

*“Without an EPM (Electrical Preventive Maintenance Program), management assumes a greatly increased risk of serious electrical failure and its consequences.”*

NFPA 70B: 4.1.3

*“Infrared inspections of electrical systems are beneficial to reduce the number of costly and catastrophic equipment failures and unscheduled plant shutdowns.”*

NFPA 70B: 11.17.1

*“Routine infrared inspections of energized electrical systems should be performed annually prior to shutdown. More frequent infrared inspections, for example, quarterly or semi-annually, should be performed where warranted by loss experience, installation of new electrical equipment, or changes in environmental, operational or load conditions.”*

NFPA 70B: 11.17.5

**Q: Why did the insurance industry mandate annual infrared electrical inspections?**

**A: The mandate for annual IR inspections is taken from a standard which the insurance industry ask for -- NFPA 70B: Recommended Practice for Electrical Equipment Maintenance.**

The adoption of NFPA 70: National Electric Code (or “NEC”) in the beginning of the 20<sup>th</sup> century gave us safer electrical design principals and safer equipment installation practices.

Fast-forward to 1967: With the problem of poor design and installation largely behind them (thanks to the NEC), insurance providers noted that *improperly maintained electrical equipment* accounted for a “high frequency” of losses in human life and industrial assets. Consequently, the insurance industry approached the NEC committee to request that preventive maintenance requirements be added to the standard. The committee instead created a sister-standard -- NFPA 70B: Recommended Practice for Electrical Equipment Maintenance.

### **Insurance Industry Leverages it’s Standard**

Most large facilities with large distributed power systems will find that their insurance provider requires annual infrared (IR) inspections of their electrical systems. This mandate is a direct result of verbiage found in NFPA 70B -- not surprising since the standard was created at the behest of the insurance industry.

### **OSHA Requests Electrical Safety Standard**

In the 1970s, the NEC Committee created another sister-standard, NFPA 70E: Electrical Safety in the Workplace, at the request of OSHA.

While there is a significant effort to focus the content of each standard on its specific area of relevance, the three standards are very interconnected, and they do reference each other repeatedly throughout each document. For example, in addition to referencing the standards by name, NFPA 70E makes repeated reference to the requirement for equipment to be “properly installed and properly maintained,” a direct reference to the NEC and 70B.

### **Infrared (IR) Windows Make Compliance Practical**

Some requirements of NFPA 70E appear to be at odds with 70B compliance. Cumbersome PPE makes camera operation difficult at best, while many Incident Energy Analyses (“Arc Flash Surveys”) result in equipment being labeled “Dangerous,” and therefore inaccessible to thermographers while energized. The non-intrusive work process that IR windows provide, makes compliance with both standards easier and much more efficient.