

MAM 14N – Using an Infrared Camera (In-Field)

Participants will:

1. Explore how IR imaging can help you do your job faster and better
2. Understand why the right IR camera is the best tool for your business
3. Learn why IR camera fundamentals are so important
4. Explore the pros and cons of using IR imaging
5. Learn when to use the IR camera with the blower door

What is your job?

Auditor, QA Inspector, Trainer, Sales Personnel

What answers do you need?

What tool are you using now?

Can an IR camera answer those questions?

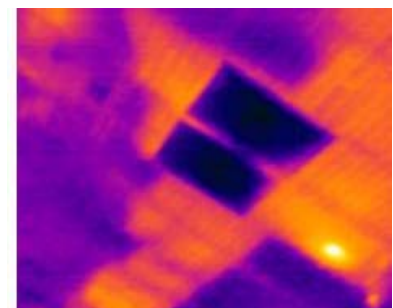
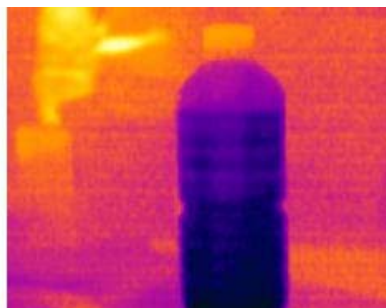
First let's explore the basics in this house: TARGET, TIME AND TEMP

1) Identify the Source of Heat

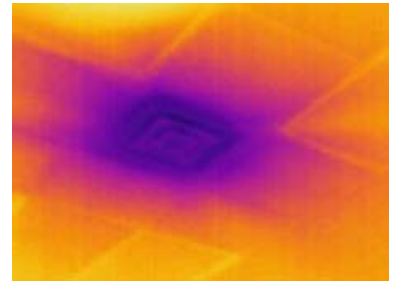
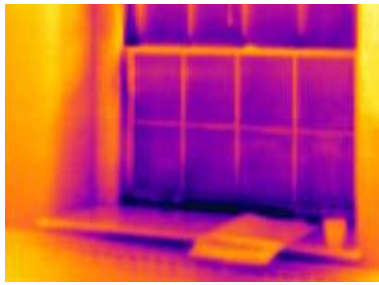
Here the sun is the source of the Heat and over-powers any heat signature from the house.



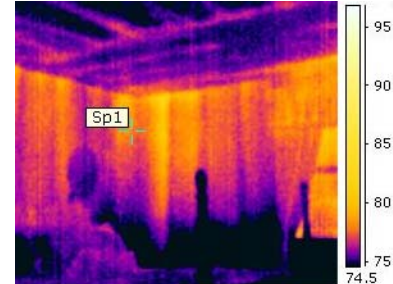
- ### 2) Object vs. Background
- or is the object part of a larger system? If it is, what effect does the system have on the object? Right: IR scan of a water bottle. Far right: insulation in a cathedral ceiling.



- 3) **How heat moves:** An IR scan
Can record conduction,
convection and radiation, but you
need to know how each works to
fully understand the system.
Remember, heat moves from hot
to cold and faster the greater the
 Δ Temperature.



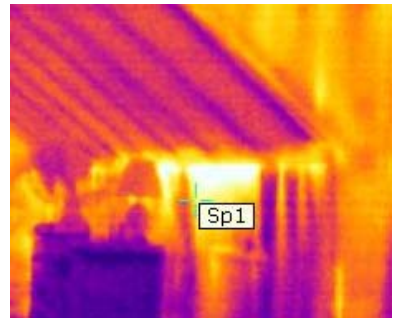
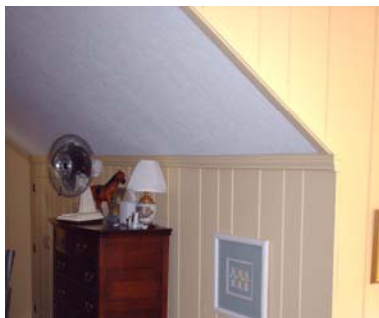
- 4) **Reference temperature**
When a wall has an even texture
i.e. not fiberglass batts, look at
other wall assemblies of the
exact same assembly but in a
different location. Also read spot
temps and compare to an inside
wall. **Reference a low-mass
object** for room air temp



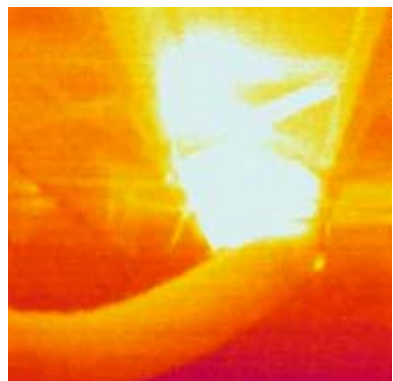
- 5) **Δ Temp of Object /Background**
Narrow the camera range in the
manual mode to create more
contrast on the image whenever
there is a small Δ T between the
object and the background or
between the inside and outside
of the house.



- 6) **Target Properties:** Understand
material density, mass and
reflectivity to understand what
to expect in any given house.
The physical properties of the
individual system components
plus the Δ T will form the IR
image.

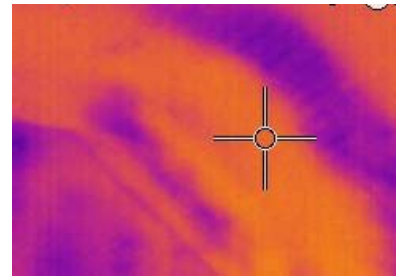


- 7) **Object Perspective:**
Move around in the house to
gain different perspectives.
Size and Distance from you
matters. Focus matters most
for small details and both on-site
and printed presentations.



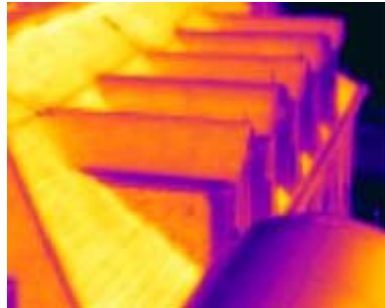
8) Wet or dry

Images of water intrusion usually has soft edges. Use a moisture meter to verify anything you believe is a moisture issue.



9) Time of Day; Time of Year

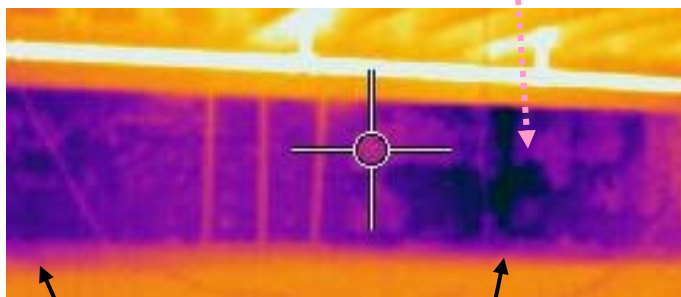
Sun angle, Solar gain and weather will affect your IR scan. Know where the sun is at all Times and what effect it has on The building system you are examining.



Best Tool? Ultimate Diagnostics?

Ultimate because it is “quantifiable” and versatile!

- Energy Auditing; Air Infiltration, Temperature, Pressure
- Moisture Auditing
- Health and Safety Inspections
Mostly: Electrical and Mechanical
- Other: Medical, Security . . .



Water intrusion from
Corner Downspouts

If they like you,
and they believe you,
and they trust you,
and they have
confidence in you ...
then they **MAY**
buy from you.

- Jeffrey Gitomer



People don't like
to be sold ...



.. but they love to buy!