

# GEO OUTLOOK

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## Tennessee Governor's Residence Gets Historic Renovation

By Trisha Swindle

The undertaking involved with renovating a historic home is daunting. Renovating a historic, public home has responsibilities that the latter doesn't. The renovators have to bear in mind the legacy they are

leaving behind in their decisions to alter the house or simply bring it back to its former glory. Tennessee Gov. Phil Bredesen and First Lady Andrea Conte are in the process of having the Executive Residence reno-



Courtesy of Nashville Electric Service.

*Renovation of the Governor's mansion was a high priority of First Lady Andrea Conte. The elegant integrity of the beautiful residence was maintained by the installation of a ground source heat pump system.*

vated. Conte has made this renovation one of her many important projects as the First Lady of Tennessee. Conte has decided to bring the house up to current standards of comfort and accessibility while maintaining the elegant integrity of the original home.

Conte stated, “In looking at the options for restoring the outdated heating and cooling system in the Tennessee Residence, we found geothermal to be one option that was both cost-effective and environmentally friendly. Geothermal uses the earth’s own heat to provide energy instead of using electricity, so in the long run we’re saving money and protecting the environment.”

The mansion was built in 1929 and purchased by the state in 1949 for the purpose of becoming the Governor’s Executive Residence. This Georgian colonial home was originally built for the William Ridley Wills family. Wills was the founder of the National Life and Accident Insurance Company. Seventy years of living has caused the home to need extensive repairs. The antiquated heating and air conditioning units have poorly maintained the humidity levels in the home causing the interior walls painted, with lead-based paint, to peel. This has also left the home’s historic collections at risk.

The major renovation is still in the bidding process and is set to begin as soon as possible. The renovation is planned in four phases. The first phase includes replacing the roof, water damage and paint repairs, and replacement of the outdated electrical and mechanical systems. Most of phase one has been completed—the roof and HVAC systems have been replaced. It will also include making the building ADA compliant. Phase two includes building a conservatory for large public functions. Phase three centers around the carriage house, which will also need to have its roof replaced, and other repairs. The final



Courtesy of Nashville Electric Service.

*The First Lady of Tennessee ordered that renovation of the governor’s mansion be cost-effective and environmentally friendly.*

phase will have a consolidated maintenance building constructed. The conservatory and carriage house will also be using ground source heat pumps.

The main building is 15,500 square feet. Approximately 10-15 people live in this residence, but it can host up to 100 during state affairs. The original architectural firm who designed the existing building, Hart Freeland Roberts, is also the one performing the renovation. The drilling was done by Mid-State Drilling. The mechanical engineer was Tracy Worley with I.C. Thomasson.

According to Tony Viglietti, senior energy services specialist for Nashville Electric Service, there were 78 boreholes drilled at 300 feet deep. Geothermal high-density polyethylene pipe was used for pipe material. The pipe loops were one inch in diameter, the circuits used one to three inches and the supply and return used four to six inches. No antifreeze solution was needed due to the mild climate of the area so water was used to fill the pipes. The total tonnage of the system is 110 tons. The 29 units weigh 3/4 to 2 tons a piece. The anticipated annual energy usage is 25 kWh with operating costs at \$1.78 per square foot. The payback period is expected to be in three to seven years. A 30 to 70 percent reduction in total heating



Courtesy of Nashville Electric Service.

*The noisy and visible traditional units, shown here, are being replaced with the quiet and invisible technology of ground source heat pumps.*

and cooling costs are expected.

It was important to the First Lady and the Governor that the majority of the money used for this renovation came from donations. They have used the left over funds from their 2003 gubernatorial campaign and all other funds to date have been through donations. For example, the Tennessee Federation of Garden Clubs has put together a statewide initiative called “Flowers for the Executive Residence”. This initiative will provide the First Lady with the necessary funds to have fresh flowers displayed in the public areas of the Residence. She will also have guest floral designers at her disposal for holidays and special events.

By choosing to use a GSHP for the three buildings of this renovation, Conte has given the people of Tennessee a gift. Not only will their beloved Executive Residence be restored above and beyond its original grandeur, it will also be supplied with warmth during the winter and cooling during the summer using renewable energy.



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