



# Heritage Advisory Service

## AIR CONDITIONERS & HERITAGE GRADED BUILDINGS

### 1.0 Air Conditioners and Heritage Overlays

If your property is located in a Heritage Overlay, the installation of external Service Units (air conditioning units, hot water services, ducted heating units, etc) will require a Planning Permit if the services are visible from a street (other than a lane) or public park. Approval may also be required in certain zones. We recommend that you contact our Planning Department directly to determine if a permit is required for your proposal.

The City of Port Phillip strongly discourages the placement of Service Units on roof tops and other highly visible locations; rather they should be integrated with the overall design of the development and not be visible from the street.

If you are intending to install air-conditioning you are strongly encouraged to contact our Sustainable Design Officer who is available free-of-charge to assist you in finding more environmentally responsible alternatives.

Typically a service unit (eg. Air Conditioning unit, gas hot water service unit, etc):-

- MUST NOT be located on, or in front of, the front façade of a dwelling;
- If located above the roofline, MUST NOT be clearly visible from the principal streetscape;
- If a corner site, SHOULD NOT be visible from the secondary streetscape;
- Located to minimise the view from the public realm;
- Positioned at ground floor level;
- Should make use of piping (from AC unit to find an appropriate location - upto 30m length);
- Should only be located in the most appropriate location with the least visibility from the streetscape.

### 2.0 Design Principles

When an air conditioning system is selected, the following principles should be followed:

1. Consult with Council prior to purchase and installation, to ensure that the appropriate system has been selected, that the unit locations are acceptable with respect to their visibility and that the noise impact on adjoining properties is acceptable;
2. External units should be located where they are not visible from public areas;
3. External units should be located where their installation does not damage significant elements of the building. For example windows should not be blocked out or concealed and wall ventilators should not be damaged and used for cable ducts;
4. External units should be located generally at ground level so as to allow easy access and to allow shrubs to be planted to screen the units from view;
5. The cables connecting the internal and external units should pass through the external wall at the low level where possible and the openings sealed. Where this is not possible and the run is across an exposed external wall, the cabling needs to be protected with a standard duct cover which is painted in a similar but darker shade of the wall colour.

### 3.0 Air Conditioning types

There are various types of air conditioning units however they typically are either refrigerative or evaporative units.

#### 3.1 Refrigerative air conditioners

Similar to fridges, refrigerative air conditioners pump heat from the hot inside of your home to the outside - that's why they're also called heat pumps.

They're very efficient, work in any climate, and are particularly useful in humid conditions, as they also dehumidify the air. Reverse-cycle models can also heat your home, because even cold winter air contains usable heat that can be pumped into your home.

Before you buy an air conditioner, it's important to know the size you need. As a rough estimate, you'll need a cooling capacity (or output) of about 125 watts per square metre for a living area, and about 80 watts per square metre for a bedroom. However, the ideal size depends on many factors, such as the climate where you live, your home's insulation and how well it's sealed, and the shape and orientation of the room.

Air conditioners are more expensive to run than fans and evaporative coolers. Domestic models carry an energy rating label: look for one with as many stars as possible - it'll save on your energy bill, and helps to protect the environment.

Also remember that each degree cooler you want your home in summer can increase the running costs by up to 15%.

Try to shade your air conditioner - for example, by providing an awning - without restricting its airflow. When you're expecting a hot day, turn it on early rather than wait until your home gets hot.

A **portable** model can cool a room of up to about 20 square metres. It can be plugged into a normal power point. Expect to pay around \$500 to \$1300.

A **fixed room** model is usually installed in a window or external wall, and can cool rooms and open-plan areas of up to 50 square metres. While smaller units can be plugged into a normal power point, larger ones may require additional wiring. Prices start from under \$500. The window wall mounted air conditioning units supplied refrigerated air, utilised a compressor and were visually intrusive. They were more a response from the 1960s and 70s and less common today. They can be used at the rear of a site however are not supported where visible in a streetscape.

A **ducted system** is usually installed in the roof or outside on the ground, and ducted to air outlets throughout the house. Costs start from around \$5000.

A **split-system** air conditioner consists of a compressor unit that's installed outside, and one or more indoor air outlets. They're usually used to cool one or more rooms, or an open-plan area, of up to 60 square metres. Prices start from under \$1000.

Split System air conditioners are composed of two main elements that are connected by cables. The internal head element is wall mounted and recycles the air within a room to the required temperature. Cables connect the head unit to an external condenser which is generally 1m-1.2m wide and 700-800mm high and 350mm deep. The unit includes a motor and fan which provide the temperature difference required to coolant. The new units are considerably less noisy than previous models. The proximity of the two units affects the efficiency of the system. The external unit can be located upto 30m from the head unit with high wall installations and upto 10m with ducted systems. When the distance is increased the system capacity may need to be increased by 10% to account for the additional energy required. Also referred to as Ducted reverse-cycle air-conditioning it has the capacity for cooling and heating a home.

## 3.2 Evaporative Units

Evaporative units rely on circulating air that has a higher level of humidity using the water within the air to cool a building and occupants. The issue with evaporative is that the unit relies on a significant sized vent to the top of the roof. These units are highly intrusive and only work if they are situated to the rear of a site.

These devices cool by evaporating water. A fan draws warm air from the outside through a series of wet filter pads. The air's heat evaporates the water, cooling and humidifying the air, which is then blown into the house. It's important to ensure good ventilation so the humid air doesn't accumulate inside.

The higher the outside humidity, the less efficiently evaporative coolers work, as the humid air from outside won't be able to evaporate much more water from the filter pads.

Size doesn't really matter. Of course, a larger, more powerful air cooler will have a stronger air flow and be able to blow cool air over a larger area; but essentially they don't need to be matched to the size of the area like refrigerative air conditioners do.

Unlike air conditioners, you don't have to seal the room or house. In fact, you need to keep a couple of windows or a window and door open because the cooler needs this air flow: it sits in front of an open window or external door and draws the outside air through it.

Don't place the cooler in the middle of a room because it'll just recycle its own moist air, adding more and more moisture. And make sure there aren't any curtains close enough to be sucked into the unit.

They're cheap to run, but don't have a thermostat.

A **portable** model plugs into a normal power point and is best placed close to an open window. Its water tank must be kept filled (as a rough guide, they use up to 4 L per hour). Look for a model with a water-level gauge, variable fan speed and adjustable louvres. Expect to pay from around \$100.

A **fixed room** model is usually fitted into an external wall or window, and permanently connected to your power and water supply. Prices start at about \$1000.

A **ducted system** is permanently installed (usually in the roof) and ducted to ceiling outlets throughout the house. It uses about 25 L of water per hour, so may not be the right choice if your water supply is limited. A ducted system will cost from around \$2000.

## 3.3 Sizing an air conditioner

The output capacity is a measure of the amount of heat that will be removed (cooling) or added (heating) to the room/s in your house by the air conditioner. The output range you need will depend upon your particular requirements. Air conditioner outputs are measured in kilowatts (kW). As an approximate guide for sizing a room unit allow:

- 125watts (0.125kW) per square metre of floor area to be cooled in living areas;
- 80 watts (0.080kW) per square metre of floor area in bedrooms.

These estimates depend on the climate and the efficiency of your house design (orientation, glazing and insulation levels). Visit: [www.energyrating.gov.au](http://www.energyrating.gov.au)