Loss Prevention

Take a proactive approach to loss prevention!

Electrical Maintenance Basics

Electrical systems have a large loss potential, as they can account for a significant part of your property's value. Electrical failure can result in extensive damage to property and equipment, loss of production, higher operating costs, disruption to customers and loss of profit.

Wear and tear on electrical equipment is normal and to be expected. Ongoing maintenance to your electrical equipment is essential in slowing down the deterioration process. When your equipment goes unchecked, the chances of a malfunction or electrical failure are higher and can lead to costly damages.

Deterioration of equipment can be accelerated by several factors, such as a hostile environment, overload or severe duty cycle. Having an effective maintenance program in place can help you identify and recognize these risks early on and implement specific measures for managing them.

Creating an Effective Maintenance Program (EMP)

Creating a successful effective maintenance program (EMP) begins with a plan. Here are four steps to consider when creating your EMP:

1. Compile a listing of all equipment and systems
2. Determine which equipment and systems are most critical
3. Develop a system for monitoring
4. Determine the program owner

We also recommend assembling any available documentation for your equipment and systems during this stage of the planning process. Priority should be given to equipment and systems identified as critical to operating your business. If original equipment manufacturer (OEM) documentation isn't available, contact your specialized electrical contractor or equipment supplier.

Essential Elements of Your EMP

Understanding your electrical equipment and its specific needs are critical in avoiding a system malfunction. The following elements should be included in your EMP:

- Analysis of equipment and systems to determine the maintenance requirements and priorities
- Designation of program owner or qualified personnel
- Periodic inspection, testing and servicing of equipment based on the manufacturer's recommendations
- Review of inspection and test reports to ensure that required corrective measures are actioned
- Record keeping and internal auditing process

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Maintenance Activities to Optimize Performance

Although many of the day-to-day maintenance activities can be performed by your employees, some tasks may require the support of a certified electrician or specialized contractor to ensure your electrical equipment and systems are running smoothly.

Inspections

Regular visual inspection can help detect physical damage, abnormal noises, vibration or smells. Walk-throughs should be conducted quarterly or more frequently if your equipment is stored in a humid/corrosive environment or in an area where there is a high exposure to dust.

Pay close attention to:

- Plugs and junction boxes
- Extension and flexible cords
- Light fixtures
- Motor control equipment
- Portable equipment
- Grounding equipment
- Visible wiring insulation
- Switch rooms and motor control centers (MCC)
- Yard transformer stations
- Emergency equipment

Walk-throughs should be documented and reported deficiencies should be subject to a work order.

As a reminder, hiring a certified electrician to complete an inspection can ensure your electrical equipment and systems are up to code. A certified electrician is able to identify general safety concerns or violations that can potentially put your business and operations at risk.

Thermographic scan analysis

Infrared thermographic testing is used to detect hot spots (due to increased resistance) caused by defects in connections and components of electrical systems. This test, which should be completed by a qualified electrical contractor, can be used to identify issues before they become catastrophic. Any thermal anomalies should be investigated and resolved.

In order to receive a complete diagnosis of your electrical equipment, your licensed technician may recommend ultrasonic testing. This process, in combination with thermographic imaging, is essential when you have equipment that needs to be shut down in order to be opened.

Transformer oil testing and dissolve gas analysis

Oil in your cooling system needs to be tested periodically to confirm that its exempt of contaminants. Over time, the oil is subject to electrical stress and chemical contamination which can affect its insulation efficiency and potentially lead to a breakdown. Conducted by a specialized contractor, oil testing and dissolved gas analysis will help prevent incipient transformer fault and damages.

Circuit breaker testing

Circuit breaker testing, also known as trip profiling, is used to test both the performance of individual switching mechanisms and the timing of the overall tripping system.

Several factors can contribute to an insulated or molded-case circuit breaker trip, including exposure to continuous currents beyond their rating, abnormal high ambient temperatures, poor or improperly connected, damaged plug-in members, and conditions that transfer heat to the breaker mechanism. Your devices with moving parts require periodic check-ups in order to keep the contact clean and perform optimally. Maintenance activities should always be conducted by specialized contractors to ensure that testing is aligned with the manufacturer's specifications.

Call your broker - your best source for information and advice

Interested in learning more about what you can do to protect your business? Your insurance broker can advise you.

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