

Ground-Source Heating and Cooling

Mark's Two-Story Contemporary Passive Solar Home



From Propane to Retrofit GSHP with ASHP Hot Water Heater 2014 Rural Caroline Case Study



“The thing I didn’t anticipate really is the summer cooling that you get, and that just costs so little. It makes a big difference to the quality of life. I couldn’t say enough positive things about it.”

- Mark, Homeowner

Project Specifics:

Area of Home:	About 1,900 square feet
Age of Home:	Built circa 2000
Installer Partner:	Dailey Geothermal
Other Info:	Two-story Contemporary Passive Solar House

New Systems:

Ground-Source Heat Pump & Air-Source Heat Pump Hot Water Heater

Mark’s new ground source heat pump replaced an ailing masonry stove and an expensive propane furnace. The Air-Source Hot Water Heater supplies ample hot water for his family at a fraction of the cost of the electric model. The new system also provides cooling for year-round comfort.

As soon as Mark and his family moved into their rural home, they were motivated to replace the antiquated fossil fuel heating. The previous heating system was not well distributed; there were always rooms that stayed cold and the windows often frosted over with condensation.

Wanting a more renewable option for heating, that would also decrease their monthly bills, Mark did a lot of research and finally found the right heat pump systems to have installed in his home. He welcomes HeatSmart's ability to help simplify and clarify the great options that are currently available to everyone.

Cost / Usage:

Annual Savings: \$1,905

Before: \$3,723 / year

After: \$1,818 / year

Project Cost (reflects 2014 incentives):

Cost Category	Initial Cost	Incentives	Final Cost
Installation of a Vertical Loop GSHP & ASHP Hot Water Heater	\$41,450	<u>\$17,435 (2014 NYSERDA Incentives)</u> 30% Federal Tax Credit	\$24,015

Project Specifications

3-ton Waterfurnace 7-Series Geothermal System
50-gallon GE Geospring Air-Source Heat Pump Hot Water Heater

Project Highlights:



Annual Payback Over Propane



Goldilocks' "Just Right"
Year-Round Home Comfort



Cooling In the Summer

In 2014, Mark contacted one of our now trusted installer partners, Dailey Geothermal. The Dailey team installed ductwork and the geothermal system, including a GE Geospring air-source heat pump hot water heater, in the basement. Since the previous homeowners had already well-insulated the home, the project didn't need an additional insulation component. Today, Mark reports that all that is needed is a yearly routine maintenance visit from the installers.

For the installation, Mark received a 30% NYSERDA rebate and a 30% tax credit, which could be rolled over for 5 years. With these incentives and the yearly lower cost of running his systems, he has the loan half paid off after only 6 years. In addition, the increased efficiency of his new air-source hot water heater, resulted in it paying itself off after only a few years. Mark also has solar panels, which generate most of his home's electricity, and he recently got an induction stove to further his green goals. Mark's house is nearly all electric and he continues to work towards his goal of a fossil-fuel free home!

He's very happy with his geothermal system, the additional cooling benefits, and the installation process with our installer partners. Mark urges other community members to take part in the HeatSmart program.

For questions about this project or program, contact:

607-500-HEAT or visit **HeatSmartTompkins.org**

