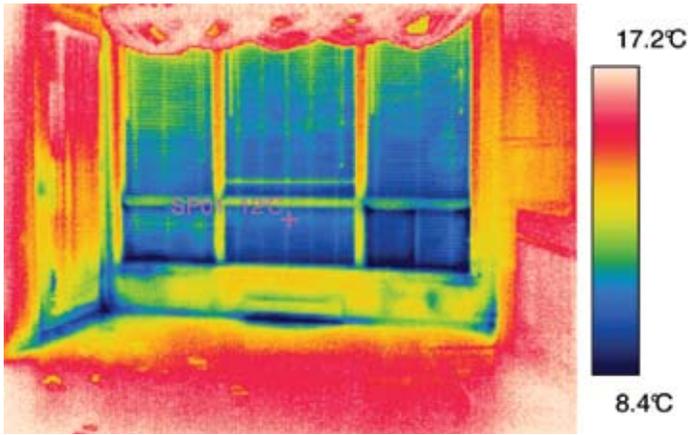


ASK THE INSPECTOR

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What is Infrared Thermography and how would my home benefit?



Infrared Thermographic inspection is a powerful, non-destructive and non-invasive means of monitoring and diagnosing the overall condition of buildings. It is used in applications, such as inspections, where conventional testing equipment and/or visual inspections are incapable of obtaining satisfactory results.

Infrared Thermography technology provides immediate documentation of: plumbing and building envelope water leakage, post-flood and fire water-damaged material assessment and energy use inefficiency, and electrical problems.

How the camera works

All objects radiate heat in the form of infrared energy, hot or cold. As an object increases in temperature, it radiates

more energy. Infrared radiation, visible light and ultraviolet light are all forms of energy in the electromagnetic spectrum, their differences is denoted by wavelengths and/or frequencies.

The infrared camera detects infrared energy well before it can be seen with our eyes. Most cameras can image temperatures from -20°C to 500°C , even extended further to -40°C , and up to 2000°C . The camera converts the invisible infrared energy into a two-dimensional visual image and displays this on a standard TV monitor. Most industrial cameras can also make temperature measurements accurate to $\pm 2\%$ at 30°C . The thermal information is stored onto a disc and is later downloaded into a computer to create report.

What are common applications of infrared thermography?

Infrared thermography is a tool that can save energy in residential, commercial and industrial situations

An Infrared inspection monitors and diagnoses the condition of buildings. As it quickly identifies problem areas that can't be seen by the naked eye and eliminates destructive probing methods (which extends the building life). In new construction, the infrared can confirm proper construction.

All results are captured and documented instantly and easily into professional reports - providing tangible proof of the findings. This could potentially save both time and money.

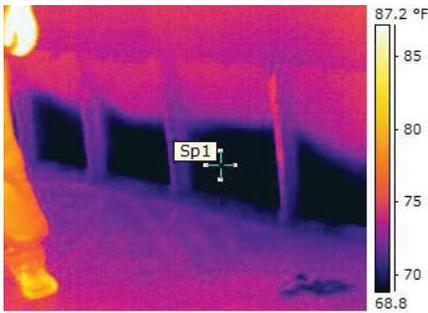


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The following applications demonstrate its unique abilities to troubleshoot problems

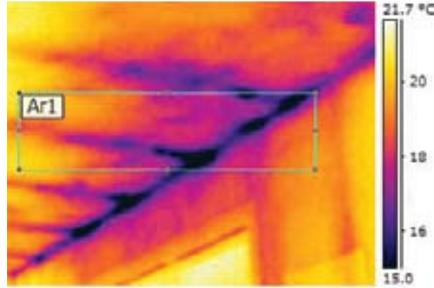
- **Leaks.** Leaks waste energy, whether caused by water, steam or air. An infrared camera can locate leaks that would normally be undetectable (Picture 1-2) Heating and cooling costs can be reduced by pinpointing



(Picture 1-2)

the source of the energy loss by ensuring that the building envelope is adequately air sealed.

- **Moisture Problems.** Moisture in building materials destroys structural integrity and nurture mould. The first step in moisture problem remediation is to quickly and accurately locate and remove all sources of moisture. This means finding the concealed places in walls, floors and attics. Roof moisture can also be detected via infrared imaging. For example, there are thermal differences which



exist at certain times between dry roof insulation and insulation which has been infiltrated by water. On a sunny day, the roof system conducts heat which is absorbed by wet insulation and resisted by dry insulation. At night, the dry insulated areas will cool quickly while the wet areas will retain their absorbed heat much longer.

- **Heating and cooling losses – insulation effectiveness.** Increasing fuel costs make it more important than ever to identify energy loss resulting from insufficient or inadequately installed insulation in residential and commercial buildings. The resultant increased energy consumption from summer heat gains and winter heat losses justify an infrared energy loss survey. The infrared camera detects areas of missing, moisture-laden or otherwise damaged insulation in walls, crawlspaces, attics or around doors, windows,

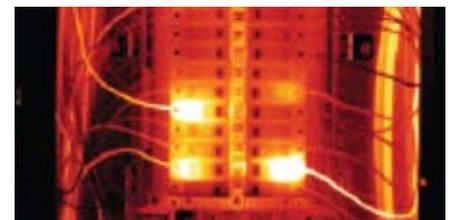
electrical outlets and identifies poorly insulated or un-insulated pipes.

The home's operating costs are increased by allowing cold air to enter the home and heated air to escape in the winter and the reverse in the warmer, summer months.



- **Electrical Problems.** Some Electrical issues quickly identified with Infrared Thermography are loose/deteriorated connections, overloaded circuits, imbalanced loads, open circuits, grounding problems.

Most electrical issues have serious repercussions from both a safety and a reliability perspective if the problems go undetected.



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