

Water Reduction

Several options are available for reducing or re-using water consumption from evaporative air-conditioners.

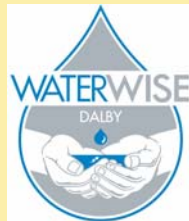
One option is to not bleed off any water from the evaporative airconditioner. This results in the unit having to be serviced and cleaned more regularly. Although this option may result in unacceptable scale levels, it may be suitable when using an alternate supply such as rainwater.

Another option is to reuse the bleed-off water from the evaporative airconditioner for another use, such as the garden. This use would need to be carefully monitored as this water may have a high mineral (salt) content and cause problems such as soil sodicity.

The most effective way to reduce your water usage is make your evaporative airconditioner as efficient as possible. This is done through regular maintenance of your system and by reducing the dumping/bleed-off rates to as minimal as possible - without causing excessive maintenance.

Reduce the amount of time you use the airconditioner e.g. be sure to turn it off when your not in the house.

Be WaterWise!



Health Issues

Legionnaires' disease (Legionellosis)

Evaporative airconditioners are a potential source of Legionella growth and generation of aerosols. Legionnaires; disease is caused by infection with Legionella bacteria. Legionnaires' disease is a serious and sometimes fatal form of pneumonia.

There is no evidence that evaporative airconditioners can cause Legionnaires' disease, however, maintenance is required to prevent odours as a result of the accumulation of dirt and growth of slimes and moulds within an evaporative air conditioning unit. Conditions that promote growth of Legionella in water include :

- Stagnant water
- Water Temperatures between 25 and 50°C
- Sediment that tends to promote growth of Legionella

Commercial evaporative air conditioners should be regularly maintained and cleaned in accordance with Australian Standard AS 3666.

Domestic evaporative airconditioners should be cleaned before summer. If the system has not been used for two weeks, it should be cleaned again before use.

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Evaporative Airconditioning

Information guide to minimising water usage through your Evaporative Airconditioner



Evaporative Airconditioners

An Evaporative Airconditioner is a unit which cools air by moisture evaporation, thereby lowering its temperature and raising its humidity. The unit consists of a fan, water pump and distribution piping, porous or fibrous pads and water tanks. They are simple devices which cool the air drawn through them by bringing the air into 'close' contact with water.

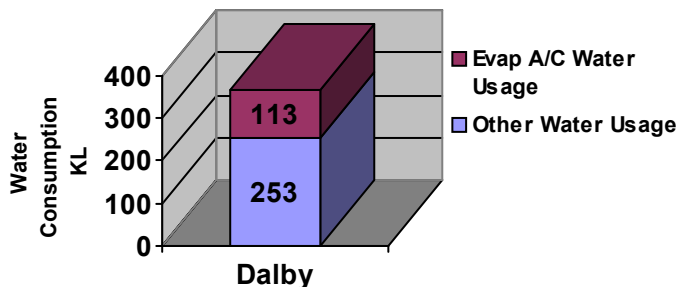
Evaporative air conditioners provide effective cooling in dry climates. Their cooling effect is minimal in hot humid climates.

Water Usage

Evaporative airconditioners consume water in two ways; the evaporation of water from the pads which cools the air, and the dumping/bleeding-off of water to reduce the mineral concentration in the sump.

Evaporative airconditioners can use upwards of 75 L/hr in the summer months and can account for up to 30% of the total yearly water consumption per household.

Average Evap A/C Water Usage to Total Water Usage (per household per annum)



Comparison with Refrigerated Airconditioners

Evaporative coolers provide some key benefits over refrigerated airconditioning systems. These include:

- Lower capital cost (approx 50%)
- Reduced energy consumption (approx 80% lower) leading to reduced greenhouse gas emissions.
- No refrigerant gas required.
- 100% fresh air (rather than recirculation of room air with refrigerated system).
- Increased indoor humidity in very dry areas (refrigerated airconditioners can lower the humidity further in dry conditions)

Some disadvantages include high water usage, regular maintenance, high supply air volumes, and minimal filtration to the supply air. The use of evaporative airconditioners is generally also limited to the drier climate.

Operation and Maintenance

Correct maintenance will increase the life of an evaporative airconditioner and maintain its efficiency. Manufacturers directions should be followed for specific evaporative airconditioners.

Domestic Units

There are no specific code requirements for evaporative airconditioners regarding their operation and maintenance. The water basin in evaporative airconditioners can collect windblown dust and pollen. This will deposit in the basin leading to clogged filter pads, circulation pump or water distribution system. This may lead to more frequent cleaning.

The evaporative cooler should be cleaned before operation each summer. This involves electrical disconnection of the unit, cleaning of the filter with

a hose and cleaning of the water distribution system including the basin and water bleed-off system. The fan should be inspected and any faulty parts replaced. The unit should also be disinfected before use of the system prior to summer.

Following summer the unit should again be disinfected and cleaned thoroughly including the basin and filter pad. The unit should be left dry when not in use.

A suggested maintenance routine for domestic evaporative airconditioners is as follows:

Isolate the electrical supply to the unit.

Replace pads: Remove side panels and install new evaporative media pad if required.

Clean water reservoir: Remove the cooler/drain tube in the reservoir pan and rinse out standing water, dissolved salts, silt, old pad fibres, etc., with a disinfecting solution.

Check water pump: Clean the pump screen of debris and make sure the water impellor turns freely.

Check fan belt and oil bearings. Replace the fan belt if required.

Rotate motor and blower wheel: Turn the fan by hand a few revolutions. If the motor or blower won't turn freely, the motor may require service or replacement.

Fill system with water, adjust float valve if required: Turn on water supply. If the float valve is not operating it may need to be replaced. Check that the unit is level and there are no water leaks.

Turn on unit: Replace side panels, turn cooler on and examine water distribution to make sure water fills the basin and flows down all pads evenly.