



"Blower door" checks detect where air and moisture are getting in and out of a house
photo by Chris Fritchie

Energy Audits: A Plan for All Seasons

By Lynda Haschke

A MILD WINTER in North Texas has provided homeowners with a welcome respite from high utility bills; however, summer is just around the corner and in Texas that means two things: lots of hot weather and high energy bills.

Getting an energy audit on your home could help you save as much as 50 percent annually on the cost of energy – not just heating and cooling, but lighting and appliances as well.

Frisco homeowner Tom Mello was really feeling the heat last summer – not just from the weather, but from his high energy bills. Although he lives in a fairly new home – it was built in 2000 – he

wasn't sure whether his big bills were due to an inefficient home or just high utility prices. So, at the recommendation of a friend, he contacted an energy auditor who could help him get to the bottom of it.

"The crew came out and did a thorough review of the house, checking the interior and exterior, ductwork, insulation, air conditioning unit and appliances," said Mr. Mello. "They gave me a whole binder of information and about five options of what I could do to make improvements, depending on how much I wanted to spend. They mapped out the ROI (Return on Investment) on each

option. I was very pleased."

Mr. Mello opted to replace a leaky HVAC coil and performed some easier fixes himself; he says he still has more to do but found that one of the best things that came out of his audit was a comforting confirmation that his home was well-built. "I wasn't sure if my high utility bills were the result of losing air through poor construction or not. It was a relief to find out that the house is pretty tight and the duct work is in good shape," said Mr. Mello. "That was well worth the investment in getting an audit."

TexEnergy is one of a growing number of energy auditing companies that provide as little or as much information as you want concerning the energy efficiency of your home. Services range from a basic home audit, which is a visual inspection, to a more comprehensive evaluation. At TexEnergy, for example, a Certified Home Energy Rater evaluates the home's interior and exterior and reviews past utility bills. Upon completion, the company will provide solutions and consulting to resolve any issues they find.

Servicemagic and other home improvement specialists offer energy auditing services as well. Their inspectors warn prospective clients that one of the greatest areas of potential savings is in the garage. That's because it provides the greatest penetration of unconditioned air. Not surprising since the door leading out to the garage is opened and closed several times a day. In the winter it can hold in cold air and in the summer it becomes a sauna. Professional auditors say that insulation installed only in the garage wall which edges the home's interior, will bring dramatic savings on

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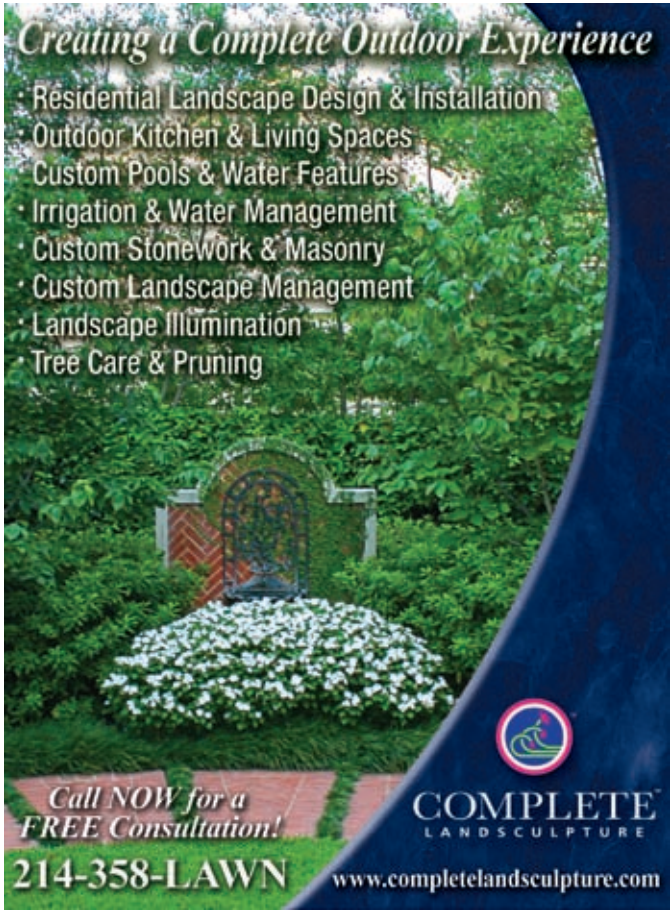
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Next Month in Frisco STYLE

COMING UP IN MAY, we'll introduce you to a Frisco woman who has inspiration to spare after saying goodbye to 140 pounds and hello to a new life. We'll meet Jim Morris who is inspiring others long after gaining fame as The Rookie. And we'll have tips on making your own family fun... a game night primer in next month's Frisco STYLE.

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energy costs. They caution that a lot of air escapes and heat is transferred between that particular partition.

Some other areas inspectors should check include:

The Building Envelope – the inspector should first look for obvious breaks in the building envelope. Reducing air infiltration has an energy savings range from five to 30 percent and will create a healthier more comfortable home. Raters check for indoor air leakage such as gaps along baseboards, flooring edges and junctures of walls and ceilings. They verify whether or not air can flow through electrical outlets, switch plates, window frames, doors and attic hatches. In addition, they analyze the condition of caulking and weather-stripping and perform an inspection of windows and doors for air leakage.

Thermal Envelope Inspection – Conditioned air loss through contact with the ceiling and walls in your home can be substantial if the insulation levels are less than the recommended minimum – which they usually are, especially in homes that are more than 20 years old. A good auditor can verify the condition of coverage in your attic and estimate the wall insulation level, or R-value. In the attic, inspectors analyze the sealing of all building envelope penetrations -- pipes, ductwork and chimneys – and ensure that any gaps are properly sealed prior to adding more insulation.

Heating/Cooling Inspection – TXU reports that in North Texas 50 percent of a home's energy bill is generated by the heating and cooling system. Energy raters look for indications of air leakage on a home's ductwork, since proper duct sealing and insulation levels are critical to overall building performance.

Lighting Audit – Energy for lighting accounts for about 10 percent of the average electric bill. If you have recessed lights, the auditor can determine if they are air sealed (IC rated) fixtures. Only air-tight-IC rated fixtures should be used by today's energy code standards. Any other ceiling lights may allow up to 15 CFM (cubic feet per minute) of conditioned air to escape from your home.

A more comprehensive energy audit utilizes advanced diagnostic tools to analyze what can't be seen with the naked eye. Raters examine the exterior

of the home to collect specific construction and design information. An interior room-by-room analysis captures information on current home performance and allows the auditor to offer options for improvement.

TexEnergy auditors, like others in the field, conduct their analyses using several different techniques with various technologies.

Home Tightness Test (Blower Door) – A blower door test determines the infiltration rate of air entering or leaving the home. Reasons for establishing the proper building tightness include reducing energy consumption due to air leakage, diminishing potential condensation problems, avoiding discomfort caused by air leaking in from the outside and verifying that indoor air quality is not contaminated.

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Duct Efficiency Test (Duct Blaster) – A duct efficiency test is performed with a duct blaster. Used in conjunction with a blower door, it can accurately measure the tightness of the duct system. Duct leakage is directly related to energy waste. According to the EPA, typical duct systems lose 25 to 40 percent of the heating and cooling energy put out by the central furnace, heat pump or air conditioner.

Air Advice (Indoor Air Quality Monitoring) – A monitor is used to track and quantify particulate matter, odors and chemicals, carbon monoxide (CO), relative humidity and temperature levels in your home.

Home Energy Performance Modeling – Performance modeling for an existing home requires comprehensive data collection to provide information on how

your home currently performs. This baseline is used to quantify the impact of proposed improvements. Ask your auditor if he uses software commissioned by the U.S. Department of Energy which gives homeowners an unbiased verification of the analysis and the estimated benefit of the solutions the inspector may suggest. This ensures that the company you use is providing the best solutions for improving your home, including estimating the return on any renovation investment.

Homeowner Consultation – A reputable energy auditor will spend time with the homeowner once the research is complete. They should review your Home Energy Rating Systems (HERS) score with you and review their written report which details the findings, recommendations, priorities, analysis and cost estimates for improvements. Both TexEnergy and Servicemagic as well as other energy auditing companies often act as subcontractor for the improvements a homeowner chooses to implement. Often the cost of the home energy audit is credited back to the client if he uses the company for everything. After the improvements have been implemented the auditing company should re-test your home. This "test out" is necessary for validating effectiveness of work performed, and complying with utility rebate program documentation and/or Energy Efficient Mortgages (EEM) or Energy Improvement Mortgage (EIM) financing requirements.

According to James Brauer, project manager for TexEnergy, the key factors in homeowner decision-making should include economic impact and estimated return on investment of major improvements. "Our audits provide homeowners with the tools they need to make the best decisions on future home improvements," said Mr. Brauer. "Consumers are becoming much more savvy about energy issues, and making sure your home is as energy efficient as possible is one of the best ways to save money in the long run."

NEW CONSTRUCTION

Mr. Brauer says that the biggest growth area in TexEnergy's business has been the home building sector. "Green is such a hot topic right now and homebuilders

are obtaining Energy Star and LEED certifications for their new properties to differentiate them for prospective buyers and renters,” he says.

One of Mr. Brauer’s most recent projects was the La Valencia at Starwood, an apartment complex which has become the first Energy Star certified apartment building in North Texas. The property, located on Lebanon Road in Frisco, features sound proof construction, premium insulation, industry-leading efficient A/C and heating systems, Energy Star rated windows, quiet belt-driven garage motors and rock wool acoustical insulation with thickened exterior walls.

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“La Valencia is using its Energy Star rating as a very effective marketing tool,” says Mr. Brauer. “The apartment leasing market right now is very competitive, and La Valencia has been much more successful than other complexes in attracting tenants.”

Most energy auditors also provide services to builders to help their projects obtain the right energy certifications, making them more attractive to buyers



and renters. James Brauer says his company’s auditors use the builder’s specs to produce the best energy model for the project and help decide what cost effective options best fit the building design. Auditors also perform residential energy code inspections several times during the building process to ensure that all compliance standards are being maintained and to check on the operational performance of the structure. Some energy consultants also provide training for builders to help them better understand the impact of improper installation and how to identify “good” from “bad” installations.

REALTOR EDUCATION

Realtors in North Texas know a lot about the benefits of “green living.” Often they’ve been trained by an energy

auditing company. The consultants offer education on the various energy-efficient mortgage products and loan assistance options available when buying an energy efficient home.

To assist Realtors, TexEnergy will provide a HERS report to help evaluate energy efficiency levels of new and existing homes and identify ways to improve them. This system offers a standardized measurement that mortgage companies and lenders use to qualify HERS-rated homes for special mortgage rates. In addition, homeowners can obtain loans to make HERS-related energy efficiency improvements to help attract buyers. And that’s good news no matter what the season.

Lynda Haschke is a frequent contributor to Frisco STYLE Magazine.