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GUIDELINE
FIRE SAFETY
—
COMMERCIAL
SECTOR

TABLE OF CONTENTS

- 1. Introduction**
- 2. Fire Safety Requirements**
- 3. Means of Escape**
- 4. Means for fighting fire**
- 5. Means for giving warning in case of fire**
- 6. Storage/Retail of Inflammable Liquids and substances**
- 7. Dangerous Chemicals**
- 8. Miscellaneous requirements**
- 9. Fire Prevention**
- 10. Fire Procedure**
- 11. Fire Risk Assessment**
- 12. Guideline for Petrol Service Station**
- 13. Legislations / Government Policy**

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 stations.
- 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 industry and processes involved;
 - (c) the layout, size, design and nature of construction of the place of work.
- 2.2 The main features which are of relevance with regard to fire safety requirements are -
 - (a) the means of escape;
 - (b) the means available for fighting fire;
 - (b) the means for sounding the alert in case of fire; and
 - (d) the presence on the premises of any dangerous substance stored, used or handled.

- 2.3 Any promoter desiring to develop and invest in the commercial sector shall ensure that the building in which the activity is to be carried out (“the relevant building”) satisfies the requirements in relation to the means of escape, the means available for fighting a fire and for sounding the alert in case of fire and precautions to be taken with respect to any dangerous substance stored, used or handled on the premises.
- 2.4 The promoter shall conduct a fire risk assessment to determine the requirements of fire safety and shall adhere to those requirements specific to his case. (Please refer to Inspection Check List at **Annex**).

3 MEANS OF ESCAPE

- 3.1 Every promoter shall ensure that people who are in the relevant building have the means of escaping of the building safely and quickly in the event of a fire.
- 3.2 The means of escape shall be a structural and integral part of the construction and shall allow people to proceed to a place of safety in the event of a fire.
- 3.3 The means of escape includes exit doors, corridors and staircase which lead to the open air.
- 3.4 A single route shall be accepted as means of escape where -
- (a) the distance to be travelled to reach the final exit is 18 metres in the case of an office and 12 metres in other cases;
 - (b) the route to the final exit is protected and is at least 1.1 metre wide;
 - (c) the floor height does not exceed 9 metres; and
 - (d) the total number of persons in the relevant building does not exceed 60.

Note – “Protected route” means a route to final exits which 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, fire doors or by pressurisation.

- 3.5 In circumstances other than those specified in paragraph 3.4, an alternative means of escape shall be required.
- 3.6 Spiral staircases and vertical ladders shall not be acceptable as alternative means of escape.
- 3.7 At ground floor level, an exit alternative to the existing one shall be acceptable as an alternative means of escape.

- 3.8 In a building above ground floor level a standard staircase made of metal or other non-combustible material shall be acceptable as an alternative means of escape.
- 3.9 An external staircase shall be acceptable as an alternative means of escape, 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 the night.
- 3.10 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 millimetres;
 - (c) risers shall not be more than 190 millimetres;
 - (d) the angle of descent shall not exceed 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.
- 3.11 Exit doors, corridors and staircases shall be kept free from obstruction at all material times.
- 3.12 Emergency exit doors shall (except in the case of sliding doors) be constructed so as to open outwards.
- 3.13 Whenever a building is occupied, emergency exit doors shall not be locked or fastened in such a manner that they cannot be easily and immediately opened from inside.
- 3.14 The contents of any room shall be arranged in such a way as to allow free circulation for occupants.
- 3.15 Every exit door affording means of escape shall be marked by a white pictogram of minimum size 100 millimetres on a board with green background.

- 3.16 When the direction to the emergency exit may not be apparent to an occupant, an exit sign with an arrow indicating the direction to the exit shall be displayed.
- 3.17 If occupancy is permitted at night or if normal lighting levels are reduced during working times, exit signs shall be illuminated and emergency lighting shall be 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, as mentioned below.
- 4.2 First Aid fire-fighting equipment shall include portable fire extinguishers and hose reels.
- 4.3 Four types of portable fire extinguishers using water or foam, or dry powder or carbon dioxide shall be 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, gases and metals. ("Class A, B, C and D fires"), 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, gases ("Class A, B, C fires"), e.g. wood, paper, textiles, clothing, petrol, thinner and electrical appliances.
- 4.8 These fire extinguishers are available in capacity of 9 litres 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 square metres or part thereof, according to the risk.
- 4.10 Portable fire extinguishers shall be preferably sited on the line of escape routes, near room exits, inside or outside, depending on the risk.

- 4.11 In multi-storey buildings, portable fire extinguishers shall be sited at the same position on each floor, i.e. top of stair flights or at corner of corridors, where possible, in groups forming fire points, or, 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 that no person shall travel more than 30 metres to reach them.
- 4.14 Portable fire extinguishers shall be maintained in operational order at all material times.
- 4.15 The equipment shall be inspected and tested once yearly. 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 on the premises to extinguish ordinary combustible materials such as wood, cloth, paper and any matter that produces an ash (“Class A fires”) where a portable fire extinguisher will be insufficient.
- 4.17 Such an installation 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 150 millimetres 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 placed 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 4 complete revolutions.
- 4.22 (a) If the diameter of the hose is 19 millimetres, its length shall be not more than 45 metres.
- (b) If the diameter of the hose is 25 millimetres, its length shall be not more than 30 metres.
- 4.23 A nozzle of 4.5 millimetres to 6.5 millimetres 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 6 metres 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 millimetres	1.5 bar
4.5 millimetres	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 **500m²** 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 6 metres 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 method of operation of the valve shall be displayed adjacent to each assembly.

4.30 Every hose reel installation shall be maintained in operational order at all material times. The installation shall be tested once yearly and a record shall be kept thereof.

5. MEANS FOR GIVING WARNING IN CASE OF FIRE

5.1 A fire alarm system is required in the relevant building for one or both of the following purposes -

- (a) 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 fire;
- (b) to enable early detection and mitigate damage that may be caused by the fire by activating fire- fighting resources.

5.2 Every 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 on the premises.

5.3 A fire alarm system shall consist basically of break glass manual call points which are wired electrically to sounders/sirens and a control indicator panel.

- 5.4 Break glass call points shall be installed at 1.4 metres above floor level, preferably near exit and emergency staircase. In large buildings, no one shall have to travel more than 30 metres 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 on 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 3 characteristics of a fire: heat, smoke or flame.
- 5.8 No one type is suitable for all applications and the final choice shall depend on the individual circumstances, as explained below.
- 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 with BS 5839 (British Standard for Fire Alarm System) or any other equivalent standard.
- 5.11 Every component of the system shall be tested in accordance with BS 5839 and maintained in operational order. A record of the test shall be kept.

6. STORAGE/RETAIL OF INFLAMMABLE LIQUIDS AND SUBSTANCES

6.1 Liquefied Petroleum Gas – LPG

- 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 the building and away from any source of heat, combustible materials and electrical circuits;
 - (b) cylinders shall be kept away from exits or areas used for circulation of people. Cylinders shall not be kept under stairways;
 - (c) cylinders shall be kept in areas where they will not be physically damaged;
 - (d) cylinders shall be secured to prevent them from falling or being knocked over and 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) the rubber hose/other connections and regulator shall be in good working condition;
- (h) Rubber hose/tubings and regulator shall be replaced before the expiry date stated on the items and as recommended by manufacturers;
- (i) Empty cylinders shall be kept away from full cylinders;
- (j) A one 4 kg dry powder fire extinguisher shall be provided.

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

- (a) containers, cylinders and tanks shall be designed, fabricated, listed and marked (stamped) in accordance with regulations;
- (b) defective containers, cylinders and tanks shall be returned to the supplier;
- (c) containers, cylinders, tanks and systems shall be secured against accidental dislodgement;
- (d) storage, use and handling areas shall be secured against unauthorised entry;
- (e) containers, cylinders, tanks and system shall be protected from physical damage;
- (f) guard posts or other means shall be provided to protect compressed gas containers, cylinders, tanks and system from vehicular damage;
- (g) 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;
- (h) containers, cylinders, tanks shall be protected from direct contact with soil or surfaces where water might accumulate, in order to prevent bottom corrosion;
- (i) the gas storage installation shall be protected by a water spray system;
- (j) the layout plan of installation shall be submitted to the fire service to ensure conformity;
- (k) one 9kg dry powder fire extinguisher shall be provided;

- (l) after completion of the project, the installation shall be registered with the Fire Services against 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) ventilation shall be 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 shall be allowed to use, store and handle inflammable liquids up to a maximum of 200 litres, if the liquid has a flash point of 22.7°C or less, or 400 litres 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 paragraph 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 specifications -
 - (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 reinforced 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 millimetres thick, carried on an iron door frame. Such door shall have an all-round overlap of not less than 50 millimetres and shall be fitted with a substantial lock;
 - (c) 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 millimetres 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-corrodible wire gauze of not less than 0.9 millimetres;
- (g) A store shall not be situated in a position that will impede the escape of any person from the premises, or endanger any room, building, or premises in case of fire;
- (h) Any store with a floor area in excess of 10 square metres shall be provided with at least 2 doors, constructed as described in paragraph (b) above;
- (i) Every store shall be maintained at all times in accordance with the provisions of these specifications.

6.2.4 All lights installed shall be of incandescent electric type which shall be enclosed in an outer flameproof fitting and all wiring shall be armoured cable or enclosed in seamless metal tubes, the junctions of which shall be 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, or 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 occupant 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 against a fee of Rs 150/-.

6.2.8 After completion of the project, the promoter shall have the store registered at the Fire Services against 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 2.5 kg.

- (a) The Carbide of Calcium 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 Fire Extinguisher shall be provided.

6.3.4 Where the quantity of Carbide of Calcium 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 mixing 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 electrical 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 minimise the risk of fire.

- 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, in order to prevent or remove danger.
- 8.1.8 Every installation shall be divided into such circuits as may be necessary to avoid danger in the event of a fault and to 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 lamps.

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 shall 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' policy 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 When repair works are being carried out, fire precautions shall be observed and fire protection measures maintained.

8 FIRE PREVENTION

- 8.1 Fire prevention principles and measures are aimed at avoiding the inception of a fire.
- 8.2 They involve 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.
- 8.3 Every promoter of an commercial sector shall ensure that his employees are aware of basic fire prevention measures and strictly observe them at the place of work.
- 8.4 The main causes of fire are -
- (a) faulty electrical equipment/installations;
 - (b) smoking material;
 - (c) frictional, welding, cutting sparks, naked flames;
 - (d) spontaneous combustion;
 - (e) arson.
- 8.5 Fire prevention measures with regard to these causes of fire are as follows -
- (a) electrical installation – the measures are described at paragraph 7.1;
 - (b) smoking material – a 'No Smoking' policy shall be enforced at the place of work;
 - (c) waste disposal – the measures are described at paragraph 7.2;
 - (d) inflammable products – the measures are explained at paragraph 6;
 - (e) arson –daily patrol is to be exercised and strict surveillance is to be enforced.

9. FIRE PROCEDURE

- 9.1 A fire procedure outlines the main features of a fire emergency response plan which the promoter in the commercial sector shall establish and implement.
- 9.2 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.
- 9.3 The requirements for fire protection have been highlighted in Sections 2 to 7.
- 9.4 Fire preventive measures have been described in Section 8.
- 9.5 Action to be taken in the event of a fire includes the following -
- (a) Raise the alarm – anyone 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 precise information concerning the fire, including –
 - (a) your name and telephone number;
 - (b) the exact location of building/site;
 - (c) the nature of the fire or whether persons are trapped.
 - (c) Attack the fire - Try to extinguish the fire with the available fire fighting equipment provided **it is 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 the staircase
 - Assist the disabled and elderly to an area of refuge or other safe place
 - Do not go back in the building for any reason until advised or authorised to do so
- 9.6 The promoter shall designate responsible persons and assign to them specific tasks as to “who will do what” in the event of a fire.
- 9.7 The promoter shall ensure that the designated persons are trained in their specific task.

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

10. FIRE RISK ASSESSMENT

10.1 Ensuring an assessment of fire risks within one's premises has been carried out is a key part of the responsible person's role.

10.2 The 5 steps of a risk assessment

10.2.1 The following is a summary of the 5 steps the promoter will need to go through to carry out fire risk assessment within the premises:

10.2.2 Step 1 – Identify the fire hazards within the premises

The promoter will need to identify -

- Sources of ignition, such as naked flames, heaters or sparks.
- 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.

10.2.3 Step 2 – Identify people at risk

The promoter will need to identify any persons 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 people who are disabled.

10.2.4 Step 3 – Evaluate, remove, reduce and protect from risk

Evaluate the level of risk in the premises. Action should be taken to reduce the level of hazard.

- Replace highly combustible materials with less combustible ones as far as practicable.

- Ensure separation between combustibles and ignition sources.
- Operate a “safe smoking” policy.

10.2.5 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 who have been identified as especially at risk in Step 1 and Step 2.

The promoter should also record what he did about it in Step 3. A simple plan can help him to achieve this.

10.2.6 Step 5 – Review

Every time there is a significant change to the level of risk in the premises, the fire risk assessment shall be reviewed and updated.

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 against 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 inspected and tested once yearly. A record of such inspection and test shall be kept.

4. Storage Tanks, Pumps, Pipelines and Containers

Capacity of underground storage tanks

The capacity of 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 vent pipes 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 guideline.

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 millimetres below the surrounding ground level, or covered with not less than a 150 millimetres thick concrete mat, or 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 millimetres thick or brick not less than 225 millimetres thick set in cement mortar with the space within 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 millimetres nor less than 25 millimetres 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 millimetre 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 Chief Fire Officer.

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 these guidelines.

(2) All pipelines shall be below ground level.

(3) All electrical earth connections required under these guidelines 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 Chief Fire Officer.

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 after compliance with fire safety requirements, for the purposes of the following enactments -**
 - (a) Occupational Safety, Health and Welfare Act 1988, section 54;
 - (b) Local Government Act 2003, section 100;
 - (c) Education Act, section 10(3)(b)
 - (d) Residential Care Homes Act 2003, section 9(2)(b)(i);
 - (e) 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 1953 - GN 179/53;
 - (b) Inflammable Gases Regulations 1962 - GN 32/62;
 - (c) Cinematograph Regulations 1941- 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 shortcoming 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.

Please 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

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) What is the number of persons involved?
- (c) Is there any explosive or inflammable material on the premises?
- (d) Is the method of storage or handling of dangerous goods appropriate?
- (e) Are the electrical and gas installations appropriate?

2. Means of Escape

- (a) Is the means of escape satisfactory?
- (b) Are 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) Are 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 first aid fire fighting equipment installed?
- (d) Is there the need for other first aid fire fighting equipment?

- (e) Is there any fixed fire protection equipment?
- (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 with handling first aid fire fighting equipment?