

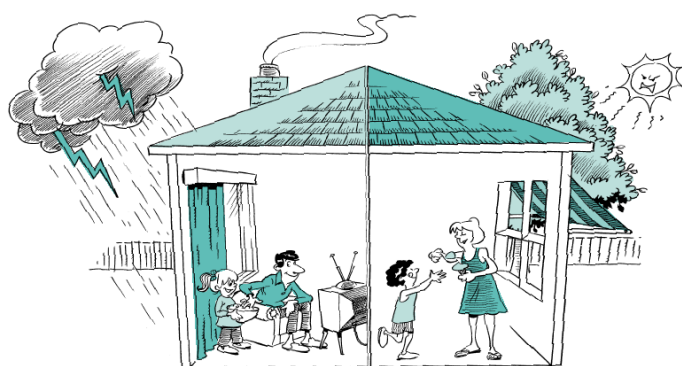
Cavity Wall Insulation

Up to 50% of heat loss can be through your walls.

If your home has insulation in the ceiling and well-fitted and sealed insulating window coverings, but lacks wall insulation, over 50% of your heat loss can occur through the walls. So, insulating the walls can make a significant difference to the temperature in your home, and consequently to your comfort and heating/cooling bills.

Where can cavity wall insulation be installed?

If your existing home has double brick or brick veneer walls, there is a cavity between the external brickwork and the internal brickwork/timber frame which can be used to install insulation. However, monocrete walls, wood cavity walls (usually fibro-cladded), weatherboard walls, and most other forms of walling either have negligible internal cavities, or cavities that are difficult or dangerous to access to the point where retrofitting cavity wall insulation would be costly or dangerous. In these cases, it is inadvisable to retrofit cavity wall insulation, but insulative cladding (such as polystyrene boards) can be added to the exterior of the walls. A weatherboard wall can also be insulated either by prising off boards to gain access to the gaps between the studs, and then replacing them afterwards, or by drilling holes through the internal walls (through the plaster). The remainder of this fact sheet is focused on installing insulation in double brick/brick veneer walls.



Benefits of cavity wall insulation

Comfort Level: Installing cavity wall insulation into a brick veneer wall can prevent up to 85% of heat transfer through the wall. For a double brick (sometimes called 'cavity brick' or 'brick cavity') wall, this figure is up to 63%. Either way, your home will be warmer in winter and cooler in summer. Cavity wall insulation will also keep the interior of your walls warmer in winter, virtually eliminating condensation and mould problems. Installing cavity wall insulation in a weatherboard wall can reduce heat losses by up to 75%, although it may be more expensive than the other kinds of walls due to the added difficulty in installation.

Money Saved: By reducing the heat loss/gain through a house's walls, your heating/cooling bills will fall. Savings in energy consumption used for heating of up to 35% are possible when cavity wall insulation is added to a home with existing ceiling insulation (assuming same level of heating before and after). Choosing to lower the thermostat temperature can reap even bigger savings.

Environmentally Friendly: Reducing heat loss/gain will reduce your energy consumption, cutting your greenhouse gas emissions. Insulating the walls of an average Canberra home will save up to 1t of greenhouse gases per year.

Improved EER: The Energy Efficiency Rating (EER) of a Canberra home can be increased by 1 or 2 stars by installing cavity wall insulation (depending on the size of the house, the type of wall/floor construction, and the number, size and location of windows). Research shows that higher EERs can command higher prices in the real estate market.

Acoustics: Cavity wall insulation is also an acoustic insulator, protecting your home from unwanted exterior noise and reducing the impact of noise from within the home on your neighbours. This effect is most significant for windowless walls.

Types of Insulation

There are a number of different forms of wall insulation available for new homes. The main forms are: rockwool, fibreglass or natural wool batts; polystyrene boards; and polystyrene beads (similar to those found in bean bags). However, only granulated rockwool, or treated cellulose, is recommended for retrofitting existing homes, mainly because of the relative ease of installation. Rockwool has an advantage over cellulose in that it is fire resistant and cellulose is not. Also, it is important to note that because both materials are treated with water-repellent additives they will NOT wick moisture by capillary action in either direction across the cavity they fill.

Characteristics of Rockwool

Rockwool is manufactured in Australia from a mixture of molten rock and recycled glass furnace slag, which is extruded into fine fibres and felted into a mat. It is then granulated so that it can be pumped into the cavities of existing walls with ease. It is rot proof, odourless and will not sustain vermin or fungal growth. Once installed, it does not release dust or fibres and is not known to have any ill effects on health. It also settles very little over time. Rockwool will not burn on exposure to flame.

To prevent the transmission of moisture, granulated rockwool is factory-treated with silicon-based water repellent which has undergone independent laboratory performance testing by CSIRO, and has been in widespread use for years.

How it is installed?

Before the insulation is installed, an electrician has to check that the house's wiring will still comply with Australian standards when covered with insulation. In most cases, the installer's electrician will do the initial inspection as part of the price, but any recommended electrical modifications are at the homeowner's expense.

Cavity wall insulation can be installed into most brick veneer or double brick walls. Access to the wall cavities is usually gained by removing roof tiles above the external walls. A special hose is then inserted into the cavity between each set of wall studs, and the insulation is then pumped in. If a house has a metal roof, access to the cavity can only be gained by either injecting insulating material through holes drilled in the mortar between the external brickwork, or lifting off the roof sheets over the wall cavity (a difficult and more costly process).



For two storey houses, cavity wall insulation for the lower level is usually injected through holes drilled in the mortar between the external brickwork. Access to wall cavities underneath windows is gained in the same manner. The holes are back-filled with mortar at the completion of the job.

R Values achieved

R-values are a measure of *resistance to heat flow* through a material – the higher the R-value the better the insulation. Adding properly installed rockwool insulation to the walls stipulated below will increase the walls' respective R-values significantly. Figures can vary depending on the thickness of the cavity and the depth of the wall studs.

House Type	No insulation	After insulation
Double brick:	R 0.5	R 1.5
Brick veneer:	R 0.4	R 3.4
Weatherboard	R 0.5	R2.5

More information

This fact sheet is produced by the Home Energy Advice Team (HEAT) to provide you with some quick tips on cavity wall insulation. If after reading it you'd like more free information about this or any other topic to do with saving energy in your home, don't hesitate to contact us:

