

Build Back Smarter Info Sheet

Underfloor insulation

The opportunity to build back smarter

Disaster repairs: Foundation repairs to suspended floors especially where the house is being lifted.

Opportunity to upgrade: Install underfloor insulation to normally inaccessible suspended floors. Some floors have no crawl space so this may be the only opportunity to install insulation. Floor insulation cuts heat loss through the floor.

Why underfloor insulation is important

Insulation acts in two ways – in winter, it's like a blanket keeping your home warm, and in summer, it's like the walls of a chilly bin, keeping your home cool. Having a well-insulated home means that when you heat (or cool), it's your house that gets the benefit. Heating or cooling an un-insulated house is like trying to fill a bath with water, but not putting in the plug.

As insulated surfaces are warmer, condensation is less likely to form on them. As a result, an insulated house will have less mould and mildew, and be a less appealing environment for allergy-aggravating dust mites.

12-14% of heat escapes through the floors in an uninsulated house. Underfloors are often a big source of draughts, particularly in older houses with strip floorboards. Because people live their lives closer to the floor than the ceilings of houses, you also feel the cold radiating from floors more. Improving underfloor insulation can make a big difference to comfort levels in your home.

Build Back Smarter recommendations

The opportunity to improve your underfloor insulation will depend on:

- Access to different types of floor
- Levels of existing insulation
- Quality of any existing insulation
- Evidence of other problems such as leaks or poor sub-floor ventilation

If your house is built on a concrete slab, there's not a lot easily which can be done to improve floor insulation.



However, with suspended floors there's room for big improvements, even in very modern houses. That's because even if your floor has some insulation, it will usually be a draped foil product. These have a short life and fairly low performance. Consider topping up or replacing the existing insulation with a bulk insulation product inserted between the joists under the floor. The Energy Efficiency and Conservation Authority (EECA) recommends products with an R value of 1.4 or better.



If you have a suspended timber floor with poor access, foundation repairs to disaster damage can be a good opportunity to install under-floor insulation while the house is lifted or piles replaced.





Ventilation under a suspended floor is very important – up to 45 litres of water per day comes out of the ground under a 93 m² house. If you have ventilation issues, clear rubble or soil for better air flow. You may also need to clear rubble and stored material to allow installers access to your under-floor area.

Types of underfloor insulation

Thick bulky underfloor insulation products are recommended. These are typical choices.

<p>Polyester (e.g. Autex Greenstuf, Mammoth, Eco Insulation)</p> 	<ul style="list-style-type: none"> ▪ A range of R-value products suitable for ceilings, walls and under-floor. Slightly lower R-values than fibreglass for same thickness of material. ▪ Some products are Environmental Choice certified and have high recycled content. ▪ Available as batts and as blankets. ▪ Stable, long life product although prone to compression damage if stored inappropriately before installation.
<p>Glass wool/Fibreglass (e.g. Pink Batts, Bradford Gold, Earthwool)</p> 	<ul style="list-style-type: none"> ▪ A range of R-value products suitable for ceilings, walls and under-floor, including high R-values (“Ultra” type products). ▪ Some products are Environmental Choice certified and have high rates of recycled glass content. ▪ Available as batts and as blankets. ▪ Must be properly installed to perform well and doesn't perform when wet (fix any leaks). ▪ Early installations (e.g. those done in the 70s and 80s) may well have slumped and are of a very thin product – these need topping up or replacing. ▪ Long lasting product – current products have an expected 50 year life.



<p>Wool (e.g. Eco Insulation, Terra Lana, Latitude, Woolcote)</p> 	<ul style="list-style-type: none"> ▪ A range of R-value products suitable for ceilings, walls and under-floor. Slightly lower R-values than fibreglass for same thickness of material. Often available mixed with polyester. ▪ Some products have a high proportion of recycled fibre. ▪ Chemical treatment protects from fire and pests. ▪ Available as batts and blankets, or as loose fill. ▪ Long term durability/life expectancy not known.
<p>Polystyrene (e.g. Expol, Retrotherm, Poly Palace, Styrofoam)</p> 	<ul style="list-style-type: none"> ▪ A range of R-value products suitable for ceilings, walls and under-floor. Slightly higher R-values than fibreglass for same thickness of material. ▪ Current products are CFC free but some early products used CFCs so care with their disposal is recommended ▪ Some products have high recycled content.. ▪ Available as sheets for underfloors ▪ Stable and long lived, although can be vulnerable to damage if exposed. Some shrinkage can occur over time which can affect friction fittings in floors – clips are often used to hold it in place.

What is an R-value?

Insulation generally works by trapping air which is the most effective method and/or reflecting heat. Materials that provide good heat insulation are lightweight because they contain large amounts of tiny pockets of still air.

The 'R-value' measures how good the insulation material is at containing heat. The higher the R-value on an insulation product, the more it slows down the transfer of heat and the more effective it will be. Generally, the R-value of insulation gets higher as the product gets thicker. For example an R3.0 product has greater thickness than a R1.0 product of the same type. However, using R-values helps you to compare the effectiveness of different types of insulation.

You should also note that insulation needs to be properly installed to reach its R-value and work effectively.



Installation

While it might at first seem simple, underfloor insulation installation is best done by someone who is well trained and experienced.

Having a good quality install is key to getting high performance out of your underfloor insulation. The insulation needs to be gap free – even small gaps can have a big negative impact. The insulation needs to cover the entire underfloor area – or at least all that is accessible.

Choose a retrofit installer who is:

- Trained through the Insulation Association of New Zealand (IOANZ) training programme
- From organisations accredited by EECA as Warm Up New Zealand installers

