

Air conditioning is

AIR CONDITIONING GUIDE



Australian Government
**Department of Agriculture,
Water and the Environment**



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Keep a cool head

During our long, hot Australian summers, air conditioning improves our quality of life. Air conditioning is increasingly seen as a necessity of life as well as a significant household investment.

If you choose the wrong air conditioner, or it is not installed correctly or maintained properly, it can cost you dollars and negatively impact the environment.

Refrigerants in most air conditioners are potent greenhouse gases, and often an ozone depleting substance. Their use is regulated by the Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995. If refrigerant leaks from an air conditioner, it contributes to global warming and depletes the ozone layer. Leaking air conditioners also need more power because the unit has to work harder with less refrigerant, which results in higher power bills.

This guide will assist you to select the right air conditioner to suit your needs. It also provides details on licensing requirements so you can make informed decisions when installing and maintaining your air conditioner. Making the right choices about your air conditioner also means you are helping the environment

by minimising avoidable emissions of ozone depleting substances and synthetic greenhouse gases.

This guide has been produced by the Australian Refrigeration Council (ARC). The ARC is contracted by the Australian Government under the Ozone Protection and Synthetic Greenhouse Gas Management legislation and is responsible for granting licences nationally to individuals and businesses who handle fluorocarbon refrigerants.

Businesses or individuals who handle fluorocarbon refrigerants, as used in air conditioners, must hold a licence issued by the ARC.

For further information go to **lookforthe tick.com.au**



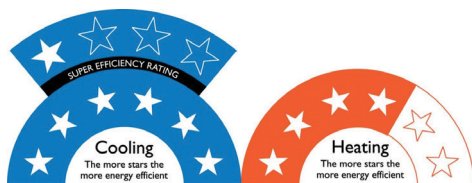
Buying

BE A COOL CUSTOMER.

Before you buy an air conditioner consider the following.

Think about how you can optimise the efficiency of your home before you buy an air conditioner. For instance, look for the star (or energy) rating label on the air conditioner:

- more stars mean more energy efficiency
- more stars mean lower power bills
- more stars mean less damage to our environment



Before purchasing an air conditioner you should also consider the following factors:

- is your home insulated? Insulated homes retain cool or heat for longer periods than homes without insulation.
- is the insulation located in the ceiling and walls? Be aware of the type and location of the insulation in your home as it will help you choose your air conditioner.
- are all the windows and doors draught proof? If not, cooled air can escape and the air conditioner has to work harder to maintain a constant room temperature.
- what direction do the majority of your windows face? If the windows are exposed to direct sunlight, heat can be rapidly transferred through the window into the room.
- are your windows tinted, double glazed or clear? Consider how windows might reflect or absorb heat from sunlight.
- is your roof flat or pitched? Metal or tiles? Pitched roofs can reflect heat more easily than flat roofs and metal roofs tend to absorb heat more easily than tiles.

- are your floors carpeted, tiled, concrete or timber? Heat and cold air can penetrate through floor surfaces and impact on the insulation of the external “envelope” of your home.
- how high is your ceiling? The higher the ceiling, the greater the room volume and the more internal area to cool or heat.
- is your house weatherboard, brick, double brick or concrete? The exterior surface of your house affects the temperature inside your house. For example, weatherboards would absorb and transfer heat into the house faster than bricks or cement but, once brick and cement heat up they retain the heat for a longer period.
- how many rooms do you want to cool? For multiple rooms, a multi-split or ducted system might be more suitable than a single head air conditioner which is better suited to a single room.
- do you have a plan or drawing of the room or areas of your home you want the air conditioner to service? This provides vital information to the salesperson in determining the appropriate air conditioner for your needs.

Make note of the size and orientation of rooms and windows within your house where the air conditioner is to be used. Remember that drapes, blinds and shady trees are all barriers to the elements.

This is the sort of information a salesperson should be asking you in order to determine the type of air conditioner you need and the capacity in kilowatts (kW) the air conditioner must be to meet the physical requirements of your home.

The actual size of the air conditioner in kW is a vital consideration. If the kW capacity is too low the air conditioner will not cool the space adequately, if the kW capacity is too high, it may cause the air conditioner to cycle on and off more than it should. This will increase the wear and tear on your air conditioner's components.

Get the kW size right and you will receive optimal cooling from your air conditioner.

The salesperson should have the knowledge to recommend the right kW capacity. Alternatively, you can take your details to an air conditioning specialist who is properly qualified to advise you on the size of unit that is suitable for your needs.

You can locate a licensed air conditioning business in your area on **lookforthetick.com.au**. The website provides a listing of all businesses with the tick of approval and identifies businesses and licensed individuals who are authorised under the Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995, to install, service and repair fridges, freezers and air conditioners, in your home, office or car.

For more information on appropriate sizing visit **choice.com.au**

Please use the handy checklist at the back of this booklet to write down all your measurements and details.



Installation

FOR A LICENSED TECHNICIAN, INSTALLATION IS A BREEZE.

No matter how good the selection of your air conditioning is, or how accurately it has been sized to suit the room, it will not operate efficiently if it is poorly installed.

The first priority with any installation is to ensure that the refrigerant does not escape into the atmosphere during or after the installation.

ARC-licensed technicians and authorised businesses must operate to mandated standards to ensure that the emissions of fluorocarbon refrigerants in air conditioners are minimised. Individuals with the appropriate licence (see page 7) under the Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995 are qualified to legally install air conditioners, including installation and connection of the pipes that carry refrigerant through the air conditioner.

If your air conditioner is incorrectly installed refrigerant may leak during or after installation. A leaking system is not only damaging to the environment, it will also result in greater power consumption as the air conditioner tries to deliver the level of cooling and heating with less than normal refrigerant.

This not only increases your electricity bill, it also shortens the life of your air conditioner.

Reduce your environmental footprint and protect your investment by having your new unit installed by a licensed technician.

Always look for the tick and use an appropriately licensed technician to install your air conditioner.



To find appropriately licensed technicians and businesses visit lookforthetick.com.au



Maintenance

IF IT'S NOT COOL, IT'S PROBABLY OUT OF REFRIGERANT.

All servicing and repairs of air conditioning systems containing refrigerant must be carried out by a licensed technician. For maintenance, service or repair work, technicians must hold a full refrigeration and air conditioning licence through the ARC. Visit **lookforthetick.com.au** and use the licence check facility to make sure the technician holds the appropriate licence for the job.

Your air conditioner may need servicing or repairing if there is an issue with the components that hold and/or circulate the refrigerant within the unit. This could cause it to leak. If a leak exists, all affected parts must be repaired or replaced before the unit can be refilled with refrigerant.

To find an authorised business to service or repair your air conditioner visit lookforthetick.com.au

Checking your air conditioner

With regular servicing and preventative maintenance your air conditioner can operate more efficiently, for longer and with optimal performance.

Many checks need to be done by ARC-licensed technicians but there are some you can do yourself. Ask your licensed technician about the following checks you can do yourself:

- regularly clean or replace your filter
- keep condenser and evaporator coils clean
- keep the outdoor unit clear of debris

Tips for better performance

- set your air conditioner to 24 or 25 degrees in summer
- save up to 10 percent of cooling costs for every one degree that you raise the temperature*
- avoid placing appliances that give off heat (Eg: TVs or lamps) near a thermostat as this will effect performance of the system

*Source – Department of Energy and Water Supply, Queensland



The cold hard facts

A GUIDE TO TERMINOLOGY:

Refrigerant

Fluorocarbon refrigerant is used in most modern air conditioners and cools the air. Fluorocarbon refrigerants are potent greenhouse gases. One kilogram of the most common refrigerant gas, R410a, has the same global warming impact as two tonnes of carbon dioxide. In older air conditioning units, the refrigerant is both a synthetic greenhouse gas and an ozone depleting substance. If leaked into the atmosphere, it has the same effect as driving a four-cylinder car for six months.

Reverse Cycle Air Conditioner

Reverse cycle air conditioning systems (also known as 'heat pumps') are electric heating systems which also provide refrigerated cooling.

Split-System Air Conditioner

An air conditioner is made up of two main components – an outdoor unit which is known as the condenser and an indoor unit or a fan coil, also referred to as the 'wall hung head unit'. The two units are connected by pipes which carry the fluorocarbon refrigerant.

An alternative to the standard unit is the multi-split system, which has multiple indoor outlets connected to a single outdoor unit. A split-system can be used for cooling and heating.

Licences and air conditioning

The ARC issues two main licences to install and service air conditioning systems. These licences are:

Split-system licence; this is a restricted licence permitting a technician to install and decommission a single head split system air conditioning system to 18kW only. This licence does not permit the technician to service or repair an air conditioner.

Full RAC licence; for all refrigeration and air conditioning (RAC) work. This licence identifies fully qualified tradespersons who are permitted to install, service or repair and decommission **all** types of air conditioning.

'Brown Outs'

Refrigeration and air conditioning equipment consumes about 10 per cent of all the electricity generated in Australia. Domestic air conditioning is considered to be largely responsible for peak power demands on the hottest days in summer which sometimes leads to brown outs. Brown outs are considerable depletions of available power in the grid. If you do not choose an air conditioner that is appropriately sized for your needs and do not have it correctly installed, you could be contributing to the problem of peak power demand.

Checklist for air conditioning

MAKING THE RIGHT CHOICE

You want a system that...?

- ☐ Cools only
- ☐ Cools and heats (Reverse-cycle)

What features are important to you?

- ☐ Warranty
- ☐ Price
- ☐ Energy Efficiency
- ☐ Sleep settings/Timer
- ☐ Quality of Air Filters

Have you considered energy rating/efficiency? ☐

How many rooms do you wish to cool?

- ☐ Multiple
- ☐ Single

Have you measured the area (m²) of the rooms you wish to cool? ☐

m²

m²

m²

m²

m²

m²

Is your home insulated?

- ☐ Ceilings
- ☐ Walls

Is your house...?

- ☐ Weatherboard
- ☐ Brick
- ☐ Double Brick
- ☐ Concrete

Do you have high ceilings? ☐

(height)

(height)

Are your floors...?

- ☐ Carpeted
- ☐ Tiled
- ☐ Concrete
- ☐ Timber

Are all windows and doors draught-proof? ☐

What direction do the majority of windows face?

- ☐ North
- ☐ South
- ☐ East
- ☐ West

Are your windows...?

- ☐ Tinted
- ☐ Clear
- ☐ Double glazed or energy efficient

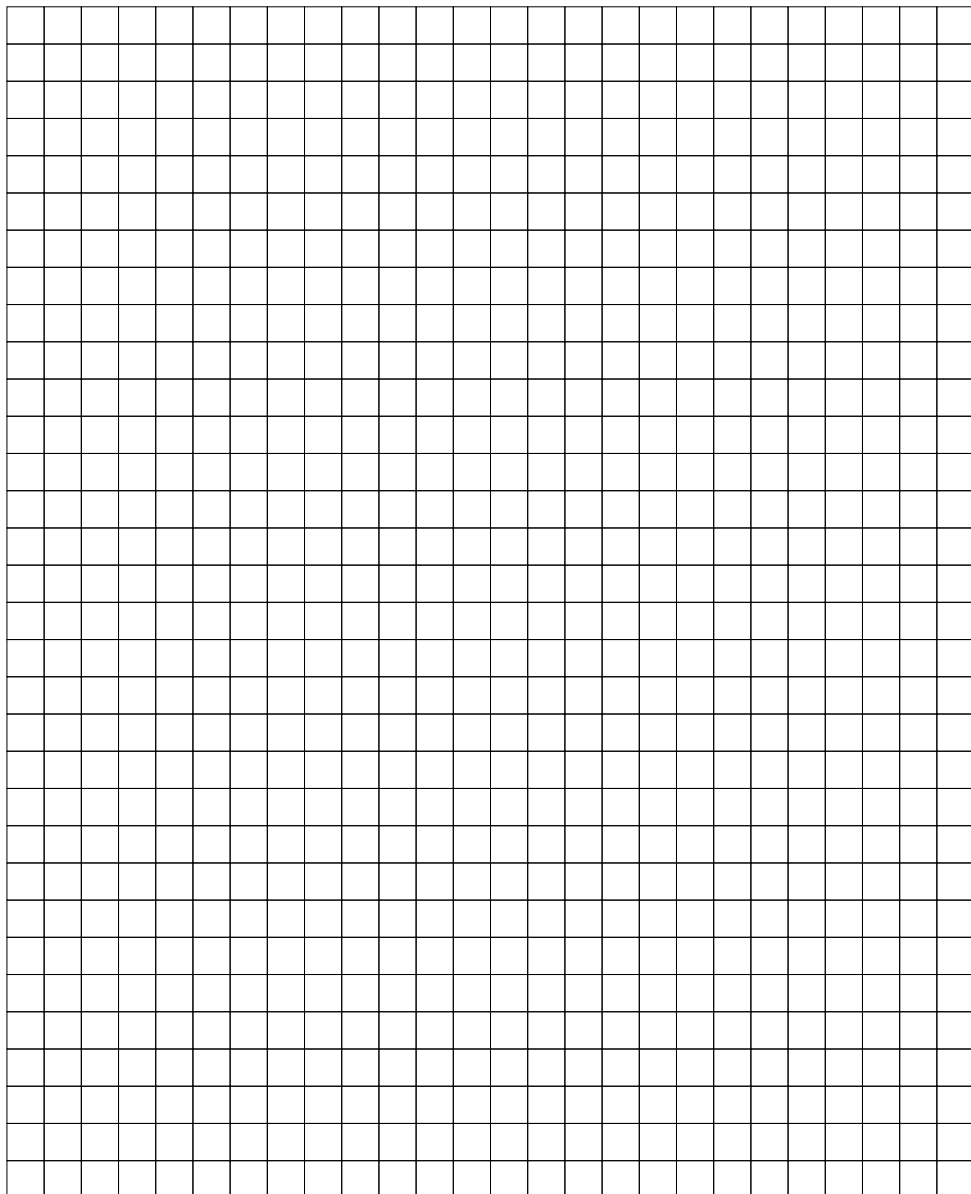
Do you have external shading i.e. blinds, canopies, trees etc? ☐

Is your roof...?

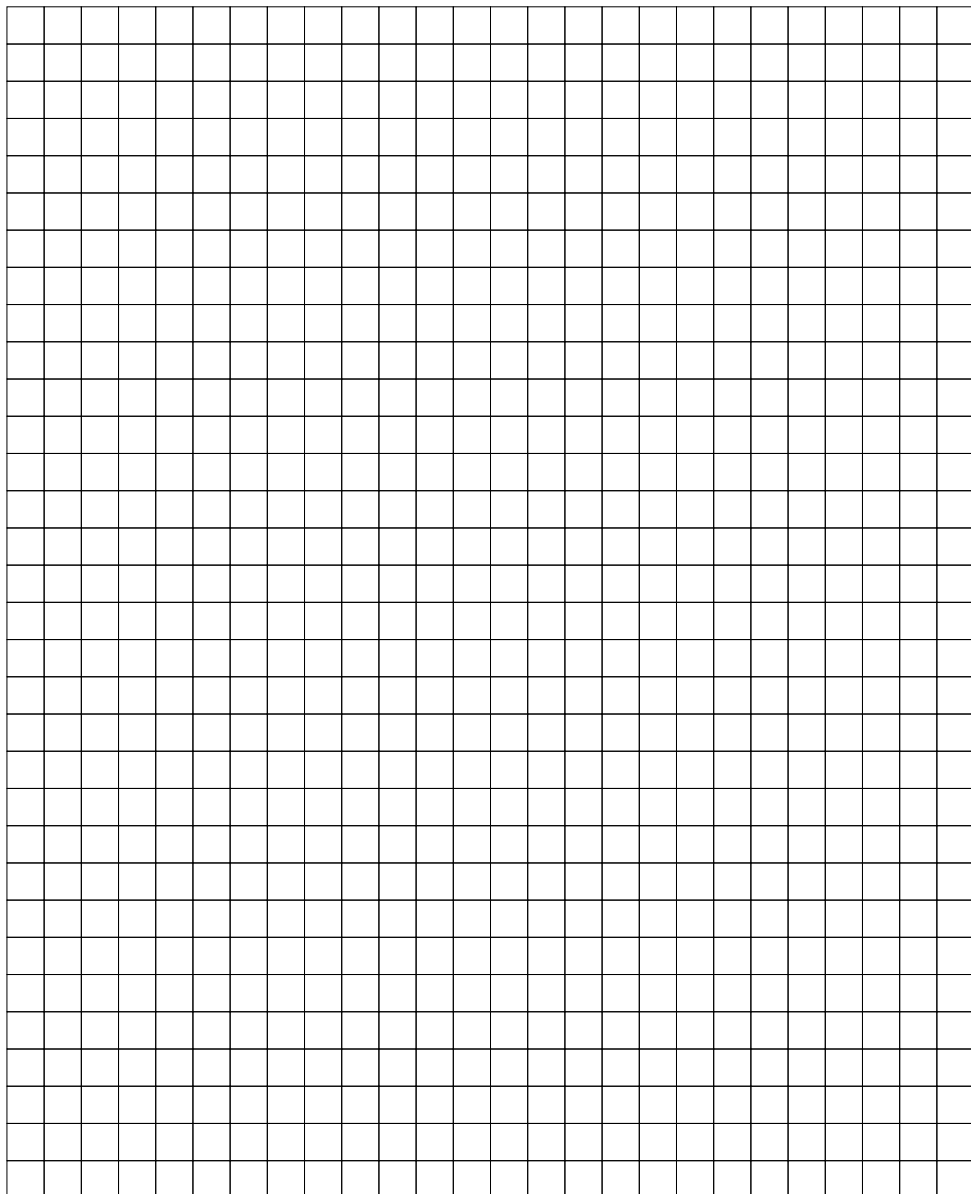
- ☐ Flat
- ☐ Pitched
- ☐ Metal
- ☐ Tiles

Remember to ensure an ARC-licensed business or technician carries out the installation, servicing and maintenance of your air conditioner.

House or room plan



House or room plan



Further information

Contact ARC Customer Service on **1300 884 483**
or go to **arctick.org**

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