#### Geothermal Versus Air Source Heat Pumps, Which is the Best Choice for You?



In a comparison of [geothermal](https://heatpumpguide.com/types/geothermal-heat-pumps/) and [air source](https://heatpumpguide.com/types/air-source-heat-pumps/)heat pumps, each one has its benefits that are likely to sway your opinion of which is best for you and your home. Geothermal heat pumps are one of the [highest efficiency](https://heatpumpguide.com/tech/3-of-the-highest-efficiency-heat-pump-systems-for-your-home/) type of heat pumps you can get for your home.

This [Heat Pump Article](https://heatpumpguide.com/articles-and-guides/) outlines the differences in the two types of home heat pump, so you can decide which one [makes the most sense](https://heatpumpguide.com/tech/how-to-get-the-right-size-heat-pump-for-your-home/)for your heating and cooling needs.

**Heat Collection in Geothermal and Air Source Heat Pumps**

The primary difference in the two types of heat pumps is where they collect and release heat. An air source heat pump is fully above ground and collects heat from the outside air in the winter and dumps it outside in the summer.

A geothermal heat pump collects it using liquid in pipes buried underground or in some cases, submerged under water, dumping heat in the ground or water in the summer. For this reason, these units are sometimes referred to as [ground source](https://heatpumpguide.com/types/ground-source-heat-pump/)heat pumps.

**Geothermal Heat Pumps are More Efficient than Air Source Heat Pumps**

Similar to a [hybrid](https://heatpumpguide.com/tech/dual-fuel-and-hybrid-heat-pumps-explained/) heat pump system, efficiency is the primary benefit of a geothermal heat hump. They are more efficient – meaning that they use less electricity to produce the heating and cooling – because the ground temperature is more stable than air temperature. In winter, they are collecting heat from the ground or water where temperatures are in the 50s to low 60s while air temperatures can be in the 40s and below.

In the summer, geothermal heat pumps are dumping the heat into that same 50-60 degree medium rather than into air temperatures that can be in the mid-80s and above.

**Air Source Heat Pumps Cost Less to Install than Geothermal Heat Pumps**

This is the main advantage for air source heat pumps. The exact [cost of a heat pump](https://heatpumpguide.com/heat-pump-prices/) will vary widely, but it is common for a ground source heat pump to cost 2-3 times more for [installation](https://heatpumpguide.com/tech/average-installation-cost-for-heat-pump-systems/). The reasons for the extra cost are the increased time and materials required. Systems require 150 to 400+ feet of pipe. They take several days to a week or more to install, with the use of an expensive excavator, while air source heat pump systems can be installed in less than a day in many cases.

**What Type of Heat Pump is Best for You?**

A geothermal heat pump is the best choice if having the greenest technology is your purpose. It can also be a cost-effective heating and cooling system over the long term. It may take 7-10 years or more to gain back the extra cost of the system in the form of lower utility bills, but you’ll enjoy 25% to 40% savings over an air source heat pump each year.

If you’re unsure how long you’ll be in your current home, or don’t want the immediate expense of a geothermal heat pump system, then a standard air source heat pump might make the most sense for you.

From:https://www.heatpumpguide.com/tech/comparison-of-geothermal-and-air-source-heat-pumps/