



BUILTECH

SUSTENA'S BI-MONTHLY NEWSLETTER

This month,
we're looking at

ENERGY EFFICIENCY RATINGS

The rating systems are used to assess energy efficiency and other aspects of sustainability for existing buildings or new building designs. Some rating systems assess building components.

Using a rating system can help to ensure that the home an individual is buying, renovate, or build is comfortable and energy efficient. A Nationwide House Energy Rating Scheme rating is the most common way for new homes to meet the minimum energy efficiency requirements of the National Construction Code (NCC). Some of the rating tools are free and relatively easy to use, while others require specialised software and are designed for use by professionals or an accredited energy assessor.

Nationwide House Energy Rating Scheme (NatHERS)

Nationwide House Energy Rating Scheme assessments provide a star rating out of 10 that indicates the thermal performance of free-standing homes, townhouses, and apartments. The more stars, the better the potential thermal performance.

NatHERS ratings are the most common way for new homes, townhouses, and apartments to meet the minimum energy efficiency requirements of the NCC. They may also be used to identify how to maximise the thermal performance of a house design. CSIRO has developed a dashboard to show average NatHERS star ratings across the states and territories.

Four software tools are accredited to conduct NatHERS ratings: AccuRate, BERS Pro, FirstRate5, and HERO. The tools are based on a calculation engine developed by the CSIRO that can predict the temperature inside a building on an hour-by-hour basis for a whole year, based on its size, building materials, insulation levels, type and placement of windows, orientation, and climate zone.

National Australian Built Environment Rating System (NABERS)

The National Australian Built Environment Rating System (NABERS) Home Rating Calculator is an easy-to-use tool for comparing the energy and water use of an existing home to that of an average household. NABERS for Apartment Buildings rates the common areas of apartment buildings (lifts and lobbies, pools, gyms and car parks) but not the apartments themselves. NABERS for Apartment Buildings gives a star rating out of 6, and is designed to encourage building owners or owners corporations to make building improvements to increase their rating.

A NABERS home rating analyses 12 months of actual energy or water use billing information, and supplies a rating out of 6 stars, with 3 stars representing an average household. This can provide beneficial information when thinking about a renovation or building upgrade. The NABERS Calculator complements, rather than replaces, other rating systems that focus on the design stage, such as NatHERS. It cannot be used to meet the regulatory energy efficiency requirements in the NCC.

Building Sustainability Index (BASIX)

The New South Wales Government's Building Sustainability Index (BASIX) establishes minimum standards for all new freestanding houses, multi-dwellings and alterations and additions to existing dwellings in the state. BASIX is applied through a New South Wales planning regulation that sets percentage reduction targets for greenhouse gas emissions and water use for dwellings of a similar type in the same geographical location. BASIX also sets a minimum level for building envelope thermal performance and covers a wide range of household energy uses by fixed equipment such as heating and cooling appliances, lighting, and hot water.

BASIX is a web-based tool that is available for use by anyone, although users must register and log in. The data that needs to be entered into the program include the location, size, building materials, appliance and equipment selection, and design of the building. BASIX analyses these data and determines how the data score against prescribed energy and water targets. The home design must pass specific targets – which vary according to location and building type – before a BASIX certificate can be generated. The BASIX certificate is lodged with your development application to your local council for approval, and is later lodged with your construction certificate and occupation certificate.

In New South Wales, the online BASIX system replaces the NCC energy efficiency requirements. BASIX accepts NatHERS software results as one way of meeting its separate targets for the heating and cooling performance of the building.



Victorian Residential Efficiency Scorecard

The Victorian Government developed the Victorian Residential Efficiency Scorecard which is a voluntary home-efficiency rating tool for existing homes. It is currently only available in Victoria. To get a Scorecard rating, an assessment is carried out on-site by an accredited assessor. The assessor evaluates the physical attributes and systems in the home, including heating and cooling devices, pool and pumps, hot water systems, solar photovoltaic systems and the construction of the house.

The focus of the Scorecard is the cost of energy consumption, although it also has a 'hot weather rating' and a 'cold weather rating' to assess how comfortable the house is in extreme weather - without artificial cooling being used.

The Scorecard is paid for by the homeowner and usually takes around 2 hours. The Scorecard star ratings reflects the cost of running the fixed appliances in the home on a 1 to 10 star scale. The scale is designed so that the average home rates at 3 out of 10 stars. Using this as a baseline indicator, a 6-star home will be more comfortable and have the potential for lower energy bills than most homes. An 8-star home is highly efficient and delivers real benefits in comfort and cost to householders. A 10-star home is as good as it gets – this is achieved when the energy used by fixed appliances is more than covered by the energy produced at the home by solar PV.

Passive House (Passivhaus)

Passive House or Passivhaus as it is known in German, is a design standard that requires appropriately insulated, airtight buildings with mechanical heat recovery ventilation. The definition of a Passive House is 'a building, for which thermal comfort (ISO 7730) can be achieved solely by post-heating or post-cooling of the fresh air mass, which is required to achieve sufficient indoor air quality conditions – without the need for additional recirculation of air'.

The Passive House Institute (PHI) administers an international certification scheme, carried out by a PHI-approved Passive House Certifier.

Green Star

Green Star was launched by the Green Building Council of Australia (GBCA) in 2003 and is a voluntary environmental rating system for buildings and communities. Green Star evaluates the environmental design and construction of new and refurbished buildings and the sustainable planning, design and construction of new communities.

The Green Star tool evaluates environmental issues – such as minimising energy and water consumption, reducing greenhouse gas emissions, managing waste and reducing dependence on motor vehicles – as well as broader holistic sustainability issues such as economic prosperity and affordability, liveability, design, governance, and innovation.

Green Star certifies ratings as 4 star (best practice), 5 star (Australian excellence) and 6 star (world leader). Projects under 4 stars do not qualify for a certified Green Star rating.

Green Star provides best-practice benchmarks that building owners and managers can use to set targets to increase energy and water efficiency, reduce waste, and improve factors that influence productivity, health, and learning, such as indoor environment quality.

WELL Building standard

The WELL Building standard was developed by the International WELL Building Institute in the United States. It focuses on the health and wellbeing aspects of buildings and is mainly used as a rating tool on commercial buildings. The design criteria are broad, from indoor air quality and thermal comfort to credit for encouraging healthy eating in the workplace.



SUSTENA

SUSTENA Pty Ltd

www.SUSTENA.com.au

1300 883 685

info@sustena.com.au



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Read more:

<https://www.sustena.com.au/post/whats-the-big-deal-about-air-to-water-heat-pumps>

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