



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

**Rendered to:
THE COEUR D'ALENE WINDOW COMPANY**

**SERIES/MODEL:
3100 Series Horizontal Sliding Window**

**Report Number: D9210.02-301-45
Report Date: 07/31/14**



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Rendered to:
THE COEUR D'ALENE WINDOW COMPANY
3808 N. Sullivan Road
Spokane Valley, Washington 99216

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Project Summary:

Architectural Testing, Inc. 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 below.

**NFRC's Condensation Resistance rating is NOT equivalent to a Condensation Resistance Factor (CRF) determined in accordance with AAMA 1503.*

Standards:

NFRC 100-2014: Procedure for Determining Fenestration Product U-Factors
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 6.3.46
Center-of-Glass Modeling: WINDOW 6.3.74
Total Product Calculations: WINDOW 6.3.74
Spectral Data Library: IGDB 36.0

Simulations Specimen Description:

Series/Model: 3100 Series Horizontal Sliding Window
Type: Horizontal Slider, Fixed/Operable
Frame Material: VI Vinyl w/ Reinforcement - Interlock
Sash Material: VI Vinyl w/ Reinforcement - Interlock
Standard Size: 1500mm x 1200mm

Modeling Assumptions/Technical Interpretations:

- 1) To prevent air infiltration, tape was applied to all interior sash crack locations.
- 2) The nailing fin on frames R1270 and R1271 was removed per NFRC 100-2014, Section 4.2.5.A.
- 3) Foam filled and non-foam filled are were modeled as separate options per NFRC 100-2014, Section 4.2.1.F.
- 4) Frames R1270, R1271 and R1272 are groupable per NFRC 100-2014, Section 4.2.1.H.i. R1270 is the group leader for non-foam filled frames and R1272 is the group leader for foam filled frames.
- 5) Interlock R1279 and R1344 are groupable per NFRC 100-2014, Section 4.2.1.K. Interlock R1344 is the group leader.
- 6) Grid Group 1: 3/16" x 5/8" contour, 3/16" x 5/8" rectangular, 3/16" x 3/4" rectangular, 3/16" x 13/16" rectangular, 3/16" x 1" rectangular and 5.5 mm x 18 mm contour grids are groupable per NFRC 100-2014, Section 4.2.4.1.D.i. 3/16" x 1" rectangular grid is the group leader for double and triple glazed options.
- 7) Grid Group 2: 1/4" x 5/16" rectangular, 1/4" x 3/8" rectangular, 1/4" x 1/2" rectangular, 1/4" x 5/8" rectangular, 1/4" x 7/8" rectangular, 1/4" x 1" rectangular, 5/16" x 1/2" rectangular, 5/16" x 5/8" rectangular, 5/16" x 7/8" rectangular, 5/16" x 1" rectangular, 3/8" x 3/8" rectangular, 3/8" x 1/2" rectangular, 3/8" x 5/8" rectangular, 3/8" x 7/8" rectangular, 1/2" x 5/8" rectangular, 1/2" x 7/8" rectangular, 8 mm x 18 mm contour and 8 mm x 25 mm contour grids are groupable per NFRC 100-2014, Section 4.2.4.1.D.i. 1/2" x 7/8" rectangular grid is the group leader. Grid Group 2 is only used in double glazed options.
- 8) Grids did not need to be modeled separately on some options per NFRC 100-2014, Section 4.2.4.1.D.ii.a. When results for two grids are present for a glazing option, Grid Group 1 results are listed first.
- 9) The 3100 Series Horizontal Sliding Window and the 3200 Single Hung Window are multi-purpose products in a validation matrix per NFRC 100-2014, Section 4.2.3.2.A and 4.2.3.2.D.

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 6.3.74. 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	0.003785	0.006588	0.009233
SHGC1	0.808066	0.724972	0.646561
VT0	0.000000	0.000000	0.000000
VT1	0.804025	0.718128	0.637071

$$\text{SHGC} = \text{SHGC0} + \text{SHGCc} (\text{SHGC1} - \text{SHGC0})$$

$$\text{VT} = \text{VT0} + \text{VTc} (\text{VT1} - \text{VT0})$$

Validation Matrix:

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

<i>Product Line</i>	<i>Report Number</i>
3100 Series Horizontal Sliding Window	D9210.02-301-45
3200 Series Single Hung Window	D9211.02-301-45

Spacer Option Description

<i>Spacer Type</i>	<i>Sealant</i>		<i>Code</i>
	<i>Primary</i>	<i>Secondary</i>	
Cardinal Endur Spacer	Polyisobutylene	Silicone	SS-D

Grid Option Description

<i>Grid Size</i>	<i>Grid Type</i>	<i>Grid Pattern</i>
3/16" x 5/8"	Aluminum Contour Grid (Painted)	NFRC Standard
3/16" x 5/8"	Aluminum Rectangular Grid (Painted)	NFRC Standard
3/16" x 3/4"	Aluminum Rectangular Grid (Painted)	NFRC Standard
3/16" x 13/16"	Aluminum Rectangular Grid (Painted)	NFRC Standard
3/16" x 1"	Aluminum Rectangular Grid (Painted)	NFRC Standard
5.5 mm x 18	Aluminum Contour Grid (Painted)	NFRC Standard
1/4" x 5/16"	Aluminum Rectangular Grid (Painted)	NFRC Standard
1/4" x 3/8"	Aluminum Rectangular Grid (Painted)	NFRC Standard
1/4" x 1/2"	Aluminum Rectangular Grid (Painted)	NFRC Standard
1/4" x 5/8"	Aluminum Rectangular Grid (Painted)	NFRC Standard
1/4" x 7/8"	Aluminum Rectangular Grid (Painted)	NFRC Standard
1/4" x 1"	Aluminum Rectangular Grid (Painted)	NFRC Standard
5/16" x 1/2"	Aluminum Rectangular Grid (Painted)	NFRC Standard
5/16" x 5/8"	Aluminum Rectangular Grid (Painted)	NFRC Standard
5/16" x 7/8"	Aluminum Rectangular Grid (Painted)	NFRC Standard
5/16" x 1"	Aluminum Rectangular Grid (Painted)	NFRC Standard
3/8" x 3/8"	Aluminum Rectangular Grid (Painted)	NFRC Standard
3/8" x 1/2"	Aluminum Rectangular Grid (Painted)	NFRC Standard
3/8" x 5/8"	Aluminum Rectangular Grid (Painted)	NFRC Standard
3/8" x 7/8"	Aluminum Rectangular Grid (Painted)	NFRC Standard
1/2" x 5/8"	Aluminum Rectangular Grid (Painted)	NFRC Standard
1/2" x 7/8"	Aluminum Rectangular Grid (Painted)	NFRC Standard
8 mm x 18 mm	Aluminum Contour Grid (Painted)	NFRC Standard
8 mm x 25 mm	Aluminum Contour Grid (Painted)	NFRC Standard

Reinforcement Option Description

<i>Location</i>	<i>Material</i>
Each meeting stile	Aluminum

Gas Filling Technique Description

<i>Fill Type</i>	<i>Method</i>
90% Argon	Evacuated chamber

Edge-of-Glass Construction

<i>Interior Condition</i>	Glazing tape between frame/panel and glass.
<i>Exterior Condition</i>	Glazing bead against the glass.

Weatherstripping

<i>Type</i>	<i>Quantity</i>	<i>Location</i>
Polypile	1 Row	All members of the interior panel.

Frame/Sash Materials Finish

<i>Interior</i>	Vinyl
<i>Exterior</i>	Vinyl

NFRC 100/200/500 Summary Sheet

3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
1	Clr/Arg/Clr-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90		CL	SS-D	N,G
	U-Factor 0.45			SHGC (N / <1) 0.64 / 0.58					VT (N / <1) 0.67 / 0.60		CR 50	
2	Clr/Arg/Clr-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90		CL	SS-D	G
	U-Factor 0.48			SHGC (<1) 0.58					VT (<1) 0.60		CR 45	
3	Clr/Arg/270-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.037(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.38 / 0.34					VT (N / <1) 0.57 / 0.51		CR 59	
	270/Arg/Clr-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.037(#2)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.30 / 0.27					VT (N / <1) 0.57 / 0.51		CR 59	
	366/Arg/Clr-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.022(#2)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.53 / 0.47		CR 59	
	Clr/Arg/366-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.022(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.32 / 0.29					VT (N / <1) 0.53 / 0.47		CR 59	
	366/Arg/180-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.022(#2) / 0.068(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.51 / 0.45		CR 59	
	270/Arg/270-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.037(#2) / 0.037(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.28 / 0.25					VT (N / <1) 0.48 / 0.43		CR 59	
4	Clr/Arg/270-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.037(#3)	CL	SS-D	G
	U-Factor 0.34			SHGC (<1) 0.34					VT (<1) 0.51		CR 58	
	270/Arg/Clr-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.037(#2)	CL	SS-D	G
	U-Factor 0.34			SHGC (<1) 0.27					VT (<1) 0.51		CR 58	

NFRC 100/200/500 Summary Sheet 3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
	366/Arg/Clr-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.022(#2)		CL	SS-D G
	U-Factor 0.34			SHGC (<1) 0.20					VT (<1) 0.47		CR 58	
	Clr/Arg/366-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.022(#3)		CL	SS-D G
	U-Factor 0.34			SHGC (<1) 0.29					VT (<1) 0.47		CR 58	
	366/Arg/180-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.022(#2) / 0.068(#3)		CL	SS-D G
	U-Factor 0.34			SHGC (<1) 0.20					VT (<1) 0.45		CR 58	
	270/Arg/270-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.037(#2) / 0.037(#3)		CL	SS-D G
	U-Factor 0.34			SHGC (<1) 0.25					VT (<1) 0.43		CR 58	
5	Clr/Arg/Clr-3/4"-(2.8mm-2.8mm)											
	0.110	0.512	0.110					ARG90			CL	SS-D N,G
	U-Factor 0.45			SHGC (N / <1) 0.63 / 0.57					VT (N / <1) 0.66 / 0.59		CR 45	
	Clr/Arg/Clr-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90			CL	SS-D N,G
	U-Factor 0.45			SHGC (N / <1) 0.63 / 0.57					VT (N / <1) 0.66 / 0.59		CR 45	
	SBrz/Arg/Clr-3/4"-(3mm-3mm)											
	0.129	0.512	0.118					ARG90			BZ	SS-D N,G
	U-Factor 0.45			SHGC (N / <1) 0.51 / 0.46					VT (N / <1) 0.49 / 0.44		CR 45	
	SGry/Arg/Clr-3/4"-(3mm-3mm)											
	0.129	0.512	0.118					ARG90			GY	SS-D N,G
	U-Factor 0.45			SHGC (N / <1) 0.47 / 0.42					VT (N / <1) 0.44 / 0.39		CR 45	
6	Clr/Arg/Clr-3/4"-(2.8mm-2.8mm)											
	0.110	0.512	0.110					ARG90			CL	SS-D G
	U-Factor 0.51			SHGC (<1) 0.57					VT (<1) 0.59		CR 38	
	Clr/Arg/Clr-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90			CL	SS-D G
	U-Factor 0.51			SHGC (<1) 0.57					VT (<1) 0.59		CR 38	

NFRC 100/200/500 Summary Sheet

3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
	SBrz/Arg/Clr-3/4"-(3mm-3mm)											
	0.129	0.512	0.118					ARG90		BZ	SS-D	G
	U-Factor 0.51			SHGC (<1) 0.46					VT (<1) 0.44		CR 38	
	SGry/Arg/Clr-3/4"-(3mm-3mm)											
	0.129	0.512	0.118					ARG90		GY	SS-D	G
	U-Factor 0.51			SHGC (<1) 0.42					VT (<1) 0.39		CR 38	
7	180/Arg/Clr-3/4"-(2.8mm-2.8mm)											
	0.110	0.512	0.110					ARG90	0.068(#2)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.52 / 0.47					VT (N / <1) 0.63 / 0.57		CR 58	
	Clr/Arg/180-3/4"-(2.8mm-2.8mm)											
	0.110	0.512	0.110					ARG90	0.068(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.56 / 0.50					VT (N / <1) 0.63 / 0.57		CR 58	
	180/Arg/Clr-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.068(#2)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.52 / 0.47					VT (N / <1) 0.64 / 0.57		CR 58	
	240/Arg/Clr-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.057(#2)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.21 / 0.19					VT (N / <1) 0.32 / 0.29		CR 58	
	Clr/Arg/180-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.068(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.56 / 0.50					VT (N / <1) 0.64 / 0.57		CR 58	
	Clr/Arg/240-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.057(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.42 / 0.37					VT (N / <1) 0.32 / 0.29		CR 58	
	Clr/Arg/270-3/4"-(2mm-2mm)											
	0.087	0.512	0.087					ARG90	0.037(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.38 / 0.34					VT (N / <1) 0.57 / 0.51		CR 58	
8	180/Arg/Clr-3/4"-(2.8mm-2.8mm)											
	0.110	0.512	0.110					ARG90	0.068(#2)	CL	SS-D	G
	U-Factor 0.39			SHGC (<1) 0.47					VT (<1) 0.57		CR 46	

NFRC 100/200/500 Summary Sheet

3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
	Clr/Arg/180-3/4"-(2.8mm-2.8mm)											
	0.110	0.512	0.110					ARG90	0.068(#3)	CL	SS-D	G
	U-Factor 0.39			SHGC (<1) 0.50					VT (<1) 0.57		CR 46	
	180/Arg/Clr-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.068(#2)	CL	SS-D	G
	U-Factor 0.39			SHGC (<1) 0.47					VT (<1) 0.57		CR 46	
	240/Arg/Clr-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.057(#2)	CL	SS-D	G
	U-Factor 0.39			SHGC (<1) 0.19					VT (<1) 0.29		CR 46	
	Clr/Arg/180-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.068(#3)	CL	SS-D	G
	U-Factor 0.39			SHGC (<1) 0.50					VT (<1) 0.57		CR 46	
	Clr/Arg/240-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.057(#3)	CL	SS-D	G
	U-Factor 0.39			SHGC (<1) 0.37					VT (<1) 0.29		CR 46	
	Clr/Arg/270-3/4"-(2mm-2mm)											
	0.087	0.512	0.087					ARG90	0.037(#3)	CL	SS-D	G
	U-Factor 0.39			SHGC (<1) 0.34					VT (<1) 0.51		CR 46	
9	180/Arg/i89-3/4"-(2.8mm-3mm)											
	0.110	0.512	0.117					ARG90	0.068(#2) / 0.149(#4)	CL	SS-D	N,G
	U-Factor 0.26			SHGC (N / <1) 0.51 / 0.46					VT (N / <1) 0.62 / 0.56		CR 46	
	180/Arg/i89-3/4"-(3mm-3mm)											
	0.118	0.512	0.117					ARG90	0.068(#2) / 0.149(#4)	CL	SS-D	N,G
	U-Factor 0.26			SHGC (N / <1) 0.51 / 0.45					VT (N / <1) 0.62 / 0.56		CR 46	
10	180/Arg/i89-3/4"-(2.8mm-3mm)											
	0.110	0.512	0.117					ARG90	0.068(#2) / 0.149(#4)	CL	SS-D	G
	U-Factor 0.31			SHGC (<1) 0.46					VT (<1) 0.56		CR 34	
	180/Arg/i89-3/4"-(3mm-3mm)											
	0.118	0.512	0.117					ARG90	0.068(#2) / 0.149(#4)	CL	SS-D	G
	U-Factor 0.31			SHGC (<1) 0.45					VT (<1) 0.56		CR 34	

NFRC 100/200/500 Summary Sheet 3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
11	Clr/Arg/270-3/4"-(2.8mm-3mm)											
	0.110	0.512	0.118					ARG90	0.037(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.37 / 0.34					VT (N / <1) 0.56 / 0.50		CR 58	
	270/Arg/Clr-3/4"-(3mm-2.8mm)											
	0.118	0.512	0.110					ARG90	0.037(#2)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.30 / 0.27					VT (N / <1) 0.56 / 0.50		CR 58	
	366/Arg/Clr-3/4"-(3mm-2.8mm)											
	0.117	0.512	0.110					ARG90	0.022(#2)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.52 / 0.46		CR 58	
	Clr/Arg/366-3/4"-(2.8mm-3mm)											
	0.110	0.512	0.117					ARG90	0.022(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.32 / 0.28					VT (N / <1) 0.52 / 0.46		CR 58	
	366/Arg/180-3/4"-(3mm-2.8mm)											
	0.117	0.512	0.110					ARG90	0.022(#2) / 0.068(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.50 / 0.45		CR 58	
	366/Arg/270-3/4"-(3mm-3mm)											
	0.117	0.512	0.118					ARG90	0.022(#2) / 0.037(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.44 / 0.40		CR 58	
	270/Arg/Clr-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.037(#2)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.30 / 0.27					VT (N / <1) 0.56 / 0.50		CR 58	
	366/Arg/Clr-3/4"-(3mm-3mm)											
	0.117	0.512	0.118					ARG90	0.022(#2)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.52 / 0.47		CR 58	
	SBrz/Arg/270-3/4"-(3mm-3mm)											
	0.129	0.512	0.118					ARG90	0.037(#3)	BZ	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.29 / 0.27					VT (N / <1) 0.42 / 0.37		CR 58	
	SGry/Arg/270-3/4"-(3mm-3mm)											
	0.129	0.512	0.118					ARG90	0.037(#3)	GY	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.28 / 0.25					VT (N / <1) 0.38 / 0.34		CR 58	

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3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
	Clr/Arg/270-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.037(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.37 / 0.34					VT (N / <1) 0.56 / 0.50		CR 58	
	Clr/Arg/366-3/4"-(3mm-3mm)											
	0.118	0.512	0.117					ARG90	0.022(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.32 / 0.29					VT (N / <1) 0.52 / 0.47		CR 58	
	270/Arg/SBrz-3/4"-(3mm-3mm)											
	0.118	0.512	0.129					ARG90	0.037(#2)	BZ	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.29 / 0.26					VT (N / <1) 0.42 / 0.37		CR 58	
	270/Arg/SGry-3/4"-(3mm-3mm)											
	0.118	0.512	0.129					ARG90	0.037(#2)	GY	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.29 / 0.26					VT (N / <1) 0.38 / 0.34		CR 58	
	366/Arg/180-3/4"-(3mm-3mm)											
	0.117	0.512	0.118					ARG90	0.022(#2) / 0.068(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.50 / 0.45		CR 58	
	270/Arg/270-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.037(#2) / 0.037(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.28 / 0.25					VT (N / <1) 0.48 / 0.43		CR 58	
12	Clr/Arg/270-3/4"-(2.8mm-3mm)											
	0.110	0.512	0.118					ARG90	0.037(#3)	CL	SS-D	G
	U-Factor 0.38			SHGC (<1) 0.34					VT (<1) 0.50		CR 47	
	270/Arg/Clr-3/4"-(3mm-2.8mm)											
	0.118	0.512	0.110					ARG90	0.037(#2)	CL	SS-D	G
	U-Factor 0.38			SHGC (<1) 0.27					VT (<1) 0.50		CR 47	
	366/Arg/Clr-3/4"-(3mm-2.8mm)											
	0.117	0.512	0.110					ARG90	0.022(#2)	CL	SS-D	G
	U-Factor 0.38			SHGC (<1) 0.20					VT (<1) 0.46		CR 47	
	Clr/Arg/366-3/4"-(2.8mm-3mm)											
	0.110	0.512	0.117					ARG90	0.022(#3)	CL	SS-D	G
	U-Factor 0.38			SHGC (<1) 0.28					VT (<1) 0.46		CR 47	

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3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
	366/Arg/180-3/4"-(3mm-2.8mm)											
	0.117	0.512	0.110					ARG90	0.022(#2) / 0.068(#3)		CL	SS-D G
	U-Factor 0.38			SHGC (<1) 0.20					VT (<1) 0.45		CR 47	
	366/Arg/270-3/4"-(3mm-3mm)											
	0.117	0.512	0.118					ARG90	0.022(#2) / 0.037(#3)		CL	SS-D G
	U-Factor 0.38			SHGC (<1) 0.20					VT (<1) 0.40		CR 47	
	270/Arg/Clr-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.037(#2)		CL	SS-D G
	U-Factor 0.38			SHGC (<1) 0.27					VT (<1) 0.50		CR 47	
	366/Arg/Clr-3/4"-(3mm-3mm)											
	0.117	0.512	0.118					ARG90	0.022(#2)		CL	SS-D G
	U-Factor 0.38			SHGC (<1) 0.20					VT (<1) 0.47		CR 47	
	SBrz/Arg/270-3/4"-(3mm-3mm)											
	0.129	0.512	0.118					ARG90	0.037(#3)		BZ	SS-D G
	U-Factor 0.38			SHGC (<1) 0.27					VT (<1) 0.37		CR 47	
	SGry/Arg/270-3/4"-(3mm-3mm)											
	0.129	0.512	0.118					ARG90	0.037(#3)		GY	SS-D G
	U-Factor 0.38			SHGC (<1) 0.25					VT (<1) 0.34		CR 47	
	Clr/Arg/270-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.037(#3)		CL	SS-D G
	U-Factor 0.38			SHGC (<1) 0.34					VT (<1) 0.50		CR 47	
	Clr/Arg/366-3/4"-(3mm-3mm)											
	0.118	0.512	0.117					ARG90	0.022(#3)		CL	SS-D G
	U-Factor 0.38			SHGC (<1) 0.29					VT (<1) 0.47		CR 47	
	270/Arg/SBrz-3/4"-(3mm-3mm)											
	0.118	0.512	0.129					ARG90	0.037(#2)		BZ	SS-D G
	U-Factor 0.38			SHGC (<1) 0.26					VT (<1) 0.37		CR 47	
	270/Arg/SGry-3/4"-(3mm-3mm)											
	0.118	0.512	0.129					ARG90	0.037(#2)		GY	SS-D G
	U-Factor 0.38			SHGC (<1) 0.26					VT (<1) 0.34		CR 47	

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3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC)					Visible Transmittance (VT)		Condensation Resistance	
				Grids (None / <1 / >=1)					Grids (None / <1 / >=1)			
	366/Arg/180-3/4"-(3mm-3mm)											
	0.117	0.512	0.118					ARG90	0.022(#2) / 0.068(#3)		CL	SS-D G
	U-Factor 0.38			SHGC (<1) 0.20					VT (<1) 0.45		CR 47	
	270/Arg/270-3/4"-(3mm-3mm)											
	0.118	0.512	0.118					ARG90	0.037(#2) / 0.037(#3)		CL	SS-D G
	U-Factor 0.38			SHGC (<1) 0.25					VT (<1) 0.43		CR 47	
13	240/Arg/i89-3/4"-(3mm-3mm)											
	0.118	0.512	0.117					ARG90	0.057(#2) / 0.149(#4)		CL	SS-D N,G
	U-Factor 0.26			SHGC (N / <1) 0.20 / 0.18					VT (N / <1) 0.31 / 0.28		CR 46	
	270/Arg/i89-3/4"-(3mm-3mm)											
	0.118	0.512	0.117					ARG90	0.037(#2) / 0.149(#4)		CL	SS-D N,G
	U-Factor 0.26			SHGC (N / <1) 0.29 / 0.27					VT (N / <1) 0.55 / 0.49		CR 46	
	366/Arg/i89-3/4"-(3mm-3mm)											
	0.117	0.512	0.117					ARG90	0.022(#2) / 0.149(#4)		CL	SS-D N,G
	U-Factor 0.26			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.51 / 0.45		CR 46	
14	240/Arg/i89-3/4"-(3mm-3mm)											
	0.118	0.512	0.117					ARG90	0.057(#2) / 0.149(#4)		CL	SS-D G
	U-Factor 0.31			SHGC (<1) 0.18					VT (<1) 0.28		CR 34	
	270/Arg/i89-3/4"-(3mm-3mm)											
	0.118	0.512	0.117					ARG90	0.037(#2) / 0.149(#4)		CL	SS-D G
	U-Factor 0.31			SHGC (<1) 0.27					VT (<1) 0.49		CR 34	
	366/Arg/i89-3/4"-(3mm-3mm)											
	0.117	0.512	0.117					ARG90	0.022(#2) / 0.149(#4)		CL	SS-D G
	U-Factor 0.31			SHGC (<1) 0.20					VT (<1) 0.45		CR 34	
15	180/Arg/Clr-3/4"-(3mm-5mm)											
	0.118	0.453	0.185					ARG90	0.068(#2)		CL	SS-D N,G
	U-Factor 0.30			SHGC (N / <1) 0.52 / 0.47					VT (N / <1) 0.63 / 0.56		CR 56	
	240/Arg/Clr-3/4"-(3mm-5mm)											
	0.118	0.453	0.185					ARG90	0.057(#2)		CL	SS-D N,G
	U-Factor 0.30			SHGC (N / <1) 0.21 / 0.19					VT (N / <1) 0.32 / 0.29		CR 56	

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3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
16	270/Arg/Clr-3/4"-(3mm-5mm)											
	0.118	0.453	0.185					ARG90	0.037(#2)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.30 / 0.27					VT (N / <1) 0.56 / 0.50		CR 57	
	366/Arg/Clr-3/4"-(3mm-5mm)											
	0.117	0.453	0.185					ARG90	0.022(#2)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.52 / 0.46		CR 57	
17	Clr/Arg/Clr-3/4"-(4mm-4mm)											
	0.154	0.453	0.154					ARG90		CL	SS-D	N,G
	U-Factor 0.45			SHGC (N / <1) 0.61 / 0.55					VT (N / <1) 0.66 / 0.59		CR 45	
	SCBrz/Arg/Clr-3/4"-(4mm-4mm)											
	0.154	0.453	0.154					ARG90		BZ	SS-D	N,G
	U-Factor 0.45			SHGC (N / <1) 0.29 / 0.26					VT (N / <1) 0.18 / 0.16		CR 45	
18	180/Arg/Clr-3/4"-(4mm-4mm)											
	0.160	0.453	0.154					ARG90	0.068(#2)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.51 / 0.46					VT (N / <1) 0.63 / 0.56		CR 56	
	Clr/Arg/180-3/4"-(4mm-4mm)											
	0.154	0.453	0.160					ARG90	0.068(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.54 / 0.49					VT (N / <1) 0.63 / 0.56		CR 56	
19	366/Arg/Clr-3/4"-(4mm-4mm)											
	0.153	0.453	0.154					ARG90	0.022(#2)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.52 / 0.46		CR 57	
	Clr/Arg/366-3/4"-(4mm-4mm)											
	0.154	0.453	0.153					ARG90	0.022(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.31 / 0.28					VT (N / <1) 0.52 / 0.46		CR 57	
	366/Arg/180-3/4"-(4mm-4mm)											
	0.153	0.453	0.160					ARG90	0.022(#2) / 0.068(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.50 / 0.44		CR 57	
	270/Arg/270-3/4"-(4mm-4mm)											
	0.157	0.453	0.157					ARG90	0.037(#2) / 0.037(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.27 / 0.25					VT (N / <1) 0.47 / 0.42		CR 57	

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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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
20	270/Arg/SCBrz-3/4"-(4mm-4mm)											
	0.157	0.453	0.154					ARG90	0.037(#2)		BZ	SS-D N,G
	U-Factor 0.29			SHGC (N / <1) 0.25 / 0.22					VT (N / <1) 0.15 / 0.13		CR 57	
	270/Arg/Clr-3/4"-(4mm-4mm)											
	0.157	0.453	0.154					ARG90	0.037(#2)		CL	SS-D N,G
	U-Factor 0.29			SHGC (N / <1) 0.30 / 0.27					VT (N / <1) 0.56 / 0.50		CR 57	
	SCBrz/Arg/270-3/4"-(4mm-4mm)											
	0.154	0.453	0.157					ARG90	0.037(#3)		BZ	SS-D N,G
	U-Factor 0.29			SHGC (N / <1) 0.14 / 0.13					VT (N / <1) 0.15 / 0.13		CR 57	
	Clr/Arg/270-3/4"-(4mm-4mm)											
	0.154	0.453	0.157					ARG90	0.037(#3)		CL	SS-D N,G
	U-Factor 0.29			SHGC (N / <1) 0.37 / 0.33					VT (N / <1) 0.56 / 0.50		CR 57	
	Clr/Arg/180-3/4"-(4mm-4mm)											
	0.154	0.453	0.157					ARG90	0.037(#3)		CL	SS-D N,G
	U-Factor 0.29			SHGC (N / <1) 0.37 / 0.33					VT (N / <1) 0.56 / 0.50		CR 57	
21	180/Arg/Clr-3/4"-(5mm-5mm)											
	0.187	0.386	0.185					ARG90	0.068(#2)		CL	SS-D N
	U-Factor 0.31			SHGC (N) 0.50					VT (N) 0.63		CR 55	
	Clr/Arg/180-3/4"-(5mm-5mm)											
	0.185	0.386	0.187					ARG90	0.068(#3)		CL	SS-D N
	U-Factor 0.31			SHGC (N) 0.53					VT (N) 0.63		CR 55	
22	180/Arg/Clr-3/4"-(5mm-5mm)											
	0.187	0.386	0.185					ARG90	0.068(#2)		CL	SS-D G
	U-Factor 0.33			SHGC (<1) 0.45					VT (<1) 0.56		CR 55	
	Clr/Arg/180-3/4"-(5mm-5mm)											
	0.185	0.386	0.187					ARG90	0.068(#3)		CL	SS-D G
	U-Factor 0.33			SHGC (<1) 0.48					VT (<1) 0.56		CR 55	
23	180/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.068(#2) / 0.149(#4)		CL	SS-D N
	U-Factor 0.27			SHGC (N) 0.48					VT (N) 0.61		CR 43	

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3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC)					Visible Transmittance (VT)		Condensation Resistance	
				Grids (None / <1 / >=1)					Grids (None / <1 / >=1)			
	240/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.057(#2) / 0.149(#4)		CL	SS-D N
	U-Factor 0.27			SHGC (N) 0.20					VT (N) 0.31		CR 43	
	270/Arg/i89-3/4"-(5mm-5mm)											
	0.197	0.386	0.187					ARG90	0.037(#2) / 0.149(#4)		CL	SS-D N
	U-Factor 0.27			SHGC (N) 0.29					VT (N) 0.54		CR 43	
	366/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.022(#2) / 0.149(#4)		CL	SS-D N
	U-Factor 0.27			SHGC (N) 0.22					VT (N) 0.50		CR 43	
24	180/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.068(#2) / 0.149(#4)		CL	SS-D G
	U-Factor 0.28			SHGC (<1) 0.43					VT (<1) 0.55		CR 43	
	240/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.057(#2) / 0.149(#4)		CL	SS-D G
	U-Factor 0.28			SHGC (<1) 0.18					VT (<1) 0.27		CR 43	
	270/Arg/i89-3/4"-(5mm-5mm)											
	0.197	0.386	0.187					ARG90	0.037(#2) / 0.149(#4)		CL	SS-D G
	U-Factor 0.28			SHGC (<1) 0.26					VT (<1) 0.48		CR 43	
	366/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.022(#2) / 0.149(#4)		CL	SS-D G
	U-Factor 0.28			SHGC (<1) 0.20					VT (<1) 0.45		CR 43	
25	270/Arg/SGry-3/4"-(5mm-5mm)											
	0.197	0.386	0.184					ARG90	0.037(#2)		GY	SS-D N
	U-Factor 0.30			SHGC (N) 0.28					VT (N) 0.31		CR 55	
	270/Arg/Clr-3/4"-(5mm-5mm)											
	0.197	0.386	0.185					ARG90	0.037(#2)		CL	SS-D N
	U-Factor 0.30			SHGC (N) 0.30					VT (N) 0.55		CR 55	
	366/Arg/Clr-3/4"-(5mm-5mm)											
	0.187	0.386	0.185					ARG90	0.022(#2)		CL	SS-D N
	U-Factor 0.30			SHGC (N) 0.23					VT (N) 0.51		CR 55	

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3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
	SBrz/Arg/270-3/4"-(5mm-5mm)											
	0.184	0.386	0.197					ARG90	0.037(#3)	BZ	SS-D	N
	U-Factor 0.30			SHGC (N) 0.27					VT (N) 0.36		CR 55	
	SGry/Arg/270-3/4"-(5mm-5mm)											
	0.184	0.386	0.197					ARG90	0.037(#3)	GY	SS-D	N
	U-Factor 0.30			SHGC (N) 0.24					VT (N) 0.31		CR 55	
	Clr/Arg/270-3/4"-(5mm-5mm)											
	0.185	0.386	0.197					ARG90	0.037(#3)	CL	SS-D	N
	U-Factor 0.30			SHGC (N) 0.36					VT (N) 0.55		CR 55	
	Clr/Arg/366-3/4"-(5mm-5mm)											
	0.185	0.386	0.187					ARG90	0.022(#3)	CL	SS-D	N
	U-Factor 0.30			SHGC (N) 0.31					VT (N) 0.51		CR 55	
	270/Arg/SBrz-3/4"-(5mm-5mm)											
	0.197	0.386	0.184					ARG90	0.037(#2)	BZ	SS-D	N
	U-Factor 0.30			SHGC (N) 0.28					VT (N) 0.36		CR 55	
	366/Arg/180-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.022(#2) / 0.068(#3)	CL	SS-D	N
	U-Factor 0.30			SHGC (N) 0.22					VT (N) 0.49		CR 55	
	270/Arg/270-3/4"-(5mm-5mm)											
	0.197	0.386	0.197					ARG90	0.037(#2) / 0.037(#3)	CL	SS-D	N
	U-Factor 0.30			SHGC (N) 0.27					VT (N) 0.47		CR 55	
26	270/Arg/SGry-3/4"-(5mm-5mm)											
	0.197	0.386	0.184					ARG90	0.037(#2)	GY	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.25					VT (<1) 0.28		CR 55	
	270/Arg/Clr-3/4"-(5mm-5mm)											
	0.197	0.386	0.185					ARG90	0.037(#2)	CL	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.27					VT (<1) 0.49		CR 55	
	366/Arg/Clr-3/4"-(5mm-5mm)											
	0.187	0.386	0.185					ARG90	0.022(#2)	CL	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.21					VT (<1) 0.46		CR 55	

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3100 Series Horizontal Sliding Window

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	
	U-Factor			Solar Heat Gain Coefficient (SHGC)					Visible Transmittance (VT)		Condensation Resistance		
				Grids (None / <1 / >=1)					Grids (None / <1 / >=1)				
	SBrz/Arg/270-3/4"-(5mm-5mm)												
	0.184	0.386	0.197					ARG90	0.037(#3)		BZ	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.24					VT (<1) 0.32		CR 55		
	SGry/Arg/270-3/4"-(5mm-5mm)												
	0.184	0.386	0.197					ARG90	0.037(#3)		GY	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.22					VT (<1) 0.28		CR 55		
	Clr/Arg/270-3/4"-(5mm-5mm)												
	0.185	0.386	0.197					ARG90	0.037(#3)		CL	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.33					VT (<1) 0.49		CR 55		
	Clr/Arg/366-3/4"-(5mm-5mm)												
	0.185	0.386	0.187					ARG90	0.022(#3)		CL	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.28					VT (<1) 0.46		CR 55		
	270/Arg/SBrz-3/4"-(5mm-5mm)												
	0.197	0.386	0.184					ARG90	0.037(#2)		BZ	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.26					VT (<1) 0.32		CR 55		
	366/Arg/180-3/4"-(5mm-5mm)												
	0.187	0.386	0.187					ARG90	0.022(#2) / 0.068(#3)		CL	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.20					VT (<1) 0.44		CR 55		
	270/Arg/270-3/4"-(5mm-5mm)												
	0.197	0.386	0.197					ARG90	0.037(#2) / 0.037(#3)		CL	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.25					VT (<1) 0.42		CR 55		
27	SCBrz/Arg/Clr-3/4"-(6mm-6mm)												
	0.223	0.315	0.224					ARG90		BZ	SS-D	N	
	U-Factor 0.47			SHGC (N) 0.25					VT (N) 0.15		CR 43		
	Clr/Arg/Clr-3/4"-(5mm-5mm)												
	0.185	0.386	0.185					ARG90		CL	SS-D	N	
	U-Factor 0.47			SHGC (N) 0.60					VT (N) 0.65		CR 43		
	SBrz/Arg/Clr-3/4"-(5mm-5mm)												
	0.184	0.386	0.185					ARG90		BZ	SS-D	N	
	U-Factor 0.47			SHGC (N) 0.45					VT (N) 0.42		CR 43		

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3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC)					Visible Transmittance (VT)		Condensation Resistance	
	Grids (None / <1 / >=1)					Grids (None / <1 / >=1)						
	SGry/Arg/Clr-3/4"-(5mm-5mm)											
	0.184	0.386	0.185					ARG90		GY	SS-D	N
	U-Factor 0.47			SHGC (N) 0.41					VT (N) 0.37		CR 43	
	SCGry/Arg/Clr-3/4"-(6mm-6mm)											
	0.223	0.315	0.224					ARG90		GY	SS-D	N
	U-Factor 0.47			SHGC (N) 0.23					VT (N) 0.12		CR 43	
28	SCBrz/Arg/Clr-3/4"-(6mm-6mm)											
	0.223	0.315	0.224					ARG90		BZ	SS-D	G
	U-Factor 0.48			SHGC (<1) 0.23					VT (<1) 0.13		CR 43	
	Clr/Arg/Clr-3/4"-(5mm-5mm)											
	0.185	0.386	0.185					ARG90		CL	SS-D	G
	U-Factor 0.48			SHGC (<1) 0.54					VT (<1) 0.58		CR 43	
	SBrz/Arg/Clr-3/4"-(5mm-5mm)											
	0.184	0.386	0.185					ARG90		BZ	SS-D	G
	U-Factor 0.48			SHGC (<1) 0.41					VT (<1) 0.38		CR 43	
	SGry/Arg/Clr-3/4"-(5mm-5mm)											
	0.184	0.386	0.185					ARG90		GY	SS-D	G
	U-Factor 0.48			SHGC (<1) 0.37					VT (<1) 0.33		CR 43	
	SCGry/Arg/Clr-3/4"-(6mm-6mm)											
	0.223	0.315	0.224					ARG90		GY	SS-D	G
	U-Factor 0.48			SHGC (<1) 0.21					VT (<1) 0.11		CR 43	
29	Clr/Arg/180-3/4"-(2mm-2mm)											
	0.087	0.480	0.087					ARG90	0.068(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.56 / 0.51					VT (N / <1) 0.64 / 0.58		CR 58	
	Clr/Arg/180-3/4"-(3mm-3mm)											
	0.118	0.480	0.118					ARG90	0.068(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.55 / 0.50					VT (N / <1) 0.64 / 0.57		CR 58	
30	Clr/Arg/270-3/4"-(2mm-2mm)											
	0.087	0.480	0.087					ARG90	0.037(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.38 / 0.34					VT (N / <1) 0.57 / 0.51		CR 59	

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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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
	Clr/Arg/270-3/4"-(3mm-3mm)											
	0.118	0.480	0.118					ARG90	0.037(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.37 / 0.34					VT (N / <1) 0.56 / 0.50		CR 59	
	366/Arg/Clr-3/4"-(3mm-3mm)											
	0.117	0.453	0.118					ARG90	0.022(#2)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.52 / 0.47		CR 59	
31	Clr/Arg/180-3/4"-(4mm-5mm)											
	0.154	0.413	0.197					ARG90	0.037(#3)	CL	SS-D	N
	U-Factor 0.30			SHGC (N) 0.37					VT (N) 0.56		CR 56	
32	Clr/Arg/180-3/4"-(4mm-5mm)											
	0.154	0.413	0.197					ARG90	0.037(#3)	CL	SS-D	G
	U-Factor 0.31			SHGC (<1) 0.33					VT (<1) 0.50		CR 56	
33	180/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(3mm-6mm)											
	0.118	0.386	0.241					ARG90	0.068(#2)	CL	SS-D	N
	U-Factor 0.31			SHGC (N) 0.51					VT (N) 0.63		CR 56	
	240/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(3mm-6mm)											
	0.118	0.386	0.241					ARG90	0.057(#2)	CL	SS-D	N
	U-Factor 0.31			SHGC (N) 0.21					VT (N) 0.32		CR 56	
	180/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(4mm-6mm)											
	0.160	0.386	0.241					ARG90	0.068(#2)	CL	SS-D	N
	U-Factor 0.31			SHGC (N) 0.50					VT (N) 0.62		CR 56	
34	180/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(3mm-6mm)											
	0.118	0.386	0.241					ARG90	0.068(#2)	CL	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.46					VT (<1) 0.56		CR 56	
	240/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(3mm-6mm)											
	0.118	0.386	0.241					ARG90	0.057(#2)	CL	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.19					VT (<1) 0.28		CR 56	
	180/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(4mm-6mm)											
	0.160	0.386	0.241					ARG90	0.068(#2)	CL	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.45					VT (<1) 0.56		CR 56	

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3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC)					Visible Transmittance (VT)		Condensation Resistance	
				Grids (None / <1 / >=1)					Grids (None / <1 / >=1)			
35	270/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(3mm-6mm)											
	0.118	0.386	0.241					ARG90	0.037(#2)	CL	SS-D	N
	U-Factor 0.30			SHGC (N) 0.30					VT (N) 0.56		CR 57	
	366/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(3mm-6mm)											
	0.117	0.386	0.241					ARG90	0.022(#2)	CL	SS-D	N
	U-Factor 0.30			SHGC (N) 0.22					VT (N) 0.51		CR 57	
	270/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(4mm-6mm)											
	0.157	0.386	0.241					ARG90	0.037(#2)	CL	SS-D	N
	U-Factor 0.30			SHGC (N) 0.29					VT (N) 0.55		CR 57	
	366/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(4mm-6mm)											
	0.153	0.386	0.241					ARG90	0.022(#2)	CL	SS-D	N
	U-Factor 0.30			SHGC (N) 0.22					VT (N) 0.51		CR 57	
36	270/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(3mm-6mm)											
	0.118	0.386	0.241					ARG90	0.037(#2)	CL	SS-D	G
	U-Factor 0.31			SHGC (<1) 0.27					VT (<1) 0.50		CR 57	
	366/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(3mm-6mm)											
	0.117	0.386	0.241					ARG90	0.022(#2)	CL	SS-D	G
	U-Factor 0.31			SHGC (<1) 0.20					VT (<1) 0.46		CR 57	
	270/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(4mm-6mm)											
	0.157	0.386	0.241					ARG90	0.037(#2)	CL	SS-D	G
	U-Factor 0.31			SHGC (<1) 0.27					VT (<1) 0.49		CR 57	
	366/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(4mm-6mm)											
	0.153	0.386	0.241					ARG90	0.022(#2)	CL	SS-D	G
	U-Factor 0.31			SHGC (<1) 0.20					VT (<1) 0.46		CR 57	
37	180/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(5mm-6mm)											
	0.187	0.315	0.241					ARG90	0.068(#2)	CL	SS-D	N
	U-Factor 0.33			SHGC (N) 0.50					VT (N) 0.62		CR 49	
	SCBrz/Arg/270-3/4"-(6mm-6mm)											
	0.223	0.315	0.236					ARG90	0.037(#3)	BZ	SS-D	N
	U-Factor 0.33			SHGC (N) 0.13					VT (N) 0.13		CR 49	

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3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC)					Visible Transmittance (VT)		Condensation Resistance	
				Grids (None / <1 / >=1)					Grids (None / <1 / >=1)			
	SCGry/Arg/270-3/4"-(6mm-6mm)											
	0.223	0.315	0.236					ARG90	0.037(#3)		GY	SS-D N
	U-Factor 0.33			SHGC (N) 0.12					VT (N) 0.10		CR 49	
	270/Arg/SCBrz-3/4"-(6mm-6mm)											
	0.236	0.315	0.223					ARG90	0.037(#2)		BZ	SS-D N
	U-Factor 0.33			SHGC (N) 0.20					VT (N) 0.13		CR 49	
	270/Arg/SCGry-3/4"-(6mm-6mm)											
	0.236	0.315	0.223					ARG90	0.037(#2)		GY	SS-D N
	U-Factor 0.33			SHGC (N) 0.20					VT (N) 0.11		CR 49	
38	180/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(5mm-6mm)											
	0.187	0.315	0.241					ARG90	0.068(#2)		CL	SS-D G
	U-Factor 0.35			SHGC (<1) 0.45					VT (<1) 0.56		CR 49	
	SCBrz/Arg/270-3/4"-(6mm-6mm)											
	0.223	0.315	0.236					ARG90	0.037(#3)		BZ	SS-D G
	U-Factor 0.35			SHGC (<1) 0.12					VT (<1) 0.11		CR 49	
	SCGry/Arg/270-3/4"-(6mm-6mm)											
	0.223	0.315	0.236					ARG90	0.037(#3)		GY	SS-D G
	U-Factor 0.35			SHGC (<1) 0.11					VT (<1) 0.09		CR 49	
	270/Arg/SCBrz-3/4"-(6mm-6mm)											
	0.236	0.315	0.223					ARG90	0.037(#2)		BZ	SS-D G
	U-Factor 0.35			SHGC (<1) 0.18					VT (<1) 0.11		CR 49	
	270/Arg/SCGry-3/4"-(6mm-6mm)											
	0.236	0.315	0.223					ARG90	0.037(#2)		GY	SS-D G
	U-Factor 0.35			SHGC (<1) 0.18					VT (<1) 0.09		CR 49	
39	366/Arg/Clr/Arg/Clr-3/4"-(2mm-2mm-2mm)											
	0.087	0.256	0.087	0.256	0.087			ARG90/KRY95	0.022(#2)		CL	SS-D N
	U-Factor 0.28			SHGC (N) 0.21					VT (N) 0.48		CR 60	
40	366/Arg/Clr/Arg/Clr-3/4"-(2mm-2mm-2mm)											
	0.087	0.256	0.087	0.256	0.087			ARG90/KRY95	0.022(#2)		CL	SS-D G
	U-Factor 0.30			SHGC (<1) 0.19					VT (<1) 0.43		CR 60	

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3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC)				Visible Transmittance (VT)		Condensation Resistance		
				Grids (None / <1 / >=1)				Grids (None / <1 / >=1)				
41	366/Arg/180 (#4)/Arg/Clr-3/4"-(2mm-2mm-2mm)											
	0.087	0.256	0.087	0.256	0.087			ARG90	0.022(#2) / 0.068(#4)		CL	SS-D N
	U-Factor 0.25			SHGC (N) 0.20				VT (N) 0.47		CR 62		
	270/Arg/Clr/Arg/270-3/4"-(2mm-2mm-2mm)											
	0.087	0.256	0.087	0.256	0.087			ARG90	0.037(#2) / 0.037(#5)		CL	SS-D N
	U-Factor 0.25			SHGC (N) 0.26				VT (N) 0.44		CR 62		
	366/Arg/Clr/Arg/270-3/4"-(2mm-2mm-2mm)											
	0.087	0.256	0.087	0.256	0.087			ARG90	0.022(#2) / 0.037(#5)		CL	SS-D N
	U-Factor 0.25			SHGC (N) 0.20				VT (N) 0.41		CR 62		
42	366/Arg/180 (#4)/Arg/Clr-3/4"-(2mm-2mm-2mm)											
	0.087	0.256	0.087	0.256	0.087			ARG90	0.022(#2) / 0.068(#4)		CL	SS-D G
	U-Factor 0.26			SHGC (<1) 0.18				VT (<1) 0.42		CR 62		
	270/Arg/Clr/Arg/270-3/4"-(2mm-2mm-2mm)											
	0.087	0.256	0.087	0.256	0.087			ARG90	0.037(#2) / 0.037(#5)		CL	SS-D G
	U-Factor 0.26			SHGC (<1) 0.23				VT (<1) 0.40		CR 62		
	366/Arg/Clr/Arg/270-3/4"-(2mm-2mm-2mm)											
	0.087	0.256	0.087	0.256	0.087			ARG90	0.022(#2) / 0.037(#5)		CL	SS-D G
	U-Factor 0.26			SHGC (<1) 0.18				VT (<1) 0.37		CR 62		
43	240/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(5mm-6mm)											
	0.187	0.315	0.241					ARG90	0.057(#2)		CL	SS-D N
	U-Factor 0.33			SHGC (N) 0.21				VT (N) 0.31		CR 54		
	270/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(5mm-6mm)											
	0.197	0.315	0.241					ARG90	0.037(#2)		CL	SS-D N
	U-Factor 0.33			SHGC (N) 0.30				VT (N) 0.55		CR 54		
	366/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(5mm-6mm)											
	0.187	0.315	0.241					ARG90	0.022(#2)		CL	SS-D N
	U-Factor 0.33			SHGC (N) 0.23				VT (N) 0.51		CR 54		
44	240/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(5mm-6mm)											
	0.187	0.315	0.241					ARG90	0.057(#2)		CL	SS-D G
	U-Factor 0.35			SHGC (<1) 0.19				VT (<1) 0.28		CR 54		

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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
	U-Factor			Solar Heat Gain Coefficient (SHGC)					Visible Transmittance (VT)		Condensation Resistance	
	Grids (None / <1 / >=1)					Grids (None / <1 / >=1)						
	270/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(5mm-6mm)											
	0.197	0.315	0.241					ARG90	0.037(#2)	CL	SS-D	G
	U-Factor 0.35			SHGC (<1) 0.27					VT (<1) 0.49		CR 54	
	366/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(5mm-6mm)											
	0.187	0.315	0.241					ARG90	0.022(#2)	CL	SS-D	G
	U-Factor 0.35			SHGC (<1) 0.21					VT (<1) 0.45		CR 54	
45	240/Arg/Clr-3/4"-(5mm-5mm)											
	0.187	0.386	0.185					ARG90	0.057(#2)	CL	SS-D	N
	U-Factor 0.31			SHGC (N) 0.21					VT (N) 0.31		CR 55	
46	240/Arg/Clr-3/4"-(5mm-5mm)											
	0.187	0.386	0.185					ARG90	0.057(#2)	CL	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.19					VT (<1) 0.28		CR 55	
47	366/Arg/Clr-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.022(#2)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.53 / 0.47		CR 59	
48	366/Arg/Clr-3/4"-(2mm-2mm)											
	0.087	0.571	0.087					ARG90	0.022(#2)	CL	SS-D	G
	U-Factor 0.33			SHGC (<1) 0.20					VT (<1) 0.47		CR 59	
49	366/Arg/Clr-3/4"-(3mm-2.8mm)											
	0.117	0.512	0.110					ARG90	0.022(#2)	CL	SS-D	N,G
	U-Factor 0.28			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.52 / 0.46		CR 59	
50	366/Arg/Clr-3/4"-(3mm-2.8mm)											
	0.117	0.512	0.110					ARG90	0.022(#2)	CL	SS-D	G
	U-Factor 0.37			SHGC (<1) 0.20					VT (<1) 0.46		CR 47	
51	180/Arg/i89-3/4"-(2.8mm-3mm)											
	0.110	0.512	0.117					ARG90	0.068(#2) / 0.149(#4)	CL	SS-D	N,G
	U-Factor 0.25			SHGC (N / <1) 0.51 / 0.46					VT (N / <1) 0.62 / 0.56		CR 46	
	180/Arg/i89-3/4"-(3mm-3mm)											
	0.118	0.512	0.117					ARG90	0.068(#2) / 0.149(#4)	CL	SS-D	N,G
	U-Factor 0.25			SHGC (N / <1) 0.51 / 0.45					VT (N / <1) 0.62 / 0.56		CR 46	

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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
	U-Factor			Solar Heat Gain Coefficient (SHGC)					Visible Transmittance (VT)		Condensation Resistance	
	Grids (None / <1 / >=1)					Grids (None / <1 / >=1)						
52	180/Arg/i89-3/4"-(2.8mm-3mm)											
	0.110	0.512	0.117					ARG90	0.068(#2) / 0.149(#4)		CL	SS-D G
	U-Factor 0.30			SHGC (<1) 0.46					VT (<1) 0.56		CR 34	
	180/Arg/i89-3/4"-(3mm-3mm)											
	0.118	0.512	0.117					ARG90	0.068(#2) / 0.149(#4)		CL	SS-D G
	U-Factor 0.30			SHGC (<1) 0.45					VT (<1) 0.56		CR 34	
53	366/Arg/i89-3/4"-(3mm-3mm)											
	0.117	0.512	0.117					ARG90	0.022(#2) / 0.149(#4)		CL	SS-D N,G
	U-Factor 0.24			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.51 / 0.45		CR 47	
54	366/Arg/i89-3/4"-(3mm-3mm)											
	0.117	0.512	0.117					ARG90	0.022(#2) / 0.149(#4)		CL	SS-D G
	U-Factor 0.30			SHGC (<1) 0.20					VT (<1) 0.45		CR 35	
55	366/Arg/Clr-3/4"-(3mm-3mm)											
	0.117	0.512	0.118					ARG90	0.022(#2)		CL	SS-D N,G
	U-Factor 0.28			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.52 / 0.47		CR 58	
56	366/Arg/Clr-3/4"-(3mm-3mm)											
	0.117	0.512	0.118					ARG90	0.022(#2)		CL	SS-D G
	U-Factor 0.37			SHGC (<1) 0.20					VT (<1) 0.47		CR 47	
57	366/Arg/Clr-3/4"-(4mm-4mm)											
	0.153	0.453	0.154					ARG90	0.022(#2)		CL	SS-D N,G
	U-Factor 0.28			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.52 / 0.46		CR 57	
	Clr/Arg/366-3/4"-(4mm-4mm)											
	0.154	0.453	0.153					ARG90	0.022(#3)		CL	SS-D N,G
	U-Factor 0.28			SHGC (N / <1) 0.31 / 0.28					VT (N / <1) 0.52 / 0.46		CR 57	
	366/Arg/180-3/4"-(4mm-4mm)											
	0.153	0.453	0.160					ARG90	0.022(#2) / 0.068(#3)		CL	SS-D N,G
	U-Factor 0.28			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.50 / 0.44		CR 57	
	270/Arg/270-3/4"-(4mm-4mm)											
	0.157	0.453	0.157					ARG90	0.037(#2) / 0.037(#3)		CL	SS-D N,G
	U-Factor 0.28			SHGC (N / <1) 0.27 / 0.25					VT (N / <1) 0.47 / 0.42		CR 57	

NFRC 100/200/500 Summary Sheet 3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
58	366/Arg/Clr-3/4"-(5mm-5mm)											
	0.187	0.386	0.185					ARG90	0.022(#2)	CL	SS-D	N
	U-Factor 0.29			SHGC (N) 0.23					VT (N) 0.51		CR 56	
59	366/Arg/Clr-3/4"-(5mm-5mm)											
	0.187	0.386	0.185					ARG90	0.022(#2)	CL	SS-D	G
	U-Factor 0.31			SHGC (<1) 0.21					VT (<1) 0.46		CR 56	
60	180/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.068(#2) / 0.149(#4)	CL	SS-D	N
	U-Factor 0.26			SHGC (N) 0.48					VT (N) 0.61		CR 43	
	240/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.057(#2) / 0.149(#4)	CL	SS-D	N
	U-Factor 0.26			SHGC (N) 0.20					VT (N) 0.31		CR 43	
	270/Arg/i89-3/4"-(5mm-5mm)											
	0.197	0.386	0.187					ARG90	0.037(#2) / 0.149(#4)	CL	SS-D	N
	U-Factor 0.26			SHGC (N) 0.29					VT (N) 0.54		CR 43	
	366/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.022(#2) / 0.149(#4)	CL	SS-D	N
	U-Factor 0.26			SHGC (N) 0.22					VT (N) 0.50		CR 43	
61	180/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.068(#2) / 0.149(#4)	CL	SS-D	G
	U-Factor 0.28			SHGC (<1) 0.43					VT (<1) 0.55		CR 43	
	240/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.057(#2) / 0.149(#4)	CL	SS-D	G
	U-Factor 0.28			SHGC (<1) 0.18					VT (<1) 0.27		CR 43	
	270/Arg/i89-3/4"-(5mm-5mm)											
	0.197	0.386	0.187					ARG90	0.037(#2) / 0.149(#4)	CL	SS-D	G
	U-Factor 0.28			SHGC (<1) 0.26					VT (<1) 0.48		CR 43	
	366/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.386	0.187					ARG90	0.022(#2) / 0.149(#4)	CL	SS-D	G
	U-Factor 0.28			SHGC (<1) 0.20					VT (<1) 0.45		CR 43	

NFRC 100/200/500 Summary Sheet

3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
62	Clr/Arg/180-3/4"-(2mm-2mm)											
	0.087	0.480	0.087					ARG90	0.068(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.56 / 0.51					VT (N / <1) 0.64 / 0.58		CR 58	
	Clr/Arg/180-3/4"-(3mm-3mm)											
	0.118	0.480	0.118					ARG90	0.068(#3)	CL	SS-D	N,G
	U-Factor 0.30			SHGC (N / <1) 0.55 / 0.50					VT (N / <1) 0.64 / 0.57		CR 58	
63	Clr/Arg/270-3/4"-(2mm-2mm)											
	0.087	0.512	0.087					ARG90	0.037(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.38 / 0.34					VT (N / <1) 0.57 / 0.51		CR 59	
64	Clr/Arg/270-3/4"-(2mm-2mm)											
	0.087	0.512	0.087					ARG90	0.037(#3)	CL	SS-D	G
	U-Factor 0.37			SHGC (<1) 0.34					VT (<1) 0.51		CR 46	
65	Clr/Arg/270-3/4"-(2mm-2mm)											
	0.087	0.480	0.087					ARG90	0.037(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.38 / 0.34					VT (N / <1) 0.57 / 0.51		CR 59	
	Clr/Arg/270-3/4"-(3mm-3mm)											
	0.118	0.480	0.118					ARG90	0.037(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.37 / 0.34					VT (N / <1) 0.56 / 0.50		CR 59	
	366/Arg/Clr-3/4"-(3mm-3mm)											
	0.117	0.453	0.118					ARG90	0.022(#2)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.52 / 0.47		CR 59	
66	Clr/Arg/180-3/4"-(4mm-4mm)											
	0.154	0.453	0.157					ARG90	0.037(#3)	CL	SS-D	N,G
	U-Factor 0.29			SHGC (N / <1) 0.37 / 0.33					VT (N / <1) 0.56 / 0.50		CR 57	
67	Clr/Arg/180-3/4"-(4mm-5mm)											
	0.154	0.413	0.197					ARG90	0.037(#3)	CL	SS-D	N
	U-Factor 0.29			SHGC (N) 0.37					VT (N) 0.56		CR 56	
68	Clr/Arg/180-3/4"-(4mm-5mm)											
	0.154	0.413	0.197					ARG90	0.037(#3)	CL	SS-D	G
	U-Factor 0.31			SHGC (<1) 0.33					VT (<1) 0.50		CR 56	

NFRC 100/200/500 Summary Sheet 3100 Series Horizontal Sliding Window

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
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
69	240/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(3mm-6mm)											
	0.118	0.386	0.241					ARG90	0.057(#2)	CL	SS-D	N
	U-Factor 0.30			SHGC (N) 0.21					VT (N) 0.32		CR 56	
70	240/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(3mm-6mm)											
	0.118	0.386	0.241					ARG90	0.057(#2)	CL	SS-D	G
	U-Factor 0.32			SHGC (<1) 0.19					VT (<1) 0.28		CR 56	
71	366/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(3mm-6mm)											
	0.117	0.386	0.241					ARG90	0.022(#2)	CL	SS-D	N
	U-Factor 0.29			SHGC (N) 0.22					VT (N) 0.51		CR 57	
72	366/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(3mm-6mm)											
	0.117	0.386	0.241					ARG90	0.022(#2)	CL	SS-D	G
	U-Factor 0.31			SHGC (<1) 0.20					VT (<1) 0.46		CR 57	
73	366/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(5mm-6mm)											
	0.187	0.315	0.241					ARG90	0.022(#2)	CL	SS-D	N
	U-Factor 0.31			SHGC (N) 0.23					VT (N) 0.51		CR 55	
74	366/Arg/Clr Lami 2.3mm-0.060SGP-2.3mm-3/4"-(5mm-6mm)											
	0.187	0.315	0.241					ARG90	0.022(#2)	CL	SS-D	G
	U-Factor 0.34			SHGC (<1) 0.21					VT (<1) 0.45		CR 55	
75	180/Arg/i89-3/4"-(4mm-3mm)											
	0.160	0.480	0.117					ARG90	0.068(#2) / 0.149(#4)	CL	SS-D	N,G
	U-Factor 0.25			SHGC (N / <1) 0.49 / 0.44					VT (N / <1) 0.62 / 0.55		CR 45	
	366/Arg/i89-3/4"-(4mm-3mm)											
	0.153	0.480	0.117					ARG90	0.022(#2) / 0.149(#4)	CL	SS-D	N,G
	U-Factor 0.25			SHGC (N / <1) 0.22 / 0.20					VT (N / <1) 0.51 / 0.45		CR 45	
76	180/Arg/i89-3/4"-(5mm-5mm)											
	0.187	0.480	0.187					ARG90	0.068(#2) / 0.149(#4)	CL	SS-D	N,G
	U-Factor 0.26			SHGC (N / <1) 0.48 / 0.43					VT (N / <1) 0.61 / 0.55		CR 45	

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.

Architectural Testing, Inc. is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications. The NFRC procedure requires that the computational results be verified through actual test results.

This report is reissued in the name of The Coeur D'Alene Window Company through written authorization of Royal Window and Door Profiles Plant 14, to whom the original report was rendered. The original Royal Window and Door Profiles Plant 14 report number is Everett, Washington.

Architectural Testing 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 Architectural Testing, Inc. for the entire test record retention period. The test record retention end date for this report is July 31, 2018.

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 Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.:

SIMULATED BY:

REVIEWED BY:

Ryan P. Johnson
Simulation Technician

Kenny C. White
Laboratory Manager
Simulator-In-Responsible-Charge

RPJ:rpj
D9210.02-301-45

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix A: Drawings and Bills of Material (28)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
.02R0	07/31/14	All	Original Report Issue. Work Requested by Pat Collins of The Coeur D'Alene Window Company.

This report produced from controlled document template ATI 00037, Revised 10/2/2012.



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

D9210.02-301-45

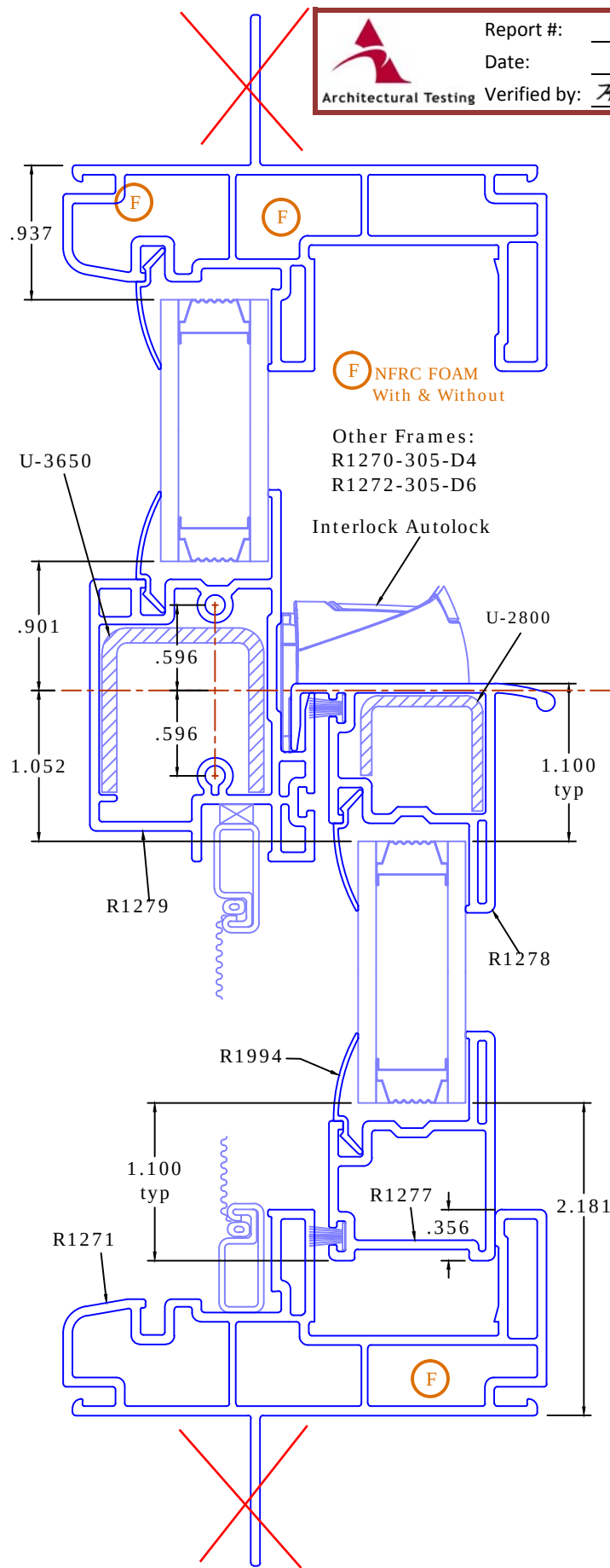
3100 Series Single Slider BOM

Part Number	Description	Vendor	Comments
305-D4	Frame	Royal	
305-D5	Frame Block	Royal	Alternate
305-D6	Frame Flush Fin	Royal	Alternate
305-D17R	Fixed Interlock	Royal	
305-D16	Fixed Interlock	Royal	
305-D15	Vent Interlock	Royal	
305-D14	Sash Rail	Royal	
R1994	Glazing Bead	Royal	
6554	Setting Block Frame	Mikron	
6555	Setting Block Sash	Mikron	
305-D18A	Sash Track	Royal	
305-D27	Anti Lift	Royal	
305-D22R	T-Bar	Royal	
VG1216W-FC515	Glazing Tape	Echo Tape	
08A14PT4HVLD	Fixed Interlock Screw, 8A x 1 3/4 Ph Truss Hd Stainless 410 Vyn-L-Hold	Merchants	
08SD06P6FSZXXX	Cam Lock Screw, 8-18 x 3/4 Ph #6 Flat Hd, Steel Zinc Plated, Self Drilling	Merchants	
06SD06PPSZ	Keeper Screw, 6-20 x 3/4 Ph Pan Stl znc Self-Drilling	Merchants	
06SD06PPSZ	Mechanism Screw, 6-20 x 3/4 Ph Pan Stl znc Self-Drilling	Merchants	Alternate
A30700404.XX	Cam Lock RH	Truth	
A30700414.XX	Cam Lock LH	Truth	
41988-XX	Keeper	Truth	
SK04-0005	Auto Lock Mech	Interlock	Alternate
SK01-3004-XXX	Auto Lock Keeper	Interlock	Alternate
SK04-0008-XXX	Auto Lock Cover Composite	Interlock	Alternate
SK04-0012-XXX	Auto Lock Cover Zinc	Interlock	Alternate
U-3650	Fixed Interlock Reinforcement	Helton	
U-2800	Sash Interlock Reinforcement	Helton	
305-S1344	Fixed Interlock Reinforcement	Helton	
24018745WHGF	Weatherstrip Fixed Interlock, .240 pile x .187 fin	Amesbury, Ultra-Fab	
24018745WHGF	Weatherstrip Sash, .240 pile x .187 fin	Amesbury, Ultra-Fab	





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	Sys No. 305-L1270-79-XO_H						RADII:
CUSTOMER Coeur d'Alene Windows		PROJECT: 305_CdA		Drawn by: g m c	SCALE 0.875:1	WALL TOLERANCES: ±0.006 ANGULAR TOLERANCES: xx WALL THICKNESS: SYMBOL:	UNMARKED 0.015
TITLE XO Horizontal Section Slice		DATE: May 1, 2014		AREA .000	LINEAR TOLERANCES: .000 0.000-0.999 ±0.010	EXTERIOR ⌀	b
				WT/FT .000	1.000-1.999 ±0.015 2.000-3.999 ±0.020	INTERIOR 	c
						CRITICAL 	f
						EXPOSED ----	s
						EXPOSED ----	SHARP

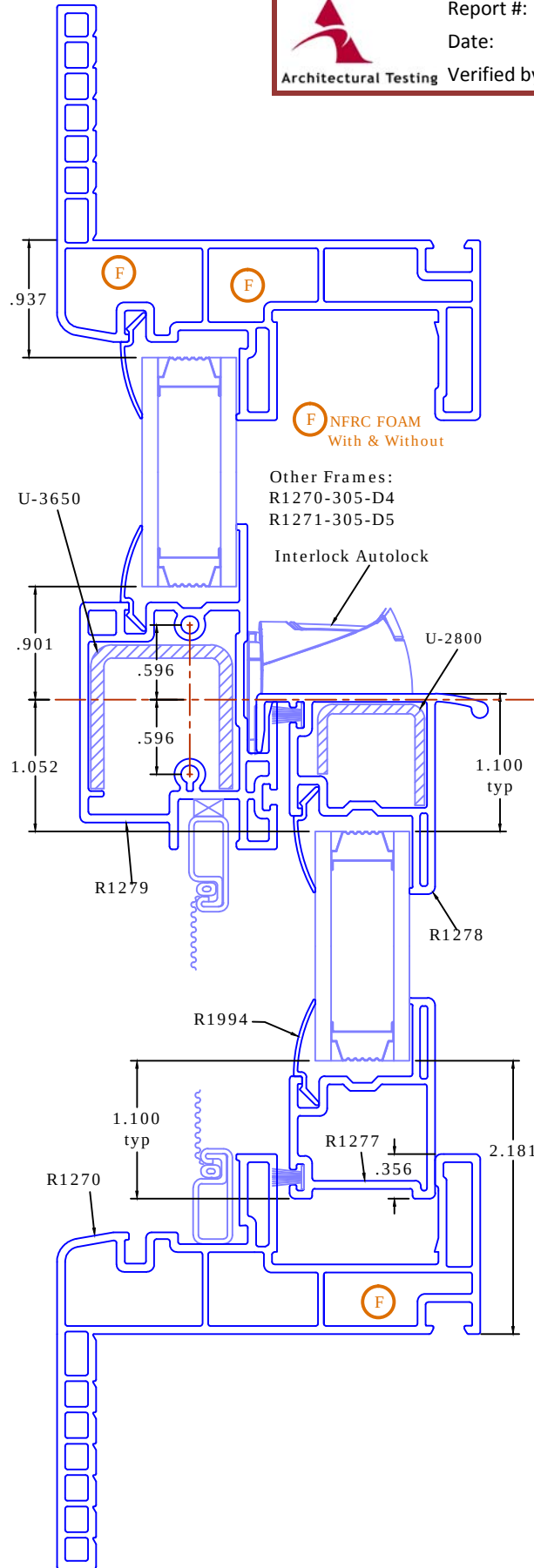


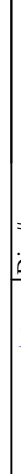
Report #: D9210-301-45
 Date: 07/31/2014
 Architectural Testing Verified by: *HC. White*

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	Sys No.		305-L1271-79-XO_H	Drawn by:	SCALE 0.875:1	WALL TOLERANCES: 0.000-0.099 ±0.006	ANGULAR TOLERANCES: x.x ±1/2°	RADII: UNMARKED 0.015
	CUSTOMER		Coeur d'Alene Windows	PROJECT:	305_CdA	LINEAR TOLERANCES: .000 0.000-0.999 ±0.010	EXTERIOR WALL THICKNESS: Exterior .000 SHARP Interior .000 FLEX	a b c
	TITLE XO Horizontal Section Slice		DATE:	July 21, 2014	WT/FT .000	1.000-1.999 ±0.015 2.000-3.999 ±0.020	CRITICAL EXPOSED EXPOSED	f s SHARP



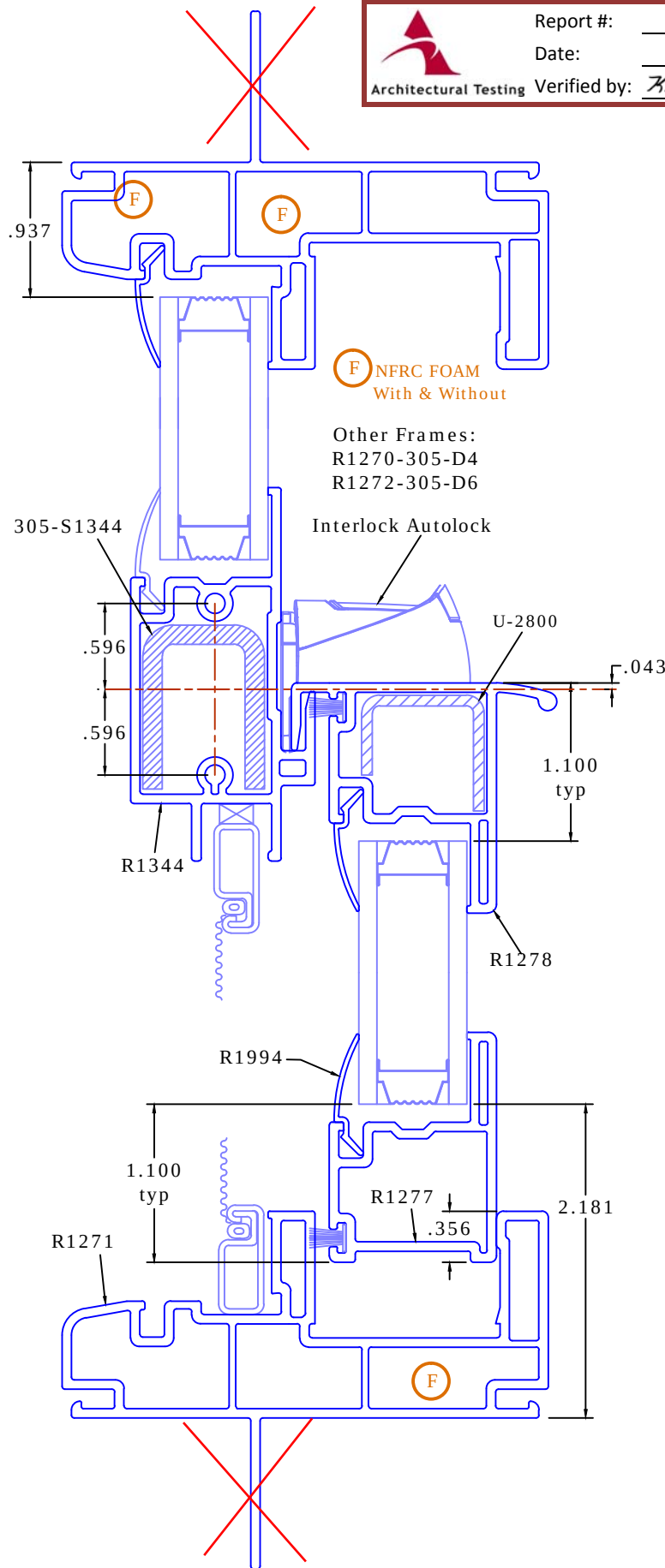
Report #: D9210-301-45
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 111 Royal Group Crescent Woodbridge, Ontario Canada L4H 1X9	Die #	305-L1272-79-XO_H		THIS DOCUMENT CONTAINS PROPRIETARY AND/OR CONFIDENTIAL INFORMATION AND IS NOT TO BE REPRODUCED OR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS GIVEN, WITHOUT THE WRITTEN PERMISSION OF ROYAL GROUP INC. Copyright © 2014 Royal Group, Inc. All Rights Reserved PROJECT: 305_CdA DATE: July 21, 2014	Layout Name:		XO_HOR_72_79		305_CdA_Sections_all_export_at_7-21-2014		Ref									
	Sys No.				gmc		SCALE		0.75:1		WALL TOLERANCES: 0.000-0.099 ±0.006		ANGULAR TOLERANCES: x.x ±1/2°		RADIO: UNMARKED 0.015					
	CUSTOMER	Coeur d'Alene Windows			AREA		.000		LINEAR TOLERANCES: 0.000-0.999 ±0.010		EXterior		SHARP		a					
	X0 Horizontal Section Slice				WT/FT		.000		1.000-1.999 ±0.015		■		CRITICAL		f		FULL			
					.000		2.000-3.999 ±0.020		▲		.xxx		EXPOSED		s		SHARP			
					.000		.000		.000		.000		.000		.000		.000		.000	
					.000		.000		.000		.000		.000		.000		.000		.000	



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	Sys No.				305-L1270-44-XO_H			
	CUSTOMER				Coeur d'Alene Windows			
111 Royal Group Crescent Coeur d'Alene, Idaho Canada L4B 1N9		TITLE XO Horizontal Section Slice						

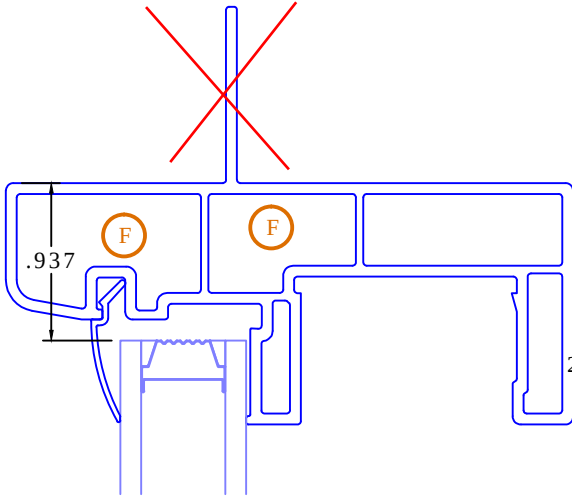


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	Sys No. 305-L1271-44-XO_H	PROJECT: 305_CdA		Drawn by: gmc	SCALE 0.875:1	WALL TOLERANCES: 0.000-0.099 ±0.006	ANGULAR TOLERANCES: x.x ±1/2°	RADI: UNMARKED 0.015	xxx
CUSTOMER: Coeur d'Alene Windows		DATE: July 21, 2014		AREA .000	WT/FT .000	WALL THICKNESS: Exterior .000 Interior .000	SYMBOL: SHARP FLEX CRITICAL EXPOSED	a b c f s	g h i j k l m n o p q r s
TITLE: XO Horizontal Section Slice									

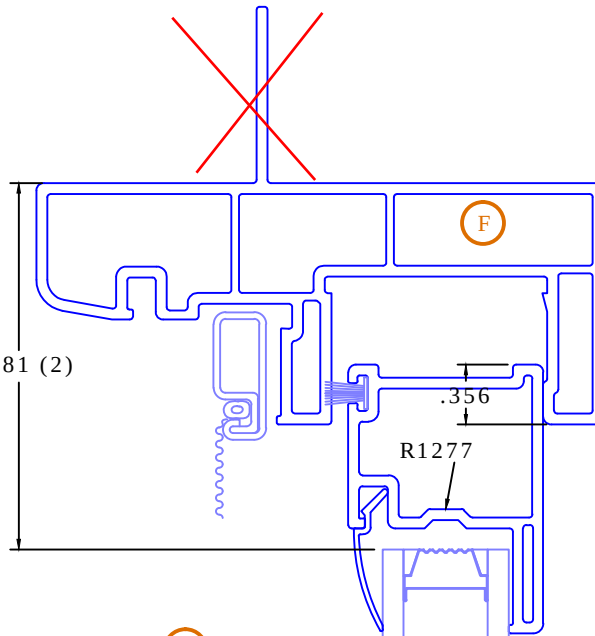


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 Date: 07/31/2014
 Verified by: *HC. h. h. h.*

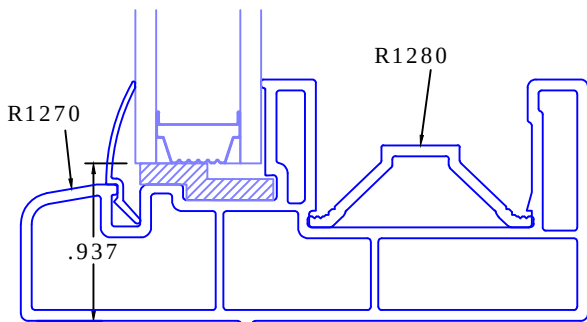


F NFRC FOAM
 With & Without

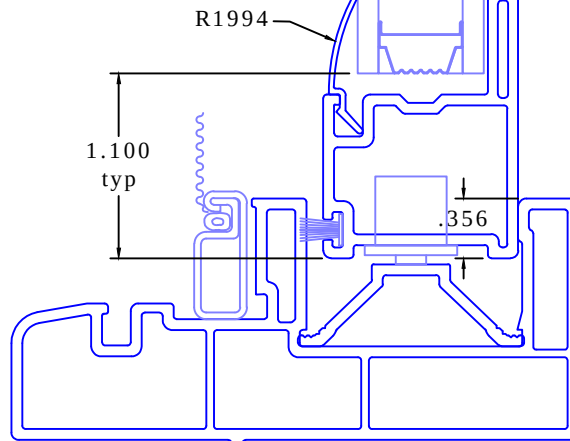
Other Frames:
 R1271-305-D5
 R1272-305-D6



F NFRC FOAM
 With & Without



Vertical Slice Thru Fixed Lite



Vertical Slice Thru Sash

ROYAL Building Products 111 Royal Group Crescent Woodbridge, Ontario Canada L4H 1X9	Die #	305-L1270-79-XO_V	THIS DOCUMENT CONTAINS PROPRIETARY AND/OR CONFIDENTIAL INFORMATION AND IS NOT TO BE REPRODUCED, COPIED, OR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS GIVEN, WITHOUT THE WRITTEN PERMISSION OF ROYAL GROUP INC.		Copyright © 2014 Royal Group, Inc. All Rights Reserved	Layout Name: XO_VERT_70 Drawn by: gmc SCALE: 0.875:1	ACAD #: 305_CdA Cda_Sections_all_export_at_7-21-2014	Ref: xxx RADI: UNMARKED 0.015 WALL TOLERANCES: 0.000-0.009 ±0.006 WALL THICKNESS: .000 SHARP EXTERIOR: .000 SHARP INTERIOR: .000 FLEX CRITICAL: .xxx CRITICAL EXPOSED: .xxx EXPOSED
	Sys No. CUSTOMER: Coeur d'Alene Windows	PROJECT: 305_CdA DATE: May 1, 2014	LINEAR TOLERANCES: 0.000-0.999 ±0.010 1.000-1.999 ±0.015 2.000-3.999 ±0.020	AREA: .000 WT/FT: .000	SYMBOL: a b c f s	FULL SHARP		

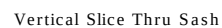
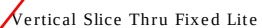
X0 Vertical Section Slices



Verified by: *KC. u. hio*



Other Frames:
R1270-305-D4
R1272-305-D6



	Die #	THIS DOCUMENT CONTAINS PROPRIETARY AND/OR CONFIDENTIAL INFORMATION AND IS NOT TO BE REPRODUCED, COPIED, OR OTHERWISE USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS ISSUED. PERMISSION OF ROYAL GROUP INC.	Copyright © 2014 Royal Group, Inc. All Rights Reserved	Layout Name: XO_VERT_71		ACAD #:	Ref xxx		
	Sys No.			305-L1271-79-XO_V		WALL TOLERANCES: 0.000-0.099 ±0.006		ANGULAR TOLERANCES: xx ±1/2"	
	CUSTOMER Coeur d'Alene Windows			PROJECT: 305_CdA		WALL THICKNESS: .000 SHARP		SYMBOL: a	
	CUSTOMER Coeur d'Alene Windows		DATE: July 21, 2014	Drawn by: g mC	SCALE 0.875:1	LINEAR TOLERANCES: .000 0.000-0.999 ±0.010 1.000-1.999 ±0.015 2.000-3.999 ±0.020	WALL TOLERANCES: Exterior Interior	SYMBOL: b c	
	CUSTOMER Coeur d'Alene Windows		DATE: July 21, 2014	PROJECT: 305_CdA		WALL THICKNESS: .000 SHARP	SYMBOL: a		
	CUSTOMER Coeur d'Alene Windows		DATE: July 21, 2014	PROJECT: 305_CdA		WALL THICKNESS: .000 SHARP	SYMBOL: a		
XO Vertical Section Slices		TITLE		XO Vertical Section Slices		XO Vertical Section Slices		XO Vertical Section Slices	

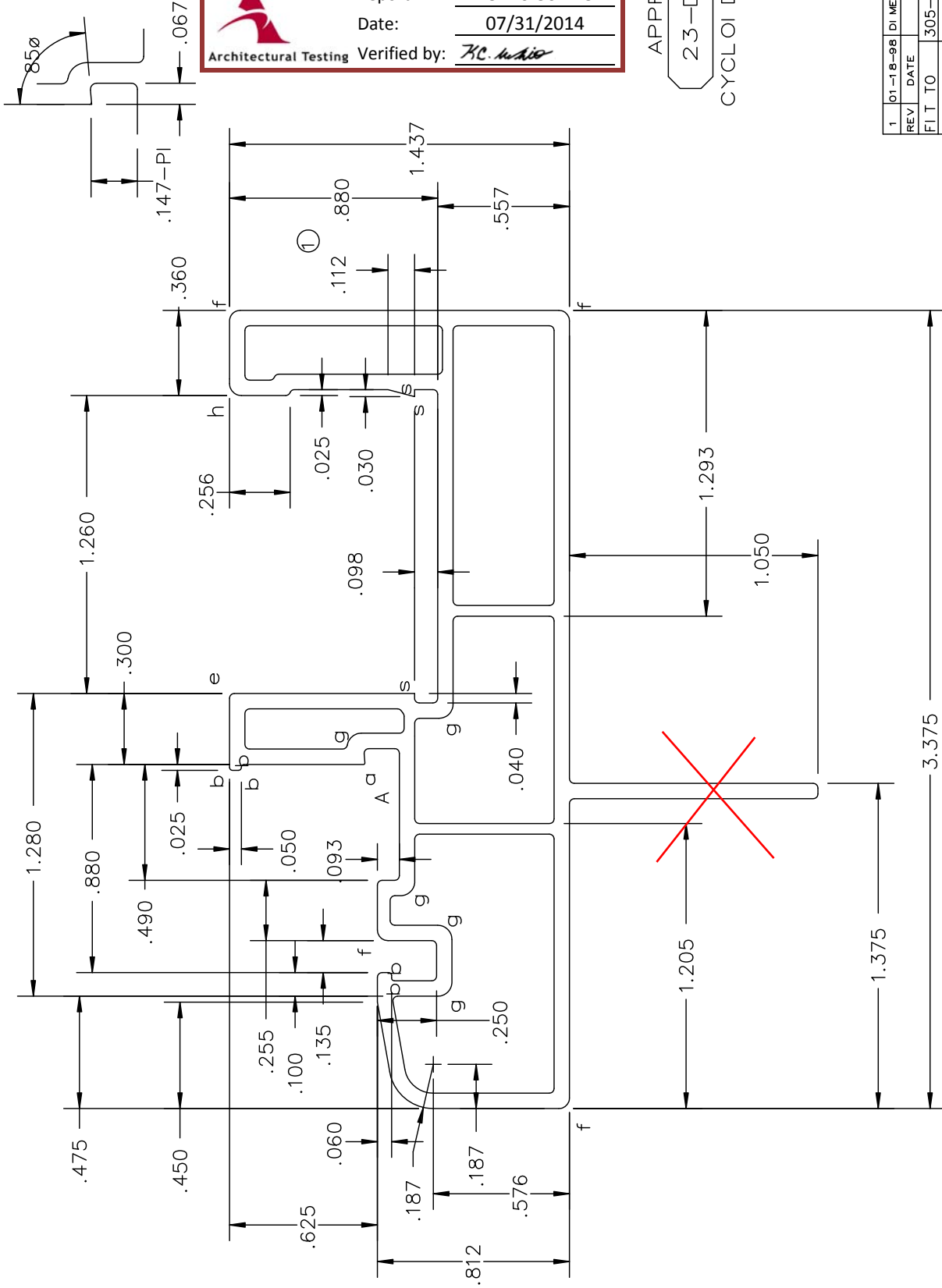


	Die #	THIS DOCUMENT CONTAINS PROPRIETARY AND/OR CONFIDENTIAL INFORMATION AND SHALL NOT BE REPRODUCED, DISCLOSED OR USED IN ANY MANNER OTHER THAN THAT FOR WHICH IT IS GIVEN, WITHOUT THE WRITTEN PERMISSION OF ROYAL GROUP INC.	Copyright © 2014 Royal Group, Inc. All Rights Reserved	Layout Name: XO_VERT_72	ACAD#: 305 Cda_Sections_all_export_at_7-21-2014	Ref: xxx	
	Sys No.						305-L1272-79-XO_V
	CUSTOMER						Coeur d'Alene Windows
111 Royal Group Crescent Woodbridge, Ontario Canada L4H 1X9	XO Vertical Section Slices						

SCALE : 1.5:1

DETAIL A
SCALE: 2:1

a=0.006R
b=0.012R
c=0.015R
d=0.020R
e=0.030R
f=0.045R
g=0.060R
h=0.050R
s=SHARP



 Report #: D9210-301-45
Date: 07/31/2014
Verified by: *KC. Kido*

APPROVED

23-DEC-97

CYCLOID DESIGNS

1	01-18-98	DI	MENSI	ON	ADDED
REV	DATE	REMARKS			
FLT TO	305-D28	305-D34	291-D3		
305-D18	305-D35	305-D27	291-D7		
305-D33	305-D45				
305-D49					

FAB REF	305-F9D				
305-F5E					

EXTERNAL WALL: 0.065
INTERNAL WALL: 0.045
CORNER TYP: 0.020R
WEIGHT: 0.565 LB/FT

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ROYAL SIERRA INC
SPARKS, NEVADA
ALL RI GHTS RESERVED

DATE: 31-DEC-97

DWG: 305-D4



CYCLOID
DESIGNS

TITLE: FIXED FRAME W/FIN

RS1270

SCALE: 1.5:1



Architectural Testing

Report #: D9210-301-45
Date: 07/31/2014
Verified by: KC. McKie

23-DEC-97

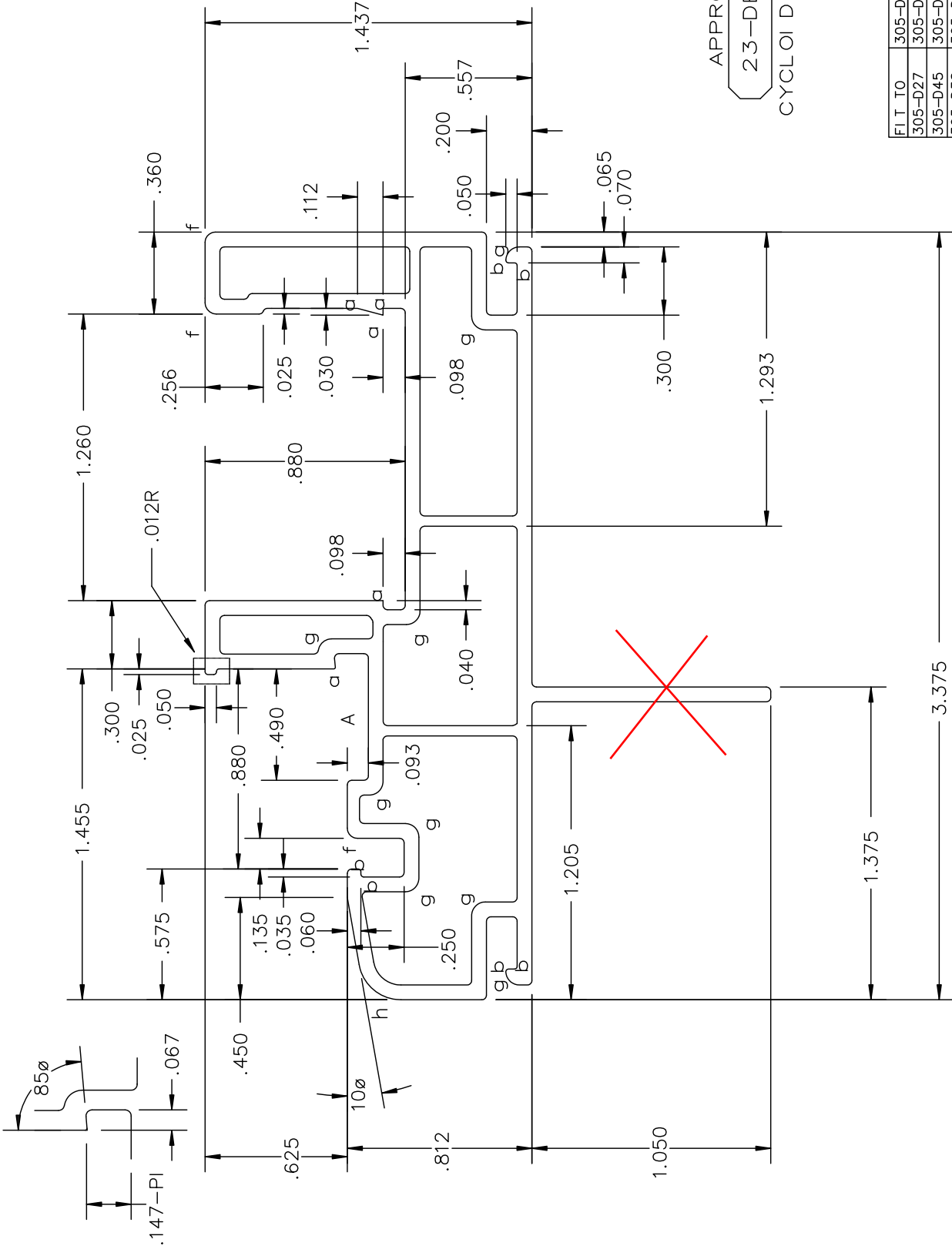
Flt TO	305-D18	305-D37	291-D3
305-D27	305-D28	305-D44	291-D7
305-D45	305-D33	305-D36	
305-D38	305-D42	305-D43	
305-D49	305-D35		
305-D51	305-D34		

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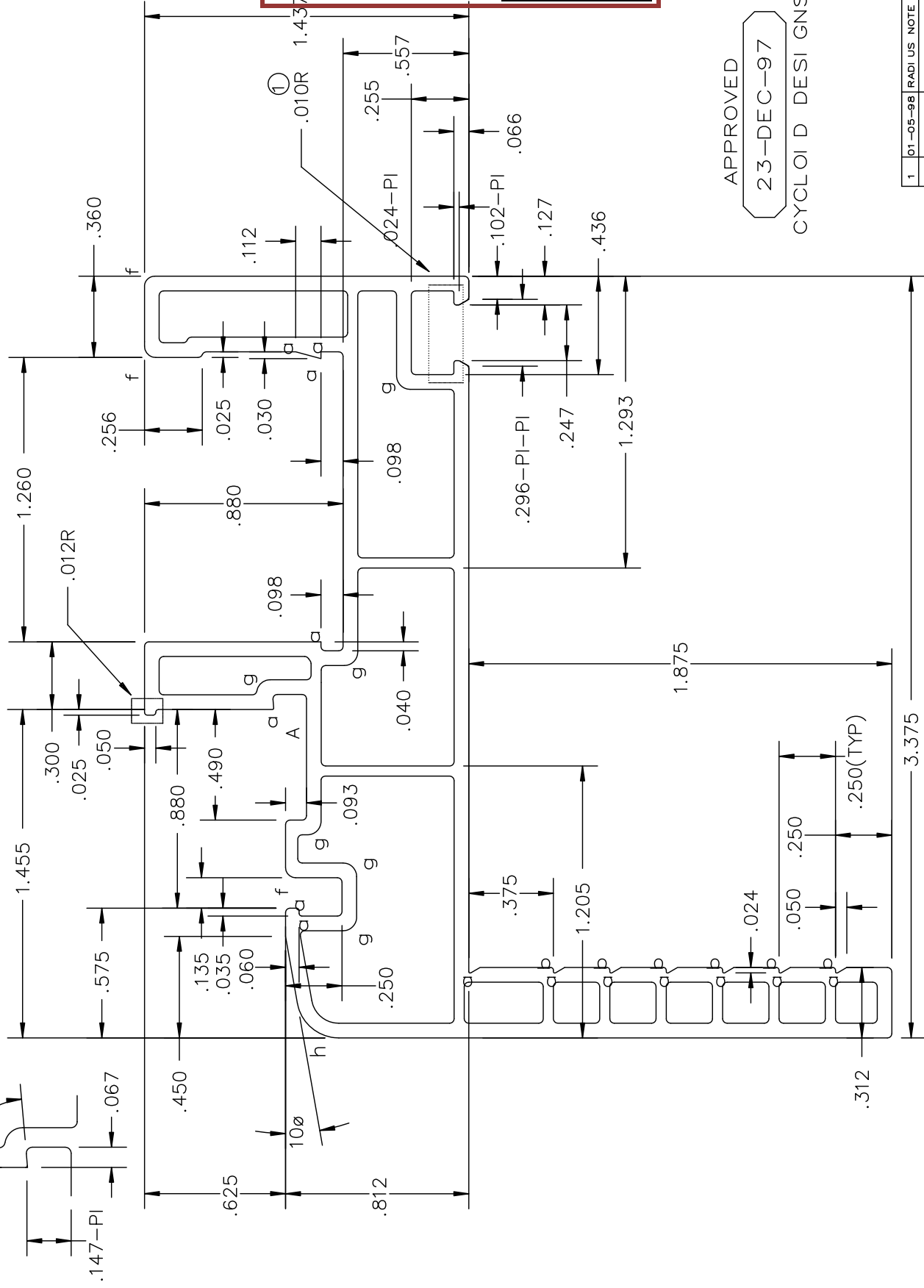
DATE: 18-DEC-97

DWG: 305-D5

TITLE: MAI N FRAME W/FI N+GROVES: 3-3/8"	RS1 271
--	---------



SCALE: 1.5:1




 Report #: D9210-301-45
 Date: 07/31/2014
 Verified by: KC. Licio

APPROVED
23-DEC-97
CYCLOID DESIGNS

F1 T 10	305-D18	305-D35	291-D3
305-D27	305-D28	305-D34	291-D7
305-D45			
XXXX-XXX			

		3.375		1 01-05-98 REV DATE		RADIO US NOTE REMARKS	
CYCLOID DESIGNS		DWG: 305-D6		DATE: 18-DEC-97		© 1997 COPYRI GHT ROYAL SIERRA INC SPARKS, NEVADA ALL RIGHTS RESERVED	
TITLE: MAIN FRAME W/STUCCO FI N: 3-3/8"		RS1272		EXTERNAL WALL: 0.065 INTERNAL WALL: 0.045 CORNER TYP: 0.020R WEIGHT: 0.723 LB/FT			

CYCLOID DESIGNS

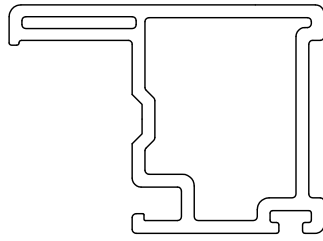
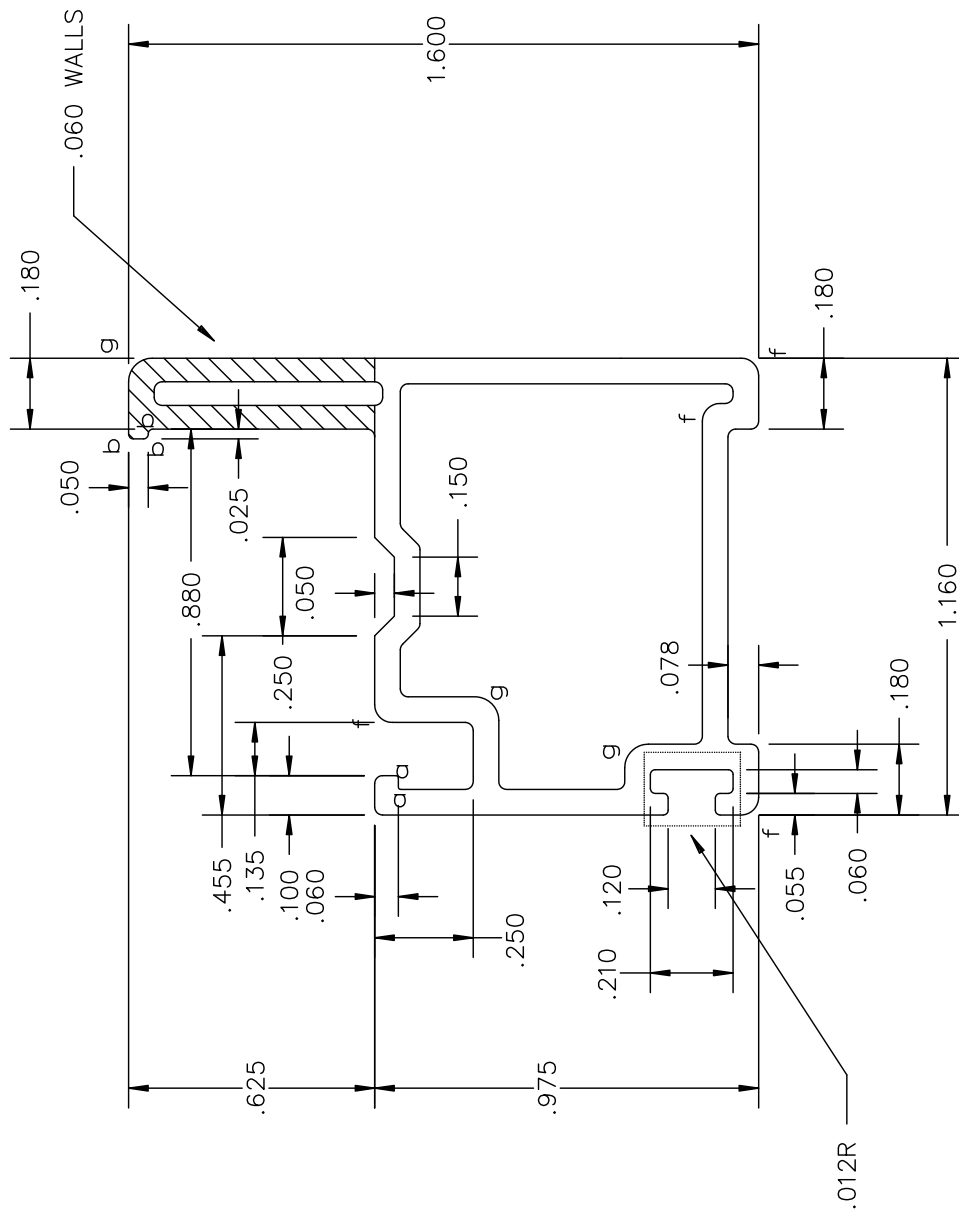


Architectural Testing

Report #: D9210-301-45

Date: 07/31/2014

Verified by: KC. m hio

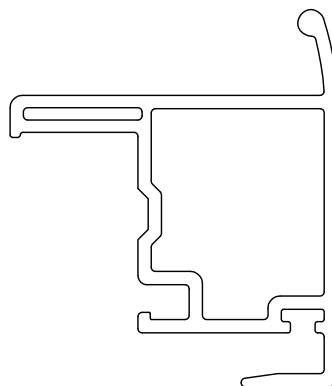
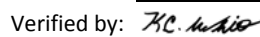


ACTUAL SIZE

CYCLOID DESIGNS 		DWG: 305-D14	DATE: 17-DEC-97	FAB REF 305-F6	FLT TO 305-D35	291-D7	
		© 1997 COPYRI GHT ROYAL SIERRA I NC SPARKS, NEVADA ALL RIGHTS RESERVED			EXTERNAL WALL: 0.065 INTERNAL WALL: 0.054 CORNER TYP: 0.020R WEIGHT: 0.234 LB/FT		
TITLE: SLIDER SASH RAIL			RS1277				

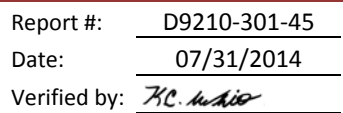
$$g=0.060R$$

CYCLOID DESIGNS



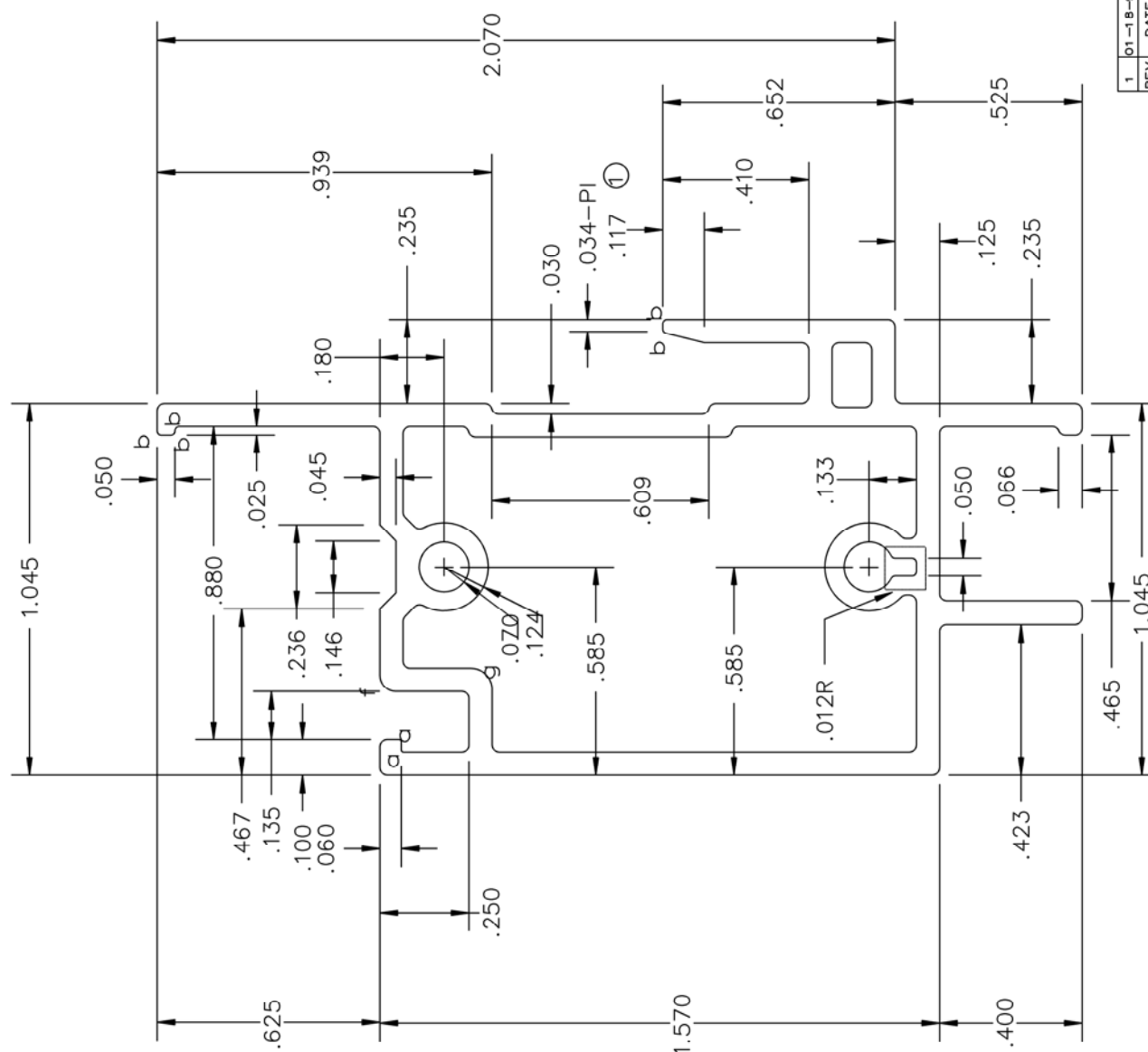
ACTUAL SIZE

CYCLOID DESIGNS		DWG: 305-D15	DATE: 17-DEC-97	FAB REF 305-F8	FLT TO 305-D35	291-D7	
		TITLE: MEETING RAIL		RS1 278			
© 1997 COPYRI GHT ROYAL SIERRA I NC SPARKS, NEVADA ALL RI GHTS RESERVED				EXTERNAL WALL: 0.065 INTERNAL WALL: 0.054 CORNER TYP: 0.020R WEIGHT: 0.279 LB/FT			



a=0. 006R
b=0. 01 2R
c=0. 01 5R
d=0. 020R
e=0. 040R
f =0. 045R
g=0. 060R

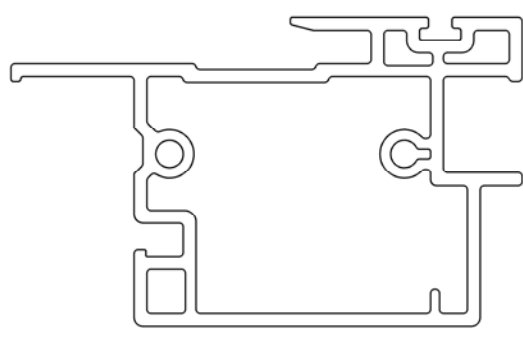
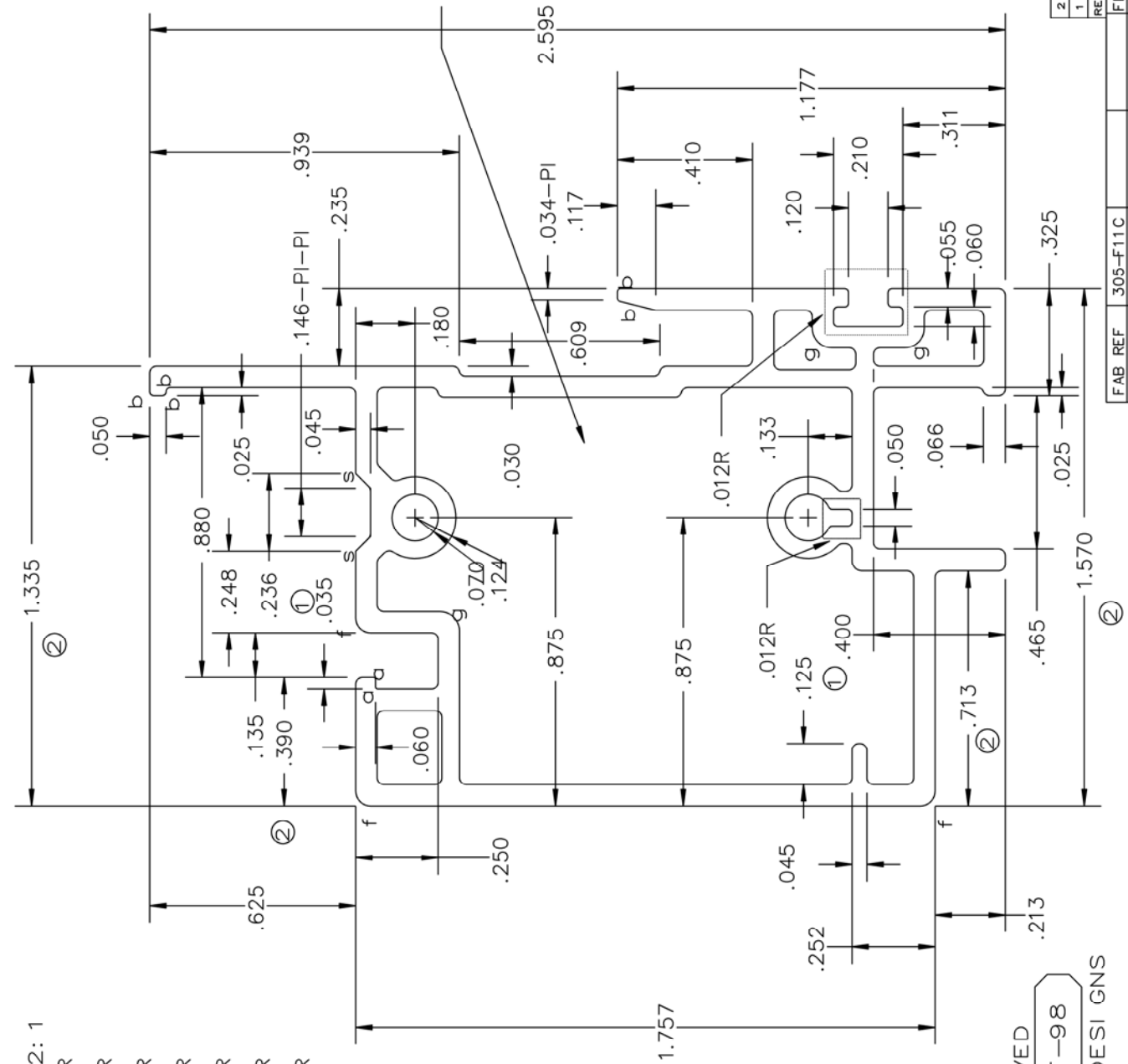
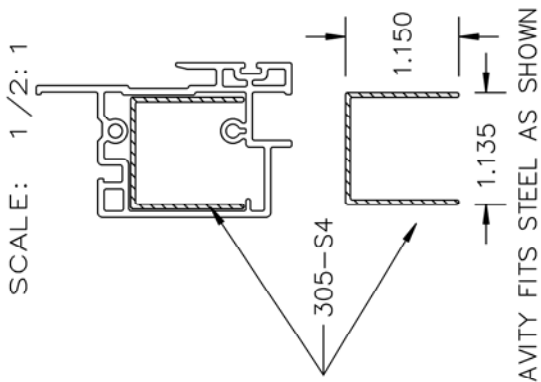
CYCLOID DESIGNS



ACTUAL SIZE

		DWG: 305-D16		DATE: 17-DEC-97		© 1997 COPYRI GHT ROYAL SIERRA I NC SPARKS, NEVADA ALL RI GHTS RESERVED		EXTERNAL WALL: 0.065 INTERNAL WALL: 0.054 CORNER TYP: 0.020R WEI GHT: 0.352 LB/FT	
TIT LE: FI XED MEETI NG RAI L		RS1 344							

SCALE: 2:1
a=0.006R
b=0.012R
c=0.015R
d=0.020R
e=0.040R
f=0.045R
g=0.060R



Architectural Testing

Report #: D9210-301-45
Date: 07/31/2014
Verified by: *KC. White*

APPROVED
09-OCT-98
CYCLOID DESIGNS

2		10-05-98	DI MENSI ONS CHANGED
1		05-26-98	DI MENSI ONS ADDED
REV	DATE	REMARKS	
	XXX-XXX		
FAB REF	305-F11C		
305-F1A	305-F8A		
© 1998 COPYRI GHT		EXTERNAL WALL: 0.065	
ROYAL SIERRA EXTRUSI ONS I NC		INTERNAL WALL: 0.054	
RENO, NEVADA		CORNER TYP: 0.020R	
ALL RI GHTS RESERVED		WEI GHT: 0.439 LB/FT	
CYCLOID DESIGNS	DWG: 305-D17R	DATE: 21-MAY-98	
TI TLE: FI XED MEETI NG RAI L		RS1279	

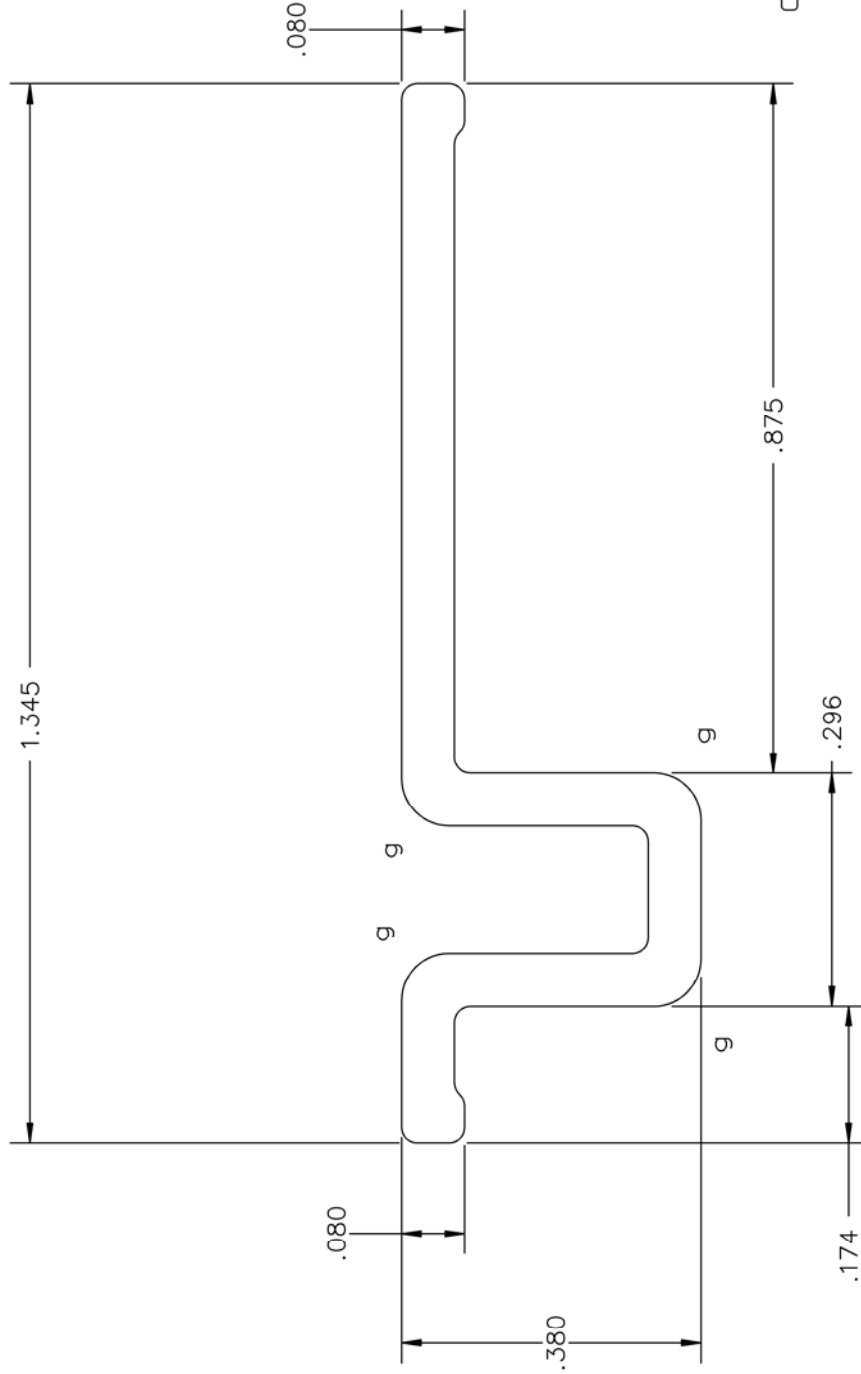
SCALE: 4: 1

a=0. 006R
b=0. 01 2R
c=0. 01 5R
d=0. 020R
e=0. 030R
f =0. 045R
g=0. 060R

APPROVED

06-JAN-98

CYCLOID DESIGNS



ACTUAL SIZE

 Architectural Testing	Report #:	D9210-301-45
	Date:	07/31/2014
	Verified by:	<i>KC. White</i>

FLIT TO		305-D1	305-D2	305-D3	305-D4	305-D5	305-D6	305-D21
305-D22		305-D29						
CYCLOID DESIGNS		DWG: 305-D27		DATE: 05-JAN-98				
TITLE: ANTI-LIFT BLOCK				RS1284				
© 1998 COPYRI GHT ROYAL SIERRA I NC SPARKS, NEVADA ALL RI GHTS RESERVED				EXTERNAL WALL: 0.067 INTERNAL WALL: X.XXX CORNER TYP: 0.020R WEIGHT: 0.082 LB/FT				

SCALE: 4:1

a=0.006R

b=0.012R

c=0.015R

d=0.020R

e=0.030R

f=0.045R

g=0.060R



Report #: D9210-301-45

Date: 07/31/2014

Verified by: *KC. White*

APPROVED

16-APR-98

CYCLOID DESIGNS

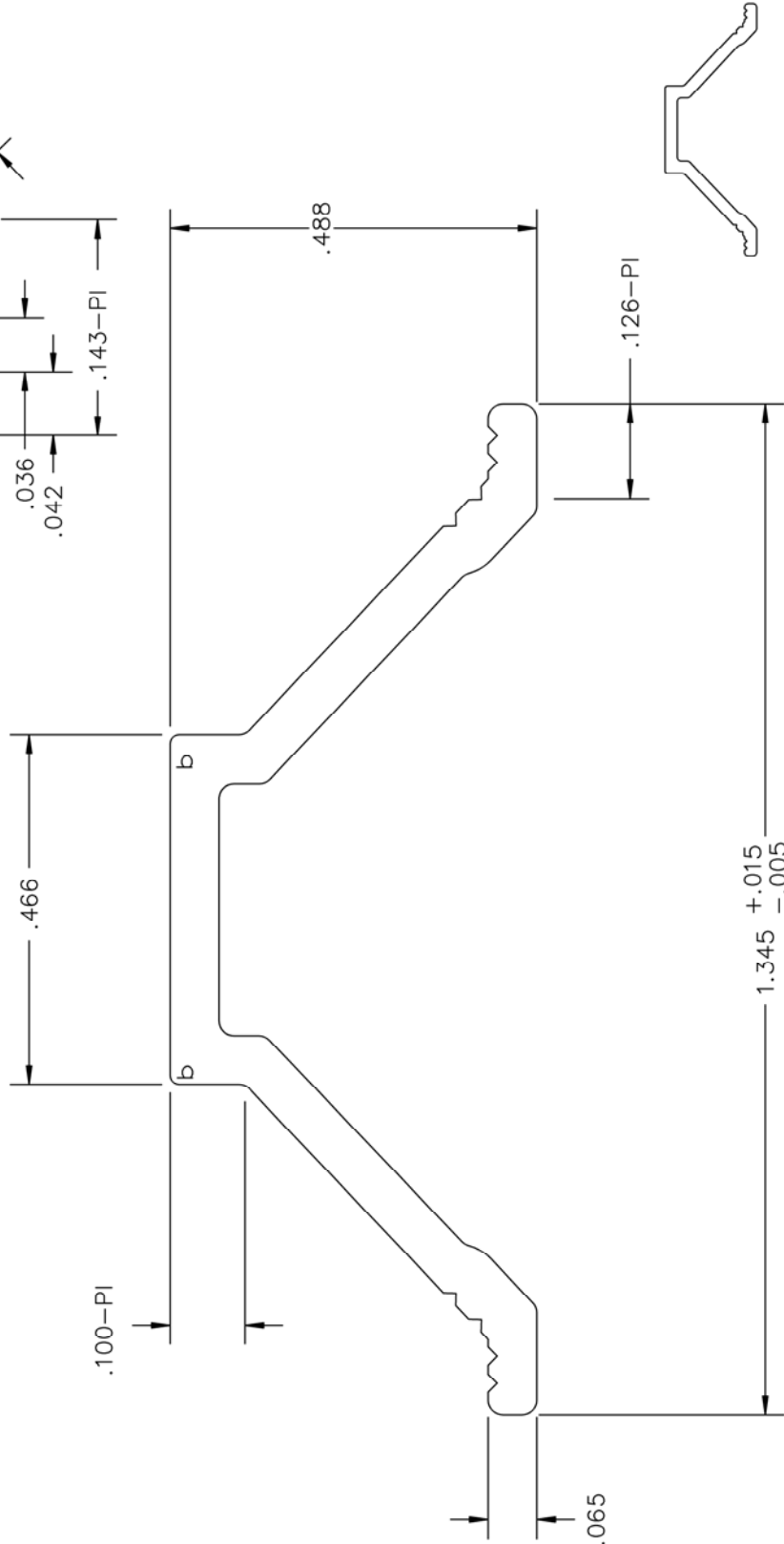


DWG: 305-D18A

DATE: 14-APR-98

TITLE: SLIDER TRACK

RS1 280



ACTUAL SIZE

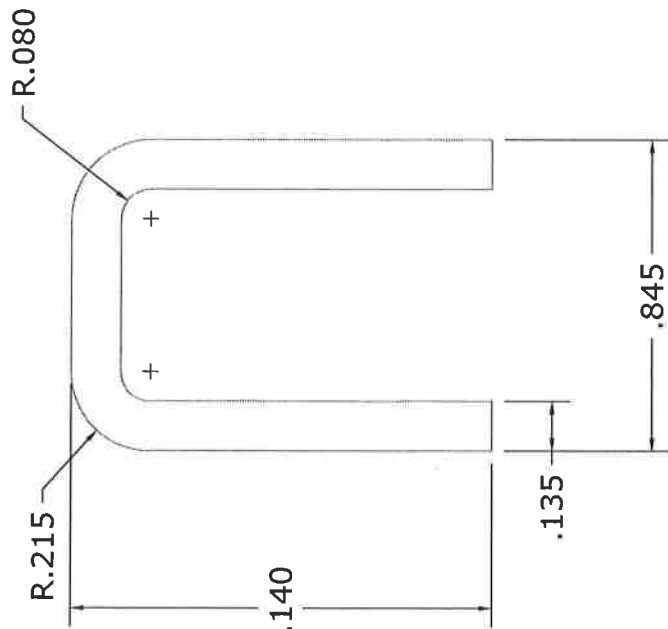
FLT TO	305-D2	305-D3	305-D6
305-D1	305-D5	305-D29	
305-D4	305-D22		
305-D21			

© 1998 COPYRI GHT ROYAL SIERRA EXTRUSI ONS I NC RENO, NEVADA ALL RI GHTS RESERVED	EXTERNAL WALL: 0.065 INTERNAL WALL: X.XXX CORNER TYP: 0.020R WEIGHT: 0.073 LB/FT
--	---

Customer Approval

By: _____

Date: _____



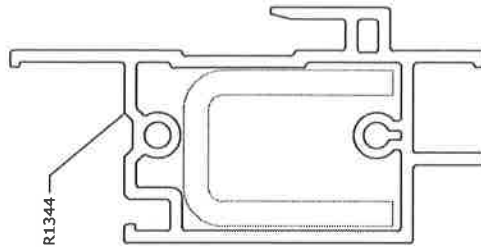
Architectural Testing

Report #: D9210-301-45

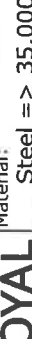
Date: 07/31/2014

Verified by: *KC. White*T_W = .0388 in⁴

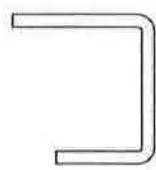
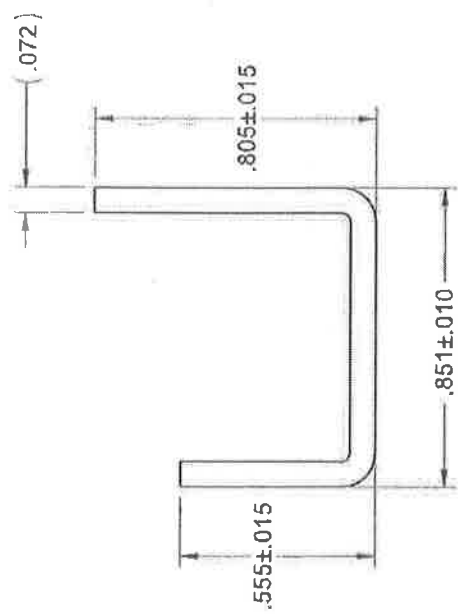
Cx = .423



Actual Size

 111 Royal Group Crescent Woodbridge, Ontario Canada L4H 1X9		Material: Steel => 35,000 psi Yield		THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND SHALL NOT BE COPIED, DISCLOSED TO OTHERS, OR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS PERMITTED BY ROYAL GROUP INC.		Copyright © 2014 Royal Group, Inc. All Rights Reserved		Layout Name: 305-S1344		ACAD#: 305-CdA-Steel Master		Ref: xxx	
Sys No. 305-S1344								Drawn by: gmc		WALL TOLERANCES: ±0.006		RADII: UNMARKED	
CUSTOMER CdA Windows						PROJECT: 305		AREA .368		WALL THICKNESS: .000		ANGULAR TOLERANCES: ±1/2°	
TITLE Fixed Interlock Stiffener For R1344								WT/FT 1.231		EXTERIOR .000		SYMBOL: SHARP	
						DATE: March 19, 2014		LINEAR TOLERANCES: ±0.010		INTERIOR .000		FLEX ██████	
								1.000-1.999 ±0.015		.xxx		CRITICAL □	
								2.000-3.999 ±0.020		.xxx		EXPOSED ▴	
												FULL c	
												SHARP s	

	Report #:	D9210-301-45
	Date:	07/31/2014
	Verified by:	KC. Kehio



SCALE 1:1

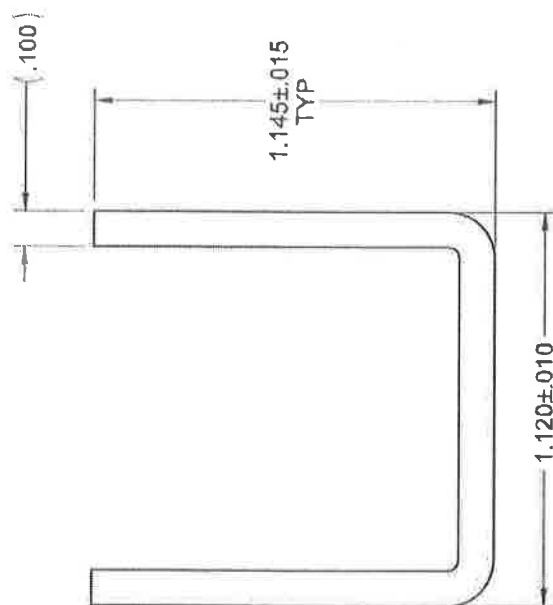
**NOT FOR PRODUCTION
UNLESS SIGNED BY CUSTOMER**

CUSTOMER APPROVAL	
NAME <i>PAT COLLINS</i>	SIGN <i>P. Collins</i>
DATE 6-11-2014	

flexiforce [®] 30840 Peardonville Road Abbotsford, BC V2T 6K2 PH 604.854.3560 / FAX 604.854.3576		U-2800 14GA REIN	
MATERIAL ASTM A663 CS TYPE B		COIL CS-072-###	
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SCALE 2:1		SHEET LBS 1 OF 1	

6-11-2014

NAME	SIGN	DATE
------	------	------



**NOT FOR PRODUCTION
UNLESS SIGNED BY CUSTOMER**

SCALE 1:1



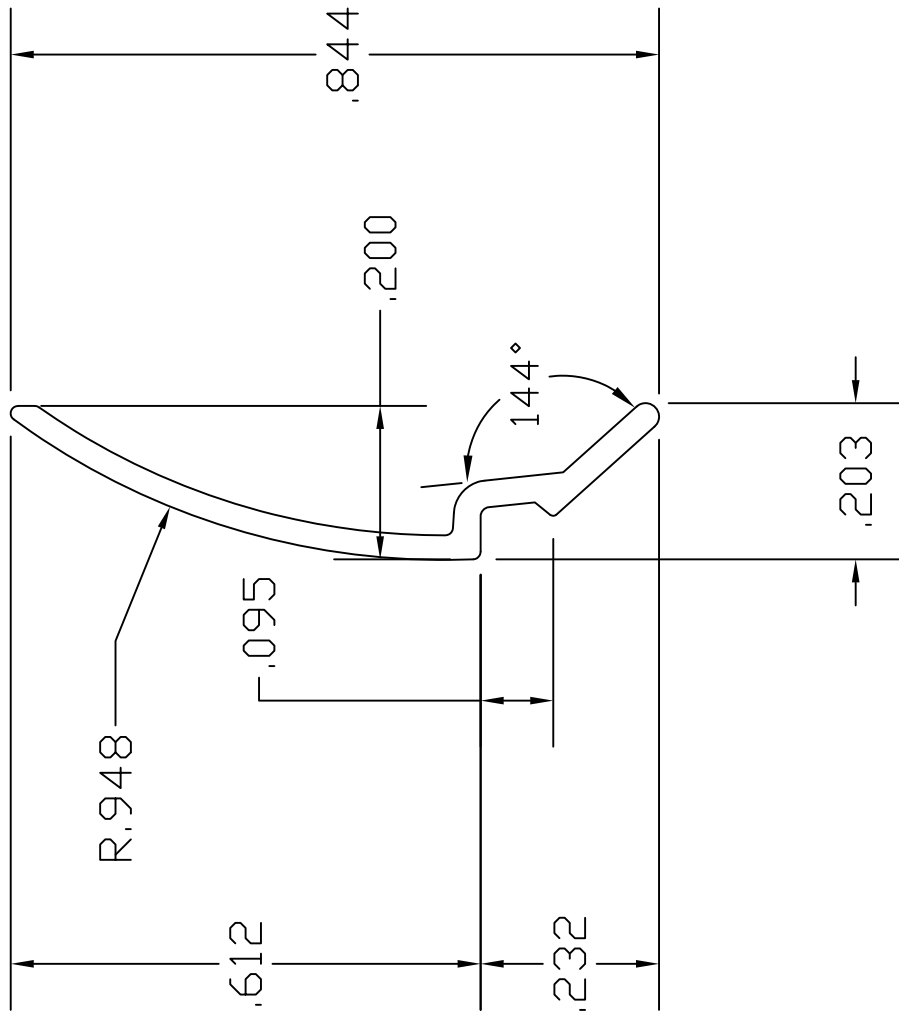
Architectural Testing

Report #: D9210-301-45

Date: 07/31/2014

Verified by: KC. n. hio

[illegible]



Customer Approval
By: _____
Date: _____



Report #: D9210-301-45

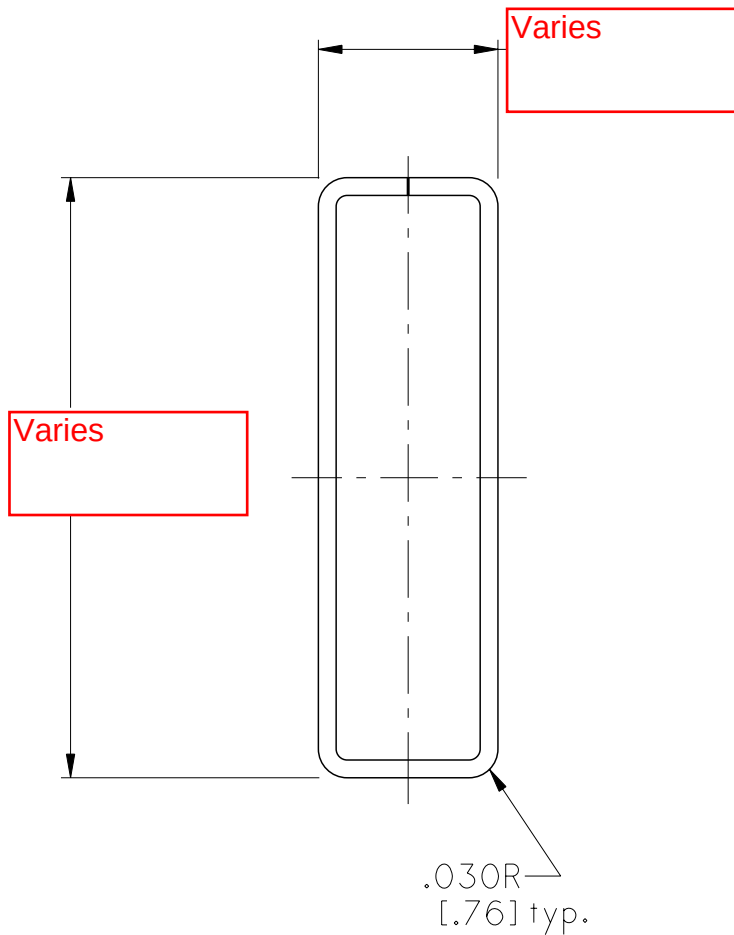
Date: 07/31/2014

Verified by: *RC. K. K. K.*

Actual Size

REV #		DATE	REVISION NOTES	
			Copyright © 2008 ROYAL GROUP, INC.	
			100A Royal Group Crescent Woodbridge, Ontario Canada L4L 8Z7 All Rights Reserved	
			External Walls = .065 Internal Walls = .045	
			Layout Name: Base DATE: 4-25-08	
			Drawn By: gmc SCALE 4:1	
			PROJECT: Sierra Classic SlimLine AREA = .0323 WT/FT = .020	
			CUSTOMER RSE Clam Shell Bead	
			NOTICE: THE INFORMATION CONTAINED HEREON IS THE PROPERTY OF ROYAL GROUP, INC. ITS CONTENTS ARE CONFIDENTIAL AND MUST NOT BE COPIED OR SUBMITTED TO OUTSIDE PARTIES FOR USE OR EXAMINATION WITHOUT THE WRITTEN PERMISSION OF ROYAL.	

NOTE: ALL DIMENSIONS IN [] BRACKETS ARE MM UNLESS NOTED



	Report #:	D9210-301-45
	Date:	07/31/2014
	Verified by:	<i>HC. Miller</i>



ACTUAL PART
SIZE

FILENAME:.. \MB\0185\316X625

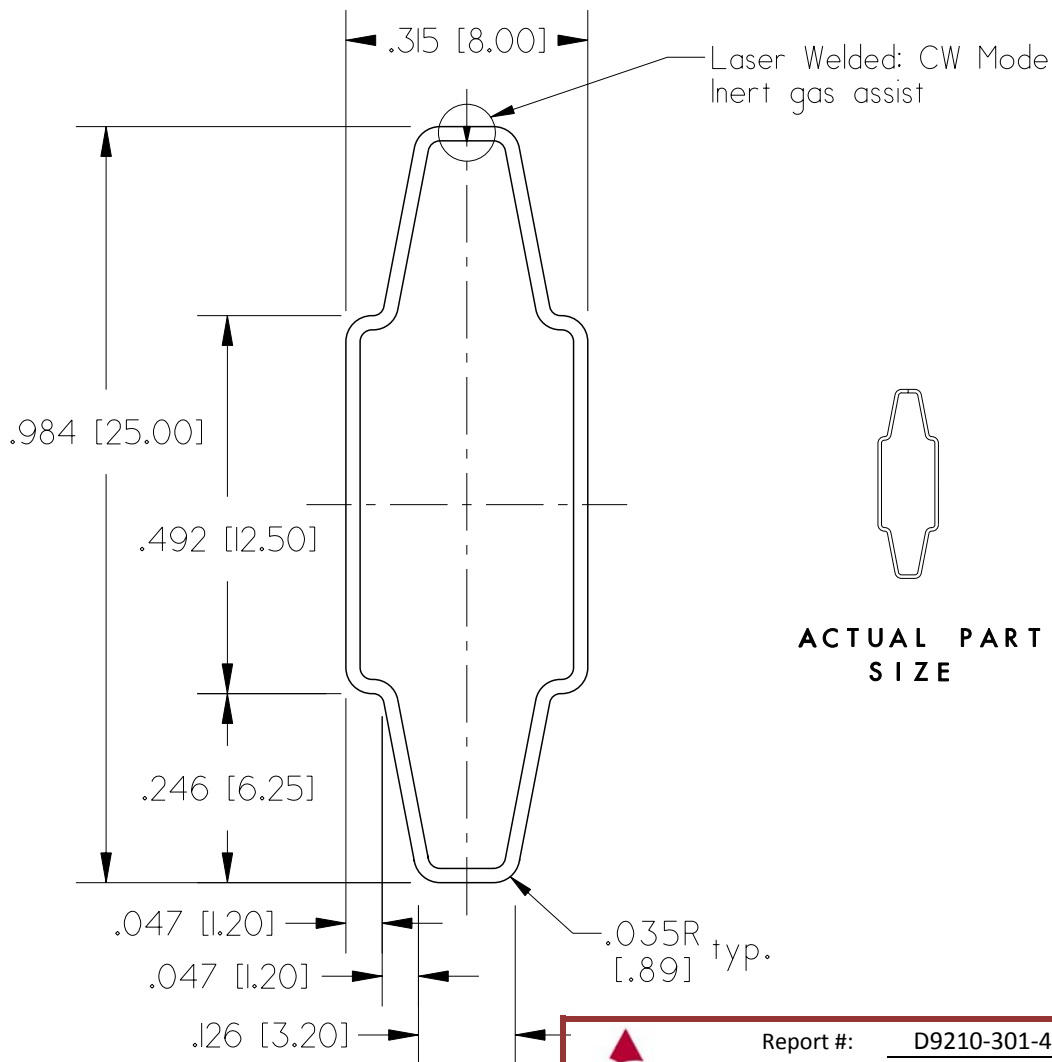
DATE	SYM.	REVISION	AUTH.	DRN.	CK.
		ALLMETAL			
TOLERANCES EXCEPT AS NOTED DECIMAL INCHES .XX .XXX .XXXX ± .01 .005 .0002 DECIMAL MM .XX .XXX ± .13 .06 ANGULAR ± 1°		TITLE 3/16 x .625 MB (Muntin Bar)		DRN. BY <i>G. Matthews</i>	
		MATL. .0185 [.47mm] 3105-H24 Aluminum		FINISH Painted	
		SCALE 5:1		DATE 11/15/01	
		DWG. NO. 1021101018XX140			

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ALLMETAL INC.

CK. BY

APPR. BY

S.O. NO.



 Architectural Testing	Report #:	D9210-301-45
	Date:	07/31/2014
	Verified by:	<i>HC. Miller</i>

3/15/99		Gauge changed from .020 to .0185		GRM	
4/17/97		Weld note changed, Title block changed		GRM	
4/1/95		Gauge changed from .016 to .020		GRM	
12/9/92		Initial Release		GRM	
DATE	SYM.	REVISION	AUTH.	DRN.	CK.

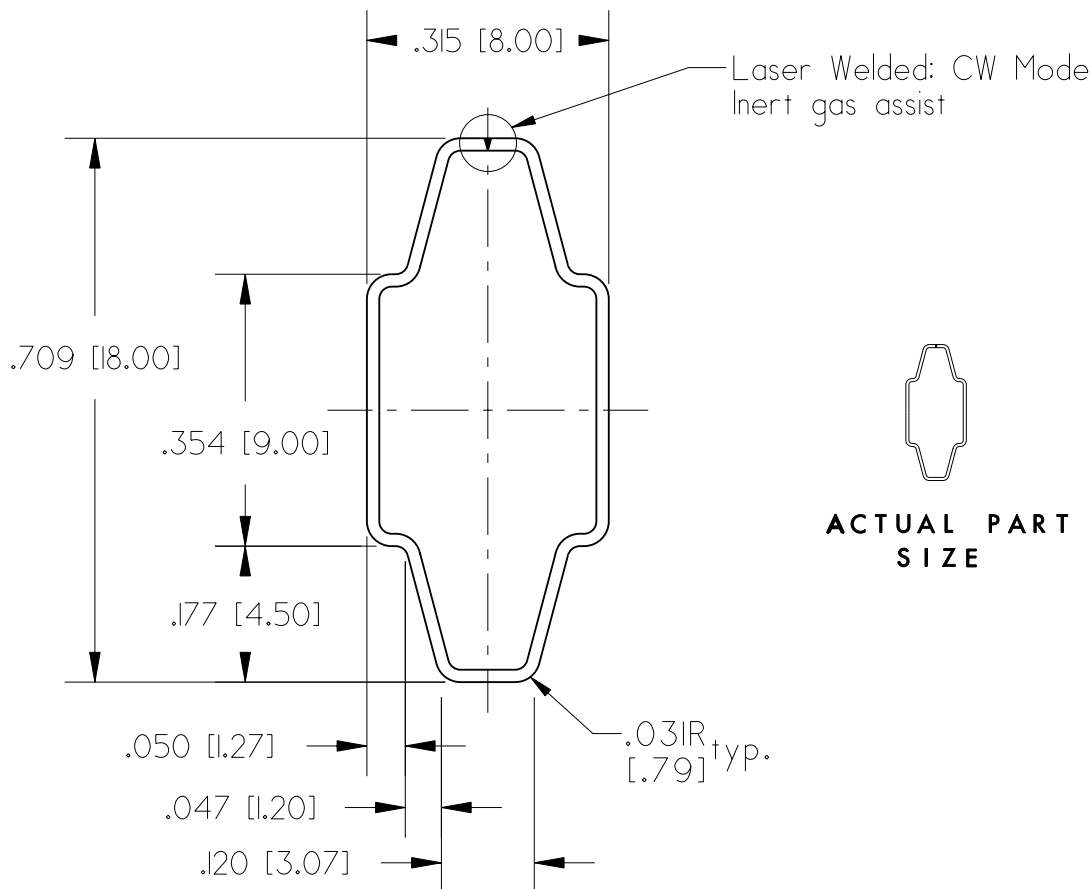


ALLMETAL

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OR IN PART WITHOUT THE EXPRESS PERMISSION OF
ALLMETAL INC.

TOLERANCES EXCEPT AS NOTED		TITLE		DRN. BY <i>G. Matthews</i>	
DECIMAL INCHES .XX .XXX .XXXX ± .01 .005 .0002		8 x 25mm Contour Muntin Bar (CMB)		CK. BY	
DECIMAL MM .XX .XXX ± .13 .06		MATERIAL .0185" [.47mm] 3105 Aluminum		FINISH FULL RANGE (MILL, ANOD., PAINTED)	
ANGULAR ± 1°		SCALE 4:1		DATE 3/15/99	
		DWG. NO.		1020301018XX380	
				APPR. BY	
				S.O. NO.	

NOTE: ALL DIMENSIONS IN [] BRACKETS ARE MM UNLESS NOTED



 Architectural Testing	Report #:	D9210-301-45
	Date:	07/31/2014
	Verified by:	<i>KC. Miller</i>

4/17/97		Weld note changed, Title block changed		GRM	
12/9/92		Initial Release		GRM	
DATE	SYM.	REVISION	AUTH.	DRN.	CK.



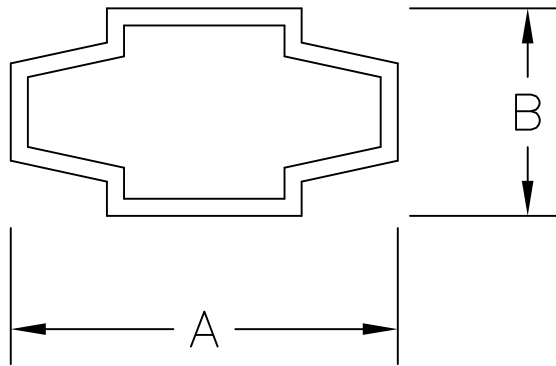
ALLMETAL

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OR IN PART WITHOUT THE EXPRESS PERMISSION OF
ALLMETAL INC.

TOLERANCES EXCEPT AS NOTED		TITLE 8 x 18mm Contour Muntin Bar (CMB)		DRN. BY <i>G. Matthews</i>	
DECIMAL INCHES .XX .XXX .XXXX ± .01 .005 .0002	MATL. .016" [.41mm] 3105 Aluminum	FINISH FULL RANGE (MILL, ANOD., PAINTED)		CK. BY	
				APPR. BY	
DECIMAL MM .XX .XXX ± .13 .06				S.O. NO.	
ANGULAR ± 1°	SCALE 4:1	DATE 4/17/97	DWG. NO. 1020301010XX280		

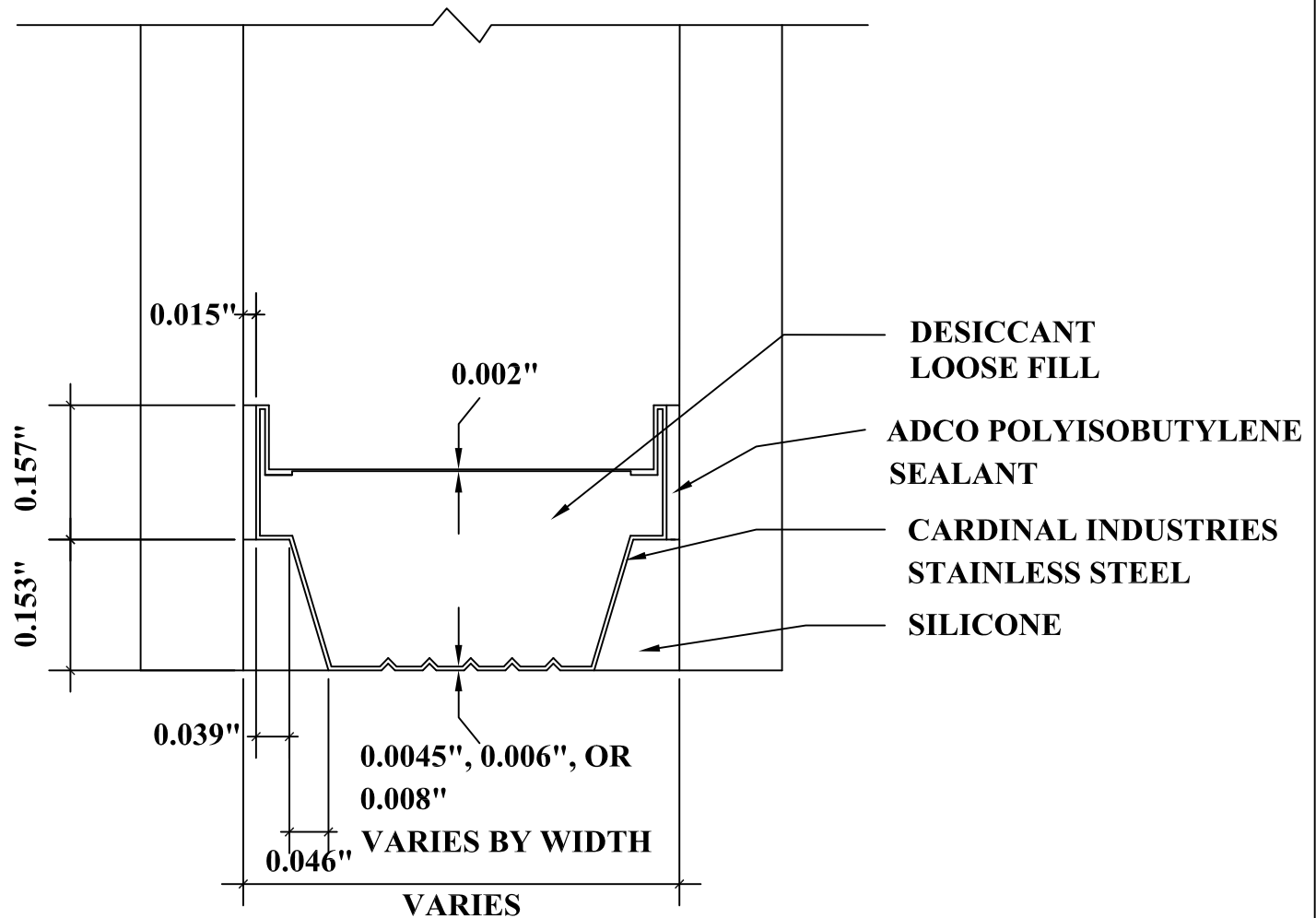
FILENAME: CMB818J

INTERNAL MUNTIN



 Architectural Testing	Report #:	D9210-301-45
	Date:	07/31/2014
	Verified by:	<i>RC. White</i>

Material: PAINTED ALUMINUM
Length (A): 5/8"
Width (B): 3/16"
Wall Thickness: 0.016"



DETAIL FOR THERMAL MODELING OF
CARDINAL ENDUR SPACER (SS-D)

 Architectural Testing	Report #:	D9210-301-45
	Date:	07/31/2014
	Verified by:	<i>KC. White</i>