

CLEAN HEAT FOR ROTORUA HOMES

A guide to clean home heating



Rotorua has the worst air quality in the North Island, mainly caused by home heating. Our poor air quality causes adverse health affects. The most vulnerable are the elderly, the young and those who already suffer from respiratory conditions such as asthma.

The main cause of Rotorua's air quality is home heating using wood or coal burners. 50 percent of Rotorua's homes use solid fuel burners as their main source of home heating. Rotorua has a large proportion of very solid fuel burners that are past their effective life span. This means they are less heat efficient and produce more pollution.

Being warm is just as important as having clean air to breathe. Bay of Plenty Regional Council encourages Rotorua Ratepayers to stay warm and investigate upgrading their old wood or coal burners to a clean heat option.

Clean heat options are appliances that use fuel efficiently to heat your home and have little or no emissions. Approved clean heat appliances can be found on Ministry for the Environment's website.

Indicative running costs of home heating options

HOME HEATING OPTIONS	CENTS PER UNIT (kWh) OF HEAT
Modern Heat pump – Energy Star (Split, non-ducted)	5 7
Modern Heat pump – Non Energy Star (Split, non-ducted)	7 9
Modern Wood burner	10 11
Modern Pellet burner	13 19
Flued Gas (Natural) heater – 4 Star or higher	14 16
Flued Gas (LPG) heater – 4 Star or higher	19 21
Unflued Gas (natural) heater	18 22
Electric heater	24 24
Unflued Gas (LPG) "Cabinet" heater	36 45

Cost comparison sourced from Energy Efficiency and Conservation Authority. For more information go to www.eeca.govt.nz

To find the best clean heat option for you, talk to a Clean Heat Installer.

Pellet Fires

Pellet burners are one of the most environmentally friendly ways of heating your home. Pellet burners burn compressed wood pellets in a purpose built fire. Whilst they look like a conventional wood burner, the pellets (sold in 15kg bags) are loaded into a hopper at the back of the unit and are fed into the fire by an automated feed system.

By adjusting the amount of pellets fed into the fire it provides control over the amount of heat produced.

Pellet fires cause less pollution than wood burners.



PROS

- No more chopping or storing firewood.
- Most models light electrically – no need for matches or firelighters.
- Some can be set to switch on or off, using a timer.
- With most models the room temperature can be thermostatically controlled.
- They usually have a smaller diameter flue than wood burners, which may make installation easier. The flue can also be taken out horizontally through an external wall.
- They burn very cleanly, so are less of a community health hazard.
- The pellets are made from sawmill waste – burning it is carbon-neutral.
- The fuel is manufactured from an abundant renewable resource.

CONS

- Pellet burners are expensive to buy compared with wood burners and gas heaters. Prices start at around \$3,500 (including burner and flue), and then there's installation.
- They can only burn pellets – no free firewood.
- They require electricity to work. A battery and inverter or a small generator can be added to be a back-up power-supply system, but these add to the cost.
- They have fans and a hopper-fed motor, so they make some noise. Some models can have the flue fan mounted outside the house to reduce noise.

Flued Gas Fires

If you want lots of heat and real flames, then a flame-effect gas fire could be an option. Or you can choose a floor mounted energy saver model.



Running costs are higher than for a wood burner or heat pump – but you can't toast yourself in front of a heat pump or just press a button to light a wood burner.

Natural gas and LPG are clean-burning for pollutants. Make sure if you use gas heating that it is flued.

PROS

- Ease of use.
- Quickly warms a room and maintains a comfortable temperature.

CONS

- Cost – flued gas is possibly more expensive than an equivalent-sized heat pump and certainly more expensive than a wood burner. Installation costs would vary according to the house's layout.
- If you have mains gas you need to pay a monthly connection fee, even if you only use your gas heater in the colder months.
- Some gas heaters need electricity to work so will not work in a power cut.
- Burns fossil fuel.

Wood Burners

Wood burners are a common form of heating in New Zealand.

Ministry for the Environment has an approved list of wood burner's that are more efficient and produce less air pollution than wood burners in the past.

Regardless of the wood burner's age, how the wood burner is operated affects whether it is a source of clean heat. Fuel used must be dry, seasoned wood otherwise a smoky fire producing high levels of pollution is the result. For more information on building clean efficient fires see our "Hot Tips for Clean Burning" fact sheet.



PROS

- Atmosphere and ambience.
- Heat bills not affected by rising electricity prices.
- You can still heat your house if there's a power cut.
- Burning wood is carbon-neutral because it's a renewable resource but burning it cleanly is the key to making it enviro-friendly.

CONS

- If not used properly they will produce less heat and will cause more smoke which is detrimental to our air quality.
- If you don't buy your wood supply, then you need time to source and split your wood.
- Time and energy required to light fires, and time taken to produce heat required to warm your house.
- Have to ensure you have space for your firewood to be stacked correctly and protected to keep it dry.

Heat Pumps

Heat pumps are a great way to heat your home and do not produce any of the harmful PM¹⁰ particulates in the air.



They provide convenient, efficient, thermostatically-controlled heating that can be pre-set at different times of the day to turn on and off.

The simplest versions are designed for a single room; the most complex, for a whole house. It takes 20 to 40 minutes to bring a room up to temperature, after which the level will be maintained within one or two degrees.

A heat pump works by extracting heat from the air outside your house and bringing it indoors. It's like a refrigerator in reverse.

Some areas of Rotorua have high concentrations of hydrogen sulphide (H²S). This gas is very corrosive and can cause problems with metal corrosion and electronics, all of which are incorporated within heat pumps.

Before choosing a heat pump check with your supplier how they propose to treat the heat pump to ensure it can withstand Rotorua conditions and confirm any effects the Rotorua conditions may have on manufacturers' warranties.

PROS

- Warm, dry and comfortable.
- Can quickly bring a room up to temperature and then maintain it.
- No gas charge.
- A reverse-cycle heat pump is the only type of home heating system that can both heat and cool a room.
- If you switch a heat pump into cooling mode, it will also dehumidify the air in your house.
- Many modern heat pumps incorporate a washable filter unit that removes dust and particles from the air.

CONS

- Noise – Fans run both the interior and exterior units all the time they are switched on. The fan in the inside unit of a heat pump should produce little more than a low hum in low-speed mode, but the compressor plus the fan outside unit can be quite noisy.
- Heat performance can reduce in low temperatures. Extracting heat from outdoor air gets more difficult as the temperature drops. Sometimes, especially on frosty nights, exterior heat pump units freeze-up and have to stop working for several minutes while they defrost.
- Circulating air can cause draughts – check with your installer about the best place to position your unit to minimise any draughts.