

CODE OF PRACTICE  
FOR  
MINIMUM FIRE SERVICE INSTALLATIONS  
AND EQUIPMENT

**MINIMUM FIRE SERVICE INSTALLATIONS AND EQUIPMENT**

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*NOTE*

In the final drafts all pages will be given a date. Subsequent amendment sheets will be serially numbered and dated. An amendments serial number register sheet will be inserted.

*Amendment**Serial  
Number**Sections  
Amended**Date**Signature*

**PART I**  
**GENERAL**

**1.1 Title**

This Code of Practice shall be titled "Minimum Fire Service Installations and Equipment" hereinafter referred to as "The Code".

**1.2 Definitions**

"Building" means

As defined in Buildings Ordinance Cap. 123.

"Fire Service Installation or Equipment" means

Any equipment, or installation manufactured, used or designed to be used for the purpose of:

- (a) extinguishing, attacking, preventing or limiting a fire;
- (b) giving warning of a fire;
- (c) providing access to any premises or place for the purpose of extinguishing, attacking, preventing or limiting a fire.

"Premises" means

Any building works or structure which is subject to the formal approval or consent of Government for its construction, alteration, change of use or demolition.

"Place" means

Any area, lot or site on which buildings are located.

"Public Resort" means

Any place or premises to which the general public have right of access.

Definitions of systems and classification of premises are at Parts II & III respectively.

**1.3 Discretionary powers of the Director of Fire Services**

"For the avoidance of doubt, the Director of Fire Services may, in the case of any particular building, vary any of the requirements of the Code (whether by requiring the provision of any fire service installation or equipment not indicated in the Code either in addition to or in substitution for any fire service installation or equipment so indicated or by relaxing any of the requirements in the Code or otherwise) where, in his opinion, such a variation is required in order to ensure the provision of all such fire service installations and equipment, as, having regard to the purpose for which the building is intended to be put, comprise the minimum fire service installations and equipment necessary for that building/premises, or as the case may be, where such a variation is not inconsistent with the provision for the building of all such fire service installations and equipment as aforesaid".

**1.4 Approval of plans for building works**

The Building Authority may, under Section 16(1)(b) of the Buildings Ordinance, refuse to give his approval of any plans of building works where:

"the plans are not endorsed with or accompanied by a certificate from the Director of Fire Services certifying either:

- (i) that, having regard to the purpose to which the building is intended to be put (which purpose shall be stated in the certificate), no fire service installation or equipment is necessary in connection with the building that will result from the carrying out of the building works shown on the plans; or
- (ii) that the plans have been examined and are approved by him as showing all such fire service installations and equipment as in his opinion, having regard to the purpose to which the building is intended to be put (which purpose shall be stated in the certificate), comprise the minimum fire service installations and equipment necessary for the building in accordance with the Code of Practice published from time to time by the Director of Fire Services".

**PART II****TABLE AND DEFINITIONS OF SYSTEMS/INSTALLATIONS/EQUIPMENT****2.1 Table**

The following systems/installations/equipment may be required to be installed in various premises under this Code:

1. Audio/visual advisory systems
2. Automatic actuating devices
3. Automatic fixed installations other than water
4. Automatic fixed installations using water
5. Deluge systems
6. Drencher systems
7. Dust detection systems
8. Emergency generators
9. Emergency lighting
10. Escalators and moving walkways—fire and life safety aspects of
11. Exit signs
12. Fire alarm systems
13. Fire control centre
14. Fire detection systems
15. Fire hydrant/hose reel systems
16. Fireman's communication systems
17. Fireman's lifts
18. Fixed automatically operated approved appliances
19. Fixed foam systems
20. Gas detection systems
21. Hose reels
22. Lifts—fire and life safety aspects of
23. Portable hand-operated approved appliances
24. Pressurization of staircases
25. Ring main systems with fixed pumps
26. Smoke/Gas extraction systems
27. Smoke vents
28. Sprinkler systems
29. Supply tank
30. Ventilation/air conditioning control systems
31. Water spray systems
32. Water supplies

**2.2 Definition**

“Audio/visual advisory systems” means

Equipment which is supplementary to exit signs and fire alarm warning devices which, when operated in the event of a fire, provides audio/visual indication of safe direction of egress from the area.

“Automatic actuating devices” means

Building components such as doors, shutters, dampers, fire curtains, etc., and the devices for automatically controlling their movement in the event of fire.

“Automatic fixed installations other than water” means

A system of cylinders, pipes, valves, and delivery points so designed as to automatically detect and instantaneously attack a fire with an inert medium and sound an alarm (e.g. CO<sub>2</sub> protection of electrical equipment).

“Automatic fixed installations using water” means

A system of water supplies, pumps, pipes, valves and delivery points so arranged as to automatically detect and instantaneously attack a fire with water and sound an alarm. Such requirements for this item may include Sprinklers, Drenchers, Deluge or Water Spray Systems as required and appropriate.

“Deluge systems” means

A system requiring a discharge of water over a considerable area in rapid and certain response to a fire.

“Drencher systems” means

A system which provides a curtain of water for protection against internal and external “exposure” to fire, and/or the protection of large openings.

“Dust detection systems” means

Equipment designed to give warning of a potentially explosive concentration of dust.

“Emergency generators” means

An independently powered electrical generator of sufficient electrical capacity to meet the essential services it is required to provide.

“Emergency lighting” means

A system of artificial lighting designed to provide adequate illumination and indication of exit routes within a building under emergency conditions.

“Escalators and moving walkways—fire and life safety aspects of” means

Control of movement and fire separation for power operated systems of pedestrian transportation not being a lift.

“Exit signs” means

Fixed illuminated signs indicating an approved exit route.

“Fire alarm systems” means

Any manually operated system designed to give warning of fire.

“Fire control centre” means

A compartment (situated at street level having direct access to open air and vehicular approach) containing annunciator boards, controls, terminals, etc. of the Fire Protection and Life Safety Systems within that building/complex.

“Fire detection systems” means

Any system designed to detect automatically the presence of smoke, heat, combustion products or flame and give warning of same.

“Fire hydrant/hose reel systems” means

An installation of pipes, water tanks, pumps, hydrant outlets and/or hose reels in a building to provide a ready means by which a jet of water can be delivered in any part of the building for the purpose of fire fighting.

“Fireman’s communication systems” means

Fixed system(s) within a building specifically designed to provide voice communication facilities for fire fighting personnel at all times.

“Fireman’s Lifts” means

A designated lift(s) so designed as to allow Fire Services personnel safe access to all floors of the building.

“Fixed automatically-operated approved appliances” means

Any fire service equipment which is manufactured, used or designed to be used as an independent unit for the purpose of extinguishing, attacking, preventing or limiting a fire, but automatic in operation and fixed in position, e.g. a BCF unit in a Dangerous Goods store.

“Fixed foam systems” means

Any combination of generators; pipework; valves; nozzles and pourers designed to deliver finished foam to the seat of a fire which may be automatic in operation.

“Gas detection systems” means

Equipment designed to give warning of the presence of a noxious, toxic, irritant or inflammable vapour in potentially dangerous concentration.

“Hose reel” means

Any standard type hose reel of a pattern approved by the Director of Fire Services.

“Lifts—fire and life safety aspects of” means

Control of movement and fire separation for a lifting machine or appliance having a car or platform, the direction of movement of which is restricted by a guide or guides.

“Portable hand-operated approved appliances” means

Any fire service equipment which is manufactured, used or designed to be used as an independent unit for the purpose of extinguishing, attacking, preventing or limiting a fire, e.g. water type, foam, inert gas, any chemical extinguishers, fire blankets and sand buckets.

“Pressurisation of staircases” means

A system designed to protect staircases against the ingress of smoke by maintaining the air within staircases at pressures higher than those in adjacent parts of the building.

“Ring main systems with fixed pump(s)” means

A fixed system of piping fitted with delivery outlets at fixed intervals and permanently primed pump(s) set for imparting pressure and flow to the water.

“Smoke/Gas extraction systems” means

A mechanically operated system capable of removing smoke, combustion products and/or dangerous gases from a compartment direct to open air.

“Smoke vents” means

Unobstructed smoke extracts having direct communication with the open air, located in or adjoining external walls, in easily accessible position and fitted with covers which can easily be broken to allow natural ventilation of the space.

“Sprinkler systems” means

A system designed to discharge water under pressure from sprinkler heads (detecting devices) at/or near the point of origin of the fire and to sound an alarm.

“Supply tanks” means

A water tank containing a specified quantity of water reserved solely for fire fighting.

“Ventilation/air conditioning control systems” means

A system designed to prevent passage of smoke and/or combustion products by operation of ventilation/air conditioning control system.

“Water spray systems” means

A system designed for extinguishing or controlling fires involving flammable liquids by emulsification, cooling and smothering.

“Water supply” means

A supply acceptable to Water Authority and Director of Fire Services.

## PART III

## CLASSIFICATION OF PREMISES AND DEFINITIONS

**3.1 Definition**

“Audiovisual Production Facilities” means

Premises used for audio/visual production such as film and television studios.

“Basement Storeys” means

Any storey of a building below the ground storey and from which all required exit routes are in an upward direction to the ground storey.

“Car parking facilities” means

See “Car Port” and “Garage”.

“Car Port” means

A covered parking area open for its entire length or width on at least two sides.

“Cold Storage Area” means

Any area incorporating a unit of specific volume which is entirely given over to storage in an atmosphere of less than 10°C above zero.

“Commercial Building” means

Any building used wholly or in part for the purpose of the following:

- (a) Banks
- (b) Garages and car ports *not* car repairing
- (c) Offices
- (d) Restaurants
- (e) Shops

“Composite Building” means

Any building which is a combination of domestic buildings, commercial buildings, institutional buildings, hotels, places of public assembly but specifically excluding industrial and godown buildings and special and other risks.

“Curtain Walled Building” means

A building which has curtain walls. A curtain wall is a non load bearing wall primarily fixed in front of the structural frame with its own dead weight and wind loads transferred to the structural frame through anchorages.

“Domestic Building” means

A building constructed, used or intended to be used for habitation.

“Garage” means

A covered parking area enclosed by walls, with or without windows, on more than two sides.

“Godown” means

A warehouse or any building used wholly or in part for the storage of goods or raw material of any kind.

“Group I” means

A designated area of special hazard normally within a building.

“Group II” means

A building, group of buildings or complex considered to present special hazard.

“High Rise Building” means

Any building of which the floor of the uppermost storey exceeds 30 m above the point of staircase discharge at ground floor level.

“Hotel” means

Any building used wholly or in part primarily for the purposes of accommodation on a commercial basis.

“Industrial Building” means

Any building used wholly or in part in any process for or incidental to any of the following purposes, namely:



- (a) the making of any article or of part of any article; or
- (b) the altering, repairing, ornamenting, finishing, cleaning or washing or breaking up or demolition of any article; or
- (c) the adapting for sale of any article being a building in which work is carried out by way of trade or for purposes of gain.

**“Institutional Building” means**

Any building used wholly or in part for the purposes of the following:

- (a) Club premises
- (b) Educational establishments
- (c) Hostels
- (d) Hospitals including mental institutions and clinics
- (e) Prisons and similar corrective institutions
- (f) Sanatoria

**“Low Rise Building” means**

Any building of which the floor of the uppermost storey does not exceed 30 m above the point of staircase discharge at ground floor level.

**“Passenger Terminals/Station” means**

Any building and/or place used wholly or in part for the purposes of embarking/disembarking passengers to/from any mode of transport.

**“Place of Public Entertainment” means**

As defined in Chapter 172 of the Laws of Hong Kong.

### **3.2 Special and other risks**

**Group I:** A designated area of special hazard normally within a building i.e.:

- Audio/Visual production facilities
- Battery Rooms and electrical charging facilities
- Boiler Rooms
- Bowling Alleys
- Cold Storage Areas
- Dangerous Goods Stores
- Electrical equipment, incorporating transformers, switchgears, (above 1 Kilovolt) generators/alternators, requiring separate installation
- Kitchens
- Lift Motor Rooms
- Telephone Distribution Equipment, computer installation and similar installations

**Group II:** A building, group of buildings or complex considered to present special hazard(s) i.e.:

- Aircraft Maintenance and repair facilities
- Audio/Visual Production Facilities (Building(s) devoted to this purpose)
- Bulk Fuel Storages
- Chemical Manufacturing/Processing Plants
- Cold Storage Areas (Building(s) devoted to this purpose)
- Construction Sites
- Container Terminals, yards and freight stations
- Curtain Walled Buildings
- Dangerous Goods Stores (Range of D.G. Stores in an area devoted to this purpose)
- Demolition Sites
- Explosive Production and/or Storages
- Mechanical Plant Room
- Open Sites of Public Assembly
- Petro-Chemical Complexes
- Road Tunnels
- Railway Marshalling Yards
- Shipyards

*Note:* “Audio/Visual Production Facilities”, “Cold Storage Areas” and “Dangerous Goods Stores” are included in both groups.

**PART IV**

**FIRE PROTECTION AND LIFE SAFETY SYSTEMS (INSTALLATIONS & EQUIPMENT)  
REQUIREMENTS FOR PREMISES ACCORDING TO CLASSIFICATION**

**General**

Attention is drawn to Part I of this Code, under which the Director of Fire Services has discretionary powers to vary any requirements of this Code.

Where the requirements are not detailed hereunder for particular premises, the Director of Fire Services will determine the requirements.

**CLASSIFICATION OF PREMISES AND AREAS OF SPECIAL RISKS**

- 4.1 Aircraft Maintenance and Repair Facilities
- 4.2 Audio/Visual Production Facilities
- 4.3 Basements under 230 m<sup>2</sup> of usable floor area
- 4.4 Basements which exceed 230 m<sup>2</sup> of usable floor area
- 4.5 Battery Rooms and Electrical Charging Facilities
- 4.6 Boiler Rooms
- 4.7 Bowling Alleys
- 4.8 Bulk Fuel Storage
- 4.9 Car Ports
- 4.10 Chemical Manufacturing/Processing Plants
- 4.11 Cold Storage Areas (Group I) Minor (Under 140 m<sup>3</sup> capacity)
- 4.12 Cold Storage Areas (Group I) Major (of and over 140 m<sup>3</sup> capacity)
- 4.13 Cold Storage Areas (Group II)
- 4.14 Commercial Buildings—Low Rise
- 4.15 Commercial Buildings—High Rise
- 4.16 Composite Buildings
- 4.17 Construction Sites
- 4.18 Container Terminal Yards and Freight Stations
- 4.19 Curtain Walled Buildings below six storeys in height
- 4.20 Curtain Walled Buildings above six storeys in height
- 4.21 Dangerous Goods Stores under 42 m<sup>3</sup> capacity
- 4.22 Dangerous Goods Stores of 42 m<sup>3</sup> capacity and above
- 4.23 Demolition Sites
- 4.24 Domestic Buildings—Low Rise (up to and including 3 storeys in height)
- 4.25 Domestic Buildings—Low Rise (over 3 storeys in height)
- 4.26 Domestic Buildings—High Rise
- 4.27 Electrical Equipment: incorporating transformers, switchgear above 1 Kilovolt, generators/alternators requiring separate installations
- 4.28 Explosive Production and/or storages
- 4.29 Garages
- 4.30 Hotels—Low Rise
- 4.31 Hotels—High Rise
- 4.32 Industrial/Godown Buildings—Low Rise
- 4.33 Industrial/Godown Buildings—High Rise
- 4.34 Institutional Buildings—Low Rise
- 4.35 Institutional Buildings—High Rise
- 4.36 Kitchens (other than kitchens in domestic premises)
- 4.37 Lift motor rooms
- 4.38 Marine Vessels (defined as ships or boats) under repair alongside
- 4.39 Mechanical Plant Rooms (Group I)
- 4.40 Mechanical Plant Rooms (Group II)

- 4.41 Open Sites of Public Assembly
- 4.42 Passenger Terminals/Stations
- 4.43 Petro-chemical complexes
- 4.44 Places of Public Entertainment within Low Rise Building
- 4.45 Places of Public Entertainment within High Rise Building
- 4.46 Railway Marshalling yards (encompassing a site area of more than 2 300 m<sup>2</sup>)
- 4.47 Road tunnels
- 4.48 Shipyards (encompassing a site area of more than 2 300 m<sup>2</sup>)
- 4.49 Telephone distribution equipment, computer installation and similar installations

#### 4.1 Aircraft maintenance and repair facilities

##### *REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Dust detection systems
- (vi) Emergency lighting
- (vii) Exit signs
- (viii) Emergency generators
- (ix) Fire hydrant/hose reel systems
- (x) Fire alarm systems
- (xi) Fire detection systems
- (xii) Fireman's lifts
- (xiii) Fireman's communication systems
- (xiv) Fire control centre
- (xv) Fixed foam systems
- (xvi) Fixed automatically-operated approved appliances
- (xvii) Lifts—fire and life safety aspects of
- (xviii) Portable hand-operated approved appliances
- (xix) Ring main systems with fixed pump(s)
- (xx) Smoke/Gas extraction systems
- (xxi) Ventilation/air conditioning control systems

##### *EXTENT*

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provisions to enable clear audio/visual advice to be given throughout the buildings.
- (iii) To be provided to areas where the use of water is incompatible with the occupancy or trade.
- (iv) In all areas excepting where covered by (iii) above, including staircases.
- (v) To be provided in all areas where there is a potential dust explosion hazard.
- (vi) Emergency lighting shall be provided throughout the entire building all exit routes leading to ground level.
- (vii) Sufficient directional and exit signs to ensure that all exit routes from any floor within the buildings are clearly indicated as required by the configuration of staircases serving the buildings.
- (viii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (ix) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (x) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (xi) In all areas not covered by a sprinkler system.
- (xii) Lift or lifts as designated.
- (xiii) To be provided in all lift lobbies serving fireman's lifts including ground floor.
- (xiv) Minimum of one, additional to be provided according to the complexity of the buildings.

- (xv) To be provided as an alternative to other fixed automatic systems, when required by Director of Fire Services.
- (xvi) As required by occupancy.
- (xvii) All lifts shall be connected to fire detection systems so that when the fire detection system is actuated they shall return automatically to the lowest level of discharge except that, in the case of lifts which also serve basements, they must be returned to ground floor level.
- (xviii) As required by occupancy.
- (xix) To be required to cover those areas of such complexes not adequately served by public water mains.
- (xx) The entire building shall be provided with smoke/gas extraction systems.
- (xxi) Where a ventilation/air conditioning control system to a building is provided a system must be provided to prevent the passage of smoke and combustion products.

#### *ADDITIONAL REQUIREMENTS*

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971. or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

*Note:* Buildings within such complexes shall conform to the requirements specified for similar premises in accordance with this Code.

#### **4.2 Audio/visual production facilities**

##### *REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic fixed installations using water
- (ii) Automatic fixed installations other than water
- (iii) Automatic actuating devices
- (iv) Audio/visual advisory systems
- (v) Exit signs
- (vi) Emergency generators
- (vii) Emergency lighting
- (viii) Fire hydrant/hose reel systems
- (ix) Fire alarm systems
- (x) Fire detection systems
- (xi) Fireman's communication systems
- (xii) Fire control centre
- (xiii) Portable hand-operated approved appliances
- (xiv) Smoke/Gas extraction systems
- (xv) Ventilation/air conditioning control systems

##### *EXTENT*

- (i) As required by the risk.
- (ii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iii) As required by that equipment which needs to be automatically actuated.
- (iv) As required by the risk.

- (v) Sufficient directional and exit signs to ensure that all exit routes from the premises within the buildings are clearly indicated as required by the configuration of staircases serving the building.
- (vi) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to supply.
- (vii) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (viii) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (ix) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (x) As required by the risk.
- (xi) As required by the risk.
- (xii) As required by the risk.
- (xiii) As required by the risk.
- (xiv) Approved type as required by the risk.
- (xv) Where a ventilation/air conditioning control system to the premises is provided a system must be provided to prevent the spread of smoke and combustion products.

#### *ADDITIONAL REQUIREMENTS*

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for each work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

#### **4.3 Basements** (under 230 m<sup>2</sup> of usable floor area)

##### *REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic fixed installations other than water
- (ii) Emergency lighting
- (iii) Exit signs
- (iv) Fire hydrant/hose reel systems
- (v) Fire alarm systems
- (vi) Fire detection systems
- (vii) Portable hand-operated approved appliances
- (viii) Smoke vents
- (ix) Ventilation/air conditioning control systems

##### *EXTENT*

- (i) To be provided in areas of special risk.
- (ii) Emergency lighting shall be provided throughout the entire basement area and all exit routes leading to ground level.
- (iii) Sufficient directional and exit signs to ensure that all exit routes from the basement are clearly indicated as required by the configuration of staircases serving the basement.
- (iv) There shall be sufficient hydrants and hose reels to ensure that every part of the basement with the exception of strong rooms and safe deposit vaults can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.

- (v) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (vi) The entire basement area shall be covered by a smoke detection system, excepting strong rooms and safe deposit vaults.
- (vii) As required by occupancy.
- (viii) To be provided to permit ventilation of the entire basement with the exception of strong rooms and safe deposit vaults.
- (ix) Where a ventilation/air conditioning control system to a basement is provided, a system must be provided to prevent the passage of smoke and combustion products.

#### *ADDITIONAL REQUIREMENTS*

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

#### **4.4 Basements** (which exceed 230 m<sup>2</sup> of usable floor area)

##### ***REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:***

- (i) Audio/visual advisory systems
- (ii) Automatic fixed installations other than water
- (iii) Automatic fixed installations using water
- (iv) Emergency lighting
- (v) Exit signs
- (vi) Escalators and moving walkways—fire and life safety aspects of
- (vii) Fire hydrant/hose reel systems
- (viii) Fire alarm systems
- (ix) Fire detection systems
- (x) Portable hand-operated approved appliances
- (xi) Smoke/Gas extraction systems
- (xii) Smoke vents
- (xiii) Ventilation/air conditioning control systems

##### ***EXTENT***

- (i) Sufficient provision to enable clear and audio/visual advice to be given throughout the area.
- (ii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iii) In all areas excepting strong rooms and safe deposit vaults and where covered by (ii) above.
- (iv) Emergency lighting shall be provided throughout the entire basement area and all exit routes leading to ground level.
- (v) Sufficient directional and exit signs to ensure that all exit routes from the basement are clearly indicated as required by the configuration of staircases serving the basement.
- (vi) All escalators serving the basement shall be connected to all systems giving alarm of fire so that when the alarm is activated the escalator will stop and the fire doors/protective shutters close.



- (vii) There shall be sufficient hydrants and hose reels to ensure that every part of the basement with the exception of strong rooms and safe deposit vaults can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (viii) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (ix) The entire basement area shall be covered by a smoke detection system, excepting car parking areas, strong rooms and safe deposit vaults.
- (x) As required by occupancy.
- (xi) The entire basement shall be provided with smoke/gas extraction systems, with the exception of strong rooms and safe deposit vaults.
- (xii) To be provided where the basements are used only for car parking.
- (xiii) Where a ventilation/air conditioning control system to a basement is provided a system must be provided to prevent the passage of smoke and combustion products.

#### **ADDITIONAL REQUIREMENTS**

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.
- (iii) Proposals for three or more basement levels and industrial basement will be the subject of individual consideration, coupled with the need for more stringent Fire Service requirements e.g. enhanced fire protection and life safety systems, open air access routes for firemen etc.

#### **4.5 Battery rooms and electrical charging facilities**

##### **REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Audio/visual warning systems
- (ii) Automatic fixed installations other than water
- (iii) Exit signs
- (iv) Fire alarm systems
- (v) Gas detection systems
- (vi) Portable hand-operated approved appliances
- (vii) Smoke/gas extraction systems
- (viii) Ventilation/air conditioning control systems

##### **EXTENT**

- (i) Sufficient provisions to enable clear audio/visual advice to be given throughout the premises.
- (ii) To be provided to areas where the use of water is undesirable for the risk.
- (iii) Sufficient directional and exit signs to ensure that all exit routes from any floor within the premises are clearly indicated as required by the configuration of staircases serving the building.
- (iv) One actuating point and one audio warning device to be located at all exit doorways. This actuating point should include facilities for audio warning device initiation.
- (v) To be provided throughout the premises.
- (vi) As required by occupancy.
- (vii) The entire premises shall be provided with smoke/gas extraction system of approved type.

- (viii) Where a ventilation/air conditioning control system to the premises is provided a system must be provided to prevent the passage of smoke, combustion products and/or dangerous gases.

***ADDITIONAL REQUIREMENT***

Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.6 Boiler rooms**

***REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:***

- (i) Automatic actuating devices
- (ii) Automatic fixed installations other than water
- (iii) Emergency lighting
- (iv) Exit signs
- (v) Fire detection systems
- (vi) Fixed foam systems
- (vii) Portable hand-operated approved appliances

***EXTENT***

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) To be provided to the equipment where the use of water is undesirable.
- (iii) Emergency lighting shall be provided throughout the entire area and all exit routes leading to ground level.
- (iv) Sufficient directional and exit signs to ensure that all exit routes from the area within the buildings are clearly indicated as required by the configuration of staircases serving the buildings.
- (v) As required by the risk.
- (vi) As required by the risk.
- (vii) As required by the risk.

***ADDITIONAL REQUIREMENT***

Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.7 Bowling alleys**

***REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:***

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Dust detection systems
- (vi) Emergency lighting
- (vii) Exit signs
- (viii) Emergency generators
- (ix) Fire hydrant/hose reel systems
- (x) Fire alarm systems
- (xi) Fire detection systems
- (xii) Portable hand-operated approved appliances

- (xiii) Smoke/Gas extraction system
- (xiv) Ventilation/air conditioning control systems

#### *EXTENT*

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provisions to enable clear audio/visual advice to be given throughout the premises.
- (iii) To be provided to areas where the use of water is undesirable for the risk.
- (iv) In all areas excepting where covered by (iii) above, including staircases.
- (v) To be provided in all areas where there is a potential dust explosion hazard.
- (vi) Emergency lighting shall be provided throughout the entire premises and all exit routes leading to ground level.
- (vii) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.
- (viii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (ix) There shall be sufficient hydrant and hose reels to ensure that every part of the premises can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (x) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (xi) In all areas not covered by a sprinkler system.
- (xii) As required by occupancy.
- (xiii) The entire premises shall be provided with smoke/gas extraction system.
- (xiv) Where a ventilation/air conditioning control system to the premises is provided a system must be provided to prevent the passage of smoke and combustion products.

#### *ADDITIONAL REQUIRMENTS*

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

#### **4.8 Bulk fuel storage**

##### *REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic actuating devices
- (ii) Automatic fixed installations other than water
- (iii) Automatic fixed installations using water
- (iv) Emergency lighting
- (v) Exit signs
- (vi) Emergency generators
- (vii) Fire hydrant/hose reel systems
- (viii) Fire alarm systems
- (ix) Fire detection systems
- (x) Fire Control Centre

- (xi) Fixed foam systems
- (xii) Fixed automatically—operated approved appliances
- (xiii) Portable hand-operated approved appliances
- (xiv) Ring main systems with fixed pump(s)
- (xv) Appropriate requirements of Model Code of Safe Practice published by Institute of Petroleum

**EXTENT**

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) To be provided to areas of special risk where the use of water is undesirable for the risk.
- (iii) To be provided for the cooling and protection of products tanks, product pipelines and jetties.
- (iv) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (v) Sufficient directional and exit signs to ensure that all exit routes from any floor within the buildings are clearly indicated as required by the configuration of staircases serving the buildings.
- (vi) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (vii) There shall be sufficient hydrants and hose reels to ensure that every part of the buildings can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (viii) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (ix) In all areas not covered by a sprinkler system.
- (x) Minimum of one, additional to be provided according to the complexity of the area.
- (xi) To be provided as an alternative to other fixed automatic systems, when required by the Director of Fire Services.
- (xii) As required by occupancy.
- (xiii) As required by occupancy.
- (xiv) To be provided to cover those areas of such complexes, not adequately served by public water mains.
- (xv) As considered necessary by Director of Fire Services.

*Note:* Buildings within such complexes shall conform to the requirements specified for similar premises in accordance with this Code.

**4.9 Car ports**

**REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Exit signs
- (ii) Fire hydrant/hose reel systems
- (iii) Fire alarm system
- (iv) Portable hand-operated approved appliances

**EXTENT**

- (i) Sufficient directional and exit signs to ensure that all exit routes from premises within the building are clearly indicated as required by the configuration of staircases serving the building.
- (ii) As required by the risk.
- (iii) As required by the risk.
- (iv) As required by the risk.

**ADDITIONAL REQUIREMENT**

Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.10 Chemical manufacturing/processing plants****REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installation using water
- (v) Dust detection systems
- (vi) Emergency lighting
- (vii) Exit signs
- (viii) Emergency generators
- (ix) Fire alarm systems
- (x) Fire detection systems
- (xi) Fire control centre
- (xii) Fixed foam systems
- (xiii) Fixed automatically-operated approved appliances
- (xiv) Gas detection systems
- (xv) Portable hand-operated approved appliances
- (xvi) Ring main systems with fixed pump(s)
- (xvii) Smoke/Gas extraction systems
- (xviii) Ventilation/air conditioning control systems
- (xix) Special equipment/requirements

**EXTENT**

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provisions to enable clear audio/visual advice to be given throughout the premises.
- (iii) To be provided to areas where the use of water is undesirable for the risk.
- (iv) In all areas excepting where covered by (iii) above, including staircases.
- (v) To be provided in all areas where there is a potential dust explosion hazard.
- (vi) Emergency lighting shall be provided to all buildings within the premises and in addition, such lighting shall also be provided to ensure adequate external illumination to permit safe evacuation to the outside of the site boundary.
- (vii) Sufficient directional and exit signs to ensure that all exit routes from any floor within the buildings are clearly indicated as required by the configuration of the staircases serving the buildings.
- (viii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (ix) One actuating point and one audio warning device to be located at each hose reel point within the buildings. This actuating point should include facilities for fire pump start and audio warning device initiation, and in addition, one actuating point and audio warning device to be provided at each hydrant outlet on the ring main system.
- (x) As required by Director of Fire Services.
- (xi) Minimum of one, additional to be provided according to the layout of the complex.
- (xii) As required by the risk.
- (xiii) As required by the risk.
- (xiv) To be provided in all areas of risk.
- (xv) As required by the risk.
- (xvi) To be provided to cover those areas of such complexes not adequately served by public water mains.

- (xvii) Approved types as required by the risk.
- (xviii) Where a ventilation/air conditioning control system to the premises is provided, a system must be provided to prevent the passage of smoke and combustion products.
- (xix) As required by the Director of Fire Services.

*Note:* Buildings within such complexes shall conform to the requirements specified for similar premises in accordance with this Code.

#### **4.11 Cold storage areas (group I) minor (under 140 m<sup>3</sup> capacity)**

**REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Portable hand-operated approved appliances.

**EXTENT**

- (i) As appropriate to the plant and construction.

**ADDITIONAL REQUIREMENTS**

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

#### **4.12 Cold storage areas (group I) major (of and over 140 m<sup>3</sup> capacity)**

**REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Automatic fixed installation using water
- (ii) Fire alarm systems
- (iii) Portable hand-operated approved appliances

**EXTENT**

- (i) A dry pipe system to be provided in the cold room, as defined by Fire Offices' Committee Rules.
- (ii) The system provided to the building to be extended to cover the cold storage area.
- (iii) As appropriate to the plant and construction.

**ADDITIONAL REQUIREMENTS**

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

#### **4.13 Cold storage areas (group II)**

**REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installation using water
- (iv) Emergency lighting
- (v) Exit signs
- (vi) Emergency generators
- (vii) Fire hydrant/hose reel systems

- (viii) Fire alarm systems
- (ix) Gas detection system
- (x) Portable hand-operated approved appliances

**EXTENT**

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provisions to enable clear audio/visual advice to be given throughout the entire area.
- (iii) In all areas including staircases with the exception of cold storage room which should be provided with a dry pipe system in accordance with Fire Offices' Committee Rules.
- (iv) Emergency lighting shall be provided throughout the entire area.
- (v) Sufficient directional and exit signs to ensure that all exit routes from any floor within the area are clearly indicated as required by the configuration of staircases serving the area.
- (vi) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (vii) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (viii) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (ix) To be provided in those areas as required by the risk.
- (x) As required by occupancy.

**ADDITIONAL REQUIREMENTS**

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.14 Commercial buildings—low rise**

**REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Emergency lighting
- (vi) Exit signs
- (vii) Emergency generators
- (viii) Escalators and moving walkways—fire and life safety aspects of
- (ix) Fire hydrant/hose reel systems
- (x) Fire alarm systems
- (xi) Fireman's lifts
- (xii) Lifts—fire and life safety aspects of
- (xiii) Portable hand-operated approved appliances
- (xiv) Ventilation/air conditioning control systems

**EXTENT**

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provision to enable clear audio/visual advice to be given throughout the area of shops and restaurants, where the shops exceed 1 380 m<sup>2</sup> and the restaurant exceed 460 m<sup>2</sup> of usable floor area.

- (iii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iv) In all areas excepting where covered by (iii) above.
- (v) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (vi) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.
- (vii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (viii) All escalators serving the building shall be connected to all systems giving alarm of fire so that when the alarm is activated the escalator will stop and the protective shutters close.
- (ix) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (x) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (xi) Lift or lifts as designated.
- (xii) All lifts shall be connected to fire alarm systems so that when the alarm system is actuated they shall return automatically to the lowest level of discharge except that, in the case of lifts which also serve basements, they must be returned to ground floor level.
- (xiii) As required by occupancy.
- (xiv) Where a ventilation/air conditioning control system to a building is provided a system must be provided to prevent the passage of smoke and combustion products.

#### ***ADDITIONAL REQUIREMENTS***

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

#### **4.15 Commercial buildings—high rise**

##### ***REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:***

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Emergency lighting
- (vi) Exit signs
- (vii) Emergency generators
- (viii) Escalators and moving walkways—fire and life safety aspects of
- (ix) Fire hydrant hose reel systems
- (x) Fire detection systems
- (xi) Fireman's lifts
- (xii) Fireman's communication systems
- (xiii) Fire control centre



- (xiv) Fire alarm systems
- (xv) Lifts—fire and life safety aspects of
- (xvi) Portable hand-operated approved appliances
- (xvii) Pressurisation of staircases
- (xviii) Smoke/Gas extraction systems
- (xix) Ventilation/air conditioning control systems

#### *EXTENT*

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provisions to enable clear audio/visual advice to be given throughout the area.
- (iii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iv) In all areas excepting where covered by (iii) above.
- (v) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (vi) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.
- (vii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (viii) All escalators and moving walkways serving the building shall be connected to all systems giving alarm of fire so that when the alarm is activated the escalators and moving walkways will stop and the protective shutters close.
- (ix) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (x) Smoke detection systems to be provided in lift lobbies.
- (xi) Lift or lifts as designated.
- (xii) To be provided in all lift lobbies serving Fireman's Lifts including ground floor.
- (xiii) Minimum of one, additional to be provided according to the complexity of the building.
- (xiv) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (xv) All lifts shall be connected to all systems giving alarm of fire so that when the alarm is actuated they shall return automatically to the lowest level of discharge except that, in the case of lifts which also serve basements, they must be returned to ground floor level.
- (xvi) As required by occupancy.
- (xvii) Required where natural light and ventilation are not provided.
- (xviii) The entire building shall be provided with smoke/gas extraction systems.
- (xix) Where a ventilation/air conditioning control system to a building is provided a system must be provided to prevent the passage of smoke and combustion products.

#### *ADDITIONAL REQUIREMENTS*

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.16 Composite buildings***REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

&amp;

*EXTENT FOR:*

The fire service installations and equipment required for each of the various usages of a composite building shall conform to the relevant section of this Code.

**4.17 Construction sites***REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Portable hand-operated approved appliances.
- (ii) Temporary wet fire hydrant system.

*EXTENT*

- (i) Adequate numbers to be provided on each floor as and when structurally completed. ...
- (ii) At least one hydrant outlet with sufficient lengths of hose and branch to be provided to cover each floor when structurally completed but at no time shall the maximum construction level exceed the effective working height of the required wet system in the structure by more than 18 m.

*ADDITIONAL REQUIREMENTS*

Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.18 Container terminal yards and freight stations***REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Emergency lighting
- (vi) Exit signs
- (vii) Emergency generators
- (viii) Fire hydrant/hose reel systems
- (ix) Fire alarm systems
- (x) Fire control centre
- (xi) Fixed automatically-operated approved appliances
- (xii) Portable hand-operated approved appliances
- (xiii) Ring main systems with fixed pump(s)
- (xiv) Special equipment/requirements

*EXTENT*

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provisions to enable clear audio/visual advice to be given throughout the buildings.
- (iii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iv) In all areas excepting where covered by (iii) above, including staircases.
- (v) Emergency lighting shall be provided throughout the entire buildings and all exit routes leading to ground level.

- (vi) Sufficient directional and exit signs to ensure that all exit routes from any floor within the buildings are clearly indicated as required by the configuration of staircases serving the buildings.
- (vii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (viii) There shall be sufficient hydrants and hose reels to ensure that every part of the buildings can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (ix) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (x) Minimum of one, additional to be provided according to the complexity of the building.
- (xi) As required by occupancy.
- (xii) As required by occupancy.
- (xiii) To be provided to cover those areas of such complexes not adequately served by public water mains.
- (xiv) As required by Director of Fire Services.

#### **ADDITIONAL REQUIREMENTS**

Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

*Note:* Buildings within such complexes shall conform to the requirements specified for similar premises in accordance with this Code.

#### **4.19 Curtain walled buildings below six storeys in height**

##### **REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

Normal requirements according to occupancy.

#### **4.20 Curtain walled buildings above six storeys in height**

##### **REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

Normal requirements according to occupancy. Where a sprinkler system is required, this shall be one grade in excess of that normally required for the accepted risk category.

e.g. XLH (extra light hazard) becomes OH1 (ordinary hazard Group 1);

OH3(S) (ordinary hazard Group 3 special) becomes XHH (extra high hazard).

#### **4.21 Dangerous goods stores under 42 m<sup>3</sup> capacity**

##### **REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Fixed automatically-operated approved appliances.
- (ii) Portable hand-operated approved appliances.

##### **EXTENT**

- (i) As required by the risk.
- (ii) As required by the risk.

#### **4.22 Dangerous goods store of 42 m<sup>3</sup> capacity and above**

##### **REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Automatic actuating devices
- (ii) Automatic fixed installations other than water
- (iii) Exit signs
- (iv) Fire alarm systems
- (v) Fire detection systems

- (vi) Fixed automatically-operated approved appliances
- (vii) Fixed foam systems
- (viii) Gas detection systems
- (ix) Portable hand-operated approved appliances
- (x) Special equipment/requirements

**EXTENT**

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iii) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.
- (iv) One actuating point and one audio warning device to be located at each exit from the store. This actuating point should include facilities for audio warning device initiation.
- (v) As required by the Director of Fire Services.
- (vi) As required by the risk.
- (vii) As required by the risk.
- (viii) To be provided in all areas of risk.
- (ix) As required by the Director of Fire Services.
- (x) As required by the Director of Fire Services.

**4.23 Demolition sites**

**REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

Each site shall be patrolled round the clock by not less than one fire patrol man who has access to fire extinguishers and access to a telephone for reporting a fire or other calamity.

These requirements shall only apply to premises which were provided with, inter alia, a wet system in its completed form, and can be withdrawn only:

- (i) when the highest point from ground level falls below 18 m for a site area below 930 m<sup>2</sup>;
- or (ii) when the highest point from ground level falls below 9 m for a site area above 930 m<sup>2</sup>.

**ADDITIONAL REQUIREMENTS**

Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.24 Domestic buildings—low rise (up to and including three storeys in height)**

**REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

Portable hand-operated approved appliances.

**EXTENT**

One per floor plus additional for car-ports.

**ADDITIONAL REQUIREMENTS**

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.25 Domestic buildings—low rise (over 3 storeys in height)****REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Fire hydrant/hose reel systems
- (ii) Fire alarm systems
- (iii) Fireman's lifts—if lift(s) is/are installed

**EXTENT**

- (i) There shall be sufficient hydrants and hose reels on each floor to ensure that every part of each floor can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (ii) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for the pump start and audio warning device initiation.
- (iii) Lift or lifts as designated.

**ADDITIONAL REQUIREMENTS**

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.26 Domestic buildings—high rise****REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Emergency lighting
- (ii) Emergency generators
- (iii) Exit signs
- (iv) Fire hydrant/hose reel systems
- (v) Fire alarm systems
- (vi) Fireman's communication systems
- (vii) Fireman's lifts
- (viii) Lifts—fire and life safety aspects of
- (ix) Pressurisation of staircases

**EXTENT**

- (i) Emergency lighting shall be provided to all staircases, passages and public areas including lift lobbies on all floors and refuge areas.
- (ii) Emergency generators of sufficient electrical capacity to supply power for the fire protection and life safety systems required to be installed in the building.
- (iii) Sufficient directional and exit signs to ensure that all exit routes from public areas to staircases are clearly indicated.
- (iv) There shall be sufficient hydrants and hose reels on each floor to ensure that every part of each floor can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (v) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (vi) To be provided in all lift lobbies serving Fireman's lifts including ground floor.
- (vii) Lift or lifts as designated.

- (viii) All lifts shall be connected to all systems which give alarm of fire so that when the alarm is actuated they shall return automatically to the lowest level of discharge except that, in the case of lifts which also serve basements, they must be returned to ground floor level.
- (ix) Required where natural light and ventilation are not provided.

#### *ADDITIONAL REQUIREMENTS*

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

#### **4.27 Electrical equipment: Incorporating transformers, switchgear above 1 kilovolt, generators/alternators requiring separate installations**

##### *REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic actuating devices
- (ii) Automatic fixed installations other than water
- (iii) Fire detection systems
- (iv) Portable hand-operated appliances

##### *EXTENT*

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Approved type as required by the Director of Fire Services.
- (iii) Approved type as required by the Director of Fire Services.
- (iv) As required by the Director of Fire Services.

#### **4.28 Explosive production and/or storages**

##### *REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

Managements shall direct their enquiries to respective licensing authorities, viz. Commissioner of Mines and Commissioner of Police in conjunction with the Building Authority.

#### **4.29 Garages**

##### *REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations using water
- (iv) Emergency lighting
- (v) Exit signs
- (vi) Fire hydrant/hose reel systems
- (vii) Fire alarm systems
- (viii) Portable hand-operated approved appliances
- (ix) Smoke/gas extraction systems
- (x) Ventilation/air conditioning control systems

##### *EXTENT*

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) As determined by the risk.

- (iii) As determined by the risk.
- (iv) Emergency lighting shall be provided throughout the premises and all exit routes.
- (v) Sufficient directional and exit signs to ensure that all exit routes from the premises within the building are clearly indicated as required by the configuration of staircases serving the building.
- (vi) There shall be sufficient hydrants and hose reels to ensure that every part of the premises can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (vii) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio visual warning device initiation within the premises.
- (viii) As required by the risk.
- (ix) Approved type as required by the risk.
- (x) Where a ventilation/air conditioning control system to the premises is provided a system must be provided to prevent the spread of smoke and combustion products.

#### *ADDITIONAL REQUIREMENTS*

Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

#### **4.30 Hotels—low rise**

##### *REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Emergency lighting
- (vi) Exit signs
- (vii) Emergency generators
- (viii) Escalators and moving walkways—fire and life safety aspects of
- (ix) Fire hydrant/hose reel systems
- (x) Fire alarm systems
- (xi) Fire detection systems
- (xii) Fireman's lifts—if lift(s) is/are installed
- (xiii) Fireman's communication systems
- (xiv) Fire control centre
- (xv) Lifts—fire and life safety aspects of
- (xvi) Portable hand-operated approved appliances
- (xvii) Pressurisation of staircases
- (xviii) Smoke/Gas extraction systems
- (xix) Ventilation/air conditioning control systems

##### *EXTENT*

- (i) As required by that equipment which requires to be automatically actuated.
- (ii) Sufficient provision to enable clear audio/visual advice to be given throughout the area of educational establishments and club premises where these premises exceed 460 m<sup>2</sup> of usable floor area.
- (iii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iv) Sprinkler system should cover all areas including common corridors.

- (v) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (vi) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.
- (vii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (viii) All escalators and moving walkways serving the building shall be connected to all systems giving alarm of fire so that when the alarm is activated, the escalators and moving walkways will stop and the protective shutters close.
- (ix) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (x) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (xi) A smoke detection system to be provided in all areas used for sleeping accommodation and also in lift lobbies.
- (xii) Lift or lifts as designated.
- (xiii) To be provided in all lift lobbies serving Fireman's Lifts including ground floor.
- (xiv) Minimum of one, additional to be provided according to the complexity of the building.
- (xv) All lifts shall be connected to all systems giving alarm of fire so that when the alarm is actuated they shall return automatically to the lowest level of discharge except that in the case of lifts which also serve basements, they must be returned to ground floor level.
- (xvi) As required by occupancy.
- (xvii) Required where natural light and ventilation are not provided.
- (xviii) The entire basement of all structures in this category shall be provided with smoke/gas extraction systems, except when these structures are 3 storey or less in height and have a volume of less than 7 000 m<sup>3</sup>.
- (xix) Where a ventilation/air conditioning control system is provided, a system must be provided to prevent the passage of smoke and combustion products.

#### *ADDITIONAL REQUIREMENTS*

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

#### **4.31 Hotels—high rise**

##### *REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Emergency lighting
- (vi) Exit signs
- (vii) Emergency generators



- (viii) Escalators and moving walkways—fire and life safety aspects of
  - (ix) Fire hydrant/hose reel systems
  - (x) Fire alarm systems
  - (xi) Fire detection systems
  - (xii) Fireman's lifts—lift(s) is/are installed
  - (xiii) Fireman's communication systems
  - (xiv) Fire control centre
  - (xv) Lifts—fire and life safety aspects of
  - (xvi) Portable hand-operated approved appliances
  - (xvii) Pressurisation of staircases
  - (xviii) Smoke/Gas extraction systems
  - (xix) Ventilation/air conditioning control systems

#### *EXTENT*

- (i) As required by that equipment which requires to be automatically actuated.
- (ii) Sufficient provision to enable clear audio/visual advice to be given throughout the area of educational establishments and club premises where these premises exceed 460 m<sup>2</sup> of usable floor area.
- (iii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iv) Sprinkler system should cover all areas including common corridors.
- (v) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (vi) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.
- (vii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (viii) All escalators and moving walkways serving the building shall be connected to all systems giving alarm of fire so that when the alarm is activated, the escalators and moving walkways will stop and the protective shutters close.
- (ix) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (x) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (xi) A smoke detection system to be provided in all areas used for sleeping accommodation and also in lift lobbies.
- (xii) Lift or lifts as designated.
- (xiii) To be provided in all lift lobbies serving Fireman's Lifts including ground floor.
- (xiv) Minimum of one, additional to be provided according to the complexity of the building.
- (xv) All lifts shall be connected to all systems giving alarm of fire so that when the alarm is actuated they shall return automatically to the lowest level of discharge except that in the case of lifts which also serve basements, they must be returned to ground floor level.
- (xvi) As required by occupancy.
- (xvii) Required where natural light and ventilation are not provided.
- (xviii) The entire basement of all structures in this category shall be provided with smoke/gas extraction systems.
- (xix) Where a ventilation/air conditioning control system is provided, a system must be provided to prevent the passage of smoke and combustion products.

*ADDITIONAL REQUIREMENTS*

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.32 Industrial/godown buildings—low rise***REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Emergency lighting
- (vi) Exit signs
- (vii) Emergency generators
- (viii) Fire hydrant/hose reel systems
- (ix) Fire alarm systems
- (x) Fire detection systems
- (xi) Fireman's lifts
- (xii) Fireman's communication systems
- (xiii) Fire control centre
- (xiv) Lifts—fire and life safety aspects of
- (xv) Portable hand-operated approved appliances
- (xvi) Smoke/Gas extraction systems
- (xvii) Ventilation/air conditioning control systems

*EXTENT*

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provisions to enable clear audio/visual advice to be given throughout the building.
- (iii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iv) In all areas including staircase excepting where covered by (iii) above.
- (v) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (vi) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated, as required by the configuration of staircases serving the building.
- (vii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (viii) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (ix) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (x) In all areas not covered by a sprinkler system.

- (xi) Lift or lifts as designated.
- (xii) To be provided in all lift lobbies serving Fireman's Lifts including ground floor.
- (xiii) Minimum of one, additional to be provided according to the complexity of the building.
- (xiv) All lifts shall be connected to all systems giving alarm of fire so that when the alarm is actuated they shall return automatically to the lowest level of discharge except that, in the case of lifts which also serve basements, they must be returned to ground floor level.
- (xv) As required by occupancy.
- (xvi) The entire building shall be provided with smoke/gas extraction systems.
- (xvii) Where a ventilation/air conditioning control system to a building is provided, a system must be provided to prevent the passage of smoke and combustion products.

#### *ADDITIONAL REQUIREMENTS*

Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

#### **4.33 Industrial/godown buildings—high rise**

##### *REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Emergency lighting
- (vi) Exit signs
- (vii) Emergency generators
- (viii) Fire hydrant/hose reel systems
- (ix) Fire alarm systems
- (x) Fire detection systems
- (xi) Fireman's lifts
- (xii) Fireman's communication systems
- (xiii) Fire control centre
- (xiv) Lifts—fire and life safety aspects of
- (xv) Portable hand-operated approved appliances
- (xvi) Smoke/Gas extraction systems
- (xvii) Ventilation/air conditioning control systems

##### *EXTENT*

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provisions to enable clear audio/visual advice to be given throughout the building.
- (iii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iv) In all areas including staircase excepting where covered by (iii) above.
- (v) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (vi) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.
- (vii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.

- (viii) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (ix) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (x) In all areas not covered by a sprinkler system.
- (xi) Lift or lifts as designated.
- (xii) To be provided in all lift lobbies serving Fireman's Lifts including ground floor.
- (xiii) Minimum of one, additional to be provided according to the complexity of the building.
- (xiv) All lifts shall be connected to all systems giving alarm of fire so that when the alarm is actuated they shall return automatically to the lowest level of discharge except that, in the case of lifts which also serve basements, they must be returned to ground floor level.
- (xv) As required by occupancy.
- (xvi) The entire building shall be provided with smoke/gas extraction systems.
- (xvii) Where a ventilation/air conditioning control system to a building is provided, a system must be provided to prevent the passage of smoke and combustion products.

#### *ADDITIONAL REQUIREMENTS*

Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

#### **4.34 Institutional buildings—low rise**

##### *REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Emergency lighting
- (vi) Exit signs
- (vii) Emergency generators (in hospitals and prisons only)
- (viii) Fire hydrant/hose reel systems
- (ix) Fire alarm systems
- (x) Fire detection systems
- (xi) Fireman's lifts
- (xii) Fireman's communication systems (in hospitals and prisons only)
- (xiii) Lifts—fire and life safety aspects of
- (xiv) Portable hand-operated approved appliances
- (xv) Ventilation/air conditioning control systems

##### *EXTENT*

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provisions to enable clear audio/visual advice to be given throughout the area of educational establishments and club premises, where these premises exceed 460 m<sup>2</sup> of usable floor area.
- (iii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iv) In all areas excepting where covered by (iii) above.
- (v) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.

- (vi) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.
- (vii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (viii) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (ix) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (x) A smoke detection system to be provided in all areas used for sleeping accommodation and also in lift lobbies.
- (xi) Lift or lifts as designated.
- (xii) To be provided in all lift lobbies serving Fireman's Lifts including ground floor.
- (xiii) All lifts shall be connected to all systems giving alarm of fire so that when the alarm is actuated they shall return automatically to the lowest level of discharge except that, in the case of lifts which also serve basements, they must be returned to ground floor level.
- (xiv) As required by occupancy.
- (xv) Where a ventilation/air conditioning control system to a building is provided, a system must be provided to prevent the passage of smoke and combustion products.

#### **ADDITIONAL REQUIREMENTS**

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.
- (iii) Protection for hospital lifts which are designated for evacuation purpose shall satisfy every condition for a Fireman's Lift with the exception of the internal floor area of car, and the minimum rated load factors.

#### **4.35 Institutional buildings—high rise**

##### **REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Emergency lighting
- (vi) Exit signs
- (vii) Emergency generators
- (viii) Fire hydrant/hose reel systems
- (ix) Fire alarm systems
- (x) Fire detection systems
- (xi) Fireman's lifts
- (xii) Fireman's communication systems
- (xiii) Fire control centre

- (xiv) Lifts—fire and life safety aspects of
- (xv) Portable hand-operated approved appliances
- (xvi) Pressurization of staircases
- (xvii) Smoke/Gas extraction systems
- (xviii) Ventilation/air conditioning control systems

#### *EXTENT*

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provisions to enable clear audio/visual advice to be given throughout the area of educational establishments and club premises, where these premises exceed 460 m<sup>2</sup> of usable floor area.
- (iii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iv) In all areas excepting where covered by (iii) above.
- (v) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (vi) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.
- (vii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (viii) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (ix) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (x) A smoke detection system to be provided in all areas used for sleeping accommodation and also in lift lobbies.
- (xi) Lift or lifts as designated.
- (xii) To be provided in all lift lobbies serving Fireman's Lifts including ground floor.
- (xiii) Minimum of one, additional to be provided according to the complexity of the building.
- (xiv) All lifts shall be connected to all systems giving alarm of fire so that when the alarm is actuated they shall return automatically to the lowest level of discharge except that, in the case of lifts which also serve basements, they must be returned to ground floor level.
- (xv) As required by occupancy.
- (xvi) Required where natural light and ventilation are not provided.
- (xvii) The entire building shall be provided with smoke/gas extraction systems.
- (xviii) Where a ventilation/air conditioning control system to a building is provided, a system must be provided to prevent the passage of smoke and combustion products.

#### *ADDITIONAL REQUIREMENTS*

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971. or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.
- (iii) Protection for hospital lifts which are designated for evacuation purpose shall satisfy every condition for a Fireman's Lift with the exception of the internal floor area of car, and the minimum rated load factors.

**4.36 Kitchens (other than kitchens in domestic premises)****REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

Kitchens shall normally be required to incorporate the fire protection and life safety systems in the building in which they are located with the addition of any special equipment/requirements as may be required by the Director of Fire Services.

**4.37 Lift motor rooms****REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

Portable hand-operated approved appliances.

**EXTENT**

As required by occupancy.

**4.38 Marine vessels (defined as ships for boats) under repair alongside****REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

Any vessel fitted with a fire main and under control of the shipyard (repairs) shall:

- (i) have the fire main operative, or a proper alternative to function in the role of the fire main;
- (ii) effective communication must be maintained between the vessel and the fire control centre of the shipyard.

**4.39 Mechanical plant rooms (group I)****REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

*Note:* Plant Rooms to exclude open gas fired appliances

- (i) Automatic actuating devices
- (ii) Automatic fixed installations other than water
- (iii) Fire detection systems
- (iv) Fixed automatically-operated approved appliances
- (v) Gas detection systems
- (vi) Portable hand-operated approved appliances
- (vii) Smoke/Gas extraction systems
- (viii) Ventilation/air conditioning control systems

**EXTENT**

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iii) As required by Director of Fire Services.
- (iv) As required by the risk.
- (v) As required by the risk.
- (vi) As required by the risk.
- (vii) Approved type as required by the risk.
- (viii) Where a ventilation/air conditioning control system to a building is provided a system must be provided to prevent the passage of smoke and combustion products.

**ADDITIONAL REQUIREMENTS**

Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.40 Mechanical plant rooms (group II)****REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

*Note:* Plant Rooms to exclude open gas fired appliances

- (i) Automatic actuating devices
- (ii) Automatic fixed installations other than water

- (iii) Emergency generators
- (iv) Emergency lighting
- (v) Exit signs
- (vi) Fire detection systems
- (vii) Fixed automatically-operated approved appliances
- (viii) Gas detection systems
- (ix) Portable hand-operated approved appliances
- (x) Smoke/Gas extraction systems
- (xi) Ventilation/air conditioning control systems

*EXTENT*

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (iv) Emergency lighting shall be provided throughout the entire building and all exit routes.
- (v) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.
- (vi) As required by the Director of Fire Services.
- (vii) As required by the risk.
- (viii) As required by the risk.
- (ix) As required by the risk.
- (x) Approved type as required by risk.
- (xi) Where a ventilation/air conditioning control system to a building is provided a system must be provided to prevent the passage of smoke and combustion products.

*ADDITIONAL REQUIREMENTS*

Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.41 Open sites of public assembly**

*REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT:*

&

*EXTENT FOR:*

Relevant licensing authorities pertinent to the applications shall be consulted for the requisite requirements with due recognition being given to the contents of this Code.

**4.42 Passenger terminals/stations**

*REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

Such terminals/stations to be the subject of individual consideration by the Director of Fire Services, taking into account their size and complexity. Requirements will be based generally on the various usages of the terminals/ stations in accordance with the relevant sections of this Code for similar usages, with additional requirements for other areas as considered necessary e.g. passenger movement areas.

**4.43 Petro-chemical complexes**

*REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Audio/visual advisory systems
- (ii) Automatic actuating devices



- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Dust detection systems
- (vi) Emergency generators
- (vii) Emergency lighting
- (viii) Fire alarm systems
- (ix) Fire control centre
- (x) Fire detection systems
- (xi) Fixed automatically-operated approved appliances
- (xii) Fixed foam systems
- (xiii) Gas detection systems
- (xiv) Portable hand-operated approved appliances
- (xv) Ring main systems with fixed pump/s
- (xvi) Smoke/Gas extraction systems
- (xvii) Ventilation/air conditioning control systems
- (xviii) Special equipment/requirements

*EXTENT*

- (i) Sufficient provisions to enable clear audio/visual advice to be given throughout the complex.
  - (ii) As required by that equipment which needs to be automatically actuated.
  - (iii) To be provided to areas where the use of water is undesirable for the risk.
  - (iv) In all areas including staircase excepting where covered by (iii) above.
  - (v) To be provided in all areas where there is a potential dust explosion hazard.
  - (vi) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
  - (vii) Emergency lighting shall be provided to all buildings within the complex and in addition, such lighting shall also be provided to ensure adequate external illumination to permit safe evacuation to the outside of the site boundary.
  - (viii) One actuating point and one audio warning device to be located at each hose reel point within the buildings. This actuating point should include facilities for fire pump start and audio warning device initiation, and in addition, one actuating point and one audio warning device to be provided at each hydrant outlet on the ring main system.
  - (ix) Minimum of one, additional to be provided according to the layout of the complex.
  - (x) As required by the Director of Fire Services.
  - (xi) As required by the risk.
  - (xii) As required by the risk.
  - (xiii) To be provided in all areas of risk.
  - (xiv) As required by the risk.
  - (xv) To be provided to cover those areas of such complexes not adequately served by public water mains.
  - (xvi) Approved type as required by the risk.
  - (xvii) Where a ventilation/air conditioning control system to a building is provided a system must be provided to prevent the passage of smoke and combustion products.
  - (xviii) As required by the Director of Fire Services.
- Note:* Buildings within such complexes shall conform to the requirements specified for similar premises in accordance with this Code.

#### 4.44 Places of public entertainment within low rise building

##### *REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:*

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Emergency lighting
- (vi) Exit signs
- (vii) Emergency generators
- (viii) Escalators and moving walkways—fire and life safety aspects of
- (ix) Fire hydrant/hose reel systems
- (x) Fire alarm systems
- (xi) Fire detection systems
- (xii) Fireman's lifts
- (xiii) Lifts—fire and life safety aspects of
- (xiv) Portable hand-operated approved appliances
- (xv) Smoke/Gas extraction systems
- (xvi) Ventilation/air conditioning control systems

##### *EXTENT*

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provisions to enable clear audio/visual advice to be given throughout the area.
- (iii) To be provided to areas where the use of water is unsuitable for the usage of the area e.g. the pin setting area in a bowling alley.
- (iv) In all areas excepting where covered by (iii) above.
- (v) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (vi) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.
- (vii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (viii) All escalators and moving walkways serving the building shall be connected to all systems giving alarm of fire so that when the alarm is activated the escalators and moving walkways will stop and the protective shutters close.
- (ix) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (x) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (xi) A smoke detection system to be provided in addition to the fixed installations at (iii) and (iv) above in those areas of special risk e.g. Cinema Projection Rooms, Theatre Stages, Dressing Rooms etc.
- (xii) Lift or lifts as designated.
- (xiii) All lifts shall be connected to all systems which give alarm of fire so that when the alarm is actuated they shall return automatically to the lowest level of discharge except that, in the case of lifts which also serve basements, they must be returned to ground floor level.
- (xiv) As required by occupancy.

- (xv) Shall be provided to each area where the volume exceeds 7 000 m<sup>3</sup>.
- (xvi) Where a ventilation/air conditioning control system to a building is provided, a system must be provided to prevent the passage of smoke and combustion products.

#### **ADDITIONAL REQUIREMENTS**

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.
- (iii) *Restaurants*:—No cooking outside the kitchen. Water boiling with electricity is permitted.

#### **4.45 Places of public entertainment within high rise building**

##### **REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Emergency lighting
- (vi) Exit signs
- (vii) Emergency generators
- (viii) Escalators and moving walkways—fire and life safety aspects of
- (ix) Fire hydrant/hose reel systems
- (x) Fire alarm systems
- (xi) Fire detection systems
- (xii) Fireman's lifts
- (xiii) Fireman's communication systems
- (xiv) Fire control centre
- (xv) Lifts—fire and life safety aspects of
- (xvi) Portable hand-operated approved appliances
- (xvii) Pressurization of staircases
- (xviii) Smoke/Gas extraction systems
- (xix) Ventilation/air conditioning control systems

##### **EXTENT**

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) Sufficient provisions to enable clear audio/visual advice to be given throughout the area.
- (iii) To be provided to areas where the use of water is undesirable for the usage of the area.
- (iv) In all areas excepting where covered by (iii) above.
- (v) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (vi) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.

- (vii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (viii) All escalators and moving walkways serving the building shall be connected to all systems giving alarm of fire so that when the alarm is activated the escalators and moving walkways will stop and the protective shutters close.
- (ix) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (x) One actuating point and one audio warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (xi) A smoke detection system to be provided in all areas used for sleeping accommodation and also in lift lobbies.
- (xii) Lift or lifts as designated.
- (xiii) To be provided in all lift lobbies serving Fireman's Lifts including ground floor.
- (xiv) Minimum of one, additional to be provided according to the complexity of the building.
- (xv) All lifts shall be connected to all systems which give alarm of fire so that when the alarm is actuated they shall return automatically to the lowest level of discharge except that, in the case of lifts which also serve basements, they must be returned to ground floor level.
- (xvi) As required by occupancy.
- (xvii) Required where natural light and ventilation are not provided.
- (xviii) All such areas shall be provided with smoke/gas extraction systems.
- (xix) Where a ventilation/air conditioning control system to a building is provided, a system must be provided to prevent the passage of smoke and combustion products.

#### **ADDITIONAL REQUIREMENTS**

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.  
In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.  
No decoration of a readily combustible nature shall be permitted.
- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.
- (iii) *Restaurants*:—No cooking outside the kitchen. Water boiling with electricity is permitted.

#### **4.46 Railway marshalling yards (encompassing a site area of more than 2 300 m<sup>2</sup>)**

##### **REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Emergency generators
- (ii) Emergency lighting
- (iii) Fire alarm systems
- (iv) Portable hand-operated approved appliances
- (v) Ring main systems with fixed pump/s
- (vi) Special equipment/requirements

##### **EXTENT**

- (i) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (ii) Emergency lighting shall be provided to all buildings within the yard, and in addition, such lighting shall also be provided to ensure adequate external illumination to permit safe evacuation to the outside of the site boundary.

- (iii) One actuating point and one audio warning device to be located at each hydrant point on the ring main systems. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (iv) As required by occupancy.
- (v) To be provided to cover those areas of the yard not adequately served by public water mains.
- (vi) As required by the Director of Fire Services.

*Note:* Buildings within the yard shall conform to the requirements specified for similar premises in accordance with this Code.

#### **4.47 Road tunnels**

##### **REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Automatic fixed installations other than water
- (ii) Closed circuit television system
- (iii) Emergency generators
- (iv) Emergency lighting
- (v) Fire alarm systems
- (vi) Fire control centre
- (vii) Fire hydrant/hose reel systems
- (viii) Fireman's communication system(s)
- (ix) Gas detection system(s)
- (x) Pedestrian cross over facilities
- (xi) Portable hand-operated approved appliances
- (xii) Smoke/Gas extraction systems
- (xiii) Traffic control signs

##### **EXTENT**

- (i) To be provided to areas where the use of water is undesirable for the risk.
- (ii) To be provided to enable clear visual observation throughout the length of the tunnel.
- (iii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (iv) Emergency lighting shall be provided throughout the entire tunnel.
- (v) One actuating point and one visual warning device to be located at each hose reel point. This actuating point should include facilities for fire pump start and audio visual warning device initiation within the tunnel control centre.
- (vi) A fire control centre to be provided. This may be part of the tunnel control centre.
- (vii) There shall be sufficient hydrants and hose reels to ensure that every part of the tunnel can be reached by a length of not more than 30 m of Fire Services hose or hose reel tubing.
- (viii) Direct telephone system with telephones sited alongside the hydrant/hose reel points, terminating at the fire control centre.
- (ix) Gas detection system(s) to include carbon monoxide indication and alarm.
- (x) Facilities to be provided in twin tube tunnels where practicable.
- (xi) As required by the risk.
- (xii) To be provided where the tunnel exceeds 230 m.
- (xiii) To be provided at each entrance together with warning lights within the tunnel.

#### **4.48 Shipyards (encompassing a site area of more than 2 300 m<sup>2</sup>)**

##### **REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Audio/visual warning systems
- (ii) Automatic actuating devices

- (iii) Emergency generators
- (iv) Emergency lighting
- (v) Fire alarm systems
- (vi) Fire control centre
- (vii) Portable hand-operated approved appliances
- (viii) Ring main systems with fixed pump/s
- (ix) Special equipment/requirements

**EXTENT**

- (i) Sufficient provisions to enable clear audio/visual advice to be given throughout the yard.
- (ii) As required by that equipment which needs to be automatically actuated.
- (iii) An independently powered generator of sufficient electrical capacity to meet the essential services it is required to provide.
- (iv) Emergency lighting shall be provided to all buildings within the yard, and in addition, such lighting shall also be provided to ensure adequate external illumination to permit safe evacuation to the outside of the site boundary.
- (v) One actuating point and one audio warning device to be located at each hydrant point on the ring main systems. This actuating point should include facilities for fire pump start and audio warning device initiation.
- (vi) Minimum of one, additional to be provided according to the layout of the yard.
- (vii) As required by occupancy.
- (viii) To be provided to cover those areas of the yard not adequately served by public water mains.
- (ix) As required by the Director of Fire Services.

*Note:* Buildings within the yard shall conform to the requirements specified for similar premises in accordance with this Code.

**ADDITIONAL REQUIREMENTS**

Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**4.49 Telephone distribution equipment, computer installation and similar installations**

**REQUIREMENTS—SYSTEMS/INSTALLATIONS/EQUIPMENT FOR:**

- (i) Automatic actuating devices
- (ii) Audio/visual advisory systems
- (iii) Automatic fixed installations other than water
- (iv) Automatic fixed installations using water
- (v) Emergency lighting
- (vi) Exit signs
- (vii) Fire alarm systems
- (viii) Fire detection systems
- (ix) Fixed automatically-operated approved appliances
- (x) Portable hand-operated approved appliances
- (xi) Ventilation/air conditioning control systems

**EXTENT**

- (i) As required by that equipment which needs to be automatically actuated.
- (ii) As required by the risk.
- (iii) As required by the risk.

- (iv) As required by the risk.
- (v) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (vi) Sufficient directional and exit signs to ensure that all exit routes from the premises within the buildings are clearly indicated as required by the configuration of staircases serving the building.
- (vii) As required by the risk.
- (viii) As required by the risk.
- (ix) As required by the equipment at risk.
- (x) As required by the risk.
- (xi) Where a ventilation/air conditioning control system to a building is provided, a system must be provided to prevent the passage of smoke and combustion products.

#### *ADDITIONAL REQUIREMENTS*

- (i) All linings, e.g. for acoustic, thermal insulation or decorative purposes etc. shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7: 1971, or be brought up to that standard by use of an approved flame retardant product.

In both cases certification is required to be submitted to Fire Services Department by the person/s responsible for such work.

No decoration of a readily combustible nature shall be permitted.

- (ii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

**PART V****SPECIFICATION AND TESTING**

- 5.1 Audio/Visual Advisory Systems
- 5.2 Automatic Actuating Devices
- 5.3 Automatic Fixed Installations Other Than Water
- 5.4 Automatic Fixed Installations Using Water
- 5.5 Deluge Systems
- 5.6 Drencher Systems
- 5.7 Dust Detection Systems
- 5.8 Emergency Generators
- 5.9 Emergency Lighting
- 5.10 Escalators And Moving Walkways—Fire and Life Safety Aspects of
- 5.11 Exit Signs
- 5.12 Fire Alarm Systems
- 5.13 Fire Control Centre
- 5.14 Fire Detection Systems
- 5.15 Fire Hydrant/Hose Reel Systems
- 5.16 Fireman's Communication Systems
- 5.17 Fireman's Lifts
- 5.18 Fixed Automatically-Operated Approved Appliances
- 5.19 Fixed Foam Systems
- 5.20 Gas Detection Systems
- 5.21 Hose Reels
- 5.22 Lifts—Fire and Life Safety Aspects of
- 5.23 Portable Hand-Operated Approved Appliances
- 5.24 Pressurization of Staircases
- 5.25 Ring Main Systems with Fixed Pumps
- 5.26 Smoke/Gas Extraction Systems
- 5.27 Smoke Vents
- 5.28 Sprinkler Systems
- 5.29 Supply Tank
- 5.30 Ventilation/Air Conditioning Control Systems
- 5.31 Water Spray Systems
- 5.32 Water Supplies



## 5.1 Audio/visual advisory systems

### (i) SPECIFICATION

Fire alarm bells, klaxons, sirens etc. which are an integral part of an automatic or a manual fire alarm system are not included in this section.

#### AUDIO

A system of records/signals either verbal or musical or direct transmission over a Public Address System to advise staff and other occupants of emergency conditions and the action to be followed.

In special occupancy premises e.g. hospitals, cinemas, an agreed sound signal may be broadcast to give early warning to staff of emergency conditions which may or may not necessitate action by them at that time.

In a major building the power supply to the sound system should be from both main and emergency (essential) circuits.

#### VISUAL

A system of coloured and/or flashing lights, clearly discernible from normal lighting and signalling within a building to indicate, *inter alia*.

- (i) evacuation routes to be followed;
- (ii) early warning to staff that a minor fire incident has occurred within the building which may or may not necessitate action by the staff so advised.

The lights along escape routes shall be so positioned that the next light is clearly visible as each light is passed.

Only bulbs of one colour shall be used on any one exit/evacuation route.

In cinemas, a recognisable slide may be projected on the screen to advise staff of an incident which may require their action prior to a general alarm being made.

### (ii) TESTING

A weekly visual and audio check of all signals.

The system shall also be checked during any fire drill.

## 5.2 Automatic actuating devices

### (i) SPECIFICATION

Components under this section will include fire stop doors, fire dampers, fire curtains and other means of providing compartmentation/fire separation automatically in the event of fire. Automatic fire detection and fire suppression systems are *not* included in this section.

They shall be constructed and installed in accordance with Fire Offices' Committee Rules or other standards acceptable to the Director of Fire Services.

### (ii) TESTING

The component shall be capable of manual and automatic operation and regular testing. Test shall confirm that the designed enclosure/separation shall be completed within the time specified for that particular device.

## 5.3 Automatic fixed installations other than water

### (i) SPECIFICATION

Carbon dioxide, BCF and BTM or similar extinguishing system, shall be installed in accordance with standards acceptable to the Director of Fire Services.

When installed the system may be combined manual/automatic with or without remote operation.

Such systems in their simplest form consist of one or more storage containers with discharge valves, detection heads, piping and discharge nozzles.

If the system is intended for total flooding of the premises/compartment, then automatic actuating devices (Section 5.2) may be necessary, in addition, to ensure complete compartmentation.

(ii) *TESTING*

The system shall be tested by direct and/or remote control in accordance with test procedures as laid down in the acceptable standard.

If any part of the system fails during test, then the whole system shall be brought up to full readiness by a registered fire services installation contractor.

**5.4 Automatic fixed installations using water**

These may include:

Deluge Systems

Drencher Systems

Sprinkler Systems

Water Spray Systems

Fixed Foam Systems

Specifications and testing for the above are in the respective sections.

**5.5 Deluge systems**(i) *SPECIFICATION*

A deluge system may be required in a risk area where fire may be expected to spread quicker than the progressive operation of normal sprinkler heads.

The design of such system will be the subject of consultation with Fire Services Department.

(ii) *TESTING*

Testing shall be in accordance with the requirements of the Director of Fire Services.

**5.6 Drencher systems**(i) *SPECIFICATION*

Such system shall be installed in accordance with the current edition of Fire Offices' Committee Rules or other standards acceptable to the Director of Fire Services.

(See Water Supplies—Section 5.32)

(ii) *TESTING*

The testing procedure shall be in accordance with the appropriate standard or as required by the Director of Fire Services.

**5.7 Dust detection systems**(i) *SPECIFICATION*

Very few types of premises will require such a system and the type will depend on the industry/trade/usage of the premises.

Each required system shall be designed in consultation with and to the approval of the Fire Services Department.

Each system shall:

- (a) be automatic in action;
- (b) close down the affected process;
- (c) operate pressure relief vent (if appropriate);
- (d) be connected to the fire alarm systems for the premises.

(ii) *TESTING*

Testing appropriate to the system will be carried out at intervals agreed with the Director of Fire Services.

If the system is capable of being actuated manually, such manual actuation will be tested to confirm subsequent operations.

## 5.8 Emergency generators/alternators

### (i) SPECIFICATION

#### *General*

The alternator set shall be designed for cold starting and be capable of accepting the full rated load in not more than 15 seconds.

The set shall be capable of continuously operating under the appropriate site conditions which shall normally be a temperature range of 5 deg. C to 40 deg. C, relative humidity 100% and the altitude of the actual site.

For reliability it is recommended that the shaft speed shall not exceed 25 r/s.

Each item of equipment incorporated in the set shall be to the latest edition of the relevant British Standard. Full compliance with the latest edition of the I.E.E. Regulations is also necessary.

The alternator set shall be completely assembled and tested at the manufacturer's works and delivered to site as a complete unit.

The prime mover may be of any form provided that the start-up time of 15 seconds is not exceeded and reliability is ensured.

Petrol, kerosene and similar fuels are not acceptable.

The alternator set shall have a minimum full load rating of not less than the consumption of all devices simultaneously connected thereto plus 10%.

### (ii) ALTERNATOR

The alternator shall be self-exciting, self-regulating and brushless.

It shall be a screen protected, drip proof machine complying with British Standard 5000: Part 99: 1973.

The alternator shall be fitted with an anti-condensation heater.

Under steady load conditions the output voltage shall be maintained within plus or minus 1½% whilst under surge and starting load conditions regulation shall be within plus or minus 6% with frequency maintained at 50 Hz plus or minus 1½%.

### (iii) DIESEL ENGINE

If a diesel engine is provided as the prime mover it is recommended that the shaft speed shall not exceed 25 r/s.

The engine may be of any form either naturally aspirated or pressure charged and shall be of industrial type complying with British Standard 5514 Parts 1 to 5.

The recommended fuel is "light" diesel fuel to Class A1 or A2 of British Standard 2869: 1983.

### (iv) FUEL STORAGE

The unit shall be complete with an integral fuel storage system capable of sustaining full load operation for a period of not less than 6 hours.

### (v) INSTALLATION

The provision of anti-vibration mountings for all sets is recommended.

Adequate (not less than 600 mm) space all round units shall be provided for maintenance and cleaning.

Ventilation to the approval of the Director of Fire Services shall be provided for both combustion and cooling air. If fans are necessary to provide this air they shall operate at all times while the alternator set is running.

The air supply and discharge shall be direct to outside air without any possible obstructions i.e. no fire, smoke or regulating dampers shall be fitted.

Attention is drawn to the possible necessity to provide acoustic or other treatment to ensure the noise level outside the building is within the relevant guidelines set down by Urban Services Department or other authorities.

Exhaust discharges of both combustion products and cooling air shall not cause a public nuisance.

(vi) *ENGINE STARTING*

Engine starting may be electric or compressed air.

(a) *Electric starting*

Shall be served by heavy duty batteries especially designed for starting purposes.

The batteries shall be of such a capacity as to ensure four operations of the starter each of 15 seconds duration with 5 seconds intervals between each operation without permanent damage nor reduction in the rated life.

Batteries may be of any reliable type and either vented or sealed.

For lead-acid batteries high performance Plante positive type to British Standard 6290: Part 2: 1984 are recommended.

Where vented batteries are used they shall be installed in suitable ventilated enclosures to the approval of the Director of Fire Services. British Standard 6133: 1982 shall be used as a guideline for lead-acid battery installations.

The system shall be provided with a trickle/boost type battery charger which shall be energised at all times either from the mains or the alternator set.

(b) *Compressed Air Starting*

Shall be served from a compressed air receiver of sufficient volume to provide for the starting sequence described in sub-section (a) above. The receiver shall be maintained at working pressure at all times by an air compressor which shall be operated at all times either from the mains or the alternator set.

Provide all necessary operating and safety devices to ensure operation when required including a low pressure alarm.

(vii) *OPERATION*

Failure of one or more phases of the mains supply or a reduction of voltage to less than 70% of normal shall initiate a timing device having an adjustable setting from 0.5 to 1.0 seconds.

If the failure persists at the expiry of the time delay period the prime mover start sequence shall begin.

Within 15 seconds of the start sequence commencing, the unit shall be stabilised at its running speed and full load transfer shall take place automatically.

Should the prime mover fail to start after a period of 15 seconds, the sequence shall be interrupted for a period of 5 seconds and a further attempt to start of 15 seconds duration shall then be made. If it again fails to start, the starting sequence should be locked out, an audible and visual alarm given and it shall remain in this locked out condition until manually reset.

Restoration of the mains supply during the starting period shall not interrupt the starting sequence but shall prevent operation of the load transfer.

Subsequent failure of the mains supply while the unit is running shall, after expiration of the 0.5 to 1.0 seconds time delay, cause the load transfer to take place.

On the full restoration of normal supply, load transfer and shutting down of the unit shall be by manual operation.

Detailed instructions for operation, manual testing and shut down of the unit shall be clearly displayed on or adjacent to the control panel.

All operating personnel shall be given regular instructions in the operation and use of the plant.

(viii) *CONTROLS, SAFETY DEVICES & CONTROL PANEL/CUBICLE*

The alternator set shall be complete with all necessary devices for safe operation and control but not less than the following:

- (a) Prime mover speed governor
- (b) Engine time run meter
- (c) Output voltmeter and selector switch
- (d) Output ammeter and selector switch

- (e) Output frequency meter
- (f) Automatic voltage regulator
- (g) Mains sensing device(s)—see operation sub-section
- (h) Load transfer contactor(s)
- (i) “Fail to start” audible and visible alarms with contacts for remote signals where applicable
- (j) “Engine fault” audible and visible alarms with contacts for remote signals where applicable
- (k) Manual selector switch for “run” and “test” with manual start button
- (l) Manual stop button

Controls and operating devices shall be mounted in a panel or cubicle which may be unit or floor mounted. In all instances it shall be of substantial construction and shall incorporate not less than the following:

- (a) Corrosion resistant construction
- (b) Anti-condensation heater
- (c) Labels with lettering in English (not less than 5 mm high) and Chinese (not less than 8 mm high) indicating functions of all devices
- (d) Wiring of oil and fire resistant materials
- (e) Ease of access for servicing
- (f) Protective fuses for all circuits
- (g) Vibration free mounting

The controls arrangements shall be such that under normal situations the unit may shut down on fault conditions occurring.

However, where danger to life exists, in the event of mains failure i.e. fire in a building, the automatic shut down features on fault shall be overridden by a signal from a fire panel or other device approved by the Director of Fire Services and the unit shall run to destruction if necessary or until the danger to life has passed.

(ix) *MAINTENANCE AND TESTING*

Fully detailed maintenance and testing instructions shall be provided in a permanent form adjacent to the unit.

A log book shall be provided, be retained in the plant room and be kept up to date recording at the time of occurrence all operations, faults occurrences and corrective action taken, routine servicing, maintenance and periodic operation, etc. including dates, times, hour meter readings, workers/supervisors names and signatures, etc. for the unit, batteries, compressors, etc.

Care and maintenance of any batteries shall be based on Section 5 of British Standard 6133:1982 but shall be incorporate the manufacturers specific recommendations for operation under Hong Kong conditions.

All units shall be exercised once monthly under full load conditions for a period of not less than 30 minutes. During this running period all operating conditions shall be checked. Following this running period functional tests shall be carried out on all automatic and manual starting devices and safety controls.

Care and maintenance of any compressed air starting system shall include running of the compressor and functional operation of all operating and safety devices.

Further routine testing and maintenance for a particular installation may be required by the Director of Fire Services.

Fuel tanks must be left filled after testing.

## 5.9 Emergency lighting

(i) *SPECIFICATION*

- (a) Emergency lighting for all premises shall comply with British Standard 5266: Part 1: 1975 except that exit signs shall be as at Section 5.11. hereof.

*CINEMAS, THEATRES, ETC.*

- (b) Emergency lighting for cinemas/theatres and other specified premises used for entertainment shall, additionally, comply with the following:
- (c) Battery emergency lighting systems shall be operated at a normal battery voltage of not less than 24 volts and not more than 120 volts D.C., from a common bank.
- (d) Batteries used shall be heavy duty of rechargeable (secondary) type; batteries of primary cells of any type whatsoever will not be acceptable.
- (e) Batteries shall be installed in a room approved for this purpose by the Licensing Authority.
- (f) Batteries in celluloid containers shall not be installed, stored or used.
- (g) A margin allowance of  $12\frac{1}{2}\%$  of the total required battery capacity (amperehour rating *not* voltage) shall be provided, i.e.  $100\% + 12\frac{1}{2}\% = 112\frac{1}{2}\%$ .
- (h) All batteries for the emergency lighting circuits shall be kept fully charged at all times and shall be capable of maintaining the stipulated lighting levels for a period of not less than 2 hours.
- (i) An automatic trickle charger with mains input and suitable output, fitted with meters, regulators and pilot lights, shall be provided for the batteries. The charger shall be capable of fully re-charging the batteries in not more than 12 hours.
- (j) Upon failure of the main lighting system the emergency lighting system shall automatically light up.
- (k) In the event of failure of the main lighting the public shall, unless the capacity of the battery is sufficient to maintain specified conditions for not less than four hours, within one hour be required to leave the building and they shall not be re-admitted until the general lighting has been fully restored *and* the emergency system recharged.
- (l) The supply from the batteries shall feed a main distribution fuse board and thence be subdivided to four subdistribution fuse boards, as follows:
- Exit lighting
  - Stair lighting
  - Auditorium lighting
  - Stage lighting
- (m) Outgoing circuits shall be suitably protected by fuses to British Standard 88 or miniature circuit breakers to British Standard 3871: Part 1.
- (n) A diagram showing details of the distribution system and the circuit wiring of the emergency lighting system shall be erected at the main distribution board.
- (o) The emergency lighting system shall be wired in M.I.C.C. cable to British Standard 6207: Part 1: 1969 or other fire resistant cable approved by Fire Offices' Committee and be fully segregated from the general distribution system.
- (p) The minimum illumination provided at floor level by the emergency lighting system shall be:
- |   |                        |
|---|------------------------|
| Staircase   | not less than 2 Lux.   |
| Nightclub, restaurant, dance hall or premises where people have freedom of movement and there are loose fixtures and fittings | not less than 1 Lux.   |
| Cinemas and theatres  | not less than 0.5 Lux. |
- measured at the mid-point between any two emergency lighting fittings. A discretionary tolerance of plus or minus 10% is permitted and all readings shall be taken by a portable photoelectric photometer.
- (q) All points shall have equal lumen output and distribution characteristics giving equal intensity of light in all material directions. Each point shall be so sited as to avoid impairment of vision from glare. Points, except where so specified and approved, shall be mounted at a height of not less than 2 metres.
- (r) The maximum permissible period for visual adaptation shall not exceed 5 seconds at any point on the premises.

- (s) The minimum number of fittings permissible in any installation shall not be less than two (N.B. if only one fitting were provided and a lamp filament failure occurred, a hazardous situation would result).
- (t) All lighting fittings in the emergency lighting system shall be of flame retardant construction, shall comply with British Standard 4533 Section 1.13 and be permanently fixed in position.

#### *MAINTENANCE*

- (u) Once every month a discharge test, for 1 minute at the 10-hour discharge rate, shall be carried out, and the results entered in a register, the on-load voltage of each cell after this test shall be not less than 2.01 for Lead Acid and 1.25 for Nickel Cadmium.
- (v) For battery systems the control and safety devices installed, shall be regularly tested as under:
  - (i) Connections between the battery and the source of charging current shall be such that in no circumstances shall the battery discharge other than to the secondary lighting circuits.
  - (ii) A rectifier for charging shall be for that purpose only and shall be so regulated that the battery cannot discharge appreciably under normal conditions.
- (w) Voltage and Hydrometer tests shall be carried out weekly and recorded in a register.

#### (ii) *TESTING*

- (x) Further Tests shall be carried out in accordance with British Standard 5266: Part 1: 1975.
- (y) Emergency lighting systems installed in cinemas/theatres and other specified premises used for entertainment shall additionally be tested annually by the appropriate power supply company who shall issue to the Director of Fire Services a certificate of a satisfactory test result.

### **5.10 Escalators and moving walkways—Fire and Life Safety Aspects of**

#### (i) *SPECIFICATION*

These shall be installed in compliance with Regulations made under the Buildings Ordinance Chapter 123, with Fire Offices' Committee Rules or such other standards acceptable to the Director of Fire Services.

The on/off controls shall be wired into the fire detection system for the building so that should a fire occur at either end of the escalator/moving walkway, the escalator/moving walkway will automatically "stop" to prevent people from being carried into a fire risk area. Restarting of the escalator/moving walkway must be carried out manually at the control panel on the equipment. (i.e. no remote start is permitted.)

Attention is drawn particularly to the provisions of Regulation 32 of Building (Escalators) Regulations, Chapter 123.

#### (ii) *TESTING*

Installation, maintenance and testing shall be carried out by a registered escalator contractor as defined in Section 2 of the Buildings Ordinance.

A fire alarm situation shall be simulated and the escalator/moving walkway shall be visually checked to ensure that it "STOPS". As escalators and moving walkways are sometimes wired for normal remote start/stop control, the controls shall be checked to ensure that after a fire alarm "STOP", the escalator/moving walkway can only be started locally.

### **5.11 Exit signs**

#### (i) *SPECIFICATION*

Exit signs shall be internally illuminated bearing the word and characters "EXIT 出口" in block letters and characters of not less than 125 mm high with 15 mm wide strokes.

#### *COLOURS*

Recent research has shown that the traditional red or white is not always the best colour combination.

In the absence of any special considerations, the colour for exit signs shall be green having the spectral characteristics of colour filter No. 24 dark green.

Where the colour will not provide a conspicuous contrast with the colour of the general decoration and under all conditions of ambient lighting, one of the following colours shall be used:

- (a) No. 23 Deep amber;
- (b) No. 15 Peacock blue; and
- (c) No. 6 Primary red.

The colours shall comply with the requirements of B.S. 3944.

Colour contrast for lettering and surrounds should be as follows:

<i>Colour</i>	<i>Contrast Colour</i>
Green	} White
Blue	
Red	
Yellow	Black

Irrespective of which colour combinations are used, only signs of same colour combination shall be installed in any one premises.

In the absence of any special consideration, signs should be translucent surrounds to lettering.

#### *DIRECTIONAL SIGNS*

If a sign is not installed immediately above an exit or if an exit is not clearly visible from normally occupied parts of the premises, directional sign conforming to Table 10 of B.S. 5499 should be erected.

#### *SELF LUMINOUS SIGNS*

Self luminous signs to British Standard 4218 (adapted as for para. 1) are approved for use in Hong Kong, however, their use is not permitted where legislation specifies *illuminated* exit signs.

#### (ii) *TESTING*

Exit signs shall be tested whenever an emergency lighting system is tested. As exit signs are normally lit when premises are occupied, no additional test procedure is necessary, other than regular maintenance.

### **5.12 Fire alarm systems**

#### (i) *SPECIFICATION*

*Note:* This section deals only with manually operated alarm points of a system. (See British Standard 5839: Part 1: 1980)

Pure manual systems such as hand bells, whistles, rotary gongs, etc. are not within the scope of this Code, however, subject to the approval of the Director of Fire Services, an existing sound signal system within a premises may be utilized as a manual fire alarm system (e.g. school premises) subject to the specific signal being used solely to notify occupants of a fire situation.

Manual actuating points of a pattern conforming with standards acceptable to the Director of Fire Services may be installed as an integrated part of an automatic fire detection system. Such manual actuating points shall be installed in compliance with the appropriate standard, in such locations within the premises, as set out elsewhere in this Code for the individual types of premises.

#### (ii) *TESTING*

Manual fire alarm points are to be tested when the whole system is required to be tested in accordance with the appropriate standard.

Attention is drawn to Regulation 38 of the Education Regulations, Chapter 279 in respect of fire alarm testing and fire drills in schools.

### **5.13 Fire control centre**

#### (i) *SPECIFICATION*

A room/compartments normally at ground floor level on the main face of a building, preferably adjacent to main entrance.



The room shall be separated from the remainder of the building by walls having a minimum fire resisting period of one hour, and shall be large enough to house equipment, recorders, annunciators, etc. ancillary to the fire protection system installed in the building.

It shall be continuously manned by trained personnel.

Local termination/repeaters of fire protection and life safety systems will be installed together with test facilities of the systems as appropriate.

Electrical supply will be from the essential supplies circuit (both normal and emergency).

It may be called into use as Fire Services Department Command Unit during an incident involving the premises.

(ii) *TESTING*

The routine testing of the various systems within the premises will be carried out in accordance with the appropriate standard or code and as outlined elsewhere in this Code.

No other individual test is considered appropriate.

**5.14 Fire detection systems**

(i) *SPECIFICATION*

Systems shall be installed in accordance with Fire Offices' Committee Rules or other standards acceptable to the Director of Fire Services. A direct line connection shall be provided to the Fire Services Communication Centre or such other premises as may be agreed with the Director of Fire Services.

Detection heads may be of heat detecting type or smoke detecting type and heads of both types may be installed within the same system. The choice of type of head will in most instances be dictated by the circumstances, however, liaison with the Fire Services Department in the planning stage is essential.

Monitoring of the system in the early stages of building operation will be necessary to "locate" any head that, for any reason, is originating false alarms.

(ii) *TESTING*

The system and components will be tested in accordance with the appropriate standard or as required by the Director of Fire Services.

The direct line connection will be tested at such time and interval as agreed by the Director of Fire Services.

**5.15 Fire hydrant/hose reel installations Systems**

(i) *SPECIFICATION*

Each hydrant outlet shall conform with British Standard 5041: Part 1: 1975 and British Standard 5306: Part 1: 1976 as appropriate and:

(a) *HYDRANT OUTLET*

Shall be prominently sited in an approach lobby to a staircase or in the staircase enclosure. It should preferably be recessed into a wall which is not a staircase enclosing wall or smoke lobby wall. When recessed there shall be an all round clearance between any part of the hydrant outlet and valve and the enclosing walls sufficient to permit the free use of the hydrant, the fitting of an adaptor. When not recessed the hydrant shall be adequately protected against damage.

Shall be not less than 800 mm nor more than 1 200 mm above floor level.

Shall not obstruct wholly, partly or indirectly any door opening, or the required width of any exit route.

Shall be so sited as not to be concealed by the leaves of an adjacent door when that door is opened.

Shall be of non-corrosive metal. The outlets of all hydrants shall be of 63.5 mm standard female instantaneous type and be controlled by a wheel operated screw valve designed to open by counter-clockwise rotation. The direction of opening of the valve shall be clearly engraved in both English and Chinese on the wheel of the valve.

(b) *HOSE REEL*

Hose reels shall comply with British Standard 5274: 1976 and British Standard 5306: Part 1: 1975 or other standards acceptable to the Director of Fire Services.

The design of the hose reel shall be such that the tubing is permanently connected, via pipes in the drum of the hose reel and such stuffing boxes as may be necessary, to the hydrant supply main.

The hose reel nozzle shall have a 4.5 mm orifice and be fitted with a simple two way valve to open or shut off jet, the valve must not be spring loaded.

Any hose reel sited on any escape route may be carried on a swinging cradle so recessed into the wall that when not in use the outer face of the reel is flush with the wall and when required for use the cradle may swing out into the corridor or passage, without undue obstruction and without serious interference with any exit point or, be of a fixed type with a suitable guide ring.

(c) *SUPPLY TANK*

The reserve water supply for fire fighting shall be contained in a supply tank. (See Section 5.29)

(d) *FIRE PUMPS*

Fire pumps shall be permanently primed and duplicated for duty and standby use.

The pump should preferably be electrically driven but, whatever mode of power for driving the pump is employed, means shall be provided for starting the pump by electric remote control button. Where the motive power for any pump is not electricity, alternative means of starting the pump motor manually, in addition to remote control buttons, shall be provided and directions for so starting prominently displayed in the pump house. Remote starting points shall be wired for starting the pump and operating the manual alarm system. There shall be no means of stopping the pump, other than by switches of the press button type, which re-set the remote control start switches.

The fire pump starters shall be wired through a selector switch for duty and standby pump selection. Should the duty pump fail to operate within 15 seconds the standby pump shall be energized to become the duty pump. A warning light is to be provided alongside the remote control button location to give indication of "no flow" should the standby pump fail to operate due to its being out of service for maintenance or breakdown reasons. A lock-off button adjacent to the fire pump shall be permitted.

Where fixed fire pumps other than the pump fed direct by the supply tank are provided in wet rising mains, suitable stop/start switches shall be provided to enable the Fire Services to exercise control of such booster pumps independently of the switches required by the above paragraph. Such switches must be situated in or near the Fire Services Department Inlet Box and clearly indicated.

The water supplied through the fixed fire pump shall feed a wet rising main to all fire hydrants and hose reels.

A non-ferrous non-return valve to be provided between the downcoming main and the fixed fire pump.

Remote control buttons for fixed fire pumps shall be sited near the hose reel. Starter buttons shall be enclosed in an independent glass fronted cabinet and must be clearly marked in English and Chinese characters "FIRE PUMP STARTER" (救火泵發動掣).

All fixed fire pumps shall be housed in suitable enclosures, preferably brick or concrete, designed solely for occupation by the pump. Such pump houses shall lie clear of any exit or normal communication routes through the premises and shall be clearly marked in English and Chinese characters "FIXED FIRE PUMP" (固定救火泵).

The pressure and flow available for the fire hydrant/hose reel system shall be such as to provide for a static pressure of not less than 400 kPa and not more than 700 kPa with a flow of not less than 1 350 L/min for industrial buildings and not less than 900 L/min for all other types of buildings from any hydrant outlet of the system. In all buildings where the height between the topmost hydrant and the lowest Fire Service Inlet is in excess of 60 m, the flow and pressure, where necessary in the opinion of the Director of Fire Services, shall be maintained by booster pumps and/or water tanks inserted in the rising main system. The booster pump shall be capable to maintain the required flow and pressure at the topmost hydrant when water is pumping through the Fire Service Inlet at a pressure of not more than 800 kPa.

*(e) RISING MAIN*

Rising mains shall comply with British Standard 5306: Part 1: 1976 as appropriate or other standards acceptable to the Director of Fire Services.

The wet rising main must be provided with a standard Fire Service Inlet at ground floor level. Where the pump is interposed between the Fire Service Inlet and the hydrant delivery valves, provision must be made for the water supplied to the Inlet to by-pass the fire pump in the event of failure of the pump.

All wet rising and downcoming mains shall be fitted with suitable air relief valves to prevent airlocks in the installation.

Each wet rising main shall be connected to an independent Fire Service Inlet. Where, however, there are several wet rising mains in one installation, one Fire Service Inlet may be provided for all risers in the system, subject to the cross-sectional area of the pipe between the Fire Service Inlet and each wet rising main being equal to the sum of the cross sectional areas of all the wet rising mains served thereby.

The internal diameter of the rising main, in the case of industrial buildings (and other buildings where the risk, in the opinion of the Director of Fire Services so justifies) shall be not less than 100 mm. Each rising main shall supply 2 hydrant outlets per floor.

The internal diameter of the rising main in other types of buildings shall be not less than 80 mm. Each rising main shall supply one hydrant outlet per floor.

The Director of Fire Services may require additional rising mains dependant upon the area of the building.

*(f) FIRE SERVICE INLET*

Each fire service inlet shall be in a prominent position on the exterior of the building and must be suitably enclosed by glazing and protected against corrosion and abuse.

The inlet couplings shall be not less than 600 mm nor more than 1 000 mm above the ground level and shall be of a standard pattern approved by the Director of Fire Services.

Each inlet shall be clearly marked in English and Chinese characters "FIRE SERVICE INLET" (消防入水掣).

There shall be a non-ferrous non-return valve behind each inlet.

The fire service inlet shall be so situated as to be within easy reach of a fire appliance parked in a thoroughfare adjacent to the building protected.

*(ii) TESTING*

Tests shall be carried out in accordance with approved standards by a registered Class 2 Fire Service Installation Contractor who shall forward a certificate of maintenance to the Director of Fire Services.

**5.16 Fireman's communication systems***(i) SPECIFICATION*

Every building in which the provision of a fireman's lift is required shall also be provided with suitable wiring to enable the Fire Services Department to connect and use hand telephone apparatus in conjunction with such wiring. The wiring shall be affixed inside the Fireman's lift shaft and shall be fire resisting. Every landing floor including the ground floor served by the Fireman's lift shall be provided with a suitable telephone type jack-socket outlet on the external face of the lift shaft.

*(ii) TESTING*

The system shall be tested by use at intervals not exceeding 12 months.

**5.17 Fireman's lifts***(i) SPECIFICATION*

Fireman's lifts shall be constructed and installed in buildings in accordance with provisions of:

(a) Lifts and Escalators (Safety) Ordinance (Chapter 327);

(b) Building (Lifts) Regulations under the Buildings Ordinance (Chapter 123);

- (c) Current relevant British Standard Code of Practice or Specification (British Standard 5655: Part 1: 1979 and CP 407) as far as such Code of Practice or Specification does not conflict with either (i) or (ii) above. (Refer to Regulation 4 of the Building (Lifts) Regulations, Chapter 123.)

In addition, a fireman's lift shall be provided which shall satisfy the following conditions:

- (1) It shall be provided with a separate fire-resisting lift shaft.
- (2) Lift shaft openings shall be provided with automatic self-closing fire-resisting doors.
- (3) It shall be of a minimum size of 1.35 m<sup>2</sup> net internal floor area of car, with a minimum rated load of 680 kg.
- (4) It shall be provided with a suitable escape hatch.
- (5) Each point of discharge shall be into a smoke lobby or similar protected area.
- (6) It shall be provided with a suitable control switch, clearly indicated in English and Chinese as Fireman's Switch, at ground floor level to enable the Fire Services Department to gain immediate control over the lift and return it to ground level, such control gear isolating the lift from control by the public.
- (7) The supply to the fireman's lift(s) shall be connected to a sub-main which shall be exclusive and independent of any other sub-main circuit. When a fireman's lift is one of a battery of lifts, the other lifts may be fed from the same supply, provided it is adequate for this purpose, and that arrangements are such that a fault occurring in any other lift or the battery will not affect in any way the operation of the fireman's lift.
- (8) The speed of the lift shall be such that it will reach the top floor of the building in not more than one minute.
- (9) It shall be suitably indicated by the words "FIREMAN'S LIFT" (消防員專用升降機) in English and Chinese.
- (10) A fireman's communication system to be provided. (See 5.16)
- (11) Where more than one lift is to be provided in a building, the Director of Fire Services shall designate which lift/s is/are to be a fireman's lift/s.

(ii) *TESTING*

Lifts shall be tested by registered contractors in accordance with the relevant Ordinances and Regulations.

In addition, the following tests shall be carried out:

- (a) The correct operation of the lift following use of Fireman's Switch.
- (b) Speed test as at (8) above.

**5.18 Fixed automatically-operated approved appliances**

(i) *SPECIFICATION*

Such appliances designed to operate as independent units are included in this section.

Nevertheless, subject to the agreement of the Director of Fire Services a number of units, may be installed within a compartment such that operation of any one unit will automatically cause all units within the compartment to operate.

All appliances shall be approved by Fire Offices' Committee or to other acceptable national standards.

(ii) *TESTING*

No test is suitable however a check on the content weight to be made either by weighing or by reference to a pressure or other gauge which may be installed as part of the appliance.

**5.19 Fixed foam systems**

(i) *SPECIFICATION*

Systems shall be installed in compliance with standards acceptable to the Director of Fire Services.

Attention is drawn to British Standard 5041: Part 5: 1974.

Consultation with the Fire Services Department is strongly recommended in the design stage of any system. Particular attention to be placed on compatibility of various foam compounds, and integration of Fire Services equipment into the system.

A comprehensive ongoing training programme is necessary if the system is intended to be brought into use by employees.

(ii) *TESTING*

Tests to be carried out in accordance with the appropriate code and in compliance with manufacturer's instructions for the various items of equipment within the system.

## 5.20 Gas detection systems

(i) *SPECIFICATION*

Very few types of premises will require such a system. Each system must be designed to detect the escape or excessive concentration of the specific gases appropriate to the area of risk.

The system shall be designed in consultation with the Fire Services Department.

Each system shall:

- (a) monitor the area of risk continuously;
- (b) be automatic in operation;
- (c) close down affected process if circumstances permit;
- (d) operate ventilation/exhaust system if appropriate;
- (e) be connected to the fire alarm system for the premises.

(ii) *TESTING*

The system shall be tested by allowing sufficient amount of the gas across the detection point and efficient operation of all ancillary procedures will be confirmed.

## 5.21 Hose reels

This section has been considered as part of Section 5.15—Fire hydrant/hose reel systems.

No further detail is considered necessary.

## 5.22 Lifts—Fire and safety aspects of

(i) *SPECIFICATION*

Lifts shall be constructed and installed in buildings in accordance with the provisions of:

- (a) Lifts and Escalators (Safety) Ordinance (Chapter 327);
- (b) Building (Lifts) Regulations under the Buildings Ordinance (Chapter 123);
- (c) Current relevant British Standard Code of Practice or Specification (British Standard 5655: Part 1: 1979 and CP 407) as far as such Code of Practice or Specification does not conflict with either (a) or (b) above. (Refer to Regulation 4 of Building (Lifts) Regulations, Chapter 123.)

*In addition*

Smoke detectors (See Section 5.14) shall be installed in lift lobbies that serve passenger lifts.

Upon actuation of a single smoke detector within a lift lobby, no lifts will stop at that floor.

When two or more detectors actuate (either within the same or different lift lobbies, *all* lifts will automatically be returned to ground floor or the lowest point of discharge *above* the ground floor and remain stationary at that level.

Smoke detector actuation will not override the fireman's switch serving any fireman's lift.

The detectors shall form an integral part of an automatic detection system installed within the building.

If there is no existing automatic detection system installed, the lift lobby smoke detectors shall be installed with direct transmission facility to Fire Services Communication Centre.

A notice “IN CASE OF FIRE, DO NOT USE LIFT.” in English and Chinese shall be affixed to the wall near the lifts.  
火警發生時，切勿乘電梯

(ii) *TESTING*

Testing of lifts is vested in the Director of Electrical and Mechanical Services.

The smoke detection system shall be tested in accordance with Section 5.14 of this Code.

**5.23 Portable hand-operated approved appliances**

(i) *SPECIFICATION*

Attention is drawn to Fire Service (Installations and Equipment) Regulations, Chapter 95.

Appliances shall have received Fire Offices' Committee or other acceptable standard approval.

(ii) *TESTING*

Appliances will be tested by a registered fire service installation contractor to comply with Fire Service (Installations and Equipment) Regulations, Chapter 95.

Tests will be carried out in accordance with appropriate standard and the manufacturer's instructions.

**5.24 Pressurization of staircases**

(i) *SPECIFICATION (Where Pressurized Staircases Are Used)*

For all staircases serving as fire escape routes, a mechanical ventilation system shall be installed to pressurize the escape route relative to the adjoining areas so as to prevent smoke logging. Normally, the system shall be “dead” being brought into operation automatically during a fire incident as described below. The system may also be brought into use from the fire control centre of the building.

The system may additionally be designed to pressurize corridors which form part of a protected escape route.

Intake to the fan must be from a smoke free location external to the building, and connecting ductwork between the intake louvre and fan not within the fire, stairs, must be constructed of a material having at least two hours fire resistance rating so that all risk of contamination of the air supply is eliminated.

An electric motorized damper shall be fitted at the discharge of each fan so that the static pressure within the stair is maintained when one escape door is opened, and an air flow rate of not less than 1.27 m.p.s. through the door. With all doors closed, the pressure difference between the stairway and the areas served by the stairway shall not exceed 50 pascals. The static pressure sensor shall be suitably located at mid stair level, and shall be capable of completing the operation of the damper motor within 15 seconds of a door being opened or closed. The damper motor shall be of flameproof construction and must not liberate smoke should the motor fail.

All wiring to the fans and control motors shall be M.I.C.C. The main control board enclosing all fan starters relays etc. is to be fire protected with manual override controls operation by the Fire Services Department, suitably located and nominated by the Department.

All fans shall be brought into operation automatically by the action of a smoke detecting device located in each smoke lobby serving the pressurized staircase/s.

(ii) *TESTING*

Routine maintenance testing of the building will include this system.

If the system is only used in emergency conditions, then periodic testing of the system will be carried out in conjunction with tests of other life safety systems of the building, but at intervals not exceeding one year.

### 5.25 Ring main system with fixed pumps

#### (i) SPECIFICATION

Attention is drawn to British Standard 5041, 5306: Part 1 and 5908. The system shall be specifically for fire fighting purposes, however if the water supply is adequate there is some merit in using the system for cleaning purposes, thereby effectively testing the system.

The mains may be over or underground but must obviously be protected against physical damage.

The system shall be fed from at least 2 water supplies to the satisfaction of the Director of Fire Services and the Water Authority. (See Section 5.32)

Pumps will be fixed and capable of automatic and manual start. Fire pumps shall be permanently primed and duplicated for duty and stand-by use. In respect of any particular project the Director of Fire Services may permit fire pumps serving other systems to be utilized for stand-by purposes.

Hydrant outlets will be to standard Hong Kong Fire Services Department pattern.

Hose reels may be installed at selected, or all, hydrant outlets as required by the Director of Fire Services.

#### (ii) TESTING

The fixed pump will be tested monthly by both automatic and manual start.

The system shall be generally examined to ensure that pipework and hydrant outlets are in good order.

See also British Standard 5908.

### 5.26 Smoke/gas extraction systems

#### (i) SPECIFICATION

The system shall be designed in consultation with the Director of Fire Services.

The following will normally be included in any system:

- (a) It shall be automatic in action and be capable of manual and/or electrical remote control.
- (b) Ducts shall have same fire resisting period as the compartment.
- (c) Electrical wiring and components of the system shall be capable of operating at temperature of 250 C.
- (d) A cooling water curtain head with suitable drain may be introduced into the duct to reduce the temperature of the combustion products.
- (e) Dangerous gases, shall pass through a suitable "washing" agent before being discharged to open air.

#### (ii) TESTING

The system shall be tested by remote control operation from the fire control or other such point as agreed by the Director of Fire Services.

### 5.27 Smoke vents

#### (i) SPECIFICATION

Provided for basements to the satisfaction of Building Authority.

#### (ii) TESTING

No test is appropriate.

### 5.28 Sprinkler systems

#### (i) SPECIFICATION

Such systems shall be designed and installed in accordance with Fire Offices' Committee Rules (with suitable modification pertinent to Hong Kong) or other standards acceptable to the Director of Fire Services.

For the avoidance of doubt, a system is deemed to commence at the point of entry, to the building, of the pipework.

(See Water Supplies—Section 5.32)

(ii) *TESTING*

The testing procedure shall be in accordance with the appropriate standard or as required by the Director of Fire Services.

**5.29 Supply tank**

(i) *SPECIFICATION*

Supply tank for fire hydrant and hose reel installation of adequate capacity shall be provided when a wet system is installed in a building.

The tank shall be fed from such source of supply approved by the Water Authority and the Director of Fire Services.

The tank may be used for the combined storage of domestic (e.g. flushing) and fire fighting water provided that the maximum potential draw off by domestic services can in no way diminish the supply for fire fighting below the required reserve.

The minimum quantity of water required to be available, having regard to the floor area factor of the largest floor is as follows:

Floor area (gross)	Water storage required
Not exceeding 230 m <sup>2</sup> .....	9 000 L ( 9 m <sup>3</sup> )
Over 230 m <sup>2</sup> but not exceeding 460 m <sup>2</sup> .....	18 000 L (18 m <sup>3</sup> )
Over 460 m <sup>2</sup> but not exceeding 920 m <sup>2</sup> .....	27 000 L (27 m <sup>3</sup> )
Over 920 m <sup>2</sup> .....	36 000 L (36 m <sup>3</sup> )

A non-ferrous non-return valve to be provided between the downcoming main and the fixed fire pump.

(ii) *TESTING*

No test is appropriate other than periodic checking for water leakage.

**5.30 Ventilation/air conditioning control systems**

(i) *SPECIFICATION*

Ventilation of buildings and ventilating systems within buildings shall be installed in accordance with the appropriate regulations under the Buildings Ordinance or Public Health and Urban Services Ordinance “Scheduled Premises” (as defined in that Ordinance).

Facilities may be required to operate ventilation/air conditioning control systems that embody the use of ducting or trunking which passes through one compartment to another other than in its normal mode by remote action from a fire control centre of the building by automatic means together with the provision of an overriding manual switch as shall be required by the Director of Fire Services.

(ii) *TESTING*

The ventilation/air conditioning control system shall be tested to ensure satisfactory operation to the approval of the Director of Fire Services.

The remote operation of the system, if required, shall be tested at such intervals as agreed with the Director of Fire Services.

**5.31 Water spray systems**

(i) *SPECIFICATION*

Such systems shall be installed in accordance with the standards acceptable to the Director of Fire Services.



(ii) *TESTING*

The testing procedure shall be in accordance with the appropriate standard or as required by the Director of Fire Services.

**5.32 Water supplies**

(i) *SPECIFICATION*

All fixed systems using water will be served by water from at least two supplies to the satisfaction of the Director of Fire Services and Water Authority.

The types of supply as listed in Fire Offices' Committee rules are acceptable *EXCEPT*

(a) Town main with either a pressure tank, gravity tank or elevated private reservoir;

(b) Town mains with automatic pump.

However, due to possible disruption of water supplies from town mains during water restriction periods, unless the town main is on 24 hour supply, provision must be made to guarantee 30 minutes stored supply, the town main feeding the storage tank.

(ii) *TESTING*

No actual testing of water supplies is appropriate other than periodic checking for leaks.