

# MAINTAINING YOUR ELECTRICAL SYSTEM

## COMPLYING WITH THE 2023 EDITION OF THE NFPA 70B STANDARD

Recently, NFPA 70B transitioned from *Recommended Practice* to *Standard* with the release of the 2023 edition. This *Standard* has an effective date of **January 16<sup>th</sup>, 2023**. NFPA 70B *Standard for Electrical Equipment Maintenance* delineates the efforts that shall be made to properly maintain equipment throughout an electrical distribution system.

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### Applying NFPA 70B

1. Perform a facility assessment identifying environmental conditions and equipment characteristics. Environmental conditions such as temperature, humidity, and level of cleanliness are critical in determining if equipment is properly rated for its environment. Equipment characteristics such as age, past maintenance activities, as well as criticality to the production process are vital in determining the frequency of preventative maintenance (PM) activities.
2. This information is used to develop your **Electrical Maintenance Program (EMP)**, now required by NFPA 70B. This program will detail what tasks shall be performed at which equipment and at what interval. The EMP shall be audited at intervals not to exceed 5 years.
3. A plan will be established to perform energized and de-energized PM tasks. These will include:
  - Visual Inspection
  - Infrared (IR) thermal inspection
  - Cleaning of the panel structure
  - Operation of switches (3) times
  - Injection testing of breakers
  - Cleaning & lubricating of contacts
  - Resistance checks of fuses, switches, etc.
  - And additional items

The frequency of tasks will be determined by the

assessment. Dependent upon environmental conditions, equipment age, and past maintenance activities, the frequency for each task will likely vary for similar equipment. (i.e., A switchboard in a conditioned room may require PM tasks be performed less frequently than a switchboard in a harsher environment.)

For properly maintained equipment in well-conditioned environments, the frequency of some tasks may be 3-5 years. For older equipment, or that which is in harsher environments, the frequency of tasks may be 1-3 years. IR thermal inspections are commonly performed at 1-year intervals except for those in harsh environments which may require a 6-month frequency.

4. Your EMP will facilitate the ongoing maintenance activities ensuring the electrical equipment functions in the most ideal state and will aid in promoting a safe work environment for all personnel.

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### Requirements from Standards and Regulations

**NFPA 70**, *The National Electrical Code* identifies PM tasks that are to be performed and references NFPA 70B and manufacture instructions for guidance. NFPA 70B defines PM tasks and provides template forms for the PM and inspection of more than fifty types of equipment.

**OSHA** also identifies requirements for PM activities. While these apply throughout industry, specific instructions are defined for grain handling facilities as well as hazardous classified locations. Some of these regulations are:

- 1910.272(m) – Grain Handling Facilities
- 1926.431 – Maintenance of Equipment
- 3132 – Process Safety Management



**Manufacturers** produce instruction bulletins and other documents detailing installation guidance and recommended maintenance directives. It is important to understand the manufacturer's guidance as well as that of NFPA 70B and/or other consensus national standards such as ANSI/NETA MTS, IEEE 3007 series, among others.

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### Index Terms

Code, Electrical Maintenance Program, NFPA 70, NFPA 70B, OSHA, Preventative Maintenance, Recommended Practice, Regulation, Standard

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### References

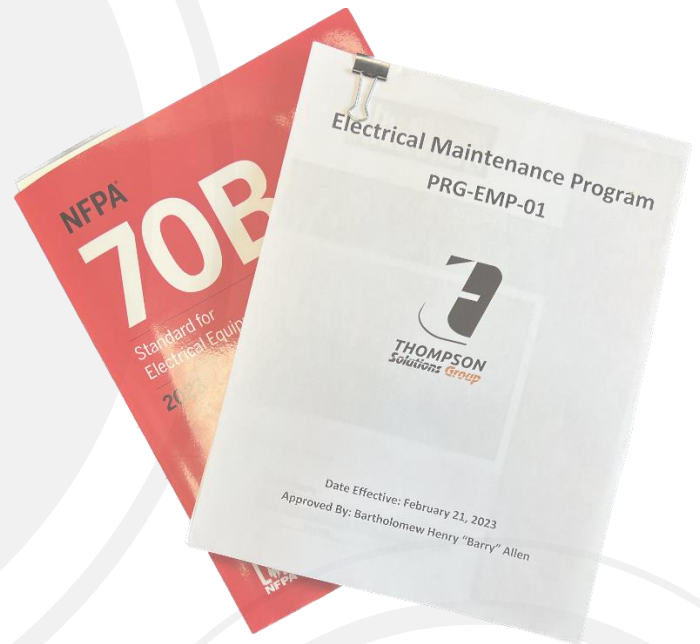
- [1] NFPA 70B-2023, *Standard for Electrical Equipment Maintenance*
- [2] NFPA 70-2023, *The National Electrical Code*
- [3] OSHA 1910.272(m), *Grain Handling Facilities – Preventative Maintenance*
- [4] OSHA 1926.431, *Maintenance of Equipment*
- [5] OSHA 3132, *Process Safety Management*
- [6] ANSI/NETA MTS-2019, *Standard For Maintenance Testing Specifications For Electrical Power Equipment & Systems*
- [7] IEEE 3007 series, *Operation and management, maintenance, and safety of industrial and commercial power systems*

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