8,Y156T(2)-8,CL-16AR90T13-R1	2	8 SYP Glass YTE0156T Tempered	-	8 Clear Tempered	-	0.030	-	-	-	-	16 90% Argon	T13	-	R1	0.23	1.49	0.12	14
G08	ABS-80AW-10,Y152(2)-10,CL-16AR90T13-R1	2	10 SYP Glass YTE0152 Tempered	-	10 Clear Tempered	-	0.033	-	-	-	-	16 90% Argon	T13	-	R1	0.21	1.49	0.13	15

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Glass / Grille Bar Option #	Model Code	Number of Layers	Exterior Layer (mm)	Middle Layer (mm)	Interior Layer (mm)	Emissivity Surface 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Emissivity Surface 5	Emissivity Surface 6	Cavity 1 and 2 (mm)	Spacer Bar Type	Grille Bar	Reinforcement or Foam Insulation	Visual Transmittance Total Product	Product U-Factor (W/m2K)	Product SHGC	Energy Rating (ER)
G09	ABS-80AW-5,S116(2)-5,CL-5,S116(5)-12AR90T14-R1	3	5 SJSTS Optilite S1.16	5 Clear Tempered	5 SJSTS Optilite S1.16 Tempered	-	0.076	-	-	0.076	-	12 90% Argon	T14	-	R1	0.33	1.12	0.23	29
G10	ABS-80AW-5,S116(2)-5,CL-5,S116(5)-12AR90AL-R1	3	5 SJSTS Optilite S1.16	5 Clear Tempered	5 SJSTS Optilite S1.16 Tempered	-	0.076	-	-	0.076	-	12 90% Argon	AL	-	R1	0.33	1.22	0.23	26
G11	ABS-80AW-6,XD221(2)-6,X179(4)-5,CL-12AR90T13-R1	3	6 XYG Glass XD221266-01 Tempered	6 XYG Glass XDTN0179 Tempered	5 Clear Tempered	-	0.061	-	0.048	-	-	12 90% Argon	T13	-	R1	0.21	1.13	0.13	23
G12	ABS-80AW-6,XD221(2)-6,X179(4)-5,CL-12A100T13-R1	3	6 XYG Glass XD221266-01 Tempered	6 XYG Glass XDTN0179 Tempered	5 Clear Tempered	-	0.061	-	0.048	-	-	12 100% Air	T13	-	R1	0.21	1.23	0.13	20
G13	ABS-80AW-6,XD221(2),-6,X179(4)-6,CL-12AR90AL-R1	3	6 XYG Glass XD221266-01 Tempered	6 XYG Glass XDTN0179 Tempered	5 Clear Tempered	-	0.061	-	0.048	-	-	12 90% Argon	AL	-	R1	0.21	1.21	0.13	21
G14	ABS-80AW-6,X150(2)-6,X150(4)-6,CL-12AR90T13-R1-G1	3	6 XYG Glass XDTS0150-01	6 XYG Glass XDTS0150-01	6 Clear Tempered	-	0.067	-	0.067	-	-	12 90% Argon	T13	G1	R1	0.09	1.13	0.08	20
G15	ABS-80AW-6,X150(2)-6,X150(4)-6,CL-12AR90T13-R1	3	6 XYG Glass XDTS0150-01	6 XYG Glass XDTS0150-01	6 Clear Tempered	-	0.067	-	0.067	-	-	12 90% Argon	T13	-	R1	0.10	1.13	0.08	20
G16	ABS-80AW-6,X187(2)-6,CL-6,CL-12AR90T13-R1	3	6 XYG Glass XETN0187	6 Clear Tempered	6 Clear Tempered	-	0.094	-	-	-	-	12 90% Argon	T13	-	R1	0.32	1.29	0.25	26
G17	ABS-80AW-6,Y146(2)-6,YEA6(4)-6,CL-12AR90T13-R1	3	6 SYP Glass YRE0146 Tempered	6 SYP Glass YEA Tempered	6 Clear Tempered	-	0.060	-	0.060	-	-	12 90% Argon	T13	-	R1	0.17	1.16	0.12	21
G18	ABS-80AW-6,Y152(2)-6,YEA6(4)-6,CL-12AR90T13-R1	3	6 SYP Glass YRE0152	6 SYP Glass YEA	6 Clear Heat-Strengthened	-	0.033	-	0.060	-	-	12 90% Argon	T13	-	R1	0.18	1.14	0.11	21

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Glass / Grille Bar Option #	Model Code	Number of Layers	Exterior Layer (mm)	Middle Layer (mm)	Interior Layer (mm)	Emissivity Surface 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Emissivity Surface 5	Emissivity Surface 6	Cavity 1 and 2 (mm)	Spacer Bar Type	Grille Bar	Reinforcement or Foam Insulation	Visual Transmittance Total Product	Product U-Factor (W/m2K)	Product SHGC	Energy Rating (ER)
G19	ABS-80AW-6,Y175(2)-6,Y175(4)-6,CL-12AR90T13-R1	3	6 SYP Glass YNE0175 Heat-Strengthened	6 SYP Glass YNE0175 Heat-Strengthened	6 Clear Heat-Strengthened	-	0.050	-	0.060	-	-	12 90% Argon	T13	-	R1	0.24	1.12	0.15	24
G20	ABS-80AW-6,Y175(2)-6,Y175(4)-6,CL-12AR90T13-R1	3	6 SYP Glass YNE0175	6 SYP Glass YNE0175 Tempered	6 Clear Tempered	-	0.050	-	0.060	-	-	12 90% Argon	T13	-	R1	0.24	1.12	0.15	24
G21	ABS-80AW-6,S52N(2)-6,CL-6,CL-12AR90T13-R1	3	6 CSG SJ52sn-1	6 Clear Tempered	6 Clear Tempered	-	0.036	-	-	-	-	12 90% Argon	T13	-	R1	0.21	1.26	0.11	19
G22	ABS-80AW-6,Y175(2)-6,Y175(4)-6,CL-12AR90AL-R1	3	6 SYP Glass YNE0175	6 SYP Glass YNE0175 Tempered	6 Clear Tempered	-	0.050	-	0.060	-	-	12 90% Argon	AL	-	R1	0.24	1.21	0.15	22
G23	ABS-80AW-6,Y152(2)-6,YEA6(4)-6,CL-12AR90AL-R1	3	6 SYP Glass YRE0152	6 SYP Glass YEA Tempered	6 Clear Tempered	-	0.033	-	0.060	-	-	12 90% Argon	AL	-	R1	0.18	1.24	0.11	19
G24	ABS-80AW-6,S52N(2)-6,S52N(4)-6,CL-12AR90T14-R1	3	6 CSG SJ52sn-1	6 CSG SJ52sn-1	6 Clear Tempered	-	0.036	-	0.036	-	-	12 90% Argon	T14	-	R1	0.13	1.11	0.09	21

Glass Layers	80 Series Awning Window – Frame Representative Values (used for SHGC and VT calculations)						
	Model Code:	U-factor Center-of-glass (1000 mm x 1000 mm IGU)	U-factor Total Product	Dividers	NONE	<1”	≥1”
3	ABS-80AW-6,S52N(2)-6,S52N(4)-6,CL-12AR90T14-R1	0.715922	1.107677	$SHGC_0$	0.007621	0.009385	0.011044
				$SHGC_1$	0.485901	0.433653	0.384526
				VT_0	0.000000	0.000000	0.000000
				VT_1	0.478279	0.424268	0.373482

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80 Series Casement Window
Size: 600 mm x 1500 mm

Glass / Grille Bar Option #	Model Code	Number of Layers	Exterior Layer (mm)	Middle Layer (mm)	Interior Layer (mm)	Emissivity Surface 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Emissivity Surface 5	Emissivity Surface 6	Cavity 1 and 2 (mm)	Spacer Bar Type	Grille Bar	Reinforcement or Foam Insulation	Visual Transmittance Total Product	Product U-Factor (W/m2K)	Product SHGC	Energy Rating (ER)
G01	ABS-80CA-6,X187(2)-6,CL-12AR90T13-R1-G1	2	6 XYG Glass XETN0187	-	6 Clear Tempered	-	0.094	-	-	-	-	12 90% Argon	T13	G1	R1	0.32	1.57	0.24	19
G02	ABS-80CA-6,Y146(2)-6,YEA(4)-12AR90T13-R1	2	6 SYP Glass YRE0146 Tempered	-	6 SYP Glass YEA 6 Tempered	-	0.060	-	0.146	-	-	12 90% Argon	T13	-	R1	0.18	1.39	0.13	17
G03	ABS-80CA-6,Y146(2)-6,YEA(4)-12AR90T13-R1	2	6 SYP Glass YRE0146 Heat-Strengthened	-	6 SYP Glass YEA 6 Heat-Strengthened	-	0.060	-	0.146	-	-	12 90% Argon	T13	-	R1	0.18	1.39	0.13	17
G04	ABS-80CA-6,LB60(2)-6,CL-12AR90T13-R1	2	6 CSG LB60-1	-	6 Clear Tempered	-	0.036	-	-	-	-	12 90% Argon	T13	-	R1	0.26	1.51	0.15	15
G05	ABS-80CA-6,LB60(2)-6,CL-12AR90T14-R1	2	6 CSG LB60-1	-	6 Clear Tempered	-	0.036	-	-	-	-	12 90% Argon	T14	-	R1	0.26	1.51	0.15	15
G06	ABS-80CA-8,Y670(2)-8,CL-16AR90T13-R1	2	8 SYP Glass YTE0670 Tempered	-	8 Clear Tempered	-	0.024	-	-	-	-	16 90% Argon	T13	-	R1	0.29	1.47	0.15	16
G07	ABS-80CA-8,Y156T(2)-8,CL-16AR90T13-R1	2	8 SYP Glass YTE0156T Tempered	-	8 Clear Tempered	-	0.030	-	-	-	-	16 90% Argon	T13	-	R1	0.23	1.47	0.12	15
G08	ABS-80CA-10,Y152(2)-10,CL-16AR90T13-R1	2	10 SYP Glass YTE0152 Tempered	-	10 Clear Tempered	-	0.033	-	-	-	-	16 90% Argon	T13	-	R1	0.21	1.48	0.13	15

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Glass / Grille Bar Option #	Model Code	Number of Layers	Exterior Layer (mm)	Middle Layer (mm)	Interior Layer (mm)	Emissivity Surface 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Emissivity Surface 5	Emissivity Surface 6	Cavity 1 and 2 (mm)	Spacer Bar Type	Grille Bar	Reinforcement or Foam Insulation	Visual Transmittance Total Product	Product U-Factor (W/m2K)	Product SHGC	Energy Rating (ER)
G09	ABS-80CA-5,S116(2)-5,CL-5,S116(5)-12AR90T14-R1	3	5 SJSTS Optilite S1.16	5 Clear Tempered	5 SJSTS Optilite S1.16 Tempered	-	0.076	-	-	0.076	-	12 90% Argon	T14	-	R1	0.33	1.11	0.23	29
G10	ABS-80CA-5,S116(2)-5,CL-5,S116(5)-12AR90T14-R1	3	5 SJSTS Optilite S1.16	5 Clear Tempered	5 SJSTS Optilite S1.16 Tempered	-	0.076	-	-	0.076	-	12 90% Argon	AL	-	R1	0.33	1.22	0.23	26
G11	ABS-80CA-6,XD221(2)-6,X179(4)-6,CL-12AR90T13-R1	3	6 XYG Glass XD221266-01 Tempered	6 XYG Glass XDTN0179 Tempered	5 Clear Tempered	-	0.061	-	0.048	-	-	12 90% Argon	T13	-	R1	0.21	1.14	0.13	22
G12	ABS-80CA-6,XD221(2)-6,X179(4)-5,CL-12A100T13-R1	3	6 XYG Glass XD221266-01 Tempered	6 XYG Glass XDTN0179 Tempered	5 Clear Tempered	-	0.061	-	0.048	-	-	12 100% Air	T13	-	R1	0.21	1.23	0.13	20
G13	ABS-80CA-6,XD221(2)-6,X179(4)-6,CL-12AR90AL-R1	3	6 XYG Glass XD221266-01 Tempered	6 XYG Glass XDTN0179 Tempered	5 Clear Tempered	-	0.061	-	0.048	-	-	12 90% Argon	AL	-	R1	0.21	1.21	0.13	21
G14	ABS-80CA-6,X150(2)-6,X150(4)-6,CL-12AR90T13-R1-G1	3	6 XYG Glass XDTS0150-01	6 XYG Glass XDTS0150-01	6 Clear Tempered	-	0.067	-	0.067	-	-	12 90% Argon	T13	G1	R1	0.09	1.13	0.08	20
G15	ABS-80CA-6,X150(2)-6,X150(4)-6,CL-12AR90T13-R1	3	6 XYG Glass XDTS0150-01	6 XYG Glass XDTS0150-01	6 Clear Tempered	-	0.067	-	0.067	-	-	12 90% Argon	T13	-	R1	0.10	1.13	0.08	20
G16	ABS-80CA-6,X187(2)-6,CL-6,CL-12AR90T13-R1	3	6 XYG Glass XETN0187	6 Clear Tempered	6 Clear Tempered	-	0.094	-	-	-	-	12 90% Argon	T13	-	R1	0.32	1.29	0.25	26
G17	ABS-80CA-6,Y146(2)-6,YEA6(4)-6,CL-12AR90T13-R1	3	6 SYP Glass YRE0146 Tempered	6 SYP Glass YEA Tempered	6 Clear Tempered	-	0.060	-	0.060	-	-	12 90% Argon	T13	-	R1	0.17	1.15	0.12	22
G18	ABS-80CA-6,Y152(2)-6,YEA6(4)-6,CL-12AR90T13-R1	3	6 SYP Glass YRE0152	6 SYP Glass YEA	6 Clear Heat-Strengthened	-	0.033	-	0.060	-	-	12 90% Argon	T13	-	R1	0.18	1.14	0.11	21

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Glass / Grille Bar Option #	Model Code	Number of Layers	Exterior Layer (mm)	Middle Layer (mm)	Interior Layer (mm)	Emissivity Surface 1	Emissivity Surface 2	Emissivity Surface 3	Emissivity Surface 4	Emissivity Surface 5	Emissivity Surface 6	Cavity 1 and 2 (mm)	Spacer Bar Type	Grille Bar	Reinforcement or Foam Insulation	Visual Transmittance Total Product	Product U-Factor (W/m2K)	Product SHGC	Energy Rating (ER)
G19	ABS-80CA-6,Y175(2)-6,Y175(4)-6,CL-12AR90T13-R1	3	6 SYP Glass YNE0175 Heat-Strengthened	6 SYP Glass YNE0175 Heat-Strengthened	6 Clear Heat-Strengthened	-	0.050	-	0.060	-	-	12 90% Argon	T13	-	R1	0.24	1.12	0.15	24
G20	ABS-80CA-6,Y175(2)-6,Y175(4)-6,CL-12AR90T13-R1	3	6 SYP Glass YNE0175	6 SYP Glass YNE0175 Tempered	6 Clear Tempered	-	0.050	-	0.060	-	-	12 90% Argon	T13	-	R1	0.24	1.12	0.15	24
G21	ABS-80CA-6,S52N(2)-6,CL-6,CL-12AR90T13-R1	3	6 CSG SJ52sn-1	6 Clear Tempered	6 Clear Tempered	-	0.036	-	-	-	-	12 90% Argon	T13	-	R1	0.21	1.26	0.11	19
G22	ABS-80CA-6,Y175(2)-6,Y175(4)-6,CL-12AR90AL-R1	3	6 SYP Glass YNE0175	6 SYP Glass YNE0175 Tempered	6 Clear Tempered	-	0.050	-	0.060	-	-	12 90% Argon	AL	-	R1	0.24	1.21	0.15	22
G23	ABS-80CA-6,Y152(2)-6,YEA6(4)-6,CL-12AR90AL-R1	3	6 SYP Glass YRE0152	6 SYP Glass YEA Tempered	6 Clear Tempered	-	0.033	-	0.060	-	-	12 90% Argon	AL	-	R1	0.18	1.23	0.11	19
G24	ABS-80CA-6,S52N(2)-6,S52N(4)-6,CL-12AR90T14-R1	3	6 CSG SJ52sn-1	6 CSG SJ52sn-1	6 Clear Tempered	-	0.036	-	0.036	-	-	12 90% Argon	T14	-	R1	0.13	1.11	0.09	21

Glass Layers	80 Series Casement Window – Frame Representative Values (used for SHGC and VT calculations)						
	Model Code:	U-factor Center-of-glass (1000 mm x 1000 mm IGU)	U-factor Total Product	Dividers	NONE	<1”	≥1”
3	ABS-80CA-6,S52N(2)-6,S52N(4)-6,CL-12AR90T14	0.715922	1.106834	$SHGC_0$	0.007607	0.009371	0.011029
				$SHGC_1$	0.485839	0.433594	0.384470
				VT_0	0.000000	0.000000	0.000000
				VT_1	0.478231	0.424223	0.373441

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Notes:

- Surfaces are numbered from Exterior (1) to Interior.
- ER = 57.76(SHGCw) – 21.90(Uw) – 1.97(L75) + 40
- All glazing surface emissivities are assumed to be 0.840 unless otherwise stated.
- The gas fill method is Single probe, gas type and concentration are noted for each glass option in the data table.
- All non-continuous hardware or components that do not create a thermal bridge were not modeled.
- Clear glass panes are permitted to be substituted with obscure glass as per CSA A440.2-22, Clause 4.2.5: *"Fenestration systems containing a decorative glazing lite and in which the view through the glazing system is distorted (e.g., sandblasted glass, frosted glass, stained glass, or patterned glass) shall be treated as clear glass."*
- Spacer Type:
    - T13 = SP13 Technoform Spacer Bar.
    - T14 = SP14 Technoform Spacer Bar.
    - AL = Aluminum Spacer Bar.
- Grille Type:
    - G1 = 18 x 11 mm Internal Muntin Bar.
- Reinforcement Type:
    - R1 = Level 1 Reinforcement used inside the main frame and sash frame, see the assembly drawings for details.
- See the following page for the Model Code outline.

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Thermal Simulation Model Codes for Windows

Model codes submitted to NRCan for Energy Star must be no more than 60 characters with no spaces and no model code can be the same as another in their database.

Company[1]	Product Series and Type[2]	Glass thickness, coating type and surface applied[3]	Glass thickness, coating type and surface applied[4]	Glass thickness, coating type and surface applied[5]	Cavity width, gas and % fill, spacer bar type[6]	Reinforcement or Foam Insulation[7]	Dividers[8]
XXXX	XXXXX	X,XXX(X)	X,XXX(X)	X,XXX(X)	XXXXXX	X	X

All Sections are separated by dashes, however if a code is over 60 characters remove the two dashes between the glazing layers and cavities. If a section is not needed such as the third glazing layer or the second cavity, that section will be deleted.

[1] Company code must be unique for each of our clients.

[2] Company's product series and type separated by dash. Exclude series if there is no product series or family.

Product Type:

- PC – Picture Window
- CA – Casement
- AW – Awning
- TT – Tilt & Turn
- FC – Fixed Casement
- FT – Fixed Tilt & Turn
- SS* – Single (Horizontal) Sliding
- SST – Single (Horizonal) Sliding Tilt
- SSL – Single (Horizonal) Sliding Liftout
- DS* – Double (Horizontal) Sliding
- DST – Double (Horizontal) Sliding Tilt
- DSL – Double (Horizontal) Sliding Liftout
- SH – Single Hung
- DH – Double Hung
- SKY – Skylight
- GW – Glazing Wall
- CW – Curtain Wall
- FX – Fixed Window

*- use this type if client does not produce both tilt and liftout versions

[3,4,5] Glass thickness (mm), Low-E coating type, surface applied to (in brackets).

- if the glass is clear indicate the size followed by CL: 3,CL
- if the glass has a Low-E coating, indicate the size followed by coating type and surface applied to in brackets: 3,8070(2)

[6] Cavity is represented by size (mm rounded to whole number), then Gas Type, % fill, and spacer bar type: 8AR90TG or 13AR95SS.
Note: If the two cavity sizes, Gas Types, % fill, and spacer bar types are different, include both cavities, following the same order as glass (from exterior to interior). If the number of characters is outside the 60 character limit, this portion of the code should be truncated, as appropriate, to fit within the 60 character limit.

- Argon = AR
- Air = AIR
- Krypton = KR
- Xenon = XE

Spacer bar is represented by two letters for the name of the spacer, as indicated in the notes section of the results table.

[7] Reinforcement or foam insulation in the sash or frame is indicated by 'R' or 'F', respectively. Exclude this section if there is no reinforcement or foam. If more than one reinforcement / foam configuration exists, use R1, R2 (F1, F2) and so on.

[8] Dividers are represented with either 'G' for Simulated Divider and 'T' for True Divider, followed by <1 or >1, as applicable. Exclude this section if there is no divider. If more than one of the same type, use G1/T1 and G2/T2, followed by <1 or >1, as applicable.

Examples:

ABC Company Ltd., 4000XL Series Casement Window, with 3mm Cardinal 366 on surface 2, 12.7mm 90% Argon cavity with a TGI Spacer Bar, 3mm Clear glass = [ABC-4XLCA-3,366(2)-3,CL-13AR90TG]

Build Your Own Window Ltd., DIY 500 Series Single (Horizontal) Sliding Window with 3mm Cardinal 366 on surface 2, 4mm Cardinal 270 on surface 3 and 3mm Cardinal i89 on surface 6 with 9.5mm cavities 95% Argon (cavity 1) and Air (cavity 2) with Superspacer Standard and 35 mm wide True Divided Lites = [BYOW-DIY5SS-3,366(2)-4,270(3)-3,i89(6)-10AR95SS-10AIRSS-T>1]

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