NCC 2022 residential energy efficiency

Overview of provisions

Policy direction

In mid-2019, Building Ministers directed the Australian Building Codes Board (ABCB) to develop enhanced residential energy efficiency provisions. The provisions were to be informed by Energy Ministers' '*Trajectory for Low Energy Buildings*' policy.

Societal cost of energy

Energy used by a building × Costs to society for that energy = Total cost of greenhouse gas emissions and time-of-use impact on energy network

What's changed?

The minimum level of thermal performance has increased to the equivalent of 7 stars under the Nationwide House Energy Rating Scheme (NatHERS).

A new annual energy use budget has been introduced for the first time, which is based on the societal cost of energy.

The annual energy use budget applies to the heating and cooling equipment, hot water systems, artificial lighting, swimming pool and spa pumps and onsite renewable energy systems (such as rooftop photovoltaics - PV).

NCC changes apply to

- Houses
- Apartments

* *Estimated around 1.8 million new houses (75%) and apartments (25%) over the life of the regulation*

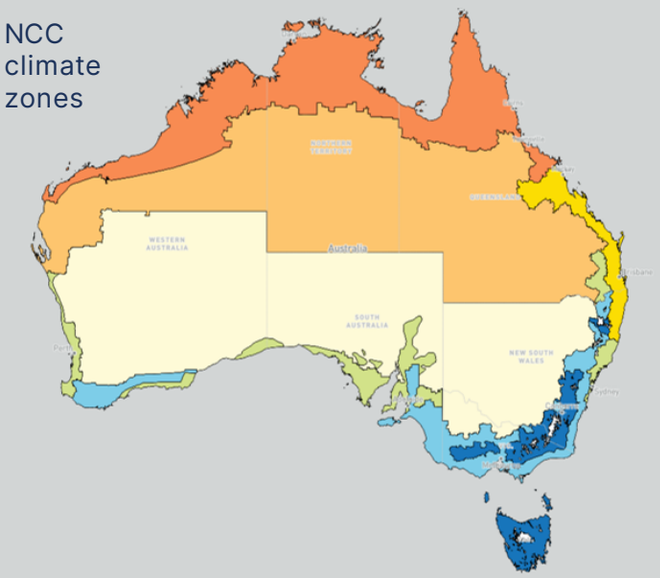
Benefits of new provisions

- Less energy use
- Lower greenhouse emissions
- Lower energy bills
- More comfortable homes
- Fuel and technology neutral
- Lower peak load on energy network

National approach

- The mix of solutions to improve energy efficiency will be different in each climate, and will vary for different homes within the same climate.
- The energy efficiency provisions in the NCC account for varying climates using climate zones, based on data from the Bureau of Meteorology.
- The zones account for seasonal temperature and humidity changes.
- The approach means the practical solutions available for each home are sensitive to, and sensible for each location.

NCC climate zones



NatHERS

- Software accredited under NatHERS rates the thermal performance of homes on a scale of 0 to 10 stars. There are currently 4 accredited NatHERS software.
- To support NCC 2022, NatHERS has been expanded to provide both the thermal performance rating and the annual energy use of homes.

NATIONWIDE HOUSE ENERGY RATING SCHEME ®

Compliance options

* PERFORMANCE REQUIREMENTS

1. THERMAL PERFORMANCE
2. ANNUAL ENERGY USE BUDGET

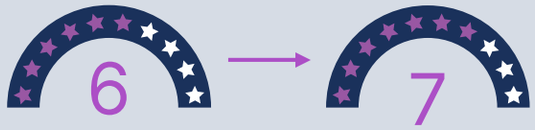
* OPTIONS FOR DEMONSTRATING COMPLIANCE WITH THE PERFORMANCE REQUIREMENTS

- NatHERS accredited software
- Deemed-to-Satisfy (DTS) elemental provisions
- Verification Methods
- Performance Solutions

1. THERMAL PERFORMANCE

The increase to the equivalent of NatHERS 7 stars is going to deliver a significant improvement in thermal comfort for occupants. Here are some of the improvements we are likely to see:

- More options for roof, wall and floor insulation
- Reduced heat loss and gain through roofs, walls and floors due to thermal bridging
- Lighter colour roofs and external walls in warmer climates to reduce heat gain
- New ceiling fan requirements for warmer climates (efficient and effective cooling)
- Window requirements more appropriate for climate
- Lower heating and cooling demand.



Current provisions equivalent to NatHERS 6 star rating

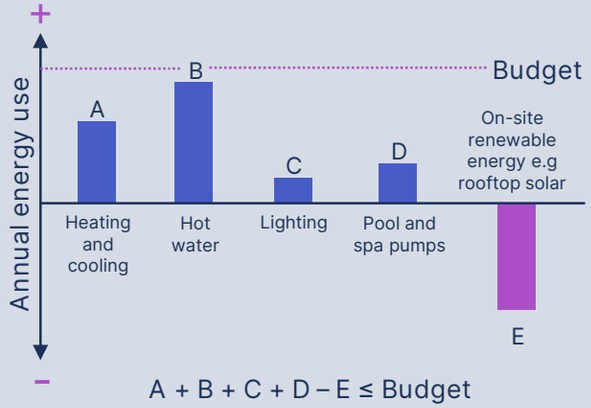
New provisions equivalent to NatHERS 7 star rating

2. ANNUAL ENERGY USE BUDGET

The new annual energy use budget provides a flexible approach to encouraging the selection of more efficient equipment, the major contributor to household energy use.

Here are some improvements we are likely to see:

- More energy efficient air conditioners for heating and cooling
- More energy efficient instantaneous gas and electric heat pump water heaters
- More on-site renewable energy systems (particularly rooftop solar).



* *The annual energy use budget for apartments is around 40 per cent higher (or more lenient) than the budget for houses. This is to account for the practical challenges of installing rooftop PV on apartments.*

Energy use in Australia

Residential buildings are responsible for:

- 7.9% energy use (all fuels)
- 29% electricity use
- 11% greenhouse gas emissions

Nationwide commitment

- Agreed by Building Ministers in August 2022
- Supports the Australian Government's commitment to reduce greenhouse gas emissions by 43% by 2030 and achieve net zero emissions by 2050.
- Aligns with other key policy areas such as transport, environment, energy and cost of living
- Part of a series of improvements for commercial and residential buildings.

Net benefits for new households

- Average energy bill savings ~$185pa for houses
- Average benefit-cost ratios (at the household level):
  - 1.4 for new houses
  - 1.3 for new apartments
- Energy efficiency is nationally consistent but fit for the local climate
- Different solutions in different climates: maximise benefits, minimise costs and reduce consequential risks
- Reduced risk of condensation
  - No increase in building sealing
  - Climate-specific insulation & ventilation.

Support for industry transition

- Proposes an extended transition period to allow practitioners and supply chains to prepare for the changes
- Updated NatHERS software
- Practitioner information sessions
- Teaching tools for educators
- Practical case studies across different climate zones
- Digitally-focused calculators and resources.

Some practical improvements from the new provisions

- More comfortable homes
- Better insulation
- Lighter colour roofs (warmer climates)
- Better air movement (warmer climates)
- More energy efficient appliances
- More rooftop solar