



A Guide to Buying and Operating an Air Conditioner

**REDUCE NOISE, AVOID COMPLAINTS
AND COSTLY MISTAKES**

This initiative is part of *Living in Brisbane 2010* – a vision for our city's future



Dedicated to a better Brisbane

Air conditioning – making the right choice

Buying and installing the right air conditioning system for your home can save you money and reduce noise pollution.

Air conditioners can cause noise impacts on neighbours if not selected, located and installed properly. In some instances, Council can issue on-the-spot fines, or direct that the air conditioner not be used if it is installed in a location that causes noise annoyance to neighbours.

Before buying a new air conditioner, think about the following issues:

- Have you considered alternatives to cool your home such as roof top vents or ceiling fans?

- Does the house have insulation in the roof?
- Will the air conditioner cool/heat the whole house or only particular rooms?
- What is the most energy efficient air conditioner for the job?
- How loud will the air conditioner be outside, where will it be located and will it annoy the neighbours?

Plan your purchase, installation and operation of the air conditioning system properly and avoid expensive hassles and conflict with your neighbours.



How to use this guide

This guide has been developed by Brisbane City Council to provide simple residential air conditioning tips to reduce potential noise complaints between neighbours.

Council provides a range of information, including fact sheets, to assist you in making an informed choice when purchasing and operating a new air conditioner.

These include:

- *Air Conditioning Equipment Noise Fact Sheet*
- *Green Home Guide*

To download more information, go to www.ourbrisbane.com and click on the Council logo to enter the internet site.

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Cool Tip

Save money and reduce noise by ensuring your house is adequately insulated.



Things to consider before you buy

There are a number of simple low cost things that you can do before deciding to buy an air conditioner. These tips will reduce the cost and ongoing operation of the air conditioner, reduce potential noise complaints and make your home a more comfortable place to live.

- Make sure the house is well insulated.
- Paint the exterior of your home in a light colour to reflect heat from the sun.
- Select a light-coloured roof.
- Consider the use of vegetation or awnings to screen windows from the western sun.
- Considering these simple steps before you buy may reduce the size of air conditioner needed to cool or heat your house.



Cool Tip
Proper planning before you buy will save you time and expensive hassles.

- Buying the correct size air conditioner will reduce your initial and ongoing operation costs, and potential noise impacts on your neighbours.

For further information and smart tips on reducing your air conditioning costs and making your home a more comfortable and sustainable place to live, refer to Council's *Green Home Guide*.

Noise laws

The *Environmental Protection Regulation 1998* includes noise limits for air conditioners. Brisbane City Council is responsible for enforcing these limits at houses and units. If an air conditioner exceeds noise limits, Council may issue the owner or operator with an on-the-spot fine.



The allowable noise levels are:

7:00am to 10:00pm – Noise no louder than 50 decibels

10:00pm to 7:00am – Noise no louder than 5 decibels above background noise or 40 decibels (whichever is higher)

If a complaint is made to Council about noise from an air conditioner which is below the allowable noise levels, Council may still take action by issuing the operator of the air conditioner

with a notice. Therefore it is important to buy the quietest air conditioner possible, have it installed as far away from your neighbours house as possible and keep it properly maintained.

Labelling

Every domestic air conditioner sold in Queensland must have a label clearly displayed that shows the Sound Power Level (Lw).

Some air conditioners may also have Sound Pressure Levels (Lp) stated on the label. This number is different from the Sound Power Level.

The Sound Power Level will give you an indication of how noisy the air conditioner will be outside your house. The bigger the number, the louder the air conditioning unit will be.

Before buying an air conditioner

Insulation

Always insulate your home before deciding to install an air conditioner. By installing insulation, you may reduce the size of the air conditioner required and make up-front savings on the purchase price.

By insulating your house, cooling and heating your home will become more energy efficient, and will reduce the ongoing operating costs of your air conditioner.

Consider reverse cycle

Consider purchasing a reverse cycle air conditioner for heating and cooling. Reverse cycle air conditioners can be up to three times more efficient and economical to run than conventional radiant heaters.

When buying an air conditioner

When buying a new air conditioning system for your home, there are a number of things to consider to reduce up-front and ongoing costs and the potential noise impact on your neighbours.

Consider alternatives or ways of reducing your need for an air conditioner. In addition to insulation, you might consider installing roof top vents and ceiling fans.

Cool Tip

BUY QUIET – Shop around for the quietest model (compare Sound Power Levels) and consider where the air conditioner will be installed.

Air conditioning the whole house, or just a few rooms?

It is important to plan your air conditioning needs. Do you want to air condition the whole house, or just a single room?

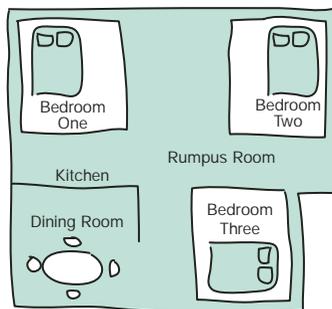
When air conditioning a single room, buy only the size needed to cool a single room. Trying to cool multiple rooms with an undersized air conditioner will cause unwanted noise nuisance, costly ongoing maintenance and long-term motor burnout.

When planning to air condition multiple rooms or the whole house, plan where the best location for the air conditioning unit's motor components will be. This will help minimise any potential noise impact on neighbours.

Remember: Your air conditioner may seem quiet inside, but equipment installed outside may cause noise nuisance to your neighbours.

Cool Tip

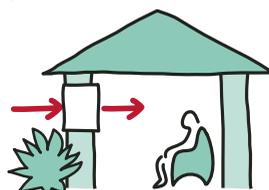
The installation of an air conditioner should be carried out by an appropriately qualified/licensed contractor.



What type of air conditioner will you need?

There are a number of different types of air conditioners currently on the market. These include wall/window mounted units, split systems and ducted system units to name a few. All types have advantages and disadvantages.

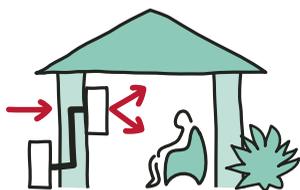
Wall/window mounted air conditioners are usually fitted in a specially cut opening through a window or wall. All heating and/or cooling and circulation components are housed inside a single box.



Wall/Window Mount Air Conditioner

This type of air conditioner is usually mounted high in the window/wall of the room to be air conditioned. This will increase the risk of noise nuisance to neighbouring properties if the motor is close to bedrooms or relaxation areas.

Split-system air conditioners have two functioning components. These include the evaporator/control panel, which is located within your house, and the compressor/condenser /fan section which is usually located on the outside wall of the room to be air conditioned. One advantage of this type of air conditioner is that there is more flexibility on where the outside motor/fan section can be located.



Split-system Air Conditioner

Ducted system air conditioners can be efficient to operate. These types of systems are best designed and installed by a specialist air conditioning dealer or contractor.



Ducted Air Conditioner

Ducted systems can be designed with multiple zones. This means you can air condition all of the home, or various zones at different times of the day.

Ducted air conditioners have three main components.

- Compressor/motor/outdoor fan section (usually located outside).
- Indoor section comprising indoor fan and other electric controls.
- Zone control box which controls the air flow to each of the selected ducts.

Cool Tip

There are a number of different types of air conditioning systems. Choose the one that will best suit your needs.



While ducted systems can be more expensive than other types of air conditioners, they have many advantages over other types, such as greater flexibility in where noise-generating equipment can be located. They are also better at distributing cool/warm air around the house.

Shop around for the quietest model

As mentioned earlier, check the air conditioner label to see what noise the unit will make. All residential air conditioners sold in Queensland (up to 12Kw) are required by law to be labelled with the Sound Power Level (Lw), which is measured in decibels (dB). The higher the sound power level, the louder the air conditioning unit will be.

Different types of air conditioners will have different sound power levels. Generally the bigger the motor on each air conditioner type, the greater the noise level of the motor.

Noisier air conditioners will need to either be located away from neighbours, or may require a properly constructed noise enclosure to make them quieter.

Where will the air conditioner be installed?

Consider where the air conditioner is likely to be installed. Some air conditioning systems are quieter than others and some have more flexibility in where they can be located.

Air conditioners should not be located adjacent to neighbour's windows, bedrooms or living areas.

Split systems have more flexibility in the way they are installed. The outside unit can be located closer to the ground. This allows fences and barriers to be used to screen the noise from the unit.

Ducted systems have the most flexibility. The system can be designed to locate the noisy equipment in a more suitable location away from neighbours.

Make sure you consider how close your air conditioner will be to your neighbours before deciding what type of air conditioner to purchase.



Cool Tip

Take the time and effort to properly plan the location and installation of your air conditioner to avoid complaints.

When installing an air conditioner

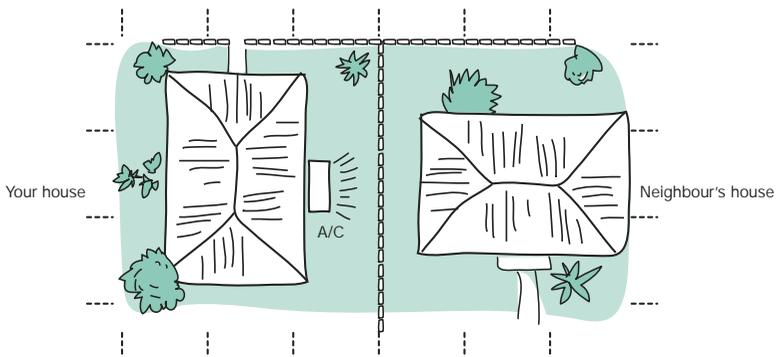
Plan your installation

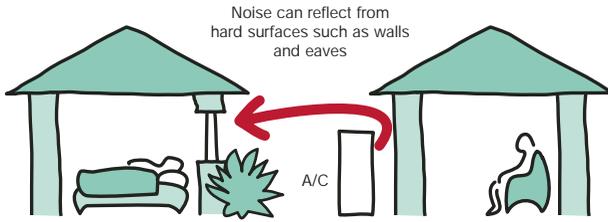
When having a new air conditioner installed, make sure that you take noise issues into consideration. Installation costs for a typical air conditioning system can be a significant percentage of the overall cost.

It could turn out to be an expensive mistake if not planned properly.

If noise complaints are received, Council can direct that the air conditioner be moved, or an expensive sound enclosure be put in place. Council can also issue on-the-spot fines, or direct that the air conditioner be switched off or not be used, if it is causing significant annoyance to neighbours.

A good idea in planning a new air conditioning system is to sketch your house and your neighbour's house and locate any air conditioning units as far away from your neighbour's bedroom or sleeping areas as possible.





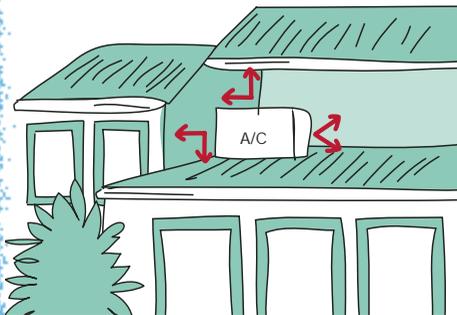
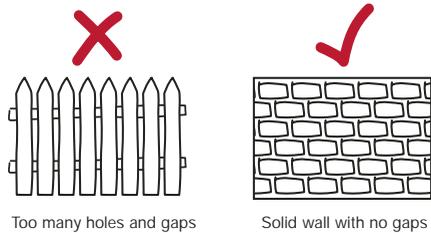
Make use of barriers for screening

Just as light reflects from shiny surfaces, noise can be reflected from hard surfaces onto neighbours.

Avoid locating your air conditioner near multiple reflective surfaces such as walls and eaves.

Existing barriers such as fences and garden walls can be used to effectively screen noise from neighbours. It is important to

make sure that any barriers used to screen neighbours from noise blocks the line of sight of the air conditioner and does not contain any holes or gaps.



Try and avoid multiple reflective surfaces when an air conditioner is facing neighbours

A solid fence, which completely blocks line-of-sight of the air conditioner and contains no gaps, may help you to reduce your air conditioner noise to acceptable limits.

Cool Tip
Make use of existing solid fences to screen neighbours from noisy equipment.

Checklist when installing an air conditioner

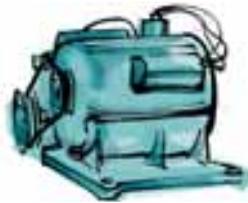
- Engage a reputable air conditioning installer with experience, training and an approved licence who has an understanding of noise issues associated with air conditioning.
- Make sure noisy air conditioning units are located away from neighbours' bedrooms and living areas.
- Avoid locating noisy equipment next to multiple reflective surfaces such as corners and eaves.
- Make use of barriers such as solid fences and retaining walls to screen neighbours from noisy equipment.
- Consider the up-front installation of acoustic enclosures when the air conditioning unit must be located close to neighbours.
- Discuss noise issues with professional installers and make sure you make an informed decision before the air conditioner is installed.

Cool Tip

Use the checklist provided and discuss all issues with your air conditioner installer before the air conditioner is installed.

Ongoing maintenance

In order to keep your air conditioning system operating efficiently and effectively, simple steps can be taken to increase its life and minimise long-term noise.



Noise from an air conditioner motor can increase over time due to things like worn bearings or rubber mounts, loose panels or fasteners, damaged fan blades, or a worn compressor.

Make sure the air conditioner is mounted in a secure place and all fasteners are secure. Also make sure that all vegetation is cleared away from fan blades and adequate ventilation is provided to prevent overheating.

All air conditioners should be maintained and serviced in accordance with manufacturer's recommendations by a suitably qualified technician.



Simple steps to reduce noise.

- Keep fan blades clear of vegetation and debris.
- Regularly check rubber mounts and mounting brackets.
- Regularly check panels and components for excessive vibration.

Cool Tip

Simple ongoing maintenance will help to reduce noise and increase the life of the air conditioner.

What to do if you have a noisy air conditioner

If you have an existing air conditioner that is causing noise nuisance, there are a number of simple cost effective solutions you can try to reduce the noise.

Maintenance

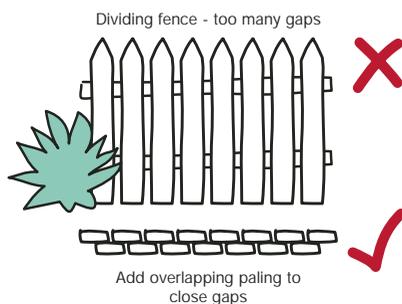
- Check to make sure that all fixtures and fittings are secure and not causing any excessive vibration or rattling.
- Check all rubber mounts and mounting brackets for deterioration and wear.
- Check to make sure the air conditioning unit and fan blades are clear of all vegetation and debris.
- Clean any dust grilles or air filters.
- Have the air conditioner serviced by an appropriately qualified technician.

Barrier

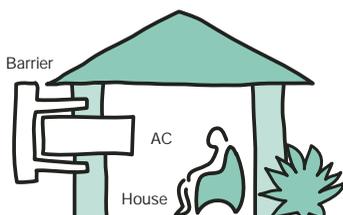
If the air conditioner is well maintained and operating properly, but is still causing excessive noise, consider the use of acoustic barriers.

As mentioned earlier, fences and garden walls can be used effectively to screen neighbours from noise, however to be effective, any fences or walls must block the line of sight of the air conditioner, be of solid construction and contain no gaps or holes.

If a dividing fence is located between the air conditioner and the neighbour, it may be constructed of standard wooden palings with gaps between the palings. The fitting of additional overlapping palings could make an existing fence an effective noise barrier.



If room permits, an air conditioning barrier could be a cost effective option. In order for this to be effective, the barrier must block the line of sight to the affected neighbours. The air conditioner must be located away from multiple reflective surfaces, such as corners and eaves, that could reflect noise and decrease the effectiveness of the barrier.



Cool Tip
Barriers and enclosures are simple, cost effective ways of reducing noise from air conditioners.

Air conditioning units require ventilation to avoid overheating of the motor. Any barriers must be constructed in accordance with manufacturer specifications for ventilation to avoid damage to the motor.

Air conditioning enclosures

There are a number of companies that sell full noise enclosures for air conditioning units.

Also check with the manufacturer to see whether they have any after market sales of noise enclosures.

Always make sure when enclosing air conditioning units that you check the manufacturers' specifications for ventilation, to avoid overheating of the motor and voiding of the warranty.

Relocation

If the air conditioner was installed incorrectly, or is too close to neighbours and doesn't allow for a noise fence or barrier, the equipment may have to be relocated and reinstalled in a more suitable position.

Most modern air conditioning systems require installation by an appropriate air conditioning technician and/or electrician.

Always discuss relocation of air conditioners with the manufacturer and an appropriately qualified tradesperson to avoid voiding of the warranty.

Cool Tip

Modern air conditioning systems can be quiet, energy efficient and inexpensive to run if planned correctly.

If all of these options fail to reduce the noise nuisance, it may be time to replace your air conditioning system.

Modern air conditioning systems can be quiet, energy efficient and inexpensive to run.

When buying a new air conditioning system, remember to shop around for the most appropriate air conditioner to suit your needs.

ALWAYS REMEMBER

Take the time to plan the purchase and installation of your new air conditioning system, and avoid causing nuisance to neighbours and costly hassles.



Where to get more help

Australian Greenhouse Office

Phone: **1300 130 606**

Web:

www.greenhouse.gov.au

Info: *Community and Household/Your Home* - information to help you control your indoor living environment while reducing energy consumption.

Australian Institute of Refrigeration, Air Conditioning and Heating (AIRAH)

Phone: **(03) 9614 8868**

Web: **www.airah.org.au**

Info: *Residential Air Conditioning Best Practice Guideline* - Guide for the purchase and installation of residential air conditioning systems.

Brisbane City Council

Phone: **(07) 3403 8888**

Web: **www.ourbrisbane.com**

Info: noise fact sheets and *Green Home Guide*.

Environmental Protection Agency

Phone: **(07) 3227 7111**

Web: **www.epa.qld.gov.au**

Info: information on noise legislation and noise fact sheets.

National Refrigeration & Air Conditioning Council (NRAC)

Phone: **(03) 9810 9600**

Web: **www.arctick.org**

Info: Arc tick certification program.

Air Conditioner Checklist

Consider the following before buying

- Always insulate your home before you install an air conditioner.
- Consider cost effective alternatives such as roof top vents and ceiling fans.
- Can you use trees, shrubs or awnings to shade windows from the western sun?

When buying

- Check noise criteria and any other Council requirements for installation and operation of air conditioners before buying.
- BUY QUIET – check the Sound Power Level (Lw) of each air conditioner and buy the quietest model available to suit your needs.
- Consider reverse cycle air conditioning for both heating and cooling.
- Consider whether you are looking at air conditioning the whole house, or just a single room. Bigger is not always better.

Consider where the outside air conditioner equipment is to be located and how close it will be to neighbours.

Ask your air conditioning dealer whether there are any noise barriers or enclosures available for your air conditioner.

Shop around for a reputable air conditioning installer with experience, training and all appropriate licences, who also has an understanding of noise issues associated with air conditioners.

When installing

Discuss noise issues with professional installers and make sure you make an informed decision before the air conditioner is installed.

Engage a reputable air conditioning installer, with experience, training and all appropriate licences, who has an understanding of noise issues.

Make sure noisy air conditioning units are located away from neighbours' bedrooms and living areas.

Consider the up-front installation of acoustic enclosures around air conditioners, where the air conditioning unit must be located close to neighbours.



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