



Doors and Windows  
Product Guide July 2009





## Company Profile

### *PVC SDS presents earthsmart Doors and Windows*

PVC SDS manufacture the u-PVC range of earthsmart Doors and Windows, available in Australia for the first time.

We have been involved in u-PVC doors and windows since 2003, this is backed by over 40 years experience in the construction and property industry.

Our international partners began production in Europe in 1992. The high level of service and attention to detail we provide ensures you will receive the finest quality product.



Our offices in Loganholme, Qld

This high quality European product offers a variety of fully welded architectural timber, metal and colour finishes and includes single, double and triple glazing options. With a comprehensive range of products to suit the budget conscious consumer right through to the high end of the market, there is sure to be an earthsmart Door and Window product for you.



**earthsmart**

Doors and Windows  
PO Box 4428  
Loganholme BC  
Qld 4129

p: 1300 765 536  
f: 07 3806 0758  
[www.pvcSDS.com.au](http://www.pvcSDS.com.au)  
[sales.au@pvcSDS.com](mailto:sales.au@pvcSDS.com)

## Comparative Insulation Values of Different Framing Types

The performance of a window is measured by its U-value, the amount of heat loss or gain through a material. The lower the number the better the insulation of the material. Tests using this common measure repeatedly show that u-PVC out performs its competitors. The following table shows results calculated by WERS A single glazed u-PVC framed window performs better than a double glazed aluminium framed window.

2009 WERS Certified Products Directory - AFRC

### 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 Idw) 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.



PVC Structures Designs & Solutions				Cool %	Heat %	Total Window - NFRC			
Updated - 7-May-08									
Window ID	Glazing	Cooling Stars	Heating Stars			Uw	SHGC	Tvw	Air Inf.
WERS Generic Standard Industry Typical Aluminium Window - Single Glazed									
WER-03-001	3Clr			0%	-5%	7.7	0.78	0.75	5.00
WER-03-003	6.38LE	★ ★	★ ★	37%	11%	5.8	0.48	0.49	5.00
WER-03-015	5Toned	★		21%	-13%	7.7	0.57	0.41	5.00
WER-03-017	5SuperToned	★ ☆		24%	-15%	7.7	0.53	0.62	5.00
WERS Generic Standard Industry Typical Timber Window - Single Glazed									
WER-03-002	3Clr	★	★ ★ ★	21%	24%	5.5	0.69	0.72	5.00
WER-03-005	6.38LE	★ ★ ★ ☆	★ ★ ★ ☆	52%	33%	3.7	0.41	0.47	5.00
WER-03-016	5Toned	★ ★	★ ★ ☆	38%	16%	5.4	0.50	0.39	5.00
WER-03-018	5SuperToned	★ ★ ☆	★ ★ ☆	40%	15%	5.4	0.47	0.59	5.00
WERS Generic Standard Industry Typical uPVC Window - Single Glazed									
WER-03-002	3Clr	★	★ ★ ★	21%	24%	5.5	0.69	0.72	5.00
WER-03-005	6.38LE	★ ★ ★ ☆	★ ★ ★ ☆	52%	33%	3.7	0.41	0.47	5.00
WER-03-016	5Toned	★ ★	★ ★ ☆	38%	16%	5.4	0.50	0.39	5.00
WER-03-018	5SuperToned	★ ★ ☆	★ ★ ☆	40%	15%	5.4	0.47	0.59	5.00
WERS Generic Standard Industry Typical Fibreglass Window - Single Glazed									
WER-03-002	3Clr	★	★ ★ ★	21%	24%	5.5	0.69	0.72	5.00
WER-03-005	6.38LE	★ ★ ★ ☆	★ ★ ★ ☆	52%	33%	3.7	0.41	0.47	5.00
WER-03-016	5Toned	★ ★	★ ★ ☆	38%	16%	5.4	0.50	0.39	5.00
WER-03-018	5SuperToned	★ ★ ☆	★ ★ ☆	40%	15%	5.4	0.47	0.59	5.00
WERS Generic Standard Industry Typical Aluminium Window - Double Glazed									
WER-03-006	3/6/3	★	★ ★ ★	21%	26%	5.4	0.69	0.68	5.00
WER-03-009	3/12/3	★	★ ★ ★ ☆	22%	31%	5.0	0.69	0.68	5.00
WER-03-012	3/12/4LE	★ ☆	★ ★ ★ ★	31%	41%	0.65	0.62	5.00	
WER-03-019	5SuperToned/6/5	★ ★ ☆	★ ★ ☆	40%	16%	5.3	0.47	0.36	5.00

Source: <http://www.wers.net/residential/certified-products>.



“Embodied energy is the energy consumed by all of the processes associated with the production of a building, from the mining and processing of natural resources to manufacturing, transport and product delivery. Embodied energy does not include the operation and disposal of the building material. This would be considered in a life cycle approach. Embodied energy is the ‘upstream’ or ‘front-end’ component of the life cycle impact of a home.

## Embodied Energy and Operational Energy.

It was thought until recently that the embodied energy content of a building as small compared to the energy used in operating the building over its life. Therefore, most effort was put into reducing operating energy by improving the energy efficiency of the building envelope. Research has shown that this is not always the case. Embodied energy can be the equivalent of many years of operational energy. Operational energy consumption depends on the occupants. Embodied energy is not occupant dependent – the energy is built into the materials. Embodied energy content is incurred once (apart from maintenance and renovation) whereas operational energy accumulates over time and can be influenced.”

source: <http://www.yourhome.gov.au/technical/fs52.html>

“Typical embodied energy units used are MJ/kg (megajoules of energy needed to make a kilogram of product), tCO<sub>2</sub> (tonnes of carbon dioxide created by the energy needed to make a kilogram of product).

Converting MJ to tCO<sub>2</sub> is not straightforward because different types of energy (oil, wind, solar, nuclear and so on) emit different amounts of carbon dioxide, so the actual amount of carbon dioxide emitted when a product is made will be dependent on the type of energy used in the manufacturing process. For example, the Australian Government gives a global average of 0.098 tCO<sub>2</sub> = 1 GJ.

This is the same as:

1 MJ = 0.098 kgCO<sub>2</sub> = 98 gCO<sub>2</sub> or 1 kgCO<sub>2</sub> = 10.204 MJ.”

source : [http://en.wikipedia.org/wiki/Embodied\\_energy](http://en.wikipedia.org/wiki/Embodied_energy)

When comparing the amount of embodied energy of u-PVC to that of Aluminium you can see from *table 1.0* that u-PVC has half the embodied energy of Aluminium.

MATERIAL	PER EMBODIED ENERGY MJ/kg
Kiln dried sawn softwood	3.4
Kiln dried sawn hardwood	2.0
Air dried sawn hardwood	0.5
Hardboard	24.2
Particleboard	8.0
MDF	11.3
Plywood	10.4
Glue-laminated timber	11.0
Laminated veneer lumber	11.0
Plastics – general	90
PVC	80.0
Synthetic rubber	110.0
Acrylic paint	61.5
Stabilised earth	0.7
Imported dimension granite	13.9
Local dimension granite	5.9
Gypsum plaster	2.9
Plasterboard	4.4
Fibre cement	4.8*
Cement	5.6
In situ Concrete	1.9
Precast steam-cured concrete	2.0
Precast tilt-up concrete	1.9
Clay bricks	2.5
Concrete blocks	1.5
AAC	3.6
Glass	12.7
Aluminium	170
Copper	100
Galvanised steel	38

Source: Lawson Buildings, Materials, Energy and the Environment (1996); \* fibre cement figure updated from earlier version and endorsed by Dr. Lawson.



## Past Projects

### New Build Projects



*Rendered brick home designed and built by Javica. Cleveland, Qld*



*Tilt Slab Building, Independent owner builder. Morningside, Qld*



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### Renovation Projects



*Renovation in a coastal location, purpose - cut out wind noise, draughts and leakages as well as improve insulation. U-PVC frames are ideal for this coastal location as they are impervious to salt corrosion. All fittings are stainless steel insuring no corrosion on working parts.  
Location - Beachmere , Qld*

## Past Projects

### Renovation Projects



*Renovation, purpose - to insulate while still maintaining the original character of a Queensland workers cottage. Different colour interior and exterior wood grain finishes  
Location - Brisbane, Qld*



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*Multi Residential Building in a coastal location. U-PVC frames are ideal for this coastal location as they will eliminate wind noise and are impervious to salt corrosion. Location - Gold Coast, Qld*

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In The Media

*Come and See Us!*

We will be at the  
HIA Renovate and Build  
Expo  
24th and 26th July.  
Stand S26.  
Brisbane Exhibition Centre.



**renovate&buildexpo**

BRISBANE 24 - 26 JULY 2009



*AWA magazine 'Windows' ran a  
'case study' article on  
earthsmart doors and windows;  
January 2009*

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## 6040 Casement Series - Technical Information

6040 series has 4 chambers from outside to inside.

Single, double and triple glazing options from 4mm to 32mm glazing thicknesses

Casement System

Inside opening

Frame size 60mm (depth)

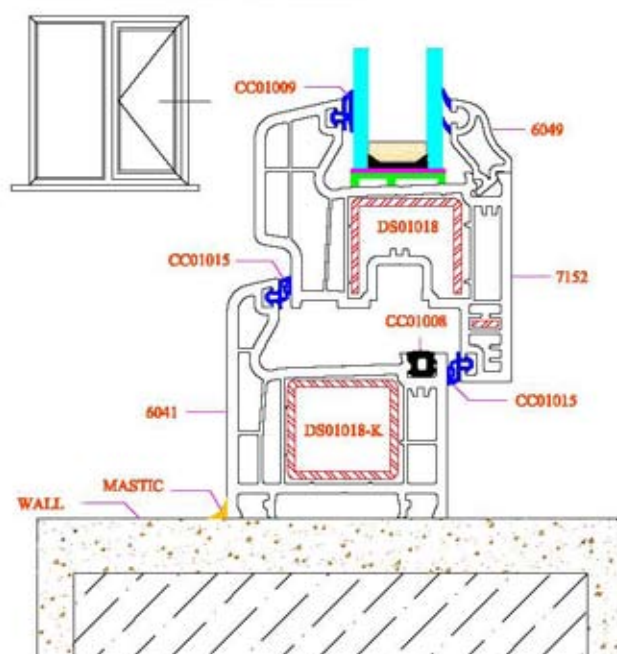
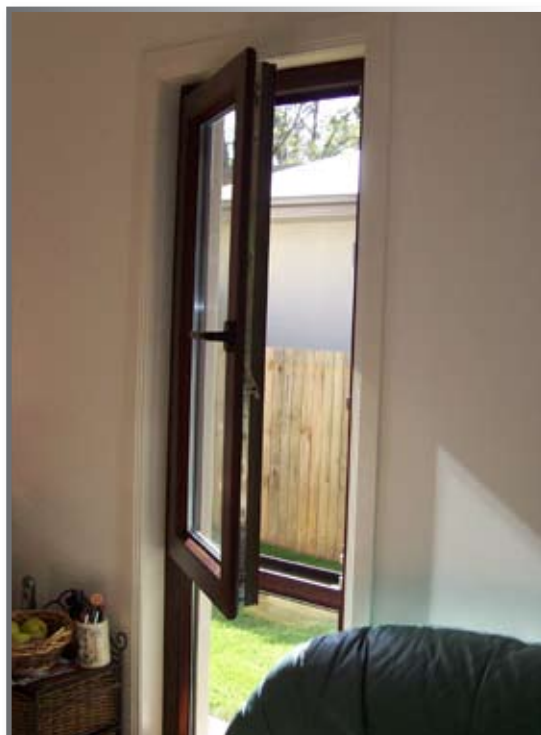
## Wind and Water Penetration Testing - Results

Unit Type	casement/fixd/casement	
Unit Code	6040 series	
Size	H (mm)	1800
	W (mm)	2700
Design Pa	950	

Tested to AS2047.1 as per test method 4420.0 to .6 by Azuma Design, Sydney

Tested for	Y/N	Rating	Units
Structural Deflection	Yes	950	Pa
Air Infiltration	Yes	75/150	Pa
Water penetration	Yes	300	Pa
Ultimate strength	Yes	1500	Pa

## Inward Opening Casement Window - 6040 series



## 7400 Sliding Series - Technical Information

7400 series has 4 chambers from outside to inside.

Single, double and triple glazing options from 4mm to 24mm glazing thicknesses

Sliding System

Frame size 70mm (depth)

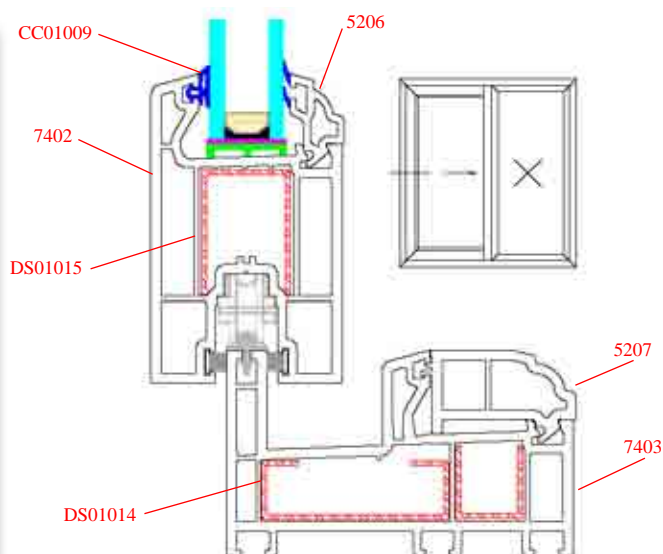
## Wind and Water Penetration Testing - Results

Unit Type	fixed/slide/slide/fixed door	
Unit Code	7400 series	
Size	H (mm)	2100
	W (mm)	4800
Design Pa	500	

Tested to AS2047.1 as per test method 4420.0 to .6  
by Azuma Design, Sydney

Tested for	Y/N	Rating	Units
Structural Deflection	Yes	500	Pa
Air Infiltration	Yes	75/150	Pa
Operating Force Initial/Constant	No	180/110	N
Water penetration	Yes	200	Pa
Ultimate strength	Yes	2000	Pa

## Sliding Window - 7400 series





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Please visit our web site for more details

[www.pvcsds.com.au](http://www.pvcsds.com.au)

For a quote or further information please do not hesitate to call or e-mail us with your enquires.

Tel: 1300 756 536

Fax: 07 3806 0758

[e-mail: sales.au@pvcsds.com](mailto:sales.au@pvcsds.com)