

5.8 FIRE HAZARDS

A material, substance or action that increases the likelihood of an accidental fire occurring is called fire hazard. In other words, an object, building etc that could easily catch fire or cause a fire and thereby endanger life is called fire hazard.

Examples

- (i) The large number of dead trees poses a fire hazard.
- (ii) Smoking in toilets is a fire hazard.

Fire hazards pose threats to life and property. It is therefore, the prime object of safety systems to detect, remove or reduce the risk of fire threatened by those potential hazards. A fire can happen at any time at any place irrespective of its occupancy status. You can expect a fire at any structure, may be at your home or at your workplace or at a hospital or in public places like theatres, malls, etc.

Causes for Fire Hazards

The fire hazards are caused due to the following reasons, viz.,

1. All types of flames used for any work like cooking, smoking, etc causes fire.
2. Electric wires, higher loads, loose connections and old electrical equipment's also cause fire.
3. All works and situations where fire is essential such as welding, cutting, metal casting etc. causes fire.
4. Improper storage of tools, equipment and items may cause fire.
5. Improper and unauthorized storage of flammable and hazardous materials and chemicals especially the flammable ones like fireworks and explosives will lead to fire.
6. Insufficient capacity and number of emergency exits and stairs and absence of fire detection and alarm system will also be a root cause for fire.
7. Insufficient numbers and types of fire extinguishers and hindrance to sight or reach fire fighting equipment, markings and alarm systems will also cause fire.
8. Violation of building and fire codes are also the main reason for the occurrence of fire.

Classification of Fire Hazards

Fire hazards are classified by the types of fuel they burn.

Class A: Class A Fires consist of ordinary combustibles such as wood, paper, trash or any thing else that leaves an ash.

Remedy: Pouring water is the best method to extinguish a Class A fire.

Class B: Class B Fires are fueled by flammable or combustible liquids, which include oil, gasoline, and other similar materials.

Remedy: Smothering effects which deplete the oxygen supply is best to extinguish Class B fires.

Class C: Energized electrical fires are known as Class C fires.

Remedy: Always de-energize the circuit then use a non-conductive extinguishing agent such as Carbondioxide.

Class D: Class D Fires are combustible metal fires. Magnesium and Titanium are the most common types of metal fires. Once a metal ignites, do not use water in an attempt to extinguish it. Only use a Dry Powder extinguishing agent.

Remedy: Dry powder agents work by smothering and eat absorption and hence reduces fire.

Class K: Class K Fires are fires that involve cooking oils, grease, animal fat etc.

Remedy: It can be extinguished using Purely K, the typical agent found in kitchen or galleys extinguishers.

Fire protection

Fire protection is the study and practice of mitigating the unwanted effects of potentially destructive fires. In other words, the measures and practices for preventing or reducing injury and loss of life or property by fire is called fire protection.

Fire protection maintains safety and reduces hazards associated with fires. Fire protection studies the behavior, suppression, and investigation of fire and related emergencies, as well as the research and development activities. There are three basic essentials of fire protection,

- **Study of Fire:** We should learn the causes of fire, fire extinguishing techniques, detection and extinguishing equipment and their uses, and the rules and regulations related to building construction.
- **Active Fire Protection:** Includes manual or automatic detection of fire, the use of fire and smoke alarms, firefighting and first aid.
- **Passive Fire Protection:** It includes design of building and infrastructures, use of fire resistance material in construction, provision of isolating fire, fire walls and doors, smoke doors, training of firefighting, signage, markings and evacuation of building in case of fire.