



## CHAPTER 8 OTHER SYSTEMS

### 8.1 EXIT LIGHTING AND EXIT SIGN

#### 8.1.1 Exit Lighting

- (a) Exits of all buildings, except for Purpose Group I, shall be provided with artificial lighting facilities to the satisfaction of the requirements under this Code.
- (b) The minimum illuminance to be provided for all exits and the spacing for luminaires shall be in accordance with the requirements in SS 563 Code of Practice for the Installation and Maintenance of Emergency Evacuation Lighting and Power Supply Systems in Buildings.
- (c) The delay between the failure of the electrical supply to normal lighting and the energization of the exit lighting shall not exceed 1 second.

Exit lighting

#### 8.1.2 Emergency Lighting for Corridors and Lobbies

- (a) Emergency lighting shall be provided in all corridors and lobbies of all buildings except Purpose Group I.
- (b) The minimum level of illuminance, the spacing of luminaires and the maximum delay for emergency lighting required in this Clause shall be the same as that for the exit lighting.

Emergency lighting for corridors & lobbies

#### 8.1.3 Emergency Lighting for Occupied Areas

- (a) For all buildings except Purpose Group I or II, emergency lighting shall be provided in the occupied areas following the guidelines below:
  - (i) along paths leading to corridors, lobbies and exits in all occupied areas where the direct distance from the entry point of the corridor, lobby or exit to the furthest point in the area concerned exceeds 13m; or
  - (ii) over the whole of such area if there are no explicit paths leading to corridors, lobbies and exits.

Emergency lighting for occupied areas



- (b) Notwithstanding the requirements in (a) above, emergency lighting shall be provided in the following locations:
  - (i) Lift cars as stipulated in this Code;
  - (ii) Fire command centres;
  - (iii) Generator rooms;
  - (iv) Basement car parks;
  - (v) Fire pump rooms;
  - (vi) Areas of refuge within the same building.
- (c) The minimum level of illuminance shall comply with the requirements in SS 563.
- (d) The delay between the failure of the electrical supply to normal lighting and the energization of the emergency lighting for occupied areas shall not exceed 15 seconds.

#### 8.1.4 Emergency lighting for fire-fighting facilities

- (a) Fire alarm panels, fire alarm call points and fire-fighting equipment shall be adequately illuminated at all times so that they can be readily located.
- (b) The minimum level of illuminance shall comply with the requirements in SS 563.
- (c) The delay between the failure of the electrical supply to normal lighting and the energization of the emergency lighting for fire-fighting facilities shall not exceed 15 seconds.

Fire-fighting facilities

#### 8.1.5 Secondary Source of Power Supply

- (a) The delay for energization of the exit and emergency lighting systems between normal supply and the secondary source shall be as stipulated in the relevant clauses.
- (b) Duration of the secondary source of power supply shall comply with the requirements in SS 563.

Secondary source of power supply



- (c) Location, arrangement and control, installation of electrical wiring of the secondary source of supply, be it in the form of battery, standby generator, inverter or other accepted equipment, shall comply with the requirements in SS 563.
- 8.1.6 All exit and emergency luminaires required by this Code shall be of approved type as specified in SS 563. Luminaire
- 8.1.7 Exit and Directional Signs
- (a) In all buildings, except for Purpose Group I and II, the entrance to every exit on every floor shall be clearly indicated by an exit sign placed over the exit door. Such signs shall be placed so as to be clearly visible at all times. Exit sign shall also be provided for rooms that require it (see Appendix 24).
- (b) In long corridors, in open floor areas, and in all situations where the location of the exits may not be readily visible, directional signs shall be provided to serve as guides from all portions of the corridors or floors. Directional signs
- (c) Additional low level or floor mounted exit and exit directional signs shall be provided in hotel accommodation floors including boarding houses. Low level signs
- (d) Where the Relevant Authority has allowed under subclause 2.3.5(d) upper storey staircase to be continuous with that serving the basement, appropriate signages, including pictorials shall be placed at strategic location inside the staircase to direct occupants out of the building in times of emergency.
- (e) The legends, dimensions, design and installation of the exit signs and directional signs shall comply with SS 563.
- (f) Self-illuminating exit and directional signs with letters in green and powered by radioactive material are allowed for use in buildings, provided the signs comply with BS 5499 Part 2, SS 508 and SS 563 under sub-clause 8.1.7(e). With respect to the design of signage, either graphic or text is acceptable. Self-illuminating signs
- (g) Where the direction of travel to exit discharge is upward, the staircase signage required under Cl.2.3.1 (b) shall comply with SS 508 – Specification for Fire Safety Signs.



## 8.2 VOICE COMMUNICATION SYSTEM AND FIRE COMMAND CENTRE

8.2.1 (a) One-way emergency communication system and a fire command centre shall be provided as follows:

System requirements

(i) For all large buildings under Purpose Groups III (not applicable to primary school, secondary school and junior colleges), IV, V, VI, VII & VIII with gross floor area greater than 5000m<sup>2</sup> or having a total occupant load exceeding 1000 persons; or

(ii) For all buildings belonging to Purpose Groups III, IV, V, VI, VII, and VIII of more than 24m in habitable height.

Construction

(iii) Exception

For hotel or health care buildings of less than 24m in habitable height, gross floor area not greater than 5000m<sup>2</sup> and total occupant load not exceeding 1,000 persons, an ordinary public address system shall be provided. However, Fire Command Centre is not required. Loudspeakers for the ordinary public address system shall be provided in every lift lobby, staircase enclosure and other strategic positions within audible distance of all parts of all storeys throughout the building.

(b) Two-way emergency communication system shall be provided between the Fire Command Centre, under sub-clauses 8.2.1(a), (i) and (ii) above, and the following area:

(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, switch rooms and generator rooms;

(iii) all rooms housing smoke control equipment;

(iv) all lift machine rooms;



- (v) fire lift;

Where the lift car is equipped with built-in intercom system that complies with clause 9 of SS 546, the two-way communication system can be exempted.

- (vi) each area of refuge; and

- (vii) air-handling control rooms.

Where AHU can be remotely monitored and controlled at the Fire Command Centre, and cannot be by-passed locally, and the electrical cabling between AHU rooms and FCC are fire rated, the two-way communication system can be exempted.

- (c) For building of mixed commercial cum residential usage, the requirements of sub-clauses a(ii) of this clause shall be applicable provided that:

- (i) where the commercial component of the building occupies only the lower portion of the building and is separated from the residential occupancies, then for the purpose of compliance with the said requirements, the measurement of habitable height shall be taken to that part of the commercial component of the building; and

- (ii) where a commercial component of the building is located above any residential occupancies, the provisions of a(ii) shall be applicable if the habitable height of the building exceeds 24m.

8.2.2 Where a one-way or two-way emergency communication system is required by this code, it shall comply with the requirements stipulated in SS 546: Code of Practice for Emergency Voice Communication Systems in Buildings.



### 8.2.3 Fire Command Centre

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|---|----------------------------|
| <p>(a) A Fire Command Centre shall be provided in any building, with the exception of buildings under Purpose Groups I &amp; II (Purpose Group II building having not more than two basement storeys used solely for car parking), which requires any of the following installation:</p> <ul style="list-style-type: none"><li>(i) fire lift;</li><li>(ii) emergency voice communication system; and</li><li>(iii) engineered smoke control system.</li></ul>   | <p>Fire Command Centre</p> |
| <p>(b) A Fire Command Centre shall be of adequate size to house all the terminals and supervisory/control equipment, etc of the building's fire protection/detection systems and a free working space of at least 6m<sup>2</sup>.</p>   | <p>Size</p>                |
| <p>(c) (i) The Fire Command Centre shall be located at the same level as the fire engine accessway or access road and in the following order of priority:</p> <ul style="list-style-type: none"><li>(1) immediately adjacent to the fire-fighting lobby at the designated storey of the building;</li><li>(2) in the case where there is no fire-fighting lobby, it shall be located within vicinity of the fire engine accessway or access road and adjacent to one of the protected stairs serving all storeys of the development.</li><li>(3) at any other location as may be designated by the Relevant Authority.</li></ul> <p>(ii) in the case of a site consisting of more than one building, there shall be more than one Fire Command Centre. For such cases, the Relevant Authority shall be consulted.</p> | <p>Location</p>            |
| <p>(d) The construction of enclosure, facilities and lighting of a Fire Command Centre shall comply with the SS 546: Code of Practice for Emergency Voice Communication Systems in Buildings.</p>   | <p>Construction</p>        |



- (e) Air conditioning or Mechanical ventilation where required for the Fire Command Centre shall be provided with secondary power supply and shall have ductworks independent of any other ductwork serving other parts of the building.

#### 8.2.4

All multi-level basements of buildings under Purpose Group II to VIII are required to be provided with two-way emergency communication system between the Fire Command Centre and the following areas:

Two-way  
communication  
system

- (a) Every fire-fighting lobby, including 1st storey. In building comprising 2, 3 or 4 basements, one of the smoke-stop lobbies shall be designated as a fire-fighting lobby;
- (b) All fire-fighting related mechanical equipment rooms, inclusive of sprinkler pump room, wet rising main pump room, hosereel pump, switch rooms, generator rooms, and lift machine room;
- (c) All rooms housing smoke control equipment;
- (d) Fire lift;

Where the lift car is equipped with built-in intercom system that complies with clause 9 of SS 546, the two-way communication system can be exempted.

- (e) Each area of refuge; and
- (f) Air-handling control rooms.

Where AHU can be remotely monitored and controlled at the Fire Command Centre, and cannot be by-passed locally, and the electrical cabling between AHU rooms and FCC are fire rated, the two-way communication system can be exempted.



Exception :

- (i) Single-level basement, irrespective of its usage of building under Purpose Groups II to VIII and basements of building of Purpose Group I are not required to be provided with two-way emergency communication.
- (ii) Multi-level basements of building under Purpose Group II are not required to be provided with two-way emergency communication system, provided the basements are used solely for car parking and not exceeding two basement storeys in depth.