
**MEANS OF ACCESS
FOR FIREFIGHTING
AND RESCUE**

1989



HONG KONG

**CODE OF PRACTICE ON
PROVISION OF MEANS OF ACCESS
FOR FIREFIGHTING AND RESCUE PURPOSES**

1989

FOREWORD

This Code of Practice sets out technical details for the guidance of authorised persons, registered structural engineers and other parties concerned in their design and construction of a building/buildings. Compliance with the provisions in this Code is a primary way of satisfying the requirements for means of access for firefighting and rescue under Part V of the Building (Planning) Regulations. This, however, is not the only way of satisfying such requirements. Other alternatives may also be acceptable if they fulfill equivalent performance.

CONTENTS

1. Introduction
2. Interpretations
3. Application
4. Fireman's lifts
5. Access staircases
6. Firefighting and rescue stairways
7. Arrangement of firefighting and rescue stairways
8. Other requirements for firefighting and rescue stairways
9. Summary of requirements

(Incorporating August 1990 amendments)

1. Introduction

- 1.1 Part V of the Building (Planning) Regulations requires that 'every building shall be provided with such means of access for firefighting and rescue purposes as may be required by the size and intended use of that building.'
- 1.2 The Building Authority deals with each case on its merits after full consideration of the circumstances. Nothing herein contained must be taken as in any way derogating from the powers of the Building Authority to secure reasonable and adequate means of access for firefighting and rescue purposes.
- 1.3 The requirements contained herein may be accepted as a Code of Practice for the guidance of authorized persons in the preparation of plans for new buildings.

2. Interpretations

For the purposes of this code, unless otherwise stated,

'Special hazard' means high fire and life risk such as buildings designed wholly for entertainment purposes and exhibition buildings and the like.

'Ground Storey'
'Basement Storey'
'Industrial Undertaking'
'F.R.P.'

]

have the same meaning as defined in Code of Practice on Means of Escape

'Mean street level'
'Height of building'

]

have the same meaning as in Building (Planning) Regulation 23(1)

'Open Staircase' means a staircase open on 3 sides to a void having a minimum area of 10 m² and a minimum dimension of 1 m. A clear opening of not less than 900 mm in height should be provided between the top of the railing and the underside of the staircase.

'Cubical extent of a building' means the space contained within the external surfaces of its walls and roof and the upper surface of the floor of its lowest storey but excluding any space within any enclosure on the roof of the building used exclusively for accommodating a water tank or lift gear or any like apparatus and where a building on one or more of its sides is not enclosed by a wall or walls the building where unenclosed shall be deemed to be extending downwards from the outer edge of the roof.

'Fireman's lift' means a designated lift so designed as to allow Fire Services personnel safe access to at least all alternate floors of a building.

'Access staircase' means a staircase so constructed as to allow the Fire Services personnel safe and unobstructed access to all floors of a building.

'Firefighting & Rescue Stairway' means a stairway accommodating an access staircase, a fireman's lift and a ventilated lobby.

vision of requirements for means of access for firefighting and
escue agreed with FSD

1. Clarification/interpretation of standards laid down in the
MOA Code

(a) Floors served by fireman's lift (para. 4.3(i))

The lowest landing of a fireman's lift should be situated at the fire service access level but, if this is impossible due to site constraint or other special reasons, the lowest landing may be situated not more than one floor above the fire service access level.

Where the pattern of service of a fireman's lift adopted is that the top floor is to be served, the top floor must be served unless the lift machine room has to be located at the top floor due to height restriction.

(b) 60 m rule for FRS (para. 7.1)

As the 60 m is the distance along which hose can be laid, it should be measured from the doorway between the lobby and the floor area and measured along any actual passage. If the internal layout is not known at design stage, a direct line measurement of 40 m may be used for design purposes, provided that the layout of the building when occupied satisfies the 60 m criterion.

(c) Floors served by FRS (para. 7.3)

FRS should serve all floors and every part of a floor. Ancillary uses such as car parking and loading/unloading area in such a building should also be served by the FRS whether the ancillary uses occupy the whole floor or part of a floor.

When the roof of the building is served by other staircases, the FRS should also serve the roof. This means that the access staircase in the FRS should go up to the roof and be provided with a lobby at that level but the fireman's lift in the FRS needs not serve the roof.

(d) Access to FRS in ground storey (para. 7.5(a) & (b))

Set back of the FRS from the street is permissible. The distance from the street accessible to fire service appliances to the door of the fireman's lift or the first step of the access staircase in an FRS should not exceed 18 m.

(c) Separation of FRS from ground storey (para. 7.5(c))

Although an FRS should be separated from the remainder of the ground storey including any cargo lift lobby/hall, by fire resisting enclosures, communication opening with the ground storey is considered acceptable but must be made through a protected lobby.

(d) Location of FRS and its lobby against external wall (para. 7.7 and 8.2(a))

As the purpose for the FRS lobby to adjoin an external wall is to ensure adequate ventilation, the external wall needs not be accessible to fire service appliances and, instead, it should face the "external air". The meaning of "external air" in B(P)R 31 should be adopted as if the ventilation opening of the FRS lobby is taken as the window in a room used for habitation. A lobby is not required between the access from street and the FRS at ground storey.

(e) Mechanical system to control smoke (para. 8.8)

The mechanical system to control ingress of smoke should be provided to the satisfaction of the Director of Fire Services who will inspect and accept the system as if it is an FSI.

(f) Communication between access staircase and fireman's lift in an FRS

It is acceptable for the access staircase and the fireman's lift within an FRS have separate access from the same street and do not communicate with each other at G/F.

(g) Number and use of fireman's lifts in an FRS

The standards for ordinary fireman's lift should also apply to the fireman's lift in an FRS with certain exception in that :

- (i) The fireman's lift in an FRS has to serve all floors including the top floor unless the lift machine room has to be located at the top floor due to height restriction.
- (ii) Up to three fireman's lifts are permitted in an FRS but no other lifts. The maximum lobby size should still be 10 m².

A cargo lift should not be designated as a fireman lift, whether it be an ordinary fireman's lift or a fireman's lift in an FRS.

2. New/modified standards in the MOA Code

(a) Location of fireman's lift

Similar to an FRS, a fireman's lift should also be directly accessible from a street or an open area having unobstructed access to a street and available to fire service appliances at the ground storey (similar to para. 7.5(a) & (b)).

(b) Fireman's lift lobby (para. 4.3 (iv)(a))

In order to have a fire protection compatible with the building served by the fireman's lift, the FRP of the lift lobby wall should be same as that of the floor served subject to a maximum of 2 hrs (which is the FRP required for liftwells). Any opening giving access from the lobby to the floor should be filled with a self-closing door having an FRP of half of that of the wall. The "designated fire service access to the building" means the access from street to the fireman's lift at ground storey and, therefore, a lobby is not required between such access and the fireman's lift. However the fireman's lift should be separated from the remainder of the ground storey by walls having the same FRP as the ground storey and communication opening with the ground storey is permitted through a protected lobby.

3. Application

3.1 The provisions in this Code regarding access staircases and fireman's lifts apply to all buildings with the following exceptions:

3.2 The provisions for access staircases do not apply to domestic buildings not exceeding 3 main storeys in height or intended to be used for occupation by a single family.

3.3 The provisions for fireman's lifts do not apply to the following buildings:

- (i) All buildings not exceeding 2 storeys in height;
- (ii) single-staircase buildings not exceeding 6 storeys in height in which the level of the floor of the uppermost storey is not more than 17 m above the level of the ground at the point of discharge of the staircase;
- (iii) buildings not exceeding a height of 30 m or a cubical extent of 7 000 m³ used or intended to be used for purposes other than industrial undertaking, bulk storage, warehouse, place of public entertainment, hotel or hospital.

4. Fireman's lifts

4.1 Fireman's lifts are to be provided in accordance with the following table:

Type of building	Number of fireman's lifts required
All types	At least one
Industrial undertaking including bulk storage and warehouse	Corresponding to the number of firefighting and rescue stairways required

4.2 Where more than one lift is installed in such a building the lift which is to be the fireman's lift shall be that designated by the Director of Fire Services.

4.3 Fireman's lifts are to be provided in accordance with the following specifications:

(i) Floors serviced

Fireman's lift(s) shall be provided to enable Fire Services personnel to reach any floor that may be on fire in the building without having to traverse more than two floors, and arranged in such a way that:

- in the case of single fireman's lift, it will serve at least the alternate floors,
- in the case of multiple fireman's lifts within the common lift shaft, the lifts may serve different zones of the building, which shall be clearly indicated,
- in all cases, the pattern of service must be uniform and regular. That is, either serving the odd floors, the even floors or all floors.

(ii) Liftwell

Separate liftwell must be provided for fireman's lift(s) and up to three lifts may share the same well provided all these lifts are designated as fireman's lifts.

A notice shall be displayed outside the liftwell indicating which is/are fireman's lift(s) by the words 'FIREMAN'S LIFT (消防升降機)' in English and Chinese and the floors served.

(iii) Lift car

The lift car shall be of a minimum size of 1.35 square metres net internal floor area with a minimum rated load of 680 kg.

(iv) Lift lobby

(a) Each point of discharge from the fireman's lift shall be through a lift lobby having a minimum floor area of 2.25 m² and a minimum dimension of 1.5 m and protected by separation with a minimum of 1 hour FRP, except the designated fire service access to the building.

(b) Such lift lobby may be ventilated subject to the following conditions:

(I) the ventilation openings are on an external wall enclosing the lobby and have a total area of not less than 25 per cent of the floor area of the lobby or 0.6 m² per lift served by the lobby whichever is the less;

(II) the ventilation openings shall be as near the ceiling as is practicable and in no case the top of such openings shall be less than 1.9 m above the level of the lobby floor. Where such openings are provided with windows, such windows shall be openable from inside without the use of a key;

(III) a permanent vent with a clear area of not less than 0.05 m² is provided at or close to ceiling level, such vent may form part of the ventilation openings provided under (I) and (II);

(IV) where the lobby is in storeys below ground level, the ventilation is provided by means of—

(A) unobstructed smoke outlets having a minimum cross-sectional area of 1 m² ventilating into the outside air above ground level. Each lobby shall be individually vented by separate smoke outlets provided at the ceiling of the lobby. Such outlets may be covered at or above ground level with breakable covers and should be located clear of final exits and the fire service access; or

(B) ventilation openings complying with (I) and (II) above and ventilating into an open well having an area of not less than 1 m² per 1 m of the height of the wall enclosing the open well and having a minimum dimension of 1.5 m;

(V) the ventilation openings shall comply with the relevant provisions in the Code of Practice for Fire Resisting Construction and in no case shall they be within 450 mm measured horizontally from any opening in the external walls to the building.

(c) Where only one or more lifts in a bank of lifts are fireman's lifts, they may share a common lift lobby, provided that such lobby is provided on every floor served by any of these lifts.

(V) Lift door
The opening of the lift shall not be less than 800 mm wide and 2 000 mm high. The doors shall be fitted with power operated automatic self-closing device.

Note: Authorised persons, lift engineers, lift contractors and other parties concerned are advised to refer to guidance in FSD Circular Letter No. 7/88 or subsequent amendments thereto for operational, electrical and mechanical specifications of fireman's lifts.

5. Access staircases

5.1 With the exception of buildings in para. 6.1, the escape staircases in every building provided in accordance with the Code of Practice on Means of Escape shall be taken as satisfying the requirements for access staircases for firefighting and rescue purposes.

6. Firefighting and rescue stairways

6.1 In the following category of buildings, at least one firefighting and rescue stairway is required to be provided:

- (i) any building, including any basement storey therein, used or intended to be used for industrial undertaking purposes; or
- (ii) any building, including any basement storey therein, used or intended to be used for bulk storage or warehouse purposes;

where such building exceeds a height of 30 m or a cubical extent of 7 000 m³,

- (iii) any other basement storey comprising 3 or more floors and exceeding 7 000 m³ in volume.

6.2 Every access staircase in a firefighting and rescue stairway provided in accordance with this Code shall, without prejudice of the Code of Practice on Means of Escape, be deemed to be a staircase for means of escape for the purposes of Building (Planning) Regulation 41(1).

7. Arrangement of firefighting and rescue stairways

7.1 The number of firefighting and rescue stairways to be provided shall be such that where firefighting and rescue stairways are provided, no part of the floor that they serve shall be more than 60 m from any one such firefighting and rescue stairway.

7.2 Every fireman's lift in a firefighting and rescue stairway shall open into the ventilated lobby in the stairway and such lobby shall give access to the remainder of the building.

7.3 Every firefighting and rescue stairway shall give access to all floors and to any main roof of a building if such roof is accessible by a staircase.

7.4 Every firefighting and rescue stairway shall be enclosed by walls and these walls, the landings, flight, balustrades and partition walls therein shall be constructed wholly of non-combustible materials and no combustible finishing (including wall and ceiling linings and floor finishings) shall be included in such staircase.

7.5 Every firefighting and rescue stairway in the ground storey shall be—

- (a) directly accessible from a street or an open area having unobstructed access to a street;
 - (b) available to Fire Services appliances; and
 - (c) separated from the remainder of the ground storey by imperforate construction.
- 7.6
- (a) Every access staircase in a firefighting and rescue stairway serving the upper storeys shall not be continued directly to serve the basement storeys;
 - (b) Every access staircase in a firefighting and rescue stairway passing through a refuge floor shall discontinue at such level so that the access route is diverted to pass over part of the refuge floor area before it is continued to access upwards.
- 7.7 Every firefighting and rescue stairway shall be situated as close as possible to the perimeter wall of the building, which wall adjoins or is closest to a street accessible by Fire Services appliances.

8. Other requirements for firefighting and rescue stairways

8.1 Every access staircase in a firefighting and rescue stairway shall be of a minimum clear width of 1.05 m and shall be constructed in accordance with paragraph 19 of the Code of Practice on Means of Escape.

8.2 In every storey except the ground storey the firefighting and rescue stairway shall be approached from the floor areas only through a lobby which shall:—

(a) adjoin an external wall accessible to Fire Services Department appliances and have a floor area of not less than 5 m² and not more than 10 m² with no side less than 1.5 m;

(b) in storeys above the ground level, be provided with natural ventilation by means of:—

(i) openings on the external wall to an extent no less in area than 25 per cent of the floor area of the lobby. Such openings shall be as near the ceiling as is practicable and in no case the top of such openings shall be less than 1.9 m above the level of the lobby floor. Where such openings are provided with windows, such windows shall be openable from inside without the use of a key; and

(ii) a permanent vent with a clear area of not less than 0.05 m² for each lobby at or close to ceiling level. Such vent may form part of the opening provided under (b)(i);

(c) in storeys below the ground level, be provided with natural ventilation by means of:—

(i) unobstructed smoke outlets having a minimum cross-sectional area of 1 m² for each lobby ventilating into the outside air above ground level. Lobbies at basement levels should be individually vented by separate smoke outlets provided at the ceiling of the lobby. Such outlets may be covered at or about ground level with breakable covers and should be located clear of final exits and the fire service access; or

(ii) the same openings as in (b)(i); such openings shall ventilate into an open lobby having an area of not less than 1 m² per 1 m of the height of the wall enclosing the openwell, and a minimum dimension of 1.5 m; provided that natural ventilation may be omitted if such lobby leads to an open staircase.

8.3 The perimeter enclosing walls that separate the access staircase, fireman's lift and lobby from the floor areas in each storey (together with any supporting structure and floor slabs forming the enclosures of the firefighting and rescue stairway) shall have twice the F.R.P. required for the elements of construction in the storey concerned, with a maximum F.R.P. of 4 hours in all cases.

8.4 Within the perimeter enclosing walls, walls or partitions that serve only to separate the access staircase and lobby from each other shall have an F.R.P. of not less than 1 hour.

8.5 In relation to any firefighting and rescue stairway:—

- (a) the lobby doors shall be self-closing and have an F.R.P. of not less than 1 hour;
- (b) the lobby doors shall not be fitted with any bolts, locks or other fastenings except, for security reasons, the door between the lobby and the floor area may be fitted with a lock which is openable from the floor side without the use of a key.

8.6 Where openings are formed in the external enclosures of the lobby or staircase they shall comply with the relevant provisions in the Code of Practice for Fire Resisting Construction and in no case shall openings in the enclosing walls of the staircase or lobby be formed within 450 mm measured horizontally from any opening in the external walls to the building.

8.7 Every access staircase in a firefighting and rescue stairway shall be ventilated:—

(a) at each storey level above the ground storey, by windows in the external enclosure wall capable of being opened without the use of a key to an extent at least equal to 15 per cent of the internal area of the staircase; and

(b) at its highest point by a vent capable of being opened manually or automatically by a remote control switch to an extent not less than 5 per cent of the internal area of the staircase. Such remote control switch shall be situated in a conspicuous position at the point of access of the firefighting and rescue stairway.

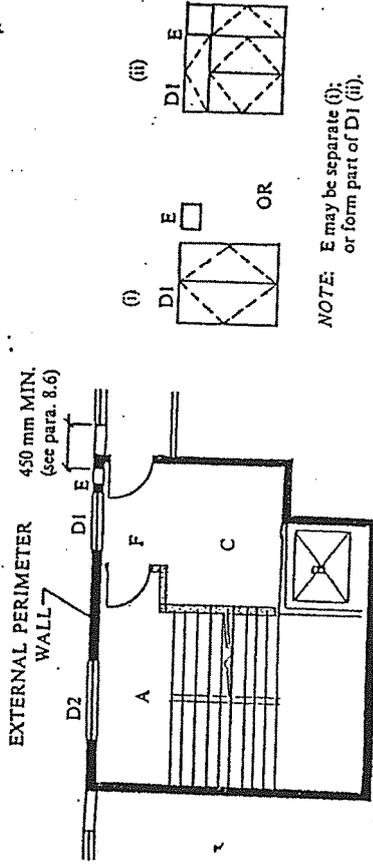
8.8 Ventilation of firefighting and rescue stairways may be omitted where a mechanical system to control the ingress of smoke into the staircase, such as pressurisation, is provided to the satisfaction of the Building Authority.

Summary of Requirements for Fireman's Lifts and Firefighting & Rescue Stairways

Type of buildings	No. of Fireman's lifts required	No. of firefighting & rescue stairways required
Single family houses not exceeding 3 storeys high	—	—
Single-staircase buildings not exceeding 6 storeys and 17 m in height	—	—
All buildings including industrial undertaking, bulk storage and warehouse, not exceeding 2 storeys in height	—	—
Buildings not exceeding 30 m high or 7 000 m ³ and not used for industrial undertaking, bulk storage, warehouse, hotel, place of public entertainment or hospital	—	—
Industrial undertaking, bulk storage and warehouse (including basement storey therein)	Corresponding to the firefighting and rescue stairways required	Such that no part of the floor is more than 60 m from any one such FRS
Basement storey of 3 or more floors	At least one	
All other buildings	At least one	

Note: Notwithstanding the above table, the BA may require the provision of additional fireman's lifts and/or firefighting & rescue stairways to any building which he considers to be likely to bear a special hazard.

Diagram 1 Requirements of a firefighting and rescue stairway above ground storey (Paragraphs 7 and 8)



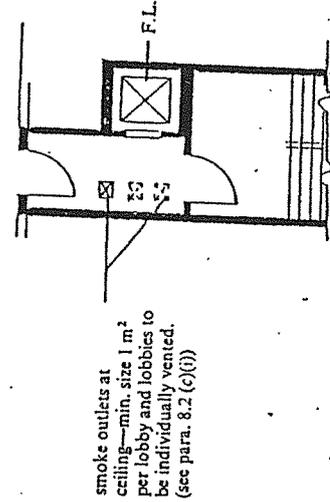
NOTE: E may be separate (i); or form part of D1 (ii).

KEY

- Perimeter enclosure walls (FRP = 2 x FRP of storey, max. 4 Hrs.)
- ▨ Lobby walls (minimum 1 Hr. FRP)
- A Access Staircase — min. width 1.05 m (see para. 8.1)
- B Fireman's Lift — min. internal size 1.35 m and rated load 680 kg (see para. 4.3 (iii))
- C Ventilated Lobby — size 5 m²—10 m², min. dimension 1.5 m (see para. 8.2 (d))
- D1 Lobby Openings — min. size 25% of lobby floor area (see para. 8.7(d))
- D2 Staircase Windows — min. size 15% of staircase area (see para. 8.7(d))
- E Permanent Vent — min. size 0.05 m² (see para. 8.2 (b)(ii))
- F Lobby Doors — self-closing with min. 1 Hr. FRP (see para. 8.5)

N.B. Ventilation may be omitted where a suitable mechanical system, such as pressurisation, is provided to the satisfaction of the Building Authority (see para. 8.8)

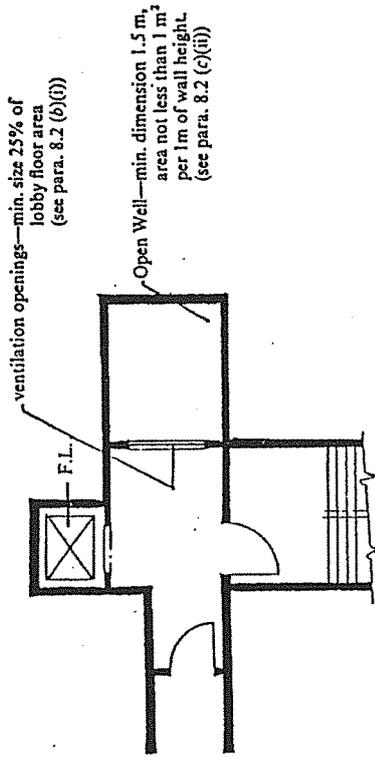
Diagram 2 Ventilation of lobby of firefighting and rescue stairway below ground level Alternative 1 (smoke outlets)



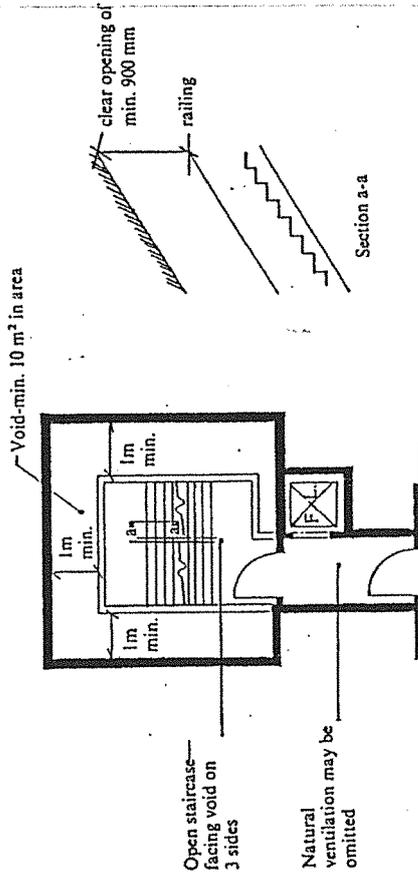
smoke outlets at ceiling—min. size 1 m² per lobby and lobbies to be individually vented. (see para. 8.2 (c)(ii))

F.L. = Fireman's lift

Alternative 2 (open well)

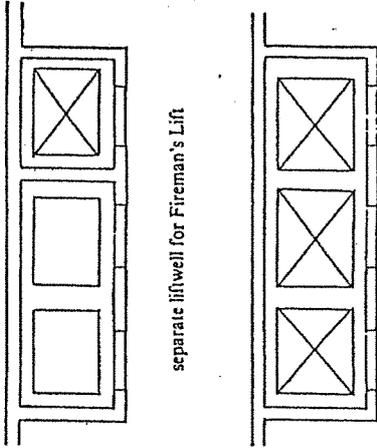


Alternative 3 (open staircase)



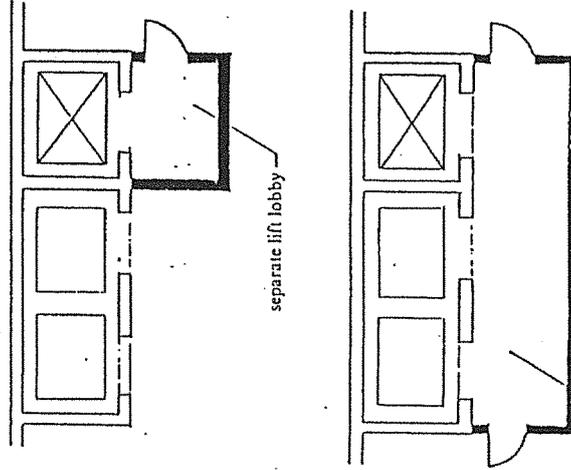
Alternative 4 Ventilation may be omitted where a suitable mechanical system, such as pressurisation, is provided to the satisfaction of the Building Authority (see para. 8.8)

Diagram 3 Fireman's lift (see para. 4)



separate liftwell for Fireman's Lift

up to 3 lifts may share the same well provided all are designated as fireman's lifts



Key:—
 fireman's lift—min.
 size 1.35 m² and rated
 load 680 kg

separation of lift lobby—
 min. 1 Hr. FRP

common lift lobby may be permitted if such lobby is to be provided on every floor served

N.B. Where more than one lift is installed, the Director of Fire Services shall designate the fireman's lift (para. 4.2)