

RESOURCE / NFPA 70B

What NFPA 70B Actually Requires of an IR Program

The difference between running infrared scans and running a program the standard would recognize as compliant.

Most facilities think they are covered because someone walks the gear once a year with a thermal camera and emails a few hot-spot images. Under the 2023 edition of NFPA 70B, that is not a compliant infrared program. It is a snapshot. The standard now expects a documented, repeatable system with defined roles, intervals, records, and follow-through.

Here is what actually changed, and what your program needs to have in place.

01 The shift most people missed

For decades, NFPA 70B was a *recommended practice*. It offered good ideas you were free to ignore. The 2023 edition rewrote it as a **standard**, which means it uses mandatory “shall” language and reads as a consensus requirement for an Electrical Maintenance Program (EMP).

The headline for thermographers: infrared thermography went from recommended to required. The previous edition suggested annual IR on a short list of asset types like switchgear, substations, and motor control equipment. The 2023 edition expects infrared inspection of essentially all electrical equipment on a defined schedule.

That single change is why a lot of “we already do IR” programs no longer clear the bar.

02 “All electrical equipment,” on a condition-based schedule

The baseline interval is at least once every 12 months. From there, the required frequency is set by an Equipment Condition Assessment (ECA), the framework in Chapter 9 of the standard, not by habit or convenience. The ECA rates each asset on three separate factors:

- **Physical condition:** age, cleanliness, moisture, and signs of prior failure or repair
- **Criticality:** what fails downstream, and what it costs, if this asset goes down
- **Operating environment:** heat, dust, corrosion, vibration, and other stressors acting on the equipment

Each factor is scored on a condition scale, and the worst-rated of the three sets the interval. An asset can be physically pristine and still land on a tighter schedule because it is highly critical or sits in a punishing environment. The governing condition level drives the timing:

- **Condition 1** (like new, clean, no open issues): at least every 12 months
- **Condition 2** (deviations, prior repairs, monitoring or predictive flags): at least every 12 months
- **Condition 3** (missed cycles, repeat major issues, unaddressed alerts, urgent predictive findings): at least every 6 months
- **Nonserviceable** (imminent risk): immediate action, taken out of service

The point is that intervals are earned, not assumed. A compliant program can defend why each asset is on the schedule it is on.

03 Where scans and programs diverge

A survey report proves someone showed up. A program proves the work is controlled, qualified, and traceable over time. NFPA 70B expects the following pieces to exist, not just the images.

01 A written EMP with defined scope

There has to be an actual program document: what equipment is covered, how it is prioritized, which methods are used, and how findings move to repair. Infrared is one technique inside that program, not the whole thing.

02 An equipment inventory and condition assessment

You cannot inspect “all electrical equipment” if you have never listed it. The standard leans on an asset inventory and a condition assessment to assign intervals. Single-line diagrams and equipment identification make the inventory usable in the field and in the report.

03 Qualified thermographers

Personnel must be qualified to operate the test equipment and interpret results (Section 8.4.1). NFPA 70B does not name a single certifying body, but the recognized path in this industry is training and certification to ASNT SNT-TC-1A, Levels I, II, and III. “Qualified” means documented competence, not “owns a camera.”

04 Calibrated, appropriate equipment

Measurement instruments have to be calibrated, with calibration traceable to recognized national standards (Section 8.5.3). A radiometric imager with a current calibration certificate is part of compliance. A screening tool with no traceable calibration is not enough when you are documenting temperatures for the record.

05 Data collected under real conditions

Infrared is a load-dependent test. The standard expects inspection at normal or near-normal loading so that a fault can actually show up. Section 7.4 frames the method around temperature difference (ΔT): comparing similar components under similar load, and comparing components against ambient. For electrical faults, this is one of the earliest and most direct indicators you have. High-resistance connections, load imbalance, harmonics, and deterioration announce themselves as heat before they fail.

06 Reporting that meets the standard

This is where most “scan” deliverables fall short. Temperature differences between the area of concern and the reference area shall be documented (Section 7.4.3), and Annex E shows how a report should be built. A compliant report captures, at minimum:

- Date and time of the inspection
- Name and qualification of the thermographer
- Make and model of the imaging equipment used
- Emissivity and reflected temperature settings used
- Ambient temperature and humidity conditions
- Circuit loading and operating conditions at the time of the survey
- Location and identification of each asset inspected
- Both the thermal image and a matching visible-light image
- The ΔT for each anomaly against its reference
- A severity rating and a recommended corrective action for each finding

A folder of thermal JPEGs with no settings, no load data, and no reference temperatures does not satisfy this.

07 Corrective action, as-found / as-left, and retention

Records shall show as-found and as-left results (Section 8.6.2). Finding a problem is half the job. The program has to route it to repair, verify the fix, and keep the history so trends are visible over time and the next inspector inherits the record. Retention is what turns a pile of annual surveys into a condition-monitoring program.

04 Scan vs. compliant program, side by side

ELEMENT	A SCAN	A PROGRAM NFPA 70B RECOGNIZES
Basis	One-off visit	Written EMP with defined scope
Coverage	Whatever was accessible	Full equipment inventory
Interval	Once a year, by habit	Condition-based (6 or 12 months)
Operator	Has a camera	Qualified and certified thermographer
Instrument	Any thermal device	Calibrated, traceable radiometric imager
Conditions	Whatever the load was	Documented near-normal loading
Findings	Hot-spot photos	ΔT vs. reference, with severity and action
Follow-up	None tracked	As-found / as-left, verified and retained

05 “But is it actually enforced?”

Fair question, and the honest answer matters. NFPA 70B is not federal law on its own. It carries weight in three ways:

- ◆ **Adoption.** It becomes enforceable where an authority having jurisdiction adopts it or where a contract or insurer requires it.
- ◆ **OSHA.** After an incident, OSHA can cite the General Duty Clause and reference NFPA 70B as recognized industry practice, the same way NFPA 70E is treated.
- ◆ **Liability and insurance.** Insurers increasingly expect robust EMPs, and after a fire or an injury, “we took some pictures” is a weak position in front of an adjuster, an attorney, or a jury.

So the driver is not an inspector knocking on the door. It is risk, uptime, and defensibility. A program you can hand to an auditor protects the facility long before it protects a checkbox.

06 Would your program pass?

Run your current IR effort against this short list:

- ☐ There is a written EMP that names infrared as a defined method
- ☐ Every covered asset is inventoried and assigned a condition-based interval
- ☐ The thermographer’s qualifications are documented
- ☐ The imager has a current, traceable calibration certificate
- ☐ Surveys are performed under documented load
- ☐ Reports include settings, conditions, ΔT , severity, and recommended action
- ☐ Findings are tracked to repair with as-found and as-left records
- ☐ Records are retained and trended year over year

If you checked all eight, you are running a program. If you checked three, you are running scans and calling it a program, which is exactly the gap the 2023 standard was written to close.

Look Management Group performs NFPA 70B program audits and Level III advisory work, helping facilities close that gap before an incident or an auditor forces the issue. If you want a candid read on where your current program stands, that is the kind of review we do.

Standards referenced: NFPA 70B, Standard for Electrical Equipment Maintenance (2023 edition). Supporting technical guidance commonly applied alongside it includes ASTM E1934 (examining electrical and mechanical equipment with infrared thermography) and personnel qualification under ASNT SNT-TC-1A.