CSA A440.2-19 Simulation Summary

er: Vinyl Pro Window Systems Inc.
er: 20-06-B0015-S6
lel: Double Tilt & Lift Slider
ne: 20-06-B0015-6S-DSLO-Vinyl Pro
te: 03-Feb-20
o.:

Operator Type: Horizontal Slider (HSXX)
Simulation Window Size: 1500 Width (mm) x 1200 Height (mm)
Frame Type: VY- Vinyl frame members
Sash Type: VY- Vinyl sash members
Thermal Break Type: None
Simulation Laboratory Code: SEVA (NFRC)

Physical Air Leakage Value: 0.7 L/s·m²
Physical Test Report No.: 18-06-B0058-7N
Physical Test Report Issued By: Exova
Physical Test Report Date: 24-Oct-18

element

Total IGU Thickness		Glazing Option Number	Glazing #1 Thickness		Glazing #2 Thickness		Glazing #3 Thickness		Gap Space 1		Gap Space 2		Gas Information				Emissivity					Spacer Type	Tint	C-O-G U-Factor		C-O-G SHGC	C-O-G VT	Grid Type	Grid Size (in)	Total Product U-Factor		SHGC NO GRID	SHGC GRID<1"	SHGC GRID >= 1"	VT NO GRID	VT GRID < 1"	VT GRID >= 1"	ER NO GRID	ER GRID < 1"	ER GRID >= 1"
	(in)		(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	Gas Fill 1	Gas Fill 2	% of Gas Fill 1	% of Gas Fill 2	Surface 2	Surface 3	Surface 4	Surface 5	Surface 6			(W/m²-K)	(Btu/h.ft².F)					(W/m²-K)	(Btu/h.ft².F)									
34	0.813	1	3.00	0.118	3.00	0.118			14.64	0.576			ARG		97		0.068		0.149			ZF-S		1.19	0.210	0.62	0.77	N,G(3)	-	1.40	0.247	0.47	0.42	-	0.58	0.51	-	35	32	-

al LoE180[S2] - 0.58*Arg 97% - 3 mm Cardinal i89 [S4]

Spacer Options:
ZF-S Quanex, Superspacer Premium: Silicone Foam Spacer system Single Sealed

Frame Options:
(A) VY-Vinyl Frame and Sash members

Divider Options:
(1) Gi1-PB 0.330" x 0.295" , Pencil Bar, Internal Divider, Painted Aluminum Alloy
(2) Gi2-MB 0.232" x 0.628", Muntin Bar, internal Divider, Painted Aluminum Alloy
(3) The divider option (3) stated above has a gap greater than 3 mm for the listed glass options, and meet the center-of-glass grouping rule outlined in NFRC100-2014

Simulation Glazing Options Outline:

No.1: 3 mm Cardinal Clear / 14.64 mm Arg 97% / 3 mm Cardinal LoE180 [S3]
No.2: 3 mm Cardinal LoE180[S2] / 14.64 mm Arg 97% / 3 mm Cardinal Clear
No.3: 4 mm Cardinal Clear / 12.64 mm Arg 97% / 4 mm Cardinal LoE180 [S3]
No.4: 4 mm Cardinal LoE180[S2] / 12.64 mm Arg 97% / 4 mm Cardinal i89[S4]
No.5: 3 mm Cardinal Clear / 14.64 mm Arg 97% / 3 mm Cardinal LoE272 [S3]
No.6: 3 mm Cardinal LoE272[S2] / 14.64 mm Arg 97%/ 3 mm Cardinal Clear
No.7: 4 mm Cardinal Clear / 12.64 mm Arg 97% / 4 mm Cardinal LoE272 [S3]
No.8: 4 mm Cardinal LoE272[S2] / 12.64 mm Arg 97% / 4 mm Cardinal I89[S4]
No.9: 3 mm Cardinal Clear / 14.64 mm Arg 97% / 3 mm Cardinal LoE366 [S3]
No.10: 3 mm Cardinal LoE366[S2] / 14.64 mm Arg 97% / 3 mm Cardinal Clear
No.11: 4 mm Cardinal Clear / 12.64 mm Arg 97% / 4 mm Cardinal LoE366 [S3]
No.12: 4 mm Cardinal LoE366[S2] / 12.64 mm Arg 97% / 4 mm Cardinal I89[S4]
No.13: 3 mm Cardinal Clear / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% / 3 mm Cardinal LoE180 [S5]
No.14: 3 mm Cardinal LoE180[S2] / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% / 3 mm Cardinal Clear
No.15: 3 mm Cardinal LoE180[S2] / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% / 3 mm Cardinal LoE180[S5]
No.16: 3 mm Cardinal LoE180[S2] / 9.79 mm Arg 97% / 3 mm Cardinal Clear 9.79 Arg97% / 3 mm Cardinal LoE272[S5]
No.17: 3 mm Cardinal LoE180[S2] / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 Arg97% / 3 mm Cardinal i89[S6]
No.18: 3 mm Cardinal LoE180[S2] / 9.79 mm Arg 97% / 3 mm Cardinal LoE180[S4] / 9.79 mm Arg97% / 3 mm Cardinal I89[S6]
No.19: 3 mm Cardinal Clear / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% / 3 mm Cardinal LoE272 [S5]
No.20: 3 mm Cardinal LoE272[S2] / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% / 3 mm Cardinal Clear
No.21: 3 mm Cardinal LoE272[S2] / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% / 3 mm Cardinal LoE272[S5]
No.22: 3 mm Cardinal LoE272[S2] / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% / 3 mm Cardinal LoE366[S5]
No.23: 3 mm Cardinal LoE272[S2] / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% / 3 mm Cardinal I89[S6]
No.24: 3 mm Cardinal LoE272[S2] / 9.79 mm Arg 97% / 3 mm Cardinal LoE272[S4] / 9.79 mm Arg97% / 3 mm Cardinal I89[S6]

No.25: 3 mm Cardinal Clear / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% - 3 mm Cardinal LoE366 [S5]
No.26: 3 mm Cardinal LoE366[S2] / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% / 3 mm Cardinal Clear
No.27: 3 mm Cardinal LoE366[S2] / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% / 3 mm Cardinal LoE366[S5]
No.28: 3 mm Cardinal LoE366[S2] / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% / 3 mm Cardinal LoE180[S5]
No.29: 3 mm Cardinal LoE366[S2] / 9.79 mm Arg 97% / 3 mm Cardinal Clear / 9.79 mm Arg97% / 3 mm Cardinal I89[S6]
No.30: 3 mm Cardinal LoE366[S2] / 9.79 mm Arg 97% / 3 mm Cardinal LoE366[S4] / 9.79 mm Arg97% / 3 mm Cardinal I89[S6]
No.31: 3 mm Cardinal LoE180[S2] / 9.79 mm Arg 97% / 3 mm Cardinal LoE366[S4] / 9.79 mm Arg97% / 3 mm Cardinal I89[S6]

Note: Square brackets, [#], denote surface layer of coating

.0 DETAILED SIMULATION RESULTS

CSA A440.2-14 Simulation Summary

Manufacturer: Vinyl Pro Window Systems Inc.
Exova Report Number: 18-06-B0058-S7 RV3
Product Series / Model: Double Tilt & Lift Slider
Window 6.3 File Name: 18-06-B0058-7S.mdb
Date: 28-Jan-20
imulation Revision No.:

Operator Type: Horizontal Slider (HSXX)
Simulation Window Size: 1500 Width (mm) x 1200 Height (mm)
Frame Type: VY- Vinyl frame members
Sash Type: VY- Vinyl sash members
Thermal Break Type: None
Simulation Laboratory Code: SEVA (NFRC)

Physical Air Leakage Value: 0.7 L/s·m²
Physical Test Report No.: 18-06-B0058-7N
Physical Test Report Issued By: Exova
Physical Test Report Date: 24-Oct-18

Exova SYSTEMS LABORATORY
Building Performance Centre, Products Testing Group

Product Code	Grouping ID Number	Total IGU Thickness (mm)	Total IGU Thickness (in)	Glazing Option Number	Glazing #1 Thickness (mm)	Glazing #1 Thickness (in)	Glazing #2 Thickness (mm)	Glazing #2 Thickness (in)	Glazing #3 Thickness (mm)	Glazing #3 Thickness (in)	Gap Space 1 (mm)	Gap Space 1 (in)	Gap Space 2 (mm)	Gap Space 2 (in)	Gas Information: Gas Fill 1	Gas Fill 2	% of Gas Fill 1	% of Gas Fill 2	Emissivity: Surface 2	Surface 3	Surface 4	Surface 5	Surface 6	Spacer Type	Tint	C-O-G U-Factor (W/m²·K)	C-O-G U-Factor (Btu/h.ft².F)	C-O-G SHGC	C-O-G VT	Grid Type	Grid Size (in)	Total Product U-Factor (W/m²·K)	Total Product U-Factor (Btu/h.ft².F)	SHGC NO GRID	SHGC GRID<1"	SHGC GRID >= 1"	VT NO GRID	VT GRID < 1"	VT GRID >= 1"	ER NO GRID	ER GRID < 1"	ER GRID >= 1"
1		20.64	0.813	1	3.00	0.118	3.00	0.118		0.000	14.64	0.576		0.000	ARG		97			0.680				ZF-D		1.49	0.262	0.69	0.79	N	-	1.60	0.282	0.51	-	-	0.59	-	-	33	-	-
		20.64	0.813	1	3.00	0.118	3.00	0.118		0.000	14.64	0.576		0.000	ARG		97			0.680				ZF-D		1.49	0.262	0.69	0.79	G[2,4]	0.75	1.60	0.282	-	0.46	-	-	0.52	-	-	30	-
2		20.64	0.813	2	3.00	0.118	3.00	0.118		0.000	14.64	0.576		0.000	ARG		97		0.680					ZF-D		1.49	0.262	0.64	0.79	N	-	1.60	0.282	0.48	-	-	0.59	-	-	31	-	-
		20.64	0.813	2	3.00	0.118	3.00	0.118		0.000	14.64	0.576		0.000	ARG		97		0.680					ZF-D		1.49	0.262	0.64	0.79	G[2,4]	0.75	1.60	0.282	-	0.43	-	-	0.52	-		28	-
3		20.64	0.813	3	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97			0.680				ZF-D		1.45	0.256	0.67	0.79	N	-	1.60	0.282	0.50	-	-	0.58	-	-	32		-
		20.64	0.813	3	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97			0.680				ZF-D		1.45	0.256	0.67	0.79	G[1]	0.75	1.60	0.282	-	0.45	-	-	0.52	-	-	30	-
4		20.64	0.813	3	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97			0.680				ZF-D		1.45	0.256	0.67	0.79	G[1]	0.75	1.60	0.282	-	0.45	-	-	0.52	-	-	30	-
5		20.64	0.813	4	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97		0.680		0.149			ZF-D		1.17	0.206	0.61	0.77	N	-	1.35	0.238	0.45	-	-	0.57	-	-	35		-
		20.64	0.813	4	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97		0.680		0.149			ZF-D		1.17	0.206	0.61	0.77	G[1]	0.75	1.35	0.238	-	0.41	-	-	0.51	-		33	-
6		20.64	0.813	4	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97		0.680		0.149			ZF-D		1.17	0.206	0.61	0.77	G[1]	0.75	1.40	0.247	-	0.41	-	-	0.51	-		32	-
7		20.64	0.813	5	3.00	0.118	3.00	0.118		0.000	14.64	0.576		0.000	ARG		97			0.042				ZF-D		1.43	0.251	0.50	0.72	N	-	1.55	0.273	0.38	-	-	0.54	-	-	27		-
		20.64	0.813	5	3.00	0.118	3.00	0.118		0.000	14.64	0.576		0.000	ARG		97			0.042				ZF-D		1.43	0.251	0.50	0.72	G[2,4]	0.75	1.55	0.273	-	0.34	-	-	0.48	-		24	-
8		20.64	0.813	6	3.00	0.118	3.00	0.118		0.000	14.64	0.576		0.000	ARG		97		0.042					ZF-D		1.43	0.251	0.41	0.72	N	-	1.55	0.273	0.31	-	-	0.54	-	-	23		-
		20.64	0.813	6	3.00	0.118	3.00	0.118		0.000	14.64	0.576		0.000	ARG		97		0.042					ZF-D		1.43	0.251	0.41	0.72	G[2,4]	0.75	1.55	0.273	-	0.28	-	-	0.48	-		21	-
9		20.64	0.813	7	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97			0.042				ZF-D		1.39	0.245	0.49	0.71	N	-	1.55	0.273	0.37	-	-	0.53	-	-	26		-
		20.64	0.813	7	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97			0.042				ZF-D		1.39	0.245	0.49	0.71	G[1]	0.75	1.55	0.273	-	0.33	-	-	0.47	-		24	-
10		20.64	0.813	7	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97			0.042				ZF-D		1.39	0.245	0.49	0.71	G[1]	0.75	1.60	0.282	-	0.33	-	-	0.47	-		23	-
11		20.64	0.813	8	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97		0.042		0.149			ZF-D		1.13	0.198	0.40	0.70	N	-	1.35	0.238	0.30	-	-	0.52	-	-	26		-
		20.64	0.813	8	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97		0.042		0.149			ZF-D		1.13	0.198	0.40	0.70	G[1]	0.75	1.35	0.238	-	0.27	-	-	0.46	-		25	-
12		20.64	0.813	8	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97		0.042		0.149			ZF-D		1.13	0.198	0.40	0.70	G[1]	0.75	1.35	0.238	-	0.27	-	-	0.46	-		25	-
13		20.64	0.813	9	3.00	0.118	3.00	0.118		0.000	14.64	0.576		0.000	ARG		97			0.022				ZF-D		1.38	0.243	0.39	0.65	N		1.55	0.273	0.29	-	-	0.48	-	-	21		-
		20.64	0.813	9	3.00	0.118	3.00	0.118		0.000	14.64	0.576		0.000	ARG		97			0.022				ZF-D		1.38	0.243	0.39	0.65	G[2,4]	0.75	1.55	0.273	-	0.26	-	-	0.43	-		20	-
14		20.64	0.813	10	3.00	0.118	3.00	0.118		0.000	14.64	0.576		0.000	ARG		97		0.022					ZF-D		1.38	0.243	0.27	0.65	N		1.55	0.273	0.21	-	-	0.48	-	-	17		-
		20.64	0.813	10	3.00	0.118	3.00	0.118		0.000	14.64	0.576		0.000	ARG		97		0.022					ZF-D		1.38	0.243	0.27	0.65	G[2,4]	0.75	1.55	0.273	-	0.19	-	-	0.43	-		16	-
15		20.64	0.813	11	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97			0.022				ZF-D		1.34	0.237	0.39	0.64	N		1.50	0.264	0.29	-	-	0.48	-	-	23		-
		20.64	0.813	11	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97			0.022				ZF-D		1.34	0.237	0.39	0.64	G[1]	0.75	1.50	0.264	-	0.26	-	-	0.42	-		21	-
16		20.64	0.813	11	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97			0.022				ZF-D		1.34	0.237	0.39	0.64	G[1]	0.75	1.55	0.273	-	0.26	-	-	0.42	-		20	-
17		20.64	0.813	12	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97		0.022		0.149			ZF-D		1.09	0.192	0.27	0.63	N		1.30	0.229	0.20	-	-	0.47	-	-	22		-
		20.64	0.813	12	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97		0.022		0.149			ZF-D		1.09	0.192	0.27	0.63	G[1]	0.75	1.30	0.229	-	0.18	-	-	0.41	-		21	-
18		20.64	0.813	12	4.00	0.157	4.00	0.157		0.000	12.64	0.498		0.000	ARG		97		0.022		0.149			ZF-D		1.09	0.192	0.27	0.63	G[1]	0.75	1.35	0.238	-	0.18	-	-	0.41	-		19	

ing Options:

1 3 mm Cardinal Clear - 0.58"Arg 97% - 3 mm Cardinal LoE180 [S3]
2 3 mm Cardinal LoE180[S2] - 0.58"Arg 97% - 3 mm Cardinal Clear
3 4 mm Cardinal Clear - 0.50"Arg 97% - 4 mm Cardinal LoE180 [S3]
4 4 mm Cardinal LoE180[S2] - 0.50"Arg 97% - 4 mm Cardinal I89[S4]
5 3 mm Cardinal Clear - 0.58"Arg 97% - 3 mm Cardinal LoE272 [S3]
6 3 mm Cardinal LoE272[S2] - 0.58"Arg 97% - 3 mm Cardinal Clear
7 4 mm Cardinal Clear - 0.50"Arg 97% - 4 mm Cardinal LoE272 [S3]
8 4 mm Cardinal LoE272[S2] - 0.50"Arg 97% - 4 mm Cardinal I89[S4]
9 3 mm Cardinal Clear - 0.58"Arg 97% - 3 mm Cardinal LoE366 [S3]
10 3 mm Cardinal LoE366[S2] - 0.58"Arg 97% - 3 mm Cardinal Clear
11 4 mm Cardinal Clear - 0.50"Arg 97% - 4 mm Cardinal LoE366 [S3]
12 4 mm Cardinal LoE366[S2] - 0.50"Arg 97% - 4 mm Cardinal I89[S4]
13 3 mm Cardinal Clear - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE180 [S5]
14 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal Clear
15 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE180[S5]
16 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE272[S5]
17 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal I89[S6]
18 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal LoE180[S4] - 0.39"Arg97% - 3 mm Cardinal I89[S6]
19 3 mm Cardinal Clear - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE272 [S5]
20 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal Clear
21 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE272[S5]

Glazing Options:

22 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE366[S5]
23 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal I89[S6]
24 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal LoE272[S4] - 0.39"Arg97% - 3 mm Cardinal I89[S6]
25 3 mm Cardinal Clear - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE366 [S5]
26 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal Clear
27 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE366[S5]
28 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE180[S5]
29 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal I89[S6]
30 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal LoE366[S4] - 0.39"Arg97% - 3 mm Cardinal I89[S6]
31 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal LoE366[S4] - 0.39"Arg97% - 3 mm Cardinal I89[S6]

Spacer Options:

ZF-D Quanex, Superspacer Premium; Silicone Foam Spacer system Dual Sealed

Frame Options:

(A) VY-Vinyl Frame and Sash members

Divider Options:

(1) GI1-PB 0.330" x 0.295", Pencil Bar, Internal Divider, Painted Aluminum Alloy
(2) The divider option (1) stated above has a gap greater than 3 mm for the following glass options, and meet the center-of-glass grouping rule outlined in NFRC100-2014: 1,2,5,6,9,10
(3) GI2-MB 0.232" x 0.828", Muntin Bar, Internal Divider, Painted Aluminum Alloy
(4) The divider option (3) stated above has a gap greater than 3 mm for the following glass options, and meet the center-of-glass grouping rule outlined in NFRC100-2014: 1-12

CSA A440.2-14 Simulation Summary

Manufacturer: Vinyl Pro Window Systems Inc.
Exova Report Number: 18-06-B0058-S7 RV3
Product Series / Model: Double Tilt & Lift Slider
Window 6.3 File Name: 18-06-B0058-7S.mdb
Date: 28-Jan-20
Simulation Revision No.:

Operator Type: Horizontal Slider (HSXX)
Simulation Window Size: 1500 Width (mm) x 1200 Height (mm)
Frame Type: VY- Vinyl frame members
Sash Type: VY- Vinyl sash members
Thermal Break Type: None
Simulation Laboratory Code: SEVA (NFRC)

Physical Air Leakage Value: 0.7 L/s·m²
Physical Test Report No.: 18-06-B0058-7N
Physical Test Report Issued By: Exova
Physical Test Report Date: 24-Oct-18

Exova SYSTEMS LABORATORY
Building Performance Centre, Products Testing Group

Product Code	Grouping ID Number	Total IGU Thickness (mm)	Total IGU Thickness (in)	Glazing Option Number	Glazing #1 Thickness (mm)	Glazing #1 Thickness (in)	Glazing #2 Thickness (mm)	Glazing #2 Thickness (in)	Glazing #3 Thickness (mm)	Glazing #3 Thickness (in)	Gap Space 1 (mm)	Gap Space 1 (in)	Gap Space 2 (mm)	Gap Space 2 (in)	Gas Information: Gas Fill 1	Gas Information: Gas Fill 2	Gas Information: % of Gas Fill 1	Gas Information: % of Gas Fill 2	Emissivity: Surface 2	Emissivity: Surface 3	Emissivity: Surface 4	Emissivity: Surface 5	Emissivity: Surface 6	Spacer Type	Tint	C-O-G U-Factor (W/m²·K)	C-O-G U-Factor (Btu/h.ft².F)	C-O-G SHGC	C-O-G VT	Grid Type	Grid Size (in)	Total Product U-Factor (W/m²·K)	Total Product U-Factor (Btu/h.ft².F)	SHGC NO GRID	SHGC GRID<1"	SHGC GRID >= 1"	VT NO GRID	VT GRID < 1"	VT GRID >= 1"	ER NO GRID	ER GRID < 1"	ER GRID >= 1"
19		28.58	1.125	13	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97				0.068		ZF-D		1.127	0.199	0.62	0.73	N	-	1.35	0.238	0.46	-	-	0.54	-	-	36	-	-
20		28.58	1.125	13	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97				0.068		ZF-D		1.127	0.199	0.62	0.73	G(1)	0.75	1.35	0.238	-	0.41	-	-	0.48	-	-	33	-
21		28.58	1.125	13	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97				0.068		ZF-D		1.127	0.199	0.62	0.73	G(3)	0.75	1.35	0.238	-	0.41	-	-	0.48	-	-	33	-
22		28.58	1.125	14	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068					ZF-D		1.156	0.204	0.59	0.73	N	-	1.35	0.238	0.44	-	-	0.54	-	-	34	-	-
23		28.58	1.125	14	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068					ZF-D		1.156	0.204	0.59	0.73	G(1)	0.75	1.40	0.247	-	0.40	-	-	0.48	-	-	31	-
24		28.58	1.125	14	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068					ZF-D		1.156	0.204	0.59	0.73	G(3)	0.75	1.40	0.247	-	0.40	-	-	0.48	-	-	31	-
25		28.58	1.125	15	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068			0.068		ZF-D		0.85	0.150	0.56	0.70	N	-	1.10	0.194	0.42	-	-	0.52	-	-	39	-	-
26		28.58	1.125	15	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068			0.068		ZF-D		0.85	0.150	0.56	0.70	G(1)	0.75	1.15	0.203	-	0.38	-	-	0.46	-	-	35	-
27		28.58	1.125	15	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068			0.068		ZF-D		0.85	0.150	0.56	0.70	G(3)	0.75	1.15	0.203	-	0.38	-	-	0.46	-	-	35	-
28		28.58	1.125	16	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068			0.042		ZF-D		0.827	0.146	0.45	0.63	N	-	1.10	0.194	0.34	-	-	0.47	-	-	34	-	-
29		28.58	1.125	16	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068			0.042		ZF-D		0.827	0.146	0.45	0.63	G(1)	0.75	1.10	0.194	-	0.31	-	-	0.42	-	-	32	-
30		28.58	1.125	16	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068			0.042		ZF-D		0.827	0.146	0.45	0.63	G(3)	0.75	1.10	0.194	-	0.31	-	-	0.42	-	-	32	-
31		28.58	1.125	17	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068				0.149	ZF-D		0.976	0.172	0.57	0.71	N	-	1.25	0.220	0.43	-	-	0.53	-	-	36	-	-
32		28.58	1.125	17	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068				0.149	ZF-D		0.976	0.172	0.57	0.71	G(1)	0.75	1.25	0.220	-	0.38	-	-	0.47	-	-	33	-
33		28.58	1.125	17	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068				0.149	ZF-D		0.976	0.172	0.57	0.71	G(3)	0.75	1.25	0.220	-	0.38	-	-	0.47	-	-	33	-
34		28.58	1.125	18	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068		0.068		0.149	ZF-D		0.744	0.131	0.53	0.68	N	-	1.05	0.185	0.40	-	-	0.51	-	-	39	-	-
35		28.58	1.125	18	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068		0.068		0.149	ZF-D		0.744	0.131	0.53	0.68	G(1)	0.75	1.05	0.185	-	0.36	-	-	0.45	-	-	36	-
36		28.58	1.125	18	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068		0.068		0.149	ZF-D		0.744	0.131	0.53	0.68	G(3)	0.75	1.05	0.185	-	0.36	-	-	0.45	-	-	36	-
37		28.58	1.125	19	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97				0.042		ZF-D		1.09	0.192	0.47	0.66	N	-	1.30	0.229	0.35	-	-	0.49	-	-	30	-	-
38		28.58	1.125	19	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97				0.042		ZF-D		1.09	0.192	0.47	0.66	G(1)	0.75	1.30	0.229	-	0.32	-	-	0.43	-	-	29	-
39		28.58	1.125	19	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97				0.042		ZF-D		1.09	0.192	0.47	0.66	G(3)	0.75	1.30	0.229	-	0.32	-	-	0.43	-	-	29	-
40		28.58	1.125	20	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042					ZF-D		1.12	0.197	0.38	0.66	N	-	1.30	0.229	0.29	-	-	0.49	-	-	27	-	-
41		28.58	1.125	20	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042					ZF-D		1.12	0.197	0.38	0.66	G(1)	0.75	1.35	0.238	-	0.26	-	-	0.43	-	-	24	-
42		28.58	1.125	20	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042					ZF-D		1.12	0.197	0.38	0.66	G(3)	0.75	1.35	0.238	-	0.26	-	-	0.43	-	-	24	-
43		28.58	1.125	21	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042			0.042		ZF-D		0.808	0.142	0.35	0.57	N	-	1.10	0.194	0.26	-	-	0.43	-	-	30	-	-
44		28.58	1.125	21	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042			0.042		ZF-D		0.808	0.142	0.35	0.57	G(1)	0.75	1.10	0.194	-	0.24	-	-	0.38	-	-	28	-
45		28.58	1.125	21	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042			0.042		ZF-D		0.808	0.142	0.35	0.57	G(3)	0.75	1.10	0.194	-	0.24	-	-	0.38	-	-	28	-
46		28.58	1.125	22	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042			0.022		ZF-D		0.79	0.139	0.31	0.52	N	-	1.10	0.194	0.23	-	-	0.36	-	-	28	-	-
47		28.58	1.125	22	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042			0.022		ZF-D		0.79	0.139	0.31	0.52	G(1)	0.75	1.10	0.194	-	0.21	-	-	0.34	-	-	27	-
48		28.58	1.125	22	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042			0.022		ZF-D		0.79	0.139	0.31	0.52	G(3)	0.75	1.10	0.194	-	0.21	-	-	0.34	-	-	27	-

Glazing Options:

1 3 mm Cardinal Clear - 0.56"Arg 97% - 3 mm Cardinal LoE180 [S3]
2 3 mm Cardinal LoE180[S2] - 0.56"Arg 97% - 3 mm Cardinal Clear
3 4 mm Cardinal Clear - 0.50"Arg 97% - 4 mm Cardinal LoE180 [S3]
4 4 mm Cardinal LoE180[S2] - 0.50"Arg 97% - 4 mm Cardinal I89[S4]
5 3 mm Cardinal Clear - 0.56"Arg 97% - 3 mm Cardinal LoE272 [S3]
6 3 mm Cardinal LoE272[S2] - 0.56"Arg 97% - 3 mm Cardinal Clear
7 4 mm Cardinal Clear - 0.50"Arg 97% - 4 mm Cardinal LoE272 [S3]
8 4 mm Cardinal LoE272[S2] - 0.50"Arg 97% - 4 mm Cardinal I89[S4]
9 3 mm Cardinal Clear - 0.56"Arg 97% - 3 mm Cardinal LoE366 [S3]
10 3 mm Cardinal LoE366[S2] - 0.56"Arg 97% - 3 mm Cardinal Clear
11 4 mm Cardinal Clear - 0.50"Arg 97% - 4 mm Cardinal LoE366 [S3]
12 4 mm Cardinal LoE366[S2] - 0.50"Arg 97% - 4 mm Cardinal I89[S4]
13 3 mm Cardinal Clear - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE180 [S5]
14 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal Clear
15 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE180[S5]
16 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE272[S5]
17 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal I89[S6]
18 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal LoE180[S4] - 0.39"Arg97% - 3 mm Cardinal I89[S6]
19 3 mm Cardinal Clear - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE272 [S5]
20 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal Clear
21 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE272[S5]

Glazing Options:

22 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE366[S5]
23 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal I89[S6]
24 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal LoE272[S4] - 0.39"Arg97% - 3 mm Cardinal I89[S6]
25 3 mm Cardinal Clear - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE366 [S5]
26 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal Clear
27 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE366[S5]
28 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE180[S5]
29 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal I89[S6]
30 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal LoE366[S4] - 0.39"Arg97% - 3 mm Cardinal I89[S6]
31 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal LoE366[S4] - 0.39"Arg97% - 3 mm Cardinal I89[S6]

Spacer Options:

ZF-D Quanex, Superspacer Premium: Silicone Foam Spacer system Dual Sealed

Frame Options:

(A) VY-Vinyl Frame and Sash members

Divider Options:

(1) GI1-PB 0.330" x 0.295", Pencil Bar, Internal Divider, Painted Aluminum Alloy
(2) The divider option (1) stated above has a gap greater than 3 mm for the following glass options, and meet the center-of-glass grouping rule outlined in NFRC100-2014: 1,2,5,6,9,10
(3) GI2-MB 0.232" x 0.626", Muntin Bar, Internal Divider, Painted Aluminum Alloy
(4) The divider option (3) stated above has a gap greater than 3 mm for the following glass options, and meet the center-of-glass grouping rule outlined in NFRC100-2014: 1-12

Vinyl Pro Window Systems Inc. Report No. 18-06-B0058-S7 RV3

CSA A440.2-14 Simulation Summary

Manufacturer: Vinyl Pro Window Systems Inc.
Exova Report Number: 18-06-B0058-S7 RV3
Product Series / Model: Double Tilt & Lift Slider
Window 6.3 File Name: 18-06-B0058-7S.mdb
Date: 28-Jan-20
Simulation Revision No.:

Operator Type: Horizontal Slider (HSXX)
Simulation Window Size: 1500 Width (mm) x 1200 Height (mm)
Frame Type: VY- Vinyl frame members
Sash Type: VY- Vinyl sash members
Thermal Break Type: None
Simulation Laboratory Code: SEVA (NFRC)

Physical Air Leakage Value: 0.7 L/s·m²
Physical Test Report No.: 18-06-B0058-7N
Physical Test Report Issued By: Exova
Physical Test Report Date: 24-Oct-18

Exova SYSTEMS LABORATORY
Building Performance Centre, Products Testing Group

Product Code	Grouping ID Number	Total IGU Thickness (mm)	Total IGU Thickness (in)	Glazing Option Number	Glazing #1 Thickness (mm)	Glazing #1 Thickness (in)	Glazing #2 Thickness (mm)	Glazing #2 Thickness (in)	Glazing #3 Thickness (mm)	Glazing #3 Thickness (in)	Gap Space 1 (mm)	Gap Space 1 (in)	Gap Space 2 (mm)	Gap Space 2 (in)	Gas Information: Gas Fill 1	Gas Information: Gas Fill 2	Gas Information: % of Gas Fill 1	Gas Information: % of Gas Fill 2	Emissivity: Surface 2	Emissivity: Surface 3	Emissivity: Surface 4	Emissivity: Surface 5	Emissivity: Surface 6	Spacer Type	Tint	C-O-G U-Factor (W/m²·K)	C-O-G U-Factor (Btu/h.ft².F)	C-O-G SHGC	C-O-G VT	Grid Type	Grid Size (in)	Total Product U-Factor (W/m²·K)	Total Product U-Factor (Btu/h.ft².F)	SHGC NO GRID	SHGC GRID<1"	SHGC GRID >= 1"	VT NO GRID	VT GRID < 1"	VT GRID >= 1"	ER NO GRID	ER GRID < 1"	ER GRID >= 1"
49		28.58	1.125	23	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042				0.149	ZF-D		0.95	0.167	0.37	0.64	N	-	1.20	0.211	0.28	-	-	0.48	-	-	29	-	-
50		28.58	1.125	23	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042				0.149	ZF-D		0.95	0.167	0.37	0.64	G(1)	0.75	1.25	0.220	-	0.25	-	-	0.42	-	-	26	-
51		28.58	1.125	23	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042				0.149	ZF-D		0.95	0.167	0.37	0.64	G(3)	0.75	1.25	0.220	-	0.25	-	-	0.42	-	-	26	-
52		28.58	1.125	24	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042		0.042		0.149	ZF-D		0.71	0.125	0.32	0.56	N	-	1.05	0.185	0.24	-	-	0.42	-	-	29	-	-
53		28.58	1.125	24	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042		0.042		0.149	ZF-D		0.71	0.125	0.32	0.56	G(1)	0.75	1.05	0.185	-	0.22	-	-	0.37	-	-	28	-
54		28.58	1.125	24	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.042		0.042		0.149	ZF-D		0.71	0.125	0.32	0.56	G(3)	0.75	1.05	0.185	-	0.22	-	-	0.37	-	-	28	-
55		28.58	1.125	25	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97				0.022		ZF-D		1.06	0.186	0.38	0.59	N	-	1.30	0.229	0.28	-	-	0.44	-	-	26	-	-
56		28.58	1.125	25	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97				0.022		ZF-D		1.06	0.186	0.38	0.59	G(1)	0.75	1.30	0.229	-	0.26	-	-	0.39	-	-	25	-
57		28.58	1.125	25	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97				0.022		ZF-D		1.06	0.186	0.38	0.59	G(3)	0.75	1.30	0.229	-	0.26	-	-	0.39	-	-	25	-
58		28.58	1.125	26	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022					ZF-D		1.09	0.192	0.25	0.59	N	-	1.30	0.229	0.19	-	-	0.44	-	-	21	-	-
59		28.58	1.125	26	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022					ZF-D		1.09	0.192	0.25	0.59	G(1)	0.75	1.35	0.238	-	0.17	-	-	0.39	-	-	19	-
60		28.58	1.125	26	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022					ZF-D		1.09	0.192	0.25	0.59	G(3)	0.75	1.35	0.238	-	0.17	-	-	0.39	-	-	19	-
61		28.58	1.125	27	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022			0.022		ZF-D		0.78	0.137	0.24	0.47	N	-	1.05	0.185	0.18	-	-	0.35	-	-	26	-	-
62		28.58	1.125	27	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022			0.022		ZF-D		0.78	0.137	0.24	0.47	G(1)	0.75	1.10	0.194	-	0.16	-	-	0.31	-	-	24	-
63		28.58	1.125	27	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022			0.022		ZF-D		0.78	0.137	0.24	0.47	G(3)	0.75	1.10	0.194	-	0.16	-	-	0.31	-	-	24	-
64		28.58	1.125	28	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022			0.068		ZF-D		0.81	0.143	0.25	0.57	N	-	1.10	0.194	0.19	-	-	0.42	-	-	26	-	-
65		28.58	1.125	28	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022			0.068		ZF-D		0.81	0.143	0.25	0.57	G(1)	0.75	1.10	0.194	-	0.17	-	-	0.38	-	-	24	-
66		28.58	1.125	28	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022			0.068		ZF-D		0.81	0.143	0.25	0.57	G(3)	0.75	1.10	0.194	-	0.17	-	-	0.38	-	-	24	-
67		28.58	1.125	29	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022				0.149	ZF-D		0.93	0.163	0.25	0.58	N	-	1.20	0.211	0.19	-	-	0.43	-	-	23	-	-
68		28.58	1.125	29	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022				0.149	ZF-D		0.93	0.163	0.25	0.58	G(1)	0.75	1.25	0.220	-	0.17	-	-	0.38	-	-	21	-
69		28.58	1.125	29	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022				0.149	ZF-D		0.93	0.163	0.25	0.58	G(3)	0.75	1.25	0.220	-	0.17	-	-	0.38	-	-	21	-
70		28.58	1.125	30	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022		0.022		0.149	ZF-D		0.69	0.121	0.20	0.45	N	-	1.00	0.176	0.16	-	-	0.34	-	-	26	-	-
71		28.58	1.125	30	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022		0.022		0.149	ZF-D		0.69	0.121	0.20	0.45	G(1)	0.75	1.05	0.185	-	0.14	-	-	0.30	-	-	24	-
72		28.58	1.125	30	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.022		0.022		0.149	ZF-D		0.69	0.121	0.20	0.45	G(3)	0.75	1.05	0.185	-	0.14	-	-	0.30	-	-	24	-
73		28.58	1.125	31	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068		0.022		0.149	ZF-D		0.71	0.125	0.31	0.56	N	-	1.05	0.185	0.24	-	-	0.41	-	-	29	-	-
74		28.58	1.125	31	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068		0.022		0.149	ZF-D		0.71	0.125	0.31	0.56	G(1)	0.75	1.05	0.185	-	0.21	-	-	0.37	-	-	28	-
75		28.58	1.125	31	3.00	0.118	3.00	0.118	3.00	0.118	9.79	0.385	9.79	0.385	ARG	ARG	97	97	0.068		0.022		0.149	ZF-D		0.71	0.125	0.31	0.56	G(3)	0.75	1.05	0.185	-	0.21	-	-	0.37	-	-	28	-

Glazing Options:

1 3 mm Cardinal Clear - 0.58"Arg 97% - 3 mm Cardinal LoE180 [S3]
2 3 mm Cardinal LoE180[S2] - 0.58"Arg 97% - 3 mm Cardinal Clear
3 4 mm Cardinal Clear - 0.50"Arg 97% - 4 mm Cardinal LoE180 [S3]
4 4 mm Cardinal LoE180[S2] - 0.50"Arg 97% - 4 mm Cardinal I89[S4]
5 3 mm Cardinal Clear - 0.58"Arg 97% - 3 mm Cardinal LoE272 [S3]
6 3 mm Cardinal LoE272[S2] - 0.58"Arg 97% - 3 mm Cardinal Clear
7 4 mm Cardinal Clear - 0.50"Arg 97% - 4 mm Cardinal LoE272 [S3]
8 4 mm Cardinal LoE272[S2] - 0.50"Arg 97% - 4 mm Cardinal I89[S4]
9 3 mm Cardinal Clear - 0.58"Arg 97% - 3 mm Cardinal LoE366 [S3]
10 3 mm Cardinal LoE366[S2] - 0.58"Arg 97% - 3 mm Cardinal Clear
11 4 mm Cardinal Clear - 0.50"Arg 97% - 4 mm Cardinal LoE366 [S3]
12 4 mm Cardinal LoE366[S2] - 0.50"Arg 97% - 4 mm Cardinal I89[S4]
13 3 mm Cardinal Clear - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE180 [S5]
14 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal Clear
15 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE180[S5]
16 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE272[S5]
17 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal I89[S6]
18 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal LoE180[S4] - 0.39"Arg97% - 3 mm Cardinal I89[S6]
19 3 mm Cardinal Clear - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE272 [S5]
20 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal Clear
21 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE272[S5]

Glazing Options:

22 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE366[S5]
23 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal I89[S6]
24 3 mm Cardinal LoE272[S2] - 0.39"Arg 97% - 3 mm Cardinal LoE272[S4] - 0.39"Arg97% - 3 mm Cardinal I89[S6]
25 3 mm Cardinal Clear - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE366 [S5]
26 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal Clear
27 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE366[S5]
28 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal LoE180[S5]
29 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal Clear - 0.39"Arg97% - 3 mm Cardinal I89[S6]
30 3 mm Cardinal LoE366[S2] - 0.39"Arg 97% - 3 mm Cardinal LoE366[S4] - 0.39"Arg97% - 3 mm Cardinal I89[S6]
31 3 mm Cardinal LoE180[S2] - 0.39"Arg 97% - 3 mm Cardinal LoE366[S4] - 0.39"Arg97% - 3 mm Cardinal I89[S6]

Spacer Options:

ZF-D Quanex, Superspacer Premium: Silicone Foam Spacer system Dual Sealed

Frame Options:

(A) VY-Vinyl Frame and Sash members

Divider Options:

(1) GI1-PB 0.330" x 0.295" , Pencil Bar, Internal Divider, Painted Aluminum Alloy
(2) The divider option (1) stated above has a gap greater than 3 mm for the following glass options, and meet the center-of-glass grouping rule outlined in NFRC100-2014: 1,2,5,6,9,10
(3) GI2-MB 0.232" x 0.628", Muntin Bar, Internal Divider, Painted Aluminum Alloy
(4) The divider option (3) stated above has a gap greater than 3 mm for the following glass options, and meet the center-of-glass grouping rule outlined in NFRC100-2014: 1-12