Armstrong Creek SUSTAINABLE HOUSE

A DISPLAY FOR SUSTAINABLE LIVING

Install double glazing

Double glazing is one way to stop heat loss through windows. Although useful for any window, it is vital that it be used if internal coverings like curtains are not desired or are inappropriate, such as in the kitchen, for highlight or clerestory windows, or simply those where unobstructed views are desired.

Double glazing still allows winter sun penetration so you can stay warmer in winter. Double-glazed windows will still require appropriate summer shading by external blinds, eaves or awnings. Double glazing can incorporate most types of glass and is available with toned, laminated and toughened glazing.

Up to 40% of the energy to heat or cool a home can be lost through standard windows fitted with single glazed glass.

When thinking about conserving energy and windows, we want to:

1. Maximise winter heat gain by orientating windows to the north and sizing windows to suit the amount of thermal mass in the dwelling.
2. Minimise winter heat loss through appropriate window sizing, together with double glazing and/or close-fitting internal coverings such as drapes with pelmets.
3. Minimise summer heat gain by protecting windows with external shading devices like eaves, awnings, pergolas or deciduous trees and also consider the appropriate sizing and positioning of windows.

Double glazing should be seen as an investment in household comfort that will result in ongoing lower energy bills. If double glazing is beyond your budget, then you can still reap some of the insulation benefits of improved glass by considering upgrading to low-e glass with standard non-insulated window frames for a smaller price increase.

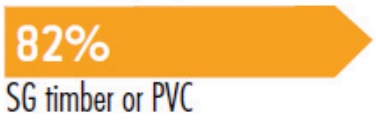
Toned glass and reflective films

Glass can be treated to reduce the amount of solar energy transmitted through it. This can be an alternative method of preventing summer heat gain where external shading devices are inappropriate (such as for windows that are inaccessible or have views that must be maintained). However, treated glass must be used with caution, as it reduces heat gain and light in winter as well as summer.

Toned glass

Toned glass has a tint applied to the glass during manufacture to reduce the amount of heat transmitted through it. There are two main types of toned glass available:

1. basic tones, usually bronze, grey and green
2. super tones, which offer a higher level of performance, such as EverGreen™, SuperGrey™, SolarGreen® and Azurlite®.



Comparison of heat loss through different window frames
SG: Single Glaze DG: Double Glaze

Reflective coatings

Reflective coatings can be applied to new and existing windows. They tend to be better at preventing heat gain than some toned glass, and increase privacy by blocking vision into your home. To ensure optimum performance, films should be applied professionally.

Low emittance glass

Another method of reducing heat loss through glazing is to use low emittance (low-e) glass.

This glass has a special coating that allows light from the sun to pass into the house, but stops heat escaping through the window.

Low-e coatings can be ‘hard’ or ‘soft’ and can enable a very dramatic improvement in comfort levels. But they must be employed correctly or they will either deteriorate or fail to perform to specification. The Australian glass industry manufactures a wide range of high-performance, low-e coated glass products, and imported products are also available.

Safety glass

The Building Code of Australia requires that window glass near the floor and/or glass doors must be ‘safety glass’ according to the Australian Standard. This is for personal safety. Similarly, AS 3959-2009 requires that (depending upon the BAL), toughened glass be used in higher bushfire zones. That is because this glass per-forms better at the higher heat intensity than ordinary (annealed) glass. The same toughened glass process can also be used for toned, coated or treated glass, plus double glazing – all at a price.

Sources and further information

Australian Glass and Glazing Accociation, “Glass Design for Building Energy Ef ciency Victoria” (from research conducted by the Sustainable Window Alliance)
See Beyond website, seebeyondwindows.com.au
‘Sustainability Victoria Energy Smart Housing Manual’ (Chapter 5 – Windows)
Viridian Glass, “Advice from the professionals”, viridianglass.com/residential Resources
Window Energy Rating Scheme www.wers.net Wright, J., Osman, P., Ashworth, P., ‘The CSIRO Home Energy Saving Handbook’, CSIRO, 2009
Your home technical manual (Section 4.10 Glazing) www.yourhome.gov.au