



Updates to NFPA 70B AND WHAT IT MEANS FOR YOU





Introduction: Chris Myers

- | Power Engineer for 14 years
- | Industry experience: oil seed, biodiesel, ethanol, value-added ag
- | Find me at booth 21 after the presentation

WHAT'S THE DIFFERENCE?

NFPA 70

Covers safe
installation of
electrical wiring
and equipment

NFPA 70E

Addresses worker
and electrical
safety

NFPA 70B

Sets the standard
for preventative
maintenance of
equipment

What is NFPA 70B?

What is NFPA 70B?

- | Provides best practices for electrical equipment maintenance
- | Aims to enhance safety and efficiency

Applicability

- | Applies to industrial facilities
- | Applies to commercial facilities
- | Applies to institutional facilities

Scope

- | Emphasizes preventative maintenance
 - | Extends equipment lifespan
 - | Reduces downtime
 - | Minimizes hazards
-

How is this Enforced?

NFPA is enforced by local governments, fire departments, building inspectors, and insurance companies

Nationally, OSHA incorporates NFPA into its standards

A decorative graphic at the bottom of the slide consisting of a solid dark blue horizontal bar. A thin yellow horizontal line is positioned just above the blue bar, starting from the left edge and extending about two-thirds of the way across the slide. The yellow line then turns diagonally down and to the right, ending at the right edge of the blue bar.

UNDERSTANDING NFPA 70B

A short, horizontal yellow line is positioned below the main title area, extending from the right side of the dark blue background towards the center.

NFPA 70B

In 2023, NEC updated NFPA 70B. Here are three things to keep in mind with this change:

- | Changed code from a *recommendation* to a *standard*
- | Recommendations are based on the criticality of the equipment
- | Start planning now for this change

Goals of NFPA 70B

- | Maintenance procedures can vary by site, so a common standard was deemed necessary as NETA standards are not mandated
- | Anecdotes from my travels
 - | Car filter to help keep rooftop panels clean and cool
 - | MCC as a PPE storage closet
 - | Rigging an MCC door to access a broken reset
 - | Ancient electric room identified as high risk burned down (no one was hurt)

Topics in NFPA 70B

- | Developing a maintenance program
 - | Detailed equipment procedures
 - | Frequency and types of tests and measurements
 - | Maintaining detailed maintenance records
 - | Ensuring One Lines, Reliability Studies, and Arc-Flash Studies are up to date
-

General Requirements

Electrical Maintenance Program (EMP)

- | Equipment owner SHALL implement and document EMP that directs activity to appropriate personnel.
- | EMP Equipment condition SHALL be considered in determining safety risks.
- | EMP SHALL identify the principles upon which it is based and goals to be achieved.

General Requirements

EMP must included the following elements

- | Condition of gear
- | Identification of responsible personnel
- | Survey and analysis of equipment and priorities
- | Documentation of procedure
- | Plan for inspection, testing, and servicing
- | Records of EMP for equipment, maintenance and personnel
- | Written process to prescribe, implement, and document corrective measures
- | Written process for incorporating design for maintainability
- | Written process for program review and revision

Equipment Condition Assessment

(9.3.1.1, 2, and 3)

Condition 1: like new, clean, no issues, previous maintenance performed per program

Condition 2: had or has issues

Condition 3: has missed the last two maintenance cycles, had issues the last two checks, currently has urgent issues

Apply to NFPA 70B Table 9.2.2 to determine how often checks should occur.

Equipment Condition Assessment

(9.3.1.1, 2, and 3)

Example of Condition Application:

Table 9.3.2 *Continued*

Product	Scope of Work	Equipment Condition Assessment		
		Condition 1	Condition 2	Condition 3
Molded-case/ insulated-case/low- voltage power circuit breakers	Visual inspection	60 months	36 months	12 months
	Cleaning	60 months	36 months	12 months
	Lubrication	60 months	36 months	12 months
	Mechanical servicing	60 months	36 months	12 months
	Electrical testing	60 months	36 months	12 months

Who Can Perform NFPA 70B Work?

NFPA 70B work should only be performed by qualified, trained, and authorized personnel.

- | **Qualified individuals** with the knowledge and skills to maintain electrical equipment safely
- | **Trained on electrical hazards** including shock, arc flash, PPE, and lockout/tagout
- | **Authorized by the employer** to perform the specific task
- | **Competent for the job scope** — inspection, testing, maintenance, or troubleshooting
- | **Compliant with applicable code and site requirements**

Examples of Visual/General Checks

Visual Inspections

- | Check for signs of wear
- | Look for corrosion
- | Identify overheating issues

Tightening Connections

Cleaning

- | Remove dust
- | Clear debris
- | Ensure optimal performance

Exercising of Breakers

LOTO Required

Power Down – Utilities

- | Load Shedding
- | LOTO
- | Ground Cluster Installation



Examples of Electrical Testing

IR Scans (Thermography)

Transformers

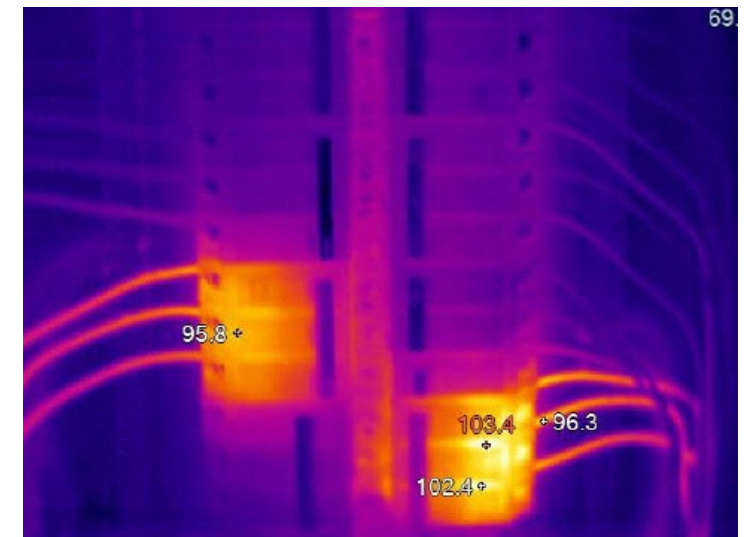
- | Check oil quality

Cables and Bus Bars

- | Megging vs. DLRO

Motors

Grounding and Bonding



Well-Maintained - Code

Core Concept

- | NFPA 70B & 70E center around the idea of “well-maintained” to determine how the equipment is to be approached from a safety perspective.

Definition?

- | That’s the problem, “well-maintained” is NOT well defined within the code

What definition do we have?

- | NFPA 70E-13: Maintenance, Condition of
 - | “The state of the electrical equipment considering the manufacturers’ instructions, manufacturers’ recommendations, and applicable codes, standards, and recommended practices”

Well-Maintained - Implications

What happens if gear is not “well-maintained?”

- | Gear is to be considered open while operating live
- | General risks include (but are not limited to)
 - | Fire hazard from overheating equipment
 - | Damage to gear shortening lifespan or leading to catastrophic failure
 - | Downtime
- | Inaccuracy of safety inspections if they're assuming the gear has been properly maintained



EPM Breaker Testing

With specialized predictive and preventative services, we identify electrical components that are not operating as they should or are nearing failure.

Why test your breakers?

- | To ensure they will operate properly
- | To ensure they trip at the set point
- | To prevent future down time
- | To fulfill requirements of NFPA 70B
- | Safety- removing energy, limiting human exposure



EPM Breaker Testing – Primary vs. Secondary Injection Testing

When testing breakers, there are multiple types of tests that can be performed.

Primary Injection Testing

- | Injects current into the power circuit to test the full breaker functionality
- | Verifies CTs, wiring, and breaker trip function and reset
- | Better for proving real-world protection performance

Secondary Injection Testing

- | Injects current into the secondary/relay circuit
- | Verifies the trip unit functionality
- | Less system impact, but does not directly test full breaker functionality

Common Studies

One-Lines

- | Requirement: Keep them up to date and legible

System Studies

- | General Requirement: Shall be created and reviewed for accuracy at intervals not to exceed 5 years
- | Short Circuit Studies
- | Coordination Studies
- | Arc Flash Studies
- | Load-Flow Studies
 - | Only required if needed to allow maintenance
- | Reliability Studies
 - | Only required if needed to allow maintenance

Documentation and Record Keeping

EQUIPMNT TYPE	DESCRIPTION	LOCATION	Visual Inspection	Cleaned	Exercised	Comments (Condition as Found)	Recommended Action	Action Taken	Signature	Date
MAIN MCC	FEED FROM UTILITY	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	GH	11/11/2023
MAIN MCC	MCC2 MAIN	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	GH	11/11/2023
MAIN MCC	SPARE BREAKER	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	GH	11/11/2023
MAIN MCC	MCC1 MAIN	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	GH	11/11/2023
MAIN MCC	HP-1	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	GH	11/11/2023
MCC1 FEED FROM SB-1	LADDER GATE (RO2A)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	GH	11/11/2023
MCC1 FEED FROM SB-1	LADDER GATE (RO3A)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	FAN (RO2C)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	FAN (RO3C)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	FAN (RO5C)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	RECEIVING BUCKET ELEVATOR(R05)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	DRAG CONVEYOR (R10)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	R10A VORTEX SPOUT	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	R108 VORTEX SPROUT	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	R10C VORTEX SPROUT	MAIN MCC ROOM	X	X	X	BAD RESET SWITCH	REPLACE RESET SWITCH	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	DRAG CONVEYOR (R11)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	DRAG CONVEYOR VFD (RO4)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	DRAG CONVEYOR (R09)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	ELECTRIC GATE (R09E)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	ELECTRIC GATE (R09A)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	ELECTRIC GATE (R09B)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	ELECTRIC GATE (R09C)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023
MCC1 FEED FROM SB-1	ELECTRIC GATE (R09D)	MAIN MCC ROOM	X	X	X	ACCEPTABLE	NONE	NONE	BB	11/11/2023

6 Year Plan

Task/Activity	Year 1 (2026)	Year 2 (2027)	Year 3 (2028)	Year 4 (2029)	Year 5 (2030)	Year 6 (2031)
Breaker Injection Testing	x					x
Infrared Scanning	x	x	x	x	x	x
Grounding Audit and Testing	x			x		
Switchgear, Panel, and MCC Bucket Cleaning		x		x		x
Arc Flash Assessment	x	x	x (5 Year Audit)	x	x	x
Liquid Filled Transformer Oil check	x	x	x	x	x	x
Remediation and Documentation	x	x	x	x	x	x

Instrumentation Preventative Maintenance

NIST calibration of critical devices:

- | Pressure
- | Temperature
- | Level
- | Flow
- | Analytical (pH Conductivity)
- | Fixed gas detection
- | Alarm Set Point Verification /
Shutdown Interlock verification



2026 Updates to Highlight

- | **OT Cybersecurity Added to the Electrical Maintenance Program**
 - | Networked electrical and control systems now require cybersecurity risk consideration.
- | **Continuous Thermal Monitoring Recognized**
 - | Permanently installed temperature monitoring can support thermal inspection requirements.

Learn More

Scan for the slide deck and additional NFPA 70B resources.



THANK YOU!

Connect with Chris Myers



chris.myers@interstates.com

Find Interstates at booth 21

Connect with Interstates



Interstates



@InterstatesCO



@InterstatesCO

INTERSTATES

