Energy Rating (WERS)

Miglas **AliClad** windows and doors convince with high thermal performance that cater for the specific needs of projects in all climate zones. Low U values (Uw), adjustable shading (SHGC) and minimal Air Leakage (Air Inf.) making Miglas products the most balanced performing product of the Window Energy Rating Scheme (WERS).

miglas
HIGH PERFORMANCE WINDOWS

Sustainable Design & Component Excellence

2008 WERS Certified Products Directory - NFRC

www.wers.net

NOTES

1. U_w is the whole window *U-value*
2. $SHGC_w$ is the whole window *solar heat gain coefficient*
3. T_{vw} 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.m^2 at a positive pressure difference of 75 Pa as measured according to AS 2047
8. Static performance (U_w $SHGC_w$ T_{vw} T_{dw}) 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.

25-Aug-08

Miglas Windows				%	%	Total Window System Values - NFRC			
Window ID	Glazing	Cooling Stars	Heating Stars			Uw	SHGCw	Tvw	Air Inf.
Miglas - Aliclad Casement window									
MIG_001_01	4-14-4	★★★☆	★★★★★★☆	52%	71%	2.8	0.49	0.52	0.07
MIG_001_02	4-14-4EA	★★★★	★★★★★★★	56%	74%	2.4	0.46	0.48	0.07
MIG_001_03	4Gy-14-4EA	★★★★★	★★★★★★	65%	66%	2.4	0.32	0.30	0.07
MIG_001_04	4-12Ar-6LE80i	★★★★☆	★★★★★★☆	62%	72%	2.2	0.38	0.47	0.07
MIG_001_05	4Gy-12Ar-6LE80i	★★★★★☆	★★★★★★	70%	65%	2.2	0.27	0.29	0.07
MIG_001_06	4-14Ar-4EA	★★★★	★★★★★★★	56%	76%	2.2	0.46	0.48	0.07
MIG_001_07	4Gy-14Ar-4EA	★★★★★	★★★★★★☆	66%	68%	2.2	0.32	0.30	0.07
MIG_001_08	4-14Ar-4S500	★★★★	★★★★★★★	56%	75%	2.3	0.46	0.48	0.07
MIG_001_09	4Gy-14Ar-4S500	★★★★★	★★★★★★☆	66%	67%	2.3	0.32	0.30	0.07
MIG_001_10	4-12Ar-6LE50i1	★★★★☆	★★★★★★☆	63%	71%	2.2	0.36	0.29	0.07
MIG_001_11	4-12Ar-6LE54i1	★★★★☆	★★★★★★☆	64%	71%	2.2	0.36	0.31	0.07

4/14/4	4mm Clear/14mm Air Gap/4mm Clear
4/14/4LE	4mm Clear/14mm Air Gap/4mm Energy Advantage Low-E
4PALGy/14/4LE	4mm Grey (PAL) /14mm Air Gap/4mm Energy Advantage Low-E
4/14Ar/4LE	4mm Clear/14mm Argon Gap/4mm Energy Advantage Low-E
4PALGy/14Ar/4LE	4mm Grey (PAL) /14mm Argon Gap/4mm Energy Advantage Low-E
4/12Ar/6LE54i1	4mm Clear/12mm Argon/6mm Solarplus Low-e54 on clear
4/12Ar/6LE50i1	4mm Clear/ 12mm Argon/ 6mm Solarplus Low-e 50 on clear
4/14Ar/4S500	4mm Clear/14mm Argon Gap/4mm Clear with Sungate 500
4PALGy/14Ar/4S500	4mm Grey (PAL) /14mm Argon Gap/4mm Clear with Sungate 500
4EcAd/12/4LE	6mm Eclipse Advantage Clear/12mm Air Gap/4mm Energy Advantage Low-E
4SlrE/14/4LE	6mm Solar E/12mm Air Gap/4mm Energy Advantage Low-E

Glossary *(Rating)*

Air Leakage (Air Inflitration)
Amount of air leaking in and out of a building through gaps and cracks in windows, walls and doors - The lower the air infiltration the better. I The leakage is usually expressed as cfm per square foot of window area.

Argon Gas Fill
An insert, non-toxic gas used in insulating glass units (double glazing) to reduce heat transfer.

Conduction
Heat transfer through a solid material by contact of one molecule to the next. Heat flows from a higher-temperature area to a lower-temperature one. (High conductive materials are insufficient insulators if not thermally broken)

Convection
Heat transfer process involving motion in a fluid (such as air) caused by the difference in density of the fluid and the action of gravity. Convection affects heat transfer from the glass (or conductive frame material) surface to room air, and between two panes of glass. (Shows the necessity of double glazing and low conductive frame material)

IGU
Insulating Glass Unit - two pieces of glass separated with an air space and hermetically sealed (sealed against moisture vapour). IGU heat transmission may be as low as half that without such an air space.

Low-E (Low Emittance) Coating
A thin (<100mm thick) metal, metal oxide or multi layer coating deposited on a glazing surface to reduce its thermal infrared emittance and thereby reduce radiative heat transfer. A low-E coating increases a window's ability to insulate (low u value). In other words, it has a microscopic coating applied and is durable hard coat bonded to the glass.

Radiation
The transfer of heat in the form of waves from one separate surface to another. Sun energy reaches the earth by radiation, and a person's body can lose heat to a cold window or skylight surface in a similar way.

R-Value
See U-Value

Shading Coefficient (SC)
A measure of the ability of a window or door to transmit solar heat. The value is given as a figure in between 0 and 1. The lower the value the better the shading provided.

Solar Heat Gain Coefficient (SHGC)
A measure for solar heat gain through the glass. It is 86% fraction of the Shading Coefficient. It has replaced the SC as standard indicator for a window's shading ability. It is a number between 0 and 1. The lower the SHGC the less heat is transferred and the better the shading provided.

Thermal Break
Element of low conductivity (e.g. timber, nylon strips or polyurethane) placed between elements of higher conductivity (aluminium) to reduce the flow of heat and cold.

Toughened Glass (Tgh)
Glass that has been strengthened and given modified fracture characteristics by heat treatment so that the residual stresses are relatively high.

U-Value (Uw)
a measurement of heat transmission. The U value is measured by the number of BTUs (British Thermal Unit) that will pass through each square foot of area per degree of temperature difference from one side of the window to the other. The lower it is, the better. U value is inverse of the R value.

Visible Transmittance (VT)
A percentage of light that is transmitted through glass. The higher it is, the better, to increase visibility.