Exova
2395 Speakman Dr.
Mississauga
Ontario
Canada
L5K 1B3

T: +1 (905) 822-4111
F: +1 (905) 823-1446
E: sales@exova.com
W: www.exova.com

Testing. Advising. Assuring.

THERMAL PERFORMANCE SIMULATION FOR THE WINDSPEC INC. "WINDSPEC 5500 SERIES FIXED" IN ACCORDANCE WITH CSA A440.2-09, ENERGY PERFORMANCE OF WINDOWS & OTHER FENESTRATION SYSTEMS

Report to:	Windspec Inc. 1310 Creditstone Road Concord, Ontario L4K 5T7
Attention:	Mr. Oren Anava
Telephone: Email:	(905) 738-8311 oren@windspec.com
Report No.:	12-06-M0547-8 5 Pages, 1 Appendix
Proposal No.:	12-006-09659
Date:	May 18, 2013

1.0 INTRODUCTION

At the request of Windspec Inc., Exova was retained to conduct an Energy Performance Simulation evaluation of an Aluminium Fixed window unit identified as the "Windspec 5500 Series Fixed" in accordance with CSA A440.2-09 as outlined in proposal number 12-006-09659.

Exova Simulation No.:	12-06-M0547-8
Window Type:	Fixed
Series Model:	Windspec 5500 Series Fixed
Simulation Window Size:	1,200 mm (wide) x 1,500 mm (high)
Simulation CR Cavity Height:	1400 mm
Frame Material / Finish:	AT *(Aluminium Alloy)*
Thermal Break Material:	Rigid PVC / EPDM
Reinforcement Material:	No
Operator Type:	FIXD *(Fixed 4-Sided)*

Glazing Type(s):

Double Glazing Option No. 1:	6 mm PPG Solarban 60 on clear [coating surface 2] / 13 mm Argon / 6 mm Clear
Double Glazing Option No. 2:	6 mm Clear / 13 mm Argon / 6 mm PPG Solarban 60 on clear [coating surface 3]
Gas Fill:	Argon (90% Argon, 10% Air)
Gas Fill Method:	Single Chamber
Spacer for Glazing Options:	Edgetech Superspacer, 13 mm Overall Spacer Width, Overall Spacer Height: 11 mm
Weatherstripping:	EPDM Seals - 2 / IGU
Thermal Break:	EPDM / Rigid PVC

Note: Air leakage value obtained from the NAFS – AAMA/WDMA/CSA 101/I.S.2/A440-08 Exova physical test report #12-06-M0547-8P was used to compute ER.

2.0 PROCEDURE

The Building Performance Centre at Exova evaluated the above window in accordance with the procedures of the CSA A440.2-09, "Energy Performance of Windows & Other Fenestration Systems" test Standard.

Standard Notes:

- The solar absorptance of Frames was 0.5 for SHGC calculation, unless otherwise stated. Interior boundary conditions were considered "thermally broken."
- Glazing surface emissivitives are assumed to be 0.84, unless otherwise stated.
- Continuous Hardware Modelled: No

Software Employed:

- International Glazing Database Version: 24
- Frame and Edge Modelling Software: Therm Version: 6.3.38
- Centre of Glass Calculation Software: Window Version: 6.3.54
- Total Window Unit Calculation Software: Window Version: 6.3.54

3.0 SIMULATION RESULTS

Simulation Summary Sheet (Glazing Options)

SYSTEMS LABORATORY
Building Performance Centre,
Products Testing Group

Exova Project No.: 12-06-M0547-8
Completion Date: May 18, 2013

Simulator: Sunny Ling
Window v6.3.54.0 File Name: 12-06-M0547-8 S5500 Fixed.mdb

Simulation Data - Glazing System Library

ID	Name	No. of Layers	Mode	Tilt	Environmental Conditions	Keff (BTU/h-ft-F)	Overall Thickness (in)	Uval (Btu/h-ft2-F)	SHGC	Visible Transmittance
1	6 mm PPG Solarban 60 on Clear [Surface 2] / Argon / 6 mm Clear	2	#	90	NFRC 100-2010	0.014	0.984	0.245	0.377	0.701
2	6 mm Clear / Argon / 6 mm PPG Solarban 60 on Clear [Surface 3]	2	#	90	NFRC 100-2010	0.014	0.984	0.245	0.450	0.701

CSA A440.2-09 Simulation Summary Sheet

SYSTEMS LABORATORY
Building Performance Centre,
Products Testing Group

Exova Simulation No.: 12-06-M0574-8
WindowType: S5500 Fixed
Simulation Window Size: 1.500 Height (m) 1.200 Width (m)
Simulator: Sunny Ling
Frame Type: Aluminium
Window 6.3.9.0 File Name: 12-06-M0547-8 S5500 Fixed.mdb
Sash Type: -
Therm Version: 6.3.54
Thermal Break: PVC
Physical Report Number: 12-06-M0547-8P
Air Leakage Rate for Actual Window Size: 0.190 L/s·m²

CSA A440.2-09 Simulation Summary for Various Configurations

Product Code	Grill	Space 1 (in)	Space 2 (in)	Gas Information		Emissivity							L_{75}	Window U-Value	SHGC	Visual Transmitance (Total Window)	Energy Rating
				Space Fill 1	Space Fill 2	Surface 2	Surface 3	Surface 4	Surface 5	Tint	Spacer	L_{75} L/s·m²		W/m²K			
6 mm PPG Solarban 60 on Clear [Surface 2] / Argon / 6 mm Clear	No	0.512		Argon		0.035				LoE	SS	0.190		2.712	0.312	0.570	-2
6 mm Clear / Argon / 6 mm PPG Solarban 60 on Clear [Surface 3]	No	0.512		Argon			0.035			LoE	SS	0.190		2.712	0.371	0.570	2

Reported by:

Sunny Ling, Ext. 412
Project Technlogoist, Fenestration / Walls
Products Testing Division

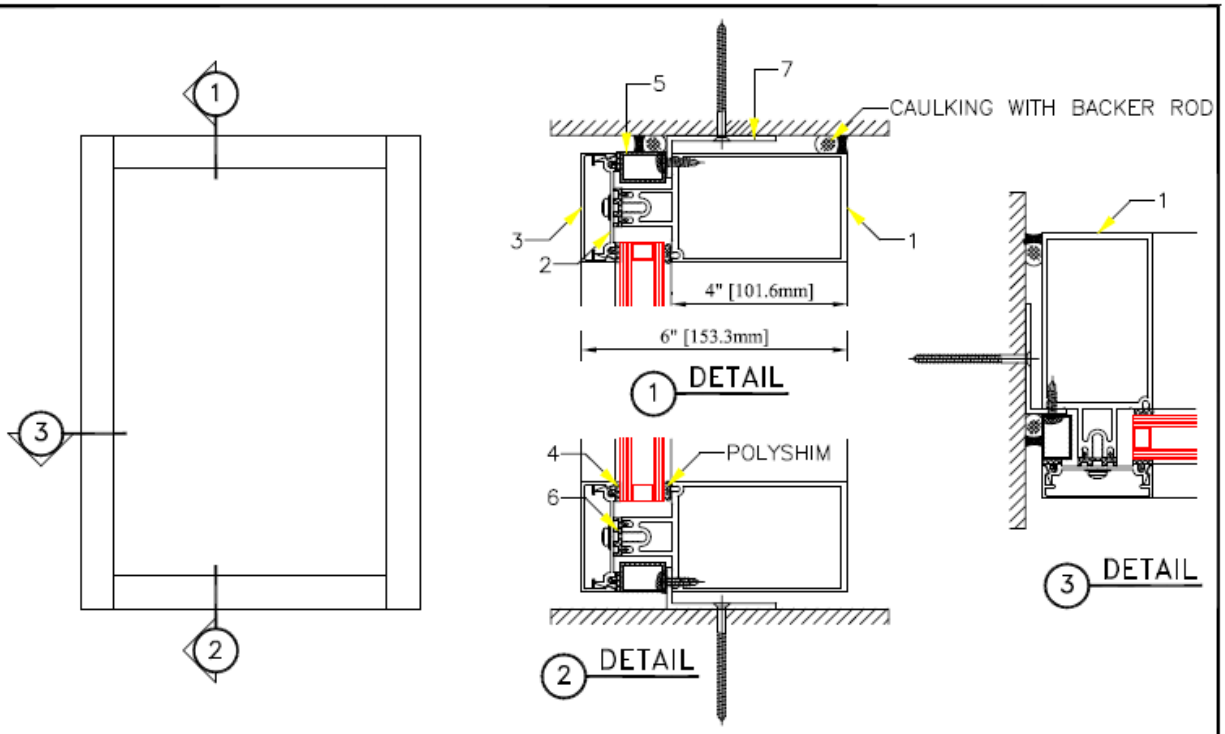
Reviewed & Authorized by:

Jordan M. Church, B.Tech, Technologist , Ext. 546
Supervisor, Fenestration / Walls
Product Testing Division

APPENDIX A

Detail as Provided Windspec Inc.

(1 Page)



#	DIE #	DESCRIPTION
1	C-55014	MULLION
2	C-55006	PRESSURE PLATE
3	C-55004	SNAP-ON CAP
4	R-55003	PRESSURE PLATE GLAZING SPLINE
5	R-55001	P.V.C. POCKET FILLER
6	R-55005	P.V.C. HEAVY DUTY THERMAL BARRIER
7	C-55034	1"x3"x3/16" ANGLE

GENERAL NOTES

WINDOW: WINDSPEC 5500 SERIES FIXED WINDOW

GLAZING: 1" SEALED UNIT
EXTERIOR GLASS: 1/4" CLEAR TEMP
INTERIOR GLASS: 1/4" CLEAR TEMP

WINDSPEC INC.
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

SCALE : NTS	DESCRIPTION : 5500 SERIES FIXED WINDOW	DRAWING NO. : 001