

# 5-star energy equivalence rating for residential units

## What is the energy star rating for residential units?

A residential unit's energy equivalence (star rating) is significantly influenced by the design of its 'building shell'—roof, walls, windows and floor. The rating is out of 10 stars. It does not include fixed appliances like air conditioners, hot water systems, lighting and fridge.

## How does the 5-star rating apply to residential units?

The 5-star standard applies to all new units in a multi-unit residential building (class 2). This building standard has been required since 1 March 2010 under the *Queensland Development Code—4.1 Sustainable buildings* (QDC 4.1).

Units within a multi-unit residential building must collectively achieve an average of 5-stars for the whole building, with no individual unit to be less than 4-stars. This difference accounts for the various locations of individual units in the building. For example, units with a southern orientation have less potential for solar access and units in the middle of the building have more shading than those on the outside.

## What design options can be used for a 5-star unit?

Architects and building designers are able to use a range of styles and energy efficient features to comply with the 5-star unit standard. A 5-star unit may not look any different from an average unit, but it can have a better energy performance.

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

- 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)
- 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.

## What are the benefits of a 5-star unit?

A 5-star unit is not only more comfortable to live in, it can provide unit owners 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 building design.

## How is a unit building assessed for compliance?

Individual units in the building are assessed by a house energy assessor. They use approved software (BERS Pro, AccuRate Sustainability or FirstRate5) to model the design for its energy efficiency and produce a star rating certificate. Software also allows for more flexible design options as trade-offs can be made between different design features.

Each unit must be assessed on its merit with consideration given to its location, orientation, elevation, design specifications and construction materials, even if it is a standard design to be replicated throughout the unit building.

The collective star rating of all units is then averaged to determine if the building complies with the 5-star standard.

## Energy efficiency for common areas and shared services

Where there are common areas and shared services in the residential unit building, these will also need to comply with energy efficient design requirements set out in the Building Code of Australia (BCA), Volume One (Section J). This includes central plant facilities for services like air-conditioning, and artificial lighting in common areas.

## Does the 5-star standard include optional credits for outdoor living areas?

QDC 4.1 provides optional credits that can be used towards achieving the 5-star building standard in climate zones 1 (tropical) and 2 (subtropical) under the BCA.

For each unit in the building that includes an outdoor living area, such as a balcony or patio, a credit of ½ star without a ceiling fan or 1 star with a ceiling fan is available. These credits can only be used when calculating the average star rating of all units for the whole building.

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## How does this standard affect units to be renovated?

The 5-star standard may apply when undertaking a renovation to an existing unit, such as an alteration or addition. It can apply to the new building work associated with the renovation.

Further, if the renovation represents more than 50 per cent of the existing unit's floor area, then the building certifier has discretion to determine whether and to what extent the 5-star standard should also apply to the existing part of the unit (along with area covered by the renovation).

Unit owners undertaking renovations should discuss how they can comply with their building certifier early in the design stage so they know what work needs to be done in complying with the 5-star standard for residential unit buildings.

## For more information

For more information about 5-star residential unit buildings refer to the department's website at [www.hpw.qld.gov.au](http://www.hpw.qld.gov.au).