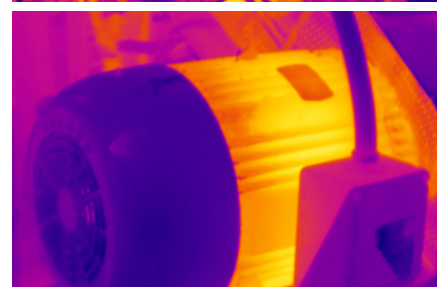


INFRARED INSPECTIONS »



World Class Infrared Inspection Services



INFO@SEAMGROUP.COM | SEAMGROUP.COM

WHAT TO EXPECT

Electrical System Inspections and Infrared Thermography Scanning Services

SEAM Group will inspect as much as possible within the scheduled days based upon the electrical system identified by the client's list or from prior surveys conducted by SEAM Group. On subsequent inspections, the time allocated will include all equipment within the facility made visible by the escort during the initial visit.

SEAM Group will assess and apply infrared thermography to the site's electrical components:

1. Build a database of all designated electrical assets. This shall include but not limited to; manufacturer (OEM), model number, serial number, rated size/ampage, and voltage.
2. Collect actual amperage draws, where applicable and deemed safe.
3. Collect ambient temperatures.
4. Apply QR codes with unique identification numbers to each inspected asset. The label will be applied to the outside of the electrical panel or inside the first hinged panel door.
5. Capture digital image of each inspected asset.
6. Scan and capture thermographic image of every inspected electrical system or asset.
7. Perform visual condition and code compliance reviews to identify gaps with NFPA 70, NEC and OSHA.
8. Provide problem and field severity reporting – the field technician, after identifying a problem, will capture ambient and problem temperatures and use patented field software with built-in algorithms to cross reference field findings. This process allows our technicians to report accurate severity rankings of anomalies as found.
9. Collect and record information on problem components (type, feed, size, etc.).
10. Immediate and end-of-inspection notification of any critical and serious thermal anomalies.
11. Upload all data to our servers for additional analysis, quality review and final reporting through ViewPoint.

The assigned technician will be a Certified Thermographer and properly protected in accordance with OSHA standards and NFPA 70E. Please notify SEAM Group prior to the service if there are client-specific safety, training, and/or operation requirements.

Client Responsibilities – Client is requested to provide an escort through the inspection process, and for the removal and replacement of equipment panels. If required, SEAM Group can provide resources to remove/replace electrical equipment covers and access any high-voltage systems.

SEAM GROUP'S INSPECTION GUIDELINES

The following guidelines will be reviewed with the site contact prior to commencing the inspection:

- o Perform an infrared inspection of the electrical system or designated assets
- o Protective clothing will be worn meeting our internal & NFPA 70E safety requirements
- o All electrical components should be running with a normal load
- o A properly trained and protected person from your organization or hired third party will be opening and closing electrical equipment
- o Equipment that is deemed unsafe to open will not be inspected
- o Conduct the inspection with the following equipment:
 - Laptop computer
 - Infrared camera
 - Digital camera
 - Clamp-on AMP meter
- o Our recommended approach to the inspection will be conducted as follows:
 - Sub Station
 - Incoming Service to Building
 - High Voltage Transformers
 - High Voltage Switchgear
 - Main Switchboard/Distribution Panels
 - Buss Ducts and Wireways
 - Motor Control Centers
 - Low Voltage Transformers
 - Sub Panels
 - Local Disconnects
 - Contactors
 - Control Cabinets
- o As much equipment as possible will be inspected during the allocated schedule
- o Equipment should be prioritized with the most critical equipment inspected first
- o We will inform the site contact of all critical problems prior to leaving
- o The site contact must sign completed work order
- o A Quality Survey will be requested upon completion

APPENDIX A

SCOPE OF SERVICES

Items listed below with an ✓ next to them shall be included within our inspection.

SEAM Group will inspect as much as possible during the scheduled days. Equipment should be prioritized with the most critical equipment inspected first.

1. Inspect for Thermal Anomalies

a. Electrical Equipment

- ☐ Utility transformers (utility personnel must be present)
- ✓ Main incoming service equipment
- ✓ Main switchgear
- ✓ Capacitors
- ✓ Motor control centers
- ✓ Buss-duct / Cable Risers
- ✓ Transformers
- ✓ Transfer switches
- ✓ Generators (need to be operating)
- ✓ Distribution panels
- ✓ Sub-panels
- ✓ Disconnect switches
- ✓ Control panels, contactors, etc.

b. Mechanical

- ☐ Motors & Drives
- ☐ Pumps
- ☐ Bearings
- ☐ Belts

c. Mechanical Items

- ☐ Walk-in freezer
- ☐ Boiler units
- ☐ Chiller systems
- ☐ Compressors

d. Mechanical Steam Systems

- ☐ Steam lines
- ☐ Steam traps
- ☐ Heat exchangers
- ☐ Compressors & compressor racks

2. ✓ **Visual inspection of all items surveyed for NEC and OSHA compliance**
3. ✓ **Baseline all equipment surveyed except bus duct & cable runs which includes:**
4. ✓ **Equipment QR-coding (QR-code identifies the following)**
 - Equipment classification/type
 - Equipment size/capacity
 - Manufacturer name
 - Model Number
 - Rated amps/capacity
 - Voltage
 - Equipment priority
5. ✓ **Visual documentation**
6. ✓ **Thermal documentation**
7. ✓ **Main amp readings for panels, transformers, motors when able to access safely**

VIEWPOINT® REPORTING

Empowering Strategic and Timely Decisions with ViewPoint®

ViewPoint is the central repository for your information which empowers your team to make proactive, accurate, objective and cost-effective reliability and maintenance decisions.

Within five business days of leaving the site, the SEAM Group analysis team will transform all collected field data into usable information via ViewPoint, our online asset management software. Once this process is complete, an email will be sent with login information to the customer contact or designee contacts.

GOALS & BENEFITS

- Expose and mitigate significant risks in fire and safety issues
- Find problems sooner and forecast impact of potential loading scenarios using our TMax algorithms of thermal anomalies
- Prioritized listing of problems, causes and troubleshooting/repair recommendations
- Prioritize maintenance practices around problematic and frequently identified items
- Determine gaps in current OSHA / NEC "layers of protection" for equipment and personnel
- Cost benefit calculations include energy savings, repair costs, and lost production impact customized to your site's operating criteria
- Share and leverage results and trends with other sites
- Establish complete inventory of all inspected assets and pertinent data
- Establish asset performance baselines for trending and comparison
- Transparent client review of all activities and asset condition
- Compare your results with industry peers and trends
- Powerful filtering, sorting and trending capabilities
- Automated email alerts and expert analyst communications to notify the site contact immediately if any "critical" or "serious" issues are identified
- 24/7 secure access with unlimited users

Access to the SEAM Group web-based reporting software will be provided based on a client's annual activity and may include as many client users as desired at no additional charge.