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TEST REPORT

REPORT NUMBER T636-1

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Contents: Pages 1-37

Oasis Windows Ltd.

400 Series Picture Window
400 Series Awning Window
400 Series Casement Window
300 Series Vertical Slider Window
300 Series Horizontal Slider Window
307 Series Horizontal Slider Window
5200 Series Patio Sliding Door

Test Method:	**CSA A440.2-04 "Energy Performance of Windows and Other Fenestration Products" – Computer Simulation Method**
Manufacturer /Client:	Oasis Windows Ltd.
Manufacturer /Client Address:	Oasis Windows Ltd. 109 – 12889 84th Street Surrey, BC, Canada V3W 0K5
Model Number:	400 Series Picture Window 400 Series Awning Window 400 Series Casement Window 300 Series Vertical Slider Window 300 Series Horizontal Slider Window 307 Series Horizontal Slider Window 5200 Series Patio Sliding Door
Report Number:	T636-1
Description:	Refer to Simulation Summary for simulation window sizes See Appendix A for CAD Drawings and Part Numbers
Test Lab:	Quality Auditing Institute Ltd. 2825 Murray Street, Port Moody BC, V3H 1X3

Test Conditions:

Quality Auditing Institute Ltd. (QAI) was retained by Oasis Windows Ltd. to perform testing in accordance with the computer simulation method requirements of CSA A440.2-04 on the following window and door models:

- 400 Series Picture Window
- 400 Series Awning Window
- 400 Series Casement Window
- 300 Series Vertical Slider Window
- 300 Series Horizontal Slider Window
- 307 Series Horizontal Slider Window
- 5200 Series Patio Sliding Door

The overall coefficient of heat transfer and solar-optical properties were determined by computer simulation using THERM5 and WINDOW5 software. The WINDOW software program models the one-dimensional heat flow through the center-of-glass portion of the window or door. The THERM software program models the two-dimensional heat flow through the frame, edge-of-glass, divider, and divider-edge portions of the window or door. Input data for both programs is based on manufacturer's specifications.

The energy rating (ER) is obtained by combination of the u-value, solar heat gain coefficient (SHGC), and air leakage rate using the formula specified in CSA A440.2-04.

Air leakage values were determined from QAI (Port Moody). The test report number, date, crack length and average air leakage have been reported in the below table:

Window Type	CSA A440-00				CSA A440.2-04	
	Test Report Number	Date	Crack Length (m)	Air Leakage (m^3/h/m)	Test Specimen Size W x H (mm)	CAN-BEST Test Report Number
400 Series Picture	W410-1	08/28/06	7.52	0.00	1200 x 1500	464-1792g-sim
400 Series Awning	W410-2	08/28/06	3.59	0.09	1500 x 600	464-1792f-sim
400 Series Casement	W410-3	08/28/06	4.21	0.30	600 x 1500	464-1792e-sim
300 Series Single Hung	W410-4	08/28/06	6.70	0.33	1200 x 1500	4641792-sim
300 Series Single Slider	W410-5	08/28/06	6.48	0.32	1500 x 1200	464-1792b-sim
307 Series Single Slider	W410-6	08/28/06	6.65	0.23	1500 x 1200	464-1838-sim
5200 Series Patio Door	W410-7	08/28/06	10.93	0.23	2000 x 2000	464-1792d-sim

Product drawings and specifications were supplied by Oasis Windows Ltd. and are shown in Appendix A. The most currently approved spectral data files were used. Defaults for material thermal and optical properties are given in the computer programs. When values other than defaults are used, they are documented in this report. Original Therm and Window files were generated based on testing completed at CAN-BEST (SCC Accredited Laboratory No. 447). The reports for the simulations have been referenced above.

Ratings are determined for a fixed set of environmental conditions and a specific product size. Actual product performance may be affected by variations in the product dimensions, assembly details, installation method, and environmental conditions.

Quality Auditing Institute Ltd. and its employees do not recommend or warrant any product for any specific use.

Summary of Results:

400 Series Picture Window – 1200mm x 1500mm
400 Series Awning Window – 1500mm x 600mm
400 Series Casement Window – 600mm x 1500mm
300 Series Vertical Slider Window – 120mm x 1500mm
300 Series Horizontal Slider Window – 1500mm x 1200mm
307 Series Horizontal Slider Window – 1500mm x 1200mm
5200 Series Patio Sliding Door – 2000mm x 2000mm

Simulation Summary

Window	Product Code	Glass Option	Number Of Layers	Exterior Layer	Interior Layer	Emissivity Surface 2	Emissivity Surface 3	Cavity 1	Spacer Bar Type	Air Leakage (m3/hr/m)	Visual Transmittance Total Window	Window U-Value (W/m2K)	Window SHGC	Energy Rating (ER)
400 Picture	400FX - 3mm LowE (0.04) - 13.3 Argon - 3mm Cl	1	2	3mm Cardinal LowE 270	3mm Clear	0.04	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.00	0.59	1.56	0.30	23
	400FX - 3mm Cl - 13.3 Argon - 3mm LowE (0.11)	2	2	3mm Clear	3mm Cardinal LowE 179	-	0.11	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.00	0.67	1.69	0.56	36
	400FX - 3mm LowE (0.02) - 13.3 Argon - 3mm Cl	3	2	3mm Cardinal LowE 366	3mm Clear	0.02	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.00	0.55	1.53	0.22	19
400 Awning	400AW - 3mm LowE (0.04) - 13.3 Argon - 3mm Cl	1	2	3mm Cardinal LowE 270	3mm Clear	0.04	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.09	0.44	1.57	0.23	19
	400AW - 3mm Cl - 13.3 Argon - 3mm LowE (0.11)	2	2	3mm Clear	3mm Cardinal LowE 179	-	0.11	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.09	0.49	1.67	0.43	28
	400AW - 3mm LowE (0.02) - 13.3 Argon - 3mm Cl	3	2	3mm Cardinal LowE 366	3mm Clear	0.02	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.09	0.40	1.55	0.17	16
400 Casement	400CA - 3mm LowE (0.04) - 13.3 Argon - 3mm Cl	1	2	3mm Cardinal LowE 270	3mm Clear	0.04	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.30	0.44	1.58	0.23	19
	400CA - 3mm Cl - 13.3 Argon - 3mm LowE (0.11)	2	2	3mm Clear	3mm Cardinal LowE 179	-	0.11	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.30	0.49	1.67	0.43	28
	400CA - 3mm LowE (0.02) - 13.3 Argon - 3mm Cl	3	2	3mm Cardinal LowE 366	3mm Clear	0.02	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.30	0.40	1.56	0.17	16

Window	Product Code	Glass Option	Number Of Layers	Exterior Layer	Interior Layer	Emissivity Surface 2	Emissivity Surface 3	Cavity 1	Spacer Bar Type	Air Leakage (m3/hr/m)	Visual Transmittance Total Window	Window U-Value (W/m2K)	Window SHGC	Energy Rating (ER)
300 Vertical Slider	300SH - 3mm LowE (0.04) - 13.3 Argon - 3mm Cl	1	2	3mm Cardinal LowE 270	3mm Clear	0.04	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.33	0.55	1.65	0.29	20
	300SH - 3mm Cl - 13.3 Argon - 3mm LowE (0.11)	2	2	3mm Clear	3mm Cardinal LowE 179	-	0.11	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.33	0.62	1.77	0.53	31
	300SH - 3mm LowE (0.02) - 13.3 Argon - 3mm Cl	3	2	3mm Cardinal LowE 366	3mm Clear	0.02	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.33	0.50	1.62	0.21	16
300 Horizontal Slider	300SS - 3mm LowE (0.04) - 13.3 Argon - 3mm Cl	1	2	3mm Cardinal LowE 270	3mm Clear	0.04	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.32	0.55	1.65	0.29	20
	300SS - 3mm Cl - 13.3 Argon - 3mm LowE (0.11)	2	2	3mm Clear	3mm Cardinal LowE 179	-	0.11	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.32	0.62	1.77	0.53	31
	300SS - 3mm LowE (0.02) - 13.3 Argon - 3mm Cl	3	2	3mm Cardinal LowE 366	3mm Clear	0.02	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.32	0.50	1.63	0.21	16
307 Horizontal Slider	307SS - 3mm LowE (0.04) - 13.3 Argon - 3mm Cl	1	2	3mm Cardinal LowE 270	3mm Clear	0.04	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.23	0.55	1.67	0.29	19
	307SS - 3mm Cl - 13.3 Argon - 3mm LowE (0.11)	2	2	3mm Clear	3mm Cardinal LowE 179	-	0.11	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.23	0.62	1.79	0.53	31
	307SS - 3mm LowE (0.02) - 13.3 Argon - 3mm Cl	3	2	3mm Cardinal LowE 366	3mm Clear	0.02	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.23	0.50	1.64	0.21	16
5200 Sliding Door	5200SD - 4mm LowE (0.04) - 13.3 Argon - 4mm Cl	1	2	4mm Cardinal LowE 270	4mm Clear	0.04	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.23	0.57	1.65	0.30	21
	5200SD - 4mm Cl - 13.3 Argon - 4mm LowE (0.11)	2	2	4mm Clear	4mm Cardinal LowE 179	-	0.11	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.23	0.65	1.78	0.56	33
	5200SD - 4mm LowE (0.02) - 13.3 Argon - 4mm Cl	3	2	4mm Cardinal LowE 366	4mm Clear	0.02	-	13.3mm 90% Argon	Cardinal XL Edge (SS)	0.23	0.53	1.62	0.22	17

Notes:
ER = 57.76(SHGCw) – 21.90(Uw) – 0.54(L75/Aw) + 40
All glazing surface emissivities are assumed to be 0.84 unless otherwise stated.
Spacer bar was a 58-130 Cardinal XL Edge (SS) as shown in Appendix B

Comments/Conclusion:

Quality Auditing Institute Ltd., with lab facilities located in Port Moody, British Columbia, performed testing in accordance with the computer simulation method specified in CSA A440.2-04 for Oasis Windows Ltd. for the following windows and doors:

- 400 Series Picture Window
- 400 Series Awning Window
- 400 Series Casement Window
- 300 Series Vertical Slider Window
- 300 Series Horizontal Slider Window
- 307 Series Horizontal Slider Window
- 5200 Series Patio Sliding Door

Results are based on product specifications provided by Oasis Windows Ltd. found in Appendix A of this report.

The report relates only to the items tested. Test results in this report may not be reproducible in the field.

Person(s) Authorizing Report:

Name (Signature)	Kevin Saito Name (Printed)	Division Manager Title	16/04/09 (dd/mm/yy)

Reviewed by:

Name (Signature)	BEN BARKER Name (Printed)	DIRECTOR OF ENGINEERING Title	APRIL 16/09 (dd/mm/yy)