CHAPTER 9

FIRE SAFETY REPORT

9.1 PURPOSE

Fire safety report is to document the provision of fire protection and life safety features in the building and/or plants/installations. This report would serve as a useful reference to fire safety managers, building owners, registered inspectors, the Relevant Authority and to qualified persons appointed to carry out any subsequent additions and alteration works. Where the nature of the additions and alteration works would require the updating of the fire safety report, the qualified person shall be responsible to submit revised and updated report to the building owner/s and the Relevant Authority.

9.2 SUBMISSION OF REPORT ON FIRE PROTECTION & LIFE SAFETY FEATURES

9.2.1 Qualified Person should submit a report on fire protection and life safety features when making Building Plan submission for projects such as:-

(a) high-rise (over 60m in building height) commercial buildings;

(b) large commercial buildings (gross floor area greater than 5000m² or having a total occupant load exceeding 1000 persons);

(c) large industrial buildings (gross floor area greater than 5000m²); and

(d) petroleum/chemical plants and installations;

(e) buildings exceeding 24m in habitable height where fire rated drywalls are used for the construction of protected shafts for staircases and/or lifts; and

(f) buildings exceeding one storey using fire rated board protection or intumescent paints for structural steel.

9.2.2 In buildings under Purpose Groups VI & VIII, where there may be presence of corrosive atmosphere that may affect the effectiveness of intumescent paints for protection to structural steel members of buildings and fire rated dry board, such proposal shall be subjected to evaluation of the Relevant Authority.

9.3 CONTENTS OF THE REPORT

9.3.1 The write-up of the report on fire protection and life safety features should include the following subjects. However, qualified person could expand or modify the report to suit his presentation:-

A Project Description
B Fire Safety Design Concept
C Fire Engine Accessibility
D Means of Escape
E Structural Fire Precautions
F Control and Exhaust of Smoke and Toxic Fumes
G Fire-Fighting Systems
H Fire Alarm System
I Emergency Power Supply
J Emergency Evacuation Lighting
K Emergency Voice Communication System
L Two-Way Emergency Communication System
M Emergency Lift Control
N Areas of Fire Risk
O Fire Scenario
P Fire Safety Management
Q Conclusion

9.4 BRIEF EXPLANATORY NOTES FOR OUTLINE REPORT ON FIRE PROTECTION AND LIFE SAFETY FEATURES

A Project Description

A description of the project with brief outline of the facilities provided. For industrial and petroleum/chemical plants and installations, details of the following are to be provided:-

(i) A diagrammatic process flow chart with a brief description of the process/activities that will be carried out;

(ii) The raw materials to be used;

(iii) The nature of the products; and

(iv) All hazardous chemicals, flammable liquids, solvents etc that will be handled/stored.

B Fire Safety Design Concept

This would include the safety design concept incorporated in the project such as the application of design and provision of areas of refuge, smoke barriers, additional compartment walls/ doors in sectionalizing the large atrium floors etc and other added fire safety features provided over and above the intent of the Code of Practice for Fire Precautions in Buildings 2013.

C Fire Engine Accessibility

This would briefly outline the driveways, which are paved to withstand the load of fire engines, to be provided.

D Means of Escape

This would include the description of the escape routes that would be taken by occupants in the building in a fire scenario, besides the provision of the number, type and location of staircases, etc as outlined under Chapter 2 of the Code of Practice for Fire Precautions in Buildings 2013.

E Structural Fire Precautions

This would outline the fire resistance rating and the type of structural protection to elements of structures, compartment walls/floors, types and methods of fire stoppings to ducts, cavity and curtain walling construction, and types and rating of all fire doors.

F Control and Exhaust of Smoke and Toxic Fumes

This would include the description of the type of system to be provided to car parks, atrium, staircases and lobbies, air-conditioning units etc.

G Fire-Fighting System

This would include the active protection system such as portable fire extinguishers, hose reels, dry/wet rising mains, sprinkler system, gas flooding system, fixed/portable water monitors, fixed water spray, drenchers etc.

H Fire Alarm System

This would include the provision of passive fire protection system such as automatic fire detection systems (smoke or heat type), 'break the glass' fire alarm system. Besides naming the type of automatic system, the description should also include where the detectors would be generally located in fire risk areas/rooms such as lift motor rooms, electrical switch rooms, MDF, IDF and PABX rooms electrical ducts and enclosed elevator shafts, and how, when any of the systems is activated, the public, the people in the Fire Control Room and the nearest fire station or approved fire alarm monitoring company are alerted.

I Emergency Power Supply

This would include the description of how the emergency power system operates in times of loss of normal electric power supply to any part of the building and the areas or systems that will be designed to receive emergency power.

J Emergency Evacuation Lighting

This would include the description of the system designed in accordance with SS 563 - Code of Practice for the Installation & Maintenance of Emergency Evacuation Lighting in Power Supply Systems in Buildings, and the location of exit signs etc and the types of battery system, and designed time for the switchover to emergency lighting system from the time the normal power supply is cut off.

K Emergency Voice Communication System

This would involve the description of the provision of the one-way zoned and electrically monitored emergency paging system to critical areas such as lobbies, corridors, exit stairways, toilets, restaurant, shop and offices, M&E plant rooms. The emergency public address system which generally complies with SS 546 would include communication between Fire Command Centre and all parts of the building through electrical loudspeakers.

L Two-Way Emergency Communication System

This would describe the operation of the 2-way zoned and coded voice communication system, which is electrically supervised from the central control located in the Fire Command Centre including the provision of slave telephones to critical areas such as:

(i) every fire-fighting lobby including 1st storey;

(ii) all fire-fighting related mechanical equipment rooms inclusive of sprinkler pump room, wet rising main pump room, hose reel pump room etc;

(iii) all rooms housing smoke control equipment;

(iv) all lift machine rooms;

(v) any other locations as may be required by the Relevant Authority.

M Emergency Lift Control

This would describe the function of the Emergency Lift Control conforming to the requirements under SS 550 – Code of Practice for Installation, Operation & Maintenance of Electric Passenger & Goods Lifts. The description of the emergency lift control would also include the sequence of events in case of:

(i) power failure;

(ii) fire emergency; and

(iii) both power failure and fire emergency.

N Areas of Fire Risk

This would briefly describe the areas of fire risk such as AC plant room, generator room, oil tank room etc and the type of fire protection/detection system proposed.

O Fire Scenario

Under this subject, the qualified person would have to assume the outbreak of a fire in one of the critical floors or areas and describe the sequence of operation of the fire protection and life safety design features.

P Fire Safety Management

This would include a brief description of the general management of the fire protection and life safety features.

Q Conclusion

This would include the summing up of the outline concepts and systems that have been designed for the project.