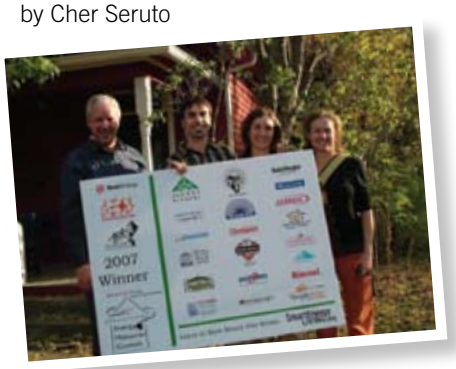
Home Energy Makeover House

How a Home Energy Audit Saved My Home (and Pocketbook)

by Cher Seruto



Homeowners, Bill Wildenberg and Cher Seruto (center), with Home Energy Makeover Contest sponsors.

In October of 2007, my house was designated the most inefficient ever recorded in the state of Colorado.

You can imagine my embarrassment. As an analyst at Rocky Mountain Institute, one of the country's leading energy and natural resource think tanks, I should have been walking the talk.

In the heart of one of Boulder's highest rent districts, my husband, Bill, and I thought the old Victorian was a steal. Fire-engine red with white trim and porch, the house has excellent character. It is also split into a duplex, and renting out half made paying the mortgage possible.

We knew we had purchased an inefficient house. In the beginning, we rented out the bottom and lived in the top to save money for improvements (knowing there would be a lot).

After that first winter, we had saved enough money to make some improvements and decided to get a home energy audit so an expert could tell us where we could get the most bang for our buck.

We found out that the city of Boulder offers rebates through the Center for ReSource Conservation, so Bill promptly signed up on the Web site. While there, he saw an advertisement for the annual "Home Energy Makeover Contest," and entered. The contest was sponsored by our local utility: Xcel Energy and the Smart Energy Living Alliance (SELA), formally known as the Colorado Energy Science Center.

After an exciting and suspenseful selection process, we discovered we had won the Home Energy Makeover!

This was a huge windfall for us, as once we realized the improvements necessary, we began to think we might not be able to afford the house without it disintegrating into disrepair.

Free home energy improvements meant we could keep the home and live in comfort with low utility bills. In our minds, we had won the lottery.

From November 2007 to February 2008, the house received completely new insulation everywhere: fiberglass in the attic, closed-cell foam in the basement, and the walls were stuffed with cellulose (recycled newspaper composite) blown in from holes drilled beneath the siding. All the windows were replaced with Argon-filled double-pane glass with a heat mirror. We were even given energy-efficient Hunter Douglas blinds.

The energy savings continued with the replacement of our archaic furnace (from 40 percent to 95 percent efficient) and our two 40-gallon gas water heaters (58 percent efficient) were replaced with a tankless system by Rinnai.

Water-efficiency improvements included low-flow showerheads and, oooh-la-la, dual flush toilets. I was very surprised that one of our old toilets used a whopping 6 gallons per flush, while the dual uses either 0.9 or 1.5 gallons per flush.

When all was completed, our house was 311 percent more efficient than when they started, and 28 percent better than code-compliant new construction. The improvements cost $45,000, and the estimated annual savings is $3,400.

While not everyone can afford all these improvements at once, a home energy audit is an excellent way to find out what improvements will help your house the most.

Home energy audits are quite inexpensive, and several cities subsidize the cost of the improvements. •

Year Built, Extended, Remodeled: 1902, 1929, 2007–2008

Home Size: 1,553 sq. ft.

Contractors:

- Accent Windows (see ad on page 27)
- Bestway Insulation (General Contractor) (see ad on page 16)
- Big Horn Builders (General Contractor)
- City of Boulder
- Climate Masters (Furnace, water heater, duct work)
- Lightly Treading (Insulation, HERS rating)
- The Blind Spot (Window Covering)

Energy Features

- Residential Energy Audit Program (REAP)
- HERS Index: 72
- Natural lighting
- High-performance furnace (95% efficient)
- High-efficiency tankless water heater
- CFL installed throughout the house
- Motion sensors installed in two rooms
- High-performance windows
- Insulation: ceiling (R-59, R-36), walls (R-13), foundation walls (R-25, R-32), vaulted ceiling (R-32)
- Programmable thermostat
- ENERGY STAR appliances
- Energy-efficient window coverings
- Duct cleanings
- Natural shading provided by approx. 100-year-old tree. No A/C required.

Green Features

- Bamboo flooring, recycled carpet
- No-VOC paint used for hallway

Water Features

- Xeriscape
- Smart irrigation controller
- Low-flow plumbing fixtures

Re-Use/Salvage Features

- Utilized construction & demolition waste recycling
- All landscape materials were recycled from neighboring structures that were demolished