



# Fire Safety

A guide to NFPA fire standards and making a safer, more OSHA compliant facility.

## Introduction

There are an average of 37,000 fires at industrial facilities every year, according to recent statistics from the National Fire Protection Association (NFPA). These accidents are catastrophic—they can cause serious and fatal injuries, and cost both businesses and municipalities billions of dollars annually.

Consequently, businesses need to implement fire safety practices to protect workers and stay OSHA compliant. It's easy to believe that a facility needs to have fire safety measures in place, but it can be daunting to plan and implement those strategies. Anyone in charge of safety for an industrial facility might have a number of questions. After all, aren't all industries different? Which guidelines should I be following? Does OSHA dish out these standards? How do I make my facility safer without bogging down production or adding too much cost to our production?

These are valuable questions—ones that this guide answers clearly and carefully.



## NFPA: What is it, and why do I need to know about it?

The National Fire Protection Association (NFPA), is a USA-based trade entity that has created and maintained standards for usage and adoption by local governments. These standards have then influenced the fire-related requirements that the Occupational Safety and Health Administration (OSHA) enforce on businesses.

NFPA codes and standards have been created to address the diverse, unique hazards various industries face. Abide by the codes related to the work you do, and you'll make your facility both safer and more OSHA compliant.

### NFPA Codes and Standards

<b>NFPA 30</b>	This code covers flammable and combustible liquid hazards. It provides safeguards to reduce the hazards associated with the storage, handling, and use of flammable and combustible liquids.
<b>NFPA 70</b>	Also known as the National Electrical Code (NEC), the NFPA 70 acts as the foundation for electrical safety in commercial, residential, and industrial settings. This code contains regulations for electrical wiring, overcurrent protection, grounding, and installation of equipment.
<b>NFPA 70B</b>	A continuation of the NFPA 70, this set of codes provides information about preventive maintenance for equipment, communication systems, and other such machinery found in industrial plants, institutions, commercial buildings, and apartment complexes.
<b>NFPA 70E</b>	A continuation of the NFPA 70, This document focuses on electrical safety for workers. The standard provides practical safeguards that allow workers to do their jobs safely. All industrial facilities should incorporate this standard into their safety programs.
<b>NFPA 72</b>	Fire alarm and signaling code. This standard details application, performance, maintenance, and other requirements for fire alarm systems.

## NFPA 70E: What you need to know

The NFPA 70E standard was designed for safety-related work practices regarding electrical energy. These requirements are designed to protect workers by reducing risks of major electrical hazards. The NFPA 70E standard stems from an OSHA request to build a standard that would help employers avoid workplace injuries and fatalities due to electricity-related accidents and helps businesses comply with OSHA standards 1910 and 1926.

### NFPA 70E vs. NFPA 70

If you're not an electrician or electrical engineer, the various agencies in charge of different standards can be confusing. The NFPA 70E standard is a cousin of the National Electrical Code (NEC). The NEC is the standard for design of electrical systems, but not how to complete the work; the NFPA 70E instructs safe work practices for electrical construction and maintenance, but not how to design electrical systems.

Since the NFPA 70E covers electrical safety in the workplace, it applies to every business you can think of: grocery stores, universities, cafes, libraries, etc. Despite the fact that this standard applies to countless types of industry, NFPA 70E is most often enforced in manufacturing plants, factories, warehouses, and worksites - places where electrical construction and maintenance consistently happens.

There are some big differences between the NFPA 70E and NEC when it comes to enforcing these standards. The NEC is for regulatory use; it is enforced by electrical inspectors. Since the NFPA 70E is not regulatory, customers/site managers are responsible for enforcing the NFPA 70E safety practices on electrical contractors.

The scope of NFPA 70E is focused on three kinds of energy-related hazards:

**➤ Arc-flash      ➤ Electrocution      ➤ Arc-blast**

While NEC focuses on broader issues regarding electrical/fire safety, the NFPA 70E was designed to prevent these specific hazards.

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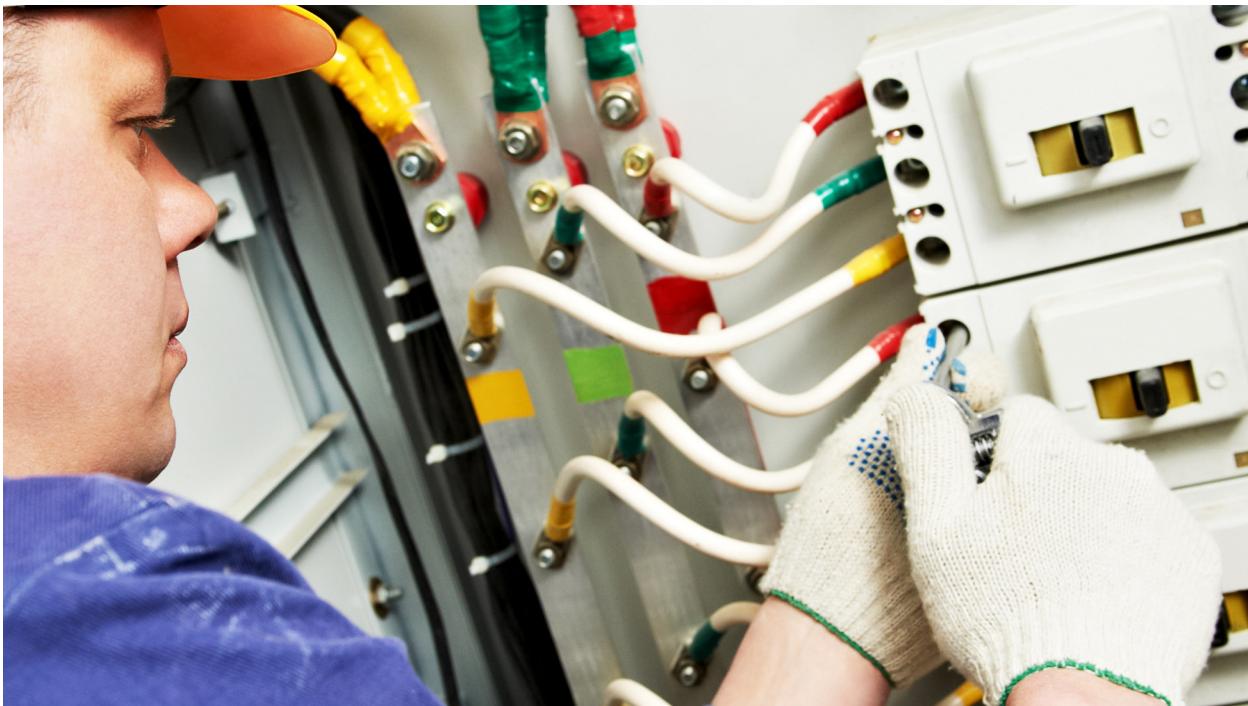
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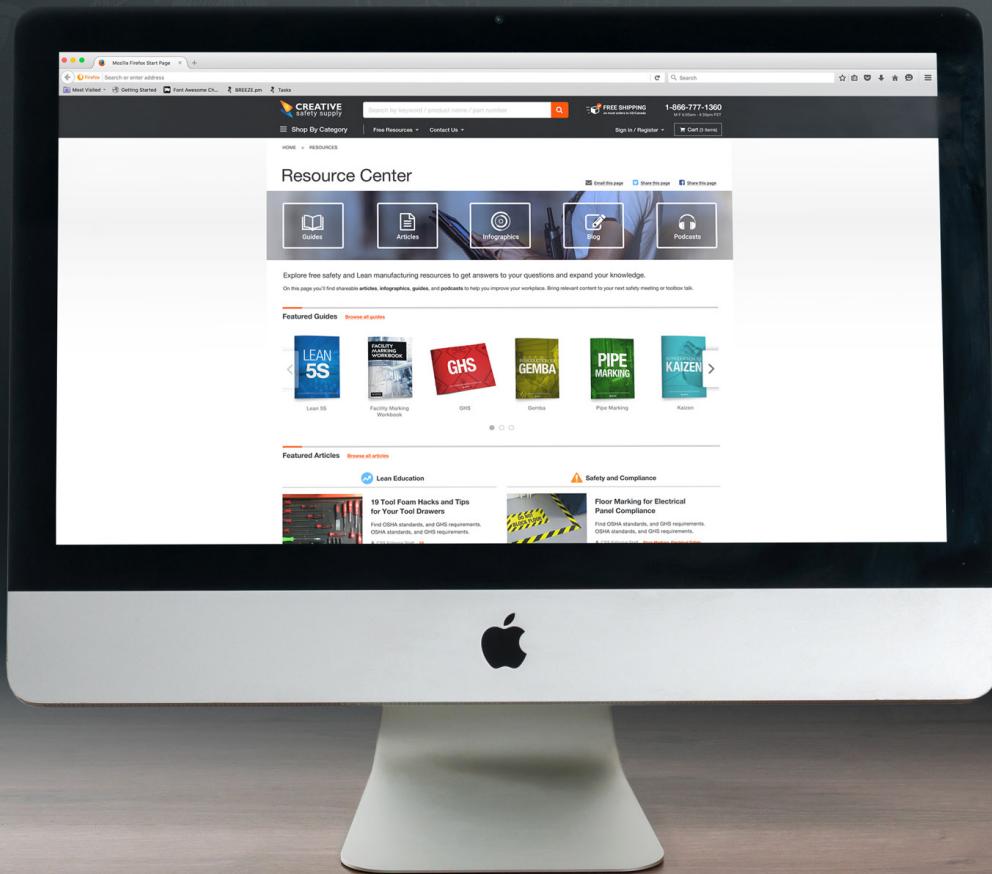


## Further tips from NFPA 70E

When working in industrial environments, there's nothing more catastrophic than an energy-related fire. The NFPA has many tips about how to prevent these incidents, but here are the big ones:

- Shut power down. It's important to work in a de-energized environment, though this isn't always possible.
- Make sure to post proper permits. Have foreman, manager, property manager, or whoever's in charge sign an Energized Electrical Work Permit.
- Wear PPE. Personal protective equipment (PPE) like arc-rated clothing, leather protectors, face shields, and dielectric overshoes can help protect workers in the case of arc-blast, arc-flash, or electrocution.

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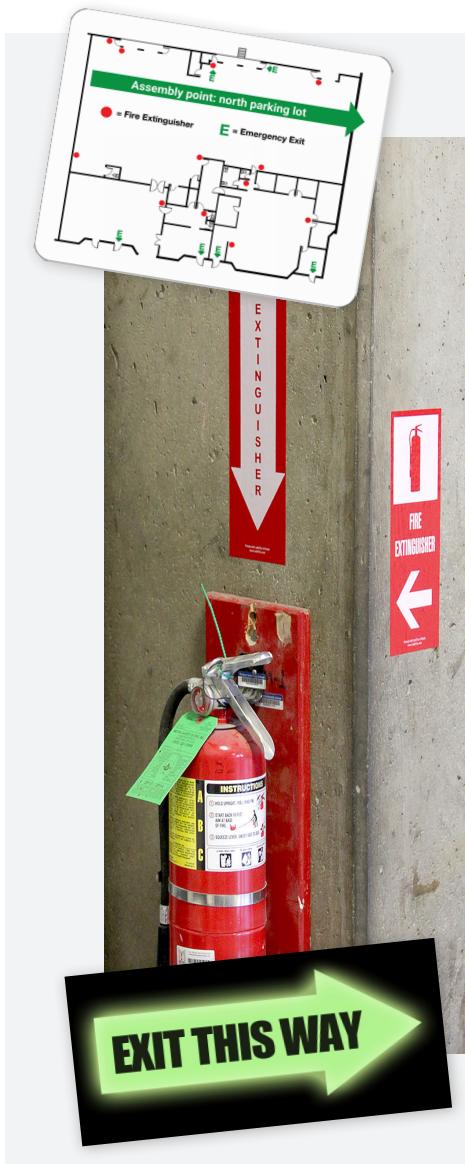
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## When disaster strikes: tips for being ready for everything

No business wants to experience a fire-related accident, but every business should be prepared for one. Since lives are at stake, it's crucial that preparations are taken seriously, made with care and intention, and practiced occasionally to ensure everyone knows what needs to happen should an emergency occur.

According to OSHA's 1910.38 standard, facilities must have an emergency action plan. These plans must include procedures for emergency evacuation. These maps should be detailed, easy to navigate, and should be well known by all who work in the facility.



### Tips for evacuation plans

- Post maps in high traffic areas. Hanging maps in break rooms, clock-in areas, and above fire extinguishers ensure that workers know where to go to check the evacuation route in the case of emergencies.
- Use visual communication. Wayfinding signs help workers find fire exits, first aid, fire extinguishers, and more resources that can help in the case of a fire.
- Make sure workers can see where they're going. Sometimes fires cause power failures. To combat these conditions, facilities should use glow-in-the-dark signs and photoluminescent egress exit path markings. These tools can be the difference between a close call and a devastating tragedy.

## Listen to an expert

While there are no specific regulations for mapping evacuation plans themselves, experts have developed best practices that can help your facility have the best fire exit plan.

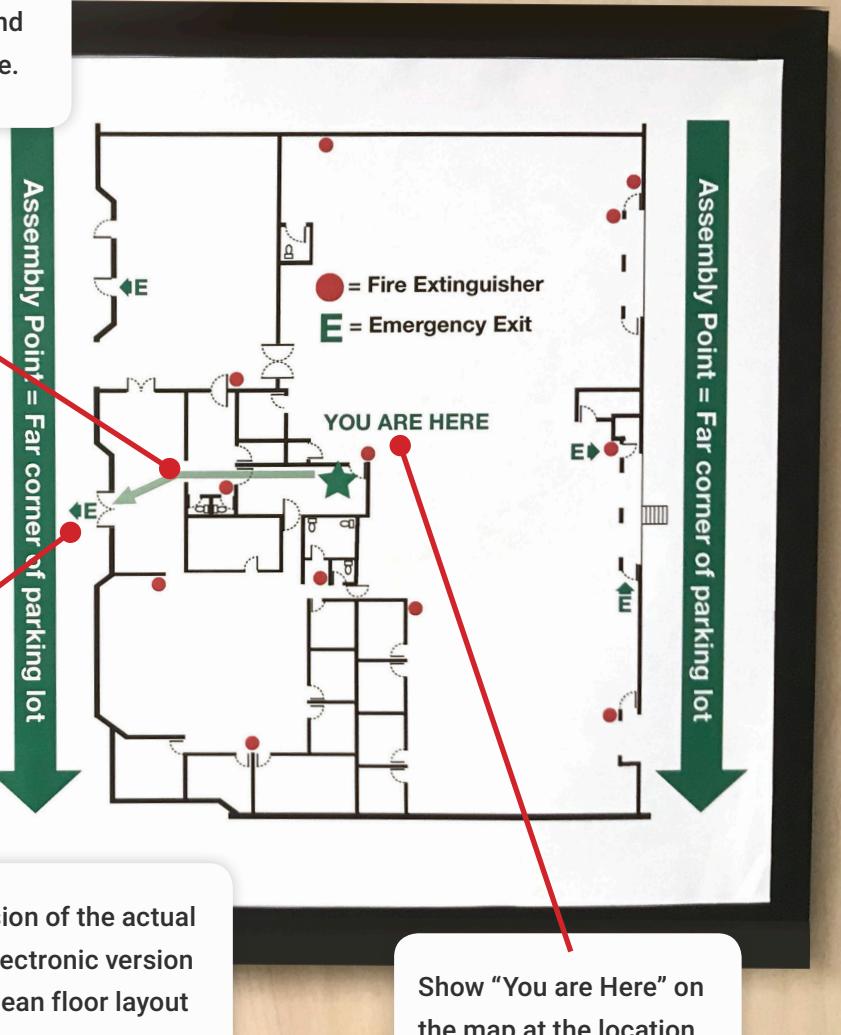
Milt Werner, a retired building systems engineer and safety code expert based out of Wyoming and a frequent contributor to NFPA.org's community forum, has come up with this handy criteria for fire evacuation plans.

Make the map as simple and understandable as possible.

Show the route to the nearest exit.

Clearly identify the exits on the maps.

The map is a scaled version of the actual floor layout. Obtain an electronic version from the architect of a clean floor layout and add the symbols.



Show "You are Here" on the map at the location of the wall hanging.

Orient the wall mounted map to correspond to the actual floor layout. North symbols do not mean anything inside a building. Just ask people in the building where North is and you will get a different answer from each one. As I stand in front of the map, the direction to travel out of the building is unambiguous. My first decision should be simply right or left from where I am standing.



Hang the maps in the corridors and rooms, spaces where the access to exits is the least obvious. Putting one near the exits does not make sense.

Make sure the emergency lighting is adequate for a readable map. Maps in the dark have no purpose.

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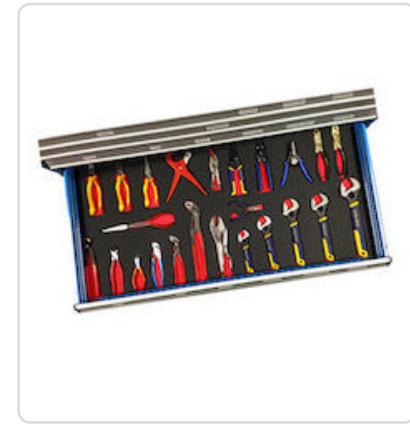
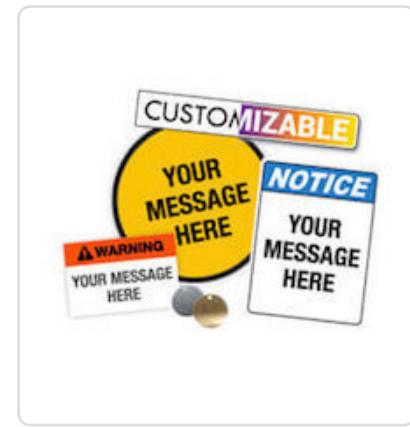
## Make your facility safer with fire-related visual communication. Let LabelTac® help.

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