Energy Audits Not Only Reduce Carbon Footprints...

They Save Money Too

By Mary Iannotti

Determining a home renovation plan that reduces energy loss and saves money can be confusing without knowing exactly what to look for in your home. Chris Monroe quickly sorted through his choices with an energy audit from the Center for ReSource Conservation's subsidized Residential Energy Audit Program (REAP). By implementing audit suggestions, he will reduce natural gas consumption by 50% and electric usage by 25%. Furthermore, the renovations made will prevent 4,680 lbs. of carbon from entering the atmosphere annually.

In spring 2007 Chris purchased a three-bedroom home in South Boulder, Colorado. Cold drafts, heat loss, and high energy bills enticed him to get a home energy audit to help identify areas of energy waste. The REAP energy analysis, conducted by the Center for ReSource Conservation, identified air leakage as the greatest source of heat and financial loss.

Heat Reduction Renovations

A blower door test is used to determine the air leakage rate by depressurizing the entire home. Measurements are then taken at the most common leakage areas to pinpoint cost-effective strategies for air sealing. In Chris's case, air leakage contributed to 39% of heating costs. Like 90% of all homes audited through the REAP, air sealing

REAP Financial Summary

Conservation or Energy Measure Made	Financial Investment	Annual Savings	Pay Back Period
Insulate Outside Walls - Blown In Cellulose	$1,550	$149	10 Years
Insulate Attic - Blown In Cellulose	$860	$115	7 Years
Insulate Crawl Space	$275	$26	11 Years
Cover Ground	$30	-	2-5 Years
Mast Tape Duct Joints	$17	-	1-2 Years
Fine Tune Furnace	$125	-	1 Year
Programmable Thermostat	$92	-	0.6 Year
Insulate Hot Water Heater	$0	-	1-2 Years
Weather Stripping	$48	$92	1 Year
Total	**$2,997**	**$382**	**-**

Photo: www.istock.com

around doors and windows and adding attic, wall, and crawl space insulation were identified as a top priority in Chris's renovation plan. Other cost-effective conservation improvements included installing a programmable thermostat, insulating the hot water heater, and tuning up the furnace.

Electricity Reduction Renovations

Although Chris's electricity usage was low, he did identify some energy-efficiency improvements. Chris swapped out 25 incandescent lightbulbs to compact fluorescent lamps (CFL). CFLs use about 75% less energy and last up to10 times longer than incandescent bulbs. [1] To reduce energy usage further, he combined multiple electronic devices onto one power source that allows him to cut off power to these "energy vampires" easily with one switch.

Easy Audit Process

Not only did REAP quickly identify the areas of Chris's home that were causing the greatest energy loss, it also helped him construct a cost- effective improvement plan. The educational, how-to fact sheets, contractor resources, and energy-upgrade information provided by the program saved Chris a tremendous amount of time. Chris recommends a REAP energy audit for every homeowner. "The audit was easy and the improvements were simple; many of them were done by a few untrained friends and me. As for my house, it is more comfortable, quieter, and less creaky. The audit helped me save money and eased the carbon burden on the environment."

[1] Washington State Department of Ecology Frequently Asked Questions about Compact Fluorescent Light Bulbs http://www.ecy.wa.gov/pubs/0704039.pdf

Energy Upgrade Information

Conservation or Energy Measure Made	Material Used	Area Measure Was Applied	Contractor Used	Comments
Insulate Outside Walls - Blown In Cellulose	Cellulose	Outside Walls	Insulation Professional	Reduced Heat Loss by 500%
Insulate Attic - Blown In Cellulose	Cellulose	Attic	Insulation Professional	Reduced Heat Loss by 270%
Insulate Crawl Space	Fiberglass Batt Insulation	Crawl Space - Walls	Self Installed	Batt with Backing
Cover Ground	Nylon Tarp	Crawl Space - Ground	Self Installed	
Mast Tape Duct Joints	Mast Tape	Crawl Space - Ducts	Self Installed	1 Gallon of Mastic
Furnace Tune-Up		Crawl Space	Professional	
Programmable Thermostat	Second Hand - Digital Programmable	Thermostat	Self Installed	
Insulate Hot Water Heater	Fiberglass Batt Insulation	Water Heater	Self Installed	Wrap Water Heater
Weather Stripping and Air Leakage	Misc.	Three Doors and Holes in Thermal Envelope	Self Installed	

CRC is helping the City implement Green Points

Residential Energy Audit Program

The Center for ReSource Conservation applauds the City of Boulder for its new Green Points Program and the components requiring energy audits for all projects over 500 square feet within the city limits. This legislative action moves Boulder closer to the ambitious goals of the Climate Action Plan.

REAP, the CRC's residential energy audit program, meets the requirements for the Green Points revised program. The REAP analysis details your energy usage and gives you personalized recommendations for lowering your energy bill.

REAP is a collaborative effort between the CRC, the City of Boulder, Boulder County, Longmont Power and Communications, the Cities of Lafayette, Jamestown, and Louisville, and the Towns of Superior and Nederland.

If you have any questions or concerns about the new legislation or how it pertains to you, please contact JC Martel at:jcmartel@conservationcenter.org or 303.441,3278, ext. 24, or visit www.conservationcenter.org.

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