UNIT -3 Control Services & safety

Topic 4:Fire Safety and Fire Fighting equipment

Topic outcome:

1: To understand various fire safety in hotel

2. Interpret the various fire fighting equipment

3. To understand the use of fire fighting equipment

Fire Safety and Fire Fighting equipment

Fire:

- The rapid oxidation of a fuel evolving heat, particulates, gases and radiation.

FIRE TRIANGLE

There must be oxygen to sustain combustion, heat to raise the material to its ignition temperature, fuel to support the combustion and a chemical reaction between the other three elements.

Remove any one of the four elements to extinguish the fire.The concept of Fire Protection is based upon keeping these four elements separate.

Types of Fire

- **Sources of Ignition**

  Smoking
  Electrical equipment
  Heaters
  Process machinery
  Contractors tools and equipment
  Arson

  Fuels

- Paper and boxes etc
  Packaging (polystyrene beads etc)
  Plastics
  Solvents
  Soft furnishings (Mattresses, cushions)
  Furniture
  Waste materials (rubbish, old pallets)

TYPES OF FIRE

- Class A – Fire in ordinary combustible materials such as wood, paper, clothing, plastics, trash etc. Here quenching and cooling effects of water or of solutions containing large percentage of water are of prime importance.

  Class B – Fire in flammable liquids, like petrol, gasoline, paints etc. This category also includes liquids, such as propane and butane, but does not include fires involving cooking oil and grease.

  Class C – Fires in flammable gases, methane, hydrogen, LPG etc.

  Class D – Fires in combustible metals such as potassium, sodium, magnesium etc. Special extinguishing agents and techniques are needed for fires of this type.

  Class E – Fires involving electrical equipment's – fires in or near live electrical equipments .

  Class F – Fires involving cooking oils and fats. High efficiency deep fat fryers have necessitated the introduction of this class of fire separately. Class F fires differ from conventional liquid fires due to high temperatures involved. Carbon di oxide and multi purpose powder extinguishers are effective in extinguishing such fires.

Extinguishing Fire

- To extinguish a fire, one or more of the following steps should be taken.
- Removing / limiting the supply of oxygen by-
- Preventing air from entering the fire zone
- Putting foam to prevent entry of fresh air.
- Diluting air with a non-oxidizing gas such as carbon dioxide, nitrogen, etc.
- Stopping the supply of fuel.
- Removing heat.
- Interrupting the chemical chain reaction of the fire by using dry chemical agents.

- **Types of Extinguisher-Water**
- Red body
- Suitable for use on Class A Fires, wood and pa
  etc
- Not suitable for combustible liquids, cooking fa
  etc
- Not safe to use on fires involving electricity
- Extinguishes by cooling

- **Types of Extinguisher-Foam**
  Red Body with Cream label
- Suitable for Class A and B Fires (paper, wood and non-cooking fat flammable liquids)
- Not suitable for use on fires involving electricity
- Extinguishes by cooling and sealing the surface of a burning liquid

- **Types of Extinguisher-Powder**
  Red body with blue label
- Best on Class B (non-cooking fat flammable liquids) fires but safe to use on any type of fire
- Works by chemically interfering with the combustion reaction

- **Types of Extinguisher-Carbon Dioxide**
- Red body with black label
- Best on Class B (non-cooking fat flammable liquids) and Class C (flammable gases) fires but safe to use on any type of fire including those involving electricity
- Extinguishes by reducing oxygen levels and cooling
- Beware handle can become very cold (avoid touching in use)

- **Types of Extinguisher-Wet Chemical**
  Red body with Yellow Label
- Suitable for class F cooking oil fires
- Not suitable for class B fires
- Sprays foam as a fine mist to form a layer over the oil
- Extinguishes by cooling and converting the oil into a soap
- Misting action prevents splashing of the oil
- Requires specialist training to use

Fire Warning system

Fire Alarms:

These can be set off by smoke detectors, heat detectors, sprinklers system. The most common type of fire alarm systems are located in corridors, lobbies and near elevators.

Sprinklers : These are found in most hotel establishments, especially in corridors and rooms. They are situated on the ceiling and automatically spray water when the temperature rise above a certain level.

Smoke Detector: These are set off by smoke, there are two types of smoke detector. Photoelectric detectors and ionization type of smoke detectors. The first type detector alarm is triggered off when smoke blocks a beam light emanating from the detector and the second one alarms sound.

STEPS TO MAKE HOTEL FIRE SAFE

- To install appropriate fire fighting system in hotel.
- To provide fire extinguishers in kitchens.
- To provide sprinkler systems in required areas.
- To provide smoke detectors and fire signals.
- To have flame proof motors in pumps and other such motor operated equipment located in the basement adjacent to control room.
- To provide very good electric system.
- Regular maintenance of water boilers, geysers, AC plants etc.
- Staff should be trained to handle fire hazards.
- Ensure that the valves of the gas bank are shut off after the kitchen closes.
- Regular scheduled maintenance of all fire fighting equipments.

References

- **Hotel Housekeeping Operations & Managements (G.Raghubalan & Smritee Raghubalan) --- Oxford Publication**
- **IHM notes site (://www.ihmnotessite.net/5-Housekeeping)**