



# arronco

SMART HOME ENERGY SOLUTIONS



A SMARTER WAY TO HEAT AND COOL FOR NEW HOMES



## Thanks for Taking a Look.

We know that initial cost is only one portion of the investment when deciding to purchase a new home. Energy and maintenance play a major part in the total cost of ownership. For that reason, we work with homebuilders to construct homes **above and beyond** the minimum Energy Star standards, which far exceed the standard energy codes for new home construction. Not only does this save hundreds of dollars every month on utilities compared to standard homes, it also provides a much more comfortable home. On top of that, geothermal installations are covered with a 10-year parts and labor warranty, eliminating any repair costs.

We've always been defined by our great customer relationships. So we want to thank you for taking the time to see what Arronco can offer. We look forward to seeing how we can help you save energy and find complete comfort in your home or business.

**Andrew M. Wolfe**  
VICE PRESIDENT



up to  
**70%**  
savings

on heating,  
cooling and  
hot water cost

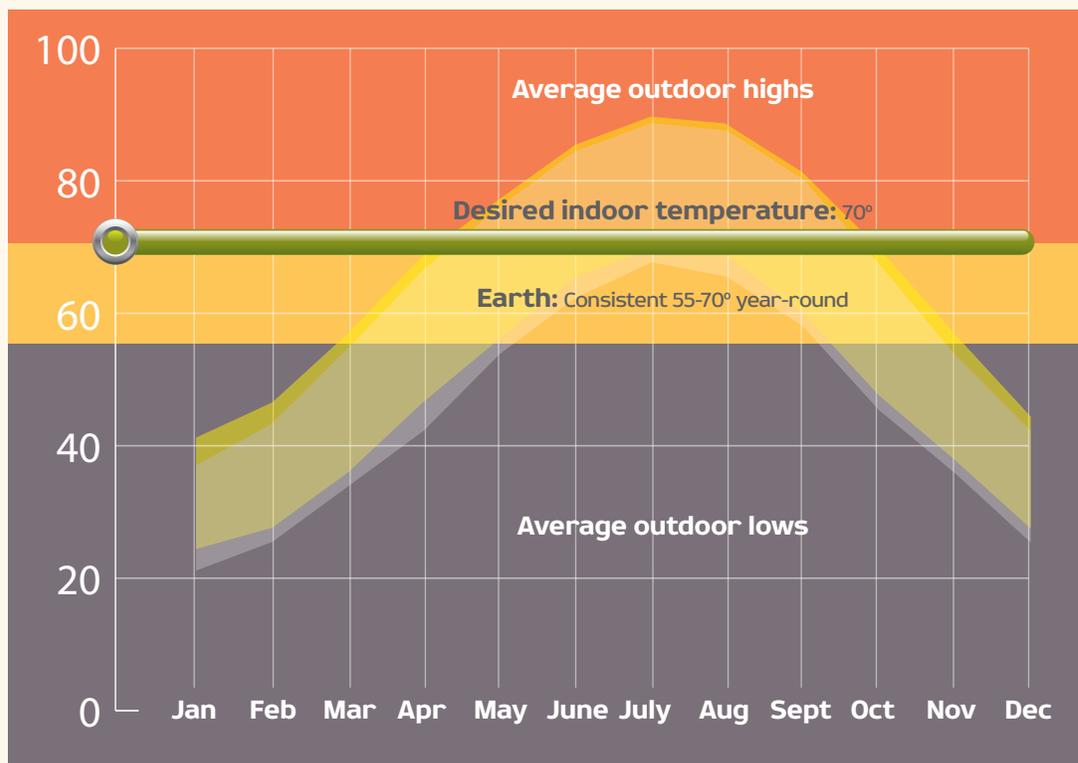
## Geothermal Advantages

- 30% No-cap Tax Credit, a true dollar-for-dollar tax credit
- Up to 70% savings on heating, cooling and hot water cost
- No short blasts of air — more even and comfortable heating and cooling
- Longer estimated equipment life due to lack of outdoor elements
- No noisy outdoor unit
- No flame, flues or fumes from combustion or dangerous carbon monoxide emissions
- Environmentally friendly
- Potential additional incentives and rebates available

Geothermal doesn't waste energy converting outdoor air temperatures. It exchanges heat with a consistent temperature source.

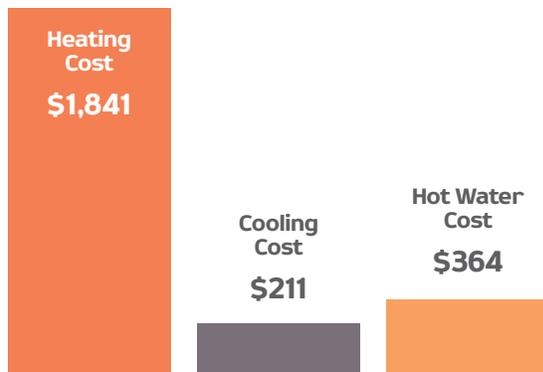
"The temperature of the outdoor air can vary greatly from day to night and more than 100°F from the coldest winter night to the hottest summer day. In contrast, the temperature just a few feet below the earth's surface stays an average 55° - 70° year-round."

"Geothermal heat pumps are among the most efficient and comfortable heating and cooling technologies available because they use the earth's natural heat to provide heating, cooling, and often, water heating." ("Guide to Geothermal Heat Pumps", U.S. Department of Energy)



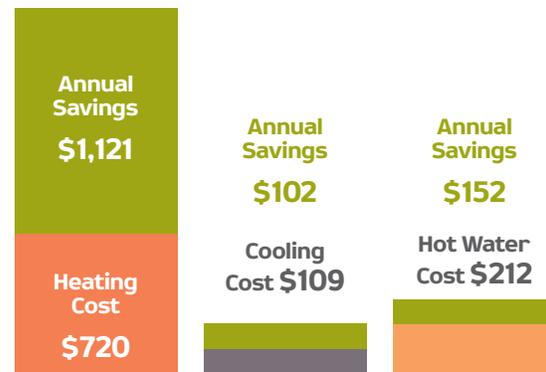
Based on average 2012 temperatures for Louisville, KY and Covington, KY (°F)

## Conventional



Heating Type: Natural Gas Furnace, 92 AFUE efficiency, 80,000 Btuh capacity  
Cooling Type : Standard Air Conditioner, ARI Ref. No: 963184, 13 SEER, 46,000 Btuh

## Geothermal



Heating Type: Two Stage Ground Service HP, Model Number: NDV/NDH049\*\*4\*1, 4.1 COP Efficiency High, 4.7 COP Efficiency Low, 37,400 Btuh Capacity High, 31,000 Btuh Capacity Low  
Cooling Type: Two Stage Ground Source HP, Model Number NDV/NDH049\*\*4\*1, ARI Ref. No: 1269491, 18/25 EER, 50,000/38,700 Btuh

## Why Geothermal?

An abundant source of free, renewable energy that can heat a home in the winter, cool it in the summer and provide hot tap water year-round — It's not a pipe dream, though there are pipes involved.

Geothermal heating and cooling is extremely energy-efficient and generally provides the lowest utility bills of any residential system by tapping into renewable energy from heat stored in the ground. Conventional systems waste energy by having to convert outdoor air temperatures (which vary greatly) to the ideal indoor temperature. By exchanging heat from a source with a consistent temperature,

geothermal units do not have to work as hard. A geothermal system's efficiency can mean savings of up to 70% on heating, cooling and hot water cost.

To capture heat energy from the ground in winter or disperse it during the summer, a series of pipes are placed in the ground.

## Comfort in Savings

When you choose geothermal for your new home, it doesn't add to your monthly home ownership cost, it actually decreases it. This happens because the money you save every month you own your home is more than the additional cost of the geothermal upgrade when financed on conventional 30-year loans.



### Projected Cumulative Energy Cost Comparison

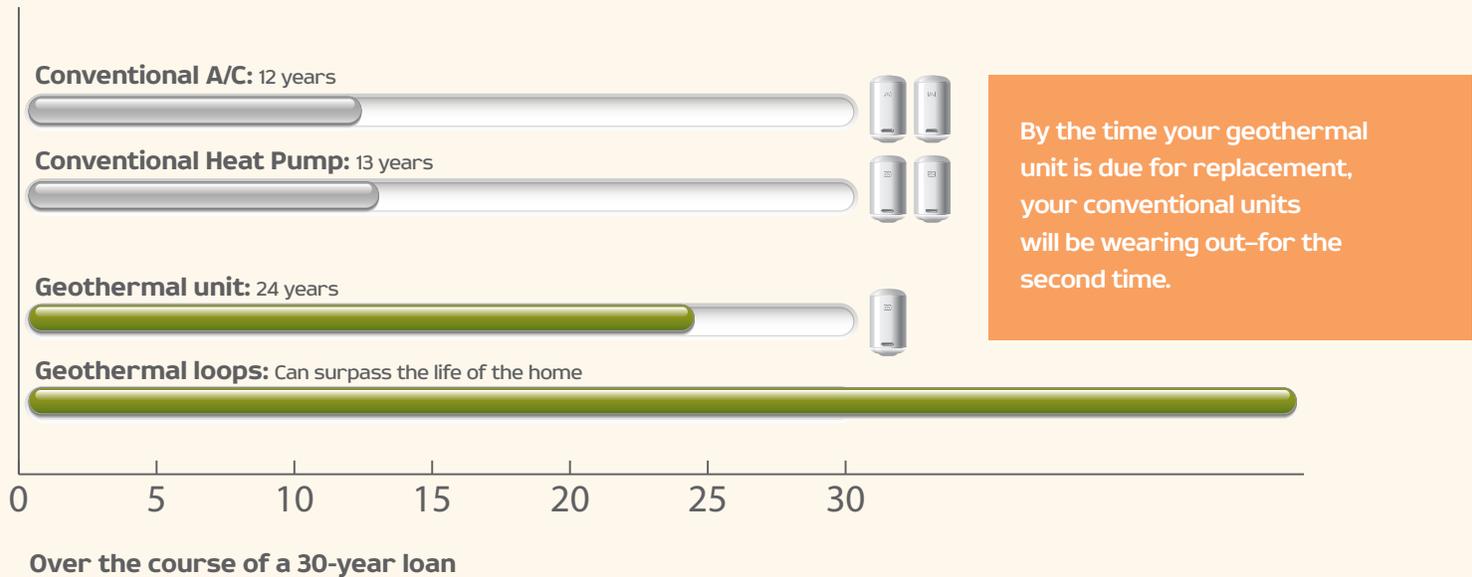
Year	High Efficiency Gas and A/C Annual Total Cost	WaterFurnace Envision GEO Annual Total Cost	Annual Expected Savings	Cumulative Expected Savings
1	\$2,416	\$1,041	\$1,375	\$1,375
2	\$2,488	\$1,072	\$1,416	\$2,791
3	\$2,563	\$1,104	\$1,459	\$4,250
4	\$2,640	\$1,138	\$1,502	\$5,752
5	\$2,719	\$1,172	\$1,547	\$7,299
10	\$3,152	\$1,358	\$1,794	\$15,761
15	\$3,654	\$1,575	\$2,080	\$25,571
20	\$4,236	\$1,825	\$2,411	\$36,943
25	\$4,911	\$2,116	\$2,795	\$50,126
30	\$5,693	\$2,453	\$3,240	\$65,410

An environmentally friendly antifreeze/water solution running through the pipe acts as the heat transfer medium. All of our WaterFurnace models use earth-friendly R-410A refrigerant instead of Freon. In addition to energy and cost efficiency, geothermal systems are also extremely quiet, requiring no outdoor equipment. Beyond just providing more peaceful operation, the lack

of outdoor equipment also means reduced wear and tear from weather exposure. The Environmental Protection Agency has called geothermal the most energy efficient, environmentally clean and cost-effective heating and air conditioning systems available, making them ideal for incorporation into new homes.

## Lifespan

When you look at the total cost of ownership of your heating and air conditioning system, replacement cost is also an important consideration. Geothermal systems have an average lifespan of 24 years, compared to 12 years for air conditioners and 13 years for conventional heat pumps. The only portion of a geothermal system that will ever need replacement is the indoor unit, the loop lasts a lifetime. This means when it comes time to replace your geothermal equipment, it won't cost more than a comparable conventional system.



## Repairs and Maintenance

Not only does geothermal put money back in your pocket every month because of reduced utility cost, it also saves you money in the long run on repairs, maintenance and replacement costs. Geothermal systems come with a 10-year parts and labor warranty as opposed to a 1-year warranty that is standard on most conventional systems.



## How efficient is a geothermal system?

A geothermal system is over 5 times more efficient in heating and more than twice as efficient in cooling as the most efficient conventional system. Because existing heat is being transferred without combustion, geothermal provides 4-5 units of energy for every one unit used to power the system.

GEOTHERMAL HEATING AND COOLING



CONVENTIONAL HVAC



## FAQ

### What makes a geothermal system different from ordinary systems?

Unlike conventional systems, geothermal systems don't need to burn fossil fuels to generate heat. They simply transfer heat to and from the earth to provide a more efficient, affordable and environmentally friendly method of heating and cooling. This only requires a small amount of electricity to operate the unit's fan, compressor and pump.

### What does geothermal mean for the environment?

Geothermal systems work with nature, not against it. They emit no greenhouse gases and the earth-loop antifreeze is not harmful to the environment in the event of a leak (a very rare occurrence). In addition, R-410A, the performance-enhancing refrigerant used in WaterFurnace products will not harm the ozone.

### Can a geothermal system also heat water?

Yes. Most geothermal systems also do a large part of your water heating. While in cooling mode, a portion of the heat removed from your home is used to heat your hot water, providing free hot water! While in heating mode water can be heated at the same efficiency of the geothermal unit providing significant savings on hot water cost. On demand, dedicated geothermal water heating systems are also available.

### What is a closed loop system?

A closed loop system uses a continuous loop of buried polyethylene pipe. The pipe is connected to the indoor heat pump to form a sealed, underground loop through which the antifreeze and water solution is circulated. The loop system constantly re-circulates its heat transferring solution in a pressurized pipe.

### How long is the payback period for a geothermal system?

One of the greatest benefits of geothermal is the cash flow. The monthly savings in operating costs generally offset the additional monthly financing cost, resulting in an immediate positive cash flow.



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[arronco.com](http://arronco.com)

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