

Heating Systems

Which heating system is more energy efficient?

Heating system	Energy efficiency
Gas heater	★ ★ ★ ★ ★
Reverse cycle A/C (4-5 star)	★ ★ ★ ★
Electric fan heater	★ ★ ★
Oil-filled column heater	★ ★
Radiant heaters	★

Wood fires

Wood fires do not use electricity or gas to operate, however they produce emissions that impact local air quality. Use untreated, sustainably harvested wood in high efficiency, low emission heaters. Slow combustion stoves are 6 times more efficient than open fireplaces.

Electric Heaters

Electric heaters can be used to warm a small area. They can be portable, fixed or ducted and include:

- Radiant heaters - heat objects and body but do not directly heat air.
- Fan heaters – heat air directly and use a fan to circulate warm air.
- Oil filled column heaters - heat oil to provide radiant heat and warm the room. These can take time to heat up.
- Reverse cycle air conditioning – provide both heating and cooling using a refrigeration process to draw in heat from outside air.

Gas heaters

Gas heaters use natural gas (or LPG) to provide radiant heat and to warm air in the room. Ventilation is required to ensure good air quality. They can be portable, fixed or ducted.

When buying a new heating system, ensure it has a high Energy Star Energy Rating. To compare the energy efficiency of heating systems, visit the Energy Rating website: www.energyrating.gov.au

There are a number of ways you can keep your home warm in winter and reduce your energy use.

By considering factors such as your home's orientation, the position of the sun throughout the day, heat transfer through windows, heat storage, wind direction and insulation, you can increase the efficiency of your heating systems, or reduce the need for artificial heating completely.

Use heating systems as a last resort. If you are using a heater to keep warm in winter, ensure it is energy efficient and suitable for your household's needs. Over a third of energy use in the home is for heating and cooling. Set your heater, or reverse cycle air conditioner thermostat, to 18 - 21°C. Each degree you raise your thermostat (warmer) increases energy consumption by 10%. Direct heat downwards, as it will gradually rise, and avoid putting heaters under windows. Close doors to rooms that aren't being used and ensure filters are cleaned regularly to keep the system operating efficiently.

For more information on energy efficiency visit *Think Green – Energy* on the City of Joondalup website: www.joondalup.wa.gov.au



T: 08 9400 4000
F: 08 9300 1383
Boas Avenue Joondalup WA 6027
PO Box 21 Joondalup WA 6919
www.joondalup.wa.gov.au

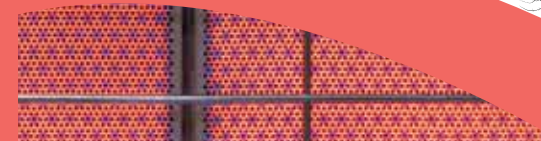
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Think Green

ENERGY

Winter Warming



North – Large windows help to capture heat from the low angle winter sun

Shading

Shading structures, such as eaves and deciduous plants, allow low angle winter sun to warm the house and provide suitable shading in summer.

Windows

Large windows capture heat during the day but are a source of heat loss at night. Double glazing and other window treatments can reduce heat loss.

Curtains

Open curtains during the day to let the sun in but close them at night to reduce heat loss.

Thermal Mass

Dark, rough surfaces have a high thermal mass, or ability to store heat, and should be used for north facing flooring and walls. A dark masonry floor will absorb heat from the winter sun and gradually release it into the home.

Solar PV System

Solar photovoltaic (PV) systems operate well on clear winter days and reduce greenhouse gas emissions and electricity costs.

Solar Hot Water

Solar hot water systems harness the sun's energy to heat water. A booster helps warm water on cold winter days.

West – Make the most of afternoon sun and block cold winds

Screening

Plants and hedges can be used to screen strong winter winds. Low shrubs will allow some winter warming from the sun.

Shading

Remove or adjust shading structures to allow winter afternoon sun to warm this part of the house.

Curtains

Close curtains at night to reduce heat loss through windows. Use thick curtains with close fitting pelmets as most heat is lost at the top of the window.

Insulation

Install wall insulation to reduce heat loss.



East – Make the most of the morning sun

Shading

Remove or adjust shading structures to allow morning winter sun to warm this part of the house.

Curtains

Open curtains in the morning but keep them closed at night to reduce heat loss.

Insulation

Wall insulation reduces heat loss. Choose wall insulation with an R-value of 2.8 or above and ceiling insulation with an R-value of 4.1 or above.



South – Block cold winter winds and reduce heat loss

Heating

Personal heating is required for bedrooms. Use warm clothing and bedding material to keep the cold out.

Draught-Proofing

Cold breezes blow from a south-westerly direction. Install draught-proofing strips between doors and frames and along windows to reduce heat loss.

Windows

Keep windows securely closed to keep cold wind out and keep warm air in.

Curtains

Keep curtains closed at night to reduce heat loss.

