

## AAA - Thermal Comfort Assessment Guide

### What is a thermal comfort assessment?

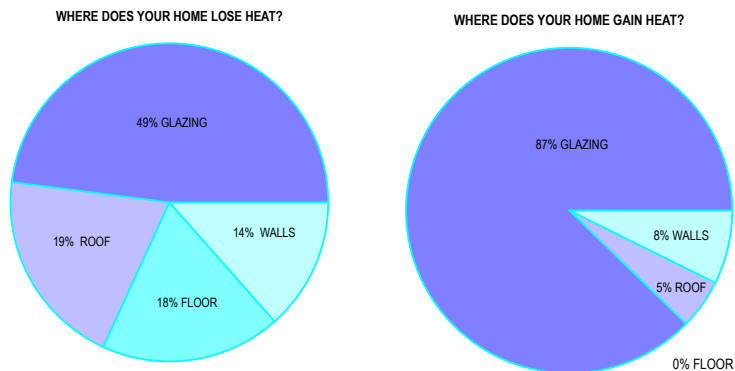
A thermal comfort assessment is an analysis of your home and surrounding environment to establish how much artificial heating and cooling may be required to keep your home comfortable both in summer and winter months.

The analysis considers the following elements of your home:

- climate
- orientation
- cross ventilation
- construction materials
- insulation in roof, walls & floor
- window sizes & locations
- size of the home
- heat generated from cooking
- increased heating requirements during winter months

### What can affect the thermal comfort of your home?

The charts below show the elements that typically effect a home's environment and contribute to how much heating or cooling is required to maintain comfortable living spaces.



Smart design and material choice can dramatically reduce the impact these elements have on the comfort of your home.

### When do I need a thermal comfort assessment?

A thermal comfort assessment is required for most Council Development Applications for both new dwellings and renovations above \$50,000. In NSW the information produced from the assessment is entered into the BASIX calculation sheet to complete the Thermal Comfort Section and is accompanied by an ABSA certificate.

### Who can perform a thermal comfort assessment on my home?

In NSW, an energy assessor must be fully trained and licensed to perform an officially recognised thermal comfort assessment. The assessors take part in extensive training, examination and regular auditing to ensure your home meets all BCA (Building Code of Australia) requirements for energy. Assessors are to hold an ABSA Accreditation and must be backed by Professional Indemnity Insurance and Quality Assurance.

ABSA (Association of Building Sustainability Assessors) is a not-for-profit association which represents design and building professionals specializing in assessing the environmental impact of buildings in Australia and NZ. An ABSA Accreditation is the only nationally recognised standard for assessor training that meets the BCA. Visit [www.absa.net.au](http://www.absa.net.au) to locate your local thermal comfort assessor.

### How is the assessment calculated?

There are many different sophisticated thermal simulation software programs used to calculate a home's thermal comfort rating, the commonly used rating software are known as BERS Pro, AccuRate and FirstRate. All these calculating engines are nationally accepted and are tested for accuracy within 5%.

The difference between these thermal simulation tools is the style in which the data is entered.

These second generation calculating engines replaced NSW's original thermal assessment software called NatHERS as from April 2009.

### How is each room assessed?

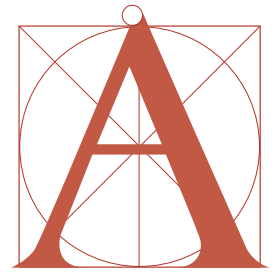
Areas and rooms of the home are put into 'zones' to more accurately model comfortable temperatures for night and day time.

In Sydney:

- 'Sleeping Zones' such as bedrooms are modeled to perform well during typical sleeping hours of 4pm - 9am with temperatures ranging from 18 - 24 degrees.
- 'Living Zones' such as kitchens and living rooms are modeled to perform well during typical day time hours of 7am - 12 pm with temperatures ranging between 20 - 24 degrees.

Particular areas of a home are also described as 'conditioned' or 'unconditioned':

- 'Unconditioned' spaces are left out of the calculations as they are often spaces which are not occupied for a long length of time and can include entry spaces, hallways and lobby areas.
- 'Conditioned' spaces are the areas of the home which are frequently inhabited for long lengths of time & are included in the energy assessment.



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## What do the star ratings mean?

The data produced by the software gives an indication of how much heating & cooling will be required to maintain a comfortable environment, and the figures are categorized as a 0 - 10 star rating.



0-3 stars indicates poor thermal performance with almost no elements present to naturally reduce the discomfort of hot or cold weather.

A 5 star rated home indicates adequate thermal performance where a 10 star home would require almost no artificial heating or cooling to maintain comfortable living spaces.

A single residential dwelling located on well sited block, and which incorporates good design can reach up to 8 - 8.5 stars. A multi-unit block is more likely to achieve 9 - 10 stars due to reduced windows, surface area, and smaller spaces to heat or cool.

Please note that 'comfortable environments' vary according to individual preferences & adaptations. For example, a person in Tasmania can be comfortable at much lower temperatures than a person from Queensland.

All new homes nationally will soon have to achieve a minimum 6 star rating to obtain development approval. NSW will still be governed by BASIX caps approximately equivalent to 6 stars. This is to come into effect in early to mid 2011.

## Does a thermally comfortable home cost more to build?

A thermally comfortable home doesn't necessarily have to cost more to build. By incorporating straightforward and sensible design principles and utilizing the natural conditions of your site can make a significant impact on the thermal comfort of your home.

Increased costs may be seen in design investment and construction material choices but there can also be significant savings in heating and cooling infrastructure costs for example air-conditioning and underfloor heating.

Approaching a professional early on and investing in a good design is encouraged.

## For the right advice on how to achieve a thermally comfortable home

Contact us for obligation free advice.

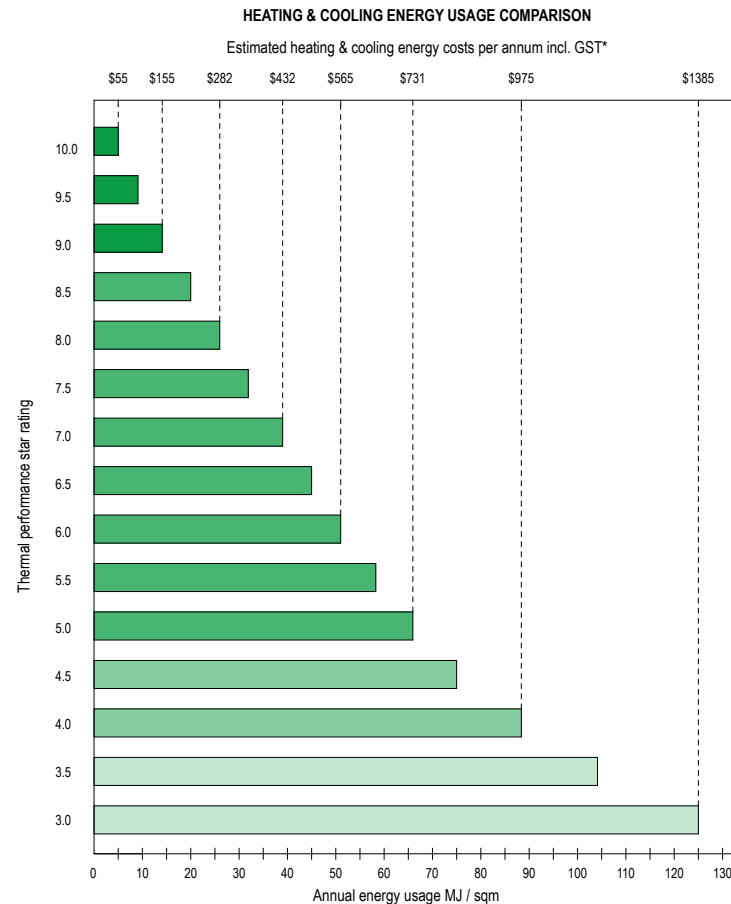
Call Us: 02 9938 5180 Email Us: [info@aaarchitect.com.au](mailto:info@aaarchitect.com.au)

## What are the benefits of a thermally comfortable home?

A thermally comfortable home can:

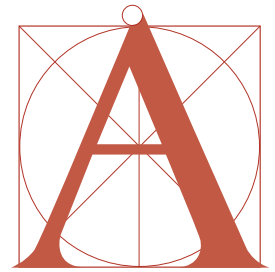
- reduce the need for artificial heating and cooling during summer and winter months
- create a more comfortable and healthy internal living environment
- increase a home's resale value and can give you a marketing edge
- give you long term cost saving benefits in ongoing utility bills
- reduce greenhouse gas emissions from using coal or gas to generate energy

Below is a table outlining the likely annual energy costs for air-conditioning in comparison to a home's star rating and the amount of energy required for heating & cooling. The heating & cooling costs have been calculated using current NSW electricity tariffs provided by Energy Australia of 25.41c per KW/h including GST.



\* Estimated energy costs have been calculated using typical NSW residential electricity tariffs provided by EnergyAustralia & a typical sized, single Sydney home with a standard set of occupant behaviors & an air-conditioning system with average efficiency

\* Thermal performance & supporting data has been provided by Efficient Living Pty Ltd - Building Sustainability Consultants [www.efficientliving.com.au](http://www.efficientliving.com.au)



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