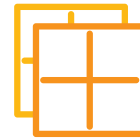


# DOUBLE GLAZING



Double glazing is a proven technology for reducing heat loss by up to **80%** in winter.

**Double glazing** is partially effective for summer as well (but not as good as shading).

You can compare the effectiveness of different double glazing products by looking at their **technical specifications**.

## WHAT IS DOUBLE GLAZING?

Double glazing works by trapping a still layer of air between two panes of glass. Essentially it's the layer of air that does the job, not the glass itself. Similar to a doona on the bed in winter time, the thicker the still layer of air the more it reduces heat loss and keeps you warm. This is the same principle that insulation in the ceiling or walls works as well. The more still, trapped air in a wall or window, the better resistance to heat transfer.

Contrary to a popular belief, double glazing does not reduce heat gain in summer particularly well. If you want to reduce heat gain in summer time, shading is more effective and often a more economical option.

## TECH SPECS

Heat transfer through a window (or any part of a building) is measured using a "U value." The lower the U value is, the lower the rate of heat transfer. Double glazing typically has a much lower level of heat transfer than a single glazed window. A typical single glazed window has a U value of 5 or 6. Double glazed windows will have U values in a range between about 3.5 and 1.5. The lower the U value the better for reducing winter heat loss. Popular alternatives to double glazing such as low-e single glazed windows are often seen as a cheaper substitute, but the U value of a low-e window is still as high as 4 or 5, and is not comparable in performance to double glazing.

There are two other critical technical specifications when choosing a double glazed window: the Solar Heat Gain Coefficient (SHGC) and the Visual Transmittance (VT).

1. SHGC tells you how much heat gain can

pass through the window in summer, so the lower the better for keeping cool and avoiding the need for air conditioning. SHGC range between about 0.3 for a very low amount of heat gain, and 0.9, being a large amount of heat gain.

2. VT tells you how much daylight can enter through a window. There's always some reflection off a pane of glass, so VT tends to be between 0.85 (large amounts of daylight) and as low as 0.3 (low amounts of daylight).



It's good practice to consider the VT at the same time as considering the SHGC, as typically a tinted glazing product that blocks out summer heat will also reduce the amount of daylight into a building. Tinted glass with low SHGC and VT may work well for some commercial buildings, but is generally not suitable for a home, as it will block the natural light and require more artificial lighting. Often it is better to specify clear double glazing with a separate shading device such as louvres or retractable canvas awnings for an optimal result.

Technical specifications of double glazing will tend to state the U value, the SHGC and VT,



as well as the thicknesses of the glass panes and the air gap. For example, a 6/12/6 double glazing unit refers to 6mm thick exterior glass, a 12mm air gap and 6mm thick internal glass. This tells builders and designers how wide a frame needs to be and helps estimate the weight of the window. Some double glazed windows use a gas like argon or a vacuum to improve the heatloss even further.

There is no one perfect glazing solution for every building, or every orientation, hence the large array of products available! You can find most reputable windows rated on the Window Energy Rating Scheme (WERS) website, including U values, SGHC, VT and profile thicknesses. It can sometimes get a bit complex, but when in doubt remember:

- The lower the U value the better for reducing winter heat loss
- The lower the SGHC the better for reducing heat gain in summer
- The higher the VT the better for natural daylight
- Compare different products on WERS website
- Refer to Your Home Technical Manual for more detail.

## BENEFITS

The benefits of double glazing are well documented and are not just about reducing energy consumption. The main benefits of

double glazing include:

- Reduce noise pollution into buildings
- Reduce condensation build up on the inside of windows
- Improved comfort levels
- Reduce greenhouse gas emissions
- Reduce running costs.

## THINGS TO BE AWARE OF:

- Low-e glazing does not generally perform as well as double glazing, and is not normally a reasonable substitute
- Choosing low SGHC can dramatically reduce the VT and the natural daylight in a building
- Weight of larger DG panes of glass can prove a challenge during installation.

## IN ACTION AT MORELAND CITY COUNCIL FACILITIES

Double glazing has been retrofitted to the existing pool hall windows of both Coburg and Fawkner Leisure Centres. The aim of the project was to reduce the heat loss from the pool halls as they are both large energy users and key targets for Council's Community Energy Efficiency Program (CEEP). Council estimates that the double glazing will reduce the heating consumption by approximately \$5,000 per year at Coburg Leisure Centre and \$3,000 per year at Fawkner. See case studies for more information.

## IN ACTION AT FAWKNER LEISURE CENTRE



BEFORE DOUBLE GLAZING



AFTER DOUBLE GLAZING



Australian Government



Moreland City Council

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