



Retrofit Double Glazing for Wooden Windows

[Your Complete Guide]



RETROFIT DOUBLE GLAZING FOR WOODEN WINDOWS

Where new double glazed windows and secondary glazing fail, retrofit double glazing succeeds. There is no reason to replace your timber windows with double glazed aluminium or PVC windows. Nor do you have to settle with secondary glazing as the only cost-effective option. In fact, a retrofit is both an effective and an affordable solution.

Thermawood's use of a unique, patented dry glazing system takes the work of window and door enhancement one step ahead of the rest by making it even harder for condensation to build-up, thus preserving the integrity of your existing timber windows for years longer than any other window solution.

When it comes to aesthetics, retrofitting wins again. When you are able to retain your existing timber windows, the original architectural integrity and character are preserved.

Better insulation, acoustics, security, glare – and less moisture, for about one-third of the price of new double glazed windows. Good for the environment, revolutionary for your interior space.

You must be wondering – is it possible?

It is, when your retrofit is performed by an experienced Thermawood team of double glazing installers.

Want to learn why so many property owners in New Zealand and Australia are opting for retrofit double glazing for their existing timber windows?

Here are all your questions answered about retrofit double glazing for wooden windows. The more you understand about how the process works and what the advantages are, the better equipped you will be to make the best choices for your windows.



THE MOST ADVANCED DOUBLE GLAZING SYSTEM FOR EXISTING TIMBER

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WHAT IS THE DIFFERENCE BETWEEN NEW DOUBLE GLAZED WINDOWS, RETROFIT DOUBLE GLAZING, AND SECONDARY GLAZING?

New double glazing, retrofit double glazing, and secondary glazing are all solutions for improving the functionality of your windows. Windows are either replaced or retrofitted in order to make them more energy efficient, to reduce noise from entering the home, as well as for other benefits like reducing glare and making a home less vulnerable to damage from the environment, or even from break-ins or accidents.

While the overall goal is the same for all three window and door solutions, each will achieve differing results in terms of quality, sustainability, and even how many features can be addressed.

Also, each comes with its own level of flexibility. For example, with Thermawood's retrofit double glazing, you can also choose to have specialised glass installed or to automate your windows for even greater energy efficiency and security.

Each option is available in a different price range:

- Generally, new double glazed windows is the most expensive option.
- Secondary glazing and retrofit double glazing are both much less expensive and come with a similar price range.

What is double glazing?

With double glazing, two panels of glass are used rather than only one to create an insulated glass unit, or IGU. The two panels are separated by a small space, between 6mm to 18mm, which can be filled with an insulating gas such as argon.

The use of two panels as well as the hollow space help to dramatically increase the insulating power of a window, thus reducing heat loss in the winter and diminishing unwanted solar gain in the summer.

On average, a home experiences from 21 to 31 percent heat loss through a standard one-panel glass window. By increasing thermal resistance with double glazing, you'll require less energy to keep your home comfortable, which means lower energy bills.

The extra insulation also helps to improve the acoustics in your home or commercial space by insulating against some of the sound waves that would otherwise enter from outdoors. For those living in urban areas, the noise reduction benefits make double glazed windows even more attractive.

Double glazing also increases the safety and security of the home. Two glass panels are more difficult to break through. Also, when upgrading your windows, you can choose a security glass that is much harder to penetrate.

Double glazing can be installed with Low E glass for even better energy efficiency, as well as a reduction in glare, thus reducing UV damage to your indoor furnishings.

This window solution has become popular in recent years with the rise in energy prices and increasing concern over sustainability. Simply by updating your windows, you can save money and take a positive step in the direction towards a more sustainable future.

New double glazed windows does, however, have its limitations. The biggest one is cost. This is the most expensive way to improve the energy efficiency of your home through your windows. The cost will depend on the number of windows you plan on replacing, as well as the quality of the glass you choose to use. In general, expect to pay three times the price of retrofit double glazing and secondary glazing.

This higher price is what leaves many property owners wondering if double glazing is worth it. Is it a better option than the alternatives to justify the thousands more that it will cost?

Surprisingly, the answer is no.

Double glazing does have more benefits than secondary glazing but retrofit double glazing offers the same desirable features of a new double glazed window solution – insulation, noise reduction, safety, and glare – without the high price. And without one other major drawback of new double glazed windows. The potential for moisture build-up.

What property owners don't realise when they have new double glazed windows installed is that in many cases, the design doesn't allow for water to evaporate quickly enough. An IGU must have proper drainage built-into the system. Otherwise, eventually, water vapour will start to cloud the space in between the two glass panels. This makes it possible for mould to grow. Prolonged exposure to water or saturated water vapour within the glazing channel is the number one reason for seal failure and rot in IGUs. This can, unfortunately, lead to expensive repairs.

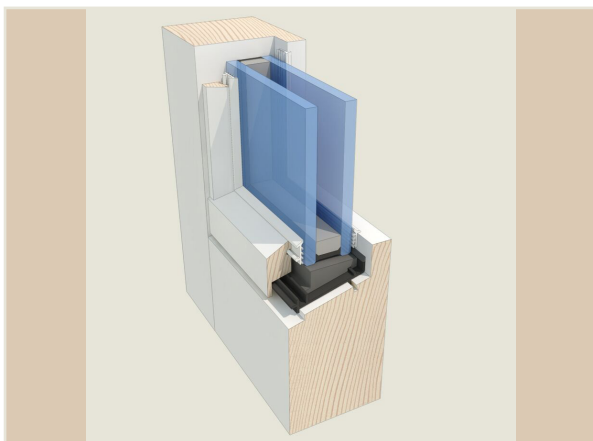


Another common problem with new double glazed windows is simply the fact that the whole frame of your existing window has to be removed. This means the cladding, internal lining, and other components of your home's structure can be harmed in the process. It's always important to have a highly skilled team install your double glazed windows to ensure your window solution doesn't cause more harm than good.



What is retrofit double glazing?

With retrofitting, your current single glazed glass is replaced with double glazed IGUs. Instead of removing the entire window structure and replacing it, your existing window structure remains in place and the single pane of glass is replaced with a double pane system.



As a result, with retrofitting you can enjoy all the advantages of new double glazing because you are getting the same high-quality IGU. For those living in bustling cities or who rely on an air conditioner and indoor heater to regulate the interior environment, a window conversion can immensely improve the comfort and quality of indoor living and working spaces.

Retrofitting is also just as effective at enhancing security and protecting your furnishings from UV damage, all for a fraction of the cost of new double glazing. Retrofit double glazing is a less obtrusive process and it doesn't require a lengthy, complex new window replacement. This means, it doesn't require as large of an investment as new double glazed windows – yet it will increase the value of your home just as much, or more.

Homebuyers and property investors look out for features that indicate durability and long-lasting functionality.

Also, because you won't have your current windows torn down, you'll be able to **retain the original character of your windows**. This is why Thermawood retrofit double glazing is often used in heritage buildings.

While other retrofitting window conversion services may not have this benefit, with Thermawood, you're also less likely to face problems with moisture accumulation in your IGUs. **Thermawood uses a patented dry double glazing system. We created a system that encourages better drainage to help our windows and doors withstand even extreme environments. Designed specifically for existing timber windows, water and water vapour is able to evaporate or escape, diminishing the risk that condensation will damage the wood and prevent the double glazing from failing.**

This not only helps to preserve the integrity of your windows, it also improves the air quality within the home.

The only drawback of retrofitting is that it can't be performed on all types of existing windows. A Thermawood retrofit double glazing system can only be installed on your current wooden windows. Another drawback is that some companies have started to market their services as retrofit double glazing, even though what they are actually using is secondary glazing. You may believe you are getting the benefits of retrofitting without realising the superior features you are missing by having secondary glazed windows, not double glazed.

Secondary glazing is a vastly inferior product. This is why it is so important to know the difference between these two types of window conversions.

What is secondary glazing?

The reason secondary glazing is incapable of offering anywhere near the insulation benefits of double glazing is because you're missing two essential components of double glazing:

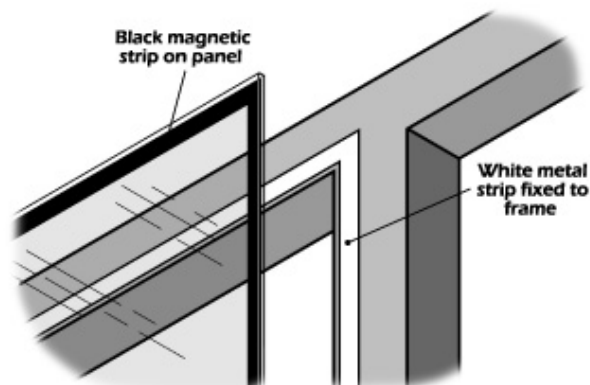
- No argon gas can be used to increase the insulation
- You can't have high performance glass like Low E glass installed

With secondary glazing, what happens is an acrylic sheet is installed on the inside of your existing window, generally with magnets. There are still some insulation benefits, which means you'll improve the energy efficiency of your property and enjoy windows with better acoustic performance. However, the difference will not be nearly as much as what you'll experience with double glazed or retrofit double glazed windows.

Because you can't choose special glass panels, such as laminated Safety Glass, you also lose the enhanced safety benefits of double glazing.

Another issue with secondary glass you should be aware of is the challenge that comes with sash windows. With secondary glazing, it is difficult to re-weight double hung sashes. This is because the acrylic used in the process adds weight to the sash. To try and combat this problem, when someone does a secondary glazing, they will install a panel over the entire window. You'll have to remove this panel any time you want to open the window. This makes getting the ventilation you want a cumbersome process – not exactly what you expected when you invested money to improve your windows.

A final, very important limitation is the same flaw found in new double glazed windows. Even after you have your window enhanced with a secondary glaze, you may face problems in the future as moisture accumulates. Because of the way secondary glazing works, it is possible for condensation to form within the gap between the existing glass and the secondary glazing. This can be a major issue if you have a wooden frame. The condensation can drip to the bottom of the frame, eventually damaging the wood.

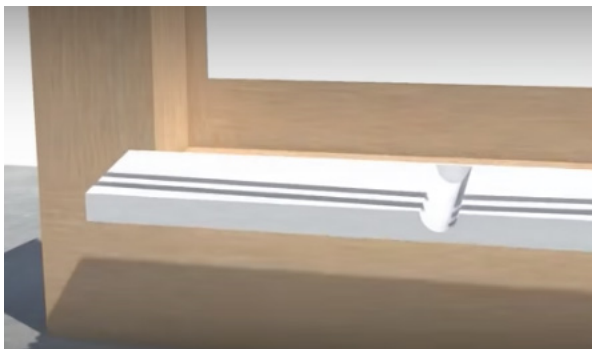


HOW DOES RETROFIT DOUBLE GLAZING WORK?

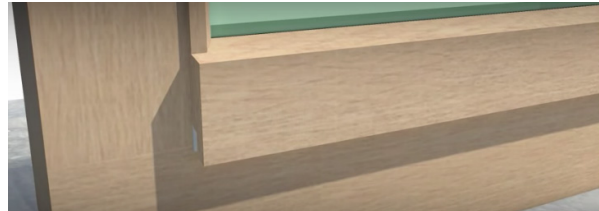
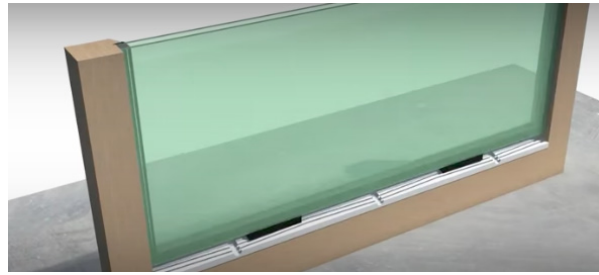
The Thermawood retrofit double glazing system is designed to fit any timber joinery. It can be used to convert all your existing wooden windows and doors, giving you the attractive benefits of double glazing at a fraction of the cost.

It works by enhancing insulation with an IGU, without having to tear out your entire window and be stuck with new double glazed aluminium windows or an even more expensive window replacement with new double glazed timber windows.

Your current single glass panel is removed, as well as a small part of the existing frame to create a 15-degree angle. Then, a unique adapter, created by Retrofit New Zealand and made from 100% recycled materials, is installed in order to hold the draft and acoustic seal and IGU in place.



To complete the process, the window beading is put in. We have designed the bottom beading piece so that it will let the maximum amount of moisture out. It is this patented dry retrofit design that makes Thermawood's window conversions a step above the rest.



Timber windows have many innate benefits. Wood acts as a natural thermal insulator thanks to the air pockets that exist within the timber at the cellular level. These tiny air pockets also help to dampen acoustic vibrations.

Without a dry system, double glazed windows can become a problem within a couple years after installation if condensation does start to form. Secondary glazing poses an even bigger problem with timber windows because it is possible that water will accumulate at the bottom of the window, directly on the wooden frame.

Being able to retain your existing timber without having to worry about condensation and mould through retrofit double glazing is a huge advantage as the wooden windows themselves are better insulators than aluminium windows.

By simply taking out your current panel, converting your existing frame, and installing the sealing and double glazing, you can enjoy a more comfortable home, better air quality, and in the process, increase the value of your property without having to deal with the longer installation times and higher costs of double glazing.

HOW EFFECTIVE IS RETROFIT DOUBLE GLAZING?

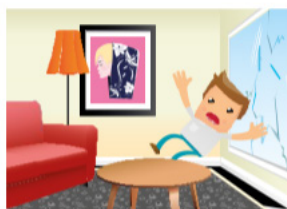
Thermawood's retrofit double glazing system can improve your home's insulation by up to 73% and can reduce noise by as much as 70%. It can help prevent fading of your soft furnishings.

We believe in creating a seamless experience when we retrofit double glaze windows. This means, if you still have curtains flapping in the wind because a draft is coming through your windows, you're losing out on the thermal performance you are paying for. We use draft and acoustic seals on all windows to take the functionality of our windows one step ahead of what other companies do.

Our goal is to give you a quiet, serene, comfortable interior. With Thermawood, you can expect perfectly still curtains and a peaceful, quiet home. Unlike other companies, who apply seals onto the actual window structure, we machine our sealing into the window. This means the seals won't fall off when you open your windows.

When it comes to noise reduction, retrofit double glazing can yield excellent results. What we do is we take the decibel level of your street noise and determine what type of glass and thickness level is required to get the acoustic benefits you want. We have special options, such as our SoundStop, which is made from laminated glass sheets, layered with acoustic resin.

GOOD

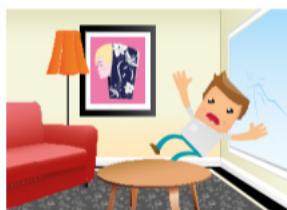


SOLUTION:

IGU

IGUs that comply with AS 2407 are **Good** because they comply with the Building Code requirements.

BETTER

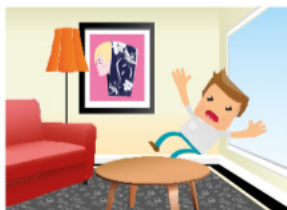


SOLUTION:

Laminated IGU

Laminated IGUs are **BETTER** as Laminated glass is a Safety Glass and will stay intact if broken.

BEST



SOLUTION:

Toughened IGU

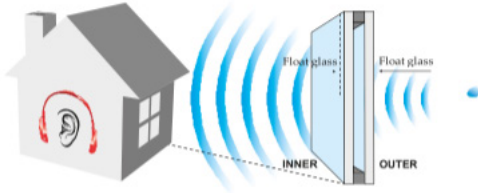
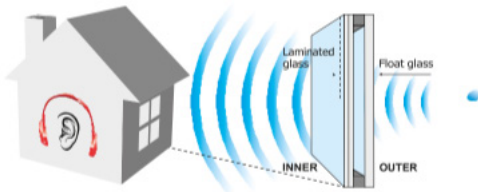
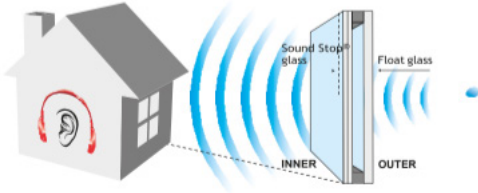
Toughened IGUs are **BEST** as toughened glass is a very hard to break and if broken is a Safety Glass as it breaks into small, relatively harmless particles.

For safety concerns, you can choose different types of safety glass. Laminated safety glass consists of 2 or more sheets of glass permanently bonded together by a PVB or resin interlayer. When laminated glass is subject to impact the bond between the glass and interlayer adheres to any broken fragments keeping the glass intact and resisting penetration.

Laminated Glass will give you 3 benefits:

- Laminated Safety glass is a Grade A Safety Glass;
- The PVB or resin interlayer is very effective in reducing noise coming through the double glazing as the interlayer has very good sound dampening qualities;
- Laminated Glass also absorbs 99% of UV light helping to reduce fading to your furnishings.

Toughened safety glass is also a Grade A safety glass. It is standard float glass that is processed and tempered. Toughened glass looks the same as normal glass but the additional stresses in the glass from the tempering process increase its thermal and mechanical strength giving toughened glass approximately 5 times the strength of standard glass. In the event that toughened glass is broken, it fractures into small particles significantly reducing the risk of injury.

<p>GOOD</p> 	<p>SOLUTION: IGU Using thick glass and glasses of different thickness is Good for sound control.</p>
<p>BETTER</p> 	<p>SOLUTION: Laminated IGU Using standard PVB laminated glass is BETTER as the interlayer dampens sound vibration.</p>
<p>BEST</p> 	<p>SOLUTION: SoundStop IGU Using special acoustic laminated glass is BEST, especially if one pane is thicker.</p>

WHAT IS THE BEST RETROFIT DOUBLE GLAZING SOLUTION AVAILABLE TO ME?

If you have timber windows, no matter what size or shape, there is no better option on the market than the Thermawood retrofit double glazing system. Because you will get all the advantages of double glazing, plus the moisture-reduction from our patented dry retrofit glazing, as well as machined-in sealing for even better thermal insulation and acoustic benefits, your converted windows will offer superior functionality for years longer than the alternatives.

Even more, a retrofit means you won't have to go through the ordeal of window replacement. You can still have the original charm and aesthetic of your original windows. They'll just look better and function flawlessly.



WHAT'S THE INSTALLATION PROCESS FOR RETROFIT DOUBLE GLAZING?

The installation process for retrofit double glazing is significantly different than with double glazing or secondary glazing. Retrofitting is not an amendment to either system but rather a completely separate alternative.

With new double glazed windows, the entire window structure has to be ripped out. This can damage or alter the wall cladding and other material that surrounds your window frame. It also is a time-consuming process, which means it will not always be possible for a window to be finished within one day. You may have to cover your windows temporarily at night until the installation is complete.

With retro-fit double glazing, we always finish every window we begin that day. You'll never have to worry about your home being at risk because you don't have secure windows in place. Two Thermawod retro-fit professionals can install between 6 and 8 panels in a day. How long the overall installation process will take depends on the number of windows and doors you have.

As with secondary glazing, your existing timber frame can remain in place. But that is as far as the similarities go with these two processes. Unlike with secondary glazing, your old single glass panel is removed and new double glazing is put in, along with several components that come together to create a whole window system, holding your new glass in place, sealing against drafts and enhancing acoustic performance, and allowing for optimal water drainage and evaporation.

Unlike both secondary glazing and new double glazed windows, the retrofit double glazing process always yields beautiful windows. This is because you can keep your current frame, along with the original charm. This is a huge advantage as it boosts your home's kerb appeal and improves the overall aesthetic of your home with attractive, upgraded windows.

With new double glazed windows, you may end up with a disjointed look as new aluminium or PVC windows may appear to conflict with your home's style. With secondary glazing, essentially more material is added to your current glass, which can create a cluttered aesthetic. This is completely different than the seamless elegance of retrofit double glazing.



WHY SHOULD I USE RETROFIT DOUBLE GLAZING?

Double glazing is one of the best ways to increase the energy efficiency and value of your property. It won't just lower your energy bills, it will also allow you to transform your interior environment into the serene, comfortable haven that it should be.

You should use retrofit double glazing to enjoy all the insulation, acoustic, air quality, and security benefits – without having to spend as much money as you would with new double glazed windows. Not only that, it's also essential if you want to preserve your investment. Thermawood's unique dry glazing system is the only one that allows for maximum drainage and is the most effective solution for preventing problems with condensation, such as wood rot, mould growth, and poor indoor air quality.



As long as your current windows are made from timber and not aluminium, PVC or another material, you'll be able to take advantage of the perfect balance between an enhanced aesthetic, sustainable features, and revolutionary value. Thermawood retrofit double glazing is making it easier for more homeowners to enjoy the benefits of high-performance windows. Thousands of property owners across the country are already experiencing the difference for themselves.



CAN YOU RETROFIT DOUBLE GLAZE EXISTING SASH WINDOWS?

Sash windows are often found in old Georgian and Victorian styled homes. Double hung sash windows have also been used in New Zealand and Australia's warmer regions because they promote better airflow, making it even easier to take advantage of those cooling spring and summer breezes. While there are different types of sash windows, in general, in this type of window a sash weight is used to offset the weight of the glass panel.



This construction can cause trouble with other types of window enhancement, especially secondary glazing. It is possible to retrofit double glaze sash windows and at Thermawood our patented retrofit double glazing has been purposely designed with sash windows in mind, ensuring that the character of the property is retained. We also re-weight the sash accordingly when retrofitting the window. This makes it possible to easily open your sash windows without having to deal with removing an extra panel every time you want to open your window and let in the fresh air.

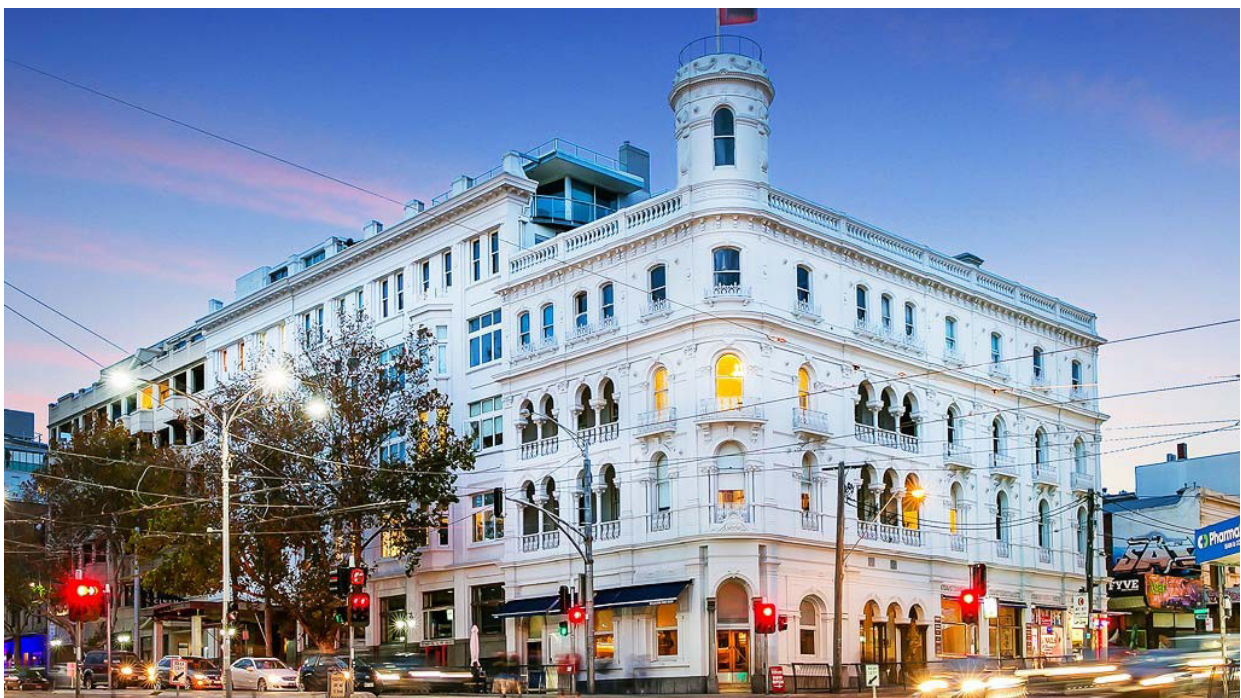


HOW DOES RETROFIT DOUBLE GLAZING WORK WITH HERITAGE BUILDINGS?

From ensuring our beads are on the same angle and sit in the same place as the existing heritage window, to working to retain every nuance of the original character, we excel at bringing heritage windows into the 21st century.

Our goal is to make the work look seamless, so you wouldn't even know a century and a half-old building has high-performance windows, acoustic and draft seals, and a full draining system to minimise rot and help the original frame last for another one hundred years.

Thermawood is working with Heritage architects and councils to educate heritage property owners that what we do can be done.



Recent work undertaken by Thermawood includes the historic St George Hotel in St Kilda, Melbourne.

EXAMPLES OF RETROFIT DOUBLE GLAZING USING THERMAWOOD'S PATENTED PROCESS

Take a look at Thermawood's retrofit double glazing system in practice.



Before



After



Before



After, Inside



After, Inside - Open



After, Outside

Thermawood's retrofit double glazing system is as close to flawless as you can get. All the benefits of installing IGUs, the flexibility to enhance any existing timber window you have, and a solution that was created to last.

Thermawood even refurbishes leadlights and installs them inside the retrofit double glazing to create a seamless look.

Thermawood doesn't just create better windows. Everything we do, from our unique tooling and processes, to our commitment to providing an efficient, unobtrusive installation is about demonstrating just how much your windows can truly do for you if you let them.