What FSM needs to know about means of escape
Scope

- Introduction
- What is means of escape
- What you need to know
- Conclusion
What is “Means of Escape”?
Means of Escape

A continuous and unobstructed way of travel from any point in a building or structure to an external space, consisting of three parts:

Part I: The exit access

Part II: The exit

Part III: The exit discharge
Part I

Exit Access

- That portion of a means of egress that leads to an exit

Eg. The part within the functional room spaces to the exit staircase/area of refuge.
Part II : Exit

That portion of a means of egress that is separated from all other spaces of a building or structure by construction or equipment as required to provide a protected way of travel to the exit discharge.
Part III

Exit discharge:

- That portion of means of egress between the termination of an exit and a public way
Means of Escape

Part I
The Exit Access

Part II
The Exit

Part III
The Exit Discharge

Discharge
Means of Escape

What you need to know
Provision of sufficient exits in building
What is occupant load?

The total number of persons that could be ‘accommodated’ in all spaces on a storey of the building.

*Calculated on a storey by storey basis*

What is exit capacity?

The capacity of exits provided for the storey of building

Exit Capacity > Occupant Load
Illustration of occupant load and exit capacity

Shop Area
(Occupant Load = 360 persons)

Exit capacity = 180 persons

Staircase A

Exit capacity = 180 persons

Staircase B
When you need to monitor the occupant load

When there is change of use, FSM to update the occupant load of the floor involves

- FSM should maintain updated occupant load and exit capacity of every storey

- Obtain the updated occupant load from QP
Why you need to monitor occupant load and exit capacity

- Can provide an updated and accurate occupant load for QP to calculate the new occupant load

- Able to advise prospective tenant and management on possibility of change of use
Example

Calculation of Occupant Load
Office
Staircase A
Staircase B
Restaurant
Stage
Preparation area
## Occupant Load (OL) Calculation

\[
OL = \frac{\text{Floor Area}}{\text{Occupant Load Density}}
\]

**eg. Office**

\[
900(m^2) / 10(m^2/\text{person}) = 90 \text{ persons}
\]

**eg. Shop**

\[
900(m^2) / 5(m^2/\text{person}) = 180 \text{ persons}
\]

<table>
<thead>
<tr>
<th>FUNCTIONAL SPACES</th>
<th>REMARKS</th>
<th>OCCUPANCY LOAD (m²/\text{person})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reception Area</td>
<td></td>
<td>3.0</td>
</tr>
<tr>
<td>Lobby/Corridors</td>
<td>non-simultaneous</td>
<td>—</td>
</tr>
<tr>
<td>Waiting Area/ Visitors Lounge</td>
<td></td>
<td>3.0</td>
</tr>
<tr>
<td>Admin Office</td>
<td></td>
<td>10.0</td>
</tr>
<tr>
<td>Staff Office</td>
<td></td>
<td>10.0</td>
</tr>
<tr>
<td>Library/Reading Room</td>
<td>Stack Area</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td>Reading Area</td>
<td>5.0</td>
</tr>
<tr>
<td>Common Room</td>
<td></td>
<td>1.5</td>
</tr>
<tr>
<td>Multi-purpose Room</td>
<td></td>
<td>1.5</td>
</tr>
<tr>
<td>Student Bedroom</td>
<td></td>
<td>10.0</td>
</tr>
<tr>
<td>Warden’s Accommodation</td>
<td></td>
<td>15.0</td>
</tr>
<tr>
<td>Sleeping Quarters/ Dormitories</td>
<td></td>
<td>3.0</td>
</tr>
<tr>
<td>Detention Room</td>
<td></td>
<td>3.0</td>
</tr>
<tr>
<td>Sick Room</td>
<td></td>
<td>—</td>
</tr>
<tr>
<td>Toilets/Bath/ Changing Rooms</td>
<td></td>
<td>—</td>
</tr>
<tr>
<td>Indoor Games/Hobby Room</td>
<td></td>
<td>1.5</td>
</tr>
<tr>
<td>Classroom</td>
<td></td>
<td>1.5</td>
</tr>
<tr>
<td>Kitchen/Housekeeping</td>
<td></td>
<td>10.0</td>
</tr>
<tr>
<td>Laundry* (1)</td>
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<td>10.0</td>
</tr>
<tr>
<td>Service Area</td>
<td></td>
<td>10.0</td>
</tr>
<tr>
<td>Storage Area</td>
<td></td>
<td>30.0</td>
</tr>
<tr>
<td>Dining/Canteen</td>
<td></td>
<td>1.5</td>
</tr>
<tr>
<td>Shop</td>
<td></td>
<td>5.0</td>
</tr>
<tr>
<td>Mechanical Plant Room</td>
<td></td>
<td>30.0</td>
</tr>
</tbody>
</table>

*To refer to (1) (2) or (3) of notes at the end of Schedule B
## PROPOSAL:
ERECITION OF A 5-STOREY ASSOCIATION BUILDING CUM COMMUNITY HALL / ANCILLARY OFFICE DEVELOPMENT ON LOTS 716 & 9827 MK 24 AT NO.11 & 13 LORONG 35 GEYLANG

## OCCUPANT LOAD CALCULATION FOR 2ND STOREY

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Usages</th>
<th>Floor Area (m²)</th>
<th>Area of occupied floor space per person (m²)</th>
<th>No of persons</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ANCILLARY OFFICE</td>
<td>46.82</td>
<td>10</td>
<td>5</td>
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<tr>
<td>2</td>
<td>Restaurant</td>
<td>425</td>
<td>1.5</td>
<td>284</td>
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<tr>
<td>3</td>
<td>PREPARATION AREA</td>
<td>20.82</td>
<td>3</td>
<td>7</td>
<td></td>
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<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>492.64</strong></td>
<td></td>
<td><strong>256</strong></td>
<td></td>
</tr>
</tbody>
</table>

Total 256
Exit Capacity

To base on calculation submitted by QP

- main building plans submission

* Exit capacity > Occupant load
Identification of exit staircase
Staircase serving all buildings

- 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

- 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
Smoke Stop Lobby/Fire Fighting Lobby
Smoke Stop Lobby

A lobby located at the entrance to an exit staircase to help to prevent or minimise the entry of smoke into the staircase. The size of the lobby shall not be smaller than 3 sq m.
Fire Fighting Lobby
A smoke-stop lobby which is adjacent to a fire lift and designated for use by the fire fighting team during an emergency. The lobby shall not be used for any other purposes and the size of the lobby shall not be smaller than 6 sq m and with no dimension smaller than 2m.
Fire rated wall

Fire rated door

- Fire rated door and wall cannot be altered
- No combustible material in the lobby
Exit Staircase
Exit Staircase

• The fire rated door to the exit staircase cannot be altered
• No combustible material in the exit staircase
Openings for natural ventilation opening shall maintain open at all times.
Rooms with occupant load exceeding 50 persons

Doors for rooms with occupant load exceeding 50 persons shall swing in the direction of escape
Electromagnetic door opening into the common corridor

Only need to:
- Install with manual overriding device
- Install with fail-safe device
Means of Escape

- Fire Hazard
Fire Door

Keep fire door close at all time
Exit Door/Exit Access Door

Cannot lock exit door / exit access door with key
Exit door/Exit Access Door

The rear exit door will be locked from 10.30 pm to 6 am during weekdays and Saturday, and whole day on Sunday and public holiday.
Exit Staircase

Nothing should be placed in the exit Staircase
Corridor designated for escape shall be cleared of any obstruction.
Conclusion

- Architect/Professional Engineer designs means of escape to comply with fire code requirements

- It is important for building owner with the assistance of FSM to ensure that the fire safety provisions are maintained at all times