

Your guide to... Infrared thermography

You work hard to build and maintain your business. That's why it's important to protect it from all potential losses, especially when they're avoidable.

Part of the preventative maintenance of your operation is to identify possible electrical failures and hazards. Infrared thermographic inspections help identify and remediate these issues before they become more serious.

Did you know?

According to the National Fire Protection Association (NFPA) 10% of fires in industrial and manufacturing facilities are caused by electrical system failures including the failure of electrical insulation, terminals and other related components.

*Source: NFPA report on Fires in U.S Industrial and Manufacturing Facilities

The NFPA standard 70B suggests that every commercial and industrial building should have an infrared inspection completed at least once a year.

Why should you have an infrared inspection?

Infrared thermography is used to detect hot spots (due to increased resistance) caused by defects in connections and components of electrical systems. Identifying these issues before they become catastrophic prevents property damage, bodily injury, and the loss of business income.

It's important to know that thermal imaging of electrical systems can show components as being above ambient temperatures. This doesn't mean that they aren't working properly, as the target operating temperature of each electrical component varies.

For a better understanding of what the typical operating temperature of an electrical component should be, technicians typically use historical imaging or comparisons to other similar equipment.

Conditions that can lead to electrical system failures

- ✓ loose connections
- ✓ component age
- ✓ electrical component fatigue
- ✓ oxidation
- ✓ wear and tear
- ✓ imbalanced circuits
- ✓ defective breakers
- ✓ damaged switchgears
- ✓ faulty fuses or fuse clips
- ✓ overloaded circuits
- ✓ poor workmanship
- ✓ material defects
- ✓ defective products (including new installations)



Make infrared inspections a part of your preventative maintenance program

Benefits of performing infrared scans:

- ✓ reduces the risk of equipment failure and down time
- ✓ reduces the frequency and severity of losses
- ✓ increases safety
- ✓ improves system performance
- ✓ reduces the risk of injury
- ✓ saves money on repairs and replacements

Who can perform an infrared inspection?

- ✓ A staff or third party contractor who is certified through the Infrared Training Center (Canada's largest infrared training center) and who is trained to handle live electrical equipment and components. Personal protective equipment (PPE) must also be worn.
- ✓ Infrared inspections must be performed under typical loading periods.
- ✓ There are three levels of certification in infrared thermography. Ensure that the individual performing the inspection is certified level 1.
- ✓ Have a qualified electrician attend the inspection to ensure safe practices.

Summary

Routine infrared inspections of the electrical systems at your business can help identify potential electrical risks before they cause unwanted damage. This invaluable diagnostic tool should become part of your regular preventative maintenance program.

Resources

NFPA 70B – Recommended Practice for Electrical Equipment and Maintenance

Infrared Training Center, <http://www.infraredtraining.com>

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