

Geothermal Frequently Asked Questions

What does the system cost? The investment for a Geothermal System can vary greatly depending on size of home and options installed. The installation for an average 2,000sf home can range \$25,000 - \$40,000. When looking at the this investment, be sure to calculate (deduct) what it is going cost you to replace your existing systems in your home with a similar conventional system to get an actual “investment” figure. The typical lifespan of a furnace/boiler is 15-20 years.

What are my operational costs for the system? Your costs will be reduced by approximately two-thirds of what you are currently paying in fossil fuel costs. The one-third that remains will be an electricity expense, not fossil fuel.

How does the system run? The GSHP uses an electrical connection to operate the pump, blower and microprocessor board.

Do I need a back-up system? No, the system is designed to heat & cool your home in place of your current equipment. Some types of systems additionally have an electric back up heater installed.

Can one system provide both heating and cooling for my home?

Yes, a GSHP can be a combination heating and cooling system. You can change from heating to cooling with a switch on your indoor thermostat.

Can the system supply Domestic Hot Water? Yes, this is a great add-on option for the system.

How warm can I heat my home? The system is designed to heat your home to 70 degrees if it's 0 degrees outside. 32 degrees is freezing. Base on our experiences here in CT, it can get into the teens overnight, but rarely zero or below.

How cold can I cool my home? You can cool your home to at *least* 20 degrees below the outside temperature. Since many of the systems we install are two-stage systems, you could make it colder than is actually practical; if you turned the thermostat low enough.

What type of Warranty do you offer? Each installation has a 50-year warranty on exterior piping, a 10-year warranty on the Compressor and a 1-year warranty on all other parts. Every customer can purchase an extended 5-year or 10-year Limited Warranty Plan to cover parts & labor including the compressor, evaporator, condenser, expansion valve, fan, microprocessor board and reversing valve.

Do I need to have ductwork in my home now to install a GSHP? No, there are numerous design options are available depending on: (1) size of your home, (2) the existing equipment in your home and (3) your budget.

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Do I have to contact a driller / excavator for the exterior work? No, Custom Mechanical Services will coordinate all of the work for you. We provide this service to our customers to ensure the installation goes smoothly and is installed properly.

How do I maintain my equipment? Custom Mechanical Services offers an annual preventive maintenance contract called Geothermal Service Partner Plan. We will come out once a year to run a full diagnostic check of the system, check parts for wear and tear and replace filters.

I have allergies. Can you help me? We offer several add-on features to the GSHP system to help increase the indoor air quality of the home. There are specialty Hepa filters & UV lights to control allergens, molds, bacteria and yeasts. This is especially critical during the spring and fall seasons where pollen & spore counts are at their highest levels. Since the geo systems have longer run cycles than conventional systems the filters do a better job because they have more opportunities to catch impurities in the air.

I have a forced air system now and the house is too dry in the winter. What do you recommend? We can add a whole house humidifier to the GSHP system. This will provide a comfortable humidity level in the home during the winter months.

What types of Rebates / Tax Incentives / Financing are currently being offered? (1) Your local utility Company is offer \$500 cash rebate per system ton under the Connecticut Energy Efficiency Fund, (2) Contact your tax assessor's office to find out how to reduce your property taxes thru the Property Tax Exemption for Renewable Energy Systems and (3) The CT Housing Investment Fund (CHIF) is also offers a Energy Conservation Loan Program to help with financing.

What is the difference between open loop, horizontal or slinky loops and vertical loops, bore holes or wells? *Open loop* is a system where water is pushed to the heat pump by a well pump. Though they may seem like the obvious choice there are some drawbacks (1) the cost to run a well pump limits the cost savings of the system, (2) the discharge water that comes from the heat pump must be disposed of this could be several million gallons per year. Some towns do not allow discharged water to be pumped back into the ground, (3) the possible contaminants in the well water can pose considerable maintenance issues with filters and strainers needing periodic maintenance and potential scaling of the heat exchanger.

Horizontal or slinky loops are a type of system where piping is laid in trenches or pits with an average depth of 7 feet below finish grade. These systems are less expensive than vertical loops, and like open systems have some drawbacks. If you have ever tried to dig a hole in your back yard you know that Connecticut is full of rock. One of the biggest drawbacks is the ability to dig deep enough and far enough to get the amount of pipe needed for an average system without hitting ledge. The type of soil is also a consideration with this system; sandy soil though easy to dig is a poor conductor of heat energy and is not recommended to use for use with geothermal systems.

Bore holes, wells or vertical loops; this is the most common type of system installed by Custom Mechanical Services. In this system a well drilling rig is brought in to drill into the earth to a depth, which has been determined by using the homes heating load calculations. The piping is placed into the borehole and grouted from the bottom up, displacing any water that may be

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present. This special thermally conductive grout not only seals the hole from potential contamination from surface water but also acts as a conductor, helping to pull heat energy out of the earth in the winter and reject the heat from your home in the summer back into the earth. These systems are somewhat more expensive than horizontal loops but they are a “sure thing” in Connecticut’s varied subterranean stratum.