

*GUIDELINE*  
*FIRE SAFETY*  
—  
*COMMERCIAL*  
*SECTOR*

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## **1. INTRODUCTION**

- 1.1 These guidelines recommend basic fire safety requirements for the COMMERCIAL SECTOR.
- 1.2 In the commercial cluster activities may be grouped as:
- (a) distribution of goods, import/export agencies, retail warehouses,
  - (b) general retailer foodstuff/non foodstuff shops, markets, supermarkets
  - (c) Petrol service station
- 1.3 The place of work can be accommodated in a wide range of building of various design, size and structural materials. The buildings may be single or multiple floor built specifically for the purpose, multiple occupancy, private residential buildings, or any other building converted for the purpose.
- 1.4 These guidelines cover the place of work and aim at ensuring safety with regard to fire.
- 1.5 The promoter or his nominated agent is responsible to adhere to these guidelines.

## **2 FIRE SAFETY REQUIREMENTS**

- 2.1 Fire safety requirements are commensurate with:
- (a) the number of persons involved in the commercial activity
  - (b) the type of commerce
  - (c) the layout, size, design and nature of construction of the place of work
- 2.2 The main criteria which are considered with regard to fire safety requirements are
- (a) Means of escape
  - (b) Means for fighting fire
  - (c) Means for giving warning in case of fire and
  - (d) any dangerous substances stored, used or handled
- 2.3 Any promoter desiring to develop and invest in the commercial sector shall ensure that the criteria at 2.2 are satisfied.
- 2.4 The promoter shall conduct a fire risk assessment to determine the requirements with regard to fire safety and adhere to those requirements specific to his case – (check list annex to conduct survey)

### **3 MEANS OF ESCAPE**

- 3.1 Means of escape are structural and integral part of the construction which allow people to proceed to a place of safety in the event of a fire.
- 3.2 Means of escape includes exit doors, corridors and staircase which lead to the open air.
- 3.3 Every promoter shall ensure that people who are in the building can get out safely and quickly in the event of a fire.
- 3.4 A single route is accepted as means of escape where:
- (a) the distance to be travelled to reach the final exit is 18 m in case of an office and 12 m in other cases,
  - (b) the route to the final exit is protected and is at least 1.1 m wide,
  - (c) the floor height does not exceed 9 m and
  - (d) the total number of person does not exceed 60.
- Note – Protected route means the route to the final exit is rendered safe from heat, smoke or toxic vapours that may be produced in the event of fire by the provision of fire resisting material along the route or fire doors or by pressurisation.
- 3.5 In circumstances where the conditions are beyond those specified in 3.4 an alternate means of escape is required.
- 3.6 Where occupants may be endangered through obstruction of any single exit due to fire or smoke there shall be provided an alternate means of exit.
- 3.7 Spiral staircases and vertical ladder are not acceptable as alternate means of escape.
- 3.8 At ground floor level an exit alternate to the existing one is acceptable as an alternate means of escape.
- 3.9 In building above ground floor level a standard staircase made of metal or other non combustible material is acceptable as an alternate means of escape.
- 3.10 An external staircase is acceptable provided that
- (a) there is limited opening on the side where the staircase is sited
  - (b) windows do not open directly on the staircase
  - (c) materials used are protected against corrosion and slips
  - (d) the staircase is illuminated during night.
- 3.11 An emergency staircase shall satisfy the following specifications:-
- (a) It shall not be less than one metre wide
  - (b) Treads shall not be less than 225 mm
  - (c) Risers shall not be more than 190 mm

- (d) Angle of descent shall not exceeds 45 degrees
  - (e) There shall be not more than 16 risers in a flight
  - (f) There shall be not more than 2 flights without a change in direction
  - (g) All doors giving access to the staircase shall open outwards
- 3.12 Exit doors, corridors and staircases shall be kept free from obstruction at all material time.
- 3.13 Emergency exit doors shall (except in the case of a sliding door) be constructed to open outwards.
- 3.14 Whenever a building is occupied, emergency exit doors shall not be locked or fastened in such a manner that it cannot be easily and immediately opened from inside.
- 3.15 The contents of any room shall be arranged in such a way to allow free circulation for occupants.
- 3.16 Every exit door affording means of escape shall be marked by an exit white pictogram of minimum size 100 mm on a board with green background.
- 3.17 When the direction to the emergency exit may not be apparent to an occupant an exit sign with an arrow indicating direction shall be displayed.
- 3.18 If occupancy is permitted at night or if normal lighting levels are reduced during working times, exit signs shall be illuminated and emergency lighting provided along escape routes.

#### 4 **MEANS FOR FIGHTING FIRE**

- 4.1 Every promoter shall provide first aid fire fighting equipment of suitable type specific to the circumstances of his case.
- 4.2 First Aid fire fighting equipment includes portable fire extinguishers and hose reel.
- 4.3 Four types of portable fire extinguishers using water or foam, or dry powder or carbon dioxide are available.
- 4.4 A water fire extinguisher is appropriate for fire involving solid materials normally of an organic nature in which combustion occurs with the formation of glowing embers. (Class A fires). E.g. wood, paper, textiles, clothing.
- 4.5 A foam fire extinguisher is appropriate for fires involving liquids or liquefied solids (Class B fires). E.g. petrol, oil, thinner
- 4.6 A dry powder fire extinguisher is appropriate for fire involving solid materials normally of an organic nature in which combustion occurs with the formation of glowing embers, liquid or liquefied solids, gasses and metals. (Class A, B, C and D). E.g. wood, paper, textiles, clothing, petrol, thinner, oil and electrical appliances.

- 4.7 A carbon dioxide fire extinguisher is appropriate for fire involving solid materials normally of an organic nature in which combustion occurs with the formation of glowing embers, liquid or liquefied solids, gasses (Class A, B, C). E.g wood, paper, textiles, clothing, petrol, thinner and electrical appliances.
- 4.8 These fire extinguishers are available in capacity of 9 lts for water and foam, 2 kg and 5 kg for carbon dioxide, 2 kg, 4 kg, 6 kg and 9 kg for dry powder type.
- 4.9 One 4 kg dry powder or one 2 kg carbon dioxide fire extinguisher is recommended for every 100 sq metres or part thereof according to the risk.
- 4.10 Portable fire extinguishers shall be preferably sited on the line of escape routes, near to room exits inside or outside according to the risk.
- 4.11 In multi storey building, portable fire extinguishers shall be sited at the same position on each floor, that is top of stairs flights or at corner of corridors where possible in groups forming fire points, where possible in shallow recess.
- 4.12 Portable fire extinguishers shall be installed in such a way that the carrying handle lies one metre off the floor level.
- 4.13 In large buildings, portable fire extinguishers shall be sited in such a place so that no person shall travel more than 30 m to reach them.
- 4.14 Portable fire extinguishers shall be maintained in operational order at all material time.
- 4.15 The equipment shall be regularly inspected and tested. A record of such inspection and test shall be kept.
- 4.16 A hose reel installation which is a first aid and fire fighting appliance shall be provided in premises to extinguish ordinary combustible materials such as wood, cloth, paper and any matter that produces an ash (Class A fire fires); where a portable fire extinguisher will be insufficient.
- 4.17 It consists essentially of a reel, inlet pipe, manual or automatic valve (as the case may be), hose and a shut-off nozzle.
- 4.18 The drum or hose support of the first coil of hose shall be not less than 150mm in diameter. The fittings to which the hose is attached shall be arranged in such a way that the hose is not restricted by additional layer of hose, being place on it.
- 4.19 The reel shall be of sufficient size to carry the length of hose and rotate around a spindle so that the hose can be freely run out.
- 4.20 If a *manual inlet* valve is provided, it shall be of screw-down type above ground stop valve or gate valve type. It should be closed by running the handle in a clockwise direction. The direction of opening should be indicated by an arrow marked on the handle.

- 4.21 If the valve is *automatic*, the valve should open automatically when the hose is run out of the reel after four complete revolutions.
- 4.22 (a) If the diameter of the hose is 19 mm, its length shall be not more than 45 metres.  
 (b) If the diameter of the hose is 25 mm, its length shall be not more than 30 metres.
- 4.23 A nozzle of 4.5 mm to 6.5 mm capable of providing either jet or spray shall be incorporated at the end of the hose reel.
- 4.24 A hose reel installation shall be connected to a permanent water supply which is under pressure.
- 4.25 In vertical installations (tall buildings) the hose reel shall provide a jet of approximately 6m and the output shall be at least 24 litres per minute as follows:

Nozzle diameter	Minimum running pressure at the entry of reel
6.5 mm	1.5 bar
4.5 mm	4 bar

- 4.26 In horizontal installations the output shall be at least 24 litres per minute.
- 4.27 One hose reel shall be provided to cover every 500m<sup>2</sup> of floor space or part thereof.
- 4.28 Hose reels shall be sited in prominent and accessible positions at each floor level adjacent to exits in corridors on exit routes, in such a way that the nozzle of the hose can be taken in every room and within 6m of each part of a room.
- 4.29 Fire hose reel assemblies shall be provided with a notice bearing the words “FIRE HOSE REEL” in white letters on a red background. The methods of operation (of the valve) should be displayed adjacent to each assembly.
- 4.30 A hose reel installation shall be maintained in operational order at all material time. The installation shall be regularly tested and a record shall be kept.

## **5. MEANS OF GIVING WARNING IN CASE OF FIRE**

- 5.1 A fire alarm system is required in a building for one or both of the following purposes:
- to enable people in the building to be informed of an outbreak of fire and evacuate the building before the escape routes are affected by the product of fire.
  - to enable early detection and mitigate damage that may be caused by the fire by activating fire fighting resources.

- 5.2 A promoter in the commercial sector shall ensure that a fire warning system is installed at his place of work if the number of persons exceeds 60 or inflammable substances are stored, used and handled.
- 5.3 A fire alarm system consist basically of breakglass manual call points which are wired electrically to sounders / sirens and a control indicator panel.
- 5.4 Breakglass call points shall be installed at 1.4 metres above floor level preferably near exit and emergency staircase. In large premises no one shall travel more than 30 mts to reach a call point.
- 5.5 Sounders/sirens shall be strategically placed in sufficient numbers and in such a way that the sound is audible throughout the building. The sound shall be distinctive and at least 5 decibel above normal noise in the premises.
- 5.6 The basic system can be enhanced by introducing automatic fire detectors.
- 5.7 Fire detectors are designed to detect one or more of the three characteristics of a fire: heat, smoke or flame.
- 5.8 No one type is suitable for all applications and the final choice depend on the individual circumstances.
- 5.9 Heat or smoke detectors are suitable for most buildings. Flame detectors are mainly used to supplement heat or smoke detectors in high compartments or outdoor wide area storages.
- 5.10 A fire warning system shall be designed and installed in accordance to BS 5839 or any other equivalent standard.
- 5.11 Every component of the system shall be regularly tested and maintained in operational order. A record of test shall be kept.

## **6. STORAGE/RETAIL OF INFLAMMABLE LIQUIDS AND SUBSTANCES**

### **6.1 Liquefied Petroleum Gas – L.P.G**

- 6.1.1 If the quantity of LPG used stored or handled is below 500 kg
  - a. Cylinders shall be kept upright in a well ventilated place preferably outside building and away from any source of heat, combustible materials and electrical circuits.
  - b. Cylinders shall be kept away from exits or area used for circulation of people. Cylinders shall not be kept under stairways.
  - c. Cylinders shall be kept in areas where it will not be physically damaged.
  - d. Cylinders shall be secured to prevent them from falling or being knocked over, it shall be on flat and firm surface.



- e. Fittings recommended for the equipment shall be used.
- f. Appliances and accessories shall be maintained in good working order.
- g. Ensure that rubber hose/other connections and regulator are in good working condition.
- h. Rubber hose/tubings and regulator shall be replaced before the expiry dated stated on the items and as recommended by manufacturers.
- i. Empty cylinders shall be kept away from full cylinders.
- j. One 4 kg dry powder fire extinguisher shall be provided.

6.1.2 **If the quantity of LPG exceeds 500kg**

- a. Defective containers, cylinders and tanks shall be returned to supplier.
- b. Containers, cylinders, tanks and systems shall be secured against accidental dislodgement.
- c. Storage, use and handling areas shall be secured against unauthorised entry.
- d. Containers, cylinders, tanks and system shall be protected from physical damage.
- e. Guard posts or other means shall be provided to protect compressed gas containers, cylinders, tanks and system from vehicular damage.
- f. Containers, cylinders, tanks shall be separated from combustible material, waste, vegetation , source of heat and conditions that present exposure hazard to or from each other.
- g. Containers, cylinders, tanks shall be protected from direct contact with soil or surfaces where water might accumulate to prevent bottom corrosion.
- h. The gas storage installation shall be protected by a water spray system.
- i. Layout plan of installation shall be submitted to the fire service to ensure conformity.
- j. One 9kg dry powder fire extinguisher shall be provided.
- k. After completion of the project, the installation shall be registered with the Fire Services after payment of a fee of Rs 250.

6.1.3 **L.P.G Storeroom**

6.1.3 (i) If L.P.G kept in cylinders and where the weight does not exceed 1650 kg, it may be stored in a storeroom attached to a commercial or industrial premises.

6.1.3 (ii) The storeroom shall be constructed in accordance with the following requirements:

- (a) The storeroom shall be constructed of stone, brick concrete or other approved fire resisting material.
- (b) It shall have a door in an outside wall thereof which shall be so constructed as to open outwards.
- (c) Heave adequate ventilation provided at the top and bottom of an outside wall.
- (d) In no case have any door or ventilation in an inside wall between the storeroom and the premises to which it is attached.

6.2 **Inflammable Liquids – M/Spirits, Alcohol, Kerosene, etc**

6.2.1 Promoters of the commercial sector are allowed to use, store and handle inflammable liquids up to a maximum of 200 lts. If the liquid has a flash point of 22.7°C or less or 400 lts if the liquid has a flash point between 22.7°C to 43°C.

6.2.2 If the quantity used/stored or handled exceeds the quantity mentioned in 6.2.1 the promoter shall keep the liquid in a store constructed for the purpose.

6.2.3 The store shall be constructed according to the following specification:-

- a. The walls shall be constructed of brick, stone, concrete or other non-inflammable material, the floor of concrete or other impervious material and the roof of re-inforced concrete or other non-inflammable material.
- b. The store shall be provided with a well-fitted metal sliding door, or a metal door opening outwards of not less than 3.5 mm thick, carried on an iron door frame. Such door shall have an all-round over-lap of not less than 50 mm and shall be fitted with a substantial lock.
- c. The window frames shall be constructed of metal and fitted with fire resisting glass panes or metal sheets.
- d. Every store shall be constructed in such manner or surrounded by walls not less than 150 mm in height forming a well of such character that the inflammable liquid contained therein cannot escape therefrom.
- e. Low and high level means of ventilation shall be provided in the store.
- f. The openings shall be protected by non-corrodable wire gauze of not less than 0.9 mm.
- g. A store shall not be situated in such a position that it will impede the escape of any person from the premises, or endanger any room, building, or premises in the case of fire.

h. Any store with a floor area in excess of 10 metre square shall be provided with at least two doors, constructed as described in paragraph (b) above.

i. Every store shall be maintained at all times in accordance with the provisions of this specifications.

6.2.4 All lights installed shall be of incandescent electric type which shall be enclosed in an outer flame proof fitting and all wiring shall be armoured cable or enclosed in seamless metal tubes; the junctions of which are screwed together. All switches, junction boxes, fuses and other electrical equipment shall be outside the store. All armoured cables and seamless tubes shall be efficiently earthed.

6.2.5 No person shall use any store or cause or permit such store to be used for any purpose other than the storage of inflammable liquid, oils and their containers; and engage in or cause or permit any other person to be engaged in any store unless all the doors of the store are fully open and kept entirely unobstructed.

6.2.6 No person shall enter any store or cause or permit any store to be entered without the express permission of the occupier or other responsible person in charge of such store.

6.2.7 Prior to constructing the store the promoter shall have the plan of the store approved by the Fire Services after paying a fee of Rs 150/-.

6.2.8 After completion of the project, the promoter shall have the store registered at the fire service after payment of a fee of Rs 300/-.

### 6.3 Carbide of Calcium

#### **Storage/Retail of Carbide of Calcium**

6.3.1 If the quantity used or stored is less than 5 lb

a) The Calcium of carbide shall be kept in separate hermitically – closed vessels containing not more than half a kilogram each.

6.3.2 If the quantity stored is up to 14 Kg.

a) The Carbide of Calcium shall be kept only in metal vessel or vessels hermetically – closed at all times when the carbide is not actually being placed in or withdrawn from such vessel or vessels.

b) The vessels containing Carbide of Calcium shall be kept in a dry and well ventilated place.

c) Precaution shall be taken to prevent unauthorised persons having access to the Carbide.

d) Notice shall be given of such keeping to the Chief Fire Officer.

6.3.3 If the quantity stored/retailed is above 14 Kg and below 250 Kg, the responsible officer shall adhere with the following precautions.

- a) The Carbide of Calcium shall be in watertight and airtight metal containers of sufficient strength to permit handling without rupture.
- b) The vessels shall be hermetically-closed at all times when the Carbide is not actually being placed in or withdrawn from such vessel.
- c) The vessels containing Carbide of Calcium shall be kept in a dry well ventilated place away from any source of heat and away from other combustible materials.
- d) Precaution shall be taken to prevent unauthorised persons having access to the Carbide.
- e) Sign of 'Carbide of Calcium', 'Dangerous if not kept dry' and the following caution 'The contents of this package are liable, if brought into contact with moisture, to give highly inflammable gas' shall be displayed.
- f) The vessels containing Carbide of Calcium shall be kept above ground level on pallets and shall be well secured to prevent them from falling or being knocked over.
- g) One 6 kg Dry Powder shall be provided.

6.3.4 Where the quantity of carbide of calciums exceeds 250 kg the promoter shall submit a plan showing the place where it is proposed to keep the substance.

6.3.5 The responsible person shall obtain a certificate of registration after payment of fees as follows:

		Yearly	
		Rs	Cs
A	Exceeding 14 kg but not exceeding 500 kg	100	00
B	Exceeding 500 kg but not exceeding 2500 kg	200	00
C	Exceeding 2500 kg but not exceeding 5000 kg	300	00
D	Exceeding 5000 kg but not exceeding 25,000 kg	400	00
E	Above 25,000 kg	500	00

## **7. DANGEROUS CHEMICALS**

### **7.1 Retail of Pesticides, insecticides, fungicides and other chemicals**

- Pesticides, insecticides, fungicides and other chemicals shall be stored on non combustible racks and in sealed packs as received from distributors.
- The different types of substances shall be physically separated from each other and inadvertent missing shall be strictly avoided.
- Care shall be taken to avoid spillage. Any small spill shall be immediately cleaned and the waste shall be carefully disposed of.
- Storage site shall be provided with low and high ventilation at least on two opposite sites.
- Electrical appliances used for this purpose shall be flame proof.
- A notice of 'Dangerous chemicals' shall be displayed on the storeroom.

## **8. MISCELLANEOUS REQUIREMENTS**

### **8.1 Electrical Installation**

8.1.1 The design, construction, maintenance or alteration of installations shall be carried out by qualified persons.

8.1.2 All electrical systems shall be constructed, installed, protected, maintained, inspected and tested, so as to prevent danger so far as is reasonably practicable.

8.1.3 All electrical conductors shall be of sufficient size and current-carrying capacity for the purposes for which they are intended.

8.1.4 Every electrical joint and connection shall be of proper construction as regards conductance, insulation and mechanical strength.

8.1.5 Every installation and every circuit shall be protected by means of fuse, circuit breakers and earthing.

8.1.6 Every circuit shall be so arranged as to prevent the persistence of dangerous earth leakage currents.

8.1.7 Effective means, suitably placed for ready operations shall be provided to cut off the supply of electrical energy on any electrical equipment, as may be necessary to prevent or remove danger.

8.1.8 Every installations shall be divided into circuits as necessary to avoid danger in the event of a fault and facilitate safe operations, inspections, testing and maintenance.

8.1.9 Protective devices shall be arranged and identified so that the circuits protected are easily recognized.

8.1.10 Cables to be installed on walls shall incorporate a sheath suitably resistant to any mechanical damage likely to occur, or to be contained in a conduit system or other enclosure affording adequate protection against such damage.

8.1.11 Cable with the colour combination green and yellow shall be reserved exclusively for the identification of protective conductor and shall not be used for any other purpose.

8.1.12 All fixed luminaries and lamps shall be placed or guarded so as to prevent ignition of any material which in the conditions of use foreseen are likely to be placed in proximity to the luminaries or lamps. Any shade or guard used for this purpose shall be suitable to withstand the heat from the luminaries or lamp.

## 8.2 **Housekeeping**

8.2.1 Housekeeping in relation to fire safety is the day to day management of fire hazards to minimise the occurrence of fire.

8.2.2 A high standard of cleanliness shall be observed at the place of work.

8.2.3 Waste products shall be regularly collected and carefully disposed of – weed and dry grass should be removed.

8.2.4 Areas in and around the building shall be kept free from accumulated waste materials.

8.2.5 A ‘No Smoking’ shall be enforced and No Smoking notices shall be displayed.

8.2.6 Walls and fences shall always be kept in good condition.

8.2.7 During repair works are being carried out fire precautionary shall be observed and fire protection measures maintained.

## 9 **FIRE PREVENTION**

9.1 Fire prevention principles and measures aim to avoid the inception of a fire

9.2 It involves the control of fire hazards at the place of work and observance of basic rules to avoid ignition sources coming into contact with combustible materials.

9.3 The promoter of an commercial sector shall ensure that his employees are aware of basic fire prevention measures and strictly observe the rules at the place of work.

9.4 The main causes of fire can be classified as:

- a. faulty electrical equipments / installations
- b. smoking materials
- c. frictional, welding, cutting sparks, naked flames,
- d. spontaneous combustion
- e. arson

## 9.5 Fire prevention measures

- a. electrical installation – described at paragraph 7.1
- b. smoking material – A ‘No Smoking’ policy shall be enforced at the place of work
- c. waste disposal – described at paragraph 7.2
- d. flammable products – explained at paragraph 6
- e. arson – exercise regular patrol and enforce strict surveillance

## 10. FIRE PROCEDURE

- 10.1 A fire procedure outlines the main features of a fire emergency response plan which the promoter in the commercial sector shall establish and implement.
- 10.2 The plan contains measures to prevent the occurrence of a fire, fire protection measures and the course of action to be taken in the event of a fire.
- 10.3 The requirements for fire protection have been highlighted in Section 2 to 7.
- 10.4 Fire preventive measures have been described in Section 8.
- 10.5 The actions to be taken in the event of a fire include the following:
- a. Raise the alarm – any one who discovers a fire shall immediately inform all his colleagues and neighbours who might be affected by the fire.
  - b. Call the fire brigade – Dial 115
    - Give the brigade distinct information concerning the fire
    - Your name and telephone number
    - Exact location of building/site
    - Give information about the fire such as its nature, the floor involved or if persons trapped.
  - c. Attack the fire – Try to extinguish the fire with the available first aid fire fighting equipment only if safe to do so.
  - d. Evacuate the building - All persons not involved in fighting the fire shall leave the premises through the nearest exit
    - Close the door of the room involved in fire
    - Walk – DO NOT RUN
    - Do not use elevators, always use staircase
    - Assist the disabled and elderly to an area of refuge or other safe place
    - Do not go back to the building for any reason until advised to do so
- 10.6 The promoter shall nominate responsible persons and assign them specific task as to “who will do what” in the event of a fire.
- 10.7 The promoter shall ensure that the nominated persons are properly trained in their specific task.

10.8 The promoter shall ensure that the action plan is implemented through a fire drill conducted at least twice a year.

## **11. RISK ASSESSMENT**

11.1 Ensuring an assessment of the fire risks within your premises has been carried out is a key part of the 'responsible persons' role.

### 11.2 The 5 steps of a risk assessment

11.2.1 The following is a summary of the 5 steps you will need to go through to carry out a fire risk assessment within your premises.

#### 11.2.2 Step 1 – Identify the fire hazards within your premises

The Promoter need to identify:

- Sources of ignition such as naked flames, heaters or some commercial processes.
- Sources of fuel such as accumulated waste, display materials, textiles or overstocked products.
- Sources of additional oxygen such as forced air circulation or medicinal or commercial oxygen supplies.

#### 11.2.3 Step 2 – Identify people at risk

The Promoter will need to identify those people who may be especially at risk such as:

- People working in close proximity to fire hazards.
- People working alone or in isolated areas (such as roof spaces or storerooms)
- Children or parents with babies
- The elderly or inform and people who are disabled.

#### 11.2.4 Step 3 – Evaluate, remove, reduce and protect from risk

Evaluate the level of risk in your premises. You should remove or reduce hazards where possible and reduce any risks you have identified, e.g:

- Replace highly combustible materials with less combustible ones.
- Ensure adequate separation between combustibles and ignition sources.
- Operate a safe smoking policy.

#### 11.2.5 Step 4 – Record, plan, instruct and train

In this step the promoter shall record, plan, instruct, inform and train. The promoter will need to record the hazards and people you have identified as especially at risk in Step 1 and Step 2. The promoter also record what the promoter did about it in Step 3. A simple plan can help you achieve this.



### 11.2.6 Step 5 – Review

The Promoter should make sure your fire risk assessment is up to date, you will need to re-examine your fire risk assessment every time there is a significant change to the level of risk in your premises. This could include an increase in combustible materials being stored, a new night shift starting or a change in the type or number of people using your premises.

## 12. GUIDELINE FOR PETROL SERVICE STATION

1. A person willing to invest or trade, retail petroleum product shall adhere with the following requirements:
2. Application for the approval of plan
  - Every application for the approval of plan shall be made in writing to the Chief Fire Officer.
  - Prior to the construction the promoter shall have the plan approved by the Fire Services after paying a fee of Rs 150 which is non refundable in the event of the application being rejected or the approval of the Chief Fire Officer being considered null & void.
  - The plan shall be drawn to scale and shall specify the premises including their elevation with regards to adjacent buildings or structure above or below the ground, the inside dimensions shown in figures of any room, building or structure or storage tank in which inflammable liquid is to be stored, used or handled and the material shown in writing with which such room building structure or storage tank is or is proposed to be constructed and

Full particulars including position of pumps, storage link and pipelines.

3. Fire Equipment
  - For each storage tank on the premises two 9 Kg Dry Powder fire extinguishers and two fire buckets (sand) shall be provided OR
  - Not more than three 9 Kg Dry Powder fire extinguishers and six fire buckets shall be required to be installed in any premises.
  - All fire fighting equipments installed in such premises shall be regularly inspected and tested. A record of such inspection and test shall be kept.

4. Storage Tanks, Pumps, Pipelines and Containers

#### Capacity if underground storage tanks

The capacity if any storage tank, if not within a bulk depot or an aerodrome or landing ground used by aircraft, shall not exceed 13,500 litres.

## 5. Construction of tanks

- (1) Every storage tank shall be constructed of iron, steel or other suitable metal plates of adequate strength and properly riveted and caulked, welded, brazed or otherwise secured by some equally satisfactory process.
- (2) The top and sides of such tank shall be supported and strengthened by such uprights, girders, angleirons and ties as, having regard to the capacity, shape and situation of the tank, may be necessary to render it sufficiently strong for the purpose to which it is being put.
- (3) Every opening in any underground storage tank other than a vent pipe shall be securely closed by an effective and properly secured cap, cover tap or valve.
- (4) All pipes other than a ventilating pipe connected to an underground storage tank shall be carried down to within four inches of the bottom of the tank.
- (5) Every above ground storage tank shall have an adequate system of ventilation so as to prevent excessive internal pressure.
- (6) Every storage tank shall be maintained at all times in accordance with the respective provisions of this regulation.

## 6. Installation of Storage Tanks

- (1) Every underground storage tank shall:
  - (a) be so installed that the top of the tank is not less than 620 mm below the surrounding ground level, or covered with not less than a 150 mm thick concrete mat, of earth or sand;
  - (b) be set in firm foundations and wholly surrounded with soft earth or sand or encased in concrete;
  - (c) with the exception of any opening to the manhole be covered with concrete adequately re-inforced in all cases where vehicular traffic passes over such tank;
  - (d) be situated within the building line of the premises;
  - (e) where such tank is situated in or within 1.5 m of any basement or cellar, be installed in a chamber of concrete not less than 150 mm thick or brick not less than 225 mm thick set in cement mortar with the space with the pit surrounding the tank completely filled with closely packed earth or sand.

## 7. Ventilation of underground storage tanks

Every underground storage tank shall have a ventilating pipe of not more than 50 mm nor less than 25 mm internal diameter, which pipe shall –

- (a) be carried up to a height of not less than 4 m into the open air;
- (b) have the upper end protected with a non-corrodable wire gauze of not less than 0.9 mm thick secured in such a manner that such gauze may be removed for examination and cleaning;
- (c) terminate at least 7 m away from any fire, flame or naked light or other agency likely to ignite inflammable liquid or its vapour.

8. Abandoned tanks

In the event of any underground storage tank being abandoned, the owner of such tank shall cause it to be removed or filled with sand, or liquid concrete, or water, as approved by the Controller.

9. Position of pumps

No pump or other device used or intended to be used for the issue or transfer of inflammable liquid to any vehicle shall be erected outside the building line of any premises or within 4 m of any entrance, or exit of a building adjoining any public place:

- (1) where such entrance or exit is set back from such public place the pump or device shall be erected not less than 4 m from such public place;
- (2) no such pump or device shall be erected in such a position that a hose can be used for the issue or transfer of inflammable liquid on or across any public place.

10. Pumps or ramps

Pumps or other devices used or intended to be used for the issue of inflammable liquid to motor vehicles or containers shall not be erected on any ramp or within 4 m of the beginning of the ramp.

11. Pump hoses

Delivery of inflammable liquid from any pump to the fuel tank or any vehicle shall be made only through sound hose having an earthing wire in its construction efficiently attached to the metal of the pump and to the metal hose nozzle. Except at an aerodrome or landing ground used by aircraft no hose attached to any pump shall exceed fifteen feet in length measured from the pump to the tip of the nozzle.

12. Situation of filling pipes and pumps

- (1) Every pump shall be –
  - (a) at surface level;
  - (b) installed in such position that it will not impede the escape of any person from the premises in case of fire;
  - (c) so situated or protected by surrounding walls as not to expose adjoining property to the risk of danger from fire during any filling operations or otherwise.
- (2) The provisions laid down in sub-paragraphs (b) and (c) of the foregoing paragraph shall be applicable to every filling pipe inlet.

13. Naked lights and electric apparatus

- (1) No person shall install or take or cause or permit to be installed or taken any fire, flame, naked light or other agency likely to ignite inflammable liquid or its vapour, except an incandescent electric light which shall be of flame-proof type, including the connecting cable, within 3 m of any inflammable liquid pump.

- (2) No person shall place or cause or permit to be placed any electrical switch, fuse, motor or other such device within a distance of any pump unless such switch, fuse, motor or device including connecting cables is of flame-proof construction.
- (3) The electrical wiring between the distribution board or junction box and the pump shall be of flame-proof type and shall, where possible, be in one continuous length of wire:

Provided that where this is not possible, flame-proof junction boxes shall be used.

- (4) The use of Cellular phone shall be prohibited.

#### 14 Maintenance of tanks, pipe lines, pumps, etc

- (1) All tanks, pipe lines, pumps, machinery, fittings and appurtenances for the storage, use or handling of inflammable liquid shall be –
  - (a) of sound and proper construction;
  - (b) so installed and fixed as not to be liable to be damaged;
  - (c) efficiently electrically earthed;
  - (d) free from leakage of inflammable liquids, and as far as is reasonably possible, free from leakage of inflammable liquid vapour, except by means of a vent pipe;
  - (e) maintained in good and proper order and at all times in accordance with the provisions of this regulation.
- (2) All pipelines shall be below ground level.
- (3) All electrical earth connections required under this regulation shall be examined once every twelve months by a qualified person who shall enter in a suitable log book supplied by the occupier of the premises and kept solely for that purpose, the efficiency and conditions of such earth, his name and address, and the date of the examination. All such entries shall be signed by such qualified person and shall be readily available for inspection by the Controller.

15. After completion of the project, the promoter shall have the filling station registered at the Fire Services after payment of a fee of Rs 300.

### **13. LEGISLATION / GOVERNMENT POLICY**

1. **Fire Clearances/Fire Certificates are issued under the following enactments after compliance with fire safety requirements.**
  - a. Occupational Safety, Health and Welfare Act – 1988 – Section 52, 53, 54} Fire  
2005 – Section 74, 75, 76} Certificate
  - b. Local Government Act 2003
  - c. Tourism Act
  - d. Education Act 2000 - Section 10(3)(b)
  - e. Residential Care Homes Act No. 8 of 2003 - Section 9 – Sub Section 2(b)
  - f. The business facilitation (Miscellaneous Provision) Act 2006.
  - g. Dangerous Chemicals Control Act 2004
2. **Certificates of Registration are issued under the following enactments after compliance with fire safety requirements:**
  - a. Inflammable Liquids and Substances Regulations - GN 179/53
  - b. Inflammable Gases Regulations - GN 32/62
  - c. Cinematograph Regulations - GN 242/41
3. **Ex-post Control**
  - 3.1 If a promoter runs his activity in an existing building it will be inspected to ensure compliance with fire safety guidelines, 15 days after the start of the business.
  - 3.2 Any short coming noted will be notified to the promoter and the Chief Executive of the Local Authority for appropriate action.
  - 3.3 If a promoter intends to construct a new building or cause extensive alterations to an existing building, it is advisable that the promoter consults the Fire Services before starting construction.
  - 3.4 For any additional clarifications the Government Fire Services will be most willing to assist.

Address your queries to the Chief Fire Officer:

Phone No.: 212 0214, 212 0515, 212 4726

Fax No.: 208 3875

E-mail: [gfs@mail.gov.mu](mailto:gfs@mail.gov.mu)

Postal Address: 14 Deschartres Street  
Port-Louis

# INSPECTION CHECK LIST

## 1. Occupancy

- (a) For what purpose the building is used?
  - (i) the type of construction
  - (ii) dimension of building
  - (iii) access for fire appliances
- (b) The number of person involved?
- (c) Is there any explosive or inflammable material?
- (d) Is the method of storage or handling appropriate?
- (e) Is the electrical and gas installation appropriate?

## 2. Means of Escape

- (a) Is the means of escape satisfactory?
- (b) Is there sufficient exit door/staircases?
- (c) Is the means of escape free from obstruction?
- (d) Is there sufficient lights/emergency light in the escape routes?
- (e) Can the escape routes be used safely?
- (f) Is there appropriate signs indicating the means of escape?

## 3. Means for fighting fires

- (a) Is there provided appropriate type/numbers of portable fire extinguishers?
- (b) Is the fire extinguisher maintained/sited properly?
- (c) Is there any other 1<sup>st</sup> aid fire fighting equipments installed?
- (d) Is there the need for other 1<sup>st</sup> aid fire fighting equipments?
- (e) Is there any fixed fire protection equipments?
- (f) IS there the need for any fixed fire protection system?

## 4. Means for giving warning in case of fire

- (a) Is there the need for fire warning system?
- (b) Is a fire warning system installed?
- (c) If installed, does it operate properly?

## 5. Staff Training

- (a) Are the occupants familiar with the escape route?
- (b) Do they know the evacuation procedure?
- (c) Is the staff conversant in handling 1<sup>st</sup> aid fire fighting equipment?