

# Geo-Tech Geothermal overcomes the obstacles of a tight space and budget

**Homeowners in Canada are breathing easier thanks to geothermal, writes Nancy Argyle of Sonic Drill Corp.**

ALTHOUGH it is feasible to install a geo-exchange system in a small home, it is commonly believed that residential, geothermal installations are best suited to houses larger than 3,000 sq. ft.

“A lot of people actually tried to talk us out of installing geothermal in our new home because it is only 2,500 sq. ft.,” said Jennifer Magee, who, along with husband Bradley, is the proud owner of a new home in Langley, British Columbia in Canada. “Because our home is smaller, it will take about 15 years before the system is paid for, but it’s still the best thing we ever did,” she added.

The Magees list the positive effects on the environment and the possible health benefits that a geothermally-heated and cooled home can offer as their main reasons for opting for a geo-exchange system.

“I’ve heard that it’s better for people with asthma or allergies,” said Jennifer. “I have bad asthma and allergies so I wanted something that would be cleaner, minimize dust and not blast the house with dry air.”

“I also like the idea that our system will be doing something good for the environment and I think it will also increase our resale value by about 20 per cent because the banks are now recognizing this as an asset. In time, I believe, eventually every home will have a geothermal system and people will be saying furnace... what’s a furnace?”

Given that the Magees’ new residence was not custom-built, it took a significant commitment on the part of a team of builders, installers and drillers to make their geothermal vision a reality.

Barry Hart, owner of Geo-Tech Geothermal, a Surrey, BC-based company, took on the task of supplying the geo-loops, upgrading the home ducting and installing the heat exchanger, and getting it all to work.

With 15 years’ experience, Mr. Hart said most residential projects involve larger homes and this one was no different, and received the same quality installation as the bigger ones. “Rising fuel costs have put a light on geothermal,” said Mr. Hart.

“It used to be just for the elite, but now, with energy costs so high, other homeowners are taking a serious look at this as the way of the future. All you have to do is the math to see that soon geothermal will become the standard for new homes.”



**A tight fit.**



**The small land footprint (above); the finished installation (below).**

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## GEOTHERMAL

Unlike typical larger residences, the Magee home faced another challenge – its small land footprint: a concern for drillers trying to maneuver and place a drill rig.

“It was such a tight squeeze and then the ground under the rig started to shift,” said Jennifer. “At one point, I think my neighbours and my builder wanted to shoot me,” she added with a laugh. “I’m sure the drillers weren’t too thrilled, either.”

With a tight working space, a tight budget and silty, sandy ground beneath them, a sonic drill rig completed four bore holes, each to a depth of 200 ft., all in one day.

Sonic Drill Corp said its sonic drill head can produce incredible drilling speeds, even in overburden conditions due to its oscillator and mechanism for rotary motion, which causes a high-frequency force to be superimposed on the drill string.

Thanks to this patented combination, the drill bit physically vibrates up and down, in addition to being pushed down and rotated. These three forces combine to allow it to ‘buzz’ through mixed soils.

Today, the Magees are living and breathing comfortably in their radiant new home, delighted with its obvious geothermal advantages.

“It’s quiet, there are no cold spots, every floor has an even temperature and my 65 houseplants just love it,” said Jennifer.

## GREEN HEAT EXPLAINED

- As one of four ‘green heat’ technologies (the others being solar thermal-water heaters, solar thermal-air heaters and advanced biomass combustors), geothermal energy helps to reduce the burning of fossil fuel, as well as the dumping of harmful gases into the atmosphere.
- The average home can reduce CO2 emissions by 2.5 to 5 tons per year (equivalent to the planting of one acre of trees per year) by using geothermal energy.
- Compared to conventional home-heating methods, which cost around C\$6,000 to install, a geothermal system can cost C\$20,000-30,000, although the energy savings over five years can more than pay back the cost of installation.