Everything you need to know about double glazed windows.

Windows play a large role in the efficiency of your home. But they can also be a big source of unwanted heat gain and loss. As the cost of energy rises, electricity bills become a burden. And, with up to 40%[1] of heat energy lost through your windows, improving your windows' efficiency can reduce energy costs.

What are double glazed windows and how do they work?

Double glazed windows are closed units made using two pieces of glass which are separated by an air gap of at least 12mm.[2] The gap is sealed, and acts as a break between the inside and outside pieces of glass. The air gap is filled with gas which increases the insulation between the glass pieces. Double glazed windows are highly efficient, reducing your heat loss or gain by up to 30% when compared to single-glazed windows. [3]

Double glazing works much like woollen clothing and fibreglass batts. It traps air between the two layers. Glass is a good heat conductor, which means heat transfers straight through your windows without double glazing. On the other hand, air is a poor heat conductor, so the trapped air sets up insulating protection between cool air on one side and warm air on the other.

Single glazed vs double glazed windows

As its name suggests, a single glazed window is made using one pane of glass. This means the only thing between your home and the outside temperature is a pane of glass which doesn't give adequate insulation. A single glazed window is not very efficient when it comes to heat loss or gain.

Double glazed windows use two panes of glass with a vacuumed air gap between them which creates an insulated barrier. Double

glazed glass is laminated or tinted, but is similar to single glazed window glass otherwise.

What are the benefits and disadvantages?

Benefits

The most obvious benefit of double glazed windows is the increased thermal efficiency. This means it is easier to maintain the temperature inside your house. This is important if you use air conditioners or central heating or cooling systems. Other benefits include:

- Energy-efficient
- Sustainable and environmentally friendly
- Reduces outdoor noise
- Durable with low maintenance
- Increases the value of your house
- Less condensation on your windows

Disadvantages

As double glazing is so efficient, any heat that enters your home during the hotter months is easily stored. This means you should take extra measures to alleviate the problem in summer. Two options include applying UV protective coating or using window films. Remember, these additional protective layers will increase the cost of your installation.

How do you arrange installation of double glazed windows?

Double glazed windows help keep heat in or out of your home, and reduce external noise. They are efficient in both colder climates and when you're using the air conditioner. However their effectiveness can vary based on how they were installed, type of windows and frames used, and the climate in your area.

Installing double glazed windows is best when building or renovating your home, but can be done anytime. Remember that removing or installing windows is a messy job and should not be a

D.I.Y. project. You also need to consider the re-plastering, redecorating, and refitting of your blinds and curtains. Also take additional care if some windows are built in load bearing walls.

Speak to a professional installer to arrange a site meeting and to discuss the best options for your home.

Secondary glazing for existing windows

If you are not renovating or building, retrofitting secondary glazing to your existing windows is possible. An additional pane of glass is fitted to your existing windows, and can be built onto your existing frame or attached using magnetic strips. This option is often more cost-effective than double glazing. Plus, depending on which product you select and the ability to create the air gap between the glass, you may be able to mimic the benefits of double glazed windows.

Design Considerations

Noise control

The most effective method of noise control is sealing gaps and cracks around your windows. Plus, with appropriate windows, you can further control outside noise levels. Sealed double glazed windows reduce the transmission of mid-to-high range frequencies, such as human voices and dogs barking. Thicker double glazed glass with a large air gap reduces low frequencies, such as airplanes and traffic. However, such a large air gap reduces insulation.

Fading

Sunlight exposure may cause your interior furnishings and floors to fade with time. Violet, ultraviolet, blue wavelengths are mostly responsible for fading, but with the appropriate window glazing can be reduced.

Condensation

Condensation is a common issue in most homes and occurs when moist air meets cooler objects. The two window surfaces are each closer to the adjacent temperatures, reducing build-up of condensation and mould.

Life cycle costing

The cost of cooling and heating your home and the cost of windows work closely together. The initial expenditure of double glazed windows may be high, but they can substantially reduce your cooling and heating bill. Double glazed windows also reduce the peak cooling and heating load, reducing the size of your air conditioning system by up to 30%. [5]

The final word

Yes, it’s true: The cost of installing double glazed windows is higher than single glazed windows. But they will pay for themselves with lower energy costs and a positive environmental impact. With so much to gain, these windows are the obvious choice for your house.