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Testing. Advising. Assuring.

**THERMAL PERFORMANCE SIMULATION FOR THE WINDSPEC INC.
“WINDSPEC 5400 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:	(905) 738-8311
Email:	oren@windspec.com
Report No.:	12-06-M0547-7 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 5400 Series Fixed" in accordance with CSA A440.2-09 as outlined in proposal number 12-006-09659.

Exova Simulation No.: 12-06-M0547-7
Window Type: Fixed
Series Model: Windspec 5400 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-M0547-7P 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 emissivities 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

Exova Project No.: 12-06-M0547-7 Completion Date: May 18, 2013 Simulator: Sunny Ling Window v6.3.54.0 File Name: 12-06-M0547-7 S5400 Fixed.mdb		 SYSTEMS LABORATORY Building Performance Centre, Products Testing Group		<u>Simulation Summary Sheet (Glazing Options)</u>									
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			

Reported by:

Reviewed & Authorized by:


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

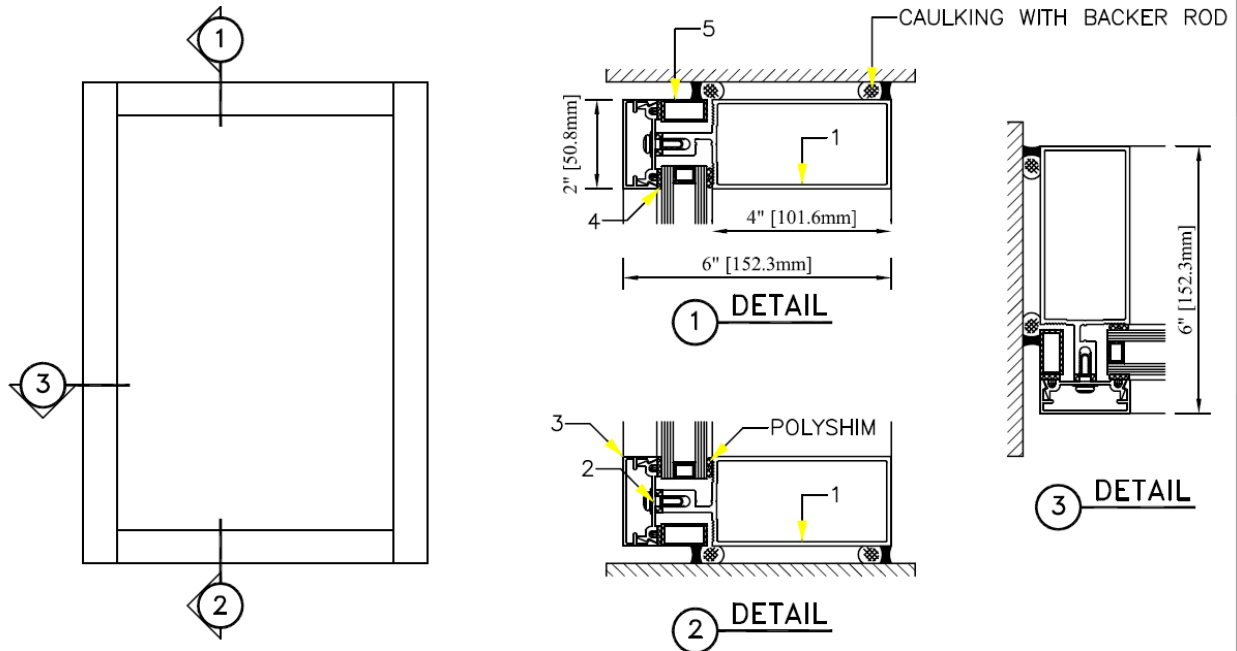

Jordan M. Church, B.Tech, Technologist, Ext. 546
Supervisor, Fenestration / Walls
Product Testing Division

This report and service are covered under Exova Canada Inc's. Standard Terms and Conditions of Contract which may be found on our company's website www.exova.com, or by calling 1-866-263-9268

APPENDIX A

Detail as Provided Windspec Inc.

(1 Page)



#	DIE #	DESCRIPTION
1	C-54002	MULLION
2	C-54006	PRESSURE PLATE
3	C-54004	SNAP-ON CAP
4	R-55003	PRESSURE PLATE GLAZING SPLINE
5	R-55001	P.V.C. POCKET FILLER
6	R-53001	P.V.C. THERMAL BARRIER

GENERAL NOTES

WINDOW: WINDSPEC 5400 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
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SCALE : NTS

DESCRIPTION : 5400 SERIES FIXED WINDOW

DRAWING NO. : 001