



Membership Information & Agreement



2010

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www.wers.net



Window Energy Rating Scheme



Requirements for fenestration products have been in the Building Code of Australia for many years. Typically, these requirements had more to do with structural performance and safety than with energy. However, since 2003, energy efficiency requirements have been progressively established for windows in both residential and commercial construction.

The Window Energy Rating Scheme (WERS) rates the energy performance of windows, skylights, and applied window films.

WERS is truly international in its basis and draws on over 100 person-years of research and development in 15 countries over the last decade. It is based on close and continuing collaboration with the evolving energy-rating systems developed by the U.S. National Fenestration Rating Council (NFRC). WERS is an accredited scheme.

All participating window manufacturers listed on the WERS website are able to use WERS providing their products have passed the testing requirements of AS2047.



Window Energy Rating Scheme

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Information Sheet

WERS is a 10-star rating system that ranks windows in terms of their annual energy performance & provides certified data

The Window Energy Rating Scheme (WERS) rates the energy performance of residential windows. The rating process produces star ratings for heating and cooling performance. This complements the existing energy rating of consumer appliances, vehicles and buildings. The WERS star ratings are performance rankings based on the predicted annual energy demand of the "model house" when fitted with the chosen windows.

WERS ranks the window in terms of its annual energy impact on a house. The energy loads are the amount of annual (heating) energy that must be added to a house, and the amount of annual (cooling) energy that must be removed, to keep the house within a comfortable temperature range. This generates star ratings for cooling (summer and solar control performance) and heating (winter performance). The system uses separate scales of 0-5 stars for heating and cooling impact, in half-star increments. The star ratings are based on the relative, whole-house energy improvement caused by the use of a given window compared with using the base-case product (single glazed clear, thermally unbroken aluminium frame).

The star rating process is understandable to the non-technical consumer and the window specifier who need to know if the window will enhance or degrade the house in energy and comfort terms.

WERS operates on three levels in conveying information about the energy performance of custom-rated windows and these levels are depicted in the WERS certificate:

- Star ratings for heating and cooling
- Indicative % reduction in heating and cooling needs and interior fading damage
- Thermal, solar and optical performance data

WERS is based on extensive international research and experience and has been developed specifically for Australian conditions. Under the NatHERS, Australia has been classified into 69 distinct climate zones. The climates vary from alpine through to humid tropical.

Star ratings are constant across the country to within the half-star resolution used by WERS. The rankings are valid for all orientations, a wide range of window sizes and both raised timber and concrete slab-on-ground floors. If the homeowner does not heat or cool, the rankings still indicate which windows will yield the most comfortable house. Thus the choice of window is based on the relative importance of heating vs cooling in each location.

However, WERS rankings will be less accurate where there are:

- Very large glass areas (total glass area more than 35% of floor area)
- Large areas of overhead glazing (including sunspaces, attached conservatories and large skylights).

WERS aims to:

- Provide a fair, rigorous, scientifically based and easily used method for comparing the relative energy performance of different windows.
- Reduce Australia's energy consumption for residential heating and cooling
- Cut greenhouse-gas emissions by the use of energy-efficient windows, particularly higher performing windows
- Provide links to other building energy rating schemes, codes and standards
- Educate the community about the benefits of energy-efficient windows.

Information Sheet

The operational energy efficiency of Australia's housing stock is improving steadily and it envisaged it will increase dramatically as energy-efficient windows become more readily available.

Climates with a significant heating fraction ("heating" and "mixed" climates) account for 70% of Australia's population. Numerous studies show that in such climates more advanced windows return a net energy benefit over a whole year, regardless of which direction they face.

- It is possible for a window's energy gains to exceed its losses even if it faces south.
- A house with large windows can outperform one with smaller windows and the milder the climate the easier it is for the windows to reach or exceed the break even point.
- A well-designed home, including energy-efficient windows, needs no purchased energy for space heating or cooling.

The energy performance rating of a window establishes the basic solar, thermal and optical properties of the glazing unit and window frame, based on either:

- Measurements obtained in a laboratory alone, or
- A combination of laboratory measurements and computer simulation

Air infiltration must be measured according to procedures meeting AS2047 for residential windows. If air leakage data is not available, conservative default values are used as input to the rating process.

The solar/thermal properties of the window are the first outcome of the procedure and comprise:

- U-value
- Solar Heat Gain Coefficient (SHGC)
- Shading coefficient (obsolete but included for the sake of familiarity)
- Visible Transmittance (Tvis)
- Fading Transmittance (Tdw)

The energy properties of a window are an area weighted average of the corresponding properties of its component parts or regions. These parts are the:

- Centre-of-glass
- Edge-of-glass
- Frame

Energy efficient windows offer significant benefits to house owners and occupants. In addition to reducing energy costs and green house gas emissions, a properly selected window plays an important role in improving a homeowner's comfort and well being.

For a typically insulated house, windows are the biggest heat loss (or gain) building element.

The Window Rater allows manufacturers to assist consumers in the selection of the most energy efficient windows for their home. By entering in the house type and a selection of different windows, the program can provide consumers with a report giving the star energy rating for different windows in their own house plans, thus allowing consumers to select windows that will give them a greater level of comfort.



Answers to Frequently Asked Questions

WERS enables windows to be rated and labeled for their energy and comfort impact on a building in any climate of Australia

Why should I get my products rated?

Energy Rating for windows is here to stay. Certified energy performance is an essential part of the information that professional companies provide to their customers. The federal government's Australian Greenhouse Office helped to underwrite WERS as part of its commitment to improving energy efficiency and reducing greenhouse emissions from the built environment. The market profile and returns from high-performance windows are increasing rapidly. Gone are the days when windows were just a commodity to be sold on price alone. WERS will be referenced by AS 2047 and the Building Code of Australia.

WERS is independent of any one manufacturer and acts as a fair, rigorous and credible system for testing performance claims. WERS is owned and managed by the AWA.

Isn't Australia's climate so mild that window energy efficiency doesn't matter?

Not at all; Australia has many climates, hot and cold. Unwanted heat gain is just as big an issue as heat loss, and most windows still lag far behind other parts of the building envelope. New glazing and frame technologies enable performance that was impossible a decade ago. Energy efficiency is closely connected with comfort and amenity. Building owners want products that enhance the value of their properties.

How does WERS work?

WERS ranks residential windows for their energy performance in typical housing across Australia. Some windows are better in heating (cold) climates; some are better in cooling (warm) climates, while others are all-rounders. Custom-rated windows get from zero to 10 stars for each of cooling and heating performance, depending on how they rank against the alternatives. WERS complements manufacturer's existing standards for wind, water penetration and air Infiltration (AS 2047).

What about highly ventilated houses – Does WERS assume windows are closed?

Not necessarily. The star ratings are based on the amount of energy a house is likely to use over a whole year, for heating and/or cooling. This prediction is made by the NatHERS1 computer program. Even if you don't actually heat or cool, a good rating indicates comfortable conditions. A poor rating means comfort comes at a cost.

NatHERS uses real weather data and commonsense assumptions about the way people are likely to operate their windows. For example, if opening a window will help to cool a house in summer, NatHERS will factor this in.

What about commercial glazing?

A non-residential, commercial building version of WERS is available on the website. There are many technical similarities between residential and commercial WERS ratings. If your company serves both markets, it makes sense to 'cut your teeth' on WERS now.

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Answers to Frequently Asked Questions

How is custom energy ratings produced?

The information needed to generate a WERS rating is furnished on a commercial-in-confidence basis to the rating agency by the manufacturer. This takes the form of drawings, computer CAD files and material specifications for the window components. Most windows can be rated entirely by a two-stage process of computer simulation. This is the preferred and most economical option.

The computer modeling software is the same as that used by the US National Fenestration Rating Council (NFRC). It has been thoroughly validated against laboratory tests in the United States, Canada and the United Kingdom - in all climates, hot and cold. WERS is truly international in its heritage and draws on over 100 person-years of R&D in 15 countries over the last decade.

Occasionally, unusual or complex products may need to be measured by physical testing to establish their basic thermal behavior. After initial modeling or testing, a second stage of computer simulation follows using NatHERS, from which the final WERS rating is generated.

What window-specific properties does WERS take into account?

WERS takes account of:

- Thermal transmittance ("U-value" or "U-factor")
- Solar heat gain coefficient (SHGC)
- Air leakage when shut.

The air leakage data must be supplied by the manufacturer and be derived from wind penetration tests performed according to the Australian standard.

What WERS Ratings are available?

The WERS Program offers two levels of ratings so that all members of the residential window industry can afford to have their products rated.

Generic Rating - The simplest and most economical method

A Generic Rating assigns default, conservative star ratings and basic solar/thermal data to your product according to the closest match in the Generic Rating List of 27 products. The match is based only on a simple material description of the product. Air leakage is assumed to just meet the minimum standard AS2047 for residential windows (5 L/s.m²).

Custom Rating – The rating of choice for high-performance products

A Custom Rating provides an exact rating for your window based on its exact materials and specifications for frame, glazing and other components. Weather tightness is based on reported data obtained according to the AS2047 test. A Custom Rating is the better option for manufacturers who wish to distinguish their product from others.

The cost of Custom Rating for specific products will be advised on request.

WERS Membership Fees

Annual Turnover

Over \$100m		\$15,250 + GST
\$50m-\$100m		\$7,500 + GST
\$25m-\$50m		\$2,550 + GST
\$10m-\$25m	A- Independent AWA Member	\$1,000+GST
	B - Distributor of AWA Prime	\$110+GST
	C- WERS Only	\$2,000+GST
\$5m-\$10m	A- Independent AWA Member	\$750+GST
	B - Distributor of AWA Prime	\$110+GST
	C- WERS Only	\$1,500+GST
\$2.5m-\$5m	A- Independent AWA Member	\$440+GST
	B - Distributor of AWA Prime	\$110+GST
	C- WERS Only	\$600+GST
<\$2.5m	A- Independent AWA Member	\$300+GST
	B - Distributor of AWA Prime	\$110+GST
	C- WERS Only	\$500+GST

A - Independent AWA Member - AWA member who has own window suite

B - Distributor of AWA Prime - Any supplier of a prime suite, does not have to be an AWA member

C - WERS Only - Independent Member of WERS only who has own window suite

Members who manufacture windows are responsible for the additional cost of an annual audit of factory premises as part of the WERS Protocol – currently \$370 + GST for each manufacturing site.



WERS Membership Agreement

Company Name: _____ ABN _____

Trading/Business Name: _____

Address: _____

_____ Postcode: _____

Postal Address: _____ Postcode: _____

Phone: _____ Fax: _____

Email: _____ Website: _____

(This website will be linked to the WERS Website)

No. of manufacturing sites: _____

(Please list addresses on separate page)

My company agrees to participate in the Window Energy Rating Scheme and accepts that its WERS licence is conditional upon:

- The products that are energy rated have been verified by an accredited test laboratory as conforming to AS2047-99 for wind and water penetration.
- Please insert AS 2047-99 report number _____
- The WERS accredited rating authority will provide the WERS Administrator a copy of the report record of energy rated products for both generic and individually rated products as prepared by the independent rater
- Notify of any changes or modifications to an energy rated product at the time of change or modification
- Use only approved WERS Certificate (as provided by the WERS Administrator) when clarifying the energy performance of a product
- Submit to and cover costs of an annual WERS compliance audit at each manufacturing site conducted in conjunction with AS-2047 audit
- Provide 12 months notice in writing of withdrawal from the WERS scheme
- Failure to comply with any of the above conditions may result in immediate exclusion from the WERS scheme

Name: _____ Signature: _____

Position: _____ Date: _____

MAIL PO Box 695 Turrumurra NSW 2074 FAX 02 9498 3816

OFFICE USE ONLY

Agreement Record: _____ Payment Record: _____

M/Ship No.: _____ Accredited Member No: _____

Membership Category _____

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