

COST COMPARISONS

for Hydronic* Central Heating Systems in New Zealand

Note: This sheet provides **comparisons between different systems**. The install and running costs are ballparks due to the difference in labour and fuel costs around New Zealand.

The figures below show approximate costs for a single storey 240m² (including garage) 4-bedroom home with two living areas and two bathrooms.

FUEL TYPE	TYPE OF HEATING	COST OF FUEL (\$/DELIVERY UNIT)	COST OF HEAT (¢/KWH)	BALLPARK MONTHLY RUNNING COSTS IN WINTER	BALLPARK CAPITAL COST INSTALLED
NATURAL GAS (COSTS BASED ON POWERSWITCH'S AUCKLAND PRICES)					
Baxi Gas Boiler	Radiators	\$0.086 / kWh	11.2	\$275	\$13,000 - \$18,000
Baxi Gas Boiler	Underfloor	\$0.086 / kWh	10.6	\$285	\$13,000 - \$18,000
LPG					
Baxi Gas Boiler	Radiators	\$105.00 / 45kg cyl	19.4	\$485	\$13,000 - \$18,000
Baxi Gas Boiler	Underfloor	\$105.00 / 45kg cyl	17.2	\$520	\$13,000 - \$18,000
DIESEL					
Firebird Diesel Boiler	Radiators	\$1.20 / litre	12.3	\$310	\$18,000 - \$23,000
Firebird Diesel Boiler	Underfloor	\$1.20 / litre	11.9	\$360	\$18,000 - \$23,000
FIREWOOD					
Attack Multifuel Wood Boiler	Radiators	\$85.00 / m ³	10.6	\$270	\$20,000 - \$30,000
Attack Gasify Wood Boiler	Radiators	\$85.00 / m ³	10.0	\$250	\$25,000 - \$35,000
ELECTRICITY (COSTS BASED ON POWERSWITCH'S PRICES)					
Air-to-Water Heat Pump	Radiators	\$0.23 / kWh	10.6	\$265	\$28,000 - \$33,000
Air-to-Water Heat Pump	Underfloor	\$0.23 / kWh	9.4	\$285	\$18,000 - \$23,000
Geothermal Heat Pump	Radiators	\$0.23 / kWh	8.3	\$210	\$35,000 - \$45,000
Geothermal Heat Pump	Underfloor	\$0.23 / kWh	7.5	\$225	\$35,000 - \$45,000

All costs include GST. Installation costs are to be used as a guide only and are based on a new home. Installation and component issues can affect the approximate capital cost of installation. All running costs take into account the thermal efficiency of the relevant heat source as independently measured by laboratory testing. Underfloor heating tends to use a bit more energy than radiators due to longer running periods. Fuel used is based on heating living spaces to 21°C and bedrooms to 18°C for 6-8 hours per day for a radiator system and 24 hours on low for underfloor heating. Contact Central Heating New Zealand to work out the costs relevant to your home or building project.

Factors to Consider

Location: Houses in colder parts of the country need more heating. Natural gas is not available in the South Island.

House Design: In any given location the heat loss of a house is affected by:

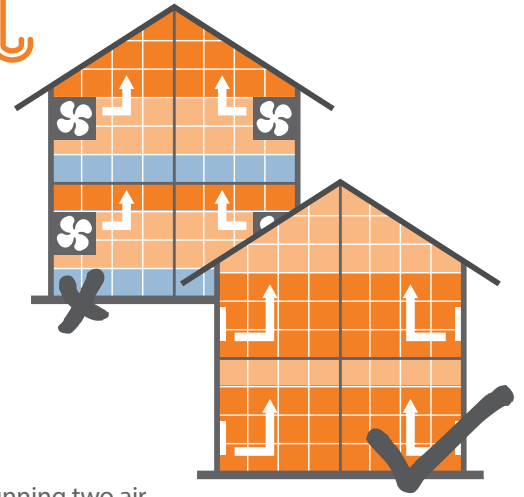
- Levels of insulation
- Amount of glazing—standard double glazing loses heat at 7 times the rate of a standard timber frame wall
- Complex shapes have a higher surface area than simple ones leading to more heat loss

Lifestyle: In any one house the amount of energy used for heating is highly dependent on lifestyle such as:

- The temperature you heat to
- How many hours a day the heating is on

Other factors: All heat sources have advantages and disadvantages beyond their capital and running costs. Central Heating New Zealand can help you decide which system is the most appropriate for your home and lifestyle.

HOW DOES HYDRONIC CENTRAL HEATING COMPARE WITH...



Air heat pumps?

- **Cost:** The monthly running cost of central heating is comparable to running two air heat pumps, but with whole home heat and total comfort!
- **Comfort:** With central heating, you get even heating throughout house, not just in a couple of rooms, plus the sun-like warmth of radiant heating
- **Health:** Because central heating has no forced air movement, it doesn't cause dry eyes or stir up dust that leads to throat irritations or allergies like air heat pumps
- **Noise:** Both radiators and underfloor heating are silent while air heat pumps create unwanted background noise
- **Efficiency:** You would need 2-3 air heat pumps to get near the comfort of central heating—and even that wouldn't heat the whole home. Plus, water transfers energy at four times the rate of air, meaning it requires less energy in for the amount of heat produced
- **Flexibility:** Central heating can be combined with domestic hot water production for significantly reduced costs, which can't be done with stand-alone air heat pump heating

Central heating from radiators and underfloor heating heats rooms from the floor up without the drafts or cold spots associated with air heat pumps.

Electric underfloor?

- **Cost:** You can happily heat your entire home with hydronic underfloor heating, but heating the whole home with electric underfloor would be cost-prohibitive: the monthly running costs easily double the cost of hydronic underfloor heating
- **Practicality:** Hydronic central heating solves all heating needs with a single system, which is easier to manage than a patchwork of different heating methods, which is what is often required when electric underfloor is only installed in the tiled areas of the home while another heat source, like an air heat pump, is used for the rest of the home
- **Flexibility:** Central heating can use a variety of heat sources so it's future proof should you change heat sources in the future

Ducted systems?

- **Health:** Because central heating has no forced air movement, it doesn't cause dry eyes or stir up dust that leads to throat irritations or allergies like a ducted system does
- **Noise:** Radiators and underfloor heating are completely silent while ducted systems create unwanted background noise
- **Comfort:** With hydronic central heating, you get the sun-like warmth of radiant heat and because heat rises, locating the source of heat at floor level is the most efficient and comfortable. In ducted systems, the heat coming from the ceiling is fighting physics all the time and is never as effective at heating a room
- **Efficiency:** Water transfers energy at four times the rate of air, meaning it requires less energy in for the amount of heat produced, so a hydronic (warm water) central heating system is more efficient than an air system
- **Flexibility:** Warm water central heating can be combined with domestic hot water production for significantly reduced costs, which can't be done with any type of ducted air heating system