Prevent Electrical Fires at Your Business

A single spark and a split second. That's all it takes for an electrical fire to start at your business. The result can be a devastating mix of business interruption, property loss, financial loss, injuries, and even deaths. Fortunately, there are steps you can take to prevent electrical fires before they start, protecting your business and employees.

Fires are a constant risk for any business owner, and they take a devastating toll every year. According to the U.S. Fire Administration, more than 100,000 nonresidential building fires were responsible for 85 deaths, 1,025 injuries, and more than $2.5 billion in property losses in 2018. Of those losses, electrical malfunctions were responsible for more than $370 million in damages. The report found that 18% of all warehouse fires were caused by electrical malfunctions.

Preventing electrical fires begins with understanding the causes and your unique risk points.

The average business has hundreds, even thousands of places an electrical fire could start. Most commercial buildings are full of computers, power equipment, appliances and miles of electrical wiring running throughout. With so many possible hazards, it's crucial to educate yourself and your employees about the causes of electrical fires and the risks unique to your business.

Know How Electrical Fires Get Started

There are many ways an electrical fire can start. Here are some of the most common:

- **Wiring issues** are one of the main culprits for electrical fires. These issues include exposed wiring that can reduce connectivity or produce sparks; overcrowded or older wiring that can't handle modern-day demands and can overheat; wiring that doesn't match the circuit amperage; and wiring that is otherwise not in compliance with the National Fire Protection Association's (NFPA) National Electric Code.
- **Outlets** are a commonplace for electrical fires to start. Using an incorrect outlet or overloading an outlet with too many appliances can cause power failure, sparks, melting and fires.
- **Extension cords** are one of the most notorious risk hazards for fires. When extension cords are overloaded, they can overheat, melt wires, cause sparks and start fires. An extension cord can also overheat if run under a carpet. Also, running an extension cord through a doorway, window, wall or ceiling can cause crimping of the wires and loss of connectivity, which can also lead to sparks and fires. Don't install extension cords using nails, staples or tape, and limit extension cords to short-term, temporary or seasonal use.

- **Faulty or unattended space heaters** are an all-too-common source of electrical fires. They're often placed too close to items such as clothing, curtains and other flammable materials. They are dangerous if connected to an extension cord, as they can cause overheating or sparks that lead to a fire.
- **Light fixtures** are an often overlooked danger for fires. A malfunctioning light fixture or using higher wattage bulbs than the fixture calls for can also result in arcing, overheating and fires.
- **Faulty or damaged equipment** in your facility can cause electrical fires if not addressed immediately.
- **Greasy or dusty equipment** is a hazard since any electrical issue could potentially ignite fire or an explosion. Bathroom exhaust fans in apartments and commercial buildings should be inspected and cleaned at least annually to remove dust and grime.
- **Static electricity** can potentially start fires. We've all had the experience of getting a minor shock when touching metal or a light switch, usually during cold and dry winter months. When static electricity builds up a great enough strength, the discharge can cause sparks and even ignite fumes, dust particles, or other flammable vapors.

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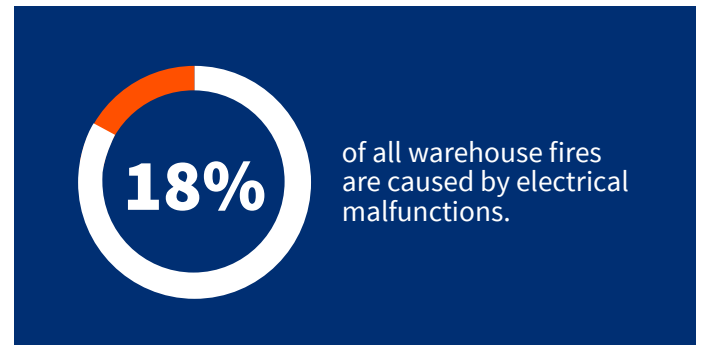
Understand and Safeguard Your Electrical System

In addition to being familiar with the most common ways a fire can start, it's a good idea to familiarize yourself with the electrical system in your building. In most commercial buildings, electricity comes in through an electrical distribution system, a complex maze of circuits, circuit breakers, fuses, transformers and electrical wiring. Good housekeeping around this system is crucial. Whenever possible, you should keep electrical distribution equipment in a separate room that's clean, dry, well-ventilated, temperature-controlled, and properly sealed against dirt, dust and critters. Keep the area clear of combustible materials and keep a BC or ABC rated fire extinguisher handy just in case.

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Watch for Red Flags

By knowing the common causes of electrical fires and understanding your electrical system, you can see problems when they arise. Some of the most common red flags for electrical problems are:

- **Extension cords:** The use of extension cords for fixed devices is an indication it is time to call an electrician to install permanent wiring and fixtures.
- **Broken, frayed, or corroded wiring:** Unsafe wiring is a common source of electrical fires. Pay special attention to any wiring that's exposed to an outdoor environment or corrosive substances. Symptoms of defective wiring can include flickering lights, constantly tripping circuit breakers, shocks when touching appliances and outlet sparking.
- **Blown fuses and tripped circuits:** Blown fuses can be an indication that you have overloaded outlets or circuits somewhere in your building. These can cause overheating and electrical fires.
- **Hot spots:** Hot spots can be caused in your electrical panel from excessive heat caused by damaged wiring, loose connections, corroded connectors, overloaded circuits, short circuits, imbalanced electrical loading, or faulty fuses, breakers and switches.

Inspect Regularly

Electrical equipment should be regularly inspected, cleaned, and tested by a licensed electrician. One of the best ways of detecting hot spots before they become big problems is with infrared thermal imaging using a hand-held thermal scanner pointed at the electrical panel. A licensed electrician can perform this kind of imaging. If you're a larger business, you might even want to invest in your own thermal scanner and train employees on how to use it. Equipment to be regularly inspected should include:

- Wiring
- Circuit breakers
- Fuses
- Transformers
- Switchgear, switchboards and panelboards
- Disconnect switches
- Contactors and relays
- Motors and motor controls

Follow Recommended Lockout/Tagout Procedures

Any time you have electrical equipment repaired, removed or replaced, it's crucial to follow proper lockout/tag out procedures for electrical equipment systems to prevent accidental reenergizing and possible injury. This involves putting a strictly controlled lock and tag on the main circuit breaker or disconnect the switch controlling the disengaged equipment to let everyone know that maintenance is underway. Always follow OSHA's lockout/tagout procedures, including The Control of Hazardous Energy (Lockout/Tagout), Title 29 Code of Federal Regulations (CFR) Part 1910.147.

Train Your Workers to Be Fire-Aware

A staff that is aware of fire hazards, educated about safe habits when dealing with electricity, and trained on how to deal with fires is your best first line of defense against a potentially devastating electrical fire. It can mean the difference between a small blaze that's quickly brought under control and a devastating loss of business. Conduct regular fire drills so everyone knows proper procedures for evacuating in case of a fire. Train employees in fire response so they know what to do when they see a fire, and make sure they know how to use fire extinguishers.

No Plan Is Fool Proof, So Diligence Is Key

It's impossible to totally fireproof your business, so it's vital that you and your staff remain diligent. Protecting your business from a potentially tragic fire loss requires awareness and an ongoing commitment. Your power grid is what keeps your lights on and your doors open, so protect it with periodic inspection and maintenance, employee training and safe practices.

Sources

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