

TEST REPORT FOR GRAHAM ARCHITECTURAL PRODUCTS CORP.

Report No: J5957.01-116-45

Date: 07/30/19

SECTION 6

SIMULATION RESULTS

TOTAL PRODUCT CALCULATIONS (GT6800 OS Casement)												
Option Number	Pane Thickness 1 (in)	Gap Width 1 (in)	Pane Thickness 2 (in)	Gap Width 2 (in)	Pane Thickness 3 (in)	Gap Width 3 (in)	Pane Thickness 4 (in)	Gap Fill	Low-e (Surface #)	Tint	Spacer	Grid Type
	U-Factor (Btu/Hr-Ft2-F)			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)				Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance (CR)		
1	Cardinal SS-D: E272/ARG95/CLR (6MM/6MM) 1" IG											
	0.224	0.500	0.224					ARG95	0.042(#2)	CL	SS-D	N
	U-Factor 0.38			SHGC (N) 0.28				VT (N) 0.47		CR 54		
2	Cardinal SS-D: E272/AIR/CLR (6MM/6MM) 1" IG											
	0.224	0.500	0.224					AIR	0.042(#2)	CL	SS-D	N
	U-Factor 0.41			SHGC (N) 0.28				VT (N) 0.47		CR 51		
3	Cardinal SS-D: E272/ARG95/CLR (5MM/5MM) 1" IG											
	0.187	0.625	0.185					ARG95	0.042(#2)	CL	SS-D	N
	U-Factor 0.39			SHGC (N) 0.28				VT (N) 0.48		CR 55		
4	Cardinal SS-D: E366/ARG95/CLR (6MM/6MM) 1" IG											
	0.225	0.500	0.224					ARG95	0.022(#2)	CL	SS-D	N
	U-Factor 0.38			SHGC (N) 0.20				VT (N) 0.42		CR 54		
5	Cardinal SS-D: E366/AIR/CLR (6MM/6MM) 1" IG											
	0.225	0.500	0.224					AIR	0.022(#2)	CL	SS-D	N
	U-Factor 0.41			SHGC (N) 0.20				VT (N) 0.42		CR 51		
6	Cardinal SS-D: E366/ARG95/CLR (5MM/5MM) 1" IG											
	0.187	0.625	0.185					ARG95	0.022(#2)	CL	SS-D	N
	U-Factor 0.39			SHGC (N) 0.19				VT (N) 0.43		CR 56		
7	Cardinal SS-D: E340/ARG95/CLR (6MM/6MM) 1" IG											
	0.224	0.500	0.224					ARG95	0.028(#2)	CL	SS-D	N
	U-Factor 0.38			SHGC (N) 0.13				VT (N) 0.25		CR 54		
8	Cardinal SS-D: E272/ARG95/CLR-LAMI (6MM/2-7MM 030PVB 2-7MM) 1" IG											
	0.224	0.507	0.243					ARG95	0.042(#2)	CL	SS-D	N
	U-Factor 0.38			SHGC (N) 0.28				VT (N) 0.47		CR 55		
9	Cardinal SS-D: E366/ARG95/CLR-LAMI (6MM/2-7MM 030PVB 2-7MM) 1" IG											
	0.225	0.507	0.243					ARG95	0.022(#2)	CL	SS-D	N
	U-Factor 0.38			SHGC (N) 0.19				VT (N) 0.42		CR 55		
10	Viracon SS-D: SunGuardSN68/AIR/CLR (6MM/6MM) 1" IG											
	0.221	0.500	0.221					AIR	0.039(#2)	CL	SS-D	N
	U-Factor 0.43			SHGC (N) 0.27				VT (N) 0.46		CR 48		

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SECTION 6 (Continued)

SIMULATION RESULTS

TOTAL PRODUCT CALCULATIONS (GT6800 OS Casement)												
Option Number	Pane Thickness 1 (in)	Gap Width 1 (in)	Pane Thickness 2 (in)	Gap Width 2 (in)	Pane Thickness 3 (in)	Gap Width 3 (in)	Pane Thickness 4 (in)	Gap Fill	Low-e (Surface #)	Tint	Spacer	Grid Type
	U-Factor (Btu/Hr-Ft2-F)			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)				Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance (CR)		
11	Viracon SS-D: SunGuardSN68/ARG95/CLR (6MM/6MM) 1" IG											
	0.221	0.500	0.221					ARG95	0.039(#2)	CL	SS-D	N
	U-Factor 0.40			SHGC (N) 0.26				VT (N) 0.46		CR 51		
12	Viracon SS-D: SunGuardSNX6227/ARG95/CLR (6MM/6MM) 1" IG											
	0.221	0.500	0.221					ARG95	0.020(#2)	CL	SS-D	N
	U-Factor 0.39			SHGC (N) 0.19				VT (N) 0.42		CR 52		
13	Viracon SS-D: SunGuardSNX6227/ARG95/CLR-LAMI (6MM/2-7MM 030PVB 2-7MM) 1" IG											
	0.221	0.507	0.243					ARG95	0.020(#2)	CL	SS-D	N
	U-Factor 0.39			SHGC (N) 0.19				VT (N) 0.41		CR 53		
14	Viracon SS-D: SB60/ARG95/CLR (6MM/6MM) 1" IG											
	0.223	0.500	0.223					ARG95	0.035(#2)	CL	SS-D	N
	U-Factor 0.40			SHGC (N) 0.27				VT (N) 0.47		CR 51		
15	Viracon SS-D: SB70/ARG95/CLR (6MM/6MM) 1" IG											
	0.223	0.500	0.223					ARG95	0.018(#2)	CL	SS-D	N
	U-Factor 0.39			SHGC (N) 0.19				VT (N) 0.43		CR 52		
16	Cardinal SS-D: E272/ARG95/i89 (6MM/6MM) 1" IG											
	0.224	0.500	0.223					ARG95	0.042(#2) / 0.149(#4)	CL	SS-D	N
	U-Factor 0.35			SHGC (N) 0.27				VT (N) 0.46		CR 43		
17	Cardinal SS-D: E272/ARG95/i89 (5MM/5MM) 1" IG											
	0.187	0.625	0.187					ARG95	0.042(#2) / 0.149(#4)	CL	SS-D	N
	U-Factor 0.36			SHGC (N) 0.28				VT (N) 0.47		CR 44		
18	Cardinal SS-D: E366/ARG95/i89 (6MM/6MM) 1" IG											
	0.225	0.500	0.223					ARG95	0.022(#2) / 0.149(#4)	CL	SS-D	N
	U-Factor 0.35			SHGC (N) 0.19				VT (N) 0.41		CR 44		
19	Cardinal SS-D: E366/AIR/i89 (6MM/6MM) 1" IG											
	0.225	0.500	0.223					AIR	0.022(#2) / 0.149(#4)	CL	SS-D	N
	U-Factor 0.37			SHGC (N) 0.19				VT (N) 0.41		CR 41		
20	Viracon SS-D: SunGuardSNX6227/ARG95/IS20 (6MM/6MM) 1" IG											
	0.221	0.500	0.221					ARG95	0.020(#2) / 0.198(#4)	CL	SS-D	N
	U-Factor 0.36			SHGC (N) 0.18				VT (N) 0.40		CR 42		

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SECTION 6 (Continued)

SIMULATION RESULTS

TOTAL PRODUCT CALCULATIONS (GT6800 OS Casement)												
Option Number	Pane Thickness 1 (in)	Gap Width 1 (in)	Pane Thickness 2 (in)	Gap Width 2 (in)	Pane Thickness 3 (in)	Gap Width 3 (in)	Pane Thickness 4 (in)	Gap Fill	Low-e (Surface #)	Tint	Spacer	Grid Type
	U-Factor (Btu/Hr-Ft2-F)			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)				Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance (CR)		
21	Cardinal SS-D: E272/ARG95/CLR/ARG95/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.187	0.438	0.224	0.438	0.185			ARG95	0.042(#2)	CL	SS-D	N
	U-Factor 0.33			SHGC (N) 0.26				VT (N) 0.43		CR 59		
22	Cardinal SS-D: E272/AIR/CLR/AIR/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.187	0.438	0.224	0.438	0.185			AIR	0.042(#2)	CL	SS-D	N
	U-Factor 0.36			SHGC (N) 0.26				VT (N) 0.43		CR 58		
23	Cardinal SS-D: E366/ARG95/CLR/ARG95/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.187	0.438	0.224	0.438	0.185			ARG95	0.022(#2)	CL	SS-D	N
	U-Factor 0.33			SHGC (N) 0.18				VT (N) 0.39		CR 59		
24	Cardinal SS-D: E366/AIR/CLR/AIR/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.187	0.438	0.224	0.438	0.185			AIR	0.022(#2)	CL	SS-D	N
	U-Factor 0.35			SHGC (N) 0.18				VT (N) 0.39		CR 58		
25	Viracon SS-D: SunGuardSN68/ARG95/CLR/ARG95/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.182	0.438	0.221	0.438	0.182			ARG95	0.039(#2)	CL	SS-D	N
	U-Factor 0.34			SHGC (N) 0.24				VT (N) 0.42		CR 57		
26	Viracon SS-D: SunGuardSN68/AIR/CLR/AIR/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.182	0.438	0.221	0.438	0.182			AIR	0.039(#2)	CL	SS-D	N
	U-Factor 0.37			SHGC (N) 0.25				VT (N) 0.42		CR 57		
27	Viracon SS-D: SunGuardSNX6227/ARG95/CLR/ARG95/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.182	0.438	0.221	0.438	0.182			ARG95	0.020(#2)	CL	SS-D	N
	U-Factor 0.34			SHGC (N) 0.17				VT (N) 0.38		CR 57		
28	Viracon SS-D: SunGuardSNX6227/AIR/CLR/AIR/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.182	0.438	0.221	0.438	0.182			AIR	0.020(#2)	CL	SS-D	N
	U-Factor 0.36			SHGC (N) 0.18				VT (N) 0.38		CR 57		
29	Viracon SS-D: SB60/ARG95/CLR/ARG95/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.184	0.438	0.223	0.438	0.184			ARG95	0.035(#2)	CL	SS-D	N
	U-Factor 0.34			SHGC (N) 0.25				VT (N) 0.43		CR 57		
30	Viracon SS-D: SB60/AIR/CLR/AIR/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.184	0.438	0.223	0.438	0.184			AIR	0.035(#2)	CL	SS-D	N
	U-Factor 0.37			SHGC (N) 0.25				VT (N) 0.43		CR 57		

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TOTAL PRODUCT CALCULATIONS (GT6800 OS Casement)												
Option Number	Pane Thickness 1 (in)	Gap Width 1 (in)	Pane Thickness 2 (in)	Gap Width 2 (in)	Pane Thickness 3 (in)	Gap Width 3 (in)	Pane Thickness 4 (in)	Gap Fill	Low-e (Surface #)	Tint	Spacer	Grid Type
	U-Factor (Btu/Hr-Ft ² -F)		Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)				Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance (CR)			
31	Viracon SS-D: SB70/ARG95/CLR/ARG95/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.184	0.438	0.223	0.438	0.184			ARG95	0.018(#2)	CL	SS-D	N
	U-Factor 0.34		SHGC (N) 0.18				VT (N) 0.38		CR 57			
32	Viracon SS-D: SB70/AIR/CLR/AIR/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.184	0.438	0.223	0.438	0.184			AIR	0.018(#2)	CL	SS-D	N
	U-Factor 0.36		SHGC (N) 0.18				VT (N) 0.38		CR 57			
33	Cardinal SS-D: E180/ARG95/CLR/ARG95/i89 (5MM/6MM/5MM) 1-1/2" IG											
	0.187	0.438	0.224	0.438	0.187			ARG95	0.068(#2) / 0.149(#6)	CL	SS-D	N
	U-Factor 0.31		SHGC (N) 0.38				VT (N) 0.46		CR 49			
34	Cardinal SS-D: E180/AIR/E180/AIR/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.187	0.438	0.223	0.438	0.185			AIR	0.068(#2) / 0.068(#4)	CL	SS-D	N
	U-Factor 0.32		SHGC (N) 0.36				VT (N) 0.46		CR 58			
35	Cardinal SS-D: E180/ARG95/E180/ARG95/CLR (5MM/6MM/5MM) 1-1/2" IG											
	0.187	0.438	0.223	0.438	0.185			ARG95	0.068(#2) / 0.068(#4)	CL	SS-D	N
	U-Factor 0.30		SHGC (N) 0.36				VT (N) 0.46		CR 59			
36	Cardinal SS-D: E366/AIR/CLR/AIR/i89 (5MM/6MM/5MM) 1-1/2" IG											
	0.187	0.438	0.224	0.438	0.187			AIR	0.022(#2) / 0.149(#6)	CL	SS-D	N
	U-Factor 0.33		SHGC (N) 0.18				VT (N) 0.38		CR 48			
37	Cardinal SS-D: E366/ARG95/CLR/ARG95/i89 (5MM/6MM/5MM) 1-1/2" IG											
	0.187	0.438	0.224	0.438	0.187			ARG95	0.022(#2) / 0.149(#6)	CL	SS-D	N
	U-Factor 0.31		SHGC (N) 0.18				VT (N) 0.38		CR 50			
38	Viracon SS-D: SunGuardSNX6227/AIR/CLR/AIR/IS20 (5MM/6MM/5MM) 1-1/2" IG											
	0.182	0.438	0.221	0.438	0.182			AIR	0.020(#2) / 0.198(#6)	CL	SS-D	N
	U-Factor 0.34		SHGC (N) 0.17				VT (N) 0.37		CR 46			
39	Cardinal SS-D: E180/ARG95/E180/ARG95/i89 (5MM/6MM/5MM) 1-1/2" IG											
	0.187	0.438	0.223	0.438	0.187			ARG95	0.068(#2) / 0.068(#4) / 0.149(#6)	CL	SS-D	N
	U-Factor 0.28		SHGC (N) 0.35				VT (N) 0.44		CR 55			
40	Cardinal SS-D: E180/AIR/E180/AIR/i89 (5MM/6MM/5MM) 1-1/2" IG											
	0.187	0.438	0.223	0.438	0.187			AIR	0.068(#2) / 0.068(#4) / 0.149(#6)	CL	SS-D	N
	U-Factor 0.30		SHGC (N) 0.35				VT (N) 0.44		CR 52			