



Quality Accuracy Assurance

Fenestration Testing Laboratory, Inc.

8148 N.W. 74th Avenue Medley, Florida 33166 Phone: (305) 885-3328 Fax: (305) 885-3329 Toll Free: (844) FTL-TEST (385-8378)
E-mail: clientservices@ftl-inc.com Web: www.ftl-inc.com

Report Date: 2/28/2018
Test Date: 1/16/2018
Expiration Date: 1/16/2022
Lab. Number: 9939
Project Number : 17-7652
Revision Number: 0

Condensation Performance Test Report

Manufacture: Coral Architectural Products

Address: 4750 Distribution Drive
Tampa, Florida 33605

Specifications: AAMA 1503-2009: Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections

Remarks
The sample was inspected for the formation of frost or condensation, which may influence the surface temperature measurements. The sample showed no evidence of condensation/frost at the conclusion of the test.
The calibration of Fenestration Testing Laboratory's "thermal test chamber" was conducted November 2017.
Drawings referenced in this document are an integral part of this report, therefore, are required when distributing this test report. Test results obtained represent the actual value of the tested specimens and do not constitute opinion, endorsement or certification by this laboratory.
This test report is considered the exclusive property of the client named herein and is applicable to the sample tested. This report may not be reproduced without the approval of Fenestration Testing Laboratory, Inc and if so must be in full.
The sample was sealed with silicone on the interior and tested per Section 9.3.4 for air infiltration.
The testing described in this test report was conducted in accordance with AAMA 1503 requirements.

Revision History Table			
Revision	Description	Author	Effective Date
0	Initial Release	Jose Sanchez	2/28/2018



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Product Description

Model Designation:	Series; FL600T Storefront System
Overall Size:	2000 mm (79") by 2000 mm (79") high

Frame Construction

Frame:	(AL) Painted aluminum alloy with thermally broken members
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Glazing Description

Layer 1:	1/4 clear **(Cardinal LoE 270 on surface #2 e=0.037)
Gap:	1/2 gap using a Cardinal XL Spacer
Layer 2:	1/4 clear

**as per manufacture

Glazing Method

Interior Condition:	EPDM gasket
Exterior Condition:	Extruded aluminum glazing bead with EPDM gasket

Gas Type	Filling Technique	Gas Fill Percentage
None	None	None

Daylight Opening

Left and Right sections:	35 3/4" by 83 1/2" high
---------------------------------	-------------------------

Weathers-Stripping

Quantity	Description	Location
None	None	None

Hardware

Quantity	Description	Location
None	None	None

Weep Holes

Quantity	Description	Location
Four	1/4" drain hole	Sub-sill at vertical members



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Reinforcement	
Material	Location
None	None

Dividers/Grids		
Grid Size	Material	Grid Pattern
None	None	None



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Measured and Calculated Test Data

Condensation Resistance Factor (CRF):

Warm side ambient air temperature (T_h):	69.8 F
Cold side ambient air temperature (T_c)	-0.12 F
Average of pre-specified frame temperature (FT_p)	44.2 F
Average of roving thermocouples (FT_r)	39.2 F
Calculated Weighting Factor	
Frame Temperature (FT)	42.1 F
Glass Temperature (GT)	49.3 F
Condensation Resistance Factor of glass (CRF_g)	71
Condensation Resistance Factor of frame (CRF_f)	60

Thermal Transmittance (U_c):

Nominal sample Area	43.34 ft ²
Total measured input to calorimeter	1604.46 Btu/hr
Calorimeter correction	137.58 Btu/hr
Net specimen	1466.88 Btu/hr
Thermal Transmittance (U_c)	0.48 Btu/hr-ft ² -F
Static pressure difference across test sample 15 mph dynamic perpendicular wind at exterior(P)	0.00 psf



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Temperature Data

Individual Average pre-specified Frame	
1	44.8
2	44.3
3	43.1
4	43.1
5	40.8
6	40.5
7	41.9
8	41.8
9	40.8
10	40.9
11	41.8
12	42.2
13	42.6
14	42.8
FT _p	42.2

Individual Average pre-specified Glass	
15	50.3
16	50.1
17	49.4
18	49.3
19	48.5
20	48.1
GT	49.3

Individual Average Frame Cold Point (Roving)	
21	38.5
22	39.6
23	39.7
24	39.1
FT _r	39.2



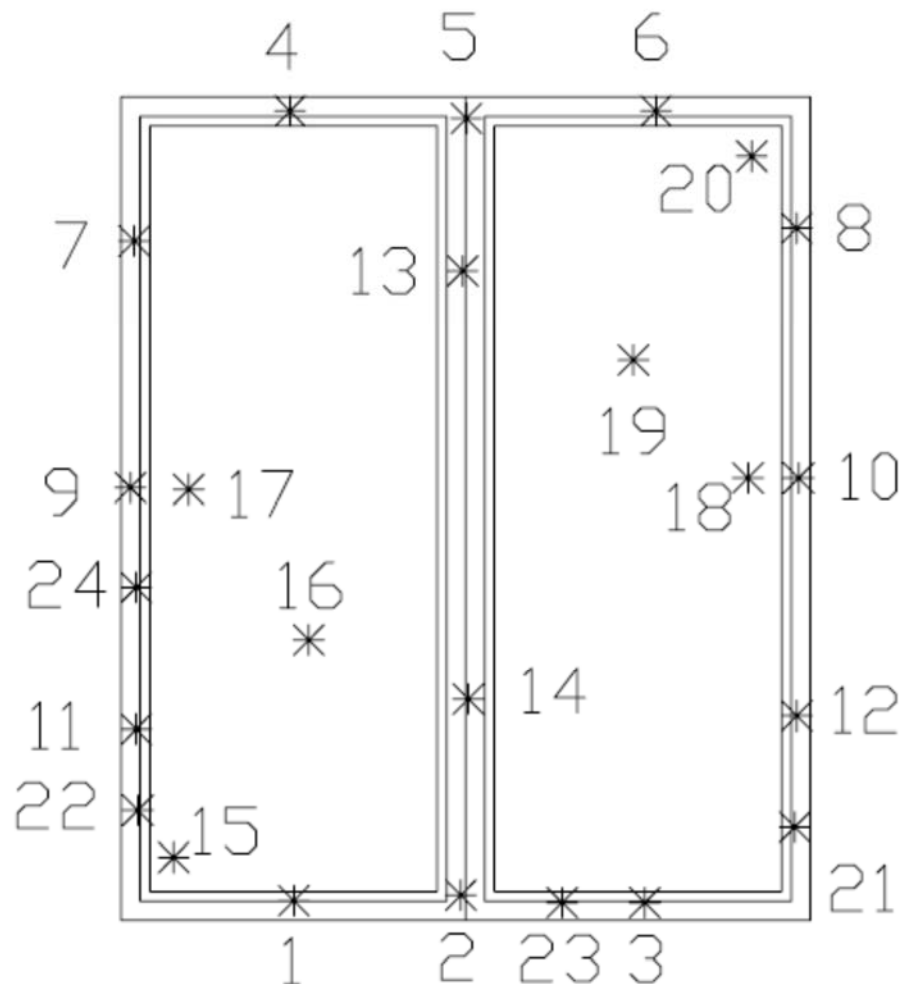
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Thermocouple Location Diagram





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Test Duration

1. The environmental systems were started at 11:04 hours, on 1/15/2018.
2. The test parameters were considered stable for two consecutive four hour test periods from 00:04 hours, on 1/16/2018 to 08:04 hours, on 1/16/2018.
3. The thermal performance test results were derived from 04:04 hours, on 1/16/2018 to 08:04 hours, on 1/16/2018.

Glazing Deflection (in.)	Left Section	Right Section
Gap width upon receipt of sample in laboratory	0.492"	0.496"
Gap width at laboratory ambient conditions on day of testing	0.488"	0.501"
Center of gap at conclusion of test	0.499"	0.504"

FENESTRATION TESTING LABORATORY, INC.

Jose Sanchez

Jose Sanchez

Test Performed by

Jose Sanchez

Person - in- Responsible- Charge



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APPENDIX

Fenestration Product Drawings and Bill of Material



FL600T AAMA TEST DRAWINGS

INDEX TO DRAWINGS AND NOTES	
1	INDEX TO DRAWING AND NOTES
2	STANDARD FRAMING ELEVATION
3	STANDARD FRAMING DETAILS
4	BILL OF MATERIALS
5	DIE DRAWINGS

Tested Sample complies with this
detail except where noted
Laboratory Number: 9939
Date: 3/5/18
Initials: MS

GENERAL NOTES:

TEST PROTOCOLS WILL BE SHOWN ON EACH ELEVATION SHEET

ABBREVIATIONS:

D.L.O. = DAY LIGHT OPENING
D.O.H. = DOOR OPENING HEIGHT
D.O.W. = DOOR OPENING WIDTH
C.O.C. = CONCEALED OVERHEAD CLOSER
C.V.R. = CONCEALED VERTICAL ROD

ELIZABETH A. BROADWAY
PROFESSIONAL ENGINEER
FLORIDA REGISTRATION NO. 38558



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BE-4545

Certificate of Authorization No. 4599

PROJECT NO.
FL600T

DRAWN
MRG DATE
10/13/17

CHECKED
WS APPROVED
###

SHEET

1 OF 5

FL600T AAMA
TEST DRAWINGS
INDEX TO DRAWINGS AND NOTES

10/13/17 10:13 AM

DESCRIPTION

DATE

REV

BY

Window wall was simulated per NFRC 100 Table 4-3 which states; Window walls shall be tested and simulated with intermediate verticals as jambs and standard head and sill members. The validation unit is not a product that will be found in a real situation. It is required that the intermediate verticals to have glass pockets at jambs replaced with wood block inserts for a validation of the simulated product line.

Technical drawing of a window assembly showing dimensions and callouts:

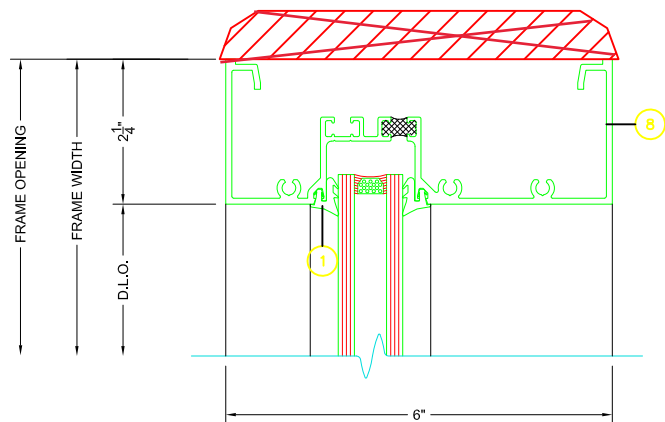
- Top Dimensions:**
 - Overall width: $79 \frac{3}{4}"$ R.O.
 - Two sections of $36 \frac{1}{2}"$ D.L.O.
 - Three sections of $2 \frac{1}{4}"$
- Left Dimensions:**
 - Overall height: $79 \frac{3}{4}"$ R.O.
 - Section height: $74 \frac{5}{8}"$ D.L.O.
 - Section height: $5 \frac{5}{8}"$
 - Section height: $2 \frac{1}{4}"$
- Callouts:**
 - Top center: $\frac{2}{3}$
 - Top left: $\frac{4}{3}$
 - Center: $\frac{3}{3}$
 - Bottom center: $\frac{2}{3}$

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PROFESSIONAL ENGINEER
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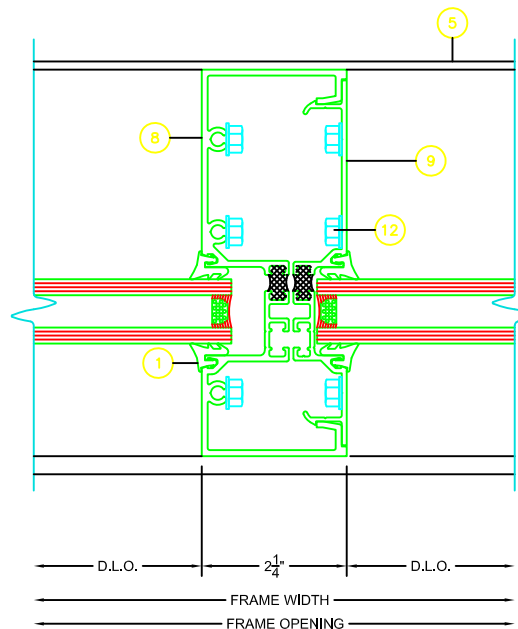
PROJECT NO. FL600T	
DRAWN MRG	DATE 10/13/17
CHECKED WS	APPROVED ###

FL600T AAMA
TEST DRAWINGS
FRAMING ELEVATIONS

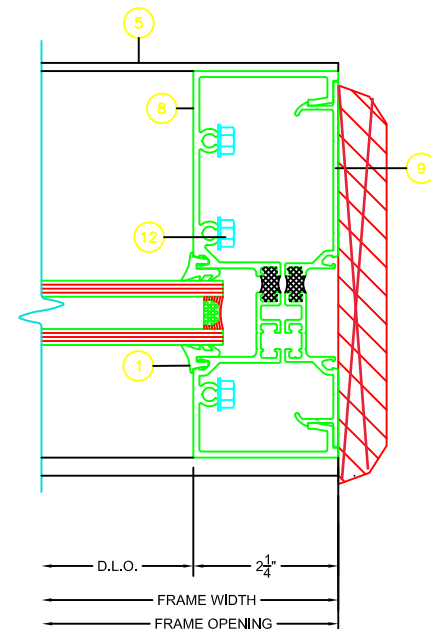
1
3 FL600T HEAD



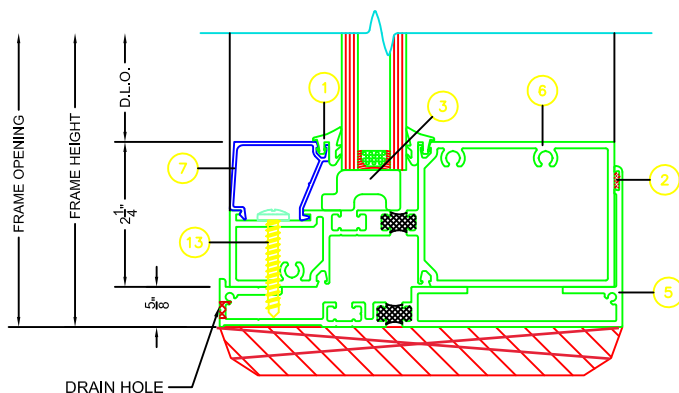
3
3 FL600T VERTICAL



4
3 FL600T JAMB



2
3 FL600T SILL



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FL600T AAMA
TEST DRAWINGS

OPTIONAL FRAMING DETAILS

PROJECT NO. FL600T
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SHEET

3 OF 5

DESCRIPTION

REV BY DATE

BILL OF MATERIALS						
ITEM NO.	P/N	DESCRIPTION	DIMENSIONS	MATERIAL	MANUFACTURER	NOTES
1	NG1	EXTERIOR GLAZING GASKET	0.120 SPACE	EPDM	VARIES	
2	795	SILICONE	FILL SPACE	SILICONE	DOW CORNING	
3	SB3	SETTING BLOCK @ SILL & HORIZONTAL	0.625 X 1.218 X 4.000	EPDM	VARIES	2 PER LITE
4	WD300-1	WATER DIVERTER	1.358 X 1.344 X 4.000	INJECTION MOLDED PLASTIC	CORAL INDUSTRIES, INC.	@ EACH END OF HORIZONTAL
5	FL639T	SUBSILL FLASHING	2.500 X 6.250 X 0.094	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.	
6	FL626T	SILL	2.500 X 5.969X 0.100	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.	
7	FL303	GLASS STOP	1.207 X 1.543 X 0.050	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.	
8	FL634T	STD. VERTICAL MULLION / HEAD	2.500 X 6.000 X 0.093	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.	
9	FL625T	OPEN BACK MULLION FILLER	0.862 X 5.670 X 0.078	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.	
11	ED519-1	SILL FLASHING END DAM	2.500 X 1.000 X 0.062	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.	
12	AS16	FASTENER	#14 X 1" HHSTS	STEEL	VARIES	TYP. SPLINE SCREW VERTICAL/HORIZONTAL JOINTS
13	AS56	FASTENER		STEEL	VARIES	ANCHOR (FL626T) TO (FL639T)

GLASS INDEX BY MANUFACTURER	
MARK	DESCRIPTION
(G1)	1" INSULATED UNIT 1/4" TEMPERED LOW E ON SURFACE 2 1/2" AIR SPACE 1/4" CLEAR TEMPERED

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FL600T AAMA
TEST DRAWINGS

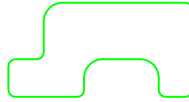
BILL OF MATERIALS

1 EXT. GLAZING GASKET



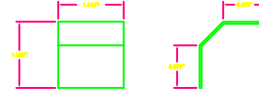
FULL SCALE

3 SETTING BLOCK

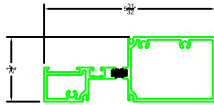
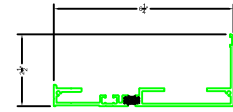


FULL SCALE

4 WATER DRAINER
HALF SCALE



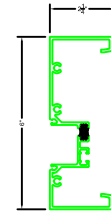
5 SUBSILL



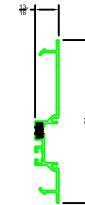
6 SILL



7 GLASS STOP

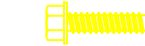
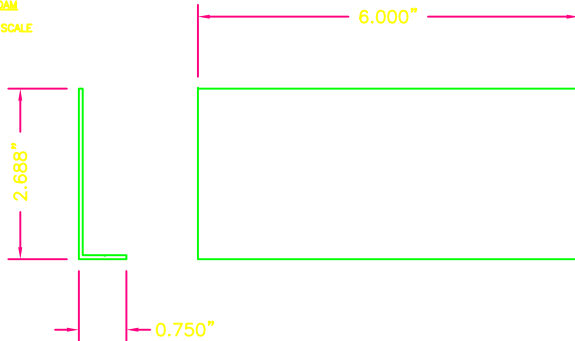


8 VERTICAL MULLION/
HEAD



9 OPEN BACK
MULLION-FILLER

11 END DAM
HALF SCALE



12 AS16



13 AS56

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5 OF 5

FL600T AAMA
TEST DRAWINGS

DIE DRAWINGS

DESCRIPTION

DATE

REV

Cardinal® IG

XL Edge Simulation Model



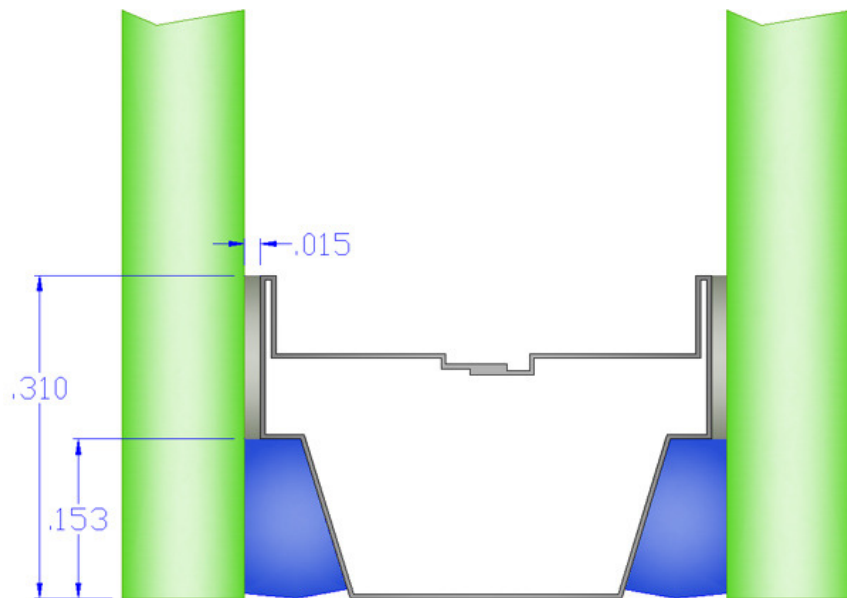
The purpose of this guide is to help properly model the XL Edge seal system when performing Therm window simulations.

XL Edge geometry.

Shown here is the proper XL Edge geometry that should be used for thermal models. This geometry is also included within the attached XL Edge.dxf CAD file.

Some important items are:

- PIB thickness is 0.015".
- Spacer back even with glass edge.
- Stainless steel thickness is 0.0045" for most airspaces.



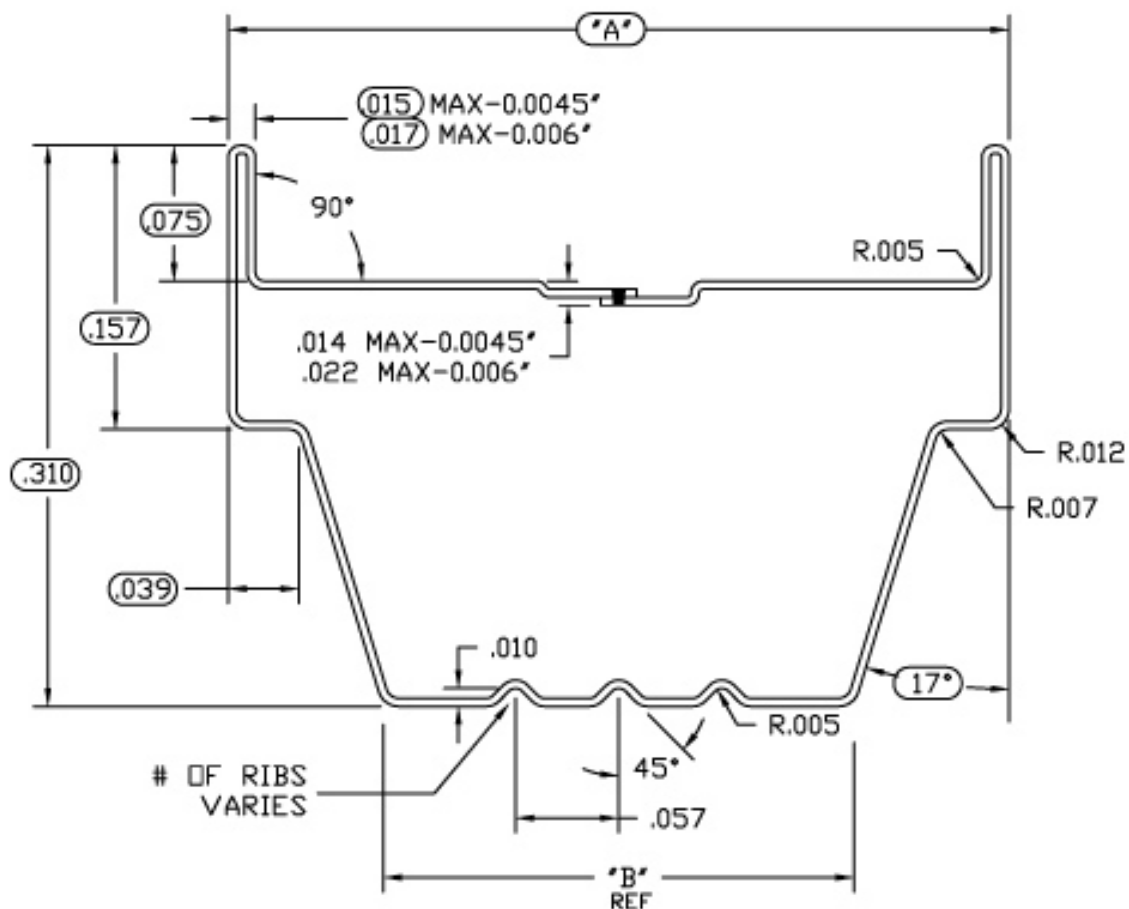
Thermal conductivity

The following thermal conductivity values should be used when modeling XL Edge.

- Silicone: 0.202 BTU/hr-ft-F (0.350 W/m-K)
- PIB: 0.116 BTU/hr-ft-F (0.200 W/m-K)
- Desiccant: 0.017 BTU/hr-ft-F (0.030 W/m-K)
- Stainless Steel: 8.197 BTU/hr-ft-F (14.187 W/m-K)

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SPACER GEOMETRY FOR XL EDGE SIMULATIONS



MATERIAL: 201 STAINLESS STEEL

P/N	NAME	A	B	WALL	# RIBS
58-065	6.5	.236	.064	.0045	1
58-075	7.5	.276	.104	.0045	1
58-080	8.0	.295	.123	.0045	2
58-098	9.8	.366	.194	.0045	3
58-105	10.5	.394	.222	.0045	3
58-112	11.2	.422	.250	.0045	3
58-115	11.5	.432	.260	.0045	3
58-122	12.2	.460	.288	.0045	3
58-130	13.0	.492	.320	.0045	5
57-130	13.0	.492	.320	.006	5
57-145	14.5	.550	.378	.006	5
57-158	15.8	.602	.430	.006	5
57-160	16.0	.610	.438	.006	7
57-165	16.5	.630	.458	.006	7
57-175	17.5	.669	.497	.006	7
57-195	19.5	.748	.576	.006	9
57-210	21.0	.807	.635	.006	9

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CARDINAL IG			
TITLE FBR SPACERS			
ALL RIGHTS ARE EXPRESSLY RESERVED BY CARDINAL IG	SCALE	DATE	DRAWN BY APPROV
TOLERANCES .XXX±.003	PARTS		
ANGULAR±1°			