

***GUIDELINES***  
***FIRE SAFETY REQUIREMENT***

**INDUSTRIAL SECTOR**

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## 1. INTRODUCTION

1.1 These guidelines recommend basic fire safety requirements for the INDUSTRIAL SECTOR.

1.2 In the industrial cluster activities can be grouped as-

- (a) *agro-industry*, such as activities in tea mills or sugar mills, agricultural mechanisation;
- (b) *food processing*, such as activities in food processing plants, plants for bottling/canning of non alcoholic/alcoholic drinks, distilleries;
- (c) *workshops for light and heavy engineering work*, such as cabinet making workshops, paint workshops, motor mechanic workshops, coach building workshop, construction workshop; or
- (d) manufacturing.

1.3 The place of work can be accommodated in a wide range of building of various designs, sizes and structural materials. The buildings may be single-floor or multiple- floor with single or multiple occupancy, private residential buildings, built specifically or converted for the purpose.

1.4 These fire safety requirements aim at ensuring safety with regard to fire within the place of work in the Industrial Sector.

1.5 The promoter or his nominated agent shall be responsible for ensuring compliance with these fire safety requirements.

## 2. FIRE SAFETY REQUIREMENTS

2.1 Fire safety requirements are commensurate with-

- a) the number of persons involved in the industrial activity;
- b) the type of commerce and processes involved;
- c) the layout, size, design and nature of construction of the place of work
- d) the fire load and level of risk within 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;
- (c) the means for giving warning in case of fire; and
- (d) basic fire preventive measures.

2.3 Any promoter desiring to develop and invest in the industrial 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 means for giving warning in case of fire and precautions to be taken with respect to any hazardous materials 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/her case – (Inspection Check list enclosed at **Annex 1**).

2.5 These fire safety requirements shall be deemed to be satisfied when the design, construction, equipment and installation comply with one of the following three level of approaches-

a) General approach:

This level is applicable to a majority of building work undertaken within the country. Fire precautions designed into the building usually follow these fire safety requirements and other national prescriptive documents published to support legal requirements.

b) Advanced approach:

This is the level for which BS 9999 is provided. Guidance provided gives a more transparent and flexible approach through use of a structure process to risk-based design to account for different fire and human factors.

c) Fire safety engineering:

This is the level for which BS 7974 is provided. This level provides an alternative approach to fire safety and can be the only practical way to achieve a satisfactory standard of fire safety in some large and complex buildings.

Note:-

Approaches (b) and (c) shall be discussed and agreed by the promoter and the Chief Fire Officer prior to the latter's approval.

### 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 staircases 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 10 metres in case of high hazard and 15 metres in other cases;
- b) the route to the final exit is protected and is at least 1.1 metre wide;
- c) the habitable floor height does not exceed 9 metres; and
- a) the total number of persons in the relevant building does not exceed 60 other than ground floor.

**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 where the conditions are beyond those specified in 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 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** All staircases forming part of the means of escape shall be on a continuous plane from the highest floor to ground floor and from the lowest floor in basement to ground floor.

**3.10** 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 night.

- 3.11** An staircase shall satisfy the following specifications:-
- (a) it shall not be less than 900 millimetres 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 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;
  - (h) all doors giving access to the staircase shall, except in the case of sliding door, be constructed to open outwards;
  - (i) handrails, walls or grills with minimum height of 900 mm shall be provided on open sided staircases.
  - (j) railings shall be provided for stability or support on both sides, except staircase that are less than 1250 mm can have a handrail on one side only.
- 3.12** Exit doors, corridors and staircases shall be kept free from obstruction at all material time.
- 3.13** All doors affording means of emergency from a building shall, except in the case of 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 they cannot be easily and immediately opened from inside.
- 3.15** The contents of any room shall be arranged in such a way so as to allow free circulation for occupants.
- 3.16** 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.
- 3.17** When the direction to the emergency exit may not be apparent to an occupant, an exit sign with an arrow indicating direction to the exit shall be conspicuously 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 shall be provided along all areas forming the escape routes.

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

- 4.1** Every promoter shall provide fire fighting equipment of suitable type specific to the circumstances of his/her case as mentioned below.
- 4.2** Fire fighting equipment shall include portable fire extinguishers and hose reels system.
- 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, 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 and 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 except for storage of hazardous materials.
- 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 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 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 fire fighting equipment 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 portable fire extinguishers will be insufficient.
- 4.17** Such 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 shall be closed by running the handle in a clockwise direction. The direction of opening shall be indicated by an arrow marked on the handle.
- 4.21** If the valve is *automatic*, the valve shall be opened automatically when the hose is run out of the reel after 4 complete revolutions.
- 4.22** The hose shall be of 20mm or 25mm nominal diameter and conform to BS EN 694, not exceeding 30m in length.
- 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:

<b>Nozzle diameter</b>	<b>Minimum running pressure at the entry of reel</b>
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 **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 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 of not less than 100 millimetres on a red background. The methods 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 time. 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/her place of work;

- (i) where the number of persons exceeds 60, or
- (ii) if the habitable height of the building exceeds 9 metres, or
- (iii) where a Certificate of Registration is issued under Inflammable Liquids and Substances Act 1952, or
- (iv) where persons with impaired vision or hearing are working, or
- (v) depending upon the level of risk.

**5.3** A fire alarm system consists basically of break-glass manual call points which are wired electrically to, an audible and visual fire warning system and a control indicator panel. The sound shall be distinctive and at least 5 decibel above normal noise on the premises.

**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** An audible and visual fire warning system shall be provided in the premises as the case may be. The fire-warning signal shall be audible or perceptible throughout the premises. The visual warning system shall be distinctive and conspicuously sited.

**5.6** Depending on the risk and in exceptional circumstances standalone fire alarm system can be considered.

**5.7** The basic system can be enhanced by introducing automatic fire detectors.

**5.8** Fire detectors are designed to detect one or more of the 3 characteristics of a fire: heat, smoke or flame.

- 5.9 No one type is suitable for all applications and the final choice depends on the individual circumstances as explained below.
- 5.10 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.
- 5.11 A fire warning system shall be designed and installed in accordance to BS 5839 (British Standard for Fire Alarm System) or any other equivalent standard.
- 5.12 Every component of the system shall be tested in accordance to BS 5839 and maintained in operational order. A record of the test shall be kept.

## 6. INFLAMMABLE SUBSTANCES

### 6.1 *Liquefied Petroleum Gas – LPG*

A Certificate of Registration is required where the storage or handling of liquefied petroleum gas in bulk or in cylinders exceeds 500 kg.

#### 6.1.1 *If the total weight of LPG in single cylinder up to 50 kg used stored or handled does not exceed 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 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 and shall be on flat and firm surfaces;
- (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/ tubing's and regulator shall be replaced before the expiry dated as 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;
- (k) signs of "DANGER – No SMOKING" in letters of not less than 100 millimetres shall be conspicuously displayed near the LPG storage area.

#### 6.1.2 *If the total weight of LPG in single cylinder up to 50 kg used, stored or handled exceed 500 kg but does not exceed 1650 kg*

- (a) cylinders shall be designed, fabricated, listed and marked(stamped) in accordance with regulations;
- (b) defective cylinders shall be returned to supplier;
- (c) cylinders and systems shall be secured against accidental dislodgement;
- (d) storage, use and handling areas shall be secured against unauthorised entry;
- (e) cylinders and system shall be protected from physical damage;
- (f) guard posts or other means shall be provided to protect compressed gas cylinders and system from vehicular damage;
- (g) cylinders shall be separated from combustible material, waste, vegetation , source of heat and conditions that present exposure hazard to or from each other;
- (h) cylinders shall be protected from direct contact with soil or surfaces where water might accumulate, in order to prevent bottom corrosion;
- (i) the layout plan of installation shall be submitted to the Mauritius Fire and Rescue Service to ensure conformity;
- (j) one 9 kg dry powder fire extinguisher shall be provided;
- (k) signs of "DANGER– No SMOKING" in letters of not less than 100 millimetres shall be conspicuously displayed.



**6.1.3** *If the total weight of LPG in single cylinder up to 50 kg used, stored or handled exceed 1650 kg*

In addition to requirements highlighted in section 6.1.2 (a) to (k) where the total weight of gas in cylinders exceeds 1650 kg the cylinders shall be stored in a storage shed separate from any other buildings and boundary as follows-

<b>Weight in kg</b>	<b>Distance in metre</b>
1 Where the weight of the gas exceeds 1650 kg but does not exceed 3300 kg	5
2 Where the weight of the gas exceeds 3300 kg but does not exceed 4950 kg	8
3 Where the weight of gas exceeds 4950 kg	15

The storage shed shall be constructed as follows-

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

**6.1.4** *If the total weight of LPG in Bulk Tank used, stored or handled does not exceed 500 kg*

- (a) tanks shall be designed, fabricated, listed and marked (stamped) in accordance with regulations;
- (b) defective tanks shall be returned to supplier;
- (c) tanks and systems shall be secured against accidental dislodgement;
- (d) storage, use and handling areas shall be secured against unauthorised entry;
- (e) tanks and system shall be protected from physical damage;
- (f) guard posts or other means shall be provided to protect compressed gas tanks and system from vehicular damage;
- (g) tanks shall be separated from combustible material, waste, vegetation , source of heat and conditions that present exposure hazard to or from each other;
- (h) tanks shall be protected from direct contact with soil or surfaces where water might accumulate, in order to prevent bottom corrosion;
- (i) the layout plan of installation shall be submitted to the Mauritius Fire and Rescue Service to ensure conformity;
- (j) the gas storage installation shall be protected by a water spray system;
- (k) one 9kg dry powder fire extinguisher shall be provided;
- (l) signs of “DANGER-No SMOKING” in letters of not less than 100 millimetres shall be conspicuously displayed;

**6.1.5** *If the total weight of LPG in Bulk Tank used, stored or handled exceed 500 kg but not 1650 kg*

- (a) tanks shall be designed, fabricated, listed and marked(stamped) in accordance with regulations;
- (b) defective tanks shall be returned to supplier;
- (c) tanks and systems shall be secured against accidental dislodgement;
- (d) storage, use and handling areas shall be secured against unauthorised entry;
- (e) tanks and system shall be protected from physical damage;
- (f) guard posts or other means shall be provided to protect compressed gas tanks and system from vehicular damage;
- (g) tanks shall be separated from combustible material, waste, vegetation , source of heat and conditions that present exposure hazard to or from each other;
- (h) tanks shall be protected from direct contact with soil or surfaces where water might accumulate, in order to prevent bottom corrosion;
- (i) the layout plan of installation shall be submitted to the Mauritius Fire and Rescue Service to ensure conformity;
- (j) the gas storage installation shall be protected by a water spray system;
- (k) one 9kg dry powder fire extinguisher shall be provided;
- (l) signs of “DANGER-No SMOKING” in letters of not less than 100 millimeters shall be conspicuously displayed;

### 6.1.6 If the total weight of LPG in Bulk Tank used, stored or handled exceed 1650 kg

In addition to requirements highlighted in section 6.1.5 (a) to (l) where the total weight of gas in bulk tank exceeds 1650 kg the tank shall be stored in a storage shed separate from any other buildings and boundary as follows-

<b>Weight in kg</b>	<b>Distance in metre</b>
1 Where the weight of the gas exceeds 1650 kg but does not exceed 3300 kg	5
2 Where the weight of the gas exceeds 3300 kg but does not exceed 4950 kg	8
3 Where the weight of gas exceeds 4950 kg	15

The storage shed shall be constructed as follows-

- (i) Shall be constructed of stone, brick, concrete or other approved fire- resisting material and shall have a solid floor of similar material.
- (ii) Shall be so constructed that any door thereof opens outwards.
- (iii) Shall have adequate ventilation provided at the top and bottom of the walls thereof.
- (iv) No other matter or substance shall be placed in a storage shed with bulk tanks containing gas.
- (v) No valve of any bulk tank containing gas shall be opened in a storage shed and no other work shall be permitted or carried on within a storage shed unless the area is separated by a properly constructed wall.

## 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 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 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 over-lap 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-corrodable wire gauze of not less than **0.9** millimetres;
- (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 square metres 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 these 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, 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** For each store on the premises two 9 kg dry powder fire extinguishers and two 9 litres sand buckets shall be installed.
- 6.2.8** Prior to constructing the store the promoter shall have the plan of the store approved by the Mauritius Fire and Rescue Service after payment of a prescribed fee.

### **6.3** *Spraying Room*

- 6.3.1** If spraying activities using inflammable liquids or substances are carried out on the premises, the promoter shall adhere to the following requirements-
- (a) the promoter shall obtain a Certificate of Registration from the Mauritius Fire and Rescue Service.
  - (b) the promoter shall submit to the Mauritius Fire and Rescue Service for approval one copy of plan of the building where spraying is to be carried out, together with a prescribed fee.
- 6.3.2** The spraying room shall be constructed in accordance with the following requirements-
- a) non- inflammable materials only shall be used in the construction thereof;
  - b) there shall be installed an exhaust method of ventilation which will remove vapours from and is capable of changing, air in the spraying room at least 30 times in every hour;
  - c) all exhaust vents leading from spraying rooms or spraying booths shall be so designed and constructed that all vapours are expelled into the open air at a point of not less than 4 meters above the level of the ground and at a distance of not less than 5 metres from the opening to any building and such vent shall be constructed of non-inflammable material;
  - d) no electrical equipment shall be installed in the spraying room other than incandescent electric lights enclosed in outer flame-proof fittings;
- 6.3.3** For each spraying room two 9 kg dry powder fire extinguisher and two 9 litres sand bucket shall be installed

## **7. MISCELLANEOUS REQUIREMENTS**

### **7.1** *Electrical Installation*

- 7.1.1** The design, construction, maintenance or alteration of installations shall be carried out by competent persons according to MS 63.
- 7.1.2** All electrical systems shall be constructed, installed, protected, maintained, inspected and tested, so as to minimise the risk of fire.
- 7.1.3** All electrical conductors shall be of sufficient size and current-carrying capacity for the purposes for which they are intended.
- 7.1.4** Every electrical joint and connection shall be of proper construction as regards conductance, insulation and mechanical strength.
- 7.1.5** Every installation and every circuit shall be protected by means of fuse, circuit breakers and earthing.
- 7.1.6** Every circuit shall be so arranged as to prevent the persistence of dangerous earth leakage currents.

- 7.1.7 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.
- 7.1.8 Every installation shall be divided into circuits as necessary to avoid danger in the event of a fault and facilitate safe operations, inspections, testing and maintenance.
- 7.1.9 Protective devices shall be arranged and identified so that the circuits protected are easily recognized.
- 7.1.10 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.
- 7.1.11 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.

## 7.2 Housekeeping

- 7.2.1 Housekeeping in relation to fire safety is the day to day management of fire hazards to minimise the occurrence of fire.
- 7.2.2 A high standard of cleanliness shall be observed at the place of work.
- 7.2.3 Waste products shall be regularly collected and carefully disposed of. Weeds and dry grasses shall be removed.
- 7.2.4 Areas in and around the building shall be kept free from accumulated waste materials.
- 7.2.5 A 'No Smoking' policy shall be enforced and "No Smoking" signs shall be displayed.
- 7.2.6 Walls and fences shall always be kept in good condition.
- 7.2.7 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 a commercial sector shall ensure that his/her employees are aware of basic fire prevention measures and strictly observe the rules at the place of work.
- 8.4 The main causes of fire are-
  - (a) faulty electrical equipment/installations;
  - (b) smoking materials;
  - (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) flammable products – the measures are explained at paragraph 6;
  - (e) arson – daily patrol shall be exercised and strict surveillance shall 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 Section 2 to 7.
- 9.4 Fire preventive measures have been described in Section 8.
- 9.5 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/her colleagues and neighbours who might be affected by the fire.
  - b) Call the Mauritius Fire and Rescue Service – Dial 115  
Give the Service precise information concerning the fire including-
    - 1. Your name and telephone number
    - 2. the exact location of building/site
    - 3. the nature of the fire or whether persons are trapped
  - c) Attack the fire – Try to extinguish the fire with the available first aid 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 staircases
    - Assist the disabled and elderly to an area of refuge or other safe place or assembly point.
    - Do not go back to the building for any reason until advised to do so
- 9.6 The promoter shall designate responsible persons and assign to them specific task 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 and record kept.

## 10. FIRE RISK ASSESSMENT

- 10.1 Ensuring an assessment of the fire risks within one’s premises has been carried out is a key part of the ‘responsible persons’ 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 a fire risk assessment within your premises.
- 10.2.2 Step 1 – Identify the fire hazards within your premises  
The Promoter need to identify-
- (a) Sources of ignition such as naked flames, heaters or sparks.
  - (b) Sources of fuel such as accumulated waste, display materials, textiles or overstocked products.
  - (c) Sources of additional oxygen such as forced air circulation or medicinal or commercial oxygen
  - (d) supplies.

### 10.2.3 Step 2 – Identify people at risk

The Promoter need to identify any people who may be especially at risk such as-

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

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

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

- (a) Replace highly combustible materials with less combustible ones as far as practicable.
- (b) Ensure adequate separation between combustibles and ignition sources.
- (c) 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 you have identified as especially at risk in Step 1 and Step 2. The promoter should also record what the he did about it in Step 3. A simple plan can help him 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.

## 11 **PRECAUTIONARY MEASURES**

### 11.1 *Precautions with machinery*

The promoter shall establish a comprehensive maintenance plan to prevent, detect and correct defective or worn equipment and ensure that-

- a) Installation and maintenance of electrical equipment are carried out by competent electrical contractors;
- b) Moving parts are correctly aligned and not overloaded;
- c) Hot surfaces are shielded, especially where close to hydraulic systems;
- d) Filters and magnetic separators are provided to eliminate objects capable of causing friction spark;
- e) Drip trays are provided on floor coverings impervious to oil;
- f) Metal Bins with close fitting lids are provided for oily rags;
- g) Cleaning solvents for machinery are applied from safety containers;
- h) Work is planned in such a manner to limit the quantity of combustible material present;
- i) Waste and scrap are removed regularly;
- j) Machines are kept clean.

### 11.2 *Precautions with heating/dry process*

Where such activities are carried out the promoter shall ensure that-

- a) the plant is designed to provide adequate separation between combustible material and hot surfaces;
- b) guards and shields are provided where necessary;
- c) automatic controls are incorporated to keep materials in process below their ignition temperatures;
- d) ventilation system is installed where flammable vapours are given off;
- e) safety devices are installed to cut off heating, in the event of ventilation failure;
- f) Explosion relief vents are provided for gas-fired ovens and driers and where there may be explosive concentrations of vapour or dust.

### **11.3 *Precautions with process involving the production of dust***

Where dust may be produced the promoter shall ensure that-

- a) Dust-producing processes are enclosed and provided with efficient dust extraction systems;
- b) All potential ignition sources are eliminated, dust-tight electrical equipment is used in hazardous areas;
- c) Metal components are bonded together and earthed;
- d) Plant is kept clean at all material time;
- e) Work areas are kept free of dust deposits by vacuum cleaning.

### **11.4 *Precautions when packaging***

The promoter shall ensure that-

- a) Packaging departments are separated from production and storage areas by fire-resisting walls and floors;
- b) Packaging materials are kept to a minimum in packing area;
- c) Smoking is prohibited;
- d) Work and waste removal are planned in such a manner as to limit quantities of combustible materials present;
- e) Gangways are always kept clear.

## **12. EMPLOYEES' LODGING ACCOMMODATION– Fire Safety Requirements**

**12.1** For buildings used only for the purpose of accommodating employees the following fire safety provision shall apply-

- a) If the building does not exceed 200 square metre:
  - i. a single escape route is acceptable if the final exit can be reached within a maximum travel distance of 15 metres.
  - ii. the top floor of the building does not exceed 9 metres above ground level and the occupancy does not exceed 60 persons.
- b) If the building exceeds 200 square metres and the travel distance exceeds 15 metres, there shall be an alternate emergency exit.
- c) If the building exceeds 200 square metre and has more than 3 floor levels, an alternate emergency staircase shall be provided.
- d) All doors affording means of emergency from a building shall, except in the case of sliding door, be constructed to open outwards and shall have a minimum width of 900 mm.

**12.2** One 4 kg dry powder fire extinguisher shall be provided for every floor area of 100 square metres.

**12.3** A fire warning system shall be provided if the occupancy exceeds 60 persons or the habitable height of the building exceeds 9 metres.

**12.4** Every means of escape of a lodging accommodation shall be adequately lighted and be provided with an emergency lighting system.

**12.5** No person shall carry out ironing, prepare food and boil water in bed room.

**12.6** Smoking shall be prohibited in bedrooms.

**12.7** (a) Except for medical purposes, no flammable and hazardous substances shall be kept or stored in a bed room.

(b) Flammable and hazardous substances shall be kept in a fire resistant cabinet.

**12.8** Electrical installations not forming part of the normal electrical circuit shall not be allowed.

- 12.9 There shall prevail a high standard of good housekeeping.
- 12.10 Every lodging accommodation shall be equipped with appropriate and adequate safety signs.

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

13.1 ***Fire Clearances/Fire Certificates are issued after compliance with fire safety requirements, for the purpose of the following enactments-***

- a) The Mauritius Fire and Rescue Service Act 2013
- b) The Occupational Safety and Health Regulations 2011 ( Employees Lodging Accommodation)
- c) The Local Government Act 2011 and subsequent amendments - 2016
- d) The Education Act 2000
- e) The Residential Care Home Act 2003 & The Residential Care Home Regulations 2005
- f) The Business Facilitation (Miscellaneous Provision) Act 2006.
- g) The Dangerous Chemicals Control Act 2004
- h) The Early Childhood Care and Education Authority Regulations 2011
- i) The Consumer protection Regulations 2007 ( Scrap Metal)
- j) The Film Act 2002 & Film Regulations 2009
- k) The Building Control Act 2012

13.2 ***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) Calcium Carbide Regulations – GN 91/67
- c) Inflammable Gases Regulations - GN 32/62

13.3 ***Transport permit is issued under the Inflammable Gases Regulations GN 32/62***

13.4 ***Ex-post Control***

- 13.4.1 If a promoter runs his/her activity in an existing building it will be inspected to ensure compliance with fire safety requirements, **5 days** after the start of the business.
- 13.4.2 Any short coming noted will be notified to the promoter and the Chief Executive of the Local Authority for appropriate action.
- 13.4.3 If a promoter intends to construct a new building or cause extensive alterations to an existing building, it is mandatory that the promoter consults the Mauritius Fire and Rescue Service before starting construction.
- 13.4.4 For any additional clarifications the Mauritius Fire and Rescue Service will be most willing to assist.

Address your queries to the Chief Fire Officer:

Phone No.: 212-0214, 212-0215

Fax No.: 210-5915

E-mail: [mfrs\\_headoffice@govmu.org](mailto:mfrs_headoffice@govmu.org)

Postal Address: 14, Deschartres Street

Port-Louis



## ANNEX 1 - INSPECTION CHECK LIST

### **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 hazardous material on the premises?
- (d) Is the method of storage or handling of hazardous material appropriate?
- (e) Are the electrical and gas installation appropriate?

### **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?

### **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 equipments installed?
- (d) Is there the need for other first aid fire fighting equipment?
- (e) Is there any fixed fire protection equipment?
- (f) Are there the need for any fixed fire protection system?

### **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?

### **Staff Training**

- (a) Are the occupants familiar with the escape route?
- (b) Do they know the evacuation procedure?
- (c) Are the staffs conversant in handling first aid fire fighting equipment