

Insulating your home



Insulation is essential to keep your home warm in winter and cool in summer. A well insulated home is up to 10°C warmer in winter and up to 7°C cooler in summer and can save as much as \$300 per year in reduced energy costs. When you use less energy in your home, you reduce harmful greenhouse gas emissions and help conserve our precious energy resources.

TYPES OF INSULATION AND HOW THEY WORK

There are two main types of insulation products that work in different ways:

- Bulk insulation works by trapping pockets of still air within its structure. This air provides a barrier or resistance to heat flow.
- Reflective insulation works by reflecting large amounts of heat away from its polished metallic surface and/or by reducing the radiant heat being emitted from the surface.
- There are some insulation products that combine bulk and reflective materials and their properties.

WHERE TO INSULATE

Insulation should be installed in the roof, ceiling, external walls and under suspended floors. Existing homes can easily have insulation installed in the ceiling and under timber floors if crawl space is available. Walls can be insulated during recladding or replastering.

WHICH INSULATION SHOULD I USE?

- Batts – glassfibre, rockwool, sheep wool and polyester – suitable for use in ceilings, framed walls and under timber floors.
- Blankets – foil backed glassfibre, polyester and rockwool – suitable for use under metal roofs and in metal walls.
- Boards – expanded or extruded polystyrene (may have foil attached) – suitable for use in cathedral or raked ceilings, under timber floors and suspended concrete floors, around concrete slab edges, and within framed and full masonry walls.
- Loose fills – cellulose fibre, sheep wool and granulated rockwool – suitable for use in ceilings, must be professionally installed.
- Reflective – reflective foil, concertina foil batts, sarking and multi-cell reflective foils – suitable for use directly under roof, in ceilings, framed walls and under timber floors.
- Composite – made from a combination of materials, often combining bulk and reflective materials, double layers of materials with insulation sandwiched between, concrete reinforced polystyrene wall systems, lightweight concrete etc.

HOW IS THE PERFORMANCE OF INSULATION MEASURED?

When choosing bulk insulation, the most important factor to consider is its R-value.

The R-value is a measure of a material's resistance to heat flow, and therefore its insulation performance. High R-values mean greater resistance to heat transfer, and greater energy savings.

Emissivity is the amount of heat being emitted from a surface. Products with reflective surfaces often use an expression of emissivity – lower emissivity means less heat transfer.

RECOMMENDED INSULATION LEVELS

Increasing insulation levels above the minimum requirements will increase energy savings and comfort in most areas of NSW. Australian Standards recommend different insulation levels for different locations in NSW. The table below shows recommended insulation levels (R-value) for selected New South Wales locations, based on the Australian Standard AS 2627 1-1993.

Recommended R-values for NSW

LOCATION	CEILING		WALLS		
	Heating only	Heating and Cooling	Space or room heating	Central Heating only	Central Heating and Cooling
Sydney (coast)	1.5	3	1	1	1.5
Sydney (inner city + west)	2	3	1	1.5	1.5
Albury	2.5	4	1.5	2	2
Lismore	0	2.5	0	0	1
Tamworth	2.5	4	1	1.5	2
Bathurst	4	4	1.5	2	2

INSULATION TIPS

- Avoid gaps in the insulation. If only 5% of an area is left uninsulated, up to 50% of the potential benefits may be lost.
- Keep bulk insulation dry at all times.
- Have your wiring inspected by a licensed electrician to ensure it can be safely covered by insulation.
- Avoid loose-fill insulation if your roof space is excessively draughty, unless a sealant can be added to bond its top surface.
- Reflective foil should be installed with a still air gap of at least 25mm width next to the reflective surface. Tape up any holes, tears or joins in the foil.
- Caution! Do not install insulation within 90mm of hot flues or exhaust fans. Do not put insulation over or within 25mm of recessed light fittings.

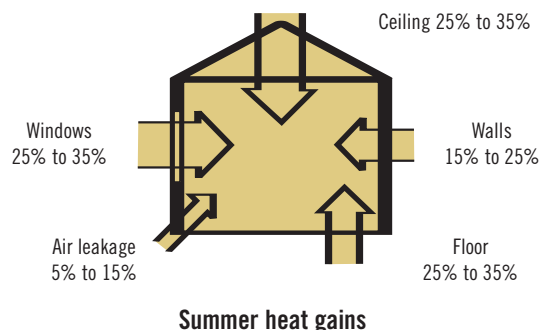
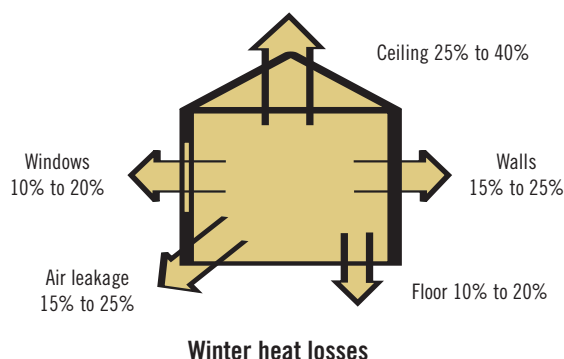
FURTHER INFORMATION

Telephone the Energy Smart Information Centre: 1300 138 638 or 02 8281 7777 (callers outside NSW)

Monday to Friday 9am-5pm

Visit www.energysmart.com.au

The Energy Smart Information Centre is a free advisory service provided by the NSW Government. Energy experts can provide information on a wide range of topics.



Each of these areas are sources of heat loss in winter and heat gain in summer in a typical uninsulated house.