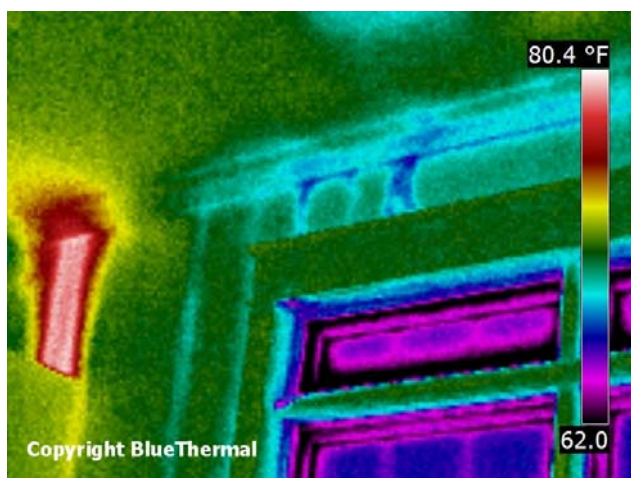


Oh No, A Leak!

By Patrick J. Machin, P.E., Level I

Ever thought how you'd react if water dripped from your ceiling onto your checkbook just after writing out the last penny from your account. In these trying economic times, many are shoving their house repairs to the back burner, hoping that crossed fingers and positive thinking will be enough to ward off the inevitable.

Sadly, this is not the way your home keeps a clean bill of health. Drips happen, and when they appear they can be very unnerving and expensive. You will make a call to your insurance agent, wait until the adjuster shows up, discuss the arduous process, and wait for your contractor to begin the repairs. The adjuster leaves and soon as the door shuts; a migraine sets in for the day.



Photograph 1: Water leaking – Water leak above the window in the upper middle of the image. Water is leaking from the ceiling down the wall and dripping down the window frame.

A quality contractor, who wants to solve the problem quickly and efficiently, will use the best technology available on the market today. Thermal imaging can pinpoint problems in seconds, and avoid unnecessary and costly repairs. “With Bluethermal – Seeing is Believing”.

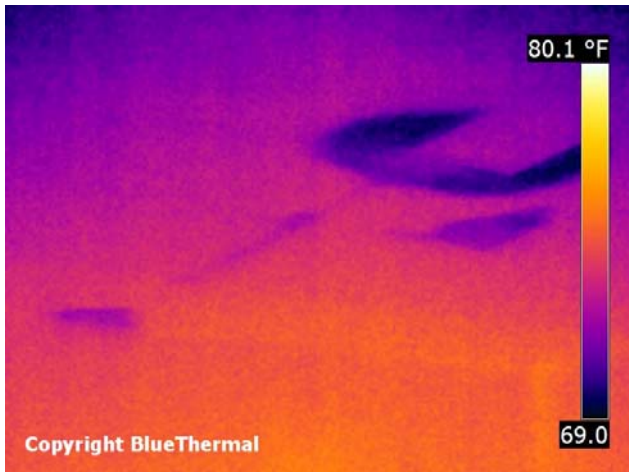
We were called in recently to assist a builder with leak detection for a frustrated customer. The builder inspected the situation and noticed the leak was

directly below the master bathroom tiled shower. From closer inspection he noted the joint had separated in one of the inside corners of the shower. We set-up and instructed the builder to run the shower sprayer on the area until we see water enter the downstairs with using the thermal camera. After doing this for a dozen minutes, a small stream of water began to flow from the ceiling at the wall (**Photograph 1**). It was quickly confirmed the source to be the shower joint and no longer than the average shower time to begin leaking. The builder concluded only a few tiles needed to be removed to reconstruct the joint. Blue Thermal takes a lot of the guesswork out of home repairs, and greatly reduces the time and costs of these repairs.

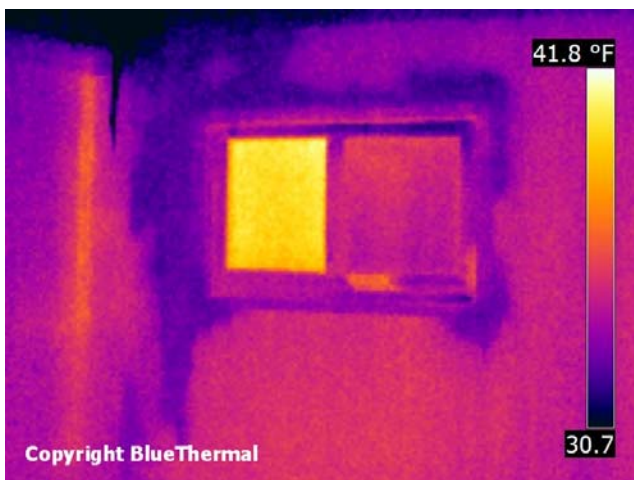
And Now, the Science...

You may now ask how can we see leaks? The camera detects an objects surface temperature, associates the temperature with a color, and assembles the colors in the form of an image. In order for the human eye to discern between the colors, there needs to be contrast. The more contrast between the high and low temperatures, the clearer the image. If the water is from an active leak (new, **Photograph 2**) the water temperature is appears cooler than surrounding surfaces. If the leak is considered intermittent or inactive (old, **Photograph 3**) the water appears cooler due to the process of evaporation. “How is that possible” you may ask. As water molecules evaporate from the surface of the water, the molecules immediately below loose their kinetic energy and thereby reduce in temperature. This process is repeated until the water is all gone or until atmospheric equilibrium is reached (very high humidity). All of this depends on temperature. Hot days – higher rate. Cool days – slower rate.

Thermal imaging provided the frustrated customer with a quick and accurate determination and exact location of where the leak is occurring without the need for an exaggerated mess. The insurance company's burden is also reduced, which will lead to insurance premium savings for you in the future. Making Bluethermal the first step in the process can save unwanted aggravation, valuable time, and perhaps even a migraine or two.



Photograph 2: New Water Leak – Water is leaking from the bathtub above because the shower curtain was not used. Water found a low spot in the tiled floor by the trim and leaked below onto a drain pipe and duct register in the floor. The floor register is in the upper right of the image. A linear effect was due to the leaking onto the pipe.



Photograph 3: Old Water Leak – Water has been leaking for sometime from the roof and behind the wood siding and round the window. Water is tracking from the upper left.

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