



8. Cooling options and improving ventilation

For many centres, cooling is a big part of the energy bill.

Cooling a building involves:

- preventing the heat from getting in
- improving air flow
- lowering the air temperature and/or humidity.

There are passive and active ways to improve the efficiency of cooling such as improving insulation, using appropriate appliances and behaving in ways that keep the building cool.

Good ventilation doesn't lower the temperature but it improves airflow and helps people to stay cool.

By shutting windows and doors and drawing blinds and external shades you can help stop hot air from getting inside.

Passive cooling

- Install insulation in the building.
- Install and draw the blinds against penetrating sun.
- Consider external awnings – particularly on west and north facing windows. External awnings and shading are more effective than internal blinds as they prevent heat transfer through windows. Using both internal and external blinds is even better.
- Create shade with strategically placed trees and plants.
- Use drought-tolerant ground cover plants instead of paving or concrete near the building to keep the ground temperature lower in summer.
- Block harsh westerly sun with tall vegetation and trees.

- Dampen vegetation to increase the effectiveness of cooling breezes.
- Use deciduous vegetation so the building will still get winter sunlight.
- Clean window screens as dusty screens impede airflow.
- As soon as it is cooler outside open the windows.
- Encourage people who use the building to dress appropriately for the weather.

Fans

- Use ceiling fans – they are energy efficient and can make it feel cooler.
- Place a floor fan in front of the window with the coolest airflow.
- Pop bowls of ice in front of fans on extremely hot days.
- Use evaporative air coolers in dry climates but not in humid areas.



Air conditioning

The efficiency of air conditioners has improved considerably in recent years with split system/heat pump technology.

If you are running an older unit, especially a window-mounted one, it may be cost effective to replace it, as the savings on energy use may pay for the upfront cost of a new system in only a few years.

Reverse cycle units can also be used for heating. Look for a high energy rating and make sure the unit is appropriately sized for the space.

Always shut doors and windows; direct the air conditioning vents to the middle of the room and use the most efficient settings (min. 24–26°). *Note: Decreasing the air conditioning thermostat by 1°C can increase energy use by up to 10%.*

Use the dehumidification/dry settings when humidity is high. Maintain the system and clean the filters.

Ducted systems

If your building has a ducted system, make sure you are not cooling rooms that are not being used. Try to close the vents to unused spaces. Close windows and doors and set the system to a minimum of 24–26°C. Ducted systems can also be used to cool spaces in the morning before the hottest part of the day.

Once the internal temperature is down around the mid 20°C, a combination of sporadic air conditioning use (switching on and off) or use of ceiling fans and shading can be used to keep the temperature at a comfortable level throughout the day.

Roof treatments

Painting roofs white, using reflective paints or installing a whirly bird to ventilate the roof cavity may slightly lower building temperatures in uninsulated buildings.

Cooling the roof cavity cuts down on heat radiating through the ceiling. Ceiling vents can be opened and closed as needed to draw more air through your rooms.

Some roof cavity ventilation products give you the option of ducting hot air back into



CHECK POINTS

- ▶ Good insulation will cut down the need for cooling.
- ▶ Consider ventilation as well as air temperature.
- ▶ Select a high star rated reverse cycle/split system air conditioning unit.
- ▶ Indicate the optimal settings and show people how to use them effectively.
- ▶ Isolate areas to be cooled.

your building when heating is needed.

Talk to a specialist to select/design the most suitable system and calculate the benefits, both in terms of comfort and cost.

Further resources

Check out A Greenhouse Around the Corner website:

www.agreenhouse.net.au/helpful-resources

Related fact sheets

Fact sheet 5: Installing insulation

Fact sheet 7: Choosing appliances and the energy star rating system

Fact sheet 12: Window treatments for energy efficiency

Fact sheet 16: Understanding passive solar design

For more fact sheets, go to A Greenhouse Around the Corner website:

www.agreenhouse.net.au/fact-sheets