



APPENDIX 19

FIRE SAFETY REQUIREMENTS ON USING LIFTS FOR EVACUATION OF BUILDING OCCUPANTS DURING EMERGENCY

1 SCOPE

- 1.1 The scope of these requirements covers the provisions of lift design for evacuation of building occupants requiring assistance during emergencies. It shall be applicable to all buildings exceeding seven storey, except Purpose Group I and II buildings (residential developments) as defined in the Fire Code.

2 PRINCIPLES OF EVACUATION

- 2.1 Unless there are extenuating circumstances which call for total simultaneous evacuation of a building, evacuation of occupants in tall buildings is generally carried out in phases on activation of fire alarm, as these buildings are installed with sprinkler system and passive fire protection systems (e.g. compartmentation or fire-rated enclosure), which serve to prevent spread of fire.
- 2.2 Lifts are not used for evacuation of building occupants in the past. However, an option to use lifts for evacuation is now made available to fire-fighters if the necessary safety features are incorporated. Lifts used in combination with exit staircases is a more practical strategy to speed up building evacuation, particularly if there are occupants who may require assistance such as the aged, pregnant women and young children.
- 2.3 Notwithstanding this, the use of exit staircases is still the dominant mode of occupant evacuation during an emergency. Evacuation via lift is only a secondary means to complement evacuation via exit staircases. The use of lift is primarily aimed at persons requiring assistance. Able-bodied occupants are therefore still required to use the exit staircases for their evacuation.

3 PROVISIONS FOR LIFT EVACUATION

3.1 New buildings up to 7 storey and above, except purpose groups I & II

3.1.1 Lift for evacuation

- 3.1.1.1 An additional fire lift shall be provided for the above building. This lift can be used for evacuation of occupants requiring assistance. Where the provision of a fire lift is already a requirement in the Fire Code, such lift is to be primarily used for fire-fighting and rescue purposes. As such, an additional fire lift would be required, which can be used by fire-fighters to conduct evacuation as well.



The installation of the fire lift shall be in accordance with BS EN 81 Part 20 (Safety rules for the construction and installation of lifts, lifts for the transport of persons and goods). All other related fire safety measures where fire lift is provided such as firefighting lobby, location of exit staircase adjacent to the fire lift shall be designed in accordance with the Fire Code.

- 3.1.1.2** Where the additional fire lift is provided, it can double up as an evacuation lift for persons with disabilities (PWDs) i.e. evacuation lift for PWDs need not be separately provided. The design requirements of the fire lift shall follow that of the evacuation lift for PWDs (e.g. the fire lift shall have a platform area of minimum 1.2m by 1.4m i.e. area of 1.68m², instead of 1.45m². However, for buildings more than 40 storeys, the minimum clear platform size of the fire lift shall be 1.7m by 1.5m.

3.1.2 Communication

- 3.1.2.1** A lift monitoring system shall be provided within the Fire Command Centre (FCC).

It shall monitor the floor location of the lift, direction of travel, status with respect to occupation, both the normal and emergency power supplies to the lifts, activation of a fire alarm within the lift shaft or lift motor room or lift lobby. Provision to manually override the lift shall be installed in the FCC for use by the fire-fighter if required.

- 3.1.2.2** Voice communication system shall be provided in the building.

- 3.1.2.3** An intercom system in the lift car must be provided for communication between the lift operator and the Fire Command Centre.

- 3.1.2.4** Close circuit television at lift lobbies to facilitate situation awareness for the authorized personnel overseeing the evacuation at the FCC or 24-hourly manned station. Alternatively, a suitable means of communication may be provided between the protected lobby and Fire Command Centre (FCC) or any 24-hourly manned station, for persons requiring assistance to call for assistance during a fire emergency. It may be in the form of a distress button or voice communication. The means of communication shall:
- (a) be located between 0.8m and 1.2m above ground level;
 - (b) be appropriately labelled;
 - (c) be provided with prominently displayed clear instruction sign on its operation; and
 - (d) When the device for communication is activated, it shall generate a clear visual indication to indicate that the distress signal has been relayed. The purpose is to enable the person requiring assistance to alert the FCC or the manned station that they are in need of assistance and for them to be reassured that this assistance will be forthcoming.



3.1.3 Passenger Lifts

3.1.3.1 While the use of fire lift would facilitate occupant evacuation, the increased rate of evacuation is limited by the availability of such lift. Therefore, passenger lifts shall be designed for use together with the fire lifts so as to speed up occupant evacuation.

3.1.3.2 Passenger lifts shall be designed with the following features:

(a) Fire lift switch. Where there is provision to manually override the passenger lifts at the FCC by authorized personnel or fire-fighters, fire lift switch need not be installed.

(b) Power cables which are routed through an area of negligible fire risk.

3.1.3.3 Close circuit television shall be provided at lift lobbies.

3.2 Existing buildings up to 7 storey and above, except purpose groups I & II

3.2.1 The design requirements as stipulated under paragraph 3.1 shall also be applicable to the above existing buildings when major retrofitting works are carried out in the building.

4 MANAGEMENT OF LIFT EVACUATION

4.1 There will be no change to the current evacuation strategy as occupants will still use the exit staircases for evacuation, although fire-fighters now has the additional option to use the fire lift for evacuation. As such, evacuation via lift shall only be conducted under the supervision of fire-fighters. When MFRS arrives at the fire scene, the fire officer in charge should be briefed by the designated staff supervising the evacuation on the position and circumstances of the fire and the progress of the evacuation. MFRS will then take over the supervision of the evacuation.