

## **23. Fire Protection and Prevention**

### **Overview**

This section discusses the following topics:

- General Fire Protection
- Fire Extinguishers
- Hot Work Program
- Flammable Materials Storage

### **References**

There are no documents referenced in this section.

### **General Fire Protection**

Refer to Emergency Preparedness and Response (Section 18) for procedures to follow in the event of a fire.

In the event of a fire, the personal safety of each employee is the first priority. The following guidelines apply to general fire protection:

1. Local management ensures building emergency plans, including fire evacuation plans, are current and conspicuously posted.
2. Employees are trained in emergency procedures, including fire drills, twice a year.
3. Encourage local fire departments to tour and inspect buildings annually.
4. Ensure areas around fire doors and emergency exits are kept clear at all times. Do not block fire doors, tie them open, or prevent fire doors from closing automatically.

5. Maintain at least 18 inches clearance between sprinkler deflectors and the top of storage.
6. Ensure all doors are equipped with UL approved panic hardware.

## Fire Extinguishers

The following guidelines apply to the use of fire extinguishers:

1. The Facility Manager or appropriate supervisor inspects fixed and portable fire extinguisher devices, including those installed on company vehicles, **monthly**. Replace and return for proper maintenance fire extinguishers that require recharging.
2. An appropriate qualified person (usually an outside vendor) also inspects portable fire extinguishers annually.
3. Know both the location and the operation of all fire protection equipment in the vicinity of your work area.
4. Except for actual use, do not move or remove fire extinguisher equipment without proper authority.
5. Mount all portable hand-held fire extinguishers, except for wheeled-type extinguishers, in clearly marked and accessible locations that are no more than four feet from the floor to the base of the extinguisher.
6. Maintain free access to fire extinguishers, hose cabinets, and standpipe connections at all times.
7. The letters – A, B, C or D – on the extinguisher indicate the type of fire use.

**Class A** – Use Class A extinguishers for fires that involve ordinary combustibles such as wood, paper, drapes and upholstery. Extinguishing agents include water, soda-acid, and multi-purpose dry chemicals.

**Class B** – Use Class B extinguishers for fires that involve flammable liquids such as fuel, oil, gasoline, paint, and grease. Extinguishing agents include carbon dioxide and dry chemicals.

**Class C** – Use Class C extinguishers for fires that involve electrical equipment such as motors, switchboards, and wiring. Extinguishing agents include carbon dioxide and dry chemicals.

**Class D** – Use Class D extinguishers for fires that involve combustible metals such as certain ships, shavings, and turnings. These fires are extremely dangerous. These fires burn extremely hot and if the wrong type of extinguishing agent is used, explosions and rapid spreading of the fire may occur. Extinguishing agents are specific to each type of combustible metal.

8. Halon is a gaseous extinguishing agent suitable for both Class "B" and "C" fires, especially for indoor locations. It is slightly toxic in low concentrations (less than 5%). When the concentration is above 15%, it can cause unconsciousness in a short period of time. When the extinguishing agent is released, employ precautionary measures similar to those for toxic, confined spaces.

**Note:** Training is provided on an annual basis to employees who have access to halon or other chemical suppressants.

9. Do not enter confined spaces after using carbon dioxide extinguishers until the area is thoroughly ventilated.

## Hot Work Program

The Facility Manager, department supervisor, or designee is responsible for ensuring the hot work area is safe and ready for hot work. An on-site inspection is performed before and after hot work.

The following guidelines apply to the hot work program:

1. A hot work permit is required and is available from the local Operations Manager. The permit requires a signature from the local Operations Manager. The local Operations Manager retains a copy of the permit.
2. The local Operations Manager is notified before any hot work is performed that creates sparks, fire, or smoke in areas where smoke detectors, heat detectors, or suppression systems are located.
3. Before any hot work is begun, the local Operations Manager or designee disarms, if required, fire detection and suppression systems in the hot work area. The work area is cleared of any flammable or combustible materials within a 20 feet distance if possible.
4. A fire watch is established and equipped with appropriate hand held portable fire extinguishers during the work process and for 1/2 hour after the work is completed.

5. When hot work is completed and smoke is cleared, the local Operations Manager rearms fire detection and/or suppression systems. Materials may now be returned to their original locations.

## **Flammable Materials Storage**

Storage cabinets containing flammable materials must be distinctly labeled "Flammable - Keep Fire Away" and must meet National Fire Protection Association test requirements. Proper storage of flammable materials helps ensure a safe working environment and fewer emergencies.

### **Inside Storage**

Follow the guidelines below to store flammable materials inside:

1. Post flammable storage areas prominently as "No Smoking" areas. Provide openings to other rooms or buildings with non-combustible, liquid tight, raised sills or ramps at least four inches high.
2. Ensure ventilation provides a complete change of air within a room at least six times each hour for inside storage rooms.

### **Outside Storage**

Follow the guidelines below to store flammable materials outside:

1. Driveways between and around open storage areas for combustible materials must be at least 15 feet wide.
2. Do not store combustible materials outdoors within 10 feet of a building or structure.
3. Stack combustible materials in stable piles no more than 20 feet high.
4. Do not allow outdoor storage containers (less than 60 gallons) to exceed 1,100 gallons in one pile or area.
5. Separate stacks or piles of combustible/flammable materials by at least five feet and place no closer than 10 feet to a building.

6. Grade or dike storage areas for combustible/flammable liquids to divert spills away from buildings or other exposures. Such areas must be free of weeds, debris, and other combustible materials not necessary for proper storage.
7. Smoking is prohibited in outside storage areas containing combustible/flammable and other hazardous materials.

## **LP Storage**

Follow the guidelines below for LP storage of flammable materials:

1. Display "No Smoking" signs prominently on LP storage racks.
2. Turn off the units during fueling operations.
3. Provide proper guarding to protect LP tanks from vehicle damage.
4. Ensure electrical connections including pumps and switches are vapor and explosion proof.