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Testing. Advising. Assuring.

PERFORMANCE EVALUATION OF THE "WINDSPEC 535 THOO DUAL GLAZED WINDOW" IN ACCORDANCE WITH CSA A440.2-14, SECTION 11 FOR CONDENSATION RESISTANCE

Report to:	Windspec Inc. 1310 Creditstone Road Concord, Ontario L4K 5T7
Attention:	Mr. Oren Anava
Telephone: Fax: Email:	(905) 738-8311 (905) 738-6188 oren@windspec.com
Report No.:	15-06-M0204-5, Revision 1 5 Pages, 1 Appendix
Proposal No.:	15-006-369967
Date:	September 15, 2016

1.0 INTRODUCTION

At the request of Windspec Inc., Exova Canada Inc. was retained to conduct a condensation resistance evaluation of an awning window unit identified as the "Windspec 535 THOO Dual Glazed Window" in accordance with CSA A440.2-14, Section 11 (Condensation Resistance) as outlined in Proposal Number: 15-006-369967.

Exova Specimen No.:	15-06-M0204-5
Type:	Aluminium Awning Window
Model:	535 THOO Dual Glazed Window
Overall Window Size:	1,524 mm (wide) x 609 mm (high) – 60.00 *x 24.00 inches*
Glazing:	6 mm Clear / 13 mm Argon / 6 mm Clear (Tempered) – 1" Overall with Warm Edge Spacer, 13 mm Overall Spacer Width
Glazing Type:	1/8" Polyshim Tape (Interior Side)
Glazing Stop Method:	Interior Aluminium Compression Glazing Stop
Weatherstripping:	EPDM Seals
Frame Material:	AT (Aluminium with Thermal Breaks) Extruded Aluminium with Thermal Break
Thermal Break:	Glass Reinforced Nylon Thermal Break
Reinforcement:	None
Drainage:	Bottom of window unit, 1.25" wide by 0.25" high weep gates located Approximately 50 mm O/C from edge of frame.

Weather-stripping Configuration:

Type:	Quantity Installed & Size:	Location:
Polyshim Tape	1 Row	Sash to IGU
EPDM	1 Row	Glazing Stop to IGU
PVC Bulb Seal	2 Rows	Frame/Sash

Note: Details and drawings as provided by the manufacturer for the above unit have been included in Appendix A.

2.0 PROCEDURE

The Building Performance Centre at Exova evaluated the above window in accordance with the procedures outlined in CSA A440.2-14, Section 11, Fenestration Energy Performance, Condensation Resistance test standard.

3.0 RESULTS

Table 1- Summarized Testing Results in Accordance with CSA-A440.2-14, Section 11, Condensation Resistance Exova Specimen No.: 15-06-M0204-5 Test Date: August 24, 2015	
Temperature Locations	**Test Results**
Coldest Glazing Temperature (Tg)	0.3˚C
Coldest Frame Temperature (Tf)	5.1˚C
Weather-side Temperature (Tc)	-17.9 ˚C
Room-side Temperature (Th)	21.6˚C
Room-side Humidity	<10 %RH
I-Value (Glazing)	46
I-Value (Frame)	58
Calculated Total I-Value	**46**

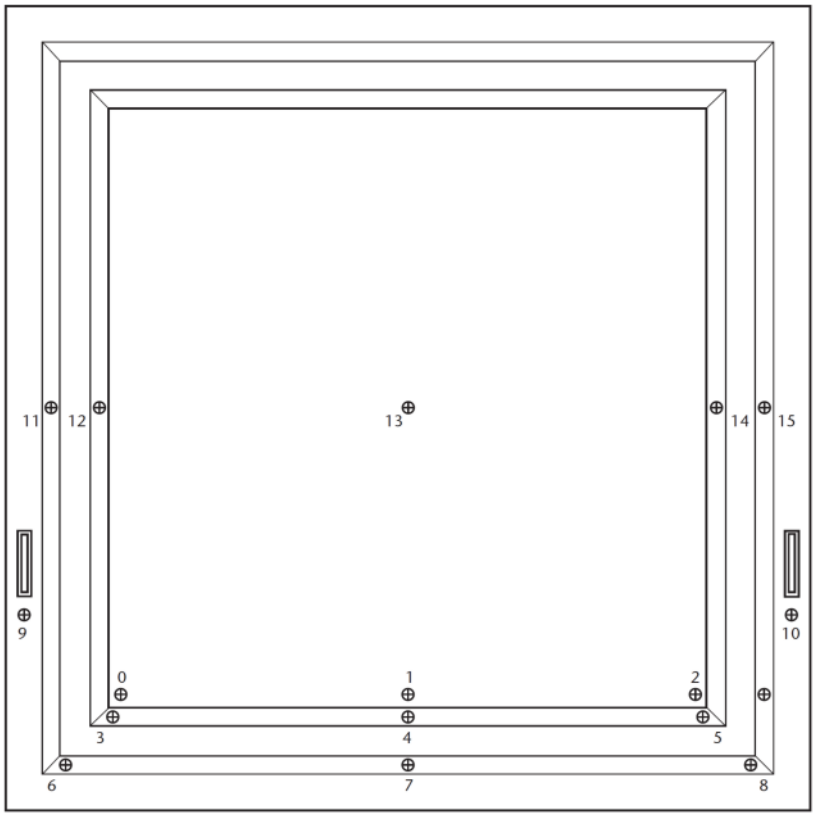


Figure A.2
Thermocouple locations for condensation resistance test for projecting windows
(See Clause A.2.7.)

Figure 1 – Thermocouple Layout for Projecting Windows *(CSA A440.2-14, Figure A.3)*

Table 2 – Average Measured Temperatures at Various Thermocouple Locations CSA-A440.02-09, Section 11, Condensation Resistance Exova Specimen No.: 15-06-M0204-5			
Thermocouple Location	**Temperature (°C)**	**Thermocouple Location**	**Temperature (°C)**
0	0.3	**8**	5.1
1	3.8	**9**	5.1
2	1.5	**10**	11.1
3	9.9	**11**	11.3
4	9.7	**12**	11.3
5	8.8	**13**	8.0
6	5.1	**14**	9.9
7	6.9	**15**	9.2

4.0 MODIFICATIONS

No modifications were made to Exova Specimen No.: 15-06-M0204-5 prior or during testing.

5.0 CONCLUSIONS

Based on the results of the testing summarized in Table 1, the Windspec "535 THOO Dual Glazed Window", Exova Specimen No.: 15-06-M0204-5 achieved the following condensation resistance performance criteria as outlined in CSA A440.2-14, Section 11:

Performance Criteria	**Rating**
• I-Value	46

6.0 REPORT REVISION SUMMARY

Revision No:	**Date:**	**Description of Revisions:**
Original	2016-September 8	Original Document
1	2016-September 15	Correction made to Specimen Idenftifcation Was: "525 THOO Triple Glazed Window" Now: "535 THOO Triple Glazed Window"

Reported by:

Sunny Ling, C.E.T, MET Ext. 11412
Supervisor, Building Systems
Products Testing Division

Reviewed by:

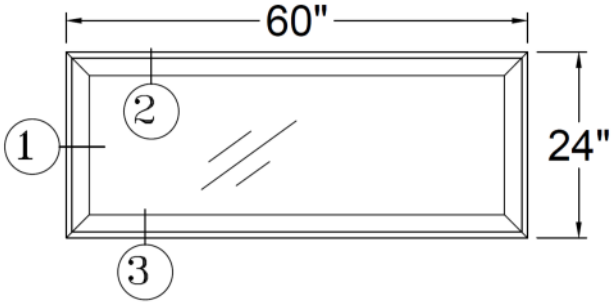
Jordan M. Church, B.Tech, MET, Ext. 11546
Operations/Technical Manager, Products Division
Product Testing Division

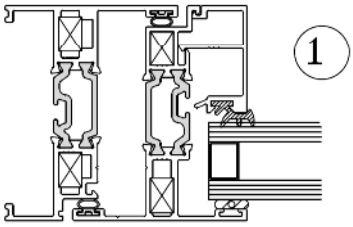
APPENDIX A

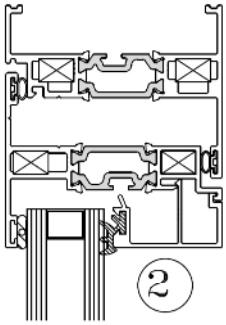
Specimen Detail Drawings
(As Provided by Windspec Inc.)

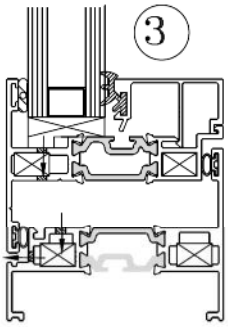
(7 Pages)

535 OPEN OUT
CONDENSATION TESTING
DOUBLE GLAZED





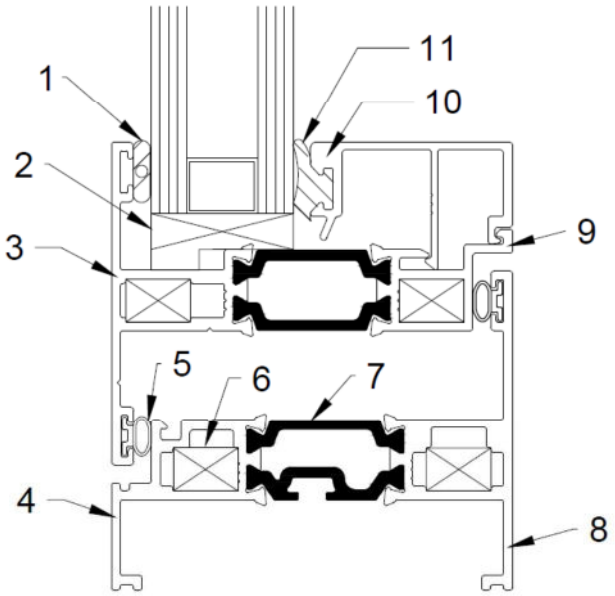




MANUFACTURERS OF HIGH PERFORMANCE 'WINDSPEC' WINDOWS
ALUMINUM ENTRANCE SYSTEMS AND ARCHITECTURAL PANELS
1310 CREDITSTONE RD, CONCORD, ONTARIO L4K 5T7
Telephone (905) 738 -8311 Fax (905) 738 - 6188

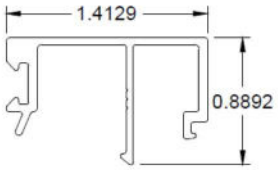
EXOVA

OPEN OUT WET GLAZE



1	1/8" POLYSHIM TAPE
2	EPDM SETTING BLOCK
3	ALUMINIUM - EXTERIOR SASH
4	ALUMINIUM - EXTERIOR FRAME
5	SANTOPRENE GASKET
6	ALUMN. CORNER KEY
7	GLASS REINF. NYLON THERMAL BREAK
8	ALUMINIUM - INTERIOR FRAME
9	ALUMINIUM - INTERIOR SASH
10	ALUMINIUM GLASS STOP
11	EPDM GASKET

10



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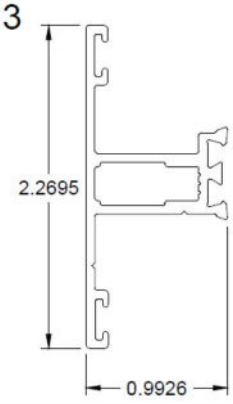

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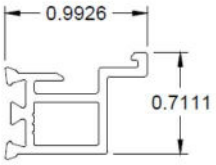

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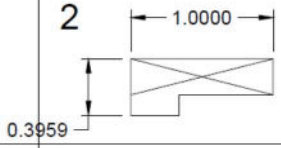

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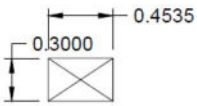

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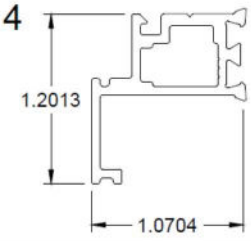

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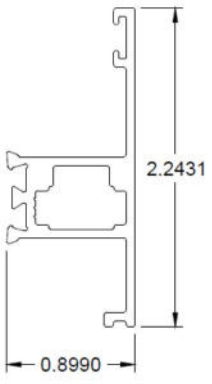

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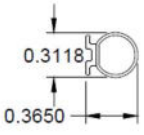

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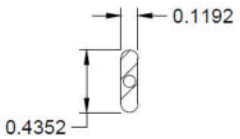

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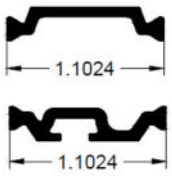

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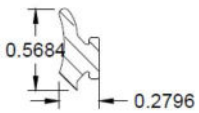

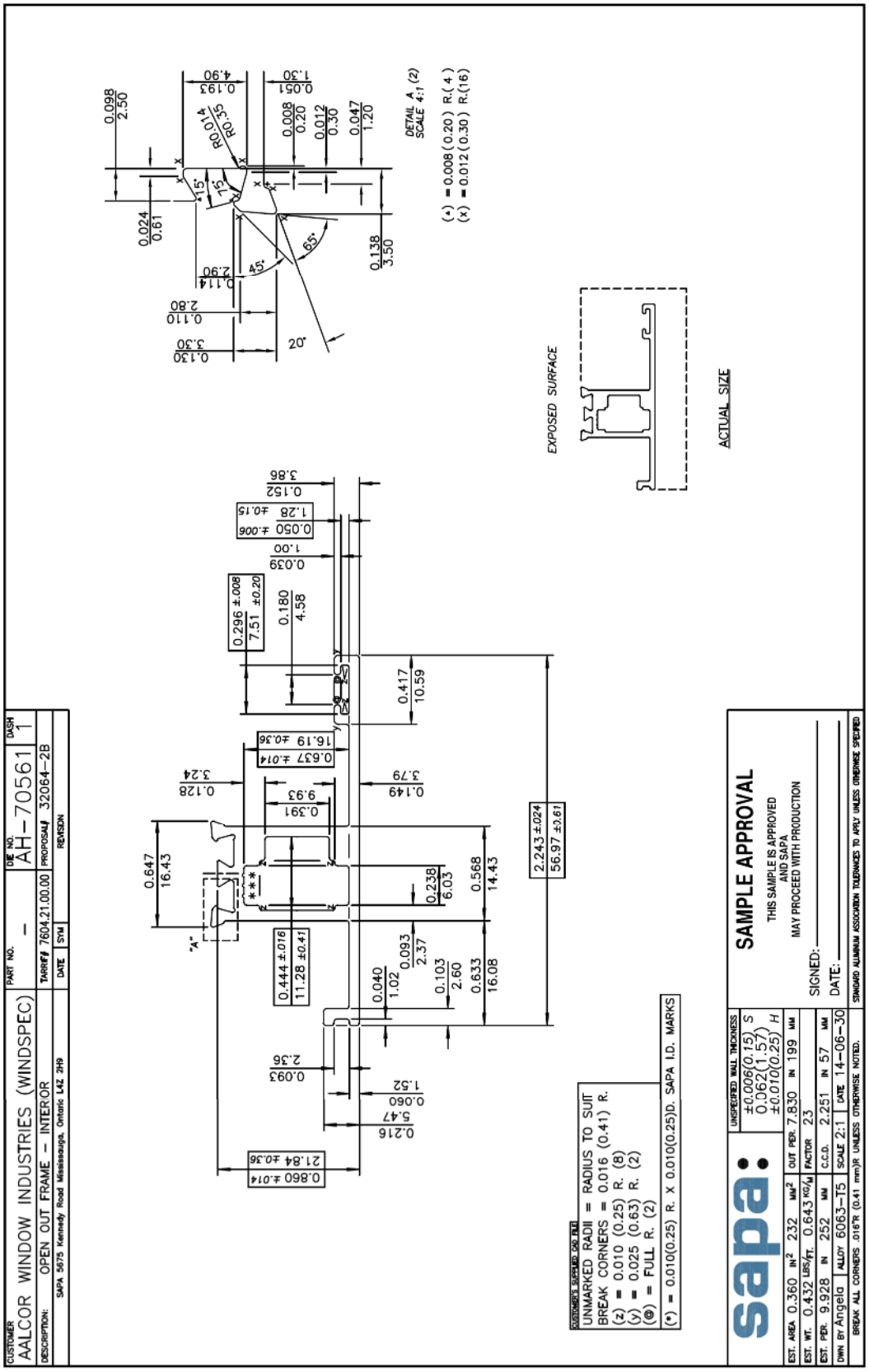
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0.062(1.57)
±0.010(0.25) H
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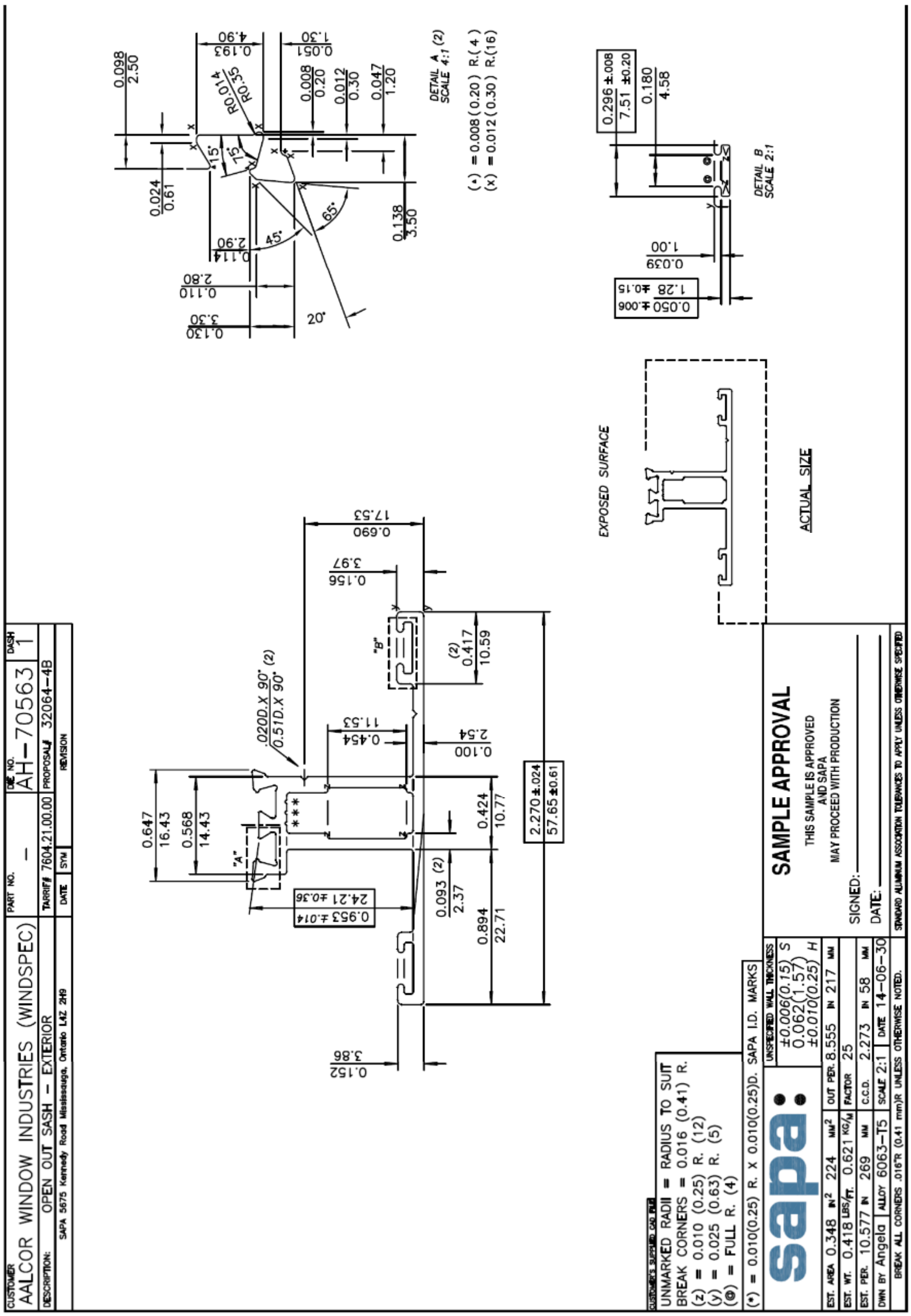
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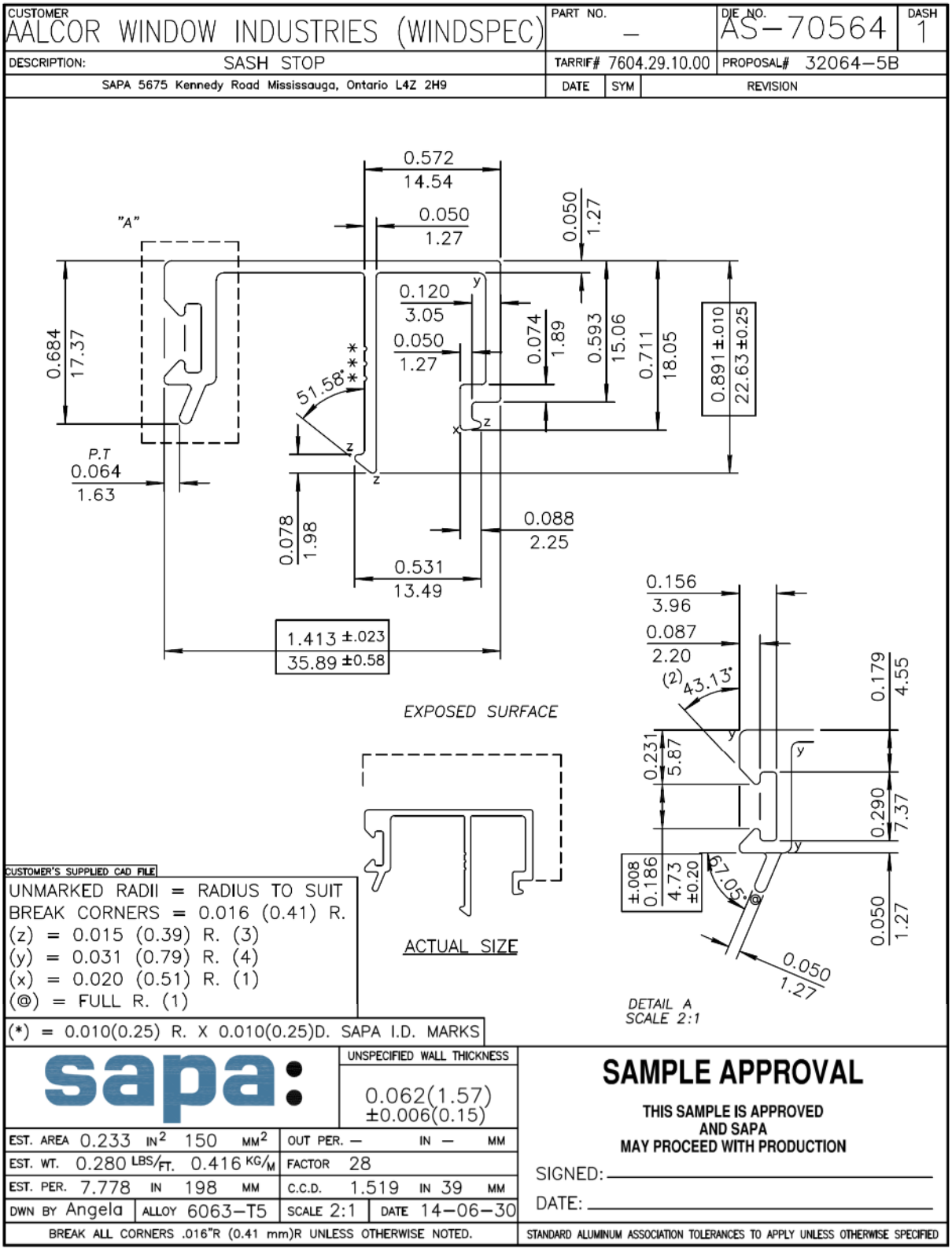
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ALLOY 6063–T5
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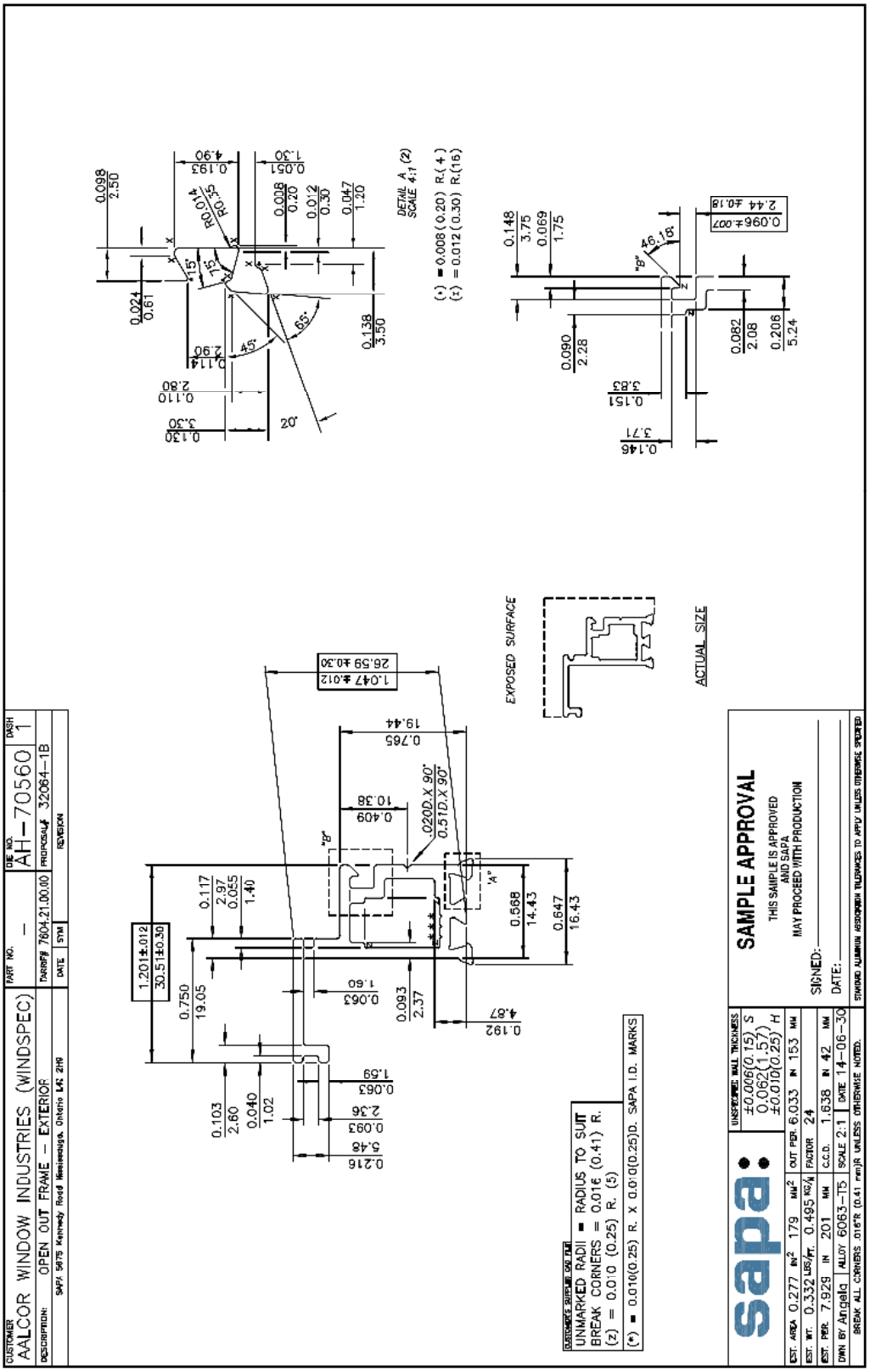
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DATE:
sapa
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±0.006(0.15) S
0.062(1.57)
±0.010(0.25) H
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ALLOY 6063–T5
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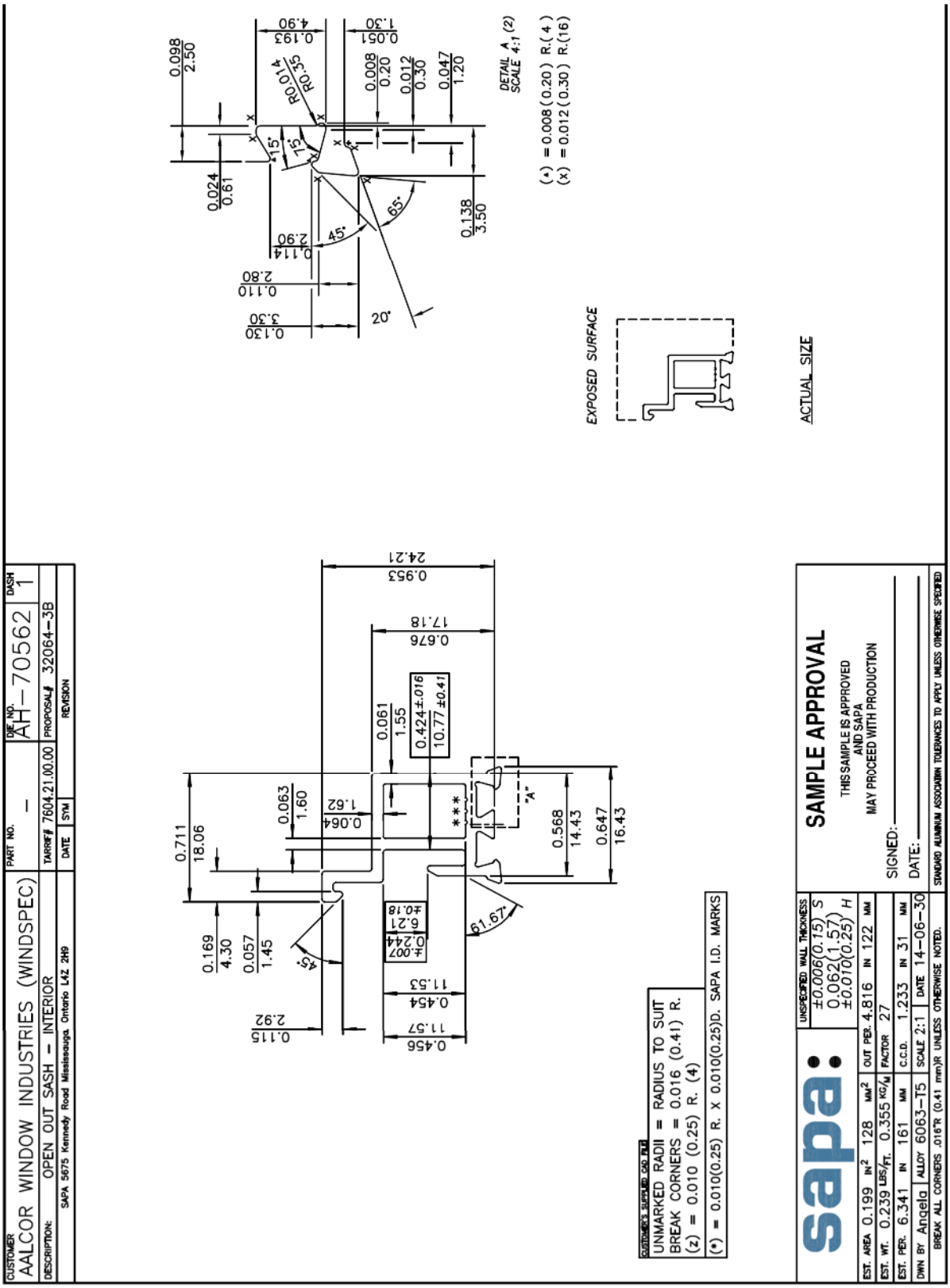
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REVISION
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sapa
UNSPECIFIED WALL THICKNESS
±0.006(0.15) S
0.062(1.57)
±0.010(0.25) H
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