SAFETY SOLUTIONS & SUPPLY

Fire Safety for the Air Service Industry

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INTRODUCTION

The United States has the highest number of people killed by fires each year. Every 23 seconds, an alarm sounds to a fire somewhere in the United States. In 2019, public fire departments attended 1,389,500 fires in the United States. Nationwide, in 2019 there was a civilian (non-firefighter) fire death every 175 minutes.

These statistics are alarming, and they show that fire is a serious threat whether in your home or your workspace. There are many ways to protect you and your workspace, including information and escape equipment to fire extinguishers and other gear.

> *The type of protection your company needs depends on your business's specifics, such as size and business type, as well as what your emergency plan entails.*

The Occupational Safety and Health Administration (OSHA) is the main federal agency that creates and oversees laws and regulations that American companies must abide by to help keep their employees safe. They also require annual safety training, emergency action plans, and fire prevention plans. OSHA has particular requirements that employers must adhere to or be fined and shut down regarding workplaces' safety standards.

When in an industrial environment, a good place to start with your fire safety needs is to figure out what you would need to perform a quick evacuation. Flashing lights, alarms, and visible signage are some initial steps to take. Accessible extinguishers and other protection products that will aid in fire suppression are helpful and may need to be available to pass regulatory inspections.

Different types of businesses will require different types of fire extinguishers. There are also different types of smoke alarms and detectors for different types of buildings.

Industrial fire protection equipment is needed to protect against the high-risk and hazardous industries, including petrochemical, offshore oil, gas industries, power stations, and airports. Industrial fire protection products include heavy-duty nozzles, monitors, and industrial suppression systems.

Industrial fire protection monitors are devices that deliver large amounts of water for firefighting purposes in hazardous or high-risk industries. These robust monitors are typically designed to withstand extreme conditions and are easy to maintain. They are good for industries, including offshore platforms and aggressive chemical plants.

Some of the most important industrial safety equipment includes alarms, extinguishers, hydrants, standpipe systems, suppression systems, fire pumps, exit signs, and emergency lighting systems. Maintaining these systems and pieces of equipment includes professional installation, inspection, verification, and proper maintenance.

Other categories of industrial fire safety equipment include control panels, detection systems, detectors, fire alarm signaling, emergency escape, fixed foam systems, passive fire protection, testing, and approvals. There are also dry hydrants, fire blankets, fire extinguisher covers and cabinets, fire hoses and fire hose accessories, firestop pillows and accessories, firestop sealants and caulks, and putties.

> Due to the nature of the business world, thousands of products are tailored to different types of businesses and specific fire prevention needs. If you are responsible for fire safety and prevention for your business, the best recommendation would be to call a professional to help identify your specific needs that work best for your company and comply with OSHA regulations.

From there, you will be able to figure out a plan of action and what types of systems to install, and what type of fire prevention and safety equipment you will need to invest in. This guide describes operational procedures for the airport and structural fire departments charged with providing and maintaining aircraft rescue and firefighting (ARFF) services at airports. It is also intended for structural fire departments to develop methods to handle aircraft incidents within their jurisdiction effectively.

FIRE PROTECTION ENSURES SAFETY IN THE AIRCRAFT HANGAR

There are wide varieties of services available that come under fire protection, and following any of them can help you control the fire in the aircraft hangar. **There are different kinds of spaces available in hangar facilities that include:**

HANGER	WAREHOUSE	OFFICE AND ADMINISTRATION	BUILDING UTILITIES

It is essential to carefully analyze the space to determine the fire protection needs for public spaces. **Factors that you need to identify include:**

01 **Type of aircraft that will be populating the hangar area.**

02 **Amount of warehouse area that is needed to perform the maintenance of the aircraft.**

03 **Floor space that is essential for the office and administration area.**

04 **Floor space that is required for the building utilities area.**

TYPES OF FIRE PROTECTION SYSTEMS

- Overhead Foam/Water Sprinkler System
- Foam Monitor System
- Foam Hand Hose Line System
- High Expansion Foam System

TYPES OF WATER SPRINKLER SYSTEMS

- Closed Head Pre-Action
- Standard Wet Pipe
- Water Hose Reels
- Deluge System

Fire Protection for Aircraft Hangars

Fire Suppression Systems: Preventive safeguard of your fire suppression system can ensure your peace of mind, and you are aware that you can protect your people and property. It is important to have a thorough inspection and accurate service programs to ensure that fire suppression systems are capable and ready to extinguish a fire. Some sprinklers have a corrosion coating and expand the life span of the product.

Fire Alarm Systems: Fire alarm systems can indeed save lives. The National Fire Protection Association (NFPA) has made it compulsory that fire alarm systems should be protected, and the premises need to be tested regularly. Local and state government agencies will offer frequent testing of the fire system. Most of the service providers have trained technicians who can inspect, test, and repair any type of fire alarm system. There are even devices that help to detect carbon monoxide. There is a heat detector that has tamper-resistant features.

Fire Extinguishers: You should ensure a complete program that includes inspection, recharging, and replacing the fire extinguishers. Proper testing of the equipment will always help you manage the situation at any point in time. The skilled and highly trained people can demonstrate and understand the functionality of the system. Extreme precaution is taken while handling such technically advanced machines.

BASIC FIRE SAFETY TIPS FOR EVERY WORKPLACE

Fire in a workplace can compromise employees and the public's safety, and thus, employees should be educated on preventive measures. Every worker should be familiar with the fire risks and safety information apart from the precautionary measure to minimize possible casualties and property damages in case of a fire. Although a business's nature might dictate how one should prepare his/her workplace, **here are the fundamental tips for ensuring safety and fireproof:**

Common fire hazards: The biggest culprits of fire in an office include electrical, heating, and cooking equipment. Electrical problems resulting from workplace fires are caused by faulty equipment, overloaded socket plugs, and damaged wiring. Defective electrical appliances might result in workplace fires, and thus, checking their integrity is necessary.

Overheating can cause fires in workplaces. Therefore, heaters should not be left unattended or close to flammable substances since they might initiate a fire. Additionally, workplaces with kitchens must train their workers not to leave cooking appliances unattended.

Emergency safety precautions: Once an employee discovers fire, he or she should raise an alert by activating the fire alarm. Immediate evacuation of the building should follow calmly towards the fire exit and assemble at an agreed point to check co-worker's safety. If trapped inside the building on fire, one should look for ways to prevent smoke accumulation. Additionally, trapped individuals should look for ways to ask for help through windows and relax to slow their heart rates.

TIPS ON FIRE PREPARATION

Firstly as a means of fire prevention, the workplace must be kept clean and tidy to mitigate various threats, primarily if you largely handle flammable substances. Working with combustible materials such as paper and oily rags necessitates safekeeping and far from naked flames. Secondly, the maintenance of faulty electrical wiring and equipment is essential in preventing fires. Therefore, the workplace must have an electrical expert to repair the faulty appliances and connection and prevent sparking or overheating.

Additionally, minimize overcrowding of the control panel room to improve sight and access during emergencies. The room should have visible markings to enhance swift identification. Workplaces should install systems that promote proper storage and safe storage of chemicals. Flammable chemicals include printing materials and products often kept in maintenance rooms. Therefore, workers should store all chemicals per the manufacturer's instruction and follow available safety data sheets.

Work environments with highly flammable substances such as oxygen tanks are susceptible to sparking tools and smoking. Therefore, the erection of clear signs that highlight the dangers of either smoking or using sparking tools in such areas is a necessary. **Other measures include:**

- Labeling fire exits
- Restricting the use of some heaters
- Knowing the workplace capacity
- Regularly testing the alarms and detectors

Lastly, ensure that the risk and safety plans of the workplace are approved. A detailed consultation on risk assessment provides business continuity and protection of both life and property. Furthermore, risk assessments indicate areas that fail to meet fire safety standards and propose necessary steps to improve fire safety.

Employee Training

The level of training employees get on fire safety determines their safety in the event a fire erupts. Occupation types, in part, determine the necessary level of training. For instance, electricians and welders need high fire training levels, while office workers require regular training on prevention and safety. Employees should be aware of potential hazards and sources within the workplace, emergency exits, fire drills, and using an extinguisher.

Employers should conduct fire drills regularly to promote recognition and evacuation in case of a fire. Exercises enable the workers to identify mistakes and fix deficiencies of evacuation plans in due time. The management can hire fire marshals to oversee the drill and improve it.

Equipment

All safety equipment must be open, avoiding any obstructions such as desks. Such devices include sprinkler systems, smoke alarms, fire escapes, alarms, and extinguishers. Management must fit smoke alarms throughout the premises, test them regularly, and change the batteries annually. Furthermore, the potential threats and equipment's consistency is necessary since each area requires different approaches to dealing with fire.

There are diverse types of suppression systems that include dry chemical, wet chemical, and carbon dioxide. Dry chemical suppressors extinguish combustible liquids found in mechanical, storage, and furnace rooms. Conversely, wet chemical suppressors a vapor foam that suppresses re-ignition in areas such as kitchens, while carbon dioxide is typically used in a computer or archival room to contain a fire.

Extinguishers come in different classes depending on the fire they can extinguish. Class A is tagged with a green triangle and douses ordinary combustible substances such as paper and plastic, while class B douses flammable liquids like oil and paint. Class C, D, and K douse live electrical appliances, combustible metal alloy, and cooking media like grease. Some extinguishers can quench one or more types of fire or materials, such as ABC extinguishers.

FIRE SAFETY MEASURES

Fire safety concerns safety measures to prevent the effects of fires and is the result of proper use of fire protection measures. Essential fire safety measures are any installations or construction type incorporated into the building to ensure the occupants' safety within the building in a fire or other emergency. There are many types of fire safety equipment like fire extinguishers, fire blankets, fire blankets, fire alarm bells, etc.

Fire Extinguishers

A fire extinguisher is an active fire protection device used to extinguish or control small fires, often in emergencies. There are four different types or classes of fire extinguishers, each extinguishing specific types of fire.

Classes of fire extinguishers

Class A - Fire extinguishers rated for Class A fires have a green triangle with an "A" in the center and a pictogram of a garbage can and wood burning. These extinguishers are used to put out fires for common combustibles like paper, cloth, rubber, and some plastics (materials that leave ash when burnt, hence, the "A").

Class B - Fire extinguishers rated for Class B fires have a red square with a "B" in the center, and a pictogram of gasoline can come with a burning puddle. These extinguishers are used to extinguish fires for flammable liquids like gasoline, lubricating oil, diesel fuel, and many organic solvents found in laboratories (things found in barrels, hence "B").

Class C - Fire extinguishers rated for Class C fires have a blue circle with a "C" in the center and a pictogram of an electric plug with a burning outlet. These extinguishers are used to extinguish electrical fires for energized electrical equipment, electric motors, circuit panels, switches, and tools ("C" for current-electrical).

Class D - Fire extinguishers rated for Class D fires have a yellow pentagram (star) with a "D" in the center and a burning gear and bearing pictogram. These extinguishers are used to extinguish fires from metals and metal alloys like titanium, sodium, and magnesium.

Class K - Class K fire extinguishers are used specifically for cooking fires from grease, fat, and cooking oil ("K" for kitchen).

Fire Extinguishing Materials

Fire extinguishers use different materials for extinguishing fires. When choosing your extinguisher, you need to determine what type of fire you may be fighting and then choose your application's best extinguishing material.

Water: Water, or APW, extinguishers use pressurized water to extinguish fires. APW extinguishers can only be used for Class A fires (combustibles such as paper, cloth, etc.); they cannot be used for putting out other classes of fires.

Dry Chemical: Dry chemicals are used to extinguish A-, B-, C-, or D-type fires. They work by putting a fine layer of chemical dust on the material that is burning. Dry chemical extinguishers are very effective at putting out fires. However, dry chemical extinguishers can be abrasive and corrosive to electronics and certain other materials.

Carbon Dioxide: Carbon dioxide works by removing oxygen from the immediate vicinity of the fire. Carbon dioxide extinguishers are only ever used for B (flammable liquid) and C (electrical fires) extinguishers. For computer, medical and scientific equipment, and aircraft electronics, carbon dioxide would be a better choice than dry chemical extinguishers because a carbon dioxide extinguisher leaves no residue.

Metal/Sand: Some class D fire extinguishers use metal or sand, such as sodium chloride (NaCl) or powdered copper metal, to smother fires from metals and metal alloys.

To prevent fire extinguishers from being moved or damaged, they should be mounted on brackets or in wall cabinets with the carrying handle placed 3.5 to 5 feet above the floor. Larger fire extinguishers need to be mounted at lower heights with the carrying handle about 3 feet from the floor. You need to learn how to use your fire extinguisher before there is an emergency. Fire extinguishers should be used on small fires only. If there is a large fire, get out immediately.

Fire Blankets

A fire blanket is a safety device designed to extinguish small incipient (starting) fires. A fire blanket either surrounds a burning object or is placed over a burning object and sealed closely to a solid surface around the fire.

Fire Safety Alarms

A fire alarm system is an active fire protection system that detects fire or the effects of fire, and as a result, **provides one or more of the following:**

- Notifies the occupants
- Notifies people in the surrounding area
- Summons the fire service
- Controls all the fire alarm components in a building

Fire alarm systems can include alarm initiating devices, alarm notification appliances, control units, fire safety control devices, annunciators, power supplies, and wiring. Proper fire safety training is necessary for implementing the fire safety measures or equipment.

4 SIMPLE STEPS TO USING A FIRE SAFETY EXTINGUISHER

It is red, it is pressurized, and is one of the most effective tools for controlling and putting out a fire; that it is why it is one of the most important fire safety regulations' requirements.

A fire safety extinguisher is a vital tool for fire prevention and you should know how to operate it. It is important to have the right knowledge in using this equipment to promote fire safety in the workplace.

In some offices that value workplace fire safety, they train every employee to know how to use the fire extinguisher. This is part of the fire safety precautions that most companies adopt to ensure their safety against fire. Using a fire extinguisher is actually quite easy as long as you keep the four easy steps in mind, and these steps could be effortlessly remembered with the help of the acronym P.A.S.S.

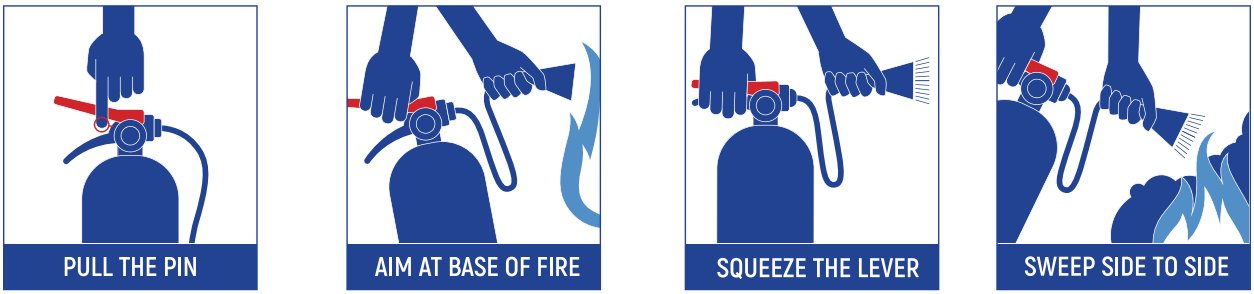
You probably are wondering what P.A.S.S stands for, **but you could stop wracking that brain because this is what it means:**

P stands for Pull. Pull the safety pin on the top of the fire extinguisher to free the extinguisher's lever. The pin serves as the fire extinguisher's lock, which is why it is important to remember to pull it out first before trying to use the fire safety extinguisher.

A stands for Aim. Aim the nozzle or the hose of the extinguisher at the base of the burning flame. Never aim it at the flames because it will be harder to put out the fire than to point it at the base. When aiming the nozzle, make sure that you are about eight feet away from the flame.

S stands for Squeeze. Squeeze gently on the lever to release the fire extinguisher's pressure and release the firefighting chemicals inside it to put out the fire. Do not squeeze too hard, for it might be too difficult to control the fire extinguisher's pressure.

S stands for Sweep. Sweep the nozzle of the extinguisher from side to side to put out the flames of the fire. When sweeping the extinguisher, make sure that it is still directed at the fire base to make sure that you will be able to extinguish all the flames from the fire fully.



A fire extinguisher is truly a big help in controlling or trampling small fires, and it is a great way to promote fire safety in the workplace. That is why it is essential to have it in all homes and buildings. And other than the fact that it is present in any property, people should also know how to operate it. So always remember the acronym P.A.S.S., and you will be able to handle that extinguisher with ease.

CONCLUSION

The global airport industry's unique needs require emergency and disaster responders to have specialized training for effective response.

The aviation industry has seen profound changes over the past few years – enhancing efficiency while improving the passenger's experience and ultimately improving air travel safety. However, the industry's firefighters still face potential hazards daily.

Aircraft rescue and firefighting operations are not just on the airfield. An average airport often records more building fire operations than airfield operations, which is why it is an absolute necessity for many airport firefighters to have a range of firefighting and rescue trucks available and the mainly officially mandated CRF vehicles.

Contact Safety Solutions & Supply to learn more about how your organization can create a cost-efficient safety program tailored to your company's workplace needs.

ABOUT SAFETY SOLUTIONS & SUPPLY

Safety Solutions & Supply specializes in the development and support of safety-management systems, provides accredited instructional safety programs to employees, and assists with the selection and sales for a wide range of protective equipment.

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