



- Nondestructive form of testing
- Scanner should be certified
- Report should be generated
- Frequency depends on location

An often forgotten utility

Electrical distribution can often go forgotten, leading to lax or inconsistent maintenance and inspection. When electrical equipment fails it often leads to high equipment replacement costs, lengthy downtimes, and interruption in production or operations. One form of maintenance that can provide a huge benefit, with limited interruption in operation, is infrared thermography.

Infrared thermography

Often referred to as an infrared scan, infrared thermography utilizes special cameras to detect heat that cannot be seen by the human eye. This heat is typically produced through an increase in resistance in electrical equipment. Increased temperatures indicate a potential trouble spot that could lead to failure of the component and/or arcing. This can result in a shutdown in operations and personnel injury.

Because of this consideration, both the International Electrical Testing Association (NETA) and the National Fire Prevention Association (NFPA) recommend periodic infrared testing of critical equipment.

Benefits of a thermographic predictive maintenance program include:

- **Minimized failures.** Thermographic surveys help minimize maintenance cost and unscheduled outages.
- **Increased safety.** Detection of hot spots could prevent fire or arcing events.
- **Minimal production interruption.** Infrared thermography has to be completed when the equipment is at load; therefore, the maintenance activity will have minimal impact on production.

Infrared thermography can expand beyond electrical inspections to mechanical equipment. This is due to heat being generated when friction exists, or a lack of cooling medium being present. This allows the camera to see misalignment, bearing issues, clogged or obstructed cooling, and several other conditions which result in elevated heat.



Who can complete an infrared scan?

Infrared scans should be completed by a certified individual, as defined by American National Standards Institute/ American Standard for Nondestructive Testing (ANSI/ASNT). The current companies providing training break down the certification to three levels. A level 1 certification, at a minimum, should be expected from any contracted or internal inspector completing this activity.

What to expect with an infrared scan

Infrared scans do require some preparation and certain expectations should be made regarding a finished product. This will vary depending on the company completing the scan, as well as where the scan is completed.

The following items should be noted in preparation of a scan:

- Equipment should be under normal load.
- Plan the inspection route prior to the visit.
- Panels will need to be removed. Qualified personnel with proper PPE, training, and qualification should be made available.

What to expect once the infrared scan is completed:

- A completed report meeting NETA standards
- Complete list of items scanned
- Clear and concise description of the fault or issue noted, and recommendation
- Documentation of completed repair

When to perform scans

Infrared scans should be completed periodically. This will be determined by equipment criticality, occupancy, environment, and exposure.

For occupancies dealing with heavy dust or dirt buildup or those that are part of heavy manufacturing, industry standard recommends annual inspection. For lighter occupancies such as high-rise buildings or light manufacturing facilities, the frequency will range between 2-3 years.

If findings are significant the frequency should be adjusted accordingly.



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