

6-star energy equivalence rating for houses and townhouses

What is a house's energy star rating?

A house's energy equivalence (star rating) applies to the design of the 'building shell'— roof, walls, windows and floor. The rating is out of 10 stars. It does not cover fixed appliances like air conditioners, hot water systems, lighting and fridge.

The minimum energy equivalence required for new houses and townhouses in Queensland is 6 stars.

What type of houses does the 6-star standard apply to?

The 6-star standard applies to all new houses and townhouses (class 1 buildings) and the enclosed garage (class 10a buildings) attached to the class 1 building. This building standard has been required since 1 May 2010 under the *Queensland Development Code—4.1 Sustainable buildings* (QDC 4.1).

The 6-star standard does not apply to multi-unit residential buildings (class 2). Instead, sole-occupancy units within these buildings must collectively achieve an average of 5-stars for the whole building, with no individual unit to be less than 4-stars.

What are the benefits of a 6-star house?

A 6-star home is not only more comfortable to live in, it can provide homeowners with ongoing savings on electricity bills because it uses less energy for artificial cooling and heating.

This building standard can also reduce the need for additional electricity infrastructure caused by peak demand as it encourages more energy efficient houses.

What design options can be used for a 6-star house?

Building designers and architects are able to use a range of styles and energy efficient features to comply with the 6-star house standard. A 6-star home may not look any different from an average home, but it can have a better energy performance.

Many energy efficient (or 'passive design') features can be included at little or no extra cost, such as:

- northern orientation of living areas and good room configuration to account for solar access and natural ventilation
- minimising the area of east and west facing walls and windows
- well-located and designed windows to capture breezes
- shading of walls and windows with roof eaves, awnings and external blinds
- treated glazing, like low-e glass or tinted, particularly for western facing windows
- insulation in the roof space (e.g. reflective foil under roofing and batts above the ceiling) and to external walls (e.g. foil and batts)
- ventilating the roof space via roof and eave vents
- lighter coloured roof and external walls to reflect heat
- ceiling fans in living areas and bedrooms to promote air movement, and
- well-designed outdoor living area e.g. a deck or verandah with good orientation.

It is recommended that homeowners discuss how the 6-star standard would apply to their proposed design and what features are to be included with their building designer or architect, house energy assessor and building certifier early in the design stage.

What compliance methods can be used?

QDC 4.1 provides flexibility for designs to achieve compliance with the 6-star standard. The design will be assessed by the building certifier. The most commonly used assessment methods for compliance are:

- **software** – a house energy assessor uses approved software (BERS Pro, AccuRate Sustainability or FirstRate5) to model the design for its energy efficiency and produce a star rating certificate. Software allows for greater flexibility than the more prescriptive elemental (DTS) method as trade-offs can be made between different design features, or
- **elemental** (formerly known as deemed-to-satisfy (DTS)) – a building designer or architect follows the more prescriptive design requirements set out in the Building Code of Australia (BCA), Volume Two (section 3.12- Energy efficiency), noting Queensland-specific variations.

Peer review (expert panel) and verification (to a reference building) are also available as assessment methods under QDC 4.1, but are less commonly used.

For compliance, the dwelling must be assessed on its merit with consideration given to its location, orientation, design specifications and construction materials, even if it is a standard design, such as a project home.

How do optional credits work with 6-star housing?

Under QDC 4.1, optional credits can be used towards achieving the 6-star housing standard. The following credits may be used in all Queensland's climate zones under the BCA:

- **outdoor living area** – a credit of ½ star without a ceiling fan or 1 star with a ceiling fan is available with designs that include a covered outdoor living area, such as a deck or verandah.
- **photovoltaic (solar) energy systems** – a credit of 1 star is available with designs that include a solar (PV) system that has a minimum of 1 kilowatt capacity.

When using the optional credits, the design must achieve a minimum 'baseline' star rating of either 4.5 stars in climate zones 1 (tropical), 2 (subtropical) or 5 (warm temperate) or 5 stars in climate zone 3 (hot arid) under the BCA.

Marketing houses greater than 6-stars with optional credits

Optional credits are provided for regulatory purposes only to assist in complying with Queensland's 6-star housing standard. A house therefore cannot be marketed as achieving greater than the 6-star standard where the additional stars are reliant on the inclusion of the optional credit(s). If an outdoor living area and/or photovoltaic (solar) energy system are included as part of the dwelling's design they can be promoted separately as energy efficient and/or lifestyle features.

Is there a concession for suspended flooring?

QDC 4.1 provides a concession towards the insulation requirement for suspended flooring in climate zones 1 and 2. The insulation requirements for suspended floors do not apply if the elemental (DTS) provisions of the BCA are used to comply with the 6-star housing standard.

What is the impact of the 6-star standard on building costs?

In 2009 it was anticipated that the move to 6-star housing would generally increase building costs by around 1.25 per cent on average depending on the home's design, size and location (NB. this did not include an outdoor living area and/or photovoltaic (solar) energy system).

However, this cost can be offset by ongoing savings on household energy bills as a 6-star house can reduce the need to operate artificial cooling and heating

For more information

For more information about 6-star housing refer to the department's website at www.hpw.qld.gov.au.

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