



NFRC U-FACTOR, SHGC, VT, & CONDENSATION RESISTANCE COMPUTER SIMULATION REPORT

(Revised)

Rendered to: SPECIALTY WHOLESALE SUPPLY

SERIES/MODEL: 4100 / 4600 DuraGard XT Horizontal Slider

Report Number: E7528.08-116-45
Original Report Date: 12/02/15
Revised Report Date: 01/18/17





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Rendered to: SPECIALTY WHOLESALE SUPPLY

101 Linus Allain Avenue Gardner, Massachussetts 01440

> Report Number: E7528.08-116-45 Simulation Date: 12/02/15 Original Report Date: 12/02/15 Revised Report Date: 01/18/17

Project Summary:

Architectural Testing, Inc., an Intertek Company (Intertek-ATI) was contracted to perform U-Factor, Solar Heat Gain Coefficient, Visible Transmittance, and Condensation Resistance* computer simulations in accordance with the National Fenestration Rating Council (NFRC). The products were evaluated in full compliance with NFRC requirements to the standards listed *NFRC's Condensation Resistance rating is NOT equivalent to a Condensation Resistance Factor (CRF) determined in accordance with AAMA 1503.

Standards:

ANSI/NFRC 100-2014: Procedure for Determining Fenestration Product U-Factors

ANSI/NFRC 200-2014: Procedure for Determining Fenestration Product Solar Heat

Gain Coefficient and Visible Transmittance at Normal Incidence

NFRC 500-2014: Procedure for Determining Fenestration Product Condensation

Resistance Values

Software:

Frame and Edge Modeling: THERM 7.4.4
Center-of-Glass Modeling: WINDOW 7.4.14
Total Product Calculations: WINDOW 7.4.14

Spectral Data Library: IGDB 52.0

Simulations Specimen Description:

Series/Model: 4100 / 4600 DuraGard XT Horizontal Slider

Type: Horizontal Slider, Operable/Operable

Frame Material: VY Vinyl

Sash Material: VI Vinyl w/ Reinforcement - Interlock

Standard Size: 1500mm x 1200mm





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Modeling Assumptions/Technical Interpretations:

- 1) To prevent air infiltration, tape was applied to all interior sash crack locations.
- 2) Grids did not require modeling in some options per the NFRC 3mm rule.

Specialty Products Table:

The specialty products method allow the manufacturer to determine the overall product SHGC and VT for any glazing option. The center of glass SHGC and/or VT must be determined using WINDOW 7.4.14. The method gives overall product SHGC and VT indexed on center of glass properties. All values used in the calculations are truncated to six decimal place precision.

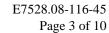
	No Dividers	Dividers < 1	Dividers > 1
SHGC0	0.003104	0.005872	0.008479
SHGC1	0.765041	0.684341	0.608320
VT0	0.000000	0.000000	0.000000
VT1	0.761937	0.678470	0.599841

SHGC = SHGC0 + SHGCc (SHGC1 - SHGC0) VT = VT0 + VTc (VT1 - VT0)

Validation Matrix:

The following products are part of a validation matrix. Only one is required for validation testing.

Product Line	Report Number
None	-







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Spacer Option Description

	Sealant		
Spacer Type	Primary	Secondary	Code
Quanex Standard Super Spacer	Butyl Rubber	None	OF-S

Grid Option Description

	1	
Grid Size	Grid Type	Grid Pattern
5.5mm x 18mm	Aluminum Contour Grid (Painted)	NFRC Standard
0.220" x 0.875"	SDL Bar	NFRC Standard
0.111" x 0.875"	SDL Bar	NFRC Standard

Reinforcement Option Description

Location	Material
Interlocks	Composite

Gas Filling Technique Description

Fill Type	Method
92% Argon	Two-probe with concentration sensor

Edge-of-Glass Construction

Interior Condition	Vinyl glazing leg with Silicone
Exterior Condition	Vinyl glazing bead

Weatherstripping

Туре	Quantity	Location
Finpile	1	Sash Perimeter

Frame/Sash Materials Finish

Interior	Vinyl
Exterior	Vinyl





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Œ	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill	Visible Tr	Low-e (Surface#)	Tint	Spacer	Grid Type
	U	J-Facto	r	Bolar		ids (None		` ′		(None / <1 / >=1)	-,		stance
1	No Foa	am: Cle	ar/Air/	Clear (SS) 7/8	"							
	0.090	0.688	0.090					AIR			CL	OF-S	N,G,S
	U-Facto	r	0.45	SHGC ((N / <1)		0.0	61 / 0.55	VT (N / <1)	0.63 / 0.56		CR	45
	No Foa	am: Cle	ear/Air/	Clear (1	DS) 7/8	3"							
	0.117	0.625	0.117					AIR			CL	OF-S	N,G,S
	U-Facto	r	0.45	SHGC ((N / <1)		0.0	60 / 0.54	VT (N / <1)	0.63 / 0.56		CR	45
2	No Foa	am: 713	38/Air/	Clear (S	SS) 7/8'	"							
	0.090	0.688	0.090					AIR	0.0	27(#2)	CL	OF-S	N,G,S
	U-Facto	r	0.32	SHGC ((N / <1)		0.3	30 / 0.27	VT (N / <1)	0.54 / 0.48		CR	57
	No Foa	am: 713	38/Air/	Clear (I	OS) 7/8	"							
I												~ ~ ~	1 ~ ~ ~ 1
	0.117	0.625	0.117					AIR	0.0)27(#2)	CL	OF-S	N,G,S
	U-Facto	r	0.32	SHGC (0.3	AIR 30 / 0.27	0.0 VT (N / <1)	0.54 / 0.48	CL	OF-S CR	N,G,S 57
3	U-Facto	r	0.32	SHGC (on/Clea		7/8"	0.3			· · ·	CL		
3	U-Facto No Foa	r	0.32 38/Argo			7/8"	0.3		VT (N / <1)	· · ·	CL		57
3	U-Facto No Foa 0.090 U-Facto	r am: 713 0.688 r	0.32 38/Arge 0.090 0.28	on/Clea	r (SS) 7			30 / 0.27	VT (N / <1)	0.54 / 0.48		CR	57
3	U-Facto No Foa 0.090 U-Facto	r am: 713 0.688 r	0.32 38/Arge 0.090 0.28	on/Clea	r (SS) 7			30 / 0.27 ARG92	VT (N / <1) 0.0	0.54 / 0.48		OF-S	57 N,G,S 61
3	U-Facto No Foa 0.090 U-Facto No Foa	r am: 713 0.688 r	0.32 38/Arge 0.090 0.28 38/Arge	on/Clea	r (SS) 7			30 / 0.27 ARG92	0.0 VT (N / <1)	0.54 / 0.48		OF-S	57 N,G,S
	U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto	r 0.688 r am: 713 0.625	0.32 38/Argo 0.090 0.28 38/Argo 0.117 0.28	SHGC (SHGC (r (SS) 7 (N/<1) r (DS) 7	7/8"	0.3	ARG92 30 / 0.27	0.0 VT (N / <1)	0.54 / 0.48 027(#2) 0.54 / 0.48	CL	OF-S	57 N,G,S 61
3	U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto No Foa	r 0.688 r am: 713 0.625 r	0.32 38/Argo 0.090 0.28 38/Argo 0.117 0.28 ear/Air/	SHGC (r (SS) 7 (N/<1) r (DS) 7	7/8"	0.3	ARG92 ARG92 ARG92 30 / 0.27	VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 027(#2) 0.54 / 0.48 027(#2) 0.54 / 0.48	CL	OF-S CR OF-S CR	57 N,G,S 61 N,G,S 61
	U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto No Foa	r 0.688 r am: 713 0.625	0.32 38/Argo 0.090 0.28 38/Argo 0.117 0.28 ear/Air/	SHGC (SHGC (r (SS) 7 (N/<1) r (DS) 7	7/8"	0.3	ARG92 ARG92 ARG92	VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 027(#2) 0.54 / 0.48	CL	OF-S CR OF-S CR	57 N,G,S 61 N,G,S 61 N,G,S
	U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto No Foa 0.090 U-Facto	r 0.688 r am: 713 0.625 r am: Cle 0.688	0.32 38/Argo 0.090 0.28 38/Argo 0.117 0.28 ear/Air/ 0.090	shgc (on/Clea shgc (on/Clea shgc (Shgc (Shgc (shgc (r (SS) 7 (N/<1) r (DS) 7 (N/<1) (SS) 7/8	7/8"	0.3	ARG92 ARG92 ARG92 30 / 0.27	VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 027(#2) 0.54 / 0.48 027(#2) 0.54 / 0.48	CL	OF-S CR OF-S CR	57 N,G,S 61 N,G,S 61
	U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto No Foa 0.090 U-Facto No Foa	r 0.688 r 0.625 r 0.625 r 0.688 r	0.32 38/Arge 0.090 0.28 38/Arge 0.117 0.28 ear/Air/ 0.090	shgc (on/Clea shgc (on/Clea shgc (Shgc (Shgc (shgc (r (SS) 7 (N/<1) r (DS) 7 (N/<1) (SS) 7/8	7/8"	0.3	ARG92 30 / 0.27 ARG92 30 / 0.27 ARG92 30 / 0.27 AIR 45 / 0.40	0.0 VT (N / <1)	0.54 / 0.48 0.54 / 0.48 0.54 / 0.48 0.54 / 0.48 0.55 / 0.49	CL	OF-S OF-S CR OF-S CR	57 N,G,S 61 N,G,S 61 N,G,S 57
	U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto No Foa 0.090 U-Facto No Foa 0.117	r am: 713 0.688 r am: 713 0.625 r am: Cle 0.688 r am: Cle 0.625	0.32 38/Arge 0.090 0.28 38/Arge 0.117 0.28 ear/Air/ 0.090 0.32 ear/Air/ 0.117	shGC (7257 (S	r (SS) 7 (N/<1) r (DS) 7 (N/<1) (N/<1) (N/<1) (N/<1) (N/<1)	7/8"	0.3	ARG92 ARG92 ARG92 ARG92 ARG92 AIR AIR AIR	0.0 VT (N / <1)	0.54 / 0.48 0.27(#2) 0.54 / 0.48 0.27(#2) 0.54 / 0.48 0.45(#3) 0.55 / 0.49	CL	OF-S OF-S CR OF-S OF-S OF-S	N,G,S 61 N,G,S 61 N,G,S 57
4	U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto No Foa 0.090 U-Facto V-Facto V-Facto V-Facto V-Facto V-Facto V-Facto V-Facto	r ann: 713 0.688 r 0.625 r ann: Cle 0.688 r 0.625	0.32 38/Arge 0.090 0.28 38/Arge 0.117 0.28 ear/Air/ 0.090 0.32 ear/Air/ 0.117	shgc (7257 (S Shgc (7257 (S Shgc (7257 (I	(N / <1) (N / <1) (N / <1) (N / <1) (N / <1) (N / <1) (N / <1)	7/8"	0.3	ARG92 30 / 0.27 ARG92 30 / 0.27 ARG92 30 / 0.27 AIR 45 / 0.40	0.0 VT (N / <1)	0.54 / 0.48 0.54 / 0.48 0.54 / 0.48 0.54 / 0.48 0.55 / 0.49	CL	OF-S OF-S CR OF-S CR	57 N,G,S 61 N,G,S 61 N,G,S 57
	U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto No Foa	r 0.688 r am: 713 0.625 r am: Cle 0.688 r am: Cle 0.625 r	0.32 38/Arga 0.090 0.28 38/Arga 0.117 0.28 ear/Air/ 0.090 0.32 ear/Air/ 0.117 0.32	shgc (7257 (S shgc (001/7257 (S shgc (001/7257 (S	(N / <1) (N / <1) (N / <1) (N / <1) (N / <1) (N / <1) (N / <1)	7/8"	0.3	ARG92 30 / 0.27 ARG92 30 / 0.27 ARG92 30 / 0.27 AIR 45 / 0.40 AIR 44 / 0.39	0.0 VT (N / <1)	0.54 / 0.48 027(#2) 0.54 / 0.48 027(#2) 0.54 / 0.48 0.55 / 0.49 0.54 / 0.48	CL CL	OF-S CR OF-S CR OF-S CR CR	57 N,G,S 61 N,G,S 61 N,G,S 57
4	U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto 0.090	r 0.688 r 0.625 r 0.688 r 0.625 r 0.688 r 0.625 r mm: Cle 0.625 r	0.32 38/Arge 0.090 0.28 38/Arge 0.117 0.28 ear/Air/ 0.090 0.32 ear/Air/ 0.117 0.32 ear/Arge 0.090	shgc (7257 (S shgc (7257 (S shgc (7257 (I shgc (00)/7257	(N / <1) (N / <1)	7/8"	0.3	ARG92 ARG92 ARG92 ARG92 ARG92 AIR AIR AIR AIR AIR AIR AIR AIR	0.0 VT (N / <1)	0.54 / 0.48 0.54 / 0.48 0.54 / 0.48 0.54 / 0.48 0.55 / 0.49 0.55 / 0.49 0.54 / 0.48 0.54 / 0.48	CL	OF-S CR OF-S CR OF-S CR OF-S CR	57 N,G,S 61 N,G,S 57 N,G,S 57
4	U-Facto No Foa 0.090 U-Facto No Foa 0.117	r 0.688 r 0.625 r am: Cle 0.688 r am: Cle 0.625 r am: Cle 0.625 r	0.32 38/Arga 0.090 0.28 38/Arga 0.117 0.28 ear/Air/ 0.090 0.32 ear/Air/ 0.32 ear/Arga 0.090 0.32	shgc (7257 (S shgc (7257 (I shgc (7257 (S shgc (7257 (S shgc (517257 (S shgc (517257 (S) shgc (517257 (S)	(N/<1)	7/8"	0.3	ARG92 30 / 0.27 ARG92 30 / 0.27 ARG92 30 / 0.27 AIR 45 / 0.40 AIR 44 / 0.39	0.0 VT (N / <1)	0.54 / 0.48 027(#2) 0.54 / 0.48 027(#2) 0.54 / 0.48 0.55 / 0.49 0.54 / 0.48	CL CL	OF-S CR OF-S CR OF-S CR CR	57 N,G,S 61 N,G,S 61 N,G,S 57
4	U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto No Foa 0.090 U-Facto No Foa 0.117 U-Facto No Foa 0.117 U-Facto No Foa 0.117 U-Facto No Foa 0.090 U-Facto No Foa	r am: 713 0.688 r 0.625 r am: Cle 0.688 r 0.625 r am: Cle 0.625 r am: Cle 0.688	0.32 38/Arge 0.090 0.28 38/Arge 0.117 0.28 ear/Air/ 0.090 0.32 ear/Air/ 0.117 0.32 ear/Arge 0.090 0.29	shgc (7257 (S shgc (7257 (S shgc (7257 (I shgc (00)/7257	(N/<1)	7/8"	0.3	ARG92 30 / 0.27 ARG92 30 / 0.27 ARG92 30 / 0.27 AIR 45 / 0.40 AIR 44 / 0.39 ARG92 45 / 0.40	0.0 VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 0.54 / 0.48 0.54 / 0.48 0.54 / 0.48 0.55 / 0.49 0.55 / 0.49 0.55 / 0.49	CL CL CL	OF-S CR OF-S CR OF-S CR OF-S CR	N,G,S 61 N,G,S 61 N,G,S 57 N,G,S 57
4	U-Facto No Foa 0.090 U-Facto No Foa 0.117	r 0.688 r am: 713 0.625 r am: Cle 0.688 r am: Cle 0.625 r am: Cle 0.688 r am: Cle 0.688	0.32 38/Arge 0.090 0.28 38/Arge 0.117 0.28 ear/Air/ 0.090 0.32 ear/Air/ 0.117 0.32 ear/Arge 0.090 0.29	shgc (7257 (S shgc (7257 (I shgc (7257 (S shgc (7257 (S shgc (517257 (S shgc (517257 (S) shgc (517257 (S)	(N/<1)	7/8"	0.3	ARG92 ARG92 ARG92 ARG92 ARG92 AIR AIR AIR AIR AIR AIR AIR AIR	0.0 VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 0.54 / 0.48 0.54 / 0.48 0.54 / 0.48 0.55 / 0.49 0.55 / 0.49 0.54 / 0.48 0.54 / 0.48	CL CL	OF-S CR OF-S CR OF-S CR OF-S CR	N,G,S 61 N,G,S 61 N,G,S 57 N,G,S





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OI OI	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill		Low-e (Surface#)	Tint	Spacer	Grid Type
	τ	J -Facto	or	Solar		Gain Co		nt (SHGC)		ansmittance (V (None / <1 / >=1)	T)		nsation stance
6	No Fo	am: 713	38/Argo	on/Clea	r/Argoi	n/Clear	(DS-SS	S-DS) 1"					
	0.117	0.250	0.090	0.438	0.117			ARG92	0.02	27(#2)	CL	OF-S	N
	U-Facto	r	0.27	SHGC ((N)			0.28	VT (N)	0.49		CR	62
7	No Fo	am: 713	38/Argo	on/Clea	r/Argoi	n/Clear	(DS-SS	S-DS) 1"					
	0.117	0.250	0.090	0.438	0.117			ARG92	0.02	27(#2)	CL	OF-S	G,S
	U-Facto	r	0.28	SHGC ((<1)			0.25	VT (<1)	0.44		CR	62
8	No Fo	am: Cle	ear/Arg	on/Clea	ır/Argo	n/7257	(DS-SS	S-DS) 1"					
	0.117	0.250	0.090	0.438	0.117			ARG92	0.04	45(#5)	CL	OF-S	N
	U-Facto	r	0.24	SHGC ((N)			0.41	VT (N)	0.50		CR	64
9	No Fo	am: Cle	ear/Arg	on/Clea	ar/Argo	n/7257	(DS-SS	S-DS) 1"					
	0 117	0.250	0.000	0.438	0.117			ADC02	0.0	A E (44 E)	CI	OF-S	G,S
1	0.117	0.230	0.050	0.430	0.117			ARG92	0.04	45(#5)	CL	01-3	0,5
	U-Facto		0.090	SHGC (0.37	VT (<1)	0.44	CL	CR	64
10	U-Facto Foam(or Sash O	0.24 nly): C	SHGC ((<1)	(SS) 7/3	8"			` '	CL		
10	U-Facto Foam(r	0.24 nly): C	SHGC ((<1)	(SS) 7/3	8"			` '	CL	CR	
10	U-Facto Foam(0.090 U-Facto	Sash O 0.688	0.24 nly): C 0.090 0.45	SHGC (lear/Air	(<1) r/Clear (N/<1)		0.0	0.37		` '		CR	64
10	U-Facto Foam(0.090 U-Facto	Sash O 0.688	0.24 nly): C 0.090 0.45	SHGC (lear/Air	(<1) r/Clear (N/<1)		0.0	0.37 AIR	VT (<1)	0.44		CR OF-S	64 N,G,S
10	U-Factor Foam(0.090 U-Factor Foam(Sash O 0.688	0.24 nly): C 0.090 0.45 nly): C	SHGC (lear/Air	(<1) r/Clear (N/<1)		0.0	0.37 AIR	VT (<1)	0.44		CR OF-S CR	64 N,G,S
	U-Factor Foam(0.090 U-Factor Foam(0.117 U-Factor	Sash O 0.688 or Sash O 0.625	0.24 nly): C 0.090 0.45 nly): C 0.117	SHGC (lear/Air	(<1) r/Clear (N / <1) r/Clear	(DS) 7/	0.d /8"	0.37 AIR 61 / 0.55	VT (<1)	0.44	CL	CR OF-S CR	64 N,G,S 45
10	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(Sash O 0.688 Or Sash O 0.625 Or Sash O	0.24 nly): C 0.090 0.45 nly): C 0.117 0.45 nly): 7	SHGC (lear/Ain SHGC (lear/Ain SHGC (138/Air	(<1) r/Clear (N / <1) r/Clear	(DS) 7/	0.d /8"	0.37 AIR 61 / 0.55 AIR	VT (<1) VT (N / <1)	0.44	CL	OF-S CR OF-S CR	N,G,S 45 N,G,S 45
	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(Sash O 0.688 or Sash O 0.625	0.24 nly): C 0.090 0.45 nly): C 0.117 0.45 nly): 7	SHGC (lear/Ain SHGC (lear/Ain SHGC (138/Air	(<1) r/Clear (N / <1) r/Clear	(DS) 7/	0.0	0.37 AIR 61 / 0.55 AIR	VT (<1) VT (N / <1) VT (N / <1)	0.44	CL	OF-S OF-S OF-S	N,G,S 45 N,G,S
	U-Factor Foam(0.090 U-Factor Foam(0.117 U-Factor Foam(0.090 U-Factor	Sash O 0.688 or Sash O 0.625 or Sash O 0.688	0.24 nly): C 0.090 0.45 nly): C 0.117 0.45 nly): 7 0.090 0.31	SHGC (lear/Ain SHGC (lear/Ain SHGC (lary)	(<1) r/Clear (N / <1) r/Clear (N / <1) r/Clear (N / <1)	(DS) 7/	0.0	0.37 AIR 61/0.55 AIR 60/0.54	VT (<1) VT (N / <1) VT (N / <1)	0.63 / 0.56	CL	OF-S CR OF-S CR	N,G,S 45 N,G,S 45
	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.090 U-Facto Foam(Sash O 0.688 Or Sash O 0.625 Or Sash O 0.688 Or Sash O	0.24 nly): C 0.090 0.45 nly): C 0.117 0.45 nly): 7 0.090 0.31 nly): 7	SHGC (lear/Ain SHGC (lear/Ain SHGC (138/Air	(<1) r/Clear (N / <1) r/Clear (N / <1) r/Clear (N / <1)	(DS) 7/	0.0	AIR 61 / 0.55 AIR 60 / 0.54 AIR 30 / 0.27	VT (<1) VT (N / <1) VT (N / <1) O.02 VT (N / <1)	0.44 0.63 / 0.56 0.63 / 0.56 27(#2) 0.54 / 0.48	CL	OF-S OF-S CR OF-S CR	N,G,S 45 N,G,S 45 N,G,S 57
	U-Factor Foam(0.090 U-Factor Foam(0.117 U-Factor Foam(0.090 U-Factor Foam(0.0117	Sash O 0.688 Or Sash O 0.625 Or Sash O 0.688 Or O.688 Or Sash O	0.24 nly): C 0.090 0.45 nly): C 0.117 0.45 nly): 7 0.090 0.31 nly): 7	SHGC (lear/Ain SHGC (lear/Ain SHGC (lar/Ain SHGC (lar/Ain SHGC (lar/Ain	(<1) t/Clear (N/<1) t/Clear (N/<1) t/Clear ((N/<1) t/Clear ((N/<1) t/Clear ((DS) 7/	0.0	0.37 AIR 61/0.55 AIR 60/0.54 AIR	VT (<1) VT (N / <1) VT (N / <1) 0.02 VT (N / <1)	0.63 / 0.56 0.63 / 0.56 27(#2)	CL	OF-S OF-S CR OF-S CR	N,G,S 45 N,G,S 45 N,G,S
11	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Toam(0.117	Sash O 0.688 Or Sash O 0.625 Or Sash O 0.688 Or O.688 Or Sash O 0.625	0.24 nly): C 0.090 0.45 nly): C 0.117 0.45 nly): 7 0.090 0.31 nly): 7 0.117 0.31	SHGC (lear/Ain SHGC (lear/Ain SHGC (lar/Ain SHGC (lar/Ain SHGC (lar/Ain SHGC (lar/Ain SHGC (lar/Ain	(<1) t/Clear (N/<1) t/Clear (N/<1) t/Clear ((N/<1) t/Clear ((N/<1)	(DS) 7/8 (SS) 7/8 (DS) 7/8	0.4	AIR 61 / 0.55 AIR 60 / 0.54 AIR 30 / 0.27	VT (<1) VT (N / <1) VT (N / <1) O.02 VT (N / <1)	0.44 0.63 / 0.56 0.63 / 0.56 27(#2) 0.54 / 0.48	CL	OF-S OF-S CR OF-S CR	N,G,S 45 N,G,S 45 N,G,S 57
	U-Factor Foam(0.090 U-Factor Foam(0.117 U-Factor Foam(0.090 U-Factor Foam(0.117 U-Factor Foam(0.117	Sash O 0.688 Or Sash O 0.625 Or Sash O 0.688 Or Sash O 0.688 Or Sash O	0.24 nly): C 0.090 0.45 nly): C 0.117 0.45 nly): 7 0.090 0.31 nly): 7 0.117 0.31 nly): 7	SHGC (lear/Ain SHGC (lear/Ain SHGC (lask) SHGC (lask) SHGC (lask) SHGC (lask)	(<1) t/Clear (N/<1) t/Clear (N/<1) t/Clear ((N/<1) t/Clear ((N/<1)	(DS) 7/8 (SS) 7/8 (DS) 7/8	0.4	AIR 61 / 0.55 AIR 60 / 0.54 AIR 30 / 0.27 AIR	VT (<1) VT (N / <1) VT (N / <1) 0.02 VT (N / <1) 0.02 VT (N / <1)	0.63 / 0.56 0.63 / 0.56 27(#2) 0.54 / 0.48 27(#2)	CL CL	OF-S CR OF-S CR OF-S CR CR	N,G,S 45 N,G,S 45 N,G,S 57 N,G,S
11	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.090	Sash O 0.688 Or Sash O 0.625 Or Sash O 0.688 Or Sash O 0.688 Or Sash O 0.625 Or Sash O	0.24 nly): C 0.090 0.45 nly): C 0.117 0.45 nly): 7 0.090 0.31 nly): 7 0.31 nly): 7	SHGC (lear/Ain SHGC (lear/Ain SHGC (lase/Ain SHGC (lase/Ain SHGC (lase/Ain SHGC (lase/Ain)	(<1) t/Clear (N/<1) t/Clear (N/<1) (/Clear (N/<1)	(DS) 7/8 (SS) 7/8 (DS) 7/8	0.6 8" 0.6 8"	AIR 61 / 0.55 AIR 60 / 0.54 AIR 30 / 0.27 AIR ARG92	VT (<1) VT (N / <1) VT (N / <1) O.02 VT (N / <1) O.02 VT (N / <1) O.02	0.44 0.63 / 0.56 0.63 / 0.56 27(#2) 0.54 / 0.48 27(#2) 27(#2)	CL	OF-S OF-S CR OF-S CR OF-S OF-S	N,G,S 45 N,G,S 45 N,G,S 57 N,G,S 57
11	U-Factor Foam(0.090 U-Factor Foam(0.090 U-Factor Foam(0.090 U-Factor Foam(0.117 U-Factor Foam(0.090 U-Factor Foam(0.090 U-Factor	Sash O 0.688 Or Sash O 0.625 Or Sash O 0.688 Or Sash O 0.688 Or O.688	0.24 nly): C 0.090 0.45 nly): C 0.117 0.45 nly): 7 0.090 0.31 nly): 7 0.117 0.31 nly): 7 0.090 0.28	SHGC (lear/Ain SHGC (lear/Ain SHGC (lask) SHGC (lask) SHGC (lask) SHGC (lask)	(<1) c/Clear (N / <1) c/Clear (N / <1) c/Clear ((N / <1)	(DS) 7/8 (DS) 7/8 ar (SS)	0.6 /8" 0.6 8" 0.7/8"	AIR 61 / 0.55 AIR 60 / 0.54 AIR 30 / 0.27 AIR	VT (<1) VT (N / <1) VT (N / <1) 0.02 VT (N / <1) 0.02 VT (N / <1)	0.63 / 0.56 0.63 / 0.56 27(#2) 0.54 / 0.48 27(#2)	CL CL	OF-S CR OF-S CR OF-S CR CR	N,G,S 45 N,G,S 45 N,G,S 57 N,G,S
11	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.117 U-Facto Foam(0.117 U-Facto Foam(0.090 U-Facto Foam(0.090)	Sash O 0.688 Or Sash O 0.625 Or Sash O 0.688 Or Sash O 0.625 Or Sash O 0.688 Or Sash O 0.688	0.24 nly): C 0.090 0.45 nly): C 0.117 0.45 nly): 7 0.090 0.31 nly): 7 0.31 nly): 7 0.090 0.28 nly): 7	SHGC (lear/Ain SHGC (lear/Ain SHGC (lasr/Ain SHGC (lasr/Ain SHGC (lasr/Ain SHGC (lasr/Ain SHGC (lasr/Ain SHGC (lasr/Ain)	(<1) c/Clear (N / <1) c/Clear (N / <1) c/Clear ((N / <1)	(DS) 7/8 (DS) 7/8 ar (SS)	0.6 /8" 0.6 8" 0.7/8"	AIR 61 / 0.55 AIR 60 / 0.54 AIR 30 / 0.27 AIR 30 / 0.27 ARG92	VT (<1) VT (N / <1) VT (N / <1) O.02 VT (N / <1) O.02 VT (N / <1) O.02 VT (N / <1)	0.63 / 0.56 0.63 / 0.56 27(#2) 0.54 / 0.48 27(#2) 0.54 / 0.48	CL CL CL	OF-S CR OF-S CR OF-S CR OF-S CR	N,G,S 45 N,G,S 45 N,G,S 57 N,G,S 57 N,G,S 61
11	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.117 U-Facto Foam(0.117 U-Facto Foam(0.090 U-Facto Foam(0.090)	Sash O 0.688 Or Sash O 0.625 Or Sash O 0.688 Or Sash O 0.625 Or Sash O 0.625	0.24 nly): C 0.090 0.45 nly): C 0.117 0.45 nly): 7 0.090 0.31 nly): 7 0.31 nly): 7 0.090 0.28 nly): 7	SHGC (lear/Ain SHGC (lear/Ain SHGC (lasr/Ain SHGC (lasr/Ain SHGC (lasr/Ain SHGC (lasr/Ain SHGC (lasr/Ain SHGC (lasr/Ain)	(<1) (/Clear (N / <1) (/Clear ()	(DS) 7/8 (DS) 7/8 ar (SS)	0.6 /8" 0.6 8" 0.7/8"	AIR 61 / 0.55 AIR 60 / 0.54 AIR 30 / 0.27 AIR ARG92	VT (<1) VT (N / <1) VT (N / <1) O.02 VT (N / <1) O.02 VT (N / <1) O.02 VT (N / <1)	0.44 0.63 / 0.56 0.63 / 0.56 27(#2) 0.54 / 0.48 27(#2) 27(#2)	CL CL	OF-S CR OF-S CR OF-S CR OF-S CR	N,G,S 45 N,G,S 45 N,G,S 57 N,G,S 57





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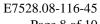
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a a	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill	Visible 1	Low-e (Surface#)	Tint	Spacer	uoit Brid Type
	U	J -Fact o	r	Solar		ds (None		,		ds (None / <1 / >=1)	1)		tance
13	Foam(Sash O	nly): C	lear/Air	:/7257 ((SS) 7/8	3"						
	0.090	0.688	0.090					AIR	0	.045(#3)	CL	OF-S	N,G,S
	U-Facto	r	0.32	SHGC ((N / <1)		0.4	45 / 0.40	VT (N / <1)	0.55 / 0.49		CR	57
	Foam(Sash O	nly): C	lear/Air	:/7257 ((DS) 7/	8"						
	0.117	0.625	0.117					AIR	0.	.045(#3)	CL	OF-S	N,G,S
	U-Facto	r	0.32	SHGC ((N / <1)		0.4	44 / 0.39	VT (N / <1)	0.54 / 0.48		CR	57
14	Foam(Sash O	nly): C	lear/Arg	gon/725	57 (SS)	7/8"						
	0.090	0.688	0.090					ARG92	0	.045(#3)	CL	OF-S	N,G,S
	U-Facto	r	0.28	SHGC ((N / <1)		0.4	45 / 0.40	VT (N / <1)	0.55 / 0.49		CR	61
	Foam(Sash O	nly): C	lear/Arg	gon/725	57 (DS)	7/8"						
	0.117	0.688	0.117					ARG92	0	.045(#3)	CL	OF-S	N,G,S
											<u> </u>		, - ,~
	U-Facto		0.28	SHGC (44 / 0.40	VT (N / <1)	0.54 / 0.48		CR	61
15		Sash O	nly): 71	138/Arg	gon/Cle	ar/Argo			VT (N / <1)			CR	
15		Sash O	nly): 71		gon/Cle	ar/Argo		44 / 0.40	VT (N / <1) S) 1"				
	Foam(i 0.117 U-Facto	Sash O	nly): 71 0.090 0.26	0.438 SHGC (gon/Clea 0.117		on/Clea	44 / 0.40 r (DS-SS-D ARG92 0.28	VT (N / <1) S) 1" 0 VT (N)	0.54 / 0.48		CR	61
15	Foam(i 0.117 U-Facto Foam(i	Sash O 0.250 or Sash O	nly): 71 0.090 0.26 nly): 71	0.438 SHGC (138/Arg	gon/Clean 0.117 (N) gon/Clean		on/Clea	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D	VT (N / <1) S) 1" 0 VT (N) S) 1"	0.54 / 0.48	CL	CR OF-S CR	61 N 62
	Foam(x 0.117 U-Facto Foam(x 0.117	Sash O 0.250 or Sash O 0.250	0.090 0.26 nly): 71 0.090	0.438 SHGC (138/Arg 0.438	0.117 (N) gon/Clea		on/Clea	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92	VT (N / <1) S) 1" 0 VT (N) S) 1" 0	0.54 / 0.48		OF-S OF-S	61 N 62
16	Foam(i 0.117 U-Facto Foam(i 0.117 U-Facto	Sash O 0.250 or Sash O 0.250	0.090 0.26 nly): 71 0.090 0.28	0.438 SHGC (138/Arg 0.438 SHGC (0.117 (N) gon/Clea (<1)	ar/Argo	on/Clea	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92 0.25	VT (N / <1) S) 1" 0 VT (N) S) 1" 0 VT (<1)	0.54 / 0.48	CL	CR OF-S CR	61 N 62
	Foam(0.117 U-Facto Foam(0.117 U-Facto Foam(Sash O 0.250 or Sash O 0.250 or Sash O	0.090 0.26 nly): 71 0.090 0.28 nly): C	0.438 SHGC (138/Arg 0.438 SHGC (138/Arg	gon/Clea 0.117 (N) gon/Clea 0.117 (<1) gon/Cle	ar/Argo	on/Clea	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92 0.25 7 (DS-SS-D	VT (N / <1) S) 1" 0 VT (N) S) 1" 0 VT (<1) S) 1"	0.54 / 0.48 .027(#2) 0.49 .027(#2) 0.44	CL	OF-S CR OF-S CR	61 N 62 G,S 62
16	Foam(i 0.117 U-Facto Foam(i 0.117 U-Facto Foam(i 0.117	Sash O 0.250 or Sash O 0.250 or Sash O 0.250	0.090 0.26 nly): 73 0.090 0.28 nly): C	138/Arg 0.438 SHGC (138/Arg 0.438 SHGC (lear/Arg 0.438	gon/Clea 0.117 N) gon/Clea 0.117 <1) gon/Clea 0.117	ar/Argo	on/Clea	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92 0.25 7 (DS-SS-D ARG92	VT (N / <1) S) 1" 0 VT (N) S) 1" 0 VT (<1) S) 1" 0	0.54 / 0.48 .027(#2) 0.49 .027(#2) 0.44 .045(#5)	CL	OF-S OF-S OF-S	61 N 62 G,S 62
16	Foam(, 0.117 U-Factor Foam(, 0.117 U-Factor 0.117 U-Factor	Sash O 0.250 or Sash O 0.250 or Sash O 0.250	0.090 0.26 nly): 71 0.090 0.28 nly): C 0.090 0.23	138/Arg 0.438 SHGC (138/Arg 0.438 SHGC (0.438 SHGC (gon/Clee 0.117 N) gon/Clee 0.117 (<1) gon/Clee 0.117 (N)	ar/Argo	on/Clea on/Clea on/7257	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92 0.25 7 (DS-SS-D ARG92 0.41	VT (N / <1) S) 1" 0 VT (N) S) 1" 0 VT (<1) S) 1" 0 VT (<1) S) 1" 0 VT (N)	0.54 / 0.48 .027(#2) 0.49 .027(#2) 0.44	CL	OF-S CR OF-S CR	61 N 62 G,S 62
16	Foam(i 0.117 U-Facto Foam(i 0.117 U-Facto Foam(i 0.117 U-Facto Foam(i 0.117	Sash O 0.250 or Sash O 0.250 or Sash O 0.250 or Sash O 0.250	0.090 0.26 nly): 73 0.090 0.28 nly): C 0.090 0.23 nly): C	0.438 SHGC (138/Arg 0.438 SHGC (lear/Arg 0.438 SHGC (lear/Arg	gon/Clea 0.117 N) gon/Clea 0.117 <1) gon/Clea 0.117 N) gon/Clea	ar/Argo	on/Clea on/Clea on/7257	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92 0.25 7 (DS-SS-D ARG92 0.41 7 (DS-SS-D	VT (N / <1) S) 1" 0 VT (N) S) 1" 0 VT (<1) S) 1" 0 VT (<1) S) 1" 0 VT (N) S) 1"	0.54 / 0.48 .027(#2) 0.49 .027(#2) 0.44 .045(#5)	CL	OF-S OF-S CR OF-S CR	61 N 62 G,S 62 N 65
16	Foam(i 0.117 U-Facto Foam(i 0.117 U-Facto Foam(i 0.117 U-Facto Foam(i 0.117	Sash O	nly): 73 0.090 0.26 nly): 73 0.090 0.28 nly): C 0.090 0.23 nly): C	0.438 SHGC (138/Arg 0.438 SHGC (lear/Arg 0.438 SHGC (lear/Arg	gon/Clea 0.117 N) gon/Clea (<1) gon/Clea 0.117 N) gon/Clea 0.117	ar/Argo	on/Clea on/Clea on/7257	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92 0.25 7 (DS-SS-D ARG92 0.41 7 (DS-SS-D ARG92	VT (N / <1) S) 1" 0 VT (N) S) 1" 0 VT (<1) S) 1" 0 VT (N) S) 1" 0 VT (N) S) 1"	0.54 / 0.48 .027(#2) 0.49 .027(#2) 0.44 .045(#5) 0.50	CL	OF-S OF-S CR OF-S OF-S OF-S	61 N 62 G,S 62 N 65 G,S
16 17 18	Foam(a 0.117 U-Facto Foam(a 0.117 U-Facto Foam(a 0.117 U-Facto Foam(a 0.117 U-Facto Toam(a 0.117 U-Facto	Sash O 0.250 or Sash O 0.250 or Sash O 0.250 or Sash O 0.250 or	0.090 0.26 nly): 71 0.090 0.28 nly): C 0.090 0.23 nly): C 0.090 0.23	0.438 SHGC (138/Arg 0.438 SHGC (lear/Arg 0.438 SHGC (lear/Arg 0.438	gon/Clea 0.117 N) gon/Clea 0.117 (<1) gon/Clea 0.117 N) gon/Clea 0.117	ar/Argc ear/Arge	on/Clea on/Clea on/7257	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92 0.25 7 (DS-SS-D ARG92 0.41 7 (DS-SS-D	VT (N / <1) S) 1" 0 VT (N) S) 1" 0 VT (<1) S) 1" 0 VT (<1) S) 1" 0 VT (N) S) 1"	0.54 / 0.48 .027(#2) 0.49 .027(#2) 0.44 .045(#5)	CL	OF-S OF-S CR OF-S CR	61 N 62 G,S 62 N 65
16	Foam(, 0.117 U-Facto Foam(, 0.117 U-Facto Foam(, 0.117 U-Facto Foam(, 0.117 U-Facto Foam(, 0.117	Sash O 0.250 or Sash O 0.250 or Sash O 0.250 or Sash O 0.250 or Frame	nly): 73 0.090 0.26 nly): 73 0.090 0.28 nly): C 0.090 0.23 nly): C 0.090 0.23	0.438 SHGC (138/Arg 0.438 SHGC (lear/Arg 0.438 SHGC (0.438 SHGC (): Clear	gon/Clea 0.117 N) gon/Clea 0.117 (<1) gon/Clea 0.117 N) gon/Clea 0.117	ar/Argc ear/Arge	on/Clea on/Clea on/7257	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92 0.25 7 (DS-SS-D ARG92 0.41 7 (DS-SS-D ARG92	VT (N / <1) S) 1" 0 VT (N) S) 1" 0 VT (<1) S) 1" 0 VT (N) S) 1" 0 VT (N) S) 1"	0.54 / 0.48 .027(#2) 0.49 .027(#2) 0.44 .045(#5) 0.50	CL	OF-S CR OF-S CR OF-S CR CR	61 N 62 G,S 62 N 65 G,S 65
16 17 18	Foam(a 0.117 U-Facto Foam(a 0.117	Sash O 0.250 or Sash O 0.250 or Sash O 0.250 or Sash O 0.250 or Frame o 0.688	0.090 0.26 nly): 71 0.090 0.28 nly): C 0.090 0.23 nly): C 0.090 0.23 & Sash 0.090	0.438 SHGC (138/Arg 0.438 SHGC (lear/Arg 0.438 SHGC (0.438 SHGC (): Clear	gon/Clea 0.117 N) gon/Clea 0.117 (<1) gon/Clea 0.117 N) gon/Clea 0.117 (<1) 1.17 (<1) 1.17 (<1)	ar/Argc ear/Arge	on/Clear on/Clear on/7257 on/7257	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92 0.25 7 (DS-SS-D ARG92 0.41 7 (DS-SS-D ARG92 0.37	VT (N / <1) S) 1" 0 VT (N) S) 1" 0 VT (<1) S) 1" 0 VT (<1) S) 1" 0 VT (N) S) 1" 0 VT (N) S) 1"	0.54 / 0.48 .027(#2) 0.49 .027(#2) 0.44 .045(#5) 0.50 .045(#5)	CL	OF-S OF-S CR OF-S CR OF-S OF-S	61 N 62 G,S 62 N 65 G,S 65
16 17 18	Foam(, 0.117 U-Facto U-Facto Foam(, 0.117 U-Facto Foam(, 0.117	Sash O 0.250 or Sash O 0.250 or Sash O 0.250 or Sash O 0.250 or Frame o 0.688	nly): 73 0.090 0.26 nly): 73 0.090 0.28 nly): C 0.090 0.23 nly): C 0.090 0.23 & Sash 0.090 0.44	0.438 SHGC (138/Arg 0.438 SHGC (lear/Arg 0.438 SHGC (0.438 SHGC (): Clear	gon/Clea 0.117 N) gon/Clea 0.117 (<1) gon/Clea 0.117 N) gon/Clea 0.117 (<1) (<1) (<1) (<1)	ar/Argo ear/Argo ear/Argo	on/Clea on/Clea on/7257 on/7257	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92 0.25 7 (DS-SS-D ARG92 0.41 7 (DS-SS-D ARG92	VT (N / <1) S) 1" 0 VT (N) S) 1" 0 VT (<1) S) 1" 0 VT (N) S) 1" 0 VT (N) S) 1"	0.54 / 0.48 .027(#2) 0.49 .027(#2) 0.44 .045(#5) 0.50	CL	OF-S CR OF-S CR OF-S CR CR	61 N 62 G,S 62 N 65 G,S 65
16 17 18	Foam(a 0.117 U-Facto Foam(a 0.	Sash O 0.250 or Sash O 0.250 or Sash O 0.250 or Sash O 0.250 or Frame of 0.688 or	nly): 73 0.090 0.26 nly): 73 0.090 0.28 nly): C 0.090 0.23 nly): C 0.090 0.23 & Sash 0.090 0.44	0.438 SHGC (138/Arg 0.438 SHGC (lear/Arg 0.438 SHGC (0.438 SHGC (): Clear	gon/Clea 0.117 N) gon/Clea 0.117 (<1) gon/Clea 0.117 N) gon/Clea 0.117 (<1) (<1) (<1) (<1)	ar/Argo ear/Argo ear/Argo	on/Clea on/Clea on/7257 on/7257	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92 0.25 7 (DS-SS-D ARG92 0.41 7 (DS-SS-D ARG92 0.37	VT (N / <1) S) 1" 0 VT (N) S) 1" 0 VT (<1) S) 1" 0 VT (<1) S) 1" 0 VT (N) S) 1" 0 VT (N) S) 1"	0.54 / 0.48 .027(#2) 0.49 .027(#2) 0.44 .045(#5) 0.50 .045(#5)	CL CL CL	OF-S CR OF-S CR OF-S CR OF-S CR	61 N 62 G,S 62 N 65 G,S 65 N,G,S 45
16 17 18	Foam(, 0.117 U-Facto U-Facto Foam(, 0.117 U-Facto Foam(, 0.117	Sash O	nly): 73 0.090 0.26 nly): 73 0.090 0.28 nly): C 0.090 0.23 nly): C 0.090 0.23 & Sash 0.090 0.44	0.438 SHGC (138/Arg 0.438 SHGC (lear/Arg 0.438 SHGC (0.438 SHGC (): Clear	gon/Clea 0.117 N) gon/Clea 0.117 (<1) gon/Clea 0.117 N) gon/Clea 0.117 (<1) (<1) //Air/Cl	ar/Argo ear/Argo ear/Argo	on/Clea on/Clea on/7257 on/7257 on/7257 o.e S) 7/8"	44 / 0.40 r (DS-SS-D ARG92 0.28 r (DS-SS-D ARG92 0.25 7 (DS-SS-D ARG92 0.41 7 (DS-SS-D ARG92 0.37	VT (N / <1) S) 1" 0 VT (N) S) 1" 0 VT (<1) S) 1" 0 VT (<1) S) 1" 0 VT (N) S) 1" 0 VT (N) S) 1"	0.54 / 0.48 .027(#2) 0.49 .027(#2) 0.44 .045(#5) 0.50 .045(#5)	CL CL CL	OF-S CR OF-S CR OF-S CR OF-S CR	61 N 62 G,S 62 N 65 G,S 65





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a a	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill		Low-e (Surface#)	Tint	Spacer	Grid Type
	τ	J -Facto	or	Solar		Gain Co ids (None		nt (SHGC)		ransmittance (V s (None / <1 / >=1)	T)		nsation tance
20	Foam(Frame	& Sash): 7138	/Air/Cle	ear (SS	7/8"						
	0.090	0.688	0.090					AIR	0.0)27(#2)	CL	OF-S	N,G,S
	U-Facto	r	0.31	SHGC ((N / <1)		0.3	30 / 0.27	VT (N / <1)	0.54 / 0.48		CR	57
	Foam(Frame	& Sash): 7138	/Air/Cle	ear (DS) 7/8"						
	0.117	0.625	0.117					AIR	0.0)27(#2)	CL	OF-S	N,G,S
	U-Facto	r	0.31	SHGC ((N / <1)		0.3	30 / 0.27	VT (N / <1)	0.54 / 0.48		CR	57
21	Foam(Frame	& Sash): 7138	/Argon/	/Clear (SS) 7/8	3"					
	0.090	0.688	0.090					ARG92	0.0)27(#2)	CL	OF-S	N,G,S
	U-Facto	r	0.27	SHGC ((N / <1)		0.3	30 / 0.27	VT (N / <1)	0.54 / 0.48		CR	61
	Foam(Frame	& Sash): 7138	/Argon/	/Clear (DS) 7/8	8"					
	0.445												
	0.117	0.625	0.117					ARG92	0.0)27(#2)	CL	OF-S	N,G,S
	U-Facto		0.117 0.27	SHGC ((N / <1)		0.3	ARG92 30 / 0.27	0.0 VT (N / <1)	0.54 / 0.48	CL	OF-S CR	N,G,S 61
22	U-Facto	r	0.27	SHGC (257 (SS					CL		
22	U-Facto Foam(r	0.27 & Sash			257 (SS			VT (N / <1)		CL	CR	
22	U-Facto Foam(Frame 0.688	0.27 & Sash		/Air/72	257 (SS) 7/8"	30 / 0.27	VT (N / <1)	0.54 / 0.48		CR	61
22	U-Factor Foam(0.090 U-Factor	Frame 0.688	0.27 & Sash 0.090 0.31): Clear	C/Air/72	,	0.4	30 / 0.27 AIR	VT (N / <1)	0.54 / 0.48		CR OF-S	61 N,G,S
22	U-Factor Foam(0.090 U-Factor Foam(Frame 0.688	0.27 & Sash 0.090 0.31 & Sash): Clear SHGC (C/Air/72	,	0.4	30 / 0.27 AIR	VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48		OF-S CR	61 N,G,S
22	U-Factor Foam(0.090 U-Factor Foam(Frame 0.688 Frame 0.625	0.27 & Sash 0.090 0.31 & Sash): Clear SHGC (//Air/72 (N / <1) //Air/72	,	0.4	AIR 45 / 0.40	VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 045(#3) 0.55 / 0.49	CL	OF-S CR	61 N,G,S 57
22	U-Factor Foam(0.090 U-Factor Foam(0.117 U-Factor	Frame 0.688 Frame 0.685 Frame 0.625	0.27 & Sash 0.090 0.31 & Sash 0.117 0.31): Clear SHGC ((N / <1) (N / <1) (N / <1)	257 (DS	0.4	AIR 45 / 0.40 AIR 44 / 0.39	VT (N / <1) 0.0 VT (N / <1) 0.0	0.54 / 0.48 0.55 / 0.49 0.55 / 0.49	CL	OF-S OF-S	61 N,G,S 57 N,G,S
	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(Frame 0.688 Frame 0.685 Frame 0.625	0.27 & Sash 0.090 0.31 & Sash 0.117 0.31	SHGC (SHGC ((N / <1) (N / <1) (N / <1)	257 (DS	0.4	AIR 45 / 0.40 AIR 44 / 0.39	VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 0.55 / 0.49 0.55 / 0.49	CL	OF-S CR OF-S CR	61 N,G,S 57 N,G,S
	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(Frame 0.625 O.688 O.625 O.688	0.27 & Sash 0.090 0.31 & Sash 0.117 0.31	SHGC (SHGC ((N / <1) (N / <1) (N / <1) (N / <1) (N / <1)	257 (DS	0.2 0.2 0.2 0.2 0.3 0.4	AIR 45 / 0.40 AIR 44 / 0.39	VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 0.55 / 0.49 0.55 / 0.49 0.54 / 0.48	CL	OF-S CR OF-S CR	61 N,G,S 57 N,G,S 57
	U-Factor Foam(0.090 U-Factor Foam(0.117 U-Factor Foam(0.090 U-Factor	0.688 0.625 Frame 0.688 0.688	0.27 & Sash 0.090 0.31 & Sash 0.117 0.31 & Sash 0.090	SHGC (): Clear SHGC (): Clear	(N / <1) (N / <1) (N / <1) (N / <1) (N / <1)	257 (DS	0.4 0.7/8" 0.4 0.7/8" 0.4	AIR 45 / 0.40 AIR 44 / 0.39 3" ARG92	0.0 VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 0.55 / 0.49 0.55 / 0.49 0.54 / 0.48 0.45(#3)	CL	OF-S OF-S OF-S	61 N,G,S 57 N,G,S 57
	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.090 U-Facto Foam(0.688 0.625 Frame 0.688 0.688	0.27 & Sash 0.090 0.31 & Sash 0.117 0.31 & Sash 0.090 0.28	SHGC (SHGC (): Clear SHGC (SHGC (): Clear	(N / <1) (N / <1) (N / <1) (N / <1) (N / <1)	257 (DS	0.4 0.7/8" 0.4 0.7/8" 0.4	AIR 45 / 0.40 AIR 44 / 0.39 3" ARG92	0.0 VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 0.55 / 0.49 0.55 / 0.49 0.54 / 0.48 0.45(#3)	CL	OF-S OF-S CR OF-S CR	61 N,G,S 57 N,G,S 57
23	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.117	0.688 or Frame (0.625) or Frame (0.688) or O.688 or O.688	0.27 & Sash 0.090 0.31 & Sash 0.117 0.31 & Sash 0.090 0.28 & Sash 0.117	SHGC (): Clear SHGC (): Clear SHGC (): Clear SHGC (SHGC ((N / <1) (N / <1) (N / <1) (N / <1) (N / <1) (N / <1)	/7257 (DS	0.2 0.2 0.3 0.4 0.5 0.5 0.5 0.6 0.6	AIR 45 / 0.40 AIR 44 / 0.39 3" ARG92 45 / 0.40 8" ARG92	0.0 VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 0.55 / 0.49 0.55 / 0.49 0.54 / 0.48 0.55 / 0.49	CL CL	OF-S OF-S CR OF-S CR	61 N,G,S 57 N,G,S 57 N,G,S
	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.117	0.688 or Frame (0.625) or Frame (0.688) or O.688 or O.688	0.27 & Sash 0.090 0.31 & Sash 0.117 0.31 & Sash 0.090 0.28 & Sash 0.117	SHGC (): Clear SHGC (): Clear SHGC (): Clear SHGC (SHGC ((N / <1) (N / <1) (N / <1) (N / <1) (N / <1) (N / <1)	/7257 (DS	0.2 0.2 0.3 0.4 0.5 0.5 0.5 0.6 0.6	AIR 45 / 0.40 AIR 44 / 0.39 B" ARG92 45 / 0.40 ARG92	0.0 VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 0.55 / 0.49 0.55 / 0.49 0.54 / 0.48 0.55 / 0.49 0.45(#3)	CL CL	OF-S OF-S CR OF-S OF-S OF-S	61 N,G,S 57 N,G,S 57 N,G,S 61
23	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.117	0.688 or Frame (0.625) or Frame (0.688) or O.688 or O.688	0.27 & Sash 0.090 0.31 & Sash 0.117 0.31 & Sash 0.090 0.28 & Sash 0.117 0.28	SHGC (): Clear SHGC (): Clear SHGC (): Clear SHGC (SHGC ((N / <1) (Argon) (N / <1) (Argon)	/7257 (DS	0.2 0.2 0.3 0.4 0.5 0.5 0.5 0.6 0.6	AIR 45 / 0.40 AIR 44 / 0.39 3" ARG92 45 / 0.40 8" ARG92	0.0 VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1) 0.0 VT (N / <1)	0.54 / 0.48 0.55 / 0.49 0.55 / 0.49 0.54 / 0.48 0.55 / 0.49 0.45(#3)	CL CL	OF-S OF-S CR OF-S OF-S OF-S	61 N,G,S 57 N,G,S 57 N,G,S 61
23	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.117 U-Facto Foam(0.117 U-Facto Foam(U-Facto Foam(0.117 U-Facto	0.688 0.688 0.688 0.688 0.688 0.688 0.688 0.688 0.688 0.688	0.27 & Sash 0.090 0.31 & Sash 0.117 0.31 & Sash 0.090 0.28 & Sash 0.117 0.28 & Sash 0.090): Clear SHGC (): Clear	(N / <1) (N / <1) (N / <1) (N / <1) (N / <1) (N / <1) (N / <1) (Argon) (N / <1) (N / <1)	/7257 (DS	0.2 0.2 0.2 SS) 7/8" 0.2 DS) 7/3 0.2 Argon/C	AIR 45 / 0.40 AIR 44 / 0.39 3" ARG92 45 / 0.40 8" ARG92 44 / 0.40 Clear (DS-S ARG92 0.28	0.0 VT (N / <1) 5-DS) 1" 0.0 VT (N)	0.54 / 0.48 0.54 / 0.49 0.55 / 0.49 0.54 / 0.48 0.55 / 0.49 0.55 / 0.49 0.54 / 0.48	CL CL	OF-S CR OF-S CR OF-S CR CR	61 N,G,S 57 N,G,S 57 N,G,S 61
23	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.117 U-Facto Foam(0.117 U-Facto Foam(U-Facto Foam(0.117 U-Facto	0.688 0.688 0.688 0.688 0.688 0.688 0.688 0.688 0.688 0.688	0.27 & Sash 0.090 0.31 & Sash 0.117 0.31 & Sash 0.090 0.28 & Sash 0.117 0.28 & Sash 0.090	SHGC (): Clear SHGC (): Clear SHGC (): Clear SHGC (): Clear SHGC (): 7138, 0.438 SHGC (): 7138,	(N / <1) (Argon (N / <1) (Argon (N / <1) (Argon) (N / <1) (Argon)	/7257 (DS	0.2 0.2 0.2 SS) 7/8" 0.2 DS) 7/3 0.2 Argon/C	AIR 45 / 0.40 AIR 44 / 0.39 3" ARG92 45 / 0.40 8" ARG92 44 / 0.40 Clear (DS-S ARG92	0.0 VT (N / <1) 5-DS) 1" 0.0 VT (N)	0.54 / 0.48 0.55 / 0.49 0.55 / 0.49 0.54 / 0.48 0.55 / 0.49 0.45(#3) 0.55 / 0.49 0.45(#3) 0.54 / 0.48	CL CL	OF-S CR OF-S CR OF-S CR OF-S CR	61 N,G,S 57 N,G,S 57 N,G,S 61 N,G,S
23	U-Facto Foam(0.090 U-Facto Foam(0.117 U-Facto Foam(0.117 U-Facto Foam(0.117 U-Facto Foam(U-Facto Foam(0.117 U-Facto	0.688 0.688 0.688 0.688 0.688 0.688 0.688 0.688 0.688 0.688	0.27 & Sash 0.090 0.31 & Sash 0.117 0.31 & Sash 0.090 0.28 & Sash 0.117 0.28 & Sash 0.090): Clear SHGC (): Clear	(N / <1) (Argon (N / <1) (Argon (N / <1) (Argon) (N / <1) (Argon)	/7257 (DS	0.2 0.2 0.2 SS) 7/8" 0.2 DS) 7/3 0.2 Argon/C	AIR 45 / 0.40 AIR 44 / 0.39 3" ARG92 45 / 0.40 8" ARG92 44 / 0.40 Clear (DS-S ARG92 0.28	0.0 VT (N / <1) S-DS) 1" 0.0 VT (N) S-DS) 1"	0.54 / 0.48 0.55 / 0.49 0.55 / 0.49 0.54 / 0.48 0.55 / 0.49 0.45(#3) 0.55 / 0.49 0.45(#3) 0.54 / 0.48	CL CL	OF-S CR OF-S CR OF-S CR OF-S CR	61 N,G,S 57 N,G,S 57 N,G,S 61 N,G,S







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ID	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill	Low-e (Surface#)		Tint	Spacer	Grid Type
	T	J-Facto	r	Solar	Heat C	Sain Co	efficie	nt (SHGC)	Visible Trans	smittance (V	/T)	Conde	nsation
	U-Factor		Grids (None / <1 / >=1))	Grids (No	ne / <1 / >=1)		Resis	tance	
26	Foam(Frame & Sash): Clear/Argon/Clear/Argon/7257 (DS-SS-DS) 1"												
	0.117	0.250	0.090	0.438	0.117			ARG92	0.045(#5)	CL	OF-S	N
	U-Facto	r	0.23	SHGC ((N)			0.41	VT (N)	0.50		CR	65
27	Foam(Frame & Sash): Clear/Argon/Clear/Argon/7257 (DS-SS-DS) 1"												
	0.117	0.250	0.090	0.438	0.117			ARG92	0.045(#5)	CL	OF-S	G,S
	U-Facto	r	0.23	SHGC ((<1)			0.37	VT (<1)	0.44		CR	65





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The Condensation Resistance results obtained from this procedure are for controlled laboratory conditions and do not include the effects of air movement through the specimen, solar radiation, and the thermal bridging that may occur due to the specific design and construction of the fenestration system opening.

Ratings values included in this report are for submittals to an NFRC-licensed IA and are not meant to be used directly for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes. The ratings values were rounded in accordance to NFRC 601, NFRC Unit and Measurement Policy.

Intertek-ATI is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications. The values included in this report are not considered in compliance with ANSI/NFRC 100, ANSI/NFRC 200, and/or NFRC 500 unless the associated validation test requirements have been satisfied, as applicable.

This report is reissued in the name of Specialty Wholesale Supply through written authorization of Chelsea Building Products, to whom the original report was rendered. The original Chelsea Building Products report number is E7528.01-116-45.

Intertek-ATI will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Intertek-ATI for the entire test record retention period. The test record retention end date for this report is July 15, 2020.

Results obtained are simulated values and were secured by using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the product simulated. This report may not be reproduced, except in full, without the written approval of Intertek-ATI

For INTERTEK-ATI:	
SIMULATED BY:	REVIEWED BY:
Dale C. White	Kristen L. Louder
Simulation Technician	Senior Simulation Technician
NFRC Certified Simulator	Simulator-In-Responsible-Charge

DCW:dcw

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Attachments (pages): This report is complete only when all attachments listed are included.

Appendix A: Drawings and Bills of Material(18)





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Revision Log

Rev.#	Date	Page(s)	Revision(s)
.01R0	12/02/15	All	Original report issued to Chelsea Building products.
.08R0	01/18/17	All	Reissue report in the name of Specialty Wholesale Supply

All drawings and Bills of Material used to simulate this product are enclosed in this Appendix Some drawings may be omitted at the extruder's request.
Appendix A E7528.08-116-45

