What is NatHERS?

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Have you ever wondered why some houses are warm in winter when the heater isn't on? Or how the same house stays cool in summer, without the need for an air-conditioner? The design of your home, from the building materials and layout, to the positioning of windows and shading, affect how well the home responds to the climate where it is located, how comfortable the home is to live in, and the amount of money you spend on heating and cooling.

All new Australian homes, or those undergoing major renovations, must meet minimum state and territory energy efficiency requirements based on the National Construction Code. The most common way to meet these requirements is by getting a home energy rating done using the Nationwide House Energy Rating Scheme (NatHERS). NatHERS software tools provide homes with a star rating out of ten based on how energy efficient they are—the more stars, the more energy efficient and the more money you save on energy bills.

Using software based on scientific research by the CSIRO, NatHERS estimates how much energy your home will need for heating and cooling by looking at: the layout of the home; the construction of its roof, walls, windows and floor; the orientation of windows and shading to the sun's path and local breezes; and how well these suit the local climate.

A zero star rating means the building shell does practically nothing to reduce the discomfort of hot or cold weather. A six star rating indicates good, but not outstanding, thermal performance, and a 10 star rated home is unlikely to need much, or any, mechanical cooling or heating (from appliances).

Different star ratings: The NatHERS star rating system refers to your home's construction and design features, and is different to the star rating of appliances. Your fridge, dishwasher, air-conditioner and other household appliances are rated under the Greenhouse and Energy Minimum Standards (GEMS), and are not measured as part of the NatHERS star rating.

How to improve the energy efficiency of your home

A well-designed home should be comfortable all year round and reduce your reliance on mechanical heating and cooling. Passive design, which works with the local climate rather than against it, is one of the most effective and cheapest ways to achieve this.

Passive solar heating takes advantage of the sunlight during the day to warm your home in winter. North-facing windows allow the heat from the sun into the home, while materials with a high thermal mass absorb the heat and release it within your home at night. Good insulation and draught sealing will then prevent warm air from escaping.

During the summer months, passive solar cooling will help save on energy costs. Effective shading— such as eaves, pergolas, external blinds or vegetation—can block up to 90 per cent of heat from direct sunlight entering the home. Locating windows on opposite sides of the home and on the sides that capture the common direction of breezes, helps with cross ventilation and cooling the home without the need for air-conditioners. While insulation and appropriate thermal mass for your climate are also essential for keeping your home cool.

Did you know, if your roof or ceiling isn't insulated you could lose up to 45 per cent of your heating and cooling energy via your roof, while good insulation can save up to 40 per cent in heating and cooling bills.

Even the type of windows you have affect the energy efficiency of your home. They can be a major source of unwanted heat gain (up to 87 per cent) or heat loss (up to 40 per cent).

When choosing windows, you should consider your climate (temperature, humidity, amount of sunshine), building layout and the orientation, size and shading of the windows, and the different types of glass and frames. For example, people living in hot climates may choose tinted glass or low-solar-transmittance/gain (low-e) glass to reduce solar heat gain and locate windows to the south to avoid the sun entering the home, while people in cool climates may choose windows with double or triple glazing, or high-solar-transmittance/gain (also called low-e) glass and face windows north, to allow more heat in.

Even if you aren't building or renovating, there are things you can do to improve the energy efficiency of your home:

- Lights accounts for around 10 per cent of household electricity bills – replace inefficient halogen lighting with LEDs or compact fluorescent lights (CFLs)
- Replace old showerheads and taps with water efficient options
- Buy energy efficient appliances with the highest GEMS star rating you can afford
- Seal gaps around doors, windows and light fittings – draught proofing strips are available at your local hardware store
- In cooler climates, remove or prune plants blocking north-facing windows from sunlight
- Reduce lawn areas – plant trees and native vegetation to absorb heat, direct breezes into the home and restore biodiversity
- Consider installing ceiling fans for better airflow
- Consider installing a rainwater tank and rooftop solar

Remember, small changes can have a big impact on your bills and help reduce greenhouse gas emissions for a better future.

For more information about passive design and energy saving tips, visit **yourhome.gov.au** and **energyrating.gov.au**.

To find a NatHERS accredited assessor contact an **Assessor Accrediting Organisation**, visit **absa.net.au** or **bdav.org.au**.