

Thermographic Scanning Requirements for Vendors:

General

- An independent experienced company that has the ability to recommend corrective action should be sought to perform the survey. The contractor performing the testing must be certified for **Level I** Thermography and the associated report must be prepared by someone certified to **Level II**. Current accreditation of those involved in preparing any report will be included in any report submitted.
- Individuals carrying out the IR survey must be qualified to remove covers and open doors on cabinets containing electrical equipment, measure electrical loads of the equipment, and comply with all safety standards associated with electrical equipment.
- It is recommend that the individual performing the testing be arc-flash trained, and have additional IR training for the examination of electrical equipment. Qualifications of the electrical contracting company/contractor conducting the testing must be provided along with the report.
- The location should be operating at its normal operating conditions at the time of the survey or under a simulated load that would mirror normal operations. At a minimum electrical circuits should be drawing 30%-40% of their rated maximum load.
- The testing report must provide details on the electrical items surveyed including a description of the equipment (transformer, motor, generator, and compressor) or the electrical equipment the fuses/breakers/panel are feeding and the load on the system. The connection temperature and amperage of each phase should be listed.
- The reports should provide both a normal and an Infrared (IR) image of the item being surveyed. Make, model of thermal image camera must be included in any supplied report.
- Where deficiencies are noted the report should provide suggested corrective measures and a time period for their completion

Equipment

- Infrared thermal imaging systems shall detect emitted radiation and convert detected radiation to a real-time visual signal on a monitor screen. Imagery shall be in multi-color.
- The infrared imaging system shall operate within a spectral range from 2 to 14 μm . A spot radiometer or non-imaging line scanner is not sufficient.
- The infrared thermal imaging system shall have a Minimum Resolvable Temperature (MRTD) of 0.3°C or less at 20°C
- The thermal imaging system being used must have a minimum screen resolution of 320x240

Required Documentation

- The name and certification level(s) of all involved in the preparation of the report
- The name and address of the end user
- The name(s) of the assistant(s) accompanying the infrared thermographer during the inspection
- The manufacturer, model and serial number of the infrared equipment used.
- A list of all the equipment inspected and notations of the equipment not inspected on the inventory list.
- The date(s) of the inspection and when the report was prepared.
- The exact location of the exception
- A description of the exception such as its significant nameplate data, phase or circuit number, rated voltage, amperage rating and/or rotation speed.
- When significant, the environmental conditions surrounding the exception including the air temperature, wind speed and direction, and the sky conditions.
- Hardcopies of a thermal image (thermogram) and corresponding visible-light image of the exception.
- Notation of any windows, filters or external optics used
- Any other information or special conditions that may affect the results, repeatability or interpretation of the exception.
- The distance from the infrared imager to the exception.
- Whenever possible, the maximum rated load of the exception and its measured load at the time of the inspection.
- The percentage load on the exception, calculated by dividing its measured load by the rated load.
- The emittance, reflected temperature and transmittance values used to calculate the temperature of the exception.
- When using Delta T criteria, the surface temperature of the exception and of a defined reference and their temperature difference.
- When using absolute temperature criteria, the surface temperature of the exception and the standard temperature(s) referenced.
- Recommended corrective action for deficiencies should conform to the Delta T NETA Maintenance Testing Specifications for electrical systems guidelines.