
Professional Remodeler

Home Schooled on Home Performance

Glen Salas, PATH Partners -- 5/1/2007



One key component of a high-performance home: sealing leaks into the attic, also known as an attic bypass.

Photos courtesy of PATH Partners

GreenHomes is a home performance contractor whose focus is improving efficiency, which isn't the typical remodeler's goal. But why be the typical remodeler? Take a page from GreenHomes' book, and you may have a whole new angle to add to your business.

The Audit

The audit of Cordone's ranch home began in the basement.

"We examined the tiered foundation, the mortar joints, the wall joints, the wall connections and the windows," says Tony Karpovich, project manager for Cordone's upgrade. "We tested the combustion efficiency and safety of the furnace and water heater with a combustion analyzer. Finally, we safety-tested both units to make sure the exhausts didn't backflow into the house and checked the carbon monoxide and carbon dioxide levels to make sure they were safe. The crew then moved to the top floor.

"In the attic, there were only six inches of insulation, and the old bathroom fan vented directly into the space — a potential source of moisture problems.

"The outside walls of the living area had zero insulation. We tested the efficiencies of the refrigerator and dishwasher with a wattmeter."

A blower door test using an infrared camera showed how much the house leaks and where.

The audit took Karpovich two hours. He says the size and type of house determines how long it takes and how many

When John Cordone **Sidbars:** [Additional Resources](#)

purchased his 1,100-square-foot, 1930s-era home in Rochester, N.Y., he had to wear a hat indoors to stay warm in the winter.

Now Cordone's hat hangs on the rack when he's home, and his monthly energy bills have dropped so much he's doing radio spots for GreenHomes America, the contractor that made it possible.

GreenHomes conducts a full-scale energy audit valued at \$400-\$500 and then completes energy upgrades. With that, the company guarantees 25 percent energy savings on every project. Business is so hot, GreenHomes completed more than 1,600 projects in 2006 — only the second year of its existence.

people, typically one or two staff more than 3 hours.

Once the audit was complete, Karpovich drew on his knowledge of building science to recommend a package of upgrades to Cordone. GreenHomes stays abreast of building science issues through training from New York's Home Performance with Energy Star program an in-house training program, and certification from the Building Performance Institute.

The Upgrade

"We don't just guess at what we recommend for upgrades. Safety is paramount. After we decide on safety measures, we rank the energy-efficiency measures by the savings-to-investment ratio," Karpovich says.



A blower door is easy to set up and instrumental in detecting leakage problems.

"An air sealing package — caulking joints, sealing penetrations, adding weather stripping — is almost always cost effective, and it was very much so in this case."



When blowing cellulose insulation into the attic, make it snug. "A few extra bags of insulation just doesn't add that much to the cost," says Tony Karpovich of GreenHomes America.

Adding insulation was also easily justified. Karpovich blew in cellulose to fill the outside walls and the attic. Energy Star recommends a minimum attic insulation value of R-38 in Rochester, but GreenHomes usually finds R-80 to be cost effective.

"We already have a delivery scheduled, and the crew is here with the blower set up. An extra 25 bags of insulation just doesn't add that much to the cost," Karpovich says.

Other measures included replacing existing lights with CFLs, replacing the 1984-vintage furnace with a 94 percent efficient Energy Star-qualified model equipped with sealed combustion venting, and replacing the bathroom fan with an Energy Star bathroom fan/light assembly vented to the outside.

Cordone also got new windows all around: 11 Low-E, Energy Star-qualified windows on the main floor and six glass block basement windows. But this decision was based on safety and comfort considerations rather than energy savings.

"The existing window frames were covered with lead-based paint with friction surfaces that could release lead dust into the air," says Karpovich. "In this case, keeping kids healthy was more important than energy savings. Of course the new windows improve the home's comfort and appearance, but energy savings on new windows won't pay for the interest on the loan."

The whole upgrade cost about \$16,000, including \$5,400 for the windows and \$400 for the bathroom fan assembly. Karpovich estimates GreenHomes increased the efficiency of Cordone's home by almost 40 percent. That translates to savings of almost \$1,000 per year — savings that will only increase as utility rates continue to climb.

Client Education

One key to GreenHomes' success is pretty simple: a focus on client education. Having clients thoroughly understand the recommendations and then helping to choose the solutions is a powerful tool.

"We make sure the homeowner wants to be involved in the home performance improvement

process," says Karpovich. "It's just good for business. We're not going to look at a home if the client's not there. We give our customers a one-and-a-half-hour course on building science and the principles of home performance contracting. It builds trust, and it makes the sale.

"The GreenHomes approach includes detailed explanations. We explain to the client that we treat the home as a completely integrated system, not just four walls and a roof," says Karpovich. "We use some of the materials straight off the Energy Star Web site to introduce the concepts. Then we escort the client through a complete whole-house assessment and recommend and explain solutions that will improve both efficiency and safety. After that, we implement those the client chooses. We want this process to be interactive so the clients can take control of their home's health and efficiency."



Dense-packing insulation in the side walls can boost a home's energy-efficiency.

This approach allows GreenHomes to guarantee complete satisfaction — and 25 percent energy savings. "We can do that because we know that day in, day out, we often deliver 40 percent energy savings here in the Buffalo region," says Karpovich.

Marketing Customer Satisfaction

To prove to customers that they're getting what they paid for, GreenHomes tests the entire system after installation. The team does a visual inspection; tests equipment efficiencies; checks combustion gas venting and carbon monoxide levels; and repeats the blower door test with the infrared camera.

"The process only takes about 45 minutes, but in that time we prove to ourselves and the client that the house will perform as promised."

"The best marketing comes from customers," Karpovich says. "An educated customer who has taken part in the process is a happy customer. John Cordone loved the sales and follow-up and called me and talked for over 10 minutes about how pleased he was. He loved the job, fed the staff everyday and enjoyed their tutelage and professionalism. John has agreed to do a radio spot for us in Rochester. We run some customer referrals in some of the commercials we do. What better advertising do you need?"

Author Information

Glen Salas writes about better building practices on behalf of the Partnership for Advancing Technology in Housing (PATH). PATH is administered by the U.S. Department of Housing and Urban Development. Learn more at www.pathnet.org.

Additional Resources

Several good resources are available to teach you about home performance contracting — and help you discuss energy upgrades with your customers.

- Home Performance with Energy Star is a program offered in 16 states that trains contractors to use a whole-house rather than piecemeal approach to improving comfort, air quality and energy use. Visit www.energystar.gov.
- The Building Performance Institute certifies remodelers and offers accreditation of organizations in building performance testing. Visit www.bpi.org.

- The Energy Efficient Rehab Advisor, a product of the U.S. Department of Housing and Urban Development (HUD), provides guidelines for energy-efficient housing rehabilitation ranging from gut rehabs to bathroom remodeling. Quick and easy to use, it's a good resource to help remodelers and clients understand the costs and benefits and is also a useful tool to help remodelers market upgrades to their clients. Visit www.rehabadvisor.com.
- Lawrence Berkeley Laboratory's Home Energy Saver provides the remodeler with a more rigorous analysis of potential energy-efficient opportunities. Users can estimate how much energy and money can be saved and how much emission can be reduced by implementing energy-efficiency improvements. Visit <http://hes.lbl.gov/>.
- ToolBase Service's Technology Inventory, a product of NAHB Research Center, provides a detailed explanation of more than 180 proven technologies that can improve the performance of U.S. homes. Visit www.toolbase.org/TechInventory.
- And when you're marketing your green upgrades, don't forget to mention tax credits. PATH's consumer site, <http://www.pathnet.org/homeowners>, provides links to a wide range of tax incentives, including credits and deductions in the 2005 Federal Energy Bill.