

The Robertson family of Little River

Split systems for a split-level home

Home Fast Facts

- Built in 1981
- 1,300 square-foot, split-level style
- Concrete slab with two attic areas
- 6 occupants
- Average monthly electric bill: \$340

The Robertson's electric bills have been high since they moved in 11 years ago. Three years ago, they installed new windows and a new window unit heating and cooling system upstairs, but their bills still remained high.



Comprehensive Home Analysis

- Kevin O'Neill of O'Neill Bagwell Cooling and Heating conducted a blower door test and other building diagnostics to determine the amount of air leakage and other needed home energy improvements. After all the improvements were completed, he returned to verify the home's air tightness and other quality assurance measurements.

Heating and Air Conditioning

- Budget Heating and Air of Conway removed a 1997 10 SEER, 2.5 ton air source heat pump downstairs and window unit combination heater and air conditioner upstairs, replacing them with a Lennox 15 SEER heat pump downstairs and an LG ductless mini-split heat pump upstairs.
- The manual thermostat was replaced with a programmable, touch-screen thermostat.

Ducts

- Budget Heating and Air also removed the extremely leaky and poorly located ductwork, replacing it with a redesigned duct system and new air supply duct grills placed in the ceiling near windows and exterior doors to ensure peak efficiency.

How the House Was Helped

Sealing and Insulation

- In the attic, Apple Blossom Insulators pushed aside substandard existing insulation, sealed all the previous duct work openings in the ceiling using sheet rock patching materials and applied mastic paste to the newly-installed ductwork connections. They applied silicone caulk in ceiling gaps around lighting fixtures, electric cable penetrations and other areas where air could pass between the attic and living space. Once the attic was air sealed, Apple Blossom installed eco-friendly cellulose insulation to upgrade the insulations levels from R-19 to R-38 in both attic spaces.

Pool filter and pump

- The homeowners were trying to save energy by operating the filter and pump on their in-ground pool an average of eight hours per day, but they sometimes forgot to manually turn it on and off. C&C Pools of Conway installed a timer that automatically cycles the filter and pump to operate for peak efficiency.

"I could immediately feel the difference in the home's comfort," said homeowner Terri Lynn Robertson. "Before, I had to lower the thermostat to 70 degrees to get the same amount of cooling comfort that I get now by setting it at 76 degrees and leaving it there. I'm looking forward to receiving my next electric bill to see how much I save; I've never said that before. I thought we were always going to have high energy bills and there was nothing we could do about it. The comprehensive home energy analysis showed me a lot about all the air leakage in our house. I'd recommend that others with high energy bills have someone come to check out how to seal their home's air leaks."

Results

Presented by The Electric Power Service Company

Costs

Actual Investment

- Heat pump and duct system installed by Budget H&C of Conway with Lennox.....\$6,000
- Split system installed by Budget H&C of Conway with Lennox.....\$4,100
- Extensive air sealing and attic insulation by Apple Blossom Insulators.....\$3,500
- Pool timer and installation by C&C Pools.....\$400
- Comprehensive home energy analysis (pre- and post-) by O’Neill Bagwell.....\$500

Total estimated value of weatherization efforts in this home.....\$14,500

NOTE: The value of work on this home exceeded the \$10,000 per-home cap set for **Help My House!** energy makeovers because the statewide and local sponsors and installers who donated their time and materials on the project insisted on doing the job right. The additional effort and expense were necessary to weatherize this home to their high standards.

Who Helped

Heating and Cooling System installed by



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www.candcpools.com
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Shape Up Your Home for Energy Savings

Presented by The Electric Cooperatives of South Carolina

Home Energy Efficiency Makeover

The Robertson family, Little River, SC

On her Help My House! contest entry form, homeowner Terri Robertson wrote, “My electric bill has been extremely high since we moved in here 11 years ago. My house does not stay cool or warm in the winter. We really need an energy makeover!”

BEFORE



The Robertson’s split-level home required two heating and cooling systems, and neither was doing the job efficiently. A combination window unit was a cheap but inadequate solution for the upstairs.

AFTER



A high-efficiency Lennox heat pump for downstairs, LG mini-split system (shown above) for upstairs and programmable thermostat will dramatically improve comfort and energy savings.



Poorly built and installed ductwork — much of it unsealed — was leaking conditioned air and allowing dust and other pollutants inside the home. As a result, the heating and cooling system was even less efficient, wasting more energy and money.



Budget Heating and Cooling of Conway not only removed, redesigned and replaced the ductwork, they also placed new air supply duct grills in the ceiling near windows and exterior doors to ensure peak performance.



Like many homes, insulation and air sealing in the Robertson’s home was insufficient, so outside air was leaking in and the air they were paying to condition inside the house was leaking out.



Apple Blossom Insulators installed eco-friendly cellulose insulation in the attic. They also caulked and sealed air leaks throughout the home, including around this attic entry.

Additionally, C&C Pools of Conway installed a timer on the Robertson’s pool filter and pump so that the system now operates at peak efficiency.