Planning to do a Thermal Inspection: Steps to Prepare You and Your Thermal Imager!

by John Pratten, Fluke Thermography, Plymouth MN

There are some simple but important things to think about prior to getting into your car to head for your first appointment, or walking across the plant floor to the first asset you need to scan. At first glance, you may see these steps as totally obvious and may think, "How would anyone forget these common sense actions?" Unfortunately, sometimes it's the simple things we forget, so these plans are definitely worth reviewing! ***First tip?*** *Creating a quick check list may save frustration when you start.*

Here is a short list to consider when beginning a scan, no matter what type of scan you will be doing:

- This may seem obvious, but make sure your **battery is charged.** You may need to turn on the camera to check the battery indicator to verify that there is enough charge. Many cameras can remain on the charger, but one suggestion: occasionally deep cycle the camera by letting it run to "empty" and then give it a good charge! No matter the battery type, giving it a little exercise once in a while never can hurt ;). Another great reason to turn on your camera prior to leaving your office or home leads me to my second point…
- Do the **"tear duct test".** A good thermal practice is to occasionally check the **temperature calibration** of your camera. By looking at the tear duct of your wife or work partner from time to time you can verify, over time, that your camera is performing consistently.
    - The **"tear-duct test"** is a recommended test to verify the calibration of your camera. The suggestion follows that before the thermographer goes out to the factory floor to do a thermal scan (or house to do an energy audit/scan), he/she would turn the camera on (also validating that the camera works and batteries are good) and look at a work partners face with a focus on the tear-ducts. The tear-duct shows the core body temperature (around **98.6°F or 37°C**) and fluctuates very little, giving the thermographer a reasonable "base line" temperature to view. This test should be done with the same person each time for the best repeatable base line.
      The purpose of this is to make sure that there isn't any drift in the detector and that the resulting temperatures shown on the screen are within the specs of the camera.
      The tear-duct test should be a **"thermal habit"** of a thermographer and be done on a regular basis. There are two other tests that can be done at home or at the plant/office when the thermographer doesn't have a "black body" source to test their camera against. On an annual basis, it is recommended that you do, **1) "ice water bath" test**, where you add ice and water to a bowl, stir it a bit, and the temperature will be 32°F or 0°C ***and/or*** **2) boil water** where the resulting temperature will be 212°F or 100°C.
      If your camera demonstrates little to no drift in temperature over time, the thermographer can have a strong sense that his/her camera is still in calibration. These tests don't replace any requirements for camera certification by a certified lab, but are most certainly acceptable thermal practices in our industry.
- If you are trending an electric motor or pump, or planning to verify a repair in a previous building anomaly (insulation or moisture problem), you may want to **upload earlier images to make in-field comparisons easier.**
- Things to carry with you besides your camera:
    - An extra battery or the AC and/or the DC charger
    - Note pad and pen—of course if you own a **Fluke Ti25, TiR1, Ti32 or TiR32** you won't need a pad, just use the voice annotation feature
    - Digital camera for other non-infrared related images. Again, if you own a **Fluke camera with IR-Fusion®** this is not necessary!

If you are heading out to the plant floor you may want the following:

- List of assets to be scanned
- Clamp meter
- Digital Multimeter (DMM)
- Appropriate PPE for the planned route
- **Please note:** Only qualified personnel with appropriate PPE for the route should get access to electrical panels and other higher voltage equipment

For a home or light commercial scan you may want to consider:

- Calling the property manager or home owner the day before to confirm the appointment
- Knowing the weather conditions: Monitor the weather prior to the scan and communicate with the home owner any special requirements needed to facilitate a good scan
- If you are taking a blower door make sure you have all of the components for operation
- Tools for measuring temperature, humidity and wind speed
- Moisture, pressure meters and other tools to be used for validation

These may be simple points but they will make your trip more successful—and a more successful trip can lead to more inspections!

March 16th, 2010 | Tags: infrared camera, thermal imager, thermal inspection, thermal scan, thermography, tips | Category: Thermography Tips

4 comments to Planning to do a Thermal Inspection: Steps to Prepare You and Your Thermal Imager!

Hong Varley
April 15th, 2010 at 12:45 pm

Many thnks for writing such a fascinating post. All too often you see the same thing over and over so this makes a refreshing change.

Tear-Duct Test Defined—And Why it is Important for Your Thermal Camera |
July 13th, 2010 at 9:28 am

[…] implement a tear-duct test within your overall thermal inspection, reference our previous post on Planning to do a Thermal Inspection: Steps to Prepare You and Your Thermal Imager! July 13th, 2010 | Tags: boil water test, calibration, energy audit, energy scan, ice water bath […]

Ollie
November 2nd, 2010 at 4:19 am

Many thanks for this post, the steps were an excellent help.

Fluke Thermography
November 8th, 2010 at 9:20 am

You're very welcome. We're glad you found the post helpful! How long have you been using thermal imagers?