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"Hotspots" make you see red, by Steve Maxwell



As far as I know, Jeff Lebold doesn't fly or wear a cape, but he does wield a high-tech tool that reveals hidden energy losses as plainly as Superman's X-ray vision. The process revolves around a science called infrared thermography, a diagnostic technique useful for optimizing the energy performance of older homes and brand new ones by allowing differences in temperature to be seen. The process is also used to highlight dangerous electrical panel hot spots before they lead to a house fire.

Energy consciousness is as prominent today as it was during the 1970s and 80s, and scary home heating bills were the catalyst in both eras. The good news is that today we have the tools and materials to do much more than just complain about how much it costs to deflect winter's cold, cruel blasts. Infrared thermography offers the eyes to see where energy losses are actually occurring and where new windows, expanding foam, and advanced

weather stripping will do the most good. It's a mobile optimization tool that's at the heart of a service now priced low enough to be practical for both homeowners and builders. For about \$300, anyone in the GTA can receive a visual and written report on the energy state of their home.

Thinking of buying a new house because of its much-touted energy efficiency? A marketing-savvy builder can use infrared thermography to prove those claims by lifting them out of the realm of faith. Or perhaps you've just moved into a resale home and find the heating bills are higher than the mortgage. Applying an infrared audit of the sort offered by Lebold's Boldstar Infrared Services ([www.boldstarinfrared.com](http://www.boldstarinfrared.com); 888-847-0517) eliminates the mystery of exactly where all your dollars are getting sucked outside.

To understand how infrared thermography works, you've got to realize something about what we see with our eyes. What we detect as visible light is actually a small part of what scientists call the electromagnetic spectrum. Energy that travels in waves that are shorter in length than what we see is the ultraviolet radiation that inflicts sunburns and fades drapes. Energy wavelengths that are longer than what we see heats food in microwave ovens and delivers radio signals to our cars. Nestled between what we see and the wavelength of energy that swells a bag of microwave popcorn is the infrared spectrum. And differences in the output of infrared energy is what a thermographic camera shows on screen, highlighting areas that offer the greatest potential for energy

improvement.

Winter is an excellent time to conduct a thermographic home audit because the difference in temperature indoors and outside is at its peak. The brighter the area of the thermographic image, the greater the amount of heat loss in that zone. Gradients of heat output are what a thermographic camera shows.

If you're thinking that infrared thermography could have other uses, you're right. One of the services included in Lebold's home audit service is an examination of electrical panels. Loose connections can fester deep inside panels for years, eventually generating enough heat during times of heavy electrical consumption to cause house fires. An infrared examination of the panel shows these hotspots visually, before they deteriorate enough to cause trouble.

Thermography is also used to detect waterlogged areas in flat roofs, both residential and commercial. Since these structures are rarely vented, leaks can cause wetting of internal insulation that doesn't dry out quickly or at all. Infrared thermography shows these zones as hot spots on warm summer evenings as wet sections continue to give off heat after dry areas have cooled.

Thermography is also used to detect hidden hotspots in machinery, large electrical installations, and even in veterinary work with large animals. Areas of injury or disease can be immediately pinpointed with a thermographic camera.

While it may not be quite as useful as Superman's X-ray vision, infrared thermography can let you see deficiencies that rob you of hard-earned cash. Shed some light on the culprits, foil their hidden schemes, and we're all better off for it.