

keeping out the cold

The right insulation can transform a cold, draughty, damp house into one that's warm and dry – and it will dramatically shrink your power bill.

Insulation is not something we have been very diligent about in the past. Sure, we're a tough lot, but the benefits of effective insulation – warm, dry homes and lower energy bills – are encouraging people to begin to take it seriously.

The Government is also taking insulation seriously and in October 2007 introduced new minimum standards regarding the insulation of properties. The biggest change is the requirement for double-glazing in all new buildings and major extensions in the South Island and Central Plateau area of the North Island. This alone will mean 30% less energy is used to keep these homes warm.

If you're about to renovate an old villa, you'll probably find it has no form of insulation at all. But don't despair: renovation is the perfect time to install insulation. An uninsulated home will lose about 42% of its heat through the ceiling and roof, 24% through walls and 12% each through windows and draughty doors. Surprisingly, only 10% is lost through the floor. Based on those figures, it makes sense to look at insulating ceilings first.

There are several methods to choose from. If you're doing the work yourself you need to look at blanket segments or rolls of insulation, either in fibreglass, polyester or wool. Fibreglass, made from 80% recycled glass, is probably the preferred option for its effectiveness and value for money. The only downside is that it can cause irritation to skin, eyes, nose and throats, so always use gloves, a mask and goggles when handling it.

Polyester, wool or a mixture of the two also come in handy rolls to run out in a roof space or cut into segments for fitting between framing timbers. They tend to cost

more than fibreglass and can be slightly trickier to cut but won't cause skin irritations.

When buying these products be aware of the R value, which is the rating materials are given for their insulation ability – the higher the rating the more effective the insulation. It's not quite as simple as that, however. Depending on where in the house the insulation will be used and also where in New Zealand you live, there will be different R value requirements. A full list of minimum and best practice requirements can be found at www.standards.co.nz.

If you have a low-pitched roof, you may be wondering how on earth you can fit insulation material into such a tricky space. This is where loose fill insulation is perfect, as it gets blown in by machine and will fill every nook and cranny.


Material choices for this method include macerated paper made from recycled newspaper, with a fire retardant added. This is the cheapest option though it has a couple of downsides, such as moisture retention if there's a leak and it can settle over time, thereby losing some of its effectiveness.

Mineral wool is more expensive, but unlike the paper won't create dust or settle and isn't a fire risk. Estimating how much material is needed to fill the required space and create the right R value is critical. It's a job that needs to be carried out by a professional.

It's also worth looking at wall insulation if you're undertaking general house renovations. With timber-framed construction, insulation can be placed within the frame, though you may need to increase the frame size in

 Resene Bianca

 Resene Billy T

 Resene Bluegrass

order to obtain optimum insulation. There are also techniques for injecting water-resistant loose insulation or foam into holes drilled in the inner wall lining or exterior cladding. However this is less reliable because it's hard to assess whether all the gaps have been filled. Definitely a job for the professionals.

Of course, wall linings such as GIB® Plasterboard are a key component in any insulation scheme, and if it's noise control you're after, GIB Noiseline® can be used.

Reflective foil is no longer used to insulate walls (it doesn't meet minimum standards) but is still effective as underfloor insulation, particularly with blanket insulation attached. Like any insulation it needs a perfect fit for optimum effectiveness, so all gaps must be sealed. Due to the possibility of electrical cables running under the floor, the laying of foil insulation can be risky – cabling can be pierced, or if it's incorrectly installed you may end up with a 'live' floor. Hire a professional installer or get an electrician to inspect it.

Expanded polystyrene, which comes in rigid foam sheets, is a popular choice for under concrete floors. It's also very multi-functional and can be used to insulate walls and ceilings. For the more rainy parts of the country, a well-vented underfloor space with an additional layer of polythene sheeting on the ground is effective at keeping dampness at bay – remember, damp under-floor timbers attract fungus.

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If you're replacing old windows, think carefully about double-glazing, even if you don't live in an area where it's now required. In Europe it's widely used as a form of insulation (triple glazing is fairly standard in some Scandinavian countries) and for noise reduction – you'll find most houses by major roads in England have double-glazing.

Not everyone's budget will stretch to double-glazing, so cheaper options include the obvious, such as heavy, thermal-backed curtains that fit snugly around window frames and pelmets that reduce draughts.

There's no denying that spending money on insulation reaps many benefits. Not only will it give you a warmer, drier home with lower energy bills but it will, according to a recent Otago University study, enhance your overall health and well-being.

To find out more about insulation, take a look at www.smarterhomes.org.nz, www.energywise.org.nz and www.consumerbuild.org.nz. Or for Australia, see www.greenhouse.gov.au/yourhome/. **H**

top tip

Whichever type of insulation you choose, the objective is a really snug fit, because even the smallest of gaps will significantly reduce effectiveness. For really cold areas, insulate cold water pipes separately (as well as hot water pipes) with special pipe insulation.