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Prescribing a Geothermal System

Geothermal retrofit for maximum comfort, efficiency, & modern living.

This beautiful contemporary design home in Harrisburg, PA was built by Alex Grass, founder of Rite-Aid pharmacy, in the early 1970's. When Mr. Rill purchased the sprawling 7,382 sq. ft. home from the late Alex Grass estate, he knew he would need to make some upgrades.

Equipped with a commercial boiler and chiller system using pneumatic controls, the residence cost Mr. Rill about \$6,000 per month for electricity and heating oil. The complex pneumatic controls resulted in numerous service calls, averaging \$700 per call. Excessive space required for the HVAC system, associated piping, ductwork, and controls in basement were less than ideal. Mr. Rill opted for a more efficient, cost-saving and simple system that would be easier to control and service.

“We were able to work in stages to allow a transition from the original system to the new geothermal system, thus allowing the family to stay in their home during the entire installation and removal process.”

Project Goals

- ▶ Convert from an outdated oil system to a highly-efficient geothermal system
- ▶ Reduce sky-high operating and maintenance costs
- ▶ Increase comfort and improve level of control
- ▶ Decrease large footprint of complex system in the basement



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A Tailored Approach

As Michael Armstrong, Residential Sales Manager, Morrison Inc. explains, the needs of Mr. Rill's family were taken into careful consideration, "This proposal was based upon a thorough heat loss/gain done on the structure using the original blueprints and then calculating the needs of the customer to design and adapt the existing ducting to provide comfort zones meeting the family's lifestyle." With this information, Armstrong moved forward with a highly-tailored system, "comprising of six closed loop Bosch SM two-stage water-to-air geothermal heat pump units feeding 11 different air zones. In addition to the water-to-air systems, we proposed and installed a closed loop Bosch TW035 two-stage water-to-water geothermal heat pump unit which provides the home with all of its domestic hot water. The hot water system was coupled with a 120 gallon in-line storage tank to feed into the home's existing recirculating domestic hot water piping. The total capacity of the geothermal system was 31 tons with 4,650 feet of closed loop vertical bore and 9,300 feet of HDPE piping." All Bosch geothermal units have factory installed auxiliary electric heat coils as a secondary heat source if needed.

Finding the Remedy

Mr. Rill and his family are extremely happy with their decision to convert to a geothermal system. The home is now totally electric, with the highest single monthly electric bill being \$1,141, during one of the region's coldest winters on record! "Mr. Rill keeps detailed usage records and says he cannot be happier. The comfort level is fantastic and he loves the fact that he can set the various areas of his home to the temperature that he wants," says Armstrong.

"By using Bosch equipment he will have peace of mind due to the strong warranty and quality of the Bosch geothermal system."



Two of six Bosch SM two-stage geothermal heat pumps installed in basement



Bosch TW035 water-to-water system provides domestic hot water

Bosch Geothermal

Available from 2 to 5 & 10 tons, the Bosch Greensource CDi Series TW Model boasts industry leading efficiency - even at full-load heating. The TW provides maximum comfort with minimum energy usage, making it perfect for hydronic floor/baseboard heating, hydronic forced air fan coil heating/cooling, ice and snow melting, swimming pool/spa heating, and supplemental potable hot water generation.

Features include:

- ▶ High efficiency two-stage scroll compressors
- ▶ Dual density compressor blankets for quiet operation
- ▶ Durable, high quality, painted galvanized steel cabinet
- ▶ Optional Heat Recovery Package (Desuperheater/domestic hot water)



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