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## Your House is a System

By Larry Zarker

You understand that your car is made up of interacting components and systems - when one component fails, it affects the performance of the entire vehicle. But did you know that the same goes for your house?

Here's a scenario. You're uncomfortable, so you reach for the thermostat, but the HVAC still can't keep up. Your energy bills get higher. You notice condensation on windows. You find mold in the basement. The attic is damp and you worry about warping and rot. The kids seem to catch one cold after another. If your house were a car, the 'check engine' light would be blazing and mysterious fumes would be coming from under the hood.

So, you spend money and a weekend or two putting in more insulation. The problem gets a bit better, but it isn't solved. You look at the condensation and wonder if you should get new windows. You install a new thermostat and think about replacing the old furnace with a high-efficiency model. You take the kids to the pediatrician for another round of antibiotics. Meanwhile, you're still uncomfortable and your energy bills are still way too high.

The 'process of elimination' strategy to home performance repairs can cost a lot of money and time without ever achieving the goal of a comfortable, healthy, safe, and energy efficient home. To get it right, you need to consider the whole home using the house-as-a-system concept.

### Finding the problems: How to conduct a whole-home assessment

The alternative is to conduct an energy audit to find those relationship problems and tackle them at the root cause. It is best performed by a **Building Performance Institute, Inc.** ([www.bpi.org](http://www.bpi.org)) trained and qualified technician for two reasons:

- Properly diagnosing home performance problems and prescribing solutions requires a background in building science that most do-it-yourselfers just do not have.
- The job requires specialist (and often expensive) diagnostic tools—such as a blower door and perhaps an infrared camera—that are not likely to be found in the average do-it-yourself tool kit.

This initial assessment helps isolate root causes of the problems responsible for the symptoms. From it, an itemized and prioritized scope of work is developed. After the improvements are installed, a second comprehensive energy audit is conducted to ensure the house is now performing at expected levels and that the project has not adversely affected occupant health and safety.

Anything less exposes occupants to undue risk, and can create adverse consequences for contractors, manufacturers, program managers, and anyone and everyone connected with the project, however distantly.

## **Show Me the Money**

Upgrading your home's performance can increase its value and provide great rewards in terms of comfort and energy savings.

Visit the Database of State Incentives for Renewables & Efficiency (DSIRE) at [www.dsireusa.org](http://www.dsireusa.org) to learn about rebates and financial incentives in your area. You can also find an index of Home Performance with ENERGY STAR programs at [www.energystar.gov](http://www.energystar.gov) or contact your utility to find out what's happening locally.

Most of these programs require contractors to hold BPI certifications or be a BPI GoldStar Contractor. BPI credentials are specified in many state, local, and utility programs nationwide. Find a BPI Certified Professional near you at [www.bpihomeowner.org/find-a-contractor](http://www.bpihomeowner.org/find-a-contractor).

Understanding how your house works as a system can help you live more comfortably, more healthfully and with lower your utility bills.