

This glossary and FAQ provide further background and guidance to the My Cool Home tool.

Materials:

What does *none or not sure* mean? "I don't have plans for my home and can't see whether an item is installed or not."

If we enter "*none or not sure*" for the building specifications, My Cool Home will assume that the *worst-case scenario* - e.g., no insulation present.

If you know that there is for example, insulation installed, but don't know *what type or value*, then use the base specification below as a guide.

This will populate My Cool Home with a *likely* base-case value rather than **no** value.

The base specification values are:

External Wall Type	Brick Veneer
External Wall reflective foil	No
Roof foil	No
Roof insulation*	None
External Wall Insulation	R2
Internal Wall Insulation	Single Brick
Ceiling Insulation	R4
Floor / Underfloor insulation	None
Roof colour	Dark

What are my walls made of?

External walls (these are the external walls of the house, generally you can think of this as being what the house is built from)

EPS - Expanded Polystyrene - is a lightweight cellular material used as wall cladding. It provides a lightweight walling material and is resistant to rodent damage, moisture and provides a high level of insulation. It is usually installed with an outer render or cladding to protect the panel.

AAC - Autoclaved Aerated Concrete - also known by the brand name **Hebel**, is a aerated concrete product primarily used as a wall cladding and can also be used for floors and ceilings. It provides good thermal mass and has good insulation properties.

BV - Brick Veneer. One of the most common construction methods. The home is generally built with a timber or steel frame with bricks as the external skin. Wall insulation is then installed with plasterboard to the internal walls. In this type of construction, the bricks provide a robust external cladding for the home, protecting the interior from the weather.

RBV - Reverse Brick Veneer - as the name suggests - this is a brick veneer construction where the thermal mass of the bricks is placed to the inside, with a layer of insulation and then cladding to the outside of the building. This ensures that the main thermal mass of the walls is placed inside the home (where it will be most effective at maintaining a stable internal temperature) that is then insulated from the external environment.

BC - Brick cavity or double-brick construction is a heavy mass construction. It is not as common in Adelaide as it once was. It is a construction method that uses two leaves of brick that create an air cavity. This cavity is effectively the thermal break between the outer leaf, that is exposed to the external temperature, and the internal wall of brick. Some modern brick cavity homes also have insulation in the cavity to improve the resistance to heat transfer. Most brick cavity homes also have single leaf internal brick walls.

Fibre cement clad - Fibre cement sheets are durable, weather resistant light weight sheets generally used as an alternative to timber cladding. There are lots of different products in this category which you will generally find either painted or rendered.

External wall reflective foil - there are many products in this category and range from semi-rigid wall board to flexible membranes and building wrap products. Most of these products provides degree of insulation and rely on being correctly installed as part of a walling system to be most effective.

Insulation - is measured by its **R-value** (which is a **Resistance** to heat transfer) - the greater the R-value the higher the resistance to heat transfer (and usually the thicker and heavier the product is). A typical insulation in this category would be what is called "**bulk**" insulation - that is **batts** that are laid in the ceiling space or installed in the walls. It is important that bulk insulation is correctly installed to minimise compression and gaps which degrade the overall effectiveness and performance of the product. How much the insulation slows the flow of energy (heat) across the building fabric (walls, ceiling, floors) will largely determine how **energy efficient and comfortable** the home is.

Roof foil - this is a foil wrap product installed under the tin or tiles of the roof. It provides weatherisation and some insulation value when installed correctly.

Roof insulation - also known as a *roof blanket* is a type of insulation installed under the tiles or tin. It provides for an added layer of insulation and can also be an effective barrier to improve acoustic separation especially if you live on a noisy street or under an airport flight path.

External wall - Does your house have insulation to the external walls? All new homes should have insulation to external walls as this would be a requirement to meet the energy efficiency conditions of the building permit. While a less common construction, *brick cavity* may have cavity insulation installed.

Internal wall - refers to the internal walls of the home, that is the walls that sit within the building envelope and define the internal layout of rooms and spaces (e.g. the walls that are not external to the house). Solid brick walls in older homes will not be insulated, brick cavity construction might be depending on the age of the building. Most new homes will require internal timber stud walls to have insulation installed. This cost effective solution not only mitigates unwanted heat transfer but improves noise separation between rooms in the home.

Ceiling insulation refers to the ceiling (as opposed to the roof) - this is probably the easiest insulation to physically inspect after it has been installed, but *only* if you are able to climb a ladder and look through the access hole into the roof space. The insulation is usually **bulk insulation** and should be well laid with minimal gaps and compression. Look out for where batts may have been moved by trades people and not returned to place correctly. Please note that with some types of downlights there needs to be a minimum ceiling penetration (clearance) around the lighting unit - this is done to minimise fire risk. If the insulation looks scrappy, rodent effected, and is in poor physical condition, then it is probably a good opportunity to upgrade the insulation.

Underfloor insulation - refers to insulating the slab from the cold ground. While not as common in Adelaide (as our winters are not that severe) it will often be installed if there is a hydronic heating system (to minimise heat loss from the heated slab to the ground) and in the Adelaide Hills where the winters are colder.

A common way to achieve slab insulation is through the use of a **Waffle Pod** slab construction. A Waffle Pod involves using EPS in the slab, not only to reduce the amount of concrete, but to provide insulation to the slab.

Roof colour - what shade is your roof? Did you know that a lighter coloured roof reflects heat energy in summer helping to maintain your home at a comfortable temperature and reducing the reliance on air-conditioning. Darker colour rooves, while quite fashionable, absorb heat energy increasing the local heat island effect and increasing power bills.

Airflow:

This is for determining the ventilation levels of the house to be able to reduce the need for the use of mechanical heating and cooling systems.

Roof ventilation:

Is defined as a combination of whirly birds and eave and or gable vents to allow hot air to escape from a roof space. Primarily for a pitched roof construction. In summer this can help to cool a house by enabling more hot air to escape the building through the roof space.

Ceiling fans:

Selecting this indicates the house has ceiling fans installed – locations living areas and/or bedrooms.

Use of these means the occupant can use these to help cool or heat the house by circulating air. Ceiling fans can be used in combination with opening windows and doors to cool a house down before the Heating and Cooling system is engaged. In a cold house ceiling fans can also be used to push hot air down to occupant level from ceiling vents and help circulate the warm air around the property.

Windows:

Measured from the outside edge of the frame to outside edge of the frame.

Aluminium, Single Glazed

Probably the most common form of glazing currently installed in Australia - because it is economical to produce and provides for a very low maintenance frame. Single glazed windows have a single pane of glass separating the internal and external environment. Single glazing generally performs poorly when it comes to thermal and acoustic insulation. In addition, frames made of aluminium are an *excellent* conductor of heat - meaning that the heat *outside or inside* of the building has a point of conductance through the building envelop - this means that the heat inside during winter will escape and the heat on a hot day in summer will be drawn into the building.

Timber, Single Glazed

Common window type in older homes and some new homes. Similar glass performance can be expected as that of aluminium framed, with the big difference being that the timber frame is a *poor* conductor of heat - meaning the window system will perform much better overall as the timber frame is not a source of heat loss or gain. Timber frames need to be adequately maintained over time to ensure longevity.

uPVC, Single Glazed

uPVC is a lightweight, rigid, UV and fire resistant, plastic window frame material. uPVC provides excellent thermal performance. Single glazing is not at all common with uPVC - most glazing units would be double glazed.

Aluminium, Double Glazed

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Expect similar performance of the frames per the above for single glazed, with much better performance of the glass. Double glazing having two panes of glass to provide thermal and acoustic separation. Many double glazed uPVC frames (and some timber manufactures) use excellent latching and locking systems that provide a very well-sealed window unit further mitigating unwanted airflow (and hence energy loss) across the window unit.

Aluminium, Thermally Broken, Double Glazed

Thermally broken aluminium windows separate the internal and external parts of the frame by "breaking" them with a non-conductive material mitigating the transfer of heat through the frame material. If you are planning on having aluminium double glazing installed, then ensure it is thermally broken to mitigate heat transfer and keep your home more comfortable year-round.

Timber, Triple Glazed

UPVC, Triple Glazed

Aluminium, Thermally Broken, Triple Glazed

Triple glazed windows are not very common in Australia primarily due to cost and volume. They are usually seen in parts of the world (e.g. Europe) where very cold winters are experienced.

How do I set an accurate window value if I have a mix of windows installed?

Currently My Cool Home does not allow for different types of windows to be calculated across a single home. To give the *closest* approximation, use the window type that is the main living area of the home for the whole of house. For example: if you live in an older house with timber frames but have an extension on the house that has an open plan living / kitchen with aluminium windows, then enter that the whole house has aluminium windows.

How to measure the size of my house?

The easiest way estimate the floor area of the house is to measure the length of the house multiplied by the width of the house. If you have two stories, do the same for both stories and add together. Alternatively, you can use Google Earth <https://earth.google.com/> - click on the measure icon in the top left-hand corner of the display. You can then trace out the perimeter of the home. See <https://support.google.com/earth/answer/9010337?hl=en&co=GENIE.Platform%3DDesktop> for more info on using Google Earth measure tool.