Central Heating
NEW ZEALAND

Cost Efficiency of Air-to-Water Heat Pumps and Radiators

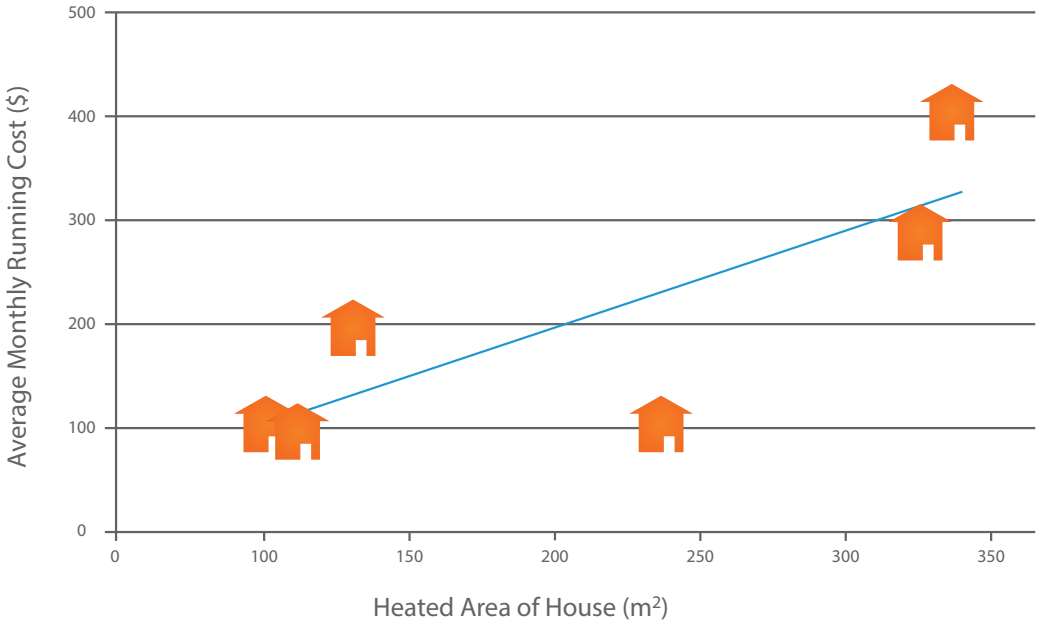
Heating results from our 2014 study

You can heat your whole home for the same cost as running two hot air heat pumps, without the drafts, the damp, or the cold spots. If you're skeptical, read on.

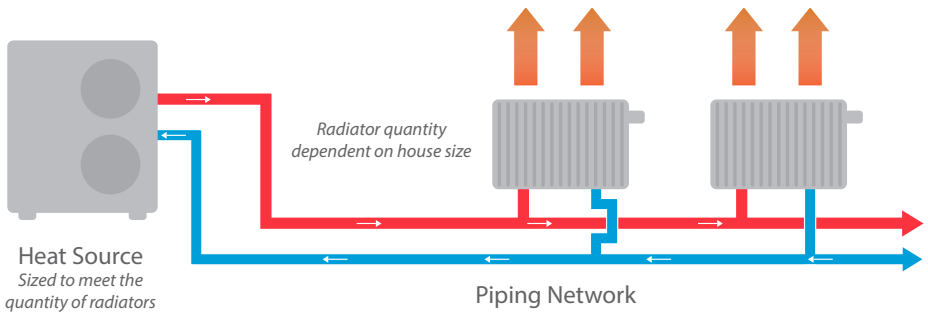
ABOUT OUR STUDY

Using the power meter installed on our hydronic heat pumps, we looked at the amount of electricity used only by the heating system for six different Christchurch homes. These homes' livable areas ranged in size from 98sqm to 340sqm and included both retrofitted and new homes in a variety of different architectural styles.

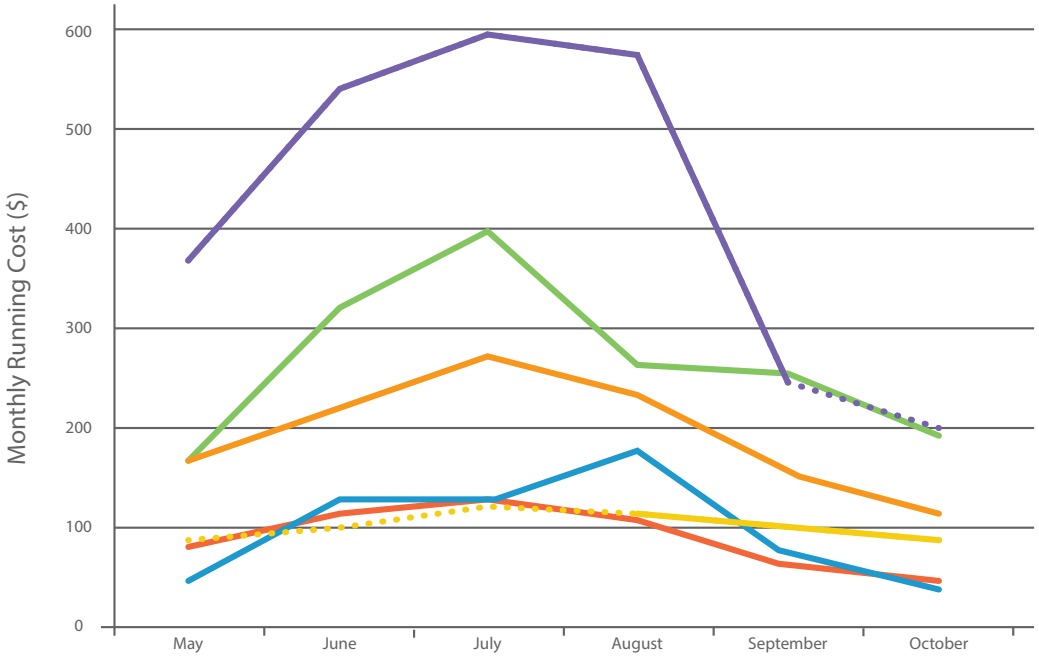
AVERAGE MONTHLY RUNNING COST RELATIVE TO HOUSE SIZE



RADIATOR SYSTEM SCHEMATIC



MONTHLY RUNNING COSTS FOR SAMPLED HOMES



Home Details

- 98 sqm, Built 1974
  - 7 radiators
  - 2 towel rails
- 125 sqm, Built 1960s
  - 11 radiators
- 327 sqm, Built 2001
  - 15 radiators
- Projected results based on similar home data and heating trends
- 105 sqm, Built 1930s
  - 6 radiators
  - 1 towel rail
- 315 sqm, Built 2013
  - 8 radiators
- 340 sqm, Built 1930s
  - Includes DHW
  - 11 radiators, 2 towel rails

MONTHLY COSTS

We found the average running costs of the homes in our study during the heating season of May to October to be much lower than some might expect, especially given the sizes of some of the homes studied. Even during July, the coldest month of the year, the average monthly cost was under $300. And, of course, since this is central heating, the whole home is warm.

AVERAGE:
$198/mo*

*Over the entire heating season, when electricity priced at 24¢ per kWh

HEATING COSTS RELATIVE TO HOUSE SIZE

As one might predict, the larger homes had higher running costs than the smaller homes. In fact, as shown in the graph above, the correlation between the house size and warm water central heating running cost works out to an average of $1/sqm per month.

HEATING COSTS RELATIVE TO HOUSE AGE

The study reconfirmed that older homes require more energy to maintain a comfortable temperature than newer homes due to differences in insulation. Even so, our study's 105sqm home built in the 1930s averaged only $99/month! This means that with the right size and placement of radiators, it's possible for homes of all sizes and ages to benefit from an efficient hydronic heat pump and radiator heating system.

A radiator in one of the monitored homes.