Designing for Effective Means of Escape

Part III

Means of Escape

Last Seminar

Part I: The exit Access

- Smoke free approach to exit staircase
- Escape via another occupied space

Part II: The exit

- Exit staircase/smoke stop lobby
- Provision of natural ventilation

<u>This Seminar</u>

Part I: The exit access

- **Travel distance**

Part II: The exit

- **Identification of exit staircase**
- **Internal & external exit passageway**

TRAVEL DISTANCE

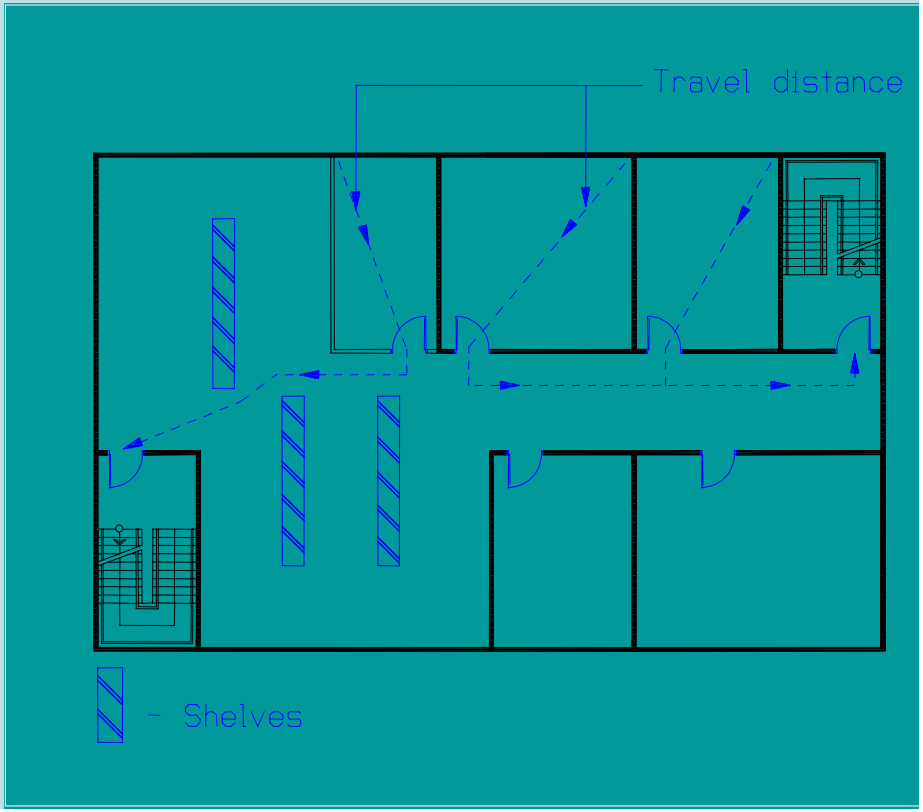
Travel Distance

- What is travel distance ?
- How to comply with travel distance requirement ?

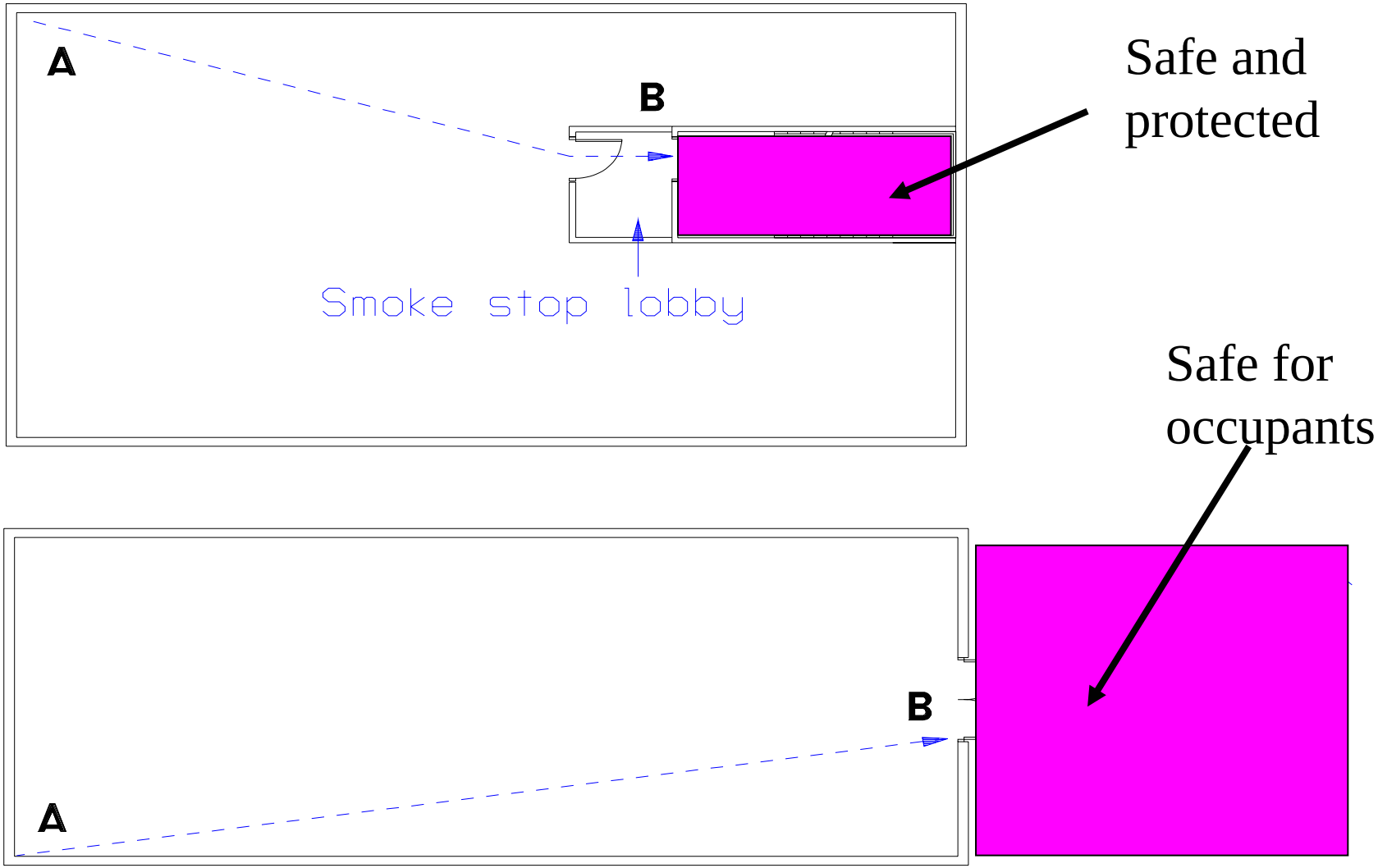
Travel Distance

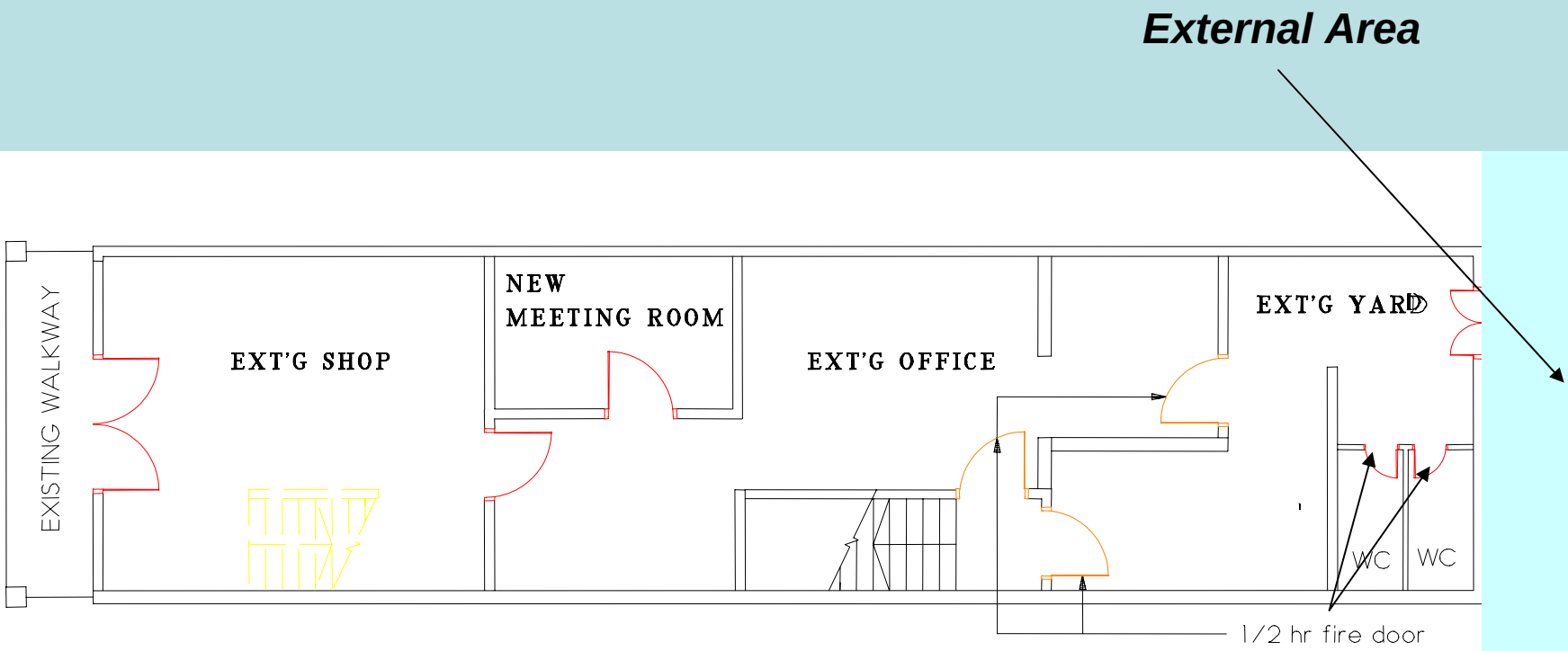
The distance required to be traversed from the most remote point in any room or space to the edge of a door opening directly to :

- **an exit staircase, or**
- **an exit passageway, or**
- **an open exterior space**



Note: Travel distance shall be measured to the door of the exit staircase or open exterior space, ie from point A to B





1ST STOREY PLAN

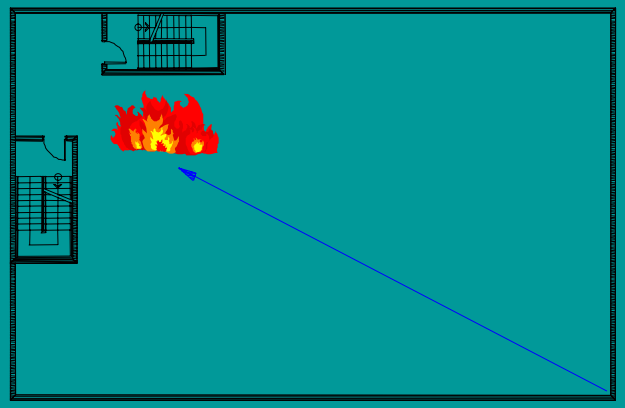
(MANUAL 'BREAK GLASS' FIRE ALARM SYSTEM)

Two-way escape
(Remoteness of exits)

- **More than one exit is required**
  - **Exits shall be remotely located**
  - **Arranged to minimise the possibility that more than one can be rendered unusable during fire emergency**

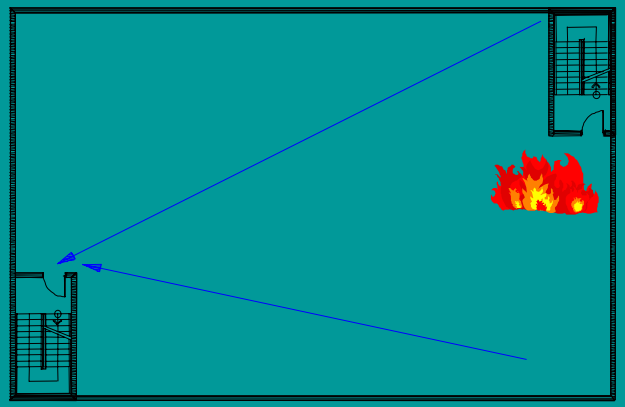
Reason:

To ensure that the exits provided are spaced apart so that :



Incorrect :

Access to the protected staircases will be blocked by a fire occuring in the vicinity of the staircase



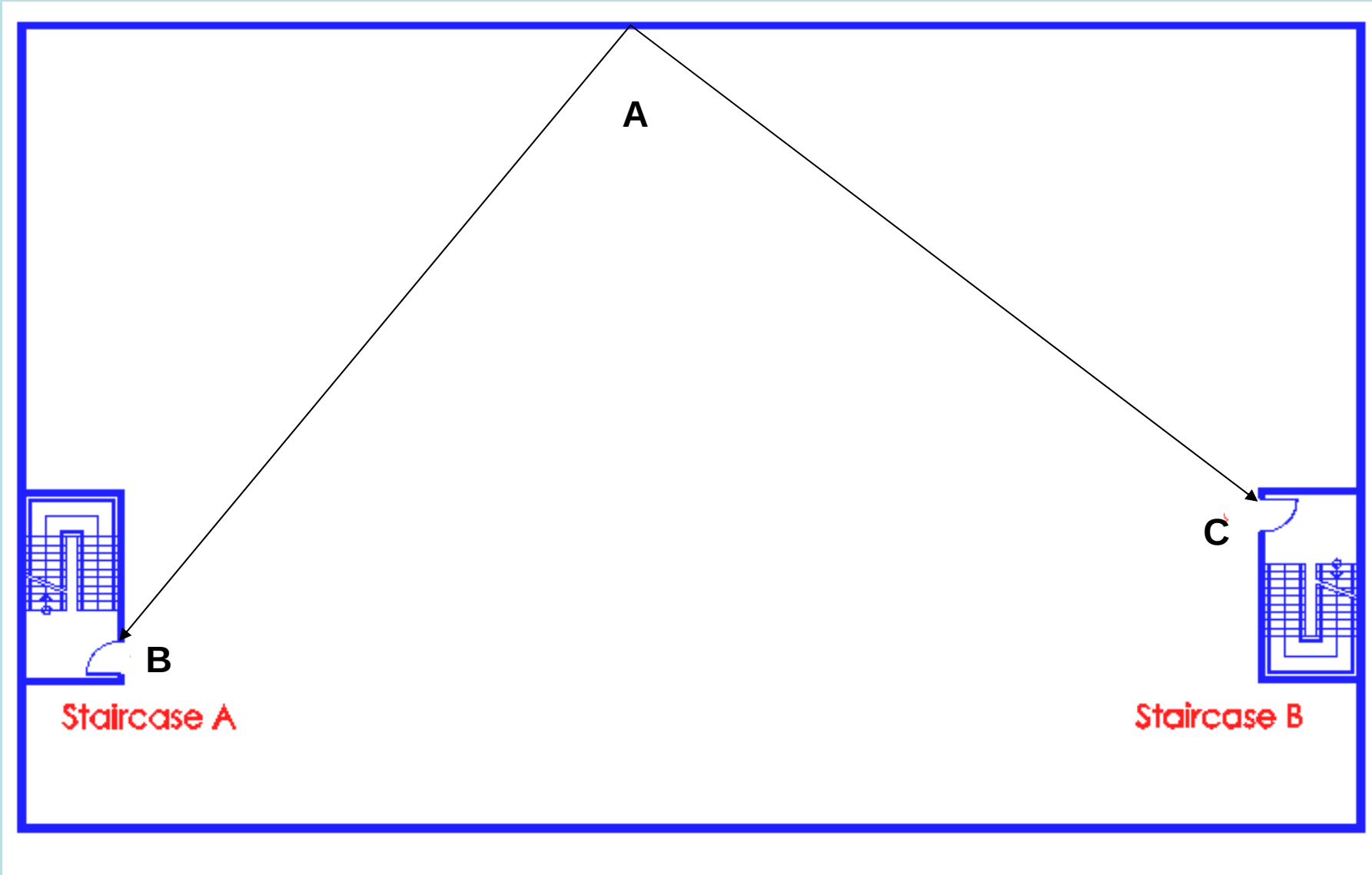
Correct :

Access to an alternate staircase is available if a fire occured in the vicinity of the exit door to one of the staircases

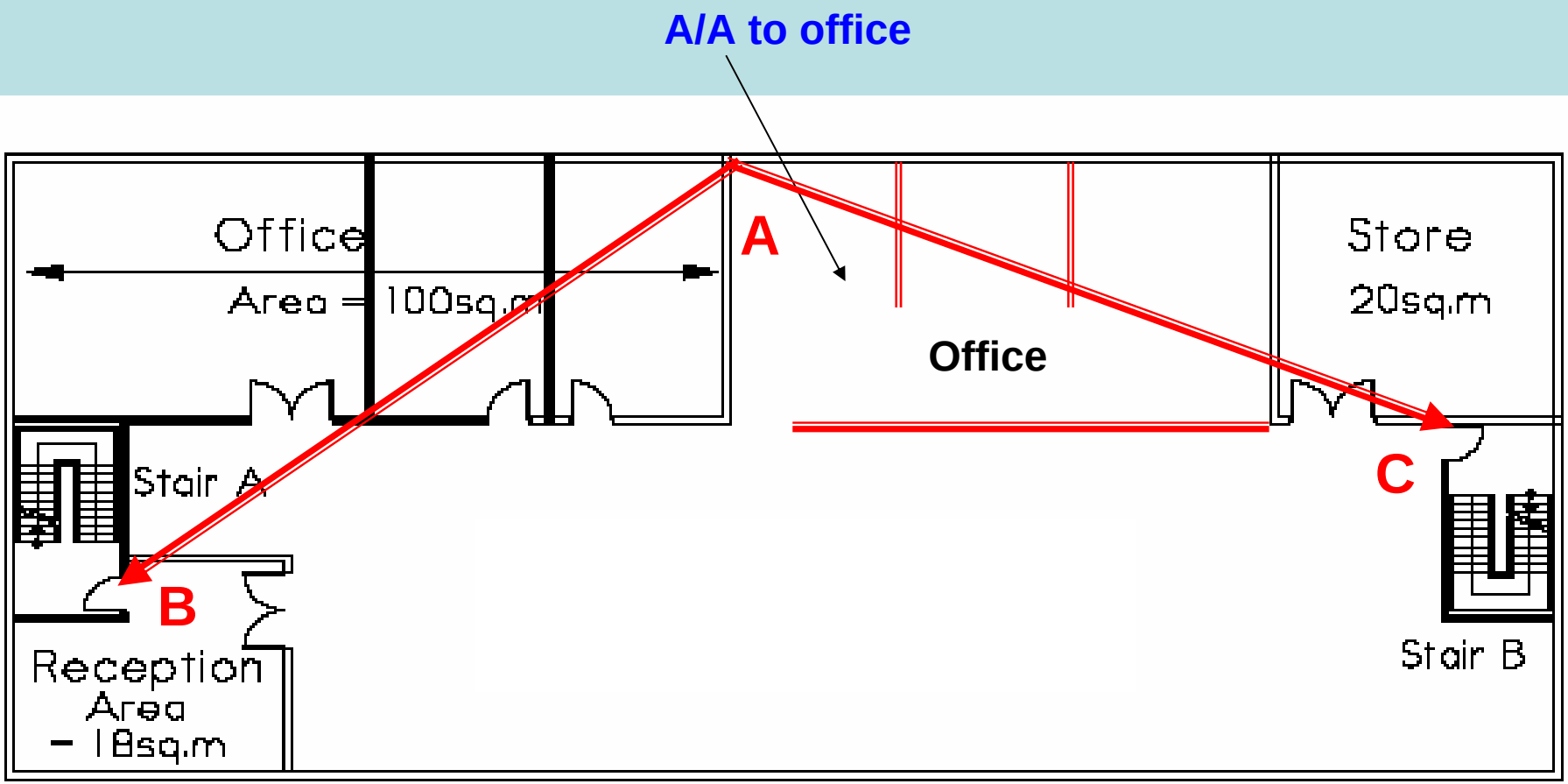
If fire happens near one exit, occupants could still make use of the other exit for escape.

Measurement of Travel Distance

Measurement of travel distance



Equal-distance from A to B and A to C

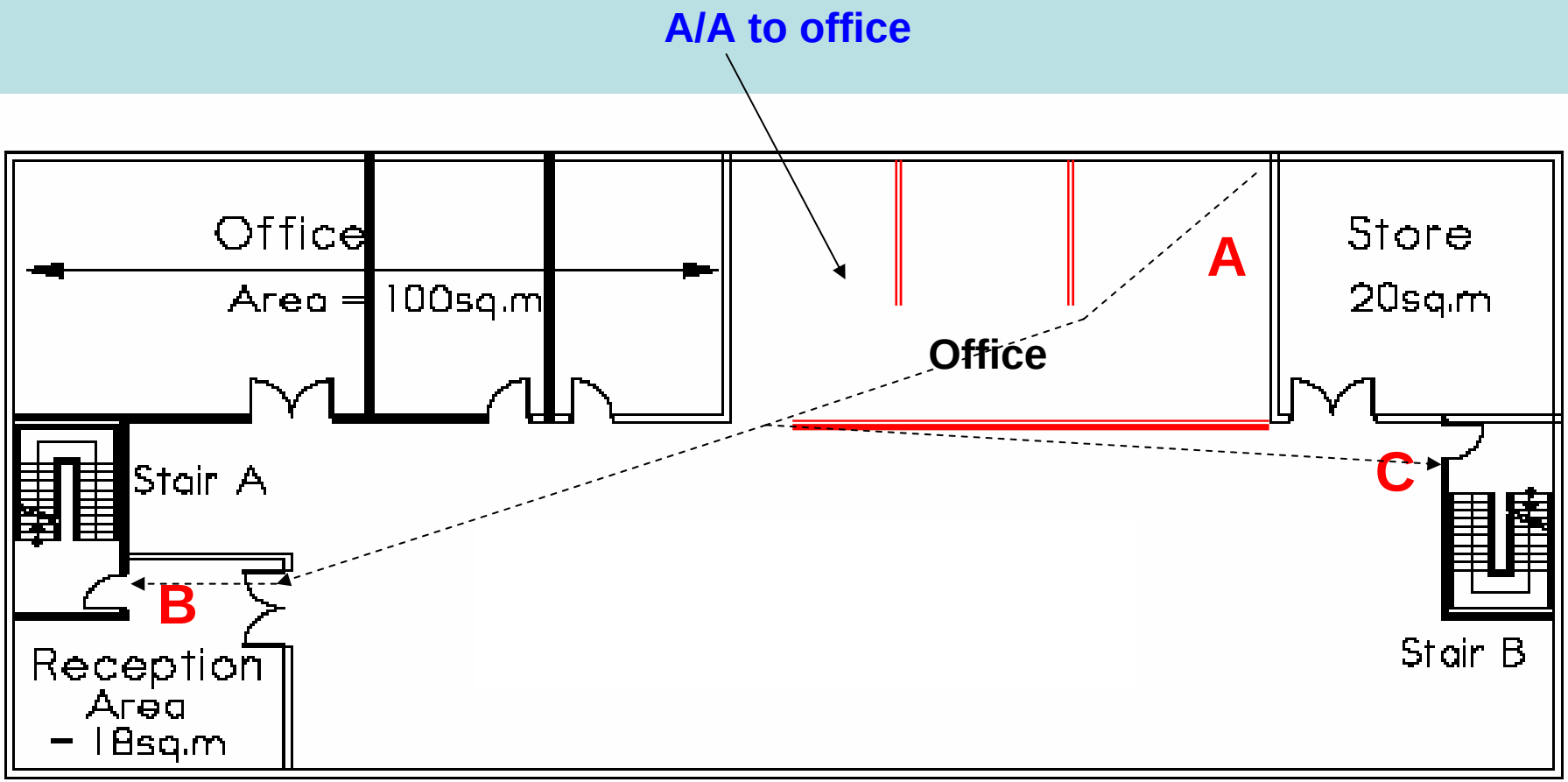


Method 1: Direct distance

Distance AB, AC = 2/3 travel distance

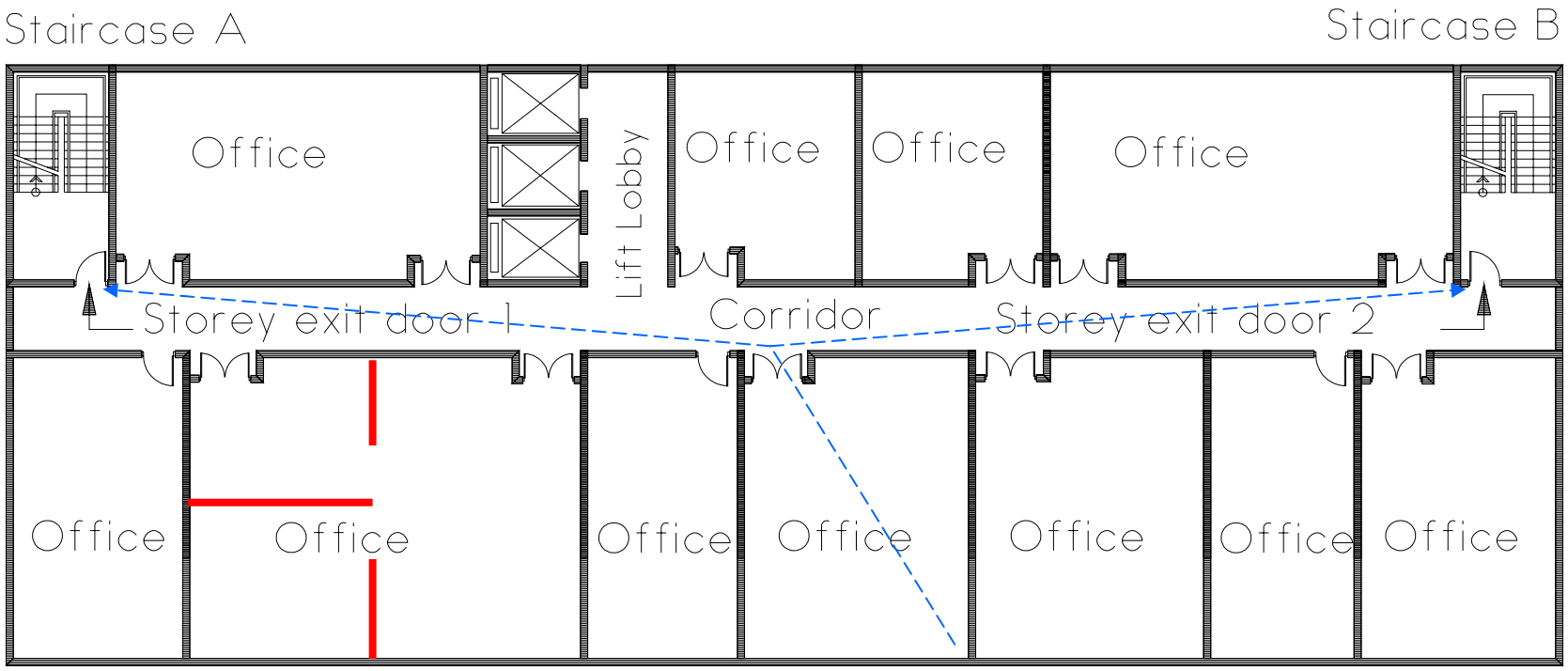
⟹ **Travel distance complied on this floor**

*** To consult FSSD for complicated layout**

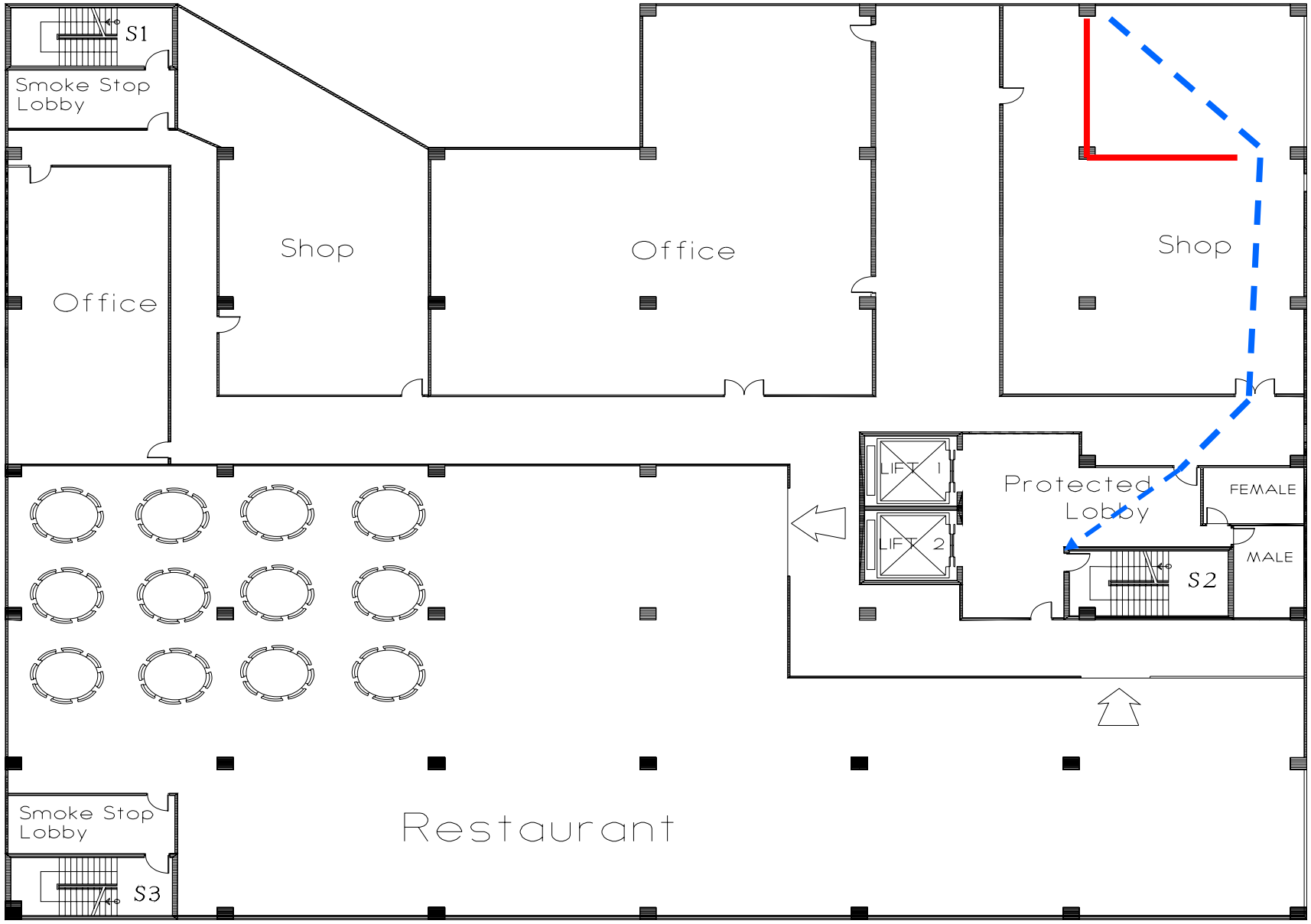


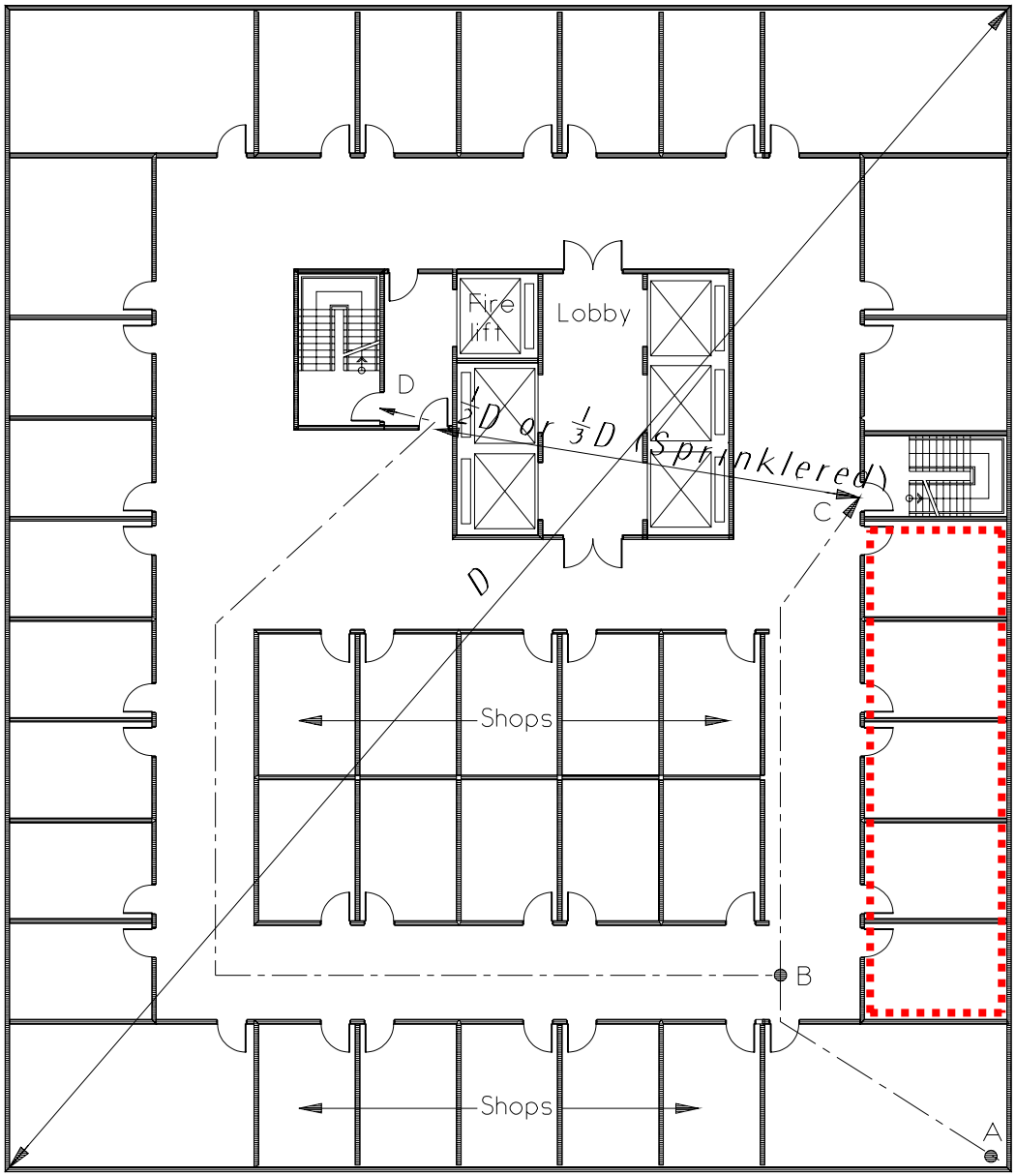
Method 2: identify the midpoint

AB = AC =➔ the floor complies with travel distance


Staircase A
Staircase B
Office
Lift Lobby
Office
Office
Office
Storey exit door 1
Corridor
Storey exit door 2
Office
Office
Office
Office
Office
Office
Office

A/A to shop


S1
Smoke Stop Lobby
Office
Shop
Office
Shop
LIFT 1
LIFT 2
Protected Lobby
FEMALE
MALE
S2
Restaurant
Smoke Stop Lobby
S3



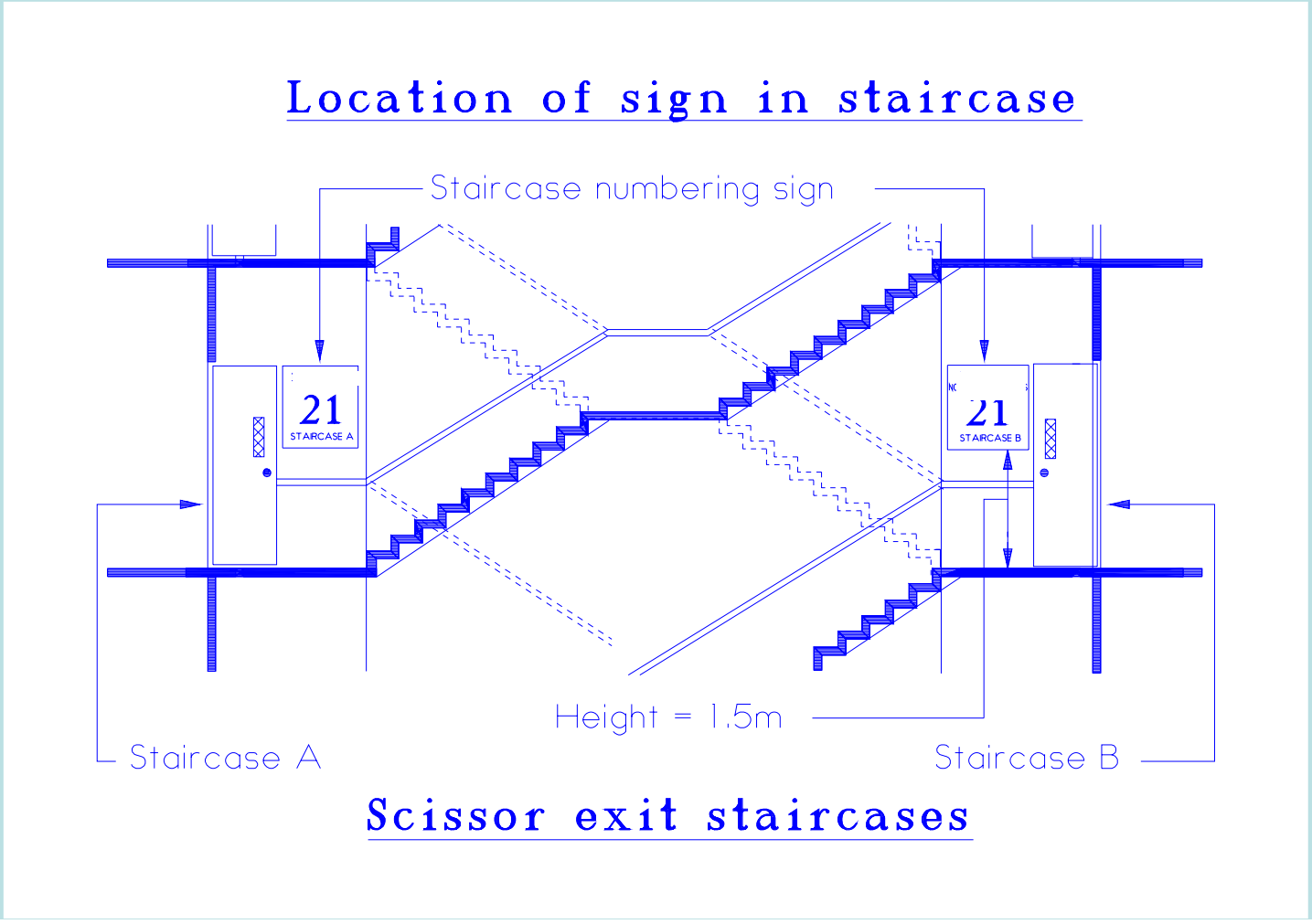
Compliance of travel distance

Identification of exit staircase

Staircase serving all buildings (except purpose group I)

- To facilitate fire fighting operations

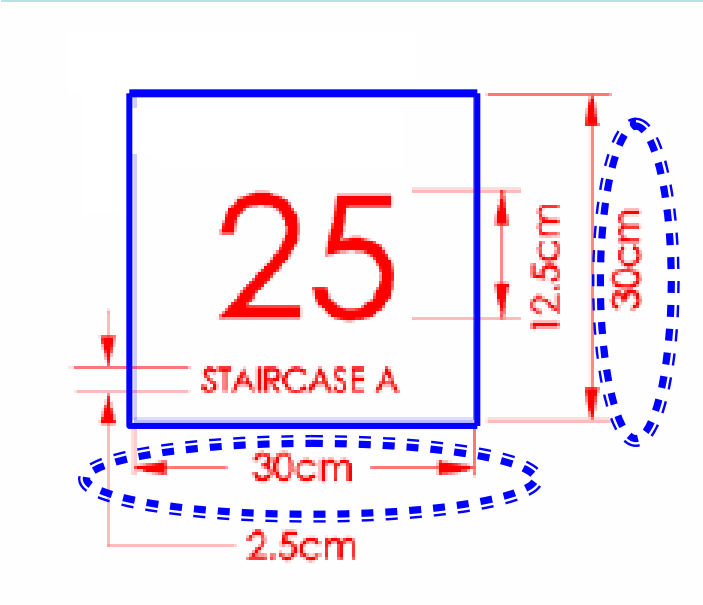
- To alleviate any fear of disorientation



Exit Staircase

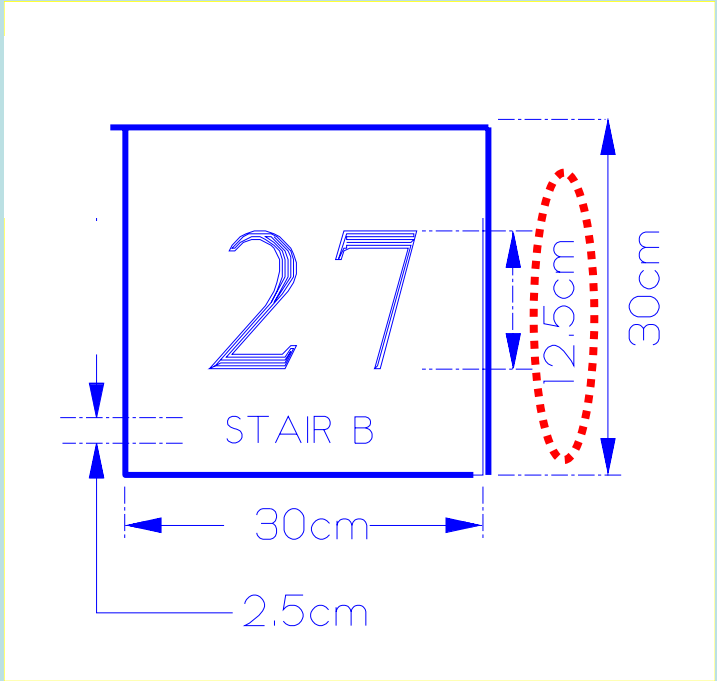
Signage not smaller than 300 x 300mm

- **within the stairwell at each storey landing**



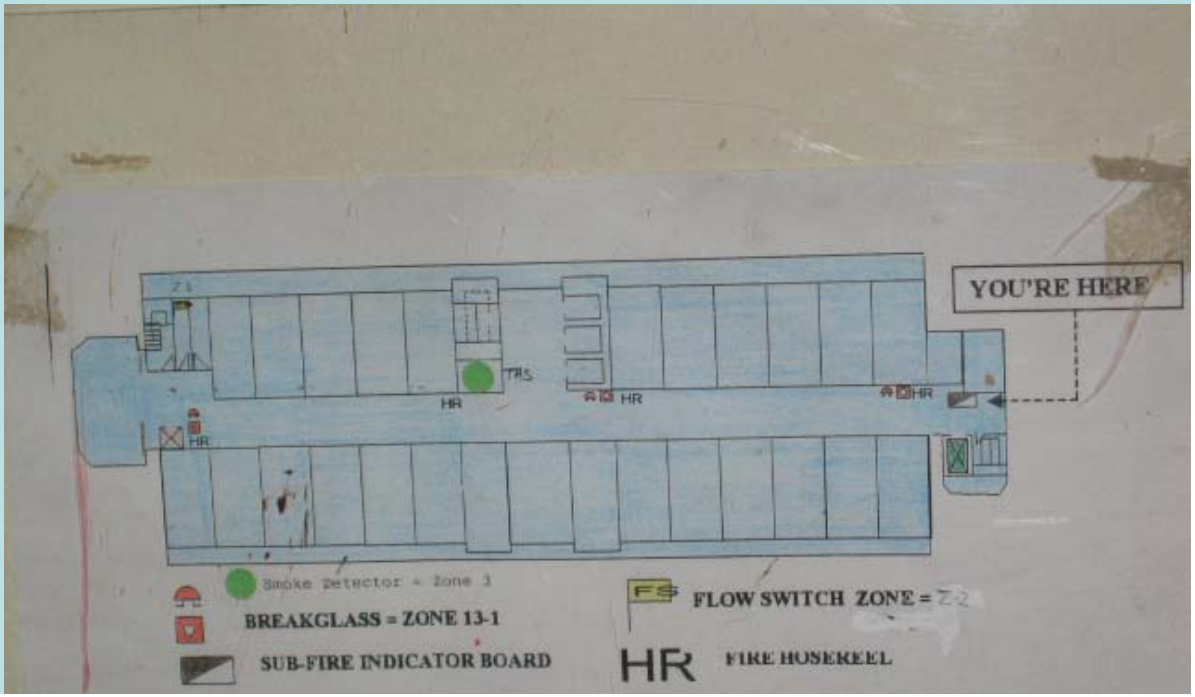
Signage shall contain the following:

- **Storey number (at least 125mm in height)**
- **Identification of staircase in alphabetical and/or numeric (at least 25mm in height)**
- **Signage shall be visible when the door is in open position to any person moving up or down the staircase**
- **Letters and numbers may be of any colour that contrast with the background colour**



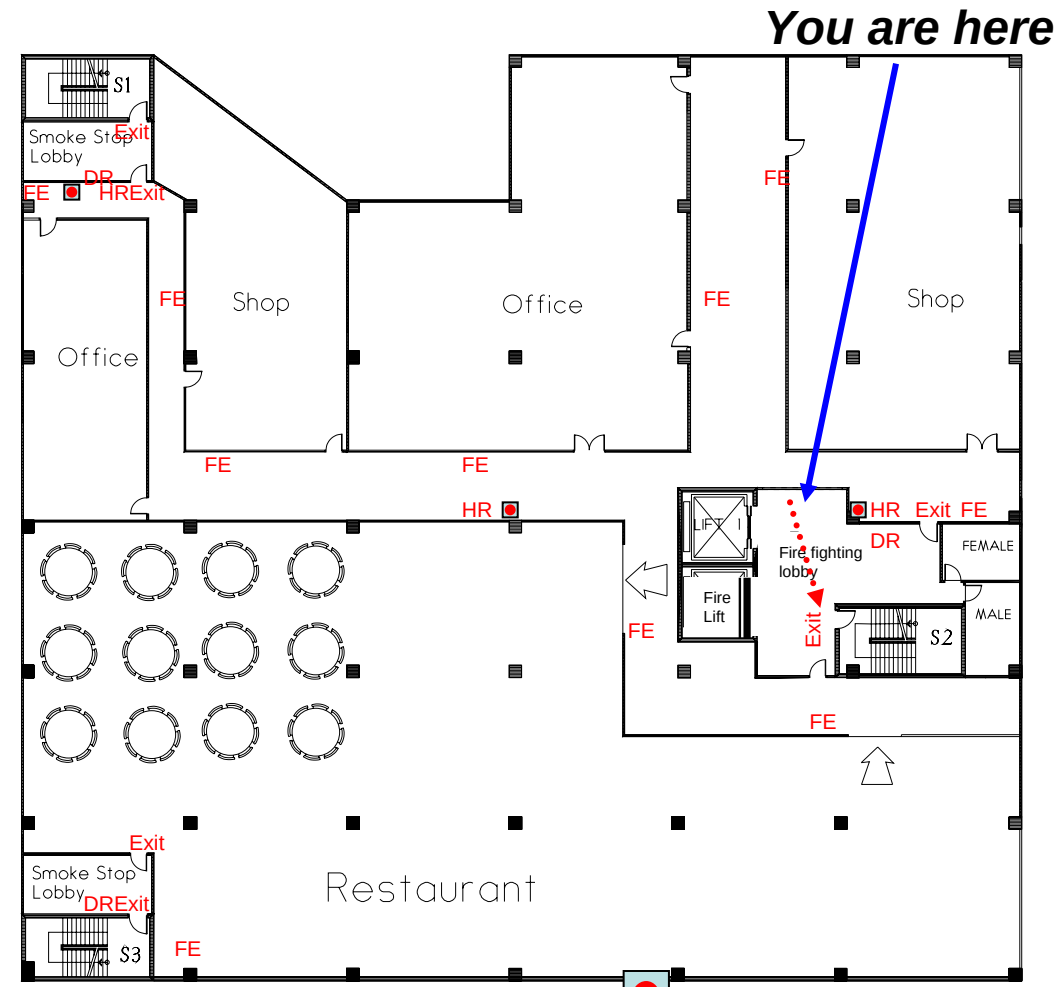
Fire Escape Plan

- Except purpose group I
- For public occupants and fire fighters in case of fire
- To place at common areas



To include the following information:

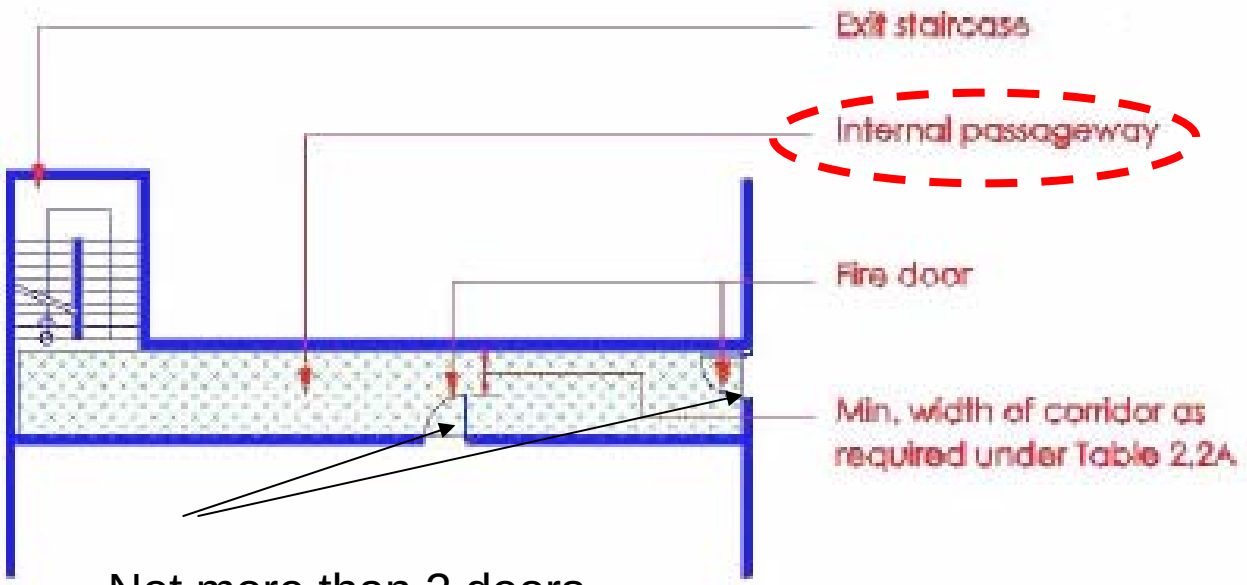
- **Firemen's lift**
- **Hosereels**
- **Fire Extinguishers**
- **Dry and wet riser**
- **Fire indicator board**
- **Manual alarm call points**



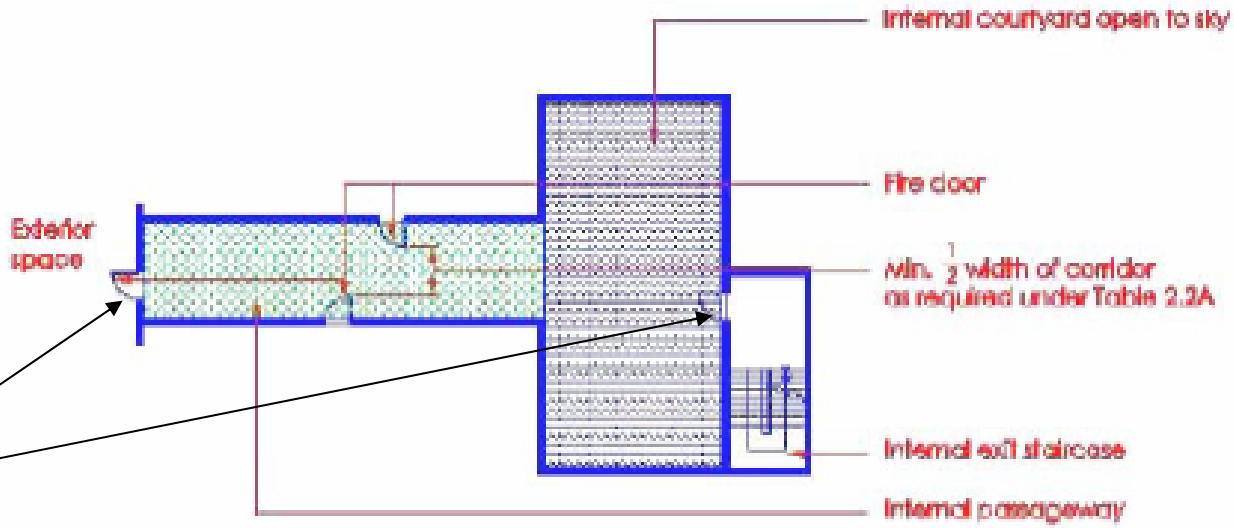
Internal/External Exit Passageway

Internal Exit Passageway

- Horizontal extension of vertical exit
- leading from courtyard to open exterior space
- Not more than 2 exit doors opening
- To comply with exit staircase requirements
- Minimum width and capacity of exit passageway to comply Table 2.2A
- Changes in level require less than 2 risers shall be by ramp
- Internal exit passageway shall be :
  - naturally ventilated (15% of floor area of exit passageway)
  - to mechanically ventilated if internal exit passageway cannot be naturally ventilated
  - If staircase is pressurised, internal exit passageway shall also be pressurised



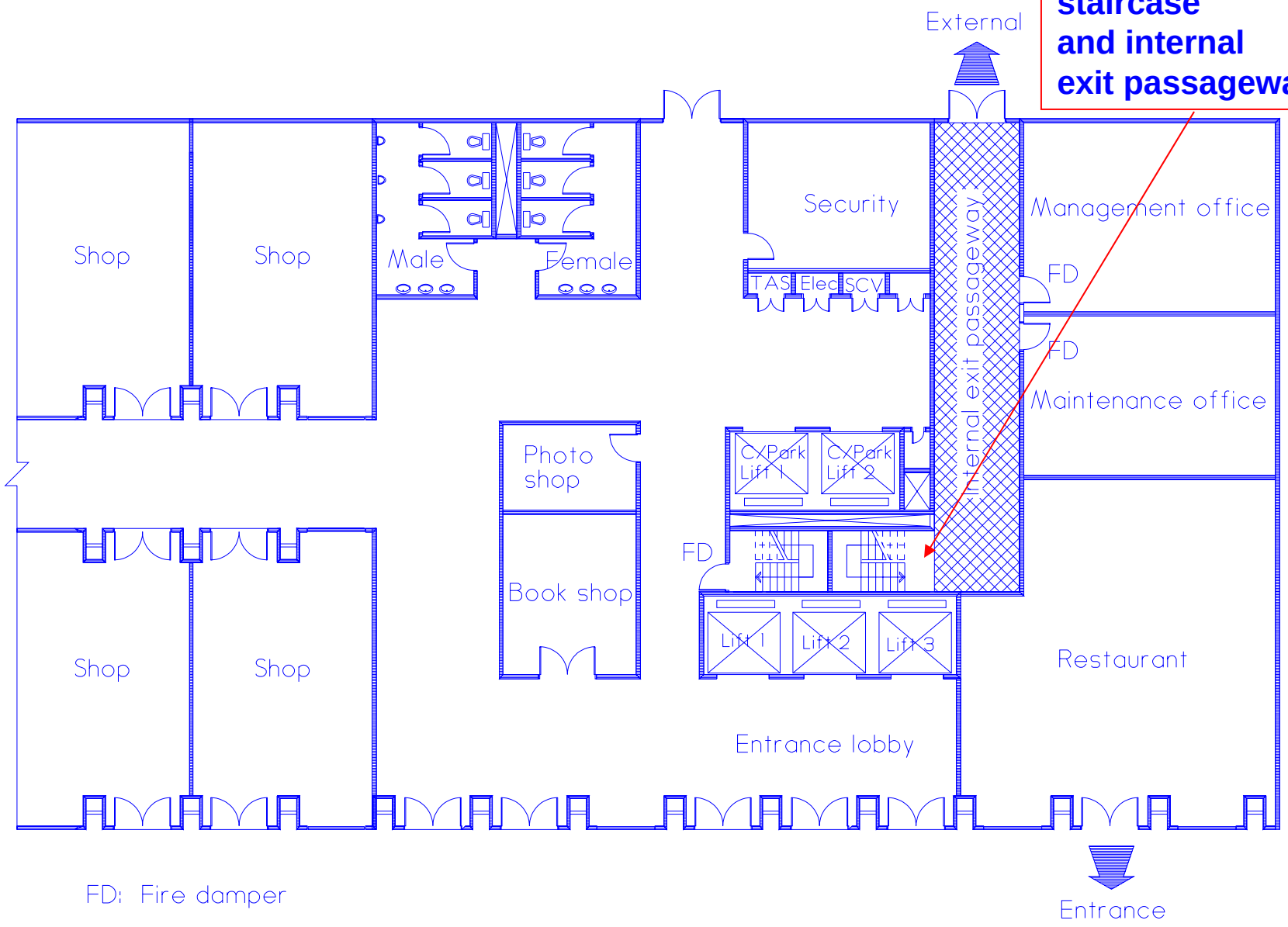
Not more than 2 doors



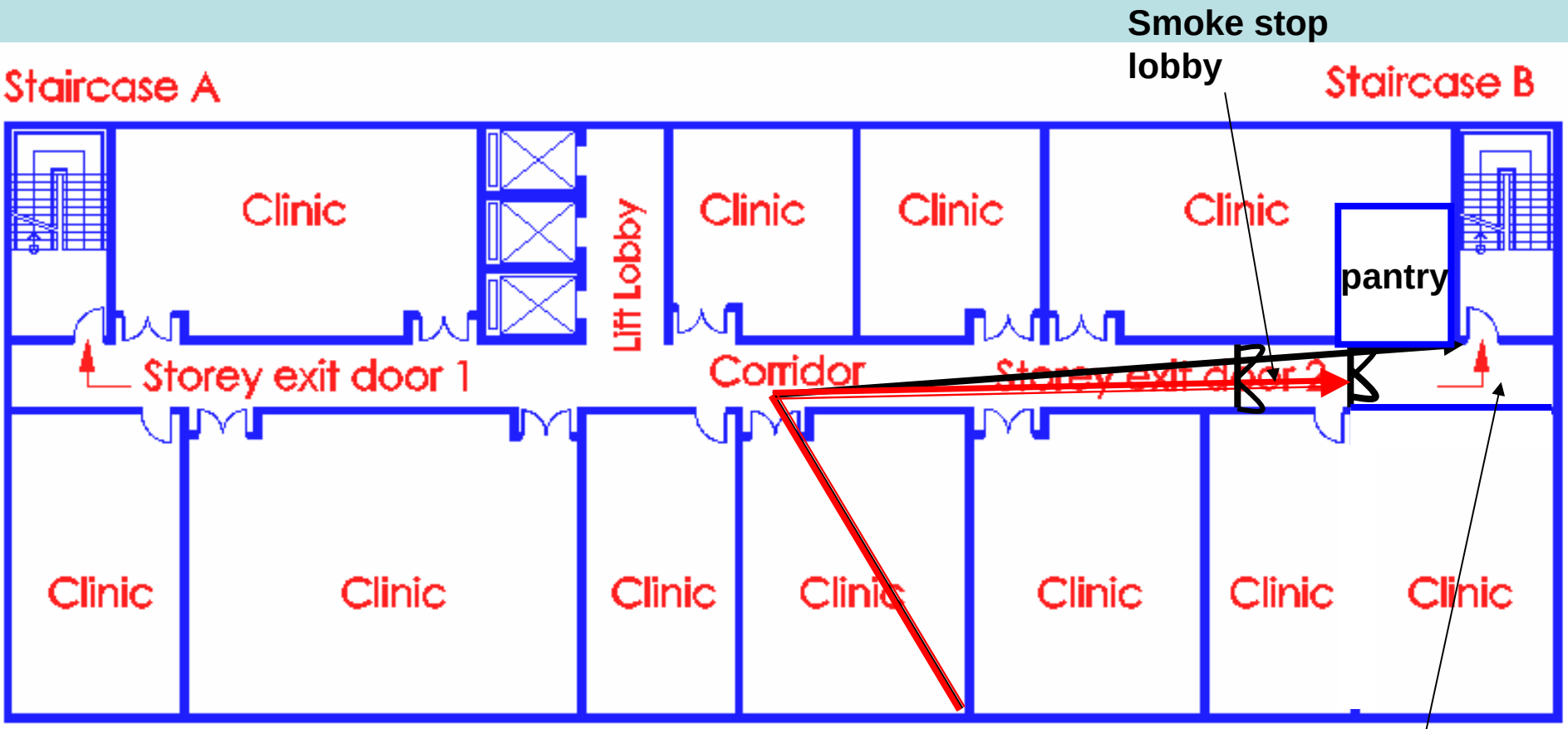
Not considered when calculating the no. of doors

1st storey plan – *Internal exit passageway*

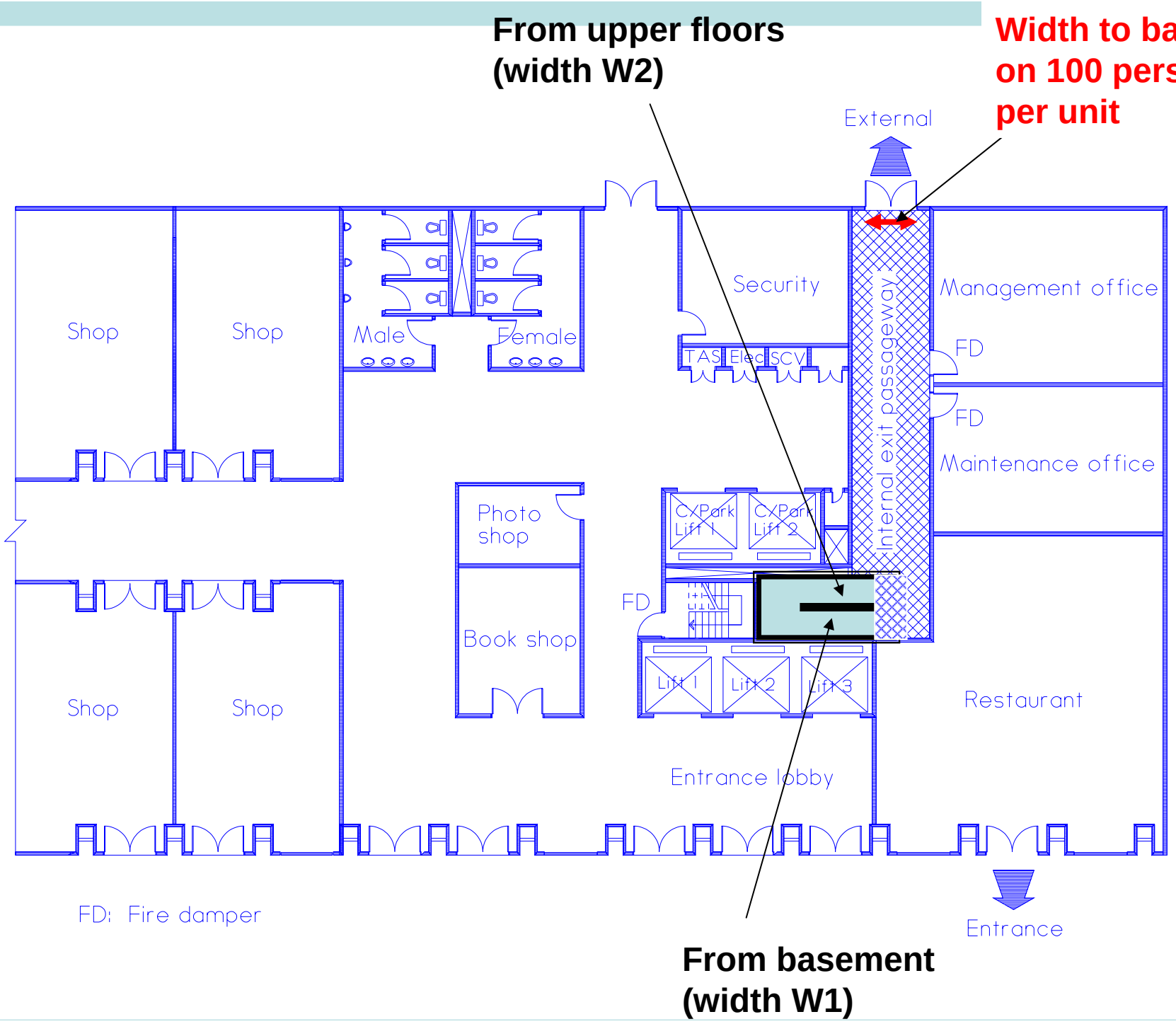
No door between exit staircase and internal exit passageway



FD: Fire damper



Compliance of Travel Distance

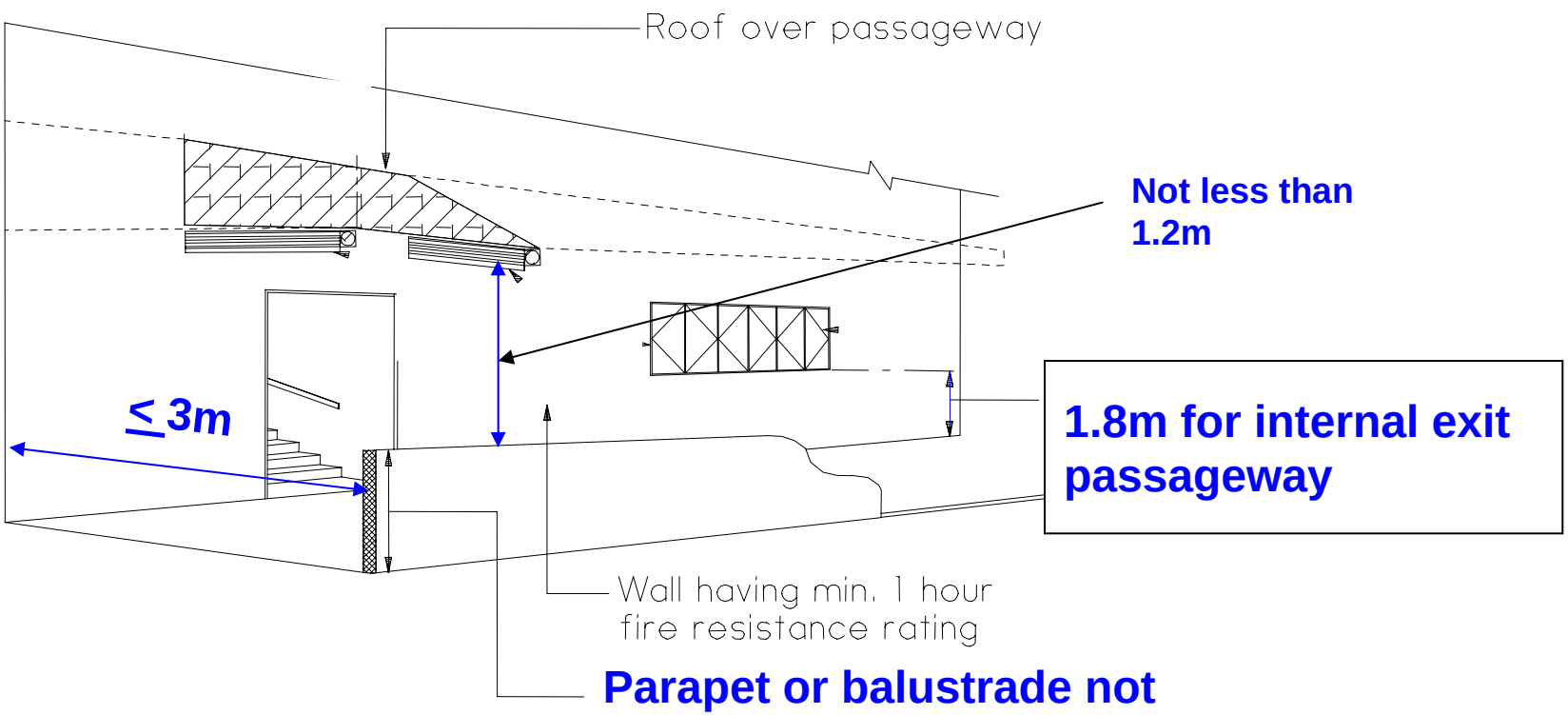

From upper floors
(width W2)
Width to base
on 100 persons
per unit
External
Shop
Shop
Male
Female
Security
TAS
Elec
SCV
Internal exit passageway
Management office
FD
FD
Maintenance office
Photo
shop
Book shop
CXPark
Lift 1
CXPark
Lift 2
FD
Lift 1
Lift 2
Lift 3
Shop
Shop
Restaurant
Entrance lobby
FD: Fire damper
Entrance
From basement
(width W1)

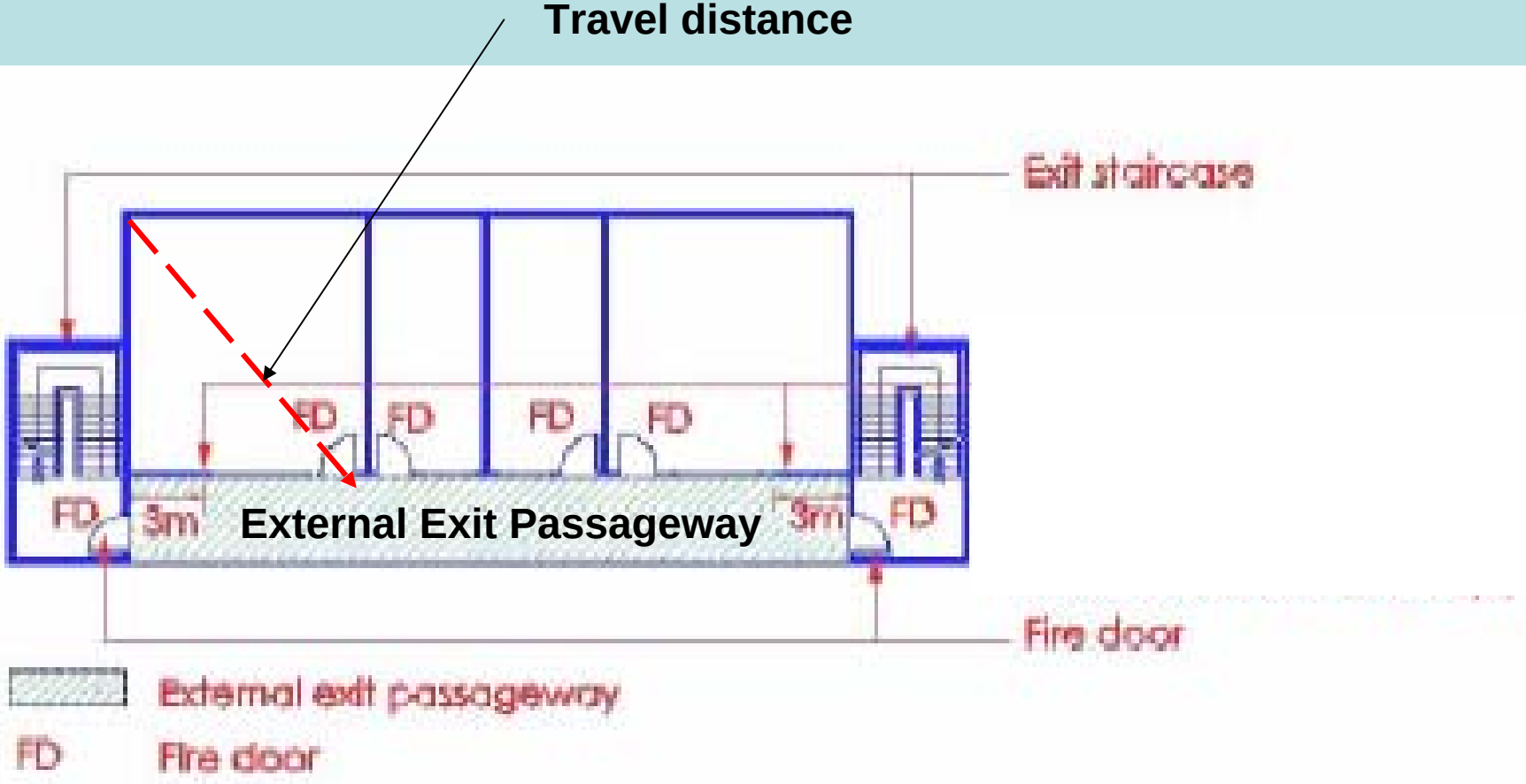
External Exit Passageway

External Exit Passageway

- An exit passageway open to the outdoor air, that serves as a required exit.
  - **Ventilation opening of non-combustible construction ≥ 1.8m**
  - **No limitation of maximum of two doors**
  - **Roof over portion shall not exceed 3m**
  - **Enclosed on open side by parapet not less than 1m or more than 1.1m**
  - **Vertical height of unobstructed ventilation opening measured from the parapet wall up to top edge of opening or eaves of overhang shall not be less than 1.2m**
  - **Exit doors opening into an external exit passageway to be at least half hour rated**

External Exit Passageway





Measurement of travel distance

CONCLUSION

- Important to provide adequate means of escape
- Building owner/management/occupants to ensure that means of escape are maintained and unobstructed at all times


Thank You