



Cost of Installing a GSHP System:

The cost of installing a GSHP system is highly dependent on conditions at the site as well as the homeowner’s preferences. A good GSHP installer will walk the homeowner the choices they will need to make, and the costs associated with these different choices. A good GSHP installer should also be able to make a recommend a design that makes the most sense for a given site.

Variable	Lowest Cost	Medium Cost	Highest Cost
Ground Loop* *Drilling conditions will affect cost; drilling in bedrock is more difficult and hence more costly than drilling in uncolidated sediments)	Standing Column Well -- <u>if</u> a water well is required for domestic water and water quality and quantity are adequate for use in a GSHP system. (this is lowest cost because a well would need to be installed in any case)	Closed loop – horizontal (trenching) Open Loop – Pond/Lake Closed Loop – Vertical Standing Column Well (if well is only being used for GSHP system)	Closed Loop— Vertical Closed vertical loops boreholes need to be deeper than a water well but do not have the water quality concerns associated with SCWs.
Heat Pump*	Single Stage	Dual Stage	Variable Speed
Heat Distribution System	Forced Air	Hydronic – hot water with radiators	Hydronic – Under floor radiant heat
Building Status	Retrofit with an existing heat distribution system and domestic water well, both of which are well suited to a GSHP system. Only need to install a heat pump(s).	Retrofit with adequate heat distribution system but lacking a ground loop. (need to install groundloop and heat pump only) New Construction (need to install groundloop, heat pump and heat distribution)	Retrofit with inadequate heat distribution system. (need to install ground loop, heat pump and heat distribution system; also need to remove existing furnace and heat distribution system).

The array of variables shown above explain why there is a large range in the price of installing a GSHP. For a **ballpark figure**, homeowners can estimate that an installed GSHP system with the following rules of thumb:

1. An installed GSHP system ranges in price from \$7,000 to \$12,000 per ton *or more* depending on specific site conditions and variables.
2. For a medium sized home that uses a 4-ton heat pump, the cost of installing the GSHP system will therefore range from \$28,000 to \$48,000 or more, again depending on the variables at the site.
3. Until the end of 2016, the federal government is offering 30% tax credit for GSHP installations. Applying this federal tax credit, the final installed price of the GSHP system is \$19,600 to \$33,600 or more depending site conditions.
4. Subtracting off the cost of installing a conventional heating and cooling system (which would need to be done if a GSHP were not installed) yields the incremental cost of installing a GSHP system. For new construction, assuming an average cost of around \$14,000, the incremental price range for a GSHP would be \$5,600 to \$20,000 or more.

Time Required to Install a GSHP System:

The difference between installing a GSHP system and a conventional heating cooling system is the process of installing the ground loop. This step of digging, drilling or trenching can take upwards of a week in some cases.