

## “What’s the best kind of plug-in electric heater?”

There are lots of different kinds of electrical heaters on the market, and it can be hard to figure out which one is the best to use. Heat pumps are a very popular choice in New Zealand, but they are expensive to purchase and may not be a realistic option for many people. If a heat pump is not an option this brochure provides information on how to choose the right kind of plug-in electrical heater.

### What are the different kinds of plug-in heaters?

There are many different kinds of heaters. They all have their strengths and weaknesses. Here is a summary of the main types:

*Radiant heater* – sometimes known as bar heaters, they provide most of their heat by directly heating the object in front of them. They are generally available in different sizes up to about 2.4 kilowatts (kW).

*Fan heater* – generally available as small, portable heaters up to 2.4kW, they heat by pushing warm air around the room. They provide instant heat when turned on. Fan noise can be disturbing.

*Panel heater* – sometimes also known as convector heaters these heat the air around them and rely on natural air currents to move heat around the room. They can be wall mounted or free standing. These can have a slow heat-up and often don't heat rooms evenly, so are generally best for background heating.

*Oil column heaters* – these heat in a similar way to panel heaters. They are generally available with wheels so can be moved around the room, or from room to room.

*Combi-heaters* – these combine two forms of heating into a single unit. Popular combinations include fan-radiant, and fan-convector. Combining a fan with these other types of heating can improve the heat-up ability and heat distribution around the room.

### What is the best kind of heater for different situations?

Because the different kinds of heaters heat in different ways some are better suited to some situations than others. Here are a few typical heating situations you might find, and suggestions for the most appropriate heater to use.

1. Get up in the morning – need a heater to provide quick heat in the kitchen/dining area for breakfast and getting kids off to school. If the house hasn't been heated through the night you want something that will heat the air quickly – best choice, **fan heater** or a **combi radiant/fan**.
2. At home through the day – need background heat in main living area. Best choice probably **convector heater (panel or oil column) with thermostat**. Alternative is radiant heater with thermostat.
3. Not at home during the day – coming back to a cold house and wanting living room to heat up quickly. A good choice will be a **combi radiant/fan heater with thermostat** – it provides good heat-up ability combined with the ability to heat just on radiant on lower heat settings, thus avoiding fan noise.
4. Teenager bedroom – convector heaters with thermostats are generally a good, safe option but if there is also the need for quick warm-up of a cold bedroom a **combi convector/fan heater** might be ideal.



5. Night - elderly person or infants bedroom – the need is for a lower level of heating (min of 16C for those vulnerable to respiratory conditions). A good choice is likely to be an **oil column heater with thermostat**.

### **Do different electrical heaters cost different amounts to run?**

Sometimes people think that different types of electrical heaters cost different amounts to run. But *all* types of the plug-in electric heaters convert electricity to heat at the same efficiency. This means they cost the same to run for the amount of heat they produce.

The two things which determine running cost are:

- a) what heat setting you have the heater on
- b) how long you run the heater.

Here are a few examples (based on electricity costs of 18c/kWh)<sup>1</sup>:

1. If you run a heater at 1.2kW in the morning and in the evening (say 8 hours per day) it will cost: \$1.73 per day or \$52 per month
2. If you run the same heater for 8 hours per day but on its full heat setting (2.4kW) it will cost twice as much to run: \$3.46 per day or \$104 per month

### **Other points to consider when choosing a plug-in electrical heater**

*Good controls:* choose a heater that allows a range of heat settings. This is helpful in situations where you require low levels of heat only. Timers are handy because you can set them to turn on before you get up in the morning.

A heater which has these extra features might cost a bit more than basic heaters. However they provide you with greater ability to control how much heat they generate, hence how much money you spend on heating.

*Safety:* Ensure portable heaters do not tip over easily, and have a cut out switch. There are fire and electrical shock risks with all electric heaters but especially:

- radiant heaters - make sure clothes or other flammable materials are not too close to the heater
- convector heaters – make sure convector heaters are not covered
- all portable heaters - make sure they are not used near water

*Health:* Fans may spark off asthma by stirring up dust.

*Noise:* Check heaters with a fan for settings for noise.

*Ease of operation:* Check that the heater controls are accessible and it is clear how to use them.

*Portable or fixed?* Do you need a heater that can be moved from room to room?

*Use a thermostat:* A thermostat avoids overheating the room and creating unnecessary power costs.

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<sup>1</sup> The actual cost you pay will depend on the tariff plan, 18c/kWh is a typical price in Christchurch in winter 2008, including GST and with the prompt payment discount. Some tariffs will be a little lower than this (e.g.all day economy tariffs) and some will be a little higher (low user, all day economy tariff).

## *How to find out about good quality brands of heaters*

“Consumer” magazine provides good information about the quality of different brands of heaters currently on the market. If you don’t subscribe to Consumer, it is still easy to obtain this information.

1. go to your local city council library
2. ask the Reference Librarian for a copy of the latest “Consumer” index
3. look up ‘heaters’ in the index – this will tell you which issue any articles about heaters are published in.
4. If the index does not cover the most recent months, you might have to look up each back issue to make sure you haven’t missed any articles about heaters. Consumer often publishes a review of heaters just before winter or during winter so check issues published in these months first.

You can also check Consumer NZ website at <http://www.consumer.org.nz>.

## **Get the best out of your electric heater**

### *Insulation and draught stopping*

Your heater will be most effective if the house or room you are heating is well insulated:

- Use lined or thermal curtains.
- Have the ceiling and floor insulation in your house checked to make sure it is up to Building Code Standards. Ceiling insulation can settle and be less effective after 15-20 years and it may need to be topped up with another layer of insulation.
- Install plastic window insulation kits during the cooler months of the year.
- Use draught stopping on internal and external doors, and around window frames

### *Use a thermostat*

A thermostat avoids overheating the room and creating unnecessary power costs.

- The best thermostats are those that are separated from the heater so are able to more accurately measure the room temperature (e.g. plug-in type thermostats).
- Many heaters come with a thermostat built in - these are not ideal because they tend to measure the temperature of the heater rather than the room temperature (especially when heater is on a high heat setting). However they are better than nothing.

### *Heating large spaces*

If you are heating a very large room it will be expensive to heat by plug-in electrical heaters. This is where other types of heating will be particularly beneficial such as a heat pump, pellet fire (or a clean burning log burner) which will be more affordable to run.

### *Heating spaces with a high ceiling*

Rooms with very high ceilings can be hard to keep warm because the warm air will rise and may be lost above your head. Several actions may be needed to address this:

- Insulation – make sure the ceiling has good insulation (R3.3 or better) to prevent heat loss.
- Air circulation - installing a ceiling fan to circulate heat downwards back into the room may be beneficial.
- Choice of heating – if a ceiling fan is not fitted the best kind of heater is likely to be a radiant heater (providing directional heat at floor level) or a fan heater (which will provide some air circulation).

For more tips and advice on how to use energy wisely, visit CEA’s website. [www.cea.co.nz](http://www.cea.co.nz)

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