

# Cooling



Cooling and ventilation systems have a big impact on energy expenses. In hot or tropical climates such as those found in most of Queensland, these systems can account for up to 50 percent of the energy bill. The type of system you choose for your business will determine the cost of operation, the amount of energy consumed and the comfort levels enjoyed by staff and customers.

### Keeping your cool

Fans, evaporative coolers and refrigerated air conditioners are three common cooling systems. Individual buildings should be assessed to identify the most effective system.

For example, in a well-insulated office where the occupants perform sedentary tasks the cooling requirements are less than in an un-insulated factory which has many heat sources, and where employees perform manual labour.

Before choosing a cooling system try using insulation, shading, draught proofing and zoning in your premises. Plant local native shade trees on the north side of the building to cut cooling costs. This will make the building more energy efficient and will enable you to install a smaller cooling system, reducing installation and ongoing running costs.

### Fans

Fans are used to create a cooling breeze. Rather than reducing air temperature, they evaporate perspiration from your body to provide comfort.

Fans are reasonably priced and have low operating costs. They are available as portable units or as fixed ceiling fixtures. Fans are often most appropriate cooling system for:

- open factories or large buildings where air circulation is needed and air conditioning would be too expensive or inadequate

- well-shaded, insulated shops and offices in moderate temperatures
- air-conditioned premises when the air-conditioning system is not adequate.

Heat extractors, which are similar to exhaust fans, are ideal in places where heat removal is important.

### Evaporative coolers

Evaporative cooling systems work on the basis of cooling air through a water-saturated pad. Air is cooled by 8-12 degrees and discharged at a high flow rate into the area to be cooled. It is then expelled into the outside atmosphere, carrying some heat and moisture away.

Evaporative cooling systems come as portable, wall mounted or ceiling units, and ducted systems. Operating cost is less than half the cost to run a refrigerated air conditioner.

Evaporative cooling systems are appropriate for:

- hot, dry climates
- factories or large warehouses where refrigerated air-conditioning would be unsuitable or cost prohibitive.

### Refrigerated air conditioners

Refrigerated air conditioners transfer heat from one area to another using the same technology as a refrigerator. Air is cooled and passed across an indoor coil, allowing for moisture to be extracted and drained from the area if needed.

Refrigerated air conditioners are appropriate for enclosed areas where no fresh air is available. Thermostat controls enable you to select a desired temperature and reverse cycle models provide both heating and cooling functions. They also remove airborne dust, pollens, hair and lint by filtering the room.

Refrigerated air conditioners are available in various styles and capacities to suit a range of needs. However, they can be costly to operate in hot and humid climates.

### Tips to maximise your system's cooling capacity

- Use the 'recirculate' setting rather than 'fresh air' and close exhaust fans.
- Ensure air outlets are clear so air is free to circulate.
- Set the thermostat to a minimum comfort setting of no cooler than 25 degrees, or 10 degrees cooler than the outside temperature.
- Operate your system only when required and turn it off during weekends and holidays.
- Install reflective window film to reduce heat radiated from the sun.
- Switch lighting and office equipment off when not needed to further reduce heat input and place less strain on your cooling system.

## For more information

- > visit [www.epa.qld.gov.au](http://www.epa.qld.gov.au)
- > email [ecobiz@epa.qld.gov.au](mailto:ecobiz@epa.qld.gov.au)
- > call (07) 3225 1999