

**CSA A440.2-19 Simulation Summary**

Manufacturer: Vinyl Pro Window Systems Inc.  
 Port Number: 20-06-B0015-SZ  
 Files / Model: Single Hung TH  
 3 File Name: 20-06-B0015-SZ-SHT-Vinyl Pro  
 Date: 03-Feb-20  
 Revision No.:  
 Operator Type: Vertical Slider (VSSH)  
 Simulation Window Size: 1200 Width (mm) x 1500 Height (mm)  
 Frame Type: VV - Vinyl frame members  
 Sash Type: VV - Vinyl sash members  
 Thermal Break Type: None  
 Simulation Laboratory Code: SEVA (NFRC)

Physical Air Leakage Value: 0.6 L/sm<sup>2</sup>  
 Physical Test Report No.: 18-06-80068-SN  
 Physical Test Report Issued By: Exova  
 Physical Test Report Date: 23-Nov-18



Grouping ID Number		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		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"	
20.64	0.813	1	3.00	0.118	3.00	0.118						14.64	0.576			ARG						ZF-S	1.19	0.210	0.82	0.77	N/G <sup>(1)</sup>	-	1.40	0.247	0.48	0.43	-	0.59	0.52	-	0.36	0.33	-																
	(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/m <sup>2</sup> ·K)	(Btu/h.ft <sup>2</sup> .F)	C-O-G SHGC	C-O-G VT	Grid Type	Grid Size (in)	(W/m <sup>2</sup> ·K)	(Btu/h.ft <sup>2</sup> .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"													

Spacer Options:  
 ZF-S Quietex Superspacer Premium; Silicone Frame Spacer system Single Sealed

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

Divider Options:

- (1) GI-FB 0.330" x 0.295" - Pencil Bar, Internal Divider, Painted Aluminum Alloy
- (2) GI-MB 0.232" x 0.028" - Muntin Bar, Internal Divider, Painted Aluminum Alloy
- (3) The divider options (1&2) listed above have a gap greater than 3 mm for the listed glass options, and must be 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 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

CSA A440-2:14 Simulation Summary

Manufacturer: Vinyl Pro Window Systems Inc.
Report Number: 18-05-00058-52-RV1
Product Series: Model: Single Hung III
Window 5.3 File Name: 18-05-00058-52-mdb
Date: 27-Jun-20

Operator Type: Vertical Slider (NSS)
Simulation Window Size: 1200 Width (mm) x 1500 Height (mm)
Frame Type: VV-Vinyl Frame members
Sash Type: VV-Vinyl sash members
Thermal Break Type: None
Simulation Laboratory Code: SEVA-RFRCG

Physical Air Leakage Value: 0.6 U/m^2
Physical Test Report No: 18-05-00058-5N
Physical Test Report Issued By: EXOC
Physical Test Report Date: 23-Nov-18

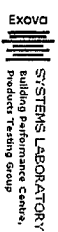


Table with columns: Product Code, Grouping ID Number, Glazing Option Number, Glazing #1 Thickness, Glazing #2 Thickness, Glazing #3 Thickness, Gap Space 1, Gap Space 2, Gas Information, Emissivity, Spacer Type, Tint, C-O-G U-Factor, C-O-G SHGC, C-O-G VT, Grid Type, Grid Size (in), Total Product U-Factor, 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".

Glazing Options:

- 1 Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe180 (SS)
2 3 mm Cardinal Loe180(S2) - 0.397Arg 97% - 3 mm Cardinal Loe180 (SS)
3 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe180 (SS)
4 3 mm Cardinal Loe180(S2) - 0.397Arg 97% - 3 mm Cardinal Loe180 (SS)
5 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe272 (SS)
6 3 mm Cardinal Loe272(S2) - 0.397Arg 97% - 3 mm Cardinal Loe272 (SS)
7 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe272 (SS)
8 3 mm Cardinal Loe272(S2) - 0.397Arg 97% - 3 mm Cardinal Loe272 (SS)
9 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
10 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
11 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
12 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
13 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe180 (SS)
14 3 mm Cardinal Loe180(S2) - 0.397Arg 97% - 3 mm Cardinal Loe180 (SS)
15 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe180 (SS)
16 3 mm Cardinal Loe180(S2) - 0.397Arg 97% - 3 mm Cardinal Loe180 (SS)
17 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe180 (SS)
18 3 mm Cardinal Loe180(S2) - 0.397Arg 97% - 3 mm Cardinal Loe180 (SS)
19 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe180 (SS)
20 3 mm Cardinal Loe180(S2) - 0.397Arg 97% - 3 mm Cardinal Loe180 (SS)
21 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe272 (SS)
22 3 mm Cardinal Loe272(S2) - 0.397Arg 97% - 3 mm Cardinal Loe272 (SS)
23 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe272 (SS)
24 3 mm Cardinal Loe272(S2) - 0.397Arg 97% - 3 mm Cardinal Loe272 (SS)
25 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
26 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
27 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
28 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
29 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
30 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
31 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
32 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
33 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
34 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
35 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
36 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
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64 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
65 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
66 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
67 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
68 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
69 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
70 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
71 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
72 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
73 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
74 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
75 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
76 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
77 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
78 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
79 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
80 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
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84 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
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88 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
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90 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
91 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
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96 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
97 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
98 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
99 3 mm Cardinal Clear - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)
100 3 mm Cardinal Loe366(S2) - 0.397Arg 97% - 3 mm Cardinal Loe366 (SS)



