

Energy Efficiency Profile

ENERGY STAR® Homes Program - Canaan, NH

Property owners Hope and Stephen Stragnell of Canaan, New Hampshire were excited when they purchased their 174-year-old home, but they knew energy efficiency would need to be addressed. Initially they planned to replace the windows and insulation, but they soon realized the home, built in 1841, needed a lot more.

Hope's background in energy policy, conservation, and energy efficiency funding really drove the scope of the project. "I knew we needed more than just Tyvek® and plywood," she said. Hope and Steve carefully weighed their options in terms of what was going to be the most energy efficient, as well as cost effective.



Steve and Hope Stragnell in their renovated kitchen.

The entire house was moved to rebuild the foundation, and then put back in place. The foundation included insulation rated at R-10. They pulled out all the insulation in the attic and found a stack of 18" wide floorboards, which were cleaned and planed and are now used on the main level. They also found beams from the original mill, which they used everywhere they could. The attic was re-insulated, increasing the R-value to 55.

An inch of continuous foam board insulation was added to the outside walls, as well as 6–10" of blown-in cellulose in the framing cavities. The continuous layer of foam board insulation reduces conductive heat loss through the weakest parts of the wall, improving energy performance and comfort. High-density, closed-cell spray foam was used for several hard-to-address wall

and floor areas. The wall insulation is now R-26.

A fan was installed in the attic floor to circulate the air in the summertime. It can be closed off during the winter. Dedicated exhaust ventilation was also added in the kitchen and bathrooms to minimize moisture and odor buildup.

The Stragnells purchased a new, ENERGY STAR®



Attic space with whole-house fan that can be closed in winter. Loose fill insulation has an R-value of 55.



Liberty Utilities®

PROGRAM HIGHLIGHTS

The Challenge:

Bring a home built in 1841 to ENERGY STAR® Homes standard.

The Solution:

- 1 inch of continuous foam board insulation added to the outside walls
- 6–10" blown-in cellulose in framing cavities
- R-55 Attic insulation
- ENERGY STAR® appliances
- ENERGY STAR® LED lighting

The Incentive:

Cost of upgrade	\$10,000+
Total incentive paid	\$5,634
Annual kWh savings	228
Lifetime kWh savings	3567

Find out what incentives are available for your home or business:
www.libertyutilities.com/efficiency
or 603-216-3696

Energy Efficiency Profile (continued)

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refrigerator, an ENERGY STAR® dishwasher, and an ENERGY STAR® clothes washer. Each of these items qualified for rebates from Liberty Utilities. They also replaced all of the windows with high quality double-glazed windows featuring low-E coatings and argon gas fill. ENERGY STAR® LED lighting will illuminate the house while keeping the electricity bill low. Eighteen LED flood light bulbs were provided to the homeowners through Liberty's ENERGY STAR® Homes program.



A blower door test was conducted before and after renovations to create negative air pressure and highlight areas of air leakage.

The renovation included a new sealed combustion hydronic heating system with an indirect domestic hot water system. The system is fueled by propane.

The house now carries a HERS Index score of 54, which qualified for a rebate of \$2,075 through the ENERGY STAR® Homes program from Liberty Utilities. The HERS rating and ENERGY STAR® certification for this home project will save the Stragnells approximately 300 gallons of propane annually, compared to a similar home built to the 2009 IECC energy code standard.

This 174-year-old house is more energy efficient than many new homes built today. It will use substantially less fuel and will be more comfortable. The energy savings will continue year after year.



High efficiency LED lights will illuminate the inside and outside of the home.



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