

Energy Ratings of Easyscreen Louvre Windows with Western Red Cedar and Aluminium Blades

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Page 1 of 2

The Window Energy Rating Scheme (WERS) is well accepted as an independent, audited source of the solar and thermal performance of window systems in Australia. WERS protocols dictate that the characteristics of the glazing used in the simulation of the window system must be sourced from the International Glazing Database (IGDB). The IGDB does not include non-glass products which can be used in windows like timber, aluminium or polycarbonate. While the same software tools used for WERS ratings can be used to generate energy ratings of windows glazed with products not included in the IGDB, these ratings are not recognised as WERS ratings.

Research Methodology

Breezway engaged Dr Peter Lyons (who, along with PC Thomas, carried out the foundation work for WERS) to provide an expert opinion on the thermal, solar and optical performance of a Breezway Easyscreen Altair Louvre Window System with Western Red Cedar timber and Aluminium blades.

NFRC and AFRC procedures were followed with the exception of sourcing the glazing characteristics from the IGDB. Instead, known default properties for cedar were used to create an entry in the User Database of Optics 5.1.

Research Results

Description	U-value (W/m ² .K)	Solar heat gain coefficient (SHGC)	Visible transmittance (VT)
Breezway Easyscreen Altair Louvre Window with 14mm thick* Western Red Cedar blades	4.39	0.095	0.000
Breezway Easyscreen Altair Louvre Window with 6mm thick Aluminium blades	6.55	0.076	0.000

The full research reports are available on request.

*The research report modelled rebated timber blades. Peter Lyons has indicated that he does not believe that the results would be significantly different for an Easyscreen window with straight cut timber blades.

Note:

These results are based on calculations that are beyond those of current AFRC procedures. Therefore they do not meet all AFRC requirements for a whole-window energy rating report. While the research results are suitable for comparison with information on the Australian Window Association's WERS database, this report is not an authorised WERS rating.

Interpreting and Using These Results

A SHGC of 0.1 is extremely low and indicates that the window is effectively preventing the vast majority of potential heat gain through solar exposure. A SHGC this low can only be matched by double glazing consisting of combinations of supergrey tinted glass and low e coated glass.

A U-value of $4.4\text{W/m}^2\cdot\text{K}$ represents a good level of insulation and indicates that the window is significantly better than single glazed aluminium windows at reducing heat transfer through the window. A U-value of $4.4\text{W/m}^2\cdot\text{K}$ can generally only be achieved by aluminium windows with double glazing.

A U-value of $6.6\text{W/m}^2\cdot\text{K}$ offers a level of insulation approximately equivalent to an aluminium framed window with 3mm tick monolithic glass.

Altair Louvre Windows with Western Red Cedar or Aluminium blades are therefore ideal for use:

- On all orientations in cooling climate zones to control solar heat gain while maximising cooling natural ventilation.
- On Eastern and Western orientations in all mixed and heating climate zones to prevent overheating from early morning and late afternoon sun while maximising cooling natural ventilation.