

## Retrofitting double glazing – Lois' bedroom windows

**Here at Beacon we try to practise what we preach! As several of us live in older homes, the issue of whether or not to retrofit double glazing has been extensively discussed. I have tried different options with varying success and it's worth talking about what we've found good or not, and why we made the decisions we did.**

### My bedroom windows

I have an old wooden bungalow which I am gradually renovating. 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. In hindsight, I wish I had chosen thermally broken aluminium frames instead as the new French doors are made out of modern treated pine which is softer and less durable - after 4 years in the harsh Gisborne sun she is already having to repaint them and they have draughts!. Plus they cost twice as much as thermally broken aluminium.



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. The combination of frame and low E glass gives us an R value of R0.48.

I was also persuaded by the window fabricator that because of the glare and summer overheating issues that tinted glass (as well as the low emissivity panes and safety glass) should be used. While good in summer, and for privacy, I have found that these benefits are by far outweighed by how dark the room is during autumn, winter and spring. With only southwestern facing windows and the doors in the room, the tint has substantially reduced the usability of the room during winter in particular – where a light needs to be on during the day. I also regret not including fly screens as part of the bedroom project – and retrofitting these into the new wooden frames will be an expensive job.

My choices would look like this:

<b>Location</b>	Master Bedroom Wooden French doors and window onto deck to replace large southwest facing non-original sliding window
<b>Goals</b>	<ul style="list-style-type: none"> <li>▪ Winter warmth – reducing glazed area, draughts and providing double glazing</li> <li>▪ Summer cool – opening for more breeze</li> <li>▪ Reduce glare from west</li> <li>▪ Aesthetics as opening onto the main outdoor entertaining area</li> <li>▪ Capital value improvement</li> </ul>
<b>Wider upgrade</b>	<ul style="list-style-type: none"> <li>▪ Insulating exterior walls in bedroom and ceiling (the room is too close to the ground to install underfloor insulation)</li> <li>▪ Heat transfer from the dining room</li> </ul>
<b>Maintenance</b>	<ul style="list-style-type: none"> <li>▪ Wooden bungalow windows need ongoing maintenance however, newer pine proved far less durable</li> </ul>
<b>Aesthetics</b>	<ul style="list-style-type: none"> <li>▪ Important – opted for wooden frame</li> </ul>
<b>Budget</b>	<ul style="list-style-type: none"> <li>▪ \$6000</li> </ul>
<b>Choices</b>	<ul style="list-style-type: none"> <li>▪ Frame: new wooden (pine) frames (aesthetics, performance)</li> <li>▪ Glass: low e (let warmth in but better performance); tinted (reduce glare); safety glass</li> </ul>
<b>Outcomes</b>	<ul style="list-style-type: none"> <li>▪ Improved warmth – R0.48</li> <li>▪ Cooler with full opening windows and less western glare</li> <li>▪ Better useability in summer</li> <li>▪ Poor durability of pine</li> <li>▪ Room too dark in winter</li> <li>▪ Poor choice to not include built in fly screens as part of the job.</li> </ul>

For more information:

- See Fact sheets on
  - Keeping heat in: Windows
- For a discussion of double and secondary glazing, visit [www.smarterhomes.org.nz/design/glazing/double-glazing-glass-options/#toc\\_3](http://www.smarterhomes.org.nz/design/glazing/double-glazing-glass-options/#toc_3).