

# Compare: Ground Source Heat Pump vs. Propane Furnace

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An e-mail from Roger in Cambelleville Ontario: We have just started to build our home (3300 sq. ft.) and I recently found out that natural gas is not available. So the great debate begins on what fuel source to use. I have narrowed down my selection to radiant heat using a propane to heat the boiler or a water furnace, (the later I really like) My question to you is what are the pro's and con's of these two systems. What would your choice be if you were building. Response: When you mention "water furnace" I assume you are referring to one of the brand names of water-to-water heat pumps for use with geothermal heat sinks/sources -- otherwise known as a ground source heat pumps. The trouble with geothermal is the high capital cost of the equipment and the installation, including the underground tubing. If you have an underground water source (i.e. two wells) the underground portion of the heating system will be less expensive (shorter) than if it is ground coupled. Both types will be more expensive than conventional heating, but will be able to give you air-conditioning. The key of course is that with such a constant heat source (temperatures don't change much summer to winter deep in the ground), the machine becomes very efficient and very inexpensive to operate. You need a large lot for the installation (you are in the country) and a large heat demand (you do have 3300 sq.ft.) to justify needing to generate a lot of low cost heat. Pay-back periods start to become attractive (say 5 or 6 years) with houses of 4000 or 5000 square feet. If you are willing to wait a little longer it may be worth your while, especially if you believe that fossil fuel prices really are going to double this winter. If you do go with the ground coupled heat pump make sure you find an experienced contractor with good references. This can make all the difference between a system that works efficiently with minimal expenditure, and an expensive system that gives you problems.

**Keywords:**

Furnace, Energy Conservation, Heat Pump, Heating