

FIRE PREVENTION/FIRE EXTINGUISHER USE

According to the National Fire Protection Association (NFPA) there were approximately 499,000 structure fires reported in the US in 2017. Of those, 72% were residential fires and the remaining were commercial/business structure fires. Although the number of business fires is a small percentage of the total fires, they estimate the total cost of those losses in excess of 13 billion dollars. More importantly, the estimated loss of life in 2017 due to fire was 3,400 people. These statistics show that being prepared for a fire is crucial both at home and at work.

I. What causes fires?

A. Fire is caused by heat, oxygen, and fuel interacting together in a chemical reaction. Without fuel, no amount of heat and oxygen can burn. Also, without heat or ignition, no amount of oxygen and fuel will burn. Finally, most fires cannot burn without oxygen. Below is an example of the "Fire Triangle."



II. How do we prevent electrical shock or arc flash?

Fires can be prevented by following some basic procedures. Most of the time, we are trying to remove either heat or fuel from the fire triangle. Remember, we need all three elements (oxygen, heat, and fuel) to have flame.

A. Housekeeping

Housekeeping is one of the best ways to prevent fires, as well as other issues. Each area at requires different attention to items in regards to fire prevention:

- i. Shop: Keep oil and grease rags stored in metal container with lid after use. Always clean spills or leaks promptly and dispose of absorbent. Used oil, fuel, and other flammables/combustibles should be cleaned up and stored in appropriate containers.
- ii. Warehouses and Storage Areas: Do not store pallets inside. Do not store idle pallets adjacent to buildings. Keep items no closer than 2 feet from the ceiling. Do not store items in the rafters.
- iii. Grain and Feed: Fugitive dust must be kept to a minimum. Repair leaking spouts, turn heads, and other equipment to minimize dust.
- iv. Energy: Keep weeds and other combustible materials away from fuel and propane storage tanks. Clean up any leaks immediately.
- v. Office and Grounds: Keeping trash and other clutter cleaned up and organized helps to lower risk of fire. Please be sure to keep areas tidy and organized.

B. Preventative Maintenance

Proper maintenance of equipment is essential to fire prevention. Be sure to follow recommended maintenance intervals to reduce the likelihood of equipment failure. Often, malfunctioning equipment can lead to excessive heat that can complete the fire triangle.

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C. Safe Work Practices

There are many unsafe actions and situations that can lead to fire. Here are some examples:

- i. Improper use of extension cords can lead to fire. Using extension cords for tasks they were not designed for, such as permanent wiring can lead to fires. Also, running cords through walls and ceilings is very dangerous.
- ii. Unauthorized electrical work can also lead to fire. Be sure to leave electrical work to licensed electricians.
- iii. Ignoring or silencing equipment alarms can make a dangerous situation turn to disaster. Be sure to investigate the cause of all equipment alarms or unusual operating conditions. For example, if a motor is using more amps than usual to complete a specific task, investigate the cause.
- iv. Smoking in sensitive areas is extremely dangerous. Be sure to observe no smoking signs and rules in areas where fire or explosion is possible. No smoking areas include: grain elevators, fertilizer storage, fuel tanks, propane tanks, feed mills, and chemical buildings.
- v. Hot work procedures must be followed at all times. Whenever welding, cutting, grinding, drilling, etc is being performed in high danger areas, a hot work permit must be filled out and followed properly.

III. How to Use a Fire Extinguisher

Remember the acronym **PASS** when using a fire extinguisher:

P: Pull the pin.

A: Aim at the base of the fire.

S: Squeeze the handle.

S: Sweep from side to side.

Other tips to remember:

- A fire extinguisher will only last a short time, so if the fire is too large to be contained with an extinguisher, you should not attempt to use an extinguisher.
- Always have an escape plan before using the fire extinguisher. If you cannot safely get out of the area, do not use the fire extinguisher.



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