

# Minimum energy rating for air conditioners.

## New sustainable housing laws.



### The facts

## For the greener good.

Approved measures to improve water and energy efficiency of new and existing homes and units in Queensland are being implemented over a 12-month period from 1 March 2009.

### What are the new requirements for air conditioners?

From 1 September 2009 air conditioners which do not have a minimum tested average Energy Efficiency Ratio (EER) of 2.9 or higher for cooling cannot be installed in class 1 and 2 buildings.

### Installation ban

Following industry consultation, an additional two months lead-in time for the commencement of the installation ban has been provided to allow manufacturers, installers and retailers further opportunity to sell or redistribute stock that does not meet the tested average 2.9 EER standard.

When an air conditioner is installed in a new or existing house or unit, the air conditioner must have a tested average EER of 2.9 or higher for cooling. For models that have a star rating label, this generally equates to a minimum of 4 stars (out of 6 stars), as rated under current Australian Standards (AS/NZS 3823.2:2005).

The requirement applies to both single-phase (i.e. the 230 volt system most commonly used in homes to operate appliances and small motors) air conditioners and three-phase (i.e. the 400 volt system typically used to efficiently run larger electric motors and appliances) air conditioners up to a cooling capacity of 65 kW.

The tested average EER of 2.9 is a minimum requirement. The higher the EER, the greater ability the system has to be more energy efficient and the more money you can save on ongoing running costs.

### Sales ban

The Queensland Government is also working towards banning the sale of air conditioners in Queensland that

have a tested average EER of less than 2.9 for cooling.

It is proposed that from 1 September 2009, air conditioners (new or second hand)—irrespective of the building they are to be installed in—which do not meet a minimum tested average EER of 2.9, will not be able to be sold within Queensland.

Implementing a sales ban will mean that air conditioners installed in all buildings will meet the new higher EER level. Investigations will be undertaken on expanding the application of the installation ban to include other classes of buildings, such as commercial buildings, so that the sales and installation bans are complementary.

The sale ban will also be applicable to single-phase and three-phase air conditioners up to a cooling capacity of 65 kW.

### Why is a minimum energy requirement for air conditioners being introduced?

Queenslanders are increasingly installing air conditioners into their homes, with around 70 per cent of households now having at least one air conditioner. Air conditioning is contributing to increased average household energy consumption and greenhouse gas emissions, particularly when less energy efficient models are installed and used.

The increasing use of air conditioners also places additional demands on community-owned electricity infrastructure which contributes to peak demand. Extreme peak demand occurs on very hot days when most households are running air conditioning at the same time. Having to build electrical infrastructure to accommodate peak

demand levels for only 1–2 per cent of each year is a major factor driving up Queenslanders' electricity bills.

### How will this benefit me?

In a typical Queensland household, electricity consumption from air conditioning is 27 per cent of total usage, making it one of the highest single energy users in the home.

Consequently, the more energy efficient your air conditioner, the more money you can save on its running costs, as well as minimising your household's carbon footprint.

### How will this benefit Queensland?

The average Queensland household produces 8.2 tonnes of greenhouse gas emissions each year from electricity use alone, which is almost equivalent to running two cars. As part of the Queensland Government's Towards Q2 initiative, Queensland has committed to reducing its greenhouse gas emissions by a third by 2020.

As the prevalence and use of air conditioners increases in households, implementing a minimum energy rating is considered to be an effective way of reducing household energy consumption and greenhouse gas emissions.

### Will this requirement apply to all air conditioners, including window/wall box units and evaporative systems?

The new requirement will apply to split systems, ducted systems and window/wall box units, however, it will not apply to evaporative or portable systems as these are not required to be tested for their EER values under current Australian Standards (AS/NZS 3823.2:2005).



## How do I determine the tested average EER of an air conditioner?

If a system is not labelled with the tested average EER or star rating, the tested average EER for all models currently registered in Australia can be found at [www.energyrating.gov.au](http://www.energyrating.gov.au) or by contacting the manufacturer.

## If the air conditioner was tested under a previous Australian Standard, can that EER value be used?

Air conditioning systems that had their EER values tested using an older Australian Standard (such as the 2001 or 2003 version) would still comply with the Queensland Development Code (QDC) requirements, provided the tested average EER is at least 2.9. For example, a system that was first manufactured in 2004, and was tested under the old 2003 version of the Australian Standard to have a tested average EER of 2.93, will be able to continue to be installed in Queensland homes after 1 September 2009. To assist with compliance this policy will be incorporated into the QDC 4.1—Sustainable buildings guideline which will be made under the *Building Act 1975*.

## What buildings will this requirement apply to?

The installation ban will apply to all air conditioners installed in houses and townhouses (class 1 buildings) and units (class 2 buildings) throughout Queensland. This also includes systems that are replaced in existing houses and units. The sales ban will apply to all air conditioners under 65 kW in capacity, regardless of what type of building they are to be installed in.

## How is the air conditioner requirement implemented?

Installation of energy efficient air conditioners will be regulated through the QDC 4.1—Sustainable buildings.

It is proposed that the sale of energy efficient air conditioners will be regulated through the Electricity Regulation 2006.

## What factors influence the optimal performance of an air conditioner, apart from its EER?

**Building envelope**—areas that are to be air-conditioned should have a good thermal performance. Ways to achieve this include roof insulation (and wall insulation wherever possible), ventilating the roof space, sealing rooms for draughts, preventing heat entry through

glass by closing internal curtains or blinds, using external shading to large west or north-west facing windows and installing appropriate glazing types or reflective film.

**Unit sizing**—all parts of the air conditioning system should be sized by a trained professional taking into account the home floor plan, aspect, construction materials and occupancy levels. This is a good starting point to assist in selecting the correct unit size to service the total area to be conditioned ('fit for purpose').

**Quality of installation**—the system should be installed by a suitably qualified and licensed person, and positioned with unrestricted airflow and shading from the hot afternoon sun.

**Operation**—frequency of use and seasonal thermostat settings, which are 24°C during summer and 19°C for winter (if reverse cycle).

**Maintenance**—a basic check, such as cleaning the air filter, should be carried out every three months by the householder. The system should also be checked annually by a service professional to ensure efficient operation.

## What other factors should I consider when purchasing an air conditioner?

**Type of system**—a split system is generally more energy efficient to operate than a cheaper window/wall box unit.

**Noise**—some systems can create excessive internal noise that may interfere with sleep or conversation. Council noise restrictions also apply to account for amenity and proximity to neighbouring properties.

**Airflow**—look for a model that has a wide airflow range from very high (to help the room cool or heat quickly) to low (for reduced noise).

**Load control**—look for a model that is factory-fitted with load control capability that meets AS4755.3.1–2008. This may make it easy for a householder to take advantage of future tariff incentives.

## What measures can supplement air conditioning?

A range of passive design features can promote a more comfortable home to live in, which can also minimise the use of air conditioners, including:

- » northern orientation of living rooms minimised western and eastern facing walls and windows
- » a covered deck for outdoor living
- » insulation in the roof space and walls
- » ventilation of the roof space
- » natural ventilation with appropriate size, types and positioning of windows
- » treated glazing, reflective film or external shading (wide eaves or awnings), particularly for large windows facing west and north-west
- » ceiling fans in living areas and bedrooms
- » light colours on the roof and walls
- » shade trees and shrubs around the house.

## How much will it cost to comply with this requirement?

Currently there are at least 1500 air conditioner models tested and registered under Australian Standards with an EER of 2.9 or higher, so there is not expected to be a significant cost impact on consumers.

## For more information

For further information refer to QDC 4.1—Sustainable buildings, which is available on the Department of Infrastructure and Planning's website or contact Building Codes Queensland.



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