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clearly innovative comfort



WINDOW INSULATION GUIDE

Windows: we love them for views and light, but they can create a problematic "thermal weak spot" your home insulation.

Heat easily transfers through standard glass panes, and windows are responsible for up to 45% of heat loss in winter and 95% of passive heat gain in summer. Any architect will tell you an uninsulated window is an energy weak spot in a house's design...

So, what are some of the best solutions and tips to upgrade your glass and window performance?

DRAFT-PROOF YOUR WINDOW FRAMES:

No matter how thick your glass is, air gaps around window frames will leak heat. So, the first step to better window insulation is to draft-proof your frames.

If your frames are aluminium, check that the rubber seals have not degraded or cracked.

We recommend **Exceed window maintenance** for aluminium repairs and draft-proofing – Exceed is nationwide and specialises in repairs to all types of aluminium joinery.



WOODEN AND SASH WINDOWS

If your windows are wooden or sash villa windows, check for rot and warping. Water damage can make your wooden sills rot and warp the frames, leaving significant air gaps.

We recommend using **Sash Window repairs nz** for character homes and villas.



ONCE YOUR WINDOWS ARE AIR-TIGHT, WHAT ARE YOUR OPTIONS FOR UPGRADING WINDOW INSULATION PERFORMANCE?

WINDOW INSULATION

INSULATION OPTIONS



- Thermal curtains
- Pelmets
- Retrofit double-glazing
- Window tinting
- Low E films
- Penjerex insulation film

Thermal-backed curtains are a cost-effective and practical solution to stop heat escaping in winter, and in summer they can prevent solar gain. The drawback of curtains is that you must keep them closed to be effective, which is not ideal for daytime use.

Pelmets are no longer in fashion, but they do a great job of trapping heat in a room.

When you heat a room in winter, the heat rises to the ceiling and convection begins.

As this air slowly cools it falls back to ground level. Some of this air will make contact with the glass in your windows.

If you have ever put your hand on a typical window during a cold night, you know how cold the glass gets. Any heat that comes in contact with the glass will quickly be transferred through the window.

A pelmet prevents the warm air from inside the room from coming into contact with the glass. This significantly reduces any heat loss that may normally occur through the window.

Pelmets also help reduce solar gain in a similar way during summer.



Retrofit double-glazing is made from two pieces of glass sealed together with an air space or gas in between. There are many variations in glass thickness and quality, the size of the air gap, and the frame type.

Air gaps can be between 6 to 12 millimetres. The bigger the air gap the better the insulation, but this gap is restricted by the size of your window frame which means double-glazing a Villa window with a small frame width can be problematic.

The quality of installation and the expertise of an installer also impacts on the final performance of the product and the cost of the job.

There is no doubt that well-installed, high-quality, retrofit double-glazing is an excellent window insulation solution. The problem is that it comes at too high a cost for many homeowners.

Another problem is Double-glazing is only half as effective as Low E films at reducing solar gain.

WINDOW FILM

TINTING - LOW E FILMS - PENJEREX

WINDOW TINTING

Window tinting comes in a wide variety of tints and qualities. The film itself can be made from acrylic, ceramic, or plastic and has various properties to reduce heat and glare and block UV light.

The general rule of thumb is the darker the tint, the stronger the heat reduction. This means that a window-tint solution is not always ideal for year-round comfort: the solar gain you want to prevent in summer may be reduced as well as the light and glare, but in winter your home may seem gloomy.



LOW E FILMS

The last 5 years has seen a new type of insulation film on the market. Low E is an abbreviation of "low emissivity", which is the ability to radiate absorbed energy. Low E film has a unique coating designed to reflect long-wave radiation from the glass itself and from inside or outside the house.

Some double-glazed units come with a low E coating on the glass to further assist with heat retention. There are many options of low E film on the market from most window reputable film manufacturers. Most low E film is still tinted to reduce solar gain.



PENJEREX INSULATION FILM

ONE OF THE MAJOR BENEFITS OF PENJEREX IS THE RELATIVELY LOW COST: ABOUT HALF THE COST OF RETROFIT DOUBLE-GLAZING. THIS PROVIDES A GOOD RETURN FOR YOUR INVESTMENT BY REDUCING HEATING AND COOLING ENERGY COSTS FOR YEARS TO COME.



Penjerex, created by leading film manufacturer Nitto Denko, is one of the highest-quality low E films currently available in New Zealand. It is virtually transparent and up to 95% as effective as retrofit double-glazing. Like other low E films, In winter Penjerex prevents heat energy from being conducted to outside through your windows by reflecting it back inside and in summer it prevents solar heat gain from entering your glass- it's two way properties upgrade your glass performance for year round comfort. What is unique about Penjerex is its transparency (it is very hard to detect once applied to windows) and it's performance, it is ranked 1st on the ISO glass database for thermal heat insulation.

Penjerex is applied to the inside of your glass panes so unlike double-glazing installation doesn't require scaffolding. It can be installed in approximately one day, regardless of what the weather is doing outside.

Penjerex is tested to ISO standard and registered in the same US government window specification registry as over 4200 glazing products. It also comes with a 10-year warranty and is expected to last in excess of 15 years with good care.

CLIENT FEEDBACK

RON GOODEY- REMUERA

"We'd had noticeable drafts and cold spots by the windows particularly at night. So we decided to look into window insulation. What I like about the Penjerex film is it achieves many of the things that double-glazing would achieve, but without the disruption to all of our wood work. It seems to be good sense if you want to improve the heating in winter and cooling in summer. It really seems like the way to go. "After the film was installed we have really noticed a difference. We have central heating system and we don't need to use it nearly as much. More importantly it's just so much more comfortable at night."



LINDSEY HAWKRIDGE- NEWMARKET

"Since the installation our home is certainly a lot warmer and easier to heat because of the Penjerex film. We have had normal solar window film in our home before and we've found that it's a superior product in comparison to that, as it helps to keep the heat in and stop the heat from escaping. What has impressed me the most about the Better Windows service was that their consultant Chris took time out to come over and help us, by explaining everything clearly. He spent quite a bit of time with us to make sure we were happy at every stage and the installation guys were great, we didn't have any hassles."



GET A FREE ENERGY ASSESSMENT WITH BETTER WINDOWS...



Speak to us about insulating your windows today...

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