TECHNICAL INFORMATION

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ALSPEC ALUMINIUM SYSTEMS

TECHNICAL INFORMATION

1. PERFORMANCE TESTING

ALSPEC has it's own NATA Certified Test Facility

This facility complies with the requirements of ISO/IEC 17025:2005
13.44 Mechanical tests on assemblies
.01 Windows and doors

Preloading, deflection, operating force, air infiltration, water penetration resistance and ultimate strength tests by methods of – AS2047; AS4420.1,.2,.3,.4,.5,.6

Accreditation No: 15657
Commissioned in July 2007
Capacity – 3.2m high x 4.6m wide sample - 10.0kpa

TECHNICAL INFORMATION

1. PERFORMANCE TESTING cont.

WHY DO WE TEST?
It provides all industry affiliates that know and/or are considering using ALSPEC products a sense of re-assurance and satisfaction that we stand behind our products, in both quality and performance. The confidence is there when someone wants a high performance product. ALSPEC will never make claims like "we can do it": we will prove it by providing documentation which supports and certifies such claims.

BENEFITS OF HAVING OUR OWN NATA CERTIFIED TEST RIG:

A key benefit ALSPEC have by owning this test rig is the ability to respond with speed and accuracy to the ever changing market and its requirements, particularly when it comes to energy, wind and water. It also assists us in identifying where opportunities exist to enhance and complement current product lines. Most importantly reaction time is swift as we eliminate time restraints which can occur when relying on external test facilities.

The testing process is based on AS4420 0-6 and AS2047, below is a basic description of each step.

Preloading:
After operating the product 5 times as outlined in the standard, then apply 50% of the Test Pressure in both a negative and positive direction and hold for a 1min period. This is considered the settling in or take up period.

Deflection:
This is where we work out what an interlock, mullion or transom is capable of within a system. This is based on 3 sets of criteria, L/150 Housing, L/180 Residential and L/250 Commercial. This is done by placing the window into a pressure test rig and applying pressure and recording the movement of each member based on the amount of pressure and the amount of movement. The test process is done in both a positive and negative direction.

Operating Forces:
This is where we measure how much pressure it takes to move a sliding sash whether in a double hung or sliding window or door. The force is recorded by using a Force Gauge, which reads in Newton's.

Air Infiltration:
The product is completely sealed so no air can leak out of the sample. You then apply 2 levels of pressure which are outlined in the relevant Australian standard. When completed the test is then repeated without sealing the sample. The difference is the amount of Air infiltration that product has.

Water Penetration:
The product has a 5 minute wet down period where water is applied to the total face of the product at a set flow rate. A pressure is then applied to the sample in a positive direction only, this is held for 15mins. This process is continued until the required level is achieved.

Ultimate Testing
This is where we apply higher levels of both positive and negative pressure to the product. The pressure is held for only 10 seconds. Each member (Mullion, Transom, etc.) has a level of pressure that it can take prior to failure. In this test we are checking both members and the system as a combined unit to its ultimate capacity.

TECHNICAL INFORMATION

1. PERFORMANCE TESTING cont.

WIND SPEED/PRESSURE CONVERSION CHART

Technical Bulletin to Industry

September 2003

AWA AUSTRALIAN WINDOW ASSOCIATION

STATIC PRESSURES QUICK CONVERSION CHART

Pascals	m/s	Km/h	mm H_2O	MPH	PSF
75	11.18	40.25	7.65	25.01	1.56
100	12.91	46.48	10.20	28.88	2.08
150	15.81	56.92	15.30	35.36	3.13
200	18.26	65.73	20.40	40.84	4.17
250	20.41	73.48	25.50	45.88	5.22
300	22.36	80.50	30.60	50.02	6.26
400	25.82	92.95	40.80	57.75	8.35
500	28.87	103.92	51.00	64.75	10.44
600	31.62	113.84	61.20	70.73	12.53
700	34.16	122.69	71.40	76.23	14.62
800	36.51	131.45	81.60	81.67	16.71
900	38.73	139.43	91.80	86.63	18.80
1000	40.82	146.97	102.00	91.32	20.89
1100	42.82	154.14	112.20	95.77	22.97
1200	44.72	161.00	122.40	100.04	25.06
1300	46.55	167.57	132.60	104.12	27.15
1400	48.30	173.90	142.80	108.05	29.24
1500	50.00	180.00	153.00	111.84	31.33
1600	51.64	185.90	163.20	115.51	33.42
1700	53.23	191.62	173.40	119.06	35.51
1800	54.77	197.18	183.60	122.52	37.60
1900	56.27	202.58	193.80	125.87	39.69
2000	57.74	207.85	204.00	129.15	41.78
2100	59.16	212.98	214.20	132.33	43.86
2200	60.55	218.00	224.40	135.45	45.95
2300	61.91	222.90	234.60	138.50	48.04
2400	63.25	227.68	244.80	141.47	50.13
2500	64.55	232.38	255.00	144.39	52.22
3000	70.71	254.56	306.00	158.17	62.67
4000	81.65	293.94	408.00	182.64	83.56
5000	91.29	328.63	510.00	204.20	104.45
6000	1000	360.00	612.00	223.69	125.34

TRACEY GRAMLICK, TECHNICAL DIRECTOR

Doc AWA.TB.003 © Issued 09/2003

For further information contact the AWA office:
Tel: 02 9983 9937 Email: info@awa.org.au

DISCLAIMER: Any advice, recommendation, information, assistance or service provided by the AWA in relation to the above is given in good faith and is believed by the parties to be appropriate, but is given without any liability or responsibility on the AWA's behalf.

TECHNICAL INFORMATION

1. PERFORMANCE TESTING cont.

REGION A

TERRAIN CATEGORY 3	WIND RATING	TOPOGRAPHY T1	T2	T3
FULL SHIELDING 	Wind Classification	N1	N1	N2
	Serviceability Design Wind Pressure	500Pa.	500Pa.	700Pa.
	Ultimate Limit State Wind Pressure	700Pa.	700Pa.	1000Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
PARTIAL SHIELDING 	Wind Classification	N1	N2	N3
	Serviceability Design Wind Pressure	500Pa.	700Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	700Pa.	1000Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
NO SHIELDING 	Wind Classification	N2	N2	N3
	Serviceability Design Wind Pressure	700Pa.	700Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.

TERRAIN CATEGORY 2.5	WIND RATING	TOPOGRAPHY T1	T2	T3
FULL SHIELDING 	Wind Classification	N1	N2	N2
	Serviceability Design Wind Pressure	500Pa.	700Pa.	700Pa.
	Ultimate Limit State Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
PARTIAL SHIELDING 	Wind Classification	N2	N3	N3
	Serviceability Design Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
NO SHIELDING 	Wind Classification	N2	N3	N3
	Serviceability Design Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.

TERRAIN CATEGORY 2	WIND RATING	TOPOGRAPHY T1	T2	T3
FULL SHIELDING 	Wind Classification	N2	N3	N3
	Serviceability Design Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
PARTIAL SHIELDING 	Wind Classification	N2	N3	N3
	Serviceability Design Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
NO SHIELDING 	Wind Classification	N3	N3	N4
	Serviceability Design Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	1500Pa.	2300Pa.
	Water Penetration	150Pa.	150Pa.	200Pa.

TECHNICAL INFORMATION

1. PERFORMANCE TESTING cont.

REGION B

TERRAIN CATEGORY 3	WIND RATING	TOPOGRAPHY T1	T2	T3
FULL SHIELDING (WIND, THIS HOUSE)	Wind Classification	N2	N2	N3
	Serviceability Design Wind Pressure	700Pa.	700Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
PARTIAL SHIELDING (WIND, THIS HOUSE)	Wind Classification	N2	N3	N3
	Serviceability Design Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
NO SHIELDING (WIND, THIS HOUSE)	Wind Classification	N3	N3	N4
	Serviceability Design Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	1500Pa.	2300Pa.
	Water Penetration	150Pa.	150Pa.	200Pa.

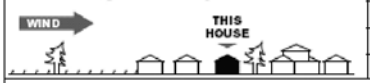
TERRAIN CATEGORY 2.5	WIND RATING	TOPOGRAPHY T1	T2	T3
FULL SHIELDING (WIND, THIS HOUSE)	Wind Classification	N2	N3	N3
	Serviceability Design Wind Pressure	700Pa.	1000Pa.	1000Pa.
	Ultimate Limit State Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Water Penetration	150Pa.	150Pa.	150Pa.
PARTIAL SHIELDING (WIND, THIS HOUSE)	Wind Classification	N3	N3	N4
	Serviceability Design Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	1500Pa.	2300Pa.
	Water Penetration	150Pa.	150Pa.	200Pa.
NO SHIELDING (WIND, THIS HOUSE)	Wind Classification	N3	N4	N4
	Serviceability Design Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	2300Pa.	2300Pa.
	Water Penetration	150Pa.	200Pa.	200Pa.

TERRAIN CATEGORY 2	WIND RATING	TOPOGRAPHY T1	T2	T3
FULL SHIELDING (WIND, THIS HOUSE)	Wind Classification	N3	N3	N4
	Serviceability Design Wind Pressure	1000Pa.	1000Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	1500Pa.	2300Pa.
	Water Penetration	150Pa.	150Pa.	200Pa.
PARTIAL SHIELDING (WIND, THIS HOUSE)	Wind Classification	N3	N4	N4
	Serviceability Design Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	2300Pa.	2300Pa.
	Water Penetration	150Pa.	200Pa.	200Pa.
NO SHIELDING (WIND, THIS HOUSE)	Wind Classification	N3	N4	N5
	Serviceability Design Wind Pressure	1000Pa.	1500Pa.	2200Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	2300Pa.	3300Pa.
	Water Penetration	150Pa.	200Pa.	300Pa.

TECHNICAL INFORMATION

1. PERFORMANCE TESTING cont.

REGION C

TERRAIN CATEGORY 3	WIND RATING	TOPOGRAPHY T1	T2	T3
FULL SHIELDING 	Wind Classification	C1	C2	C2
	Serviceability Design Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	2300Pa.	2300Pa.
	Water Penetration	150Pa.	200Pa.	200Pa.
PARTIAL SHIELDING 	Wind Classification	C1	C2	C2
	Serviceability Design Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	2300Pa.	2300Pa.
	Water Penetration	150Pa.	200Pa.	200Pa.
NO SHIELDING 	Wind Classification	C2	C2	C3
	Serviceability Design Wind Pressure	1500Pa.	1500Pa.	2200Pa.
	Ultimate Limit State Wind Pressure	2300Pa.	2300Pa.	3300Pa.
	Water Penetration	200Pa.	200Pa.	300Pa.

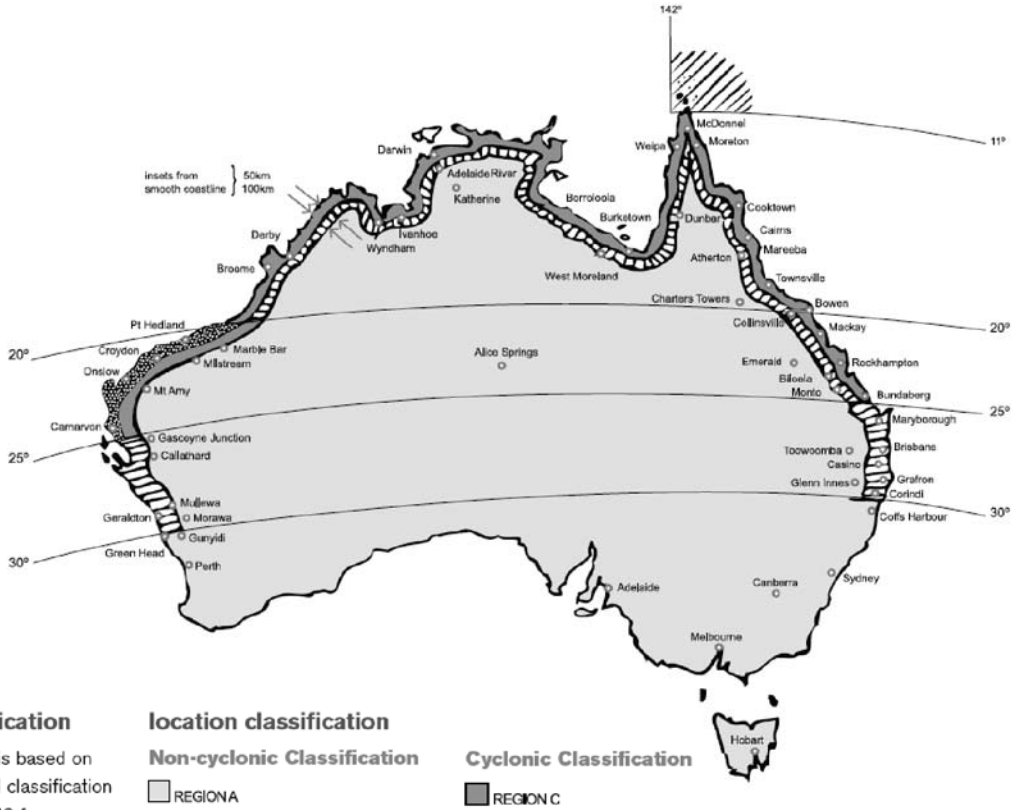
TERRAIN CATEGORY 2.5	WIND RATING	TOPOGRAPHY T1	T2	T3
FULL SHIELDING 	Wind Classification	C1	C2	C2
	Serviceability Design Wind Pressure	1000Pa.	1500Pa.	1500Pa.
	Ultimate Limit State Wind Pressure	1500Pa.	2300Pa.	2300Pa.
	Water Penetration	150Pa.	200Pa.	200Pa.
PARTIAL SHIELDING 	Wind Classification	C2	C2	C3
	Serviceability Design Wind Pressure	1500Pa.	1500Pa.	2200Pa.
	Ultimate Limit State Wind Pressure	2300Pa.	2300Pa.	3300Pa.
	Water Penetration	200Pa.	200Pa.	300Pa.
NO SHIELDING 	Wind Classification	C2	C3	C3
	Serviceability Design Wind Pressure	1500Pa.	2200Pa.	2200Pa.
	Ultimate Limit State Wind Pressure	2300Pa.	3300Pa.	3300Pa.
	Water Penetration	200Pa.	300Pa.	300Pa.

TERRAIN CATEGORY 2	WIND RATING	TOPOGRAPHY T1	T2	T3
FULL SHIELDING 	Wind Classification	C2	C2	C3
	Serviceability Design Wind Pressure	1500Pa.	1500Pa.	2200Pa.
	Ultimate Limit State Wind Pressure	2300Pa.	2300Pa.	3300Pa.
	Water Penetration	200Pa.	200Pa.	300Pa.
PARTIAL SHIELDING 	Wind Classification	C2	C3	C3
	Serviceability Design Wind Pressure	1500Pa.	2200Pa.	2200Pa.
	Ultimate Limit State Wind Pressure	2300Pa.	3300Pa.	3300Pa.
	Water Penetration	200Pa.	300Pa.	300Pa.
NO SHIELDING 	Wind Classification	C2	C3	C4
	Serviceability Design Wind Pressure	1500Pa.	2200Pa.	3000Pa.
	Ultimate Limit State Wind Pressure	2300Pa.	3300Pa.	4500Pa.
	Water Penetration	200Pa.	300Pa.	450Pa.

TECHNICAL INFORMATION

1. PERFORMANCE TESTING cont.

THE GEOGRAPHIC REGION OF A SITE IS SELECTED FROM THE MAP BELOW



wind classification

AS4055-1992 is based on a ten-band wind classification system: N1 to N6 for non-cyclonic Regions A and B, and C1 to C4 for cyclonic Regions C and D.

location classification

Non-cyclonic Classification

REGION A

REGION B

Cyclonic Classification

REGION C

REGION D

What does Terrain Category mean?

Terrain Category 1 is exposed open terrain for a 10km radius, no trees, other buildings or hills. Terrain Category 2 is open terrain with few trees, surrounding buildings, normally a paddock. Terrain Category 2.5 is small acreage blocks. Terrain Category 3 is a suburban backyard.

What does wind region mean?

Region A is 90% of Australia and equates to winds of 41m/s or 147.5km/h. Region B is the coastal region of Northern NSW/Gold Coast or greater than 50kms from the coast where Region C is applicable. It equates to 49m/s or 176km/h. Region C is typically what they call Cyclonic, this is along the coastline from Bundaberg north, including Darwin. It equates to 57m/s or 205km/h. Region D is severe cyclonic and is only applicable to the area around Karratha, WA. It equates to 69m/s or 248km/h. These regions are as per Australian Standards AS1170.

TECHNICAL INFORMATION

2. AUSTRALIAN WINDOW ASSOCIATION

The AWA is the National Industry Association representing all window manufacturers and their suppliers.

The AWA

- Provides a national voice on technical issues through representation on ten Australian Standards Committees, the Future Building Code Committee, Residential and Commercial ABCB and Committees for Mandatory Energy Requirements.
- Keeps the industry informed via Newsletters, Website, Meetings, Conferences and Industry Exhibitions.
- Promotes the profile of the window industry to Builders, Designers and Consumers via editorials in media outlets, trade exhibitions and presentations at a variety of industry conferences.
- Manages Accreditation programs for manufacturers which independently verify product energy structural and water performances claims to regulators, builders and homeowners.
- Provides advice on dispute resolution with consumers which can encompass expert inspections.
- Maintains strong working partnerships with Australian building industry associations and government bodies including the Window Associations in NZ, USA, UK and South Africa.

How is the AWA run?

- With over 400 members, the majority of which are small to medium sized, the Australian Window Association is run as a co-operative – Manufacturer Members have one vote irrespective of size and financial contribution.
- A full-time Executive Director manages the Association which has a full-time staff of seven.
- The Association Business Plan is monitored and revisited by an elected Management Committee via monthly and quarterly meetings.
- All states have representation on the Association's Executive Committee.

What's in it for me?

- AWA members soon discover that the cost of joining the association can be offset by its many benefits.
- Being informed in advance of industry changes both technical and regulatory – the AWA are represented on numerous Australian Standards committees, the Building Code of Australia, the HIA's technical committee and the Australian Fenestration Rating Council which ensures information from all of these bodies impacting on the window industry can be relayed in advance of any changes.
- Having input into standards, practices and legislation – the AWA holds regular state and regional meetings and responds to members views.
- Utilising PR and promotional opportunities – the AWA has a full time marketing officer
- Reducing legal exposure – the AWA offers up to date technical, regulatory and compliance information and guidance.
- Having access to mediation services – the AWA works in the best interests of both its members and the consumer.

TECHNICAL INFORMATION

2. AUSTRALIAN WINDOW ASSOCIATION cont.

- Being part of third party accreditation – the AWA has a NATA accredited program using independent auditors.
- Choosing from a comprehensive range of training courses – the AWA is a registered training organisation that can offer industry accredited certificates.
- Events – the AWA holds an annual conference.
- Communication – the quarterly magazine and monthly e newsletter are packed full of industry relevant information to keep you up to date with all relevant information.
- The AWA's initiatives over recent years have achieved significantly higher consumer and building industry awareness and appreciation of the importance that windows can play in the comfort, security and re-sale value of a home.
- Access to various compliance tools for business use.
- Access to marketing tools.
- Your membership is tax deductable.
- Your company will benefit from value adding by selling on performance (not just price) as it will return improved profits.

For further information on membership please contact the AWA on:
(02) 9498 2768 or visit the website www.awa.org.au

TECHNICAL INFORMATION

3. ENERGY RATING

WERS

How the WERS Star Rating Work

WERS is a scheme which awards a pair of star ratings to a window to provide the consumer with a simple scale with which to compare windows. One star rating is for heating performance and the other for cooling performance.

The star rating are on a 10-star scale much like new, extended 10-star system that was recently announced by the Federal Government for electrical appliances. House energy ratings are also on a 10-star scale, using the software tools AccuRate, FirstRate 5 or BERS pro. However the factors contributing to window-rating stars are more complex.

Appliance star ratings (e.g. for refrigerators) are based on how much energy the appliance uses when compared with a base case appliance. Like appliances, the WERS stars are based on the Annual Energy Performance (AEP) of the window but unlike appliances, there isn't a simple annual energy figure, for that window on its own, that can easily be established.

A calculator of the AEP was developed by Dr Peter Lyons to take into account the impact of various characteristics of the window on the annual energy use of typical house for heating and cooling.

With the predicted energy use and compared to a benchmark house, a star rating can be calculated. All star ratings are a means of ranking a product against its peers – they are a relative measure not an absolute one.

Windows under WERS have been rated using NFRC procedures and protocols. The NFRC report generates results for U-Value, SHGC and VT for the whole window, including glass, frame and seals. The U-Value relates to the insulation value of the window, with a lower U-value meaning better insulation. The SHGC IS THE Solar Heat Gain Coefficient and is the proportion of radiant solar heat that is able to pass through the window (directly and indirectly) The SHGC is a fraction between 0 and 1.

The higher the SHGC, the more heat from the sun is able to pass through, as an example; a window with a SHGC of 0.78 allows 78% of heat to pass through (good in a cold climate). VT is visible transmittance, as with the SHGC, the VT is a fraction. A window with VT of 0.68 allows 68% of natural light to pass through. The other value that WERS reports to is the Air Infiltration value.
This is a value generated from the AS 2047 testing. It is a number which shows how much air leaks in through the window when a 75Pa positive air leaks in through the window when a 75pa positive air pressure is applied. Air leakage through a window occurs around the seals and tracks of the window.

The AEP calculator takes the U-value, SHCG and Air Infiltration to predict the annual heat and cooling load in a typical house when that windows in used. The predicted energy is then used to determine the stars and percentage improvements compared to the base case window. The calculator generates both heating and cooling stars and percentages for the given window.

WERS is a scheme for comparing windows on a fair, unbiased and equal basis. For more information, and a wide range of ALSPEC WERS rated products, visit www.wers.net

TECHNICAL INFORMATION

ENERGY RATING cont.

2009 WERS Certified Products Directory - NFRC

NOTES:

1. Uw is the whole window U-value
2. SHGCw is the whole window solar heat gain coefficient
3. Tvw is the whole window visible (light) transmittance
4. Percentage improvement figures are compared with using base-case Generic Window 1 (3mm clear in standard aluminium frame)
5. A negative percentage improvement figure indicates performance worse than the base-case window
6. A positive percentage improvement figure indicates performance better than the base-case window
7. Maximum air infiltration is 5.0L/s.m2 at a positive pressure difference of 75 Pa as measured according to AS 2047
8. Static performance (Uw SHGCw Tvw Tdw) calculated using Window 5.2 and Therm 5.2 software (LBNL), 2000-2003
9. Annual energy performance (stars and % improvements) calculated using Nationwide House Energy Rating Software (AccuRate) according to procedures of WERS 2008.
10. Results disclosed at National Fenestration Rating Council (NFRC) regulations.

Below is a sample of WERS Certified ALSPEC products from www.wers.net

Alspec Updated - 22-Jan-09				Cool %	Heat %	Total Window - NFRC			
Window ID	Glazing	Cooling Stars	Heating Stars			Uw	SHGC	Tvw	Air Inf.
76mm ViewMax DoubleHung Window - Single Glazed									
ALS-001-01	4Clr	★	★★	19%	10%	6.5	0.66	0.68	3.50
ALS-001-02	6.38CPClr	★★☆	★★★☆	41%	33%	4.3	0.53	0.62	3.50
ALS-001-03	6.38CPGn	★★★☆	★★★	51%	26%	4.3	0.39	0.54	3.50
ALS-001-04	6.38CPGy	★★★☆	★★★	51%	26%	4.3	0.39	0.30	3.50
ALS-001-05	6.38CPNtrl	★★★☆	★★★	51%	27%	4.3	0.40	0.45	3.50
ALS-001-06	6.38Lam	★	★★	23%	10%	6.4	0.62	0.67	3.50
ALS-001-07	6AB	★★☆	★☆	42%	5%	5.9	0.40	0.40	3.50
ALS-001-08	6EcAd	★★☆	★★★☆	43%	29%	4.5	0.48	0.50	3.50
ALS-001-09	6EcAdBlGn	★★★☆	★★★	53%	21%	4.5	0.35	0.43	3.50
ALS-001-10	6EcAdBz	★★★☆	★★★	53%	21%	4.5	0.35	0.29	3.50
ALS-001-11	6EcAdEAB	★★★★	★★☆	58%	18%	4.4	0.28	0.29	3.50
ALS-001-12	6ECAdEG	★★★★	★★☆	57%	17%	4.5	0.29	0.36	3.50
ALS-001-13	6EcAdGy	★★★☆	★★☆	53%	15%	4.8	0.32	0.24	3.50
ALS-001-14	6EG	★★☆	★☆	40%	0%	6.3	0.40	0.50	3.50
ALS-001-15	6SpGy	★★★☆		51%	-2%	5.9	0.27	0.06	3.50
76mm ViewMax DoubleHung Window - Double Glazed									
ALS-002-01	4In/8/4	★★	★★★★	37%	35%	4.3	0.58	0.61	3.50
ALS-002-02	4In/8/4EA	★★☆	★★★★	42%	39%	3.8	0.54	0.56	3.50
ALS-002-03	5InEG/8/4	★★★☆	★★★	52%	25%	4.3	0.37	0.50	3.50
ALS-002-04	5InEG/8/4EA	★★★★	★★★	57%	28%	3.8	0.33	0.46	3.50
ALS-002-05	6TS21/6/4EA	★★★★★	★★	68%	13%	4.0	0.16	0.11	3.50

TECHNICAL INFORMATION

3. ENERGY RATING cont.

ENERGY EFFICIENCY – WINDOWS AND DOORS

Windows and doors play an immense part on the energy efficiency of a building. When designed incorrectly they allow unnecessary transference of heat between the internal and external environments.

When selecting windows and doors for energy efficiency, positioning is vital and clever shading will ensure the structure is comfortable and commercially viable. With the addition of well positioned energy efficient windows and doors in a building the need for heating or cooling can be made redundant.
(*Severe weather environments would be the exception here).

TECHNICAL INFORMATION

4. APPLICABLE STANDARDS

BUILDING CLASSIFICATIONS

The classification of a building is determined by the purpose for which it is designed, constructed or adapted for use. The BCA is the national referencing body.

The Building Code of Australia (BCA) is produced and maintained by the Australian Building Codes Board (ABCB) on behalf of the Australian Government and State and Territory Government.

The BCA is a uniform set of technical provisions for the design and construction of buildings throughout Australia. It allows for variations in climate and geographic conditions.

For windows, doors and glazed assemblies, performance requirements are satisfied if they are designed and constructed in accordance with AS2047.

For glazed assemblies not covered by AS2047 compliance to AS1288 is required.

WINDOW RATING

AS2047 classifies windows in three classes of building types.
1. Housing
2. Residential other than housing
3. Commercial

AS2047 stipulates different deflection criteria in each class.
1. Housing span/150
2. Residential other than housing span /180
3. Commercial span/ 250

This determination of the buildings end use is essential in calculating a windows rating and performance capabilities.

AS2047 covers the Nomination of Window Ratings and Design Pressures with the recommendations;

(a) For Housing and other Residential buildings the purchaser should nominate the window rating (N1/N6 as per AS2047 tables) when ordering assemblies.

(b) For Commercial and other buildings the purchaser should nominate the design wind pressure for window assemblies when ordering assemblies.

(c) The manufacturer of standard window assemblies should verify the window rating or design wind pressure.

The Standards Reference Tests which are carried out in specific order, are referenced in AS4420.0

TECHNICAL INFORMATION

5. ALSPEC POWDER COATING

ALSPEC are fortunate to have their own in-house powder coating facilities in select locations throughout Australia providing a true one-stop shop philosophy for anyone considering the complete Aluminium systems experience.

From Specification through to project completion you can leave the hard work to us. Our coverage includes all colours of the spectrum which are supplied by Dulux and Interpon and all warranty options currently available – 7yr through to 20yr.

Our facilities are state of the art and produce only the best surface finishes available today.

TECHNICAL INFORMATION

5. ALSPEC POWDER COATING cont.

What is Powder Coating?
Powder coating is by far the youngest of the surface finishing techniques in common use today. It was first used in Australia around1967.

Powder coating is the technique of applying dry paint to a part. The final cured coating is the same as a 2-pack wet paint. In normal wet painting such as house paints, the solids are in suspension in a liquid carrier, which evaporate before the solid paint coating is produced.

In powder coating, the powdered paint may be applied by either of two techniques.

The item is lowered into a fluidized bed of the powder, which may or may not be electrostatically charged, or
The powdered paint is electrostatically charged and sprayed onto the part.

The part is then placed in an oven and the powder particles melt and coalesce to form a continuous film.

Why Powder Coat?
Powder coating produces a high specification coating which is relatively hard, abrasion resistant and tough. Thin powder coatings can be bent but this is not recommended for exterior applications.

The choice of colours and finishes is almost limitless, if time and money are not an issue virtually any powder can be produced for any requirement.

Powder coatings can be applied over a wide range of thickness. The new Australian Standard, “AS/NZS 4506 – Thermoset powder coatings”, will recommend 25 micron minimum for mild interior situations and up to 60 microns for exterior.

Colour matching is achievable batch to batch.

TECHNICAL INFORMATION

6. POWDER COAT WARRANTY

ALSPEC offer a range of Dulux coatings each with extensive applications and warranties. Outlined below are details pertaining to each coating.

DURALLOY® …is designed for
- Residential developments equivalent to Class 1 or Class 10 of the Australian Building Code BCA96
- Buildings up to 3 floors from the ground
- Properties greater than 100 meters from saltwater
- Where AAMA 2603-02 performance is desired
- Where a 7 year film integrity warranty and a 7 year colour warranty are desired

DURATEC® …is designed for
- Prestigious residential and commercial developments equivalent to any class under the Australian Building Codes
- All major architectural developments irrespective of the height
- Properties greater than 10 meters from salt water in mild to tropical and some severe environments
- Where AAMA 2604-02 performance is desired
- Where a 10 year colour warranty and a 10 year film integrity warranty is desired.

DURATEC® LX …is designed for
- High rise residential and commercial projects – equivalent to any class under the Australian Building Codes
- All major architectural developments irrespective of the height and most environments
- Where AAMA 2604-02 performance is desired
- Where a 10 year colour warranty and a 15 year film integrity warranty are desired

FLUOROSET® ... is designed for
- High rise residential and commercial projects – equivalent to any class under the Australian Building Codes
- All major architectural developments irrespective of the height and most environments
- Where AAMA 605.2, and 2605-98 performance is desired
- Where a 15 year colour warranty and a 15 year film integrity warranty are desired

FLUOROSET®FP… is designed for
- High rise residential and commercial projects – equivalent to any class under the Australian Building Codes
- All major architectural developments irrespective of the height and most environments
- Where AAMA 2605-02, performance is desired
- Where a 20 year colour warranty and a 20 year film integrity warranty are desired

TECHNICAL INFORMATION

6. POWDER COAT WARRANTY

INTERPON D610

- Residential developments equivalent to Class 1 or Class 10 of the Australian Building Code BCA96
- Buildings up to 3 floors from the ground
- Properties greater than 100 meters from saltwater
- Where AAMA 2603-02, AS3715-2002; BS6496-1984 AIMF Qualicoat; WANZ performance is desired
- Where a 10 year film integrity warranty and a 7 year colour warranty are desired

INTERPON D2010

- Prestigious residential and commercial developments equivalent to any class under the Australian Building Codes
- All major architectural developments irrespective of the height
- Properties greater than 10 meters from salt water in mild to tropical and some severe environments
- Where AAMA 2604-02 performance is desired
- Where a 10 year colour warranty and a 10 year film integrity warranty is desired

INTERPON D2015 Ultriva

- High rise residential and commercial projects – equivalent to any class under the Australian Building Codes
- All major architectural developments irrespective of the height and most environments
- Where AAMA 2604-02 performance is desired
- Where a 15 year colour warranty and a 15 year film integrity warranty are desired

INTERPON D3000 Fluoromax

- High rise residential and commercial projects – equivalent to any class under the Australian Building Codes
- All major architectural developments irrespective of the height and most environments
- Where AAMA 2605-02, performance is desired
- Where a 20 year colour warranty and a 20 year film integrity warranty are desired

TECHNICAL INFORMATION

7. ANODISING

THE ANODISING PROCESS – What is Anodising?
Anodising is the general name applied to methods of treating metals, where the work piece is made the anode in an electrolytic cell, usually to form oxide coatings for the purpose of increasing the performance of the surface.

In the case of aluminium, the anodising process forms a layer of aluminium oxide - Al203 - or corundum, which is very hard, relatively inert, electrically insulating and can absorb dyes to colour the film.

The anodic film itself grows at the aluminium / aluminium oxide interface by the continuous formation and dissolution of a layer of oxide, this is the so-called barrier layer and its thickness is a function of the process starting voltage. A porous, more structured layer forms on top of the barrier layer making up the rest of the coating.

STANDARDS AND WARRANTIES
- All coatings are produced and tested in accordance with Australian Standards AS 1231 Aluminium and Aluminium Alloys – Anodised coatings for architectural applications
- Protective and resistant to salt corrosion
- Increases the natural corrosion resistance of aluminium
- Will not chip, flake or peel
- Protective coverage of entire aluminium section
- 10, 20 and 25 year warranties available upon request subject to application and location conditions

TECHNICAL INFORMATION

8. CARE & MAINTENANCE

Your new ALSPEC aluminium system has been manufactured using the highest quality materials available to the Architectural industry. Constructed from Architectural grade aluminium, these products are highly corrosion resistant and exceptionally strong. With a moderate amount of maintenance the ALSPEC aluminium system will retain its good looks and resist the elements for years to come.

The ALSPEC aluminium systems are products of extensive research and development and designed to resist corrosion and rusting, but as with all external elements on the building require some maintenance to keep them looking good and performing well. Depending on how harsh the environment elements are, the maintenance period will vary. Refer to recommended maintenance table below.

Your ALSPEC aluminium system should only ever need to be washed down with a soft bristled brush using warm water and mild detergent. Rinse well with fresh water and remove detergent residue. Strong detergents and abrasive cleaners should never be used to clean ALSPEC's aluminium systems as they may scratch or damage the surface finish.

SUGGESTED MAINTENANCE PERIOD TABLE

ENVIRONMENT	RECOMMENDED MAXIMUM MAINTENANCE INTERVAL
Mild	***Six Months***
Moderate	***Three Months***
Tropical/Severe	***One Month***

Environmental Definitions:

Mild – Being rural, away from the coast and remote from industry and urban activity.

Moderate – Being mainly urban, inland and away from heavy industry.

Tropical – Being coastal/marine, subject to salt deposition and within 15km of the Eastern coast or 10km of the Western coast of Australia.

TECHNICAL INFORMATION

9. RECOMMENDATIONS

Any information, support or advice made available and specified by ALSPEC in relation to our products or applications for our products is provided in good faith and is understood by ALSPEC to be suitable, however is given exclusive of any legal responsibility on ALSPEC's part.