

TO THE OCCUPANTS OF APARTMENT AT HIGH RISE BUILDINGS

WHAT IS YOUR ROLE TO PREVENT AND FIGHT FIRE

You are Occupying One of the Floors of a High rise building. Have your ever thought of Fire Hazard around you. A little care and awareness on your part can avoid a major disaster and save precious lives and property.

How Safe fire is your Apartment? Remember: Fire Prevention is your best Fire Protection. As you Know "Fire is easy to prevent but hard to Fight". You must, therefore, prevent fire.

TO PREVENT FIRE

- Always keep match sticks away from Children.
- Do not smoke on the bed and always dispose cigarette butts in the ash tray.
- Do not light incense sticks (Agarbathies) near the curtains, Racks and Clothes.
- Do not store inflammable materials inside the building.
- Do not make unauthorized electrical connections and over load the electrical points.
- Do not forget to switch-off the electrical mains and to close the window shutters before leaving the home on long tour.
- Do not allow Irons or similar appliances unplugged when no one is present or not in use.
- Do not Store Paint, Varnish etc., in large quantities.
- Do not store LPG more than the required quantity.
- Never refill the Oil stove when burning.
- Use Cotton apron while Cooking.
- Never reach for any articles stored above the hot plate or stove.

IN THE EVENT OF FIRE

- Raise the alarm and summon the Fire Brigade.
- Attack the fire with available suitable fire Extinguishers.
- Be Calm and do not give any room for panic.
- Switch off the electrical mains before fighting the fire.
- Use staircase only for evacuation, do not use the lift because smoke moves through lift shafts and lifts may gets stuck between floors.
- Make sure to close the exit door while getting out of fire Zones.
- Go down the staircase to the ground.
- Never return to collect any valuables.
- Do not take refuge in the toilet.
- Walk, do not run.
- Be available for roll call at the assembly point on the ground Floor.
- In case your clothes are on fire do not run. Stop, drop and roll on the ground. Pour cold water over burns till pain subsides.

- If you encounter heavy smoke- -
 - Crawl on the floor.
 - Do not walk
 - Cover your nose and mouth with wet cloth
- Follow the orders of your floor leader.
- If you encounter serious difficulty in evacuation stay in your room and try to attract attention.
- The Floor leader should be the last to leave the floor after checking toilets also.

TO FIGHT FIRE AND FOR PROPER EVACUATION YOU SHOULD KNOW

- Number of fire alarm points provided in each floor, their location and operation.
- Telephone No. of Local Fire Service i.e. 101 and other Emergency Services.
- Operation details of available wet riser and Fire extinguishers.
- The nearest exit to reach a safe place.
- Assemble point at ground level after evacuation.

Never Hesitate to work together with your builder and other occupants to design your escape plans. Provide suitable extinguishing system and conduct regular fire drills. You can take the assistance of the Fire Prevention/Service to help out by inspecting the building and advising on fire Prevention and Fire Protection measures.

Study these instructions carefully, be alert to prevent and tackle fires and save precious lives and property.

IN THE INTEREST OF YOUR OWN SAFETY:

Keep ABC Powder Fire Extinguisher of 2 kg/5Kgs in your Apartment. Install Battery Operated wireless smoke detectors in your bedroom/Drawing room.

FIRE SAFETY IN HIGH - RISE BUILDINGS

INTRODUCTION

Larger and devastating fires took places in numerous high rise building causing loss of life and property. It is difficult to fight a high rise building fire as it quickly spreads upwards (due to Chimney Effect) and the external fire fighting appliances may not be able to reach higher floors. Evacuating people especially invalids, old persons and children, without panic poses practical difficulty in most case.

Fire loss can be prevented through careful observance of precautionary measures.

LEGISLATION / REGULATIONS

- Development Control Regulation/ Bye-Laws of Municipalities.
- National Building Codes of India, 2005 – part IV Fire & Life's Safety.
- A.P. Fire Services Act 1999 & Fire and Emergency Operations and Levy of Fee Rules 2006.

PLANNING STAGE

- Lay out should ensure adequate fire separation between buildings to minimize Fire spread possibility.
- Enough space to be provided for movement of fire fighting vehicles ambulances.

DESIGN STAGE

- Enclosure of 2hr fire resistance for staircases and lift wells.
- Wide staircases and lobbies to permit orderly evacuation in emergency. Pressurization of these areas will keep them free of smoke.
- Critical areas such as refuge areas to be protected by fire proof doors.
- Fire lift for exclusive use to fire fighters.
- Electrical wiring in metal conduits.
- Emergency switches at ground floor for disconnecting power, floor-wise.
- In central air conditioning (A/C) system, provide automatic Fire dampers (in the common duct) for each floor or occupancy.
- Individual A/C system for each occupancy or for each floor is preferred to central A/C System.
- Openings in the cable passageways (from duct to floors) to be closed.
- Alternate power supply for staircase & corridor lighting circuits, fire lifts and stand by fire Pump.
- Fire detection & /alarm System, Hose reel, Wet Risers, Yard hydrant, automatic Sprinkler and Water reservoir and fire Pumps as per National Building Code of India table 23 Part IV NBC of India, 2005.

OCCUPATION STAGE

- Minimise combustible materials for furnishing. Use fire retardant material for false ceiling, partitions and upholstery.
- Develop a simple, written fire safety plan which should include precautions for Fire prevention at occupant's level, fire control by the building maintenance/security team and the emergency plan covering evacuation procedure.
- All occupants should know clearly how to identify/raise Fire alarm, call fire brigade, tackle fire and evacuate safely.

MAINTENANCE STAGE

- Ensure good maintenance of fire appliances.
- Check periodically availability of dedicated water for fire fighting.
- Undertake fire drills and mock exercise for evacuation.
- Have stringent controls against over loading of electrical circuits, accumulation of chemicals and flammables, and storage of materials in the staircase, lobbies and fire escape stairways.

DURING FIRE EMERGENCY

- Keep the doors and windows shut to prevent ingress of heat and smoke.
- Evacuate without panic, but quickly. Do not waste time in collecting things.
- Do not use lifts as they may malfunction.
- If fire is in an upper floor, proceed to lower floors and eventually to outside the building. If fire is in a lower floor, use judgment and decide the evacuation direction. Try to reach refuge area, if provided in the building.
- Remember that floor level will be free from smoke for longer time.

USING L.P.G SAFELY

Liquefied Petroleum Gas (LPG) stored as a liquid under pressure in cylinders, is widely used in homes as cooking gas. The main hazards associated with LPG are fire or explosion in case of even minor leakage. In case of major leakage in confined spaces asphyxiation due to deficiency of oxygen may also result. LPG being colorless and odorless, a distinctive foul odour is added to enable easy detection of a leak. As LPG vapour is heavier than air, these vapours accumulate at lower levels and a fire or explosion may result.

SAFETY WHILE TAKING DOOR DELIVERY

- Check whether valve sealing tag is intact and safety protection cap is in position.
- Check leakage from valve by applying soap solution.

SAFETY WHILE CHANGING CYLINDERS

- Put out all fires in the room.
- Switch off all electric appliances.
- Check for leakage from the rubber tube connections by applying soap solution.
- Never light a matchstick to check the leakage.
- Leave changing of new cylinder to trained persons.
- Don't drag, roll or drop the cylinder.
- Open the windows for free ventilation.
- Preserve safety protection cap.

SAFE USAGE

- Always keep cylinder in upright position, away from any sources of heat, in a well ventilated place. While moving cylinder, keep it upright.
- Don't tilt it to draw the last bit of gas. No extra gas can be obtained by tilting or shaking.
- Position stove/burner above the cylinder.
- To light the burner, open the cylinder valve, hold a lighted match stick (or gas lighter) over the burner and only then turn the knob of the burner on.
- To turn off the burner, first close the cylinder valve and then the burner knob.
- When the stove is not in use, keep the cylinder valve closed. Check this particularly every night and whenever you leave the house.
- If the flames goes out during use, do not relight it immediately. First close the cylinder value and burner knob. Open all doors and windows. Allow time for leaked gas to dissipate. Only then relight the burner.

- Do not use synthetic fabric (nylon, Terylene, etc) while operating the stove. Wear cotton dress.
- Keep children away from stove & cylinder.
- Use pot-holder when handling pans on the stove. Do not use towels, aprons etc.
- Never leave the stove / burner unattended when it is in operation. Cooking materials may overflow on the burners, extinguish the flame and leakage of gas will occur. Accumulated gas could get ignited.
- Never try to repair or adjust any part of the gas installation or allow untrained persons to do so.
- Do not position shelf/cabinet above the stove.
- If your stove is near a window, do not use curtains as they may blow over the burner and catch fire.

IN CASE YOU SUSPECT LPG LEAKAGE

- Close burner knobs and cylinder valves and refix safety protection cap.
- Extinguish any open flames.
- Don't light a match or bring in other ignited material.
- Open windows for free ventilation.
- Do not touch electrical switches.
- Do not tamper with the installation.
- Immediately contact your distributor and the Fire brigade. Keep their phone nos. handy.

ELECTRICAL FIRES

ELECTRICAL FIRES ARE THE RESULT OF

- Design defects and deficiencies in equipments & layout design.
- Defects and deficiencies in the protective systems.
- Installation defects & improper working conditions.
- Improper/poor maintenance.
- Deficiencies in testing of electrical equipments.
- Natural occurrences such as lightning.
- Unsafe operations & misuse.

BASIC CAUSES

- Main cause is short circuit but it is a stage in the process which starts with insulation failure.
- Bad and fractured conductor.
- Discharge of static electricity during loading/unloading.
- Overloading and overheating.
- Open heaters near combustible material.
- Flickering tube lights.
- Loose connection.
- Unsafe method of taking electrical supply.

DOS

- Only approved fire/explosion proof electrical equipments/fittings should be used in flammable atmosphere.
- Whenever possible portable electrical cords should be hung overhead to protect the insulation from being damaged.
- Electrical lights required inside any vessel/tank of furnace must be of flame-proof type and should not exceed 24 volts.
- Always use a 3-pin plug for taking an electrical supply.
- All switches and appliances where the top cover or some part is broken thereby exposing live part should be replaced immediately.
- Ground the tanker while unloading into a tank.

DON'TS

- Never use any solvent for cleaning electrical equipment.
- Never open/close circuit without its full knowledge.
- Do not paint on switch boards or near electrical equipments with a brush/ a painting gun until it is certified to be safe.
- Never use an electrical extension cord with joints or cracked insulation.
- Avoid standing in water while using the cord.
- Never attempt to extinguish a fire on or about electrical apparatus with water, use CO2 dry chemical powder or sand.
- Never overload any electrical point.
- Avoid taking temporary connection. Temporary connection and joints, if at all unavoidable, should be done safely.

ELECTRICAL SAFETY

Electricity is a versatile energy but it has to be safely used. Failure to take precautions against electrical hazards may result in injuries or property damage or both. Control of electrical hazards is neither difficult nor very expensive but ignoring them may lead to serious accident.

ELECTRICAL INJURIES.

A) ELECTRICAL SHOCK:

Flow of electrical current through human body is the cause of electrical shock. Voltage, resistance of the body to electricity, time of current flow are important. Alternating current (A.C) causes involuntary grip which prolongs time of contact and therefore is more dangerous, on receiving an electrical shock.

- The electrical current flows through nerves, muscles causing disturbance in their normal functions. If its path is through the heart the accident can be fatal.
- A person may fall from height as he may lose his balance on receiving a shock.
- A person may be thrown away at the same level causing him bodily injury.

B) BURNS:

- Burns are caused by electrical flashes if a body part comes within flashing distance of a high voltage current.
- Burns may be caused due to short circuit also.
- Short circuit may lead to electrical fires causing burns.

DO'S

- Only qualified persons should undertake electrical repairs.
- Treat all circuits as LIVE unless ensured after testing to be DEAD.
- Ensure that extension cord is free from cuts, damages in insulation, kinks or joints etc.
- Check that the pins of the sockets are not loose.
- Ensure easy access to put off the supply.
- Use switches which clearly indicate "ON" or "OFF" and are of appropriate amperage.
- Frequently check the values of electrical parameters like voltage and amperage and ensure that they are appropriate.
- Get the equipments, circuit breakers etc. checked periodically by competent person.

- While using any portable electrical equipments ensure that it is properly earthed, there is no leakage of current through the body of the equipments, cable is reinforced where it enters the plug, with stout rubber tubing and there is no stain on wires.
- Use work permit in areas of flammable atmosphere.
- Identify electrical hazards and report them immediately.
- In case of short circuit or fire, put off the main switches immediately.
- Know first aid procedures.

DON'T'S

- Don't have any unsafe temporary connections, naked joints/wiring.
- Don't work wet on electrical equipments.
- Don't use trial and error methods with electrical circuits.
- Fuses are saviours, don't tamper with them. Don't replace a "Blown" fuse unless the fault is detected and rectified.
- Don't just operate any switch unless you know the consequences.
- Don't overload an electrical point.
- Don't use water for extinguishing electrical fire. Use dry sand, CO2 or DCP extinguishers.
- Don't crowd things near electrical mains/switches.
- In case of lightning don't stand beside or reset against tall structures.
- Don't take short cuts. Follow safe procedures.

IN CASE OF INJURY

- In case of an injury due to electrical shock give the victim artificial respiration and immediately call for a doctor. Don't crowd around the victim, he needs fresh air.
- In case of burn injury, hold the affected part of the body under water.

SAFETY IS MORE IMPORTANT THAN MERE CONVENIENCE

GOOD PRACTICES IN ELECTRICAL WIRING FOR FIRE SAFETY

Investigations of numerous major fires in factories, workshops, offices, hotels, households, high rise buildings and other such occupancies, have revealed that electrical wiring faults are the main sources of fires.

COMMON CAUSES OF ELECTRICALS FIRES

- Short circuit at joints and terminations due to bare wires loosening out of the terminals or wires fraying out and touching other terminals.
- Arcing at improper joints, loose connections and terminations resulting in high temperature build-up.
- Earth faults in wires with deteriorated insulation.
- Overloading.
- Heat from other sources.
- Sub-standard installation practices.

FIRE SAFETY MEASURES:

Following safe practices in respect of electrical wiring would help to reduce fire incidents.

- Prefer copper wiring / cables.
- Use only ISI marked wiring/cables and related accessories.
- Don't use 1sq.mm cable at all in the household.
- Use 10 Sq.mm cable for main connection between the electricity supply meter and the main switch on the distribution board in the house/flat and 6 mm cable for connection between distribution board and sub-distribution board in each floor.
- Use 4 sq.mm cable for supplies to geysers, heaters and Air conditioners and such heavy loads and 2.5 sq.mm cable for supplies to TV kitchen appliances, refrigerator, washing machine, dish washer and electric iron.

INSTALLATION

- Don't install electrical power circuits and communication circuits in the same conduit/casing.
- Ensure that the wiring for high power consuming devices like air conditioners, geysers, etc, run separately.
- Seal cable passes and other opening effectively, using suitable fire protection method such as fire stops and fire breaks. Also go for compartmentation of spaces.
- Take extra safety precautions such as reliable termination, use of continuous wire without joints, mechanical protection, thicker insulation and high power rating for wiring in respect of essential services requiring continuous power such as fax machine, computer, communication systems, fire alarm system, etc.

- Ensure, that the appliances like computers or electronic devices which are sensitive to voltage fluctuations have individual neutrals taken from supply and there is no neutral looping.
- Ensure that plug points are away from the places such as sinks, where they are likely and there is no neutral looping.
- Derate the current rating of the wires to ensure that the temperature remains safely within the prescribed limits when a number of wires are laid together in casing or conduit.
- Avoid temporary wiring and connections.
- **Install a master control switch outside occupancies to enable switching off power after office hours.**
- Have a spare galvanized steel wire in the conduit for pulling a cable in future for additional circuiting or for replacing a defective cable.
- Don't use flexible conduits for general wiring.

PROTECTIVE ACCESSORIES

- Don't increase the fuse capacity for preventing or eliminating frequent fuse blow-up. Prefer HRC (High Rupturing Capacity) fuses.
- Use MCBs (Miniature Circuit Breakers) for protecting higher capacity loads like geysers, air-conditioners, etc.
- Use separate MCB distribution boards for circuits supplying to devices/appliances which can be switched off with the master switch and for other circuits which are not to be switched off by the master switch.
- Use RCCBs (Residual Current - operated circuit Breakers). Don't depend on fuses, MCBs, etc. for protection against leakage current.

PLUG AND SOCKET

- Use 3-pin (or wherever so made by 2-pin) plugs to make connections to the sockets. Never insert loose wires.
- Provide 3-pin plugs for all electrical appliances and ensure that earthing is connected to the pin meant for earthing.
- Don't use a 3-pin plug with earthing terminal missing or sawed off.
- Ensure that plug and socket fit each other smoothly and provide adequate contact for carrying rated full load current.
- Don't try to force a 2pin plug in a 3-pin socket.
- Avoid connecting multiple appliances or circuits to a single socket.

SPECIAL REQUIREMENTS FOR HIGH-RISE BUILDINGS

- Employ special insulating materials such as FRLS (Fire Retardent Low Smoke) for wiring/cabling meant for fire alarm systems, emergency lighting, computer installations and such equipment whose uninterrupted performance in fire situations is essential.
- Provide separate circuits for fire fighting pumps, lifts, staircases and corridor lighting and blowers for pressurizing system, directly from the main switch gear panel. Use separate conduits for such circuits.
- Label clearly the masters switches controlling essential services.
- Lay electrical distribution cables/wiring in a separate duct. Seal the duct at every floor with non-combustible materials having the same fire resistance as that of the duct.
- Don't lay water mains, Telephone lines, inter-com lines, gas pipes and any other services line in the duct meant for electrical cables.
- Use separate metal conduits for medium and low voltage wiring meant for lighting or other services, above false ceiling.
- Provide suitable circuit breakers at the appropriate points.
- Use brass or copper for bonding and earthing. Use non-rusting bolts in damp situations.

TESTING

- Check integrity of insulation at regular intervals.
- Conduct insulation resistance test at least once in a year and when any addition or alteration is carried out in the installation.

Ensure that all electrical wiring and repair jobs including additions, alterations and repairs to the existing installations are carried out by licensed contractors as per the Indian electricity Rules, 1956.

FIRE SAFETY IN PUBLIC PLACES

INTRODUCTION:

Places where 5 or more persons assemble for recreation, Social, religious or other similar purposes may be termed as public places; eg: Cinema halls, Convention Halls, restaurants, Stadium, Club/dance halls, places of worship, transportation terminals. The major fire at Uphaar Cinema threat at Delhi in 1997 which claimed almost 60 lives of cine - goers and injured several others is an example of the vulnerability of public places to serious fire hazard.

LEGISLATION/REGULATIONS:

- Development Control regulations/By-laws of Municipal authorities.
- National Building Code of India, 1983 - Amended, 1999.
- National Electric Code, 1985 - Section 3 Assembly Buildings.
- Cinematographic Act.
- Local Regulations(A.P. Fire Services Act 1999).

CONSTRUCTION:

- Buildings should be designed for a high occupant load (number of persons per 100 sq.m of covered area) which is 166.6 for places without seats.
- The minimum height of assembly hall should be 3.6 m and the minimum width of staircase / corridor 2m.
- Public halls are not permitted in high rise buildings > 30m high.
- Public places having more than 500 sq.m area (per floor) should have at least 2 staircases of enclosed type of which one should be on external wall of the building and open directly to open spaces.
- Materials used for upholstery, interior decoration, seats and carpets should be fire retardant type.

ELECTRICAL:

- Preferably use dry type transformers in public places. Oil transformers if used indoor, need to be segregated from other areas by fire walls of 4 hr rating . These should not be installed close to the exits and in any floor above ground or below the first basement.
- Temporary electrical wiring should be avoided.
- Pedestal fans if installed, should be connected to the power supply through 3 pin plug only.

FIRE PROTECTION:

- Hose reels, wet risers, automatic fire detection and alarm systems should be provided as per National Building Code.
- For large assembly halls (1000 seating Capacity) and for those in high rise buildings, automatic Sprinkler System is recommended. Yard hydrant is required for the public places in high rise buildings.
- Dedicated water storage up to a min of 50,000 ltrs is to be provided for fire fighting . In high rise buildings, it should be 1,00,000 ltrs.
- One water type extinguisher is required for every 600 sq.m floor area with a minimum of two per floor located within a travel distance of 25 m and the location market conspicuously.
- All staff should not receive training in using the extinguishers.

EXIT FACILITIES:

- Sufficient number of exits should be provided to facilitate total evacuation within 1 to 2^{1/2} minutes based on the type of Construction. There should be at least 4 separate exists, 2m wide, half of them leading directly outdoors.
- Travel distance should not exceed 30m.
- Exit doors should open outward into the passage way.
- All escape routes should be marked using the signs and symbols as per IS 12349-1988, positioned a little above the eye level and illuminated adequately (at least 10 lux) by independent source.

OTHER PRECAUTIONS:

- Smoking should be prohibited in assembly areas. This should be enforced through placards, caution notices and supervision.
- Aisles & escape routes should not be blocked with extra chairs/ exhibits.
- During the period of assembly the exits should be kept unlocked. Vehicles should not block the exits from the building.
- Caution notices not to use lifts in fire situation should be posted close to the lifts.
- If seats are 300, fasten them securely to the floor.
- To ensure unhindered access to fire tenders and ambulances, parking of vehicles should be confined to parking zones.
- Fire escape plan with clear instructions on the action envisaged to visitors should be displayed prominently or even issued to the visitors through hand bills.

DESIGNATE A RESPONSIBLE PERSON TO CALL FIRE BRIGADE

FIRE SAFETY IN OFFICES

The traditional image of office work being always safe is deceptive. The main risk to life and property in offices is from fire. Besides loss of life. Injury to office workers and damages to property, critical data and irreplaceable office records, loss of which can give a severe blow to the organization, are vulnerable to poorly managed fire hazards in modern offices.

COMMON FIRE HAZARDS

- Paper records, plastic tapes and floppy discs.
- False ceiling, wooden furniture, carpet, etc.
- Non-Standard and faulty powered office equipment.
- Defective and loose electrical wiring.
- Overloading of electrical circuits.
- Free use of extension cords, ungrounded plugs and unfused multiple outlet adapters.
- Microwave oven, hot plate, cooking fuel (LPG), etc in office canteens.

Following are some samples tips which if followed, would certainly help to minimize incident of office fires or at least their severity

FIRE PREVENTION

GENERAL CONSIDERATION:

- Practice good housekeeping. See that all trash cans and recycling containers are emptied on a regular basis.
- Ensure that office and storage closets are free of excess combustible material. Limit their quantities to an acceptable level and store them only in approved cabinets.
- Keep heat-producing equipment such as copiers, computers, coffee makers, hot plates, etc. away from anything that might burn. Don't smoke at places other than permitted areas and discard ashes in ashtrays only.
- Ensure that air vent on computers and other heat-producing equipment are not covered or restricted causing inadequate airflow, which could cause a fire.
- Don't place space heaters under desks. Locate them in an open and away from combustibles.

ELECTRICAL CONSIDERATION:

- Don't overload circuits. Install additional circuits if needed.
- Turn off electrical equipment / appliance while leaving the office.
- Use only grounded appliances plugged into grounded outlets.
- Disconnect electrical appliance if it malfunctions or gives off a strange smell and call the maintenance personnel.

- Never plug one extension cord into another.
- Take electrical equipment with defective cords, out of service until the cord is replaced.
- Avoid use of electrical extension cords. Use them only in situations where fixed wiring is not feasible. If their use is necessary, ensure that they are not run through doors, walls, floors or any other location where they could be damaged.
- Examine extension cords regular and ensure that they are not frayed or defective.
- Follow correct specifications when replacing fuses in equipments.
- Always prefer standard equipment bearing ISI mark.

FIRE EMERGENCY

BE PREARED:

- Ensure that emergency numbers are pasted on your telephone.
- Know how to use fire extinguishers and active fire alarms.
- Don't block fire equipment and fire exits.
- Ensure that fire equipment is maintained in working conditions by periodic inspection and maintenance.
- Report missing and damaged extinguishers immediately.

IF FIRE OCCURS

- Don't panic; remain calm.
- Notify anyone in the immediate area and fire bridge.
- Activate the nearest fire alarm.
- Turn off the electrical equipment in the immediate area, if possible.
- Confine that fire by closing doors and windows.
- Attempts to extinguish the fire only if it is safe to do so.
- Stay low if there is smoke or heat.
- Don't use elevators. Always use staircases: do not congregate in the stairways. Always move down and out.
- Don't go back for your things if you are asked to leave.
- Assemble outside. Do not re-enter the building until notified.
- Don't enter the area if you suspect that a life- threatening condition still exists.
- Take affected persons to a safer place and get medical help promptly.

--PRACTICE GOOD HOUSE KEEPING - PREVENT OFFICE FIRES--

FIRE SAFETY IN HOTELS & GUEST HOUSES

Fire is a principle threat to life and property in hotels and guesthouses.

COMMON FIRE HARZARDS

- Careless discarding of lighted cigarette ends.
- Non standard and faulty electrical equipment.
- Loose electrical wiring/terminals/switches.
- Over loaded electrical circuits.
- Heating equipments and cooking fuel.
- Use of candles.
- Boilers.
- Diesel or other for alternative power generators.
- Linen stores and furniture storage rooms.
- Combustible building materials, furniture and decorations.
- Repair and maintenance involving hot work.

FIRE SAFETY MEASURES

The following measures would help to prevent fire and in the event of fire to minimize loss of life and property.

FIRE SAFE DESIGN:

- All false ceilings and furnishing and decoration materials used on escape routes should have class-1 flames spread rating and should not generate toxic and asphyxiating gases on burning.
- All vertical shafts/ducts for drainage pipes, plumbing, wiring and cabling etc. should be sealed at each floor and enclosed by 2 hours fire-resisting enclosure.
- Kitchen rooms, laundry, linen stores and furniture storages rooms should be of fire resisting construction and provided with one hour Fire resisting self-closing doors.
- Air conditioning should be linked with fire detection system to automatically cut off the air conditioning on the respective floor in case of a fire. Suitably placed fire dampers in the AC ducts play positive role in stopping the spread of fire.
- Transformers, air conditioning/handling units and boilers should be in separate fire resisting rooms.
- All electrical equipment including cables, light fittings, gauges, etc should be in conformity with relevant Indian standards.
- Every room should be provided with an overload and earth leakage trip outside it.

- A stand by emergency power supply should be provided to cater to fire water pump; fire lifts; mechanical ventilation for basements; emergency illumination of all corridors, staircases, basements and exit signages and other emergency systems for fire fighting. .
- Means of egress at least 1.5m wide 92m in case of dance/banquet halls) and exit signanges should be provided as per National Building Code.
- Fire detection, alarm and extinguishing systems including hydrant, sprinklers, Fire detectors, Portable extinguishers and efficient public address system should be provided and maintained.

ROLE OF MANAGEMENT

- Don't use basements for banquet halls or dance halls unless one entire side of such basement opens up directly to the open and also the entire basement including such halls is fully sprinkled.
- Display in each guest room and at other prominent location and also screen on cable television at regular intervals vital fire safety information including a floor map showing the location in question, escape routes to staircases and clear instructions on what the guest should do in a fire emergency.
- Introduce and practice religiously ' Hot Work Permit' system for contractors to work inside the hotel.
- Arrange frequent inspection of lounge restaurants, halls, etc. for smoulddering cigarette butts.
- Maintain electrical and fire protection equipment in good conditions.
- Train all employees in fire prevention, fire fighting and emergency response.
- Conduct periodic emergency drills.

ROLE OF EMPLOYEES

- Clean kitchen hood regularly.
- Use semi-enclosed containers for candles.
- Empty ashtrays properly and on regular basis.
- Follow good housekeeping practices.
- Keep all fire and smoke doors closed unless they have automatic closing arrangement in case of fire.
- Be familiar with emergency plans and procedures.
- Know you role in assisting guests to escape to place of safety, controlling the growth of fire and other actions that lead to life safety.

TIPS FOR OCCUPANTS/GUEST

- After check-in, know the location of fire alarm pints, fire exits staircase, escape routes and fire extinguishers near the room.
- Learn how to find and unlock door of the room in the dark.
- Keep the room key and flashlight close to the bed.
- Never smoke in bed. Use ashtray.

IN CASE OF FIRE IN THE ROOM

- Don't panic. Sound the alarm. Report to the Fire department/front office desk. Clearly state the location of fire.
- If trained and confident, use the nearest extinguisher to extinguish the fire. Otherwise, get out of the room and close the door. Do not try to pick up valuables and possessions. Take your room key with you.
- Never use elevators, use staircase.
- In case of smoke accumulation, crawl low.

IN CASE OF FIRE OUTSIDE YOUR ROOM OR WHEN YOU HEAR FIRE ALARM

- Remain in the room if the room door is hot or smoke outside is dense. Turn off the fan and air supply to the room.
- Close the door nearest to the fire and use wet towels, sheets to block any openings. Signal from window or balcony for help by waving towel/bed sheet.
- Open the window if there is smoke in the room.
- Avoid jumping out if you are at higher floor.
- Never re-enter the building until notified by the fire bridge.

FIRE SAFETY IN GODOWNS

Fires in godowns account for a major chunk of total number of outbreaks in industrial occupancies and almost invariably assume serious proportions resulting into not only colossal property loss but also damage to surrounding environment and community.

PRINCIPAL CAUSES:

- Careless smoking.
 - Spontaneous ignition.
 - Use of naked flames or cooking.
 - Faulty Electrical installations.
 - Storage of incompatible hazardous goods.
 - Carrying out dangerous operations such as welding, cutting, spray painting, etc. in godowns or adjacent buildings.
- Frequency of Fire outbreak and loss suffered as a result, could be considerably reduced if proper attention is paid to following safe practices.

STORAGE:

- Ascertain before hand fire hazards of the materials you store. Assume the materials to be hazardous if complete information is not available.
- Store the materials susceptible to water damage, on skids, pallets and such elevated platform of at least 20 cm above the ground.
Prefer non-combustible material for such platform.
- Ensure that safe floor load limits given in IS 875 : 1964 are not exceeded.
- Ensure adequate ventilation where flammables are stored, handled or used.
- Don't allow even temporary storage of goods if it obstructs access to godown doors, aisles, fire exits and fire equipment.
- Store incompatible chemicals separately.
- Keep flammable materials away from ignition sources.
- Use self-closing containers for flammables/spontaneously combustible materials and periodically vent containers of volatile flammable solvents.

SEGREGATION:

- Segregate the materials as hazardous, extra-hazardous and non-hazardous as per IS 1641: 1960 and store them in separate areas.
- Store the materials, which emit a large amount of smoke and/or noxious gases, in separate well-ventilated godowns.
- Use detached buildings segregated from all other storages by separating walls to store gas cylinders which are liable to explode when exposed to fire.

- Don't store contaminating commodities such as poisons, dyes, tanning extracts, gum and soda ash along with or on floor above foodstuff storage.

STACKING

- Give due regard to characteristics of materials when you stack them.
- Maintain safe and stable stacking heights.
- Stack such that internal spread of fire is minimized and materials are easily accessible for fire fighting.
- Ensure that stacks are not more than 4.5 mtrs in height and a gap of at least 01.00 Meters is maintained between the top of the stack and the ceiling, beam, etc. or sprinkler heads.

HOUSE-KEEPING

- Keep storage areas dry, clean and well ventilated.
- Ensure high housekeeping standards and avoid spillage. Promptly eliminate oil/gas leaks and clean spillage of flammables. Keep clean-up equipment for spills handy.
- Ensure that all godowns and compounds are swept clean everyday. Also ensure systematic removal of weeds, from the compound.
- Inspect thoroughly godown premises before it is closed.

HANDLING

- Ensure label on every chemical container. Don't use or handle unlabeled container but report them. Follow the instructions on the label and in the materials safety data sheet.
- Follow approved procedures for materials handling, goods movement and loading/unloading.
- Ensure electrical grounding and bonding of the containers labeled FLAMMABLE before pouring, dispensing or transferring any liquid from them.
- Strictly follow work permit instructions when welding, cutting and other such hot work are undertaken in areas where flammables are present.
- Don't drag containers labeled FLAMMABLE. Handle them with care and use appropriate trolleys.
- Switch on fan motors before using chemical hood.
- Use rubber cradle while transporting unpackaged glass bottles of chemicals.

EQUIPMENT AND APPLIANCES

- Use certified flameproof or forklift trucks where highly flammable goods are stored or handled.
- Never fill or empty fuel tanks of petrol/Diesel-powered mobile material handling equipment.

- Ensure that induction system of all; petrol motors is provided with flame arrestor.
- Ensure that fuel-operated material handling equipment carry suitable types of fire extinguishers.
- Prefer non-flammable refrigerants for refrigeration system.

ELECTRICAL INSTALLATIONS

- Don't overload electrical circuits.
- Avoid temporary connections.
- Locate all switches and control equipment outside the godowns storing flammable goods, flammable liquids, nitrocellulose and fireworks or explosives. Don't use flexible lighting pendants and portable lamps but ensure use of flame proof fittings in such situations.
- See that no light fitting has a clearance of less than 75 cm from the highest stacking level.
- Keep electrical fuse and switch boxes clean and closed.
- Never carry out electrical repairs on your own. Call authorized electrician.

OTHER MEASURES

- Don't allow use of naked flames, welding, cutting and spray painting operations except in detached buildings specifically set apart for such purposes.
- Don't smoke in places other than permitted zones.
- Keep fire check doors shut when not needed and after the end of the day's work.
- Don't drain out flammable chemical spillage with water. Collect them by using absorbent material for safe disposal.
- Avoid re-use of empty chemical containers. Thoroughly empty, rinse, decontaminate, puncture and crush them before disposal.

HANDLING EMERGENCIES

- Always be prepared for emergencies.
- Know and understand precautions and procedures in case of spillage/leakage and fire.
- Keep emergency telephone number handy.
- Know locations of fire exits and keep them clean.
- Ensure that fire equipment in working condition and accessible.
- Know how to use fire extinguishers.
- Conduct fire emergency drills at regular intervals.

ASCERTAIN BEFOREHAND FIRE HAZARDS OF THE MATERIALS YOU STORE

FIRE SAFETY IN TEMPORARY OCCUPANCIES

INTRODUCTION

- Large pandals, shamianas, tents and similar temporary structure are common at fairs, festivals, exhibitions, circuses, religious function and other outdoor assemblies.

HAZARDS

- These occupancies are highly vulnerable to fire and quick spread of fire. In the past, fires in occupancies like circus tent in (Bangalore), National Book Fair at (Calcutta), a school function in Sirsa (Haryana), a religious function in baripada (Orissa), Srirangam on (Tamil Nadu) killed hundred of people including school children.

PERMISSION REQUIRED

- Permission / licence from the Municipal Corporation / Local authority for specific and limited period.
- NOC (No Objection Certificate) from Fire Services Department.
- Licence for Electrical Connection.

LOCATION

- Temporary structure should not be located.
 - Within 15m from railway line, substation, chimney, furnace or similar hazard.
 - Below live electrical lines.
 - In hazardous areas where storage, handling or processing of flammable/ explosive substances is carried out.

CONSTRUCTION

- Structural members should resist fire for at least 10 minutes to facilitate evacuation. For this purpose, these should be either.
 - Non - combustible or.
 - Of substantial construction or.
 - Treated with fire retardant solution as prescribed in IS 8758-1993.
- Dip the fabrics, decorative cloth, coir ropes also in the solutions.

IGNITION SOURCES

- Electrical fault is the main ignition source. Get the lighting done by a licenced electrical engineer and conform to the load per circuit & insulation test as per IS 1646-1982.
- Use PVC sheathed conductors with joints in porcelain connections. Avoid twisted and taped joints.

- Provided overload, short-circuit and earth leakage circuit breakers.
- Residual current circuit Breaker with 30 MA sensitivity is recommended.
- Portable gas lights if used, should not be hung from the ceiling of the structure. Place them on separate stands securely fixed.
- Fireworks and open flames (other than controlled fire for religious purposes) should never be allowed inside or in the vicinity.
- Cooking can only be done in a segregated place away from the pandal. Keep a cover to extinguish oil pan fire. Do not resort to make-shift arrangements such as joining lengths of rubber tubes for supply of gas to the stoves.
- Flammable chemicals and dry vegetation should not be allowed inside and up to 3 m around.
- Smoking should be prohibited and enforced strictly.

FIRE FIGHTING

- Water supply should be readily available.
- Two fire buckets per 50 Sq.M of floor space one 2 KG CO2 or 5 kg dry chemical powder extinguisher near electrical switchgear should be provided so as to be easily accessible.
- Emergency fire telephone number to be displayed prominently.
- Designate a responsible person at the site to inform the Fire Services in an emergency. Give them details of the premises in advance.

MEANS OF ESCAPE

- The sides of the pandal should preferably be left open or at least the lower portions of the side walls should not be fixed. Provide ample exits as per guidelines below.
- 'EXIT' sign to be displayed conspicuously and illuminated from reliable power supply.
- Provide central, side and cross gangways (1.5 meters wide).
- In fire emergency, movable seats may cause hindrance to exit. Tie up 4 or more seats together and secure to the ground.
- Doors if provided for exits, should open outwards.

REFERENCES

- IS 8758-1993; IS 1646-1982; National Building code of India, 1983; National Electrical Code and A.P. Fire Service Act 1999.

SAFE HANDLING OF HAZARDOUS CHEMICALS

DEFINITION:

Manufacture, Storage and import of hazardous chemicals rules 1989 under the environment protection (EP) Act 1986 define "Hazardous Chemical based on toxicity, flammability and explosivity.

LEGAL REQUIREMENTS:

The factories Act and the Environment Protection Act & the rules made under these acts require:

- Identification & Labelling, obtaining material safety Data Sheet & disclosure of information to the worker.
- Training & Supervision.
- Safe Storage, handling & Disposal.
- Emergency planning & Preparedness.
- Monitoring of work environment and health of workers.

OBLIGATION OF WORKERS UNDER FACTORIES ACT:

No worker in factory shall willfully.

- Misuse any appliance.
- Do any thing likely to endanger himself or others.
- Neglect to make use of appliance provided for security, safety and health of employees.
- Refuse to undergo medical examination.

IDENTIFICATION & LABELLING

- Label the containers clearly with contents, name & address of manufactures/importer, physical and health hazards & recommended personal protective equipment.
- Know how to use the information provided on the labels.
- Do not handle any unlabelled container. Check with your supervisor.

STORAGE

- Store chemicals in a cool, dry and well ventilated place away from heat and ignition sources. Avoid storage in open sun.
- Store reactive chemicals separately.
- Do not refill empty containers with any chemical other than the one originally contained use containers on first in, first out basis.
- Keep flammable chemicals in closed containers.
- Store poisonous substances, such as cyanides, in locked cabinets away from acids.

HANDLING

- Ensure electrical bonding and grounding while transferring flammable chemicals from one container to another.
- Follow strictly the approved procedures for loading/unloading.
- Use personal protective equipment as necessary.
- Handle containers with care, using appropriate trolleys.
- Keep cylinders upright with caps and chain them.
- Watch for the posted signs indicating areas requiring particular precautions and adhere to them strictly.

DISPOSAL

- Don't pour acids/alkalis in the drainage without proper neutralization.
- Don't drain out toxic and flammable chemical spillage with water. Collect it by using absorbent material for its safe disposal.
- Decontaminate the used containers not intended for re-use and make them usable by puncturing before disposal.
- Know safe disposal procedures and follow them strictly.

HANDLING EMERGENCIES

- Know and understand precautions and procedures in case of spillage/leakage, and fire.
- Keep safety and emergency kits in working order, and accessible.
- Keep antidotes ready and handy while handling toxic chemicals.
- Get trained in first-aid procedures.
- Drivers of vehicle transporting hazardous chemicals should know emergency procedures and carry required Safety procedure information.

GENERAL:

- Use non sparking tools and flame proof electrical equipment in the area where flammable chemicals are used/stored.
- Follow established work permit systems.
- Periodically vent all drums containing volatile liquids.
- Don't keep any foodstuff or take meals in the area where hazardous chemicals are stored/handled. Wash hands before eating.
- Don't use any solvent for cleaning hands. Use soap.
- Maintain high housekeeping standards and avoid spillages.
- Clean the floor immediately in case of any spillage.
- Change contaminated clothes immediately.
- Never take chemicals away from the job for personal use.