

Hot in summer, freezing in winter – Lois' Gisborne bungalow

Adding insulation and double glazing, and getting rid of moisture in the home, have improved temperatures and comfort.

My family and I recently sold our Auckland house and bought a bungalow in Gisborne.

We moved in just in time for summer. It was hot! I work from home - the laundry doubles as my office. By 4pm every day the temperature indoors reached the mid 30s (being a building researcher I have lots of thermometers in my house!) and I had to move outside.

The lack of ventilation, combined with large, unshaded, western-facing windows, meant that most rooms in our house overheated in summer.

Then autumn came around and, with it, the rain. That's when the peculiarly unpleasant musty smell in the main bedroom started. I discovered the humidity was regularly 80% or greater. Consistent humidity above 70% will result in mould growth which is very harmful to respiratory health. I soon developed a persistent hacking cough.

Some poking around the house revealed an archaic soakage stormwater system which directed all the water straight under the house. Clearly we needed to sort out the drains!

Then came winter. The heavy rain in July has brought the state of our gutters and downpipes to our attention, and when leaks started coming into our bathroom and dining room, we realised the roof was also in need of repair.

With frosts several times a week, despite the sunny days, we were feeling exceedingly cold. We burned 11 cubic metres of wood over winter, and my trusty thermometers told me our home hardly ever met World Health Organisation recommended minimum temperatures in either the bedrooms or the living space.

Add to that, the lack of light in my laundry/office (I had to run the lights all day) and the constant colds my son and I suffered and it was a pretty miserable winter.

My old, thin, badly laid ceiling insulation



No. 1 priority: insulation

The first thing we did was start to address the insulation. We were fortunate to be eligible for an Energywise interest free loan from EECA, being delivered by our local community energy organisation, Energy Options.

Energy Options re-laid the existing, very thin batts in our ceiling and topped these up with an R3.6 blanket of insulation. At the same time they installed a great new underfloor insulation system – thick rigid batts, and - importantly for us with our dampness problems - a polythene vapour barrier on top of the ground to stop moisture rising up.

No. 2 priority: getting rid of moisture

We had a drainlayer in to fix our stormwater system and clear an overflowing drain, so that water is no longer being directed to and ponding under our house.

All that money spent on thick ceiling insulation last winter is put at risk if a house is not weathertight. Additionally, a house with leaks and water coming in is much harder to heat – and it also has a very negative effect on the long term maintenance requirements of the home. We have plaster ceilings in the dining room and were particularly concerned that these didn't get damaged as a result of roof leaks. So the plumbers have been called in to address the leaks and fix the guttering, downpipes and roof.

Immediate results

The difference these steps – getting some heavy insulation and removing some moisture sources - have had on our house has been incredible. My temperature and humidity sensors tell me a very good story about the improvements, particularly in the living areas and my kids' bedrooms. And we certainly can feel the difference! Our living spaces now regularly meet World Health Organisation minimum temperatures and while on the coldest nights I have been still running the heaters in the kids' bedrooms, they are actually heating the rooms now.

I have also noticed how differently the wood burner performs. Despite its huge size, on a frosty night it felt as if it was struggling to produce any heat. Post-insulation, getting the fire roaring means that the house heats up much more quickly, and stays that way for much longer.

Some DIY extras

At the same time as these big improvements were made, we have also been doing some of the small, cheaper things that even I, with very basic DIY skills, am able to do. I have draught-stopped all our wooden windows and external doors – after 80 years there are quite a few gaps

that needed to be filled. We have also lagged the pipes coming from our hot water cylinder, making a big difference to the heat losses there.

Double glazing

The giant (3.2 metres long and nearly two metres high) southwest-facing window in the master bedroom was the bane of our lives. In summer the western sun blasted in – we have the curtains drawn all day but it still overheats shockingly. In winter the opposite occurred – with the window feeling like a giant source of cold and sucking all the heat out of the bedroom. My temperature sensors told a horrible tale about the temperatures in that room.

So we removed the window and replaced it with double glazed French doors, reducing the amount of glass area by over a third. For the French doors, we decided that we'd pay the (significant) extra cost for a wooden frame. Because the window faces southwest, we used low e glass (which helps to reduce heat loss but allows the room to be warmed by any sunshine installed) – it's a little bit more expensive, but performs much better thermally, and we had the glass slightly tinted to reduce the glare in summer. The combination of frame and low E glass gives us an R value of R0.48.

We used a different type of double glazing on a draughty west-facing bedroom window and to replace a louvre window in our toilet. For these we used cheaper aluminium double glazing inserts in the existing window frame – it cost only \$400 for the toilet window, and \$1300 for the kitchen window. We paid slightly extra (\$80 for the big window) for including low E glass; however, this has big thermal benefits, upping the R value from R0.26 to R0.31.

We're also took the opportunity to install wall insulation in the surrounding wall, and since we're faced with the complete mess anyway, insulated and relined the other exterior wall in that bedroom.



Before and after double glazing the bedroom window

Results

The outcome is fantastic – not only is our room warmer, it is also much more usable. Now that we have started to have cooler nights, we are feeling the difference – particularly in our bedroom. No longer are the windows radiating cold, with an intensity that seems to suck all the warmth from the room, and the whistling wind is gone.

In summer the new windows and French doors open much wider than the old ones, allowing a great breeze to blow through. And the inclusion of fly screens means that (in less security conscious Gisborne) we can leave our windows open day and night, without pesky flies or mosquitoes. This is a big help for cooling the house overnight in a hot summer.

And I am not just imagining it! My temperature sensors tell a good story too –the house has been cooler during the day than the previous two summers.

The real test, of course, will be winter – and I am hoping that, as well as helping reduce our hefty heating bill, I might wake up in the morning in my bedroom without the fear of getting out of bed because it's so cold.

For more information:

- See Fact sheets on Keeping Heat In: Insulation, Keeping Heat In: Windows, Keeping Heat In: Draughtproofing