

# **What FSM needs to do when taking over a building ( new / existing)**

**How do you as a Snr FSM / FSM takes over when assigned to a New / Existing?**

# How does a Snr FSM / FSM takes over the fire safety management of a premise



- Refer to Emergency Response Plan
- Refer to Fire Emergency Plan
- Refer to FSM Annual Fire Safety Report
- In-house fire safety manual
- Site survey
- Gather information from out going FSM

# Suggested guide for FSM

- Check documentations
- Site Survey
- System Testing

# DOCUMENTATION



1. Request for **Fire Safety Report / Fire Safety Instruction Manual** from Building Architect (Fire Code Appendix 1,2)

<https://www.scdf.gov.sg/firecode/table-of-content/appendix-01---fire-safety-report>

<https://www.scdf.gov.sg/firecode/table-of-content/appendix-02---fire-safety-instruction-manual/1.0-general>

2. If Building has Performance Based design, pls request for **Performance Based Operating Manual** to see alternative Fire Safety solutions declared by Fire Safety Engineer. ( **Example** )
3. Check for any **waiver** declared by Building Architect.
4. Request to see **Occupant Load** data declared by Building Architect ( **Example** )
5. Check for **ORA** (9.7.4 Outdoor Refreshment Areas (ORAs))
- 6 . Check for spaces **not declared for commercial activities** ( **Example** )

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7. Request to see **Fire Safety Certificates** for building
8. Request to see **Fire Safety Certificates or MAA** approval for tenant ( **Example**)
9. Request for **Fire Certificate ( expiry date)**
10. Request to see **PFM license and ERP**

# **FIRE SAFETY REPORT**

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# FIRE SAFETY REPORT

Fire Safety Report is to document the provision of fire protection, life safety features and fire safety management in the building and/or plants/installations. This report serves as a useful reference to **Fire Safety Managers (FSMs), building owners, Registered Inspectors (RIs), the SCDF and Qualified Persons (QPs)** appointed to carry out any subsequent additions and alteration works. Where the nature of the additions and alteration works would require the updating of the Fire Safety Report, the **QP shall be responsible to submit revised and updated report to the building owner/s and the SCDF.**





# FIRE SAFETY REPORT

CORENET REGISTERED      A1721-00003-2018  
PROJECT REFERENCE NO.:  
  
FSSD REFERENCE NO.:      DBF/N14108/19  
  
PROJECT TITLE:              PROPOSED ERECTION OF 7-STOREY SINGLE-USER  
BUSINESS PARK (WHITE) DEVELOPMENT  
COMPRISING 1 BASEMENT AND 1 BASEMENT  
MEZZANINE ANCILLARY USE WITH 1 BASEMENT  
CARPARK AT CLEANTECH LOOP ON LOT 01988C  
MK09 (WESTERN WATER CATCHMENT DGP)  
  
SITE AREA:                      28,699.60m<sup>2</sup>  
  
LAND USE DEVELOPMENT      URA LAND USE: B1 FACTORY (WHITE)  
CONTROL (URA) PURPOSE      FSSD PURPOSE GROUP: PG VI  
GROUP (FSSD):

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PROPOSED ERECTION OF 7-STOREY SINGLE-USER BUSINESS PARK (WHITE) DEVELOPMENT COMPRISING 1 BASEMENT AND 1 BASEMENT MEZZANINE ANCILLARY USE WITH 1 BASEMENT CARPARK AT CLEANTECH LOOP ON LOT 01988C MK09 (WESTERN WATER CATCHMENT DGP)



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**FIRE SAFETY REPORT**

DBF/N14108/19

**3.0 FIRE ENGINE ACCESSIBILITY**

Refer to approved waivers below for Fire Engine Accessibility and Fire Access Panels (FAPs).

Table 3: Approved waivers for Fire Engine Accessibility and Fire Access Panels

FSSD REF.	FIRE WAIVERS SUBMITTED	STATUS	FSSD REMARKS
WVR/04139/19	Clause 4.2.2 (b)(i) To permit the provision of the fire engine accessway calculation be based on purpose group (IV) office instead of purpose group (VI) Factory	CONDITIONALLY APPROVED	<i>Conditions:</i> Waiver application is approved on condition that the 50% length of Fire Engine Accessway to be located strategically so that most part of the building can be accessed for fire fighters. The connecting roads (island site preferably) leading to the fire engine accessways are to be designed as fire engine access roads (ie. 4m width and required loading)

FSSD FEDB NO.	APPROVED PB ITEM
FEDB/000041/19	Clause 2.2.1 and Table 2.2A Performance-based design of means of escape from 6 <sup>th</sup> Storey Cross-Ventilated Roof Gardens at Blocks C2, C3, D2 and E2: <ul style="list-style-type: none"> <li>Shortfall in Exit Capacity</li> </ul>

WVR/03167/19	Clause 2.2.5 (b)	APPROVED	Conditions (Client's Undertaking):	FSSD REMARKS
	To permit the exit capacity sufficiency at L7 to be computed as one single floor connecting Blocks B1, C1, D1 and E1, in lieu of per block/room/space basis and to allow the occupants to share all the exit staircases at L7		<ol style="list-style-type: none"> <li>The <u>exit access doors</u> at L7 open-to-sky gardens and terraces will be installed with <u>EM lock and break glass, which also linked to fire alarm</u>;</li> <li>The open-to-sky gardens at L7 will be installed with <u>flame detector</u>;</li> <li>There will be provision of <u>proper means of escape connecting Block E1 exit staircase</u> (M&amp;E space) to the open-to-sky garden (between Block D1 and E1) at L7;</li> </ol>	<ol style="list-style-type: none"> <li>We will impose the same conditions to other tenants in future, if any;</li> <li>We will not convert the offices, gardens and terraces into other functional spaces. If such conversions are intended to be carried out in future, we undertake to make submissions to FSSD that will fully account for the increased occupant loads that such conversions entail, and that the overall stair capacity will always be adequate to meet the occupant load increases that such conversions entail; and</li> <li>In the event of change of ownership of the premises, new Owner will be informed of the conditions of this waiver. New Owner shall submit a similar letter of undertaking to SCDF to acknowledge and accept these conditions if he/she agrees to continue with the waiver of Clause 2.2.5(b).</li> </ol>

**Examples of Waiver declared by QP & approved by FSSD**

# **PERFORMANCED BASED DESIGN / ALTERNATE SOLUTIONS**



## **BUILDINGS WITH PERFORMANCED BASED DESIGN**

The performance-based approach to fire safety design relies on the use of fire engineering principles, calculations and/or appropriate software modelling tools to **satisfy the intentions of the Code of Practice for Fire Precautions in Buildings (Fire Code)**.

*(Meaning the design do not comply with Fire Code and may need PB solution. The following are Situations Deemed Unsuuitable for Use of Performance-Based (PB) Approach )*

S/No	Category	Nature of deviations & related clauses			
1	There is no suitable fire engineering methodology available and relevant to attain the fire safety objectives.	<ul style="list-style-type: none"> <li>• Use of PB to assess fire-fighting provisions and ease of fire fighting, fire lift, etc <ul style="list-style-type: none"> <li>○ Chapter 4 of Fire Code 2018.</li> <li>○ Clause 6.6 of Fire Code 2018 on lifts e.g compartmentation of fire lifts, etc.</li> </ul> </li> <li>• Deviations involving provisions for Person With Disabilities (PWD) <ul style="list-style-type: none"> <li>○ Clause 2.4 of Fire Code 2018.</li> </ul> </li> <li>• Variation in occupant load density <ul style="list-style-type: none"> <li>○ Table 1.4B of Fire Code 2018 on occupant load factors</li> </ul> </li> <li>• Maximum width (2m) of each exit staircase <ul style="list-style-type: none"> <li>○ Clause 2.2.8 of Fire Code 2018</li> </ul> </li> </ul>		3 The risk is not easily quantifiable, i.e. fire risks involving probabilities.	<ul style="list-style-type: none"> <li>• Non-compliance to one-way travel distances or dead-end distance (There is a chance for the sole means of escape to be disrupted, leading to severe consequences.) <ul style="list-style-type: none"> <li>○ Clause 2.2.6 and Table 2.2A of Fire Code 2018.</li> <li>○ Exception: The extended one-way distance is protected.</li> </ul> </li> <li>• Omission of exit staircase protection for more than one side of the staircase (A much higher chance for exit staircase to be compromised) <ul style="list-style-type: none"> <li>○ Clause 2.3.3(a)(1) of Fire Code 2018.</li> </ul> </li> <li>• There are more than 2 doors opening into internal exit passageway (this increases the chances of smoke infiltrating the exit passageway.) <ul style="list-style-type: none"> <li>○ Clause 2.3.2(b)(2) of Fire Code 2018.</li> </ul> </li> <li>• No direct access to exit staircases for childcare occupancies (to safeguard children's escape and prevent them from disorientating when exposed to common egress routes without authoritative guidance) <ul style="list-style-type: none"> <li>○ Clause 9.3.2(d)(3) of Fire Code 2018</li> </ul> </li> <li>• There are no dedicated staircases for cinema occupancies exceeding 200 persons (Occupants may be disorientated during egress, and there may be a sudden surge of cinema patrons into common escape areas, leading to congestion and affecting other occupants) <ul style="list-style-type: none"> <li>○ Clause 9.7.3(b)(2) of Fire Code 2018</li> <li>○ Can consider PB solution if there is at least one dedicated staircase solely for cinema patrons</li> </ul> </li> <li>• More than 4 residential units opening into discharge floor of residential development having not more than 50% of staircases discharging internally - <ul style="list-style-type: none"> <li>○ Clause 2.3.3(c)(3)(d) of Fire Code 2018.</li> </ul> </li> </ul>
2	The consequences of the Fire Code deviation (regardless of whether there is a PB methodology to address the Fire Code deviation) are considered severe.	<ul style="list-style-type: none"> <li>• Use of PB to assess the provision of single staircase internal discharge for residential development - <ul style="list-style-type: none"> <li>○ Clause 2.3.3(c)(3) of Fire Code 2018.</li> <li>○ Clause 9.2.1(a)(10)(a) of Fire Code 2018</li> </ul> </li> <li>• Provide single staircase instead of multiple staircases <ul style="list-style-type: none"> <li>○ Clause 2.2.11 of Fire Code, and its related clauses in other parts of the Fire Code.</li> </ul> </li> <li>• Remoteness of exits <ul style="list-style-type: none"> <li>○ Clause 2.3.12 of Fire Code 2018</li> </ul> </li> <li>• Cases involving provisions intended for redundancy e.g. provision of standby fans for engineered smoke control systems <ul style="list-style-type: none"> <li>○ Clause 7.4.5(m) of Fire Code 2018.</li> </ul> </li> <li>• Omission of Smoke Stop Lobby and Fire Lift Lobby <ul style="list-style-type: none"> <li>○ Clause 2.2.13 b. of Fire Code 2018</li> </ul> </li> </ul>			

4	The proposal does not align with prescriptive-based fire safety design policies.	<ul style="list-style-type: none"> <li>• Omission of both sprinklers system &amp; fire rating <ul style="list-style-type: none"> <li>○ Sections 3.3 and 6.4 of Fire Code 2018</li> <li>○ Discourage stacked deviations</li> </ul> </li> <li>• Proposals to adopt mechanical ventilation for smoke stop lobbies in residential developments <ul style="list-style-type: none"> <li>○ Clause 2.2.13(b)(7)(b) of Fire Code 2018</li> <li>○ Lead to potential future requests for removal/non-maintenance of ventilation systems by condominium management</li> </ul> </li> <li>• Omission of sprinklers or fire alarm systems (Such systems are crucial for fire suppression as well as to provide early warning to occupants.) <ul style="list-style-type: none"> <li>○ Clause 6.3 of Fire Code 2018 &amp; SS 645</li> <li>○ Clause 6.4 of Fire Code 2018 &amp; CP 52</li> <li>○ Exceptions – PB can be considered only in situations when the fuel load is clearly limited based on building owner’s operating processes, and there are site constraints which cannot be resolved.</li> </ul> </li> </ul>
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*Updated on 09 Dec 2022*

S/No	Category	Nature of deviations & related clauses
		<ul style="list-style-type: none"> <li>• Compartmentation exceeds one-storey for areas above 24m in habitable height (Undesirable situation – fires can spread to multiple floors at high levels, making it difficult for emergency responders to mitigate) <ul style="list-style-type: none"> <li>○ Clause 3.2.4(b) of Fire Code 2018</li> <li>○ Exceptions – PB can be considered for large internal open spaces and unenclosed open-sided situations such as atriums, vehicle ramps, open-sided terraces, etc. There is lesser risk to occupants and emergency responders as smoke can easily disperse.</li> </ul> </li> <li>• More than 50% of exit staircases for new sprinkler-protected buildings discharge internally (<i>For premises requiring multiple exit staircases</i>) <ul style="list-style-type: none"> <li>○ Clause 2.3.3(c)(2) of Fire Code 2018</li> <li>○ For new erections, it will be much easier for new buildings to design for proper discharge of exit staircases at the outset. This deviation should not be encouraged unless there are site constraints which cannot be overcome.</li> </ul> </li> <li>• Delay in activation of engineered smoke control system (ESCS) – e.g. use of sprinklers instead of smoke detectors to activate ESCS <ul style="list-style-type: none"> <li>○ Clause 7.4.5 k. (1) of Fire Code 2018</li> <li>○ ESC should be activated early so as to prevent occupants from being exposed to more severe fire risk.</li> <li>○ Exceptions – PB can be considered for such deviations in vehicle workshops, parking areas, loading bays and driveways where there is a buildup of exhaust smoke.</li> </ul> </li> <li>• Maximum compartmentation size in Table 9.8A of Fire Code 2018.</li> <li>• Shortfall of separation distance between petrol service station and commercial/residential premises <ul style="list-style-type: none"> <li>○ Clause 9.6.2(a)(2) of Fire Code 2018</li> </ul> </li> </ul>



### **(a) Fire Safety Engineering Design Brief (FEDB)**

Fire Safety Engineering Design Brief is a document summarizing **agreed performance criteria and methods that will be used to evaluate trial designs**. Generally, the FEDB would define the project scope, stakeholders and design objectives, identify goals, and develop performance criteria, design fire scenarios and trial designs. **Upon acceptance of the FEDB by SCDF, the FSE can proceed with the design that best meets the performance criteria.**

### **(b) Fire Safety Engineering Report (FER)**

The Fire Safety Engineering Report generally conveys the **expected hazards, risks, system performance over the building life, commissioning and maintenance requirements**.

The FER should contain appropriate **specifications and illustrations of the design**. The specifications are derived from the calculations and results within the report, so as to provide the basis for proper execution of the report recommendations.

### **(c) Building Operations and Maintenance (O&M) Manual**

The O&M manual explains what the **building operator should do to ensure that the components of the performance-based solution are in place and operating properly**. It also gives instructions to the building operator on the **restrictions placed on the building, arising from the FSE's assumptions during design and analysis**. These may include critical fire load, building use and occupancy, and reliability and maintenance of systems. The O&M manual can be used to **communicate to the tenants and occupants about these limitations and their responsibilities**. It can also be used as a guide for future renovations and changes to the building.



# Fire Engineering Design Brief (FEDB)

REP/257105/Issue 7

Issue 7 | 16 September 2021

**PROPOSED ERECTION OF 7-STOREY SINGLE-  
USER BUSINESS PARK (WHITE)  
DEVELOPMENT COMPRISING 1 BASEMENT  
AND 1 BASEMENT MEZZANINE ANCILLARY  
USE WITH 1 BASEMENT CARPARK ON LOT  
01988C MK09 AT CLEANTECH LOOP  
(WESTERN WATER CATCHMENT DGP)**



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# Examples of Performance Based Solutions, requiring Snr FSM / FSM to **manage** or **intervention**

## Fire Code 2018, Chpt 2.3.3 C(2) Exit staircase Requirements

### Discharge

(1) All exit staircases shall discharge at ground level directly into:

(a) **an external space**, or

(2) In a sprinkler-protected building, **a maximum of 50% of the total number of exit staircase can be discharged directly to the ground level covered circulation space** provided all of the following are complied with:

(a) The discharge point of the exit staircase into the ground level circulation space shall be within sight of and with direct access to an external space.

(b) **The maximum distance between the discharge point of an exit staircase and the external space shall not exceed 10m.**

(c) Where there are commercial activities e.g. shops or kiosks/carts located along one side or both sides of the designated escape passageway leading to an external space, **a minimum separation distance of 10m shall be maintained between the commercial activities and the designated escape passageway. The circulation space shall also be installed with engineered smoke control system. Alternatively, the commercial activities shall be fire compartmented with walls and doors of minimum 1-hr fire resistance rating.**

# Examples of PB solutions

# Commercial Office with Retail

## Understanding sect 2.3.3 C(2c) Exit staircase Requirements

### Performance-Based Alternative Solutions

- **Retail podium from 1<sup>st</sup> to 7<sup>th</sup> storey**
- Internal discharge of exit stair on 1<sup>st</sup> storey into Foyer less than 10m between the commercial activities and designated escape passageway
  - Use of non-insulated fire shutter to separate between escape passageway and commercial area









# **Retail Mall**

## **( non PB solutions)**

A

본가

L1  
Lobby  
S

本家

성동민씨 본가

MEMBER ANNUAL REWARDS  
10% + 500 + 5%  
500 REWARDS CARD

Egress Route













SUKIYA

牛丼  
Gyudon

SUKIYA

咖喱  
Japanese Curry Rice

SUKIYA

FIRE SHUTTER

SINCE 1982  
YOKOHAMA

L1  
Lobby  
S

- **Above examples , the Fire Shutter needs to be activated during Fire Alarm**
- **No combustibles are allowed to be placed along the escape route ( kept STERILE)**
- **FSM to note when approving Temporary Change Of Use (TP)**
- **No Commercial Activities eg. Kiosk, Pop Up Stalls, Promotion Events, Exhibition etc.**

# **Jewel / Changi Airport Terminal 1**



# Deviations to Fire Code (2013)



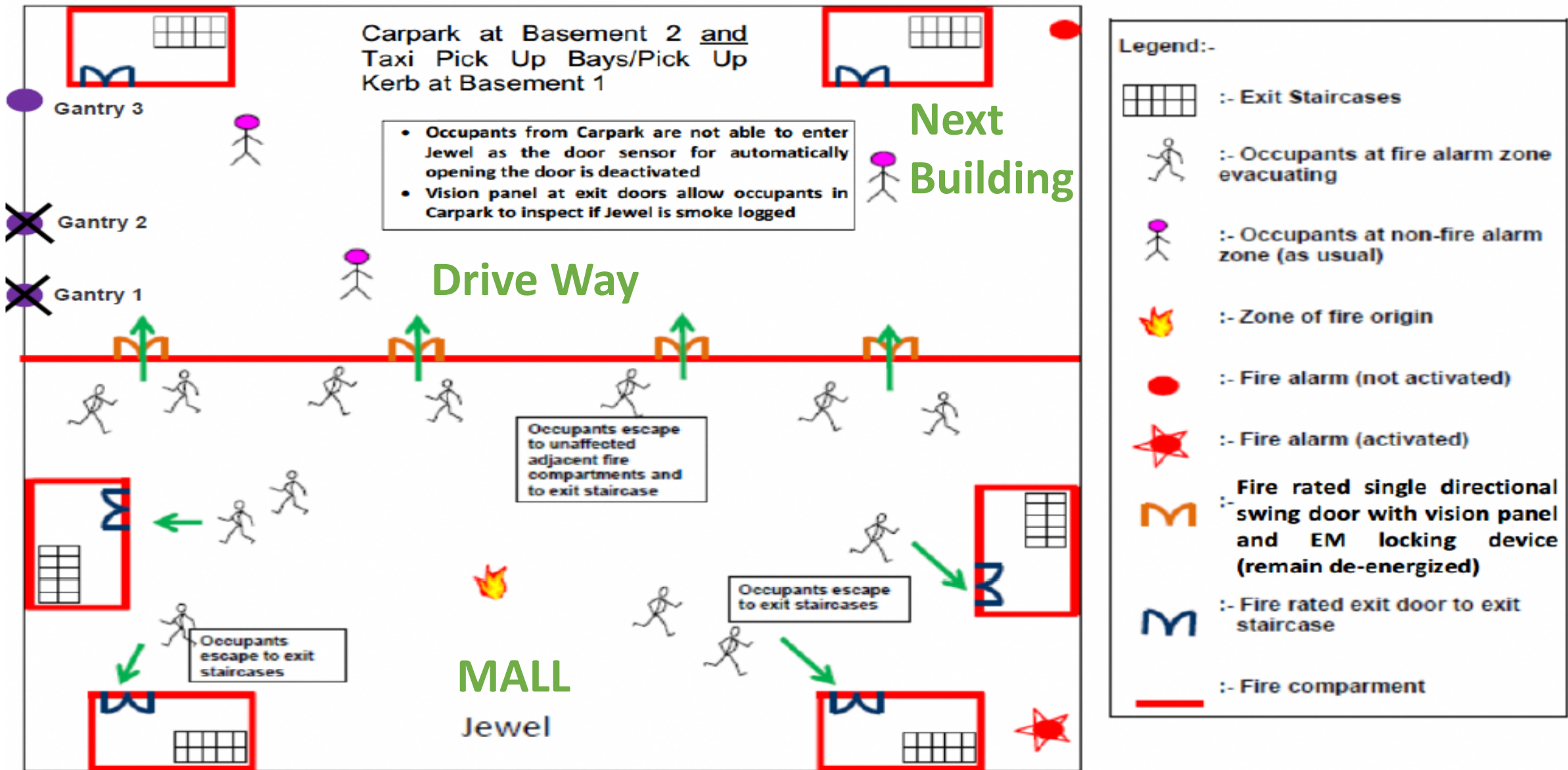
Floor	Area	A. Means of Escape Provision	B. Fire Compartmentation	C. Use of Plastic Material	D. Fire Fighting System	E. ESC system				
		A.1. Extended 2-way travel distance	B.1. No Fire Compartmentation	C.1. Use of plastic material	D.1. Automatic sprinkler system is not provided	E.1 Extended smoke reservoir area	E.2 Extended smoke reservoir length	E.3 Extended atrium smoke reservoir area	E.4 Replacement air by mechanical means	E.5 Smoke detection system is not provided
B2	Commercial areas & base of atrium	YES	No fire compartmentation between Basement 2 and upper floors	Use of acrylic material for acrylic tank for Immersion Garden	-	YES	YES	-	-	-
B1	Commercial areas & Base of Atrium	YES	-	Use of acrylic material for acrylic tank of Immersion Garden	-	YES	YES	-	-	-
L2	Drop off kerb area	-	-	Use of ETFE for outdoor canopy	No sprinkler provision below ETFE canopy	YES	YES	-	-	-
L3	People Mover System (PMS)	-	No fire compartmentation between PMS Track and Jewel	-	No sprinkler provision in PMS tube within Forest Valley	-	-	-	-	-
	T2 Link-bridge	YES	No fire compartmentation between Link Bridge and Jewel	-	-	Engineered Smoke Control System is not provided				
	T3 Link-bridge	YES		-	-					
L1, L2, L3, L4 & LSD	Commercial areas, Base of Atrium & attraction areas (with substantial combustible material)	YES	-	-	-	YES	YES	YES	YES	-
L5 Deck	Attraction Areas (Attractions with no combustible materials), Horizon Garden & circulation space	YES	-	-	Automatic sprinkler system is not provided	YES	YES	-	YES	-
L1-L4: Forest Valley	Garden Terrace, Rain Vortex, Water Garden	-	-	-	Automatic sprinkler system is not provided	YES	YES	-	YES	Smoke detection system is not provided
	Trail Connections	YES	-	-	Automatic sprinkler system is not provided	YES	YES	-	YES	Smoke detection system is not provided
	Isolated Retail or F&B Shops open to Valley	YES	-	-	-	YES	YES	-	YES	-
Roof	Roof Dome	-	-	Use of ETFE for oculus	Automatic sprinkler system is not provided	-	-	-	-	-

**Escape distance exceeded the fire code requirements.**

**For Shops / Public Resorts, the max distance is 60 meters**

TABLE 2.2A : DETERMINATION OF EXIT REQUIREMENT

Type of Occupancy	Max Travel Distance(m)				Capacity No of persons per unit of width <sup>(x)</sup>				Min Width (m)		Max Dead End (m)	
	One-way travel		Two-way travel		Door opening <sup>(c, (d) &amp; (e)</sup>		Staircases <sup>(f)</sup>	Ramps Corridors Exits Passageways <sup>(d)</sup>	Stairs	Corridors	Corridors	
	Non-sprinklered	Sprinklered	Non-sprinklered	Sprinklered	Exit to outdoors at ground level	Other exit & corridor doors					Non-sprinklered	Sprinklered
							Exit to outdoors at ground level	Other exit & corridor doors				
High hazard	10	20	20	35	50	40	30	50	1	1.2	15	20
Industrial buildings (factories, workshops, godown/warehouse)	15	25	30	60	100	80	60	100	1	1.2	15	20
Shops, healthcare facility (outpatient)	15	25	45	60	100	80	60	100	1	1.2	15	20
Offices	15	30	45	75	100	80	60	100	1	1.2	15	20
Places of public resort & carparks	15	25	45	60	100	80	60	100	1 <sup>(h)</sup>	1.2 <sup>(h)</sup>	15	20
Schools & educational buildings	15	25	45	60	100	80	60	100	1	1.5 <sup>(a)</sup>	15	20
Healthcare facility (inpatient)	15	25	30	45	30	30	15	30	1	2 <sup>(b)</sup>	15	20
Hotels, Boarding Houses, Serviced Apartments, Hostels, Backpackers Hotel, Dormitories	15	20	30	60	60	50	45	50	1	1.2	15	20
Blocks of flats/maisonettes <sup>(k)</sup>	15 <sup>(g)</sup> 20 <sup>(i)</sup>	30 <sup>(e)</sup> 40 <sup>(j)</sup>	30 45 <sup>(j)</sup>	75	50	40	30	50	1 <sup>(i)</sup>	1.2	15	20
Detached, semi-detached & terrace house, including townhouses	NR	NR	NR	NR	NR	NR	NR	NR	0.9	0.9	NR	NR



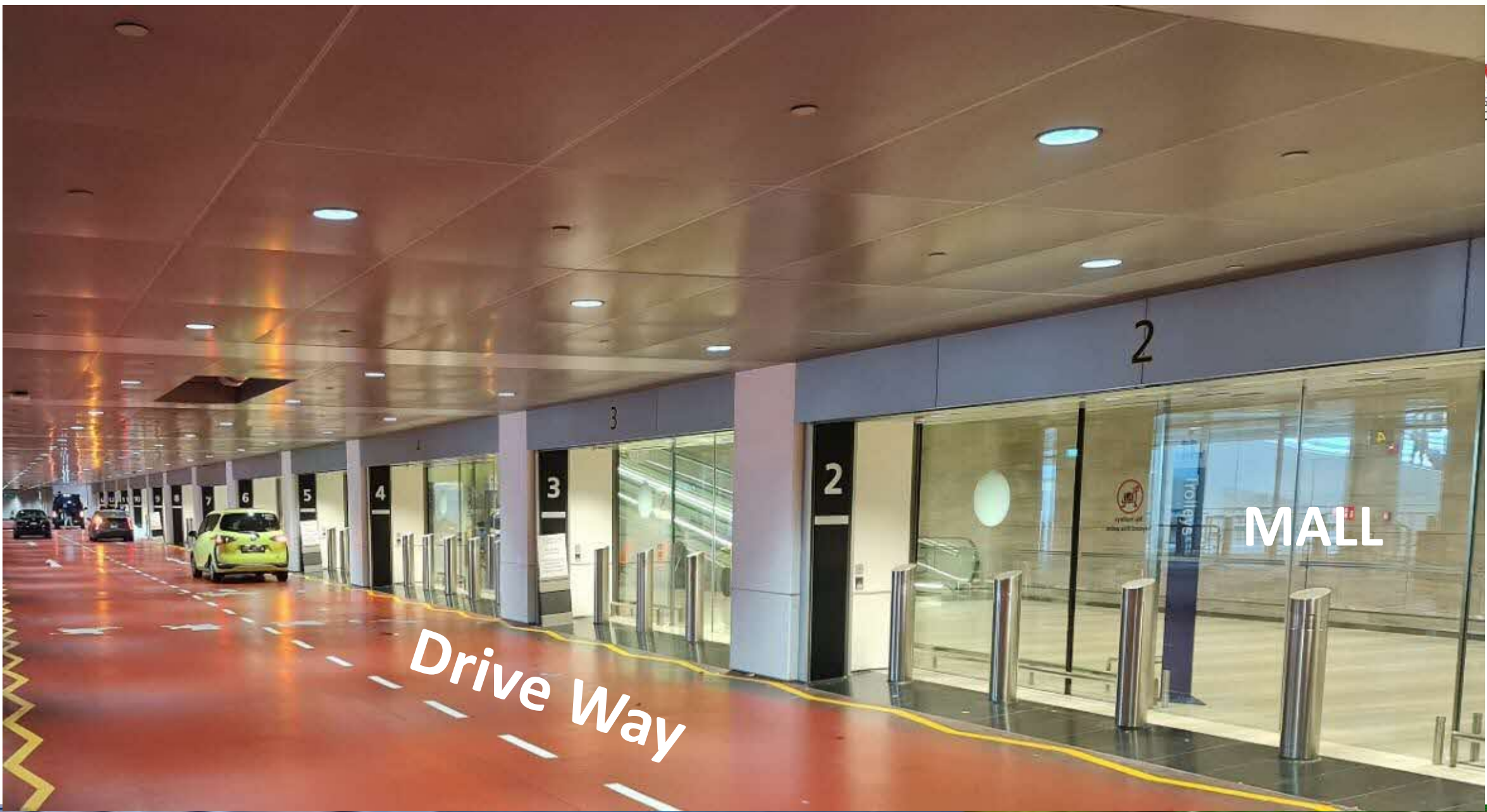
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Travel Distance exceeded 60M



*Drive Way*

MALL

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**Drive Way**

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Information  
Kiosk

EXIT

JEWEL



EXIT





EXIT

EXIT

JEWEL







Welcome to Singapore!  
Weave your way through Singapore's largest hedge maze  
Scan to buy Caribay Park tickets now

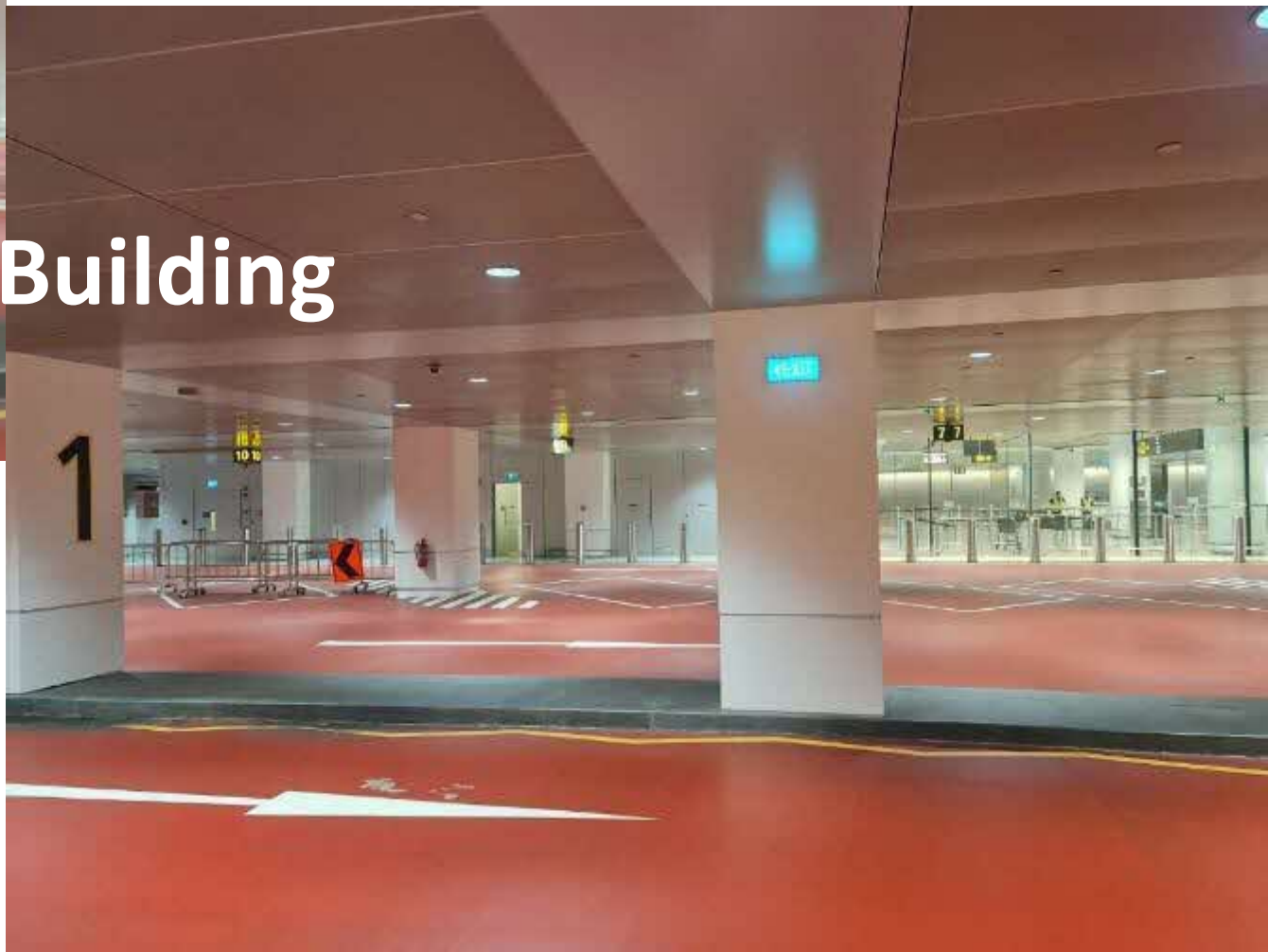


**FIRE SHUTTER**

**Exit to T1**



**Next Building**



**Exit to T1**

- **Above example , the Fire Shutter needs to be activated during Fire Alarm**
- **Fire Warden needs to direct occupants at the taxi stand to next building to evacuate, if there are too many people at the taxi stand**

# OCCUPANT LOAD

# Occupant Load information



## DETERMINATION OF NO OF PERSONS PROVIDED WITH MEANS OF ESCAPE AT EACH NON-RESIDENTIAL STOREY

Proposal:



Storey:

- 22nd Storey

**Instruction:**

One copy of this form is to be submitted for each \*non-residential storey/typical storey for every new building & for amendments or alterations & additions where there is an increase in occupant load. (Separate calculations are needed for cinemas, auditoriums and the like)

1

The occupant load of this storey based on the floor area of:

669.91 sq m.

The applicable rates of Table 1.2A of the Code of Practice for Fire Precautions in Buildings 2007 is:  
(Detail calculations shall be attached. Please use Form FSB-BP3)

224 persons.

2

No of persons provided with means of escape for this storey is:

225 persons.

I confirm that the means of escape provided for this storey comply with the provisions of the Code of Practice for Fire Precautions in Buildings 2007.

Name of Qualified Person's Firm

Aedas Pte Ltd

Note: Filling in this form may take more than 15 minutes

Tony Ang Kong Siong

Qualified Person's name & signature

18-Oct-11

Date

FSSD-BP2







- **Occupant Load info is important to avoid overcrowding**
- **This example shows the OL for a roof garden.**
- **Example there was a request to the FSM to endorse the space to be used for events.**
- **FSM did not approve the temporary change of use due to limited Exits / Staircase. Instead FSM recommended user to keep within the approved OL.**

# Outdoor Refreshment Areas (ORAs)

1. ORA along covered walkway

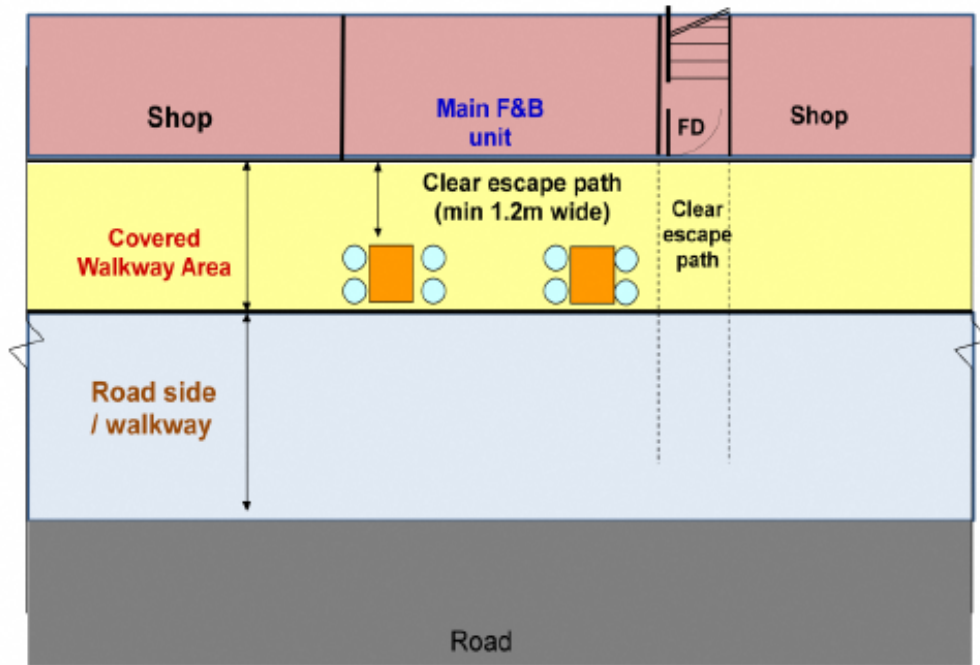


Figure 1a (Plan view)

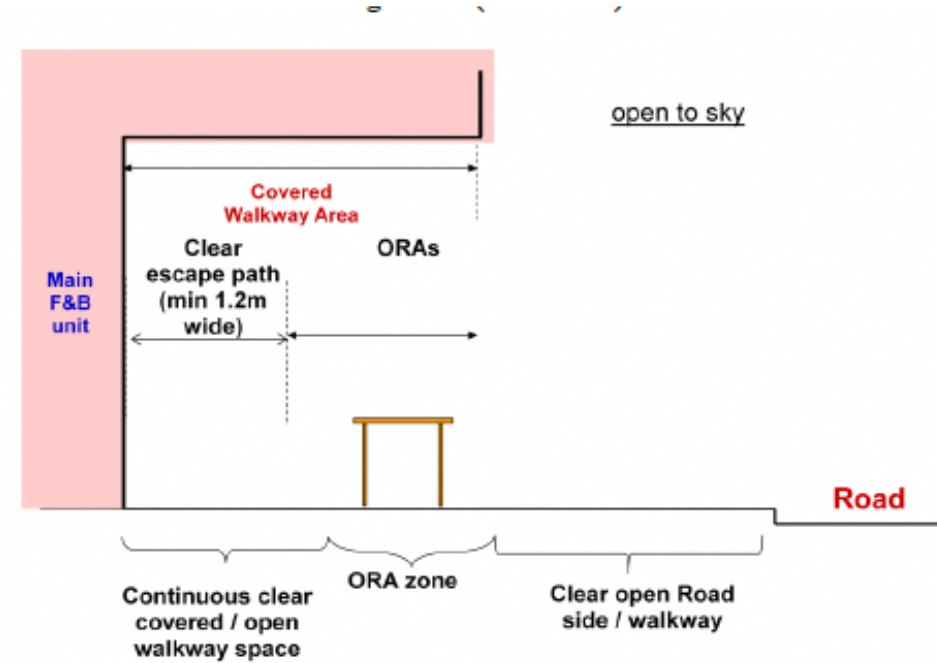


Fig 1b (Cross sectional view)

For F&B outlet located next to an exit staircase, a clear escape path from the staircase discharge point to external space shall be maintained. The width of the escape path shall not be less than the width of the exit staircase. No table(s), chair(s) or any form of obstruction shall encroach onto this escape path at all times.



2. ORA open to sky

FSR 6:2014

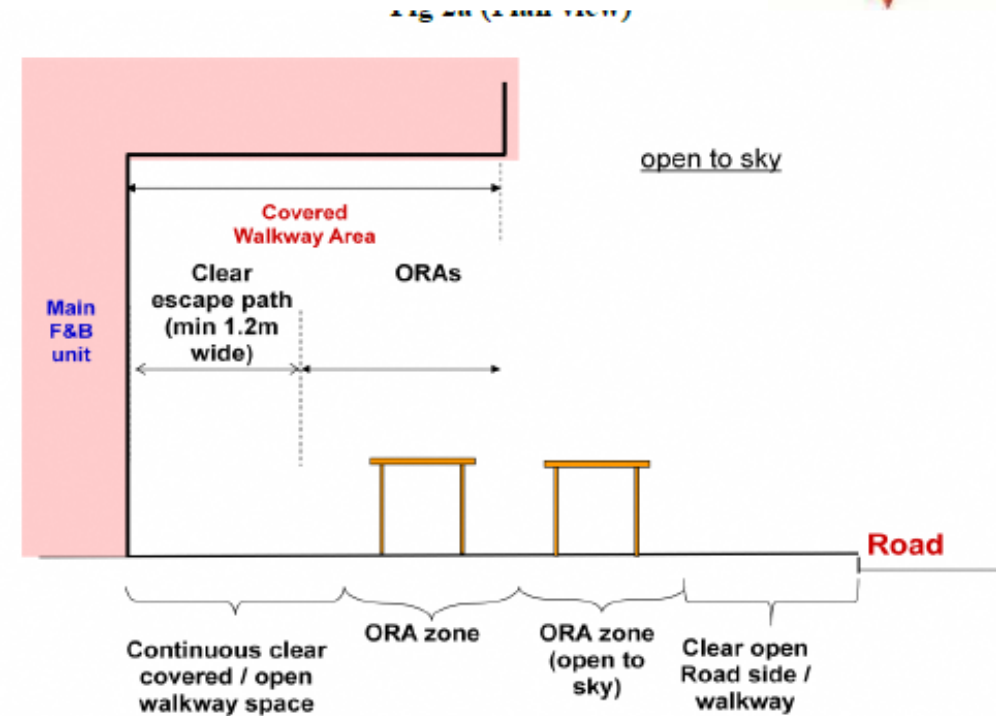
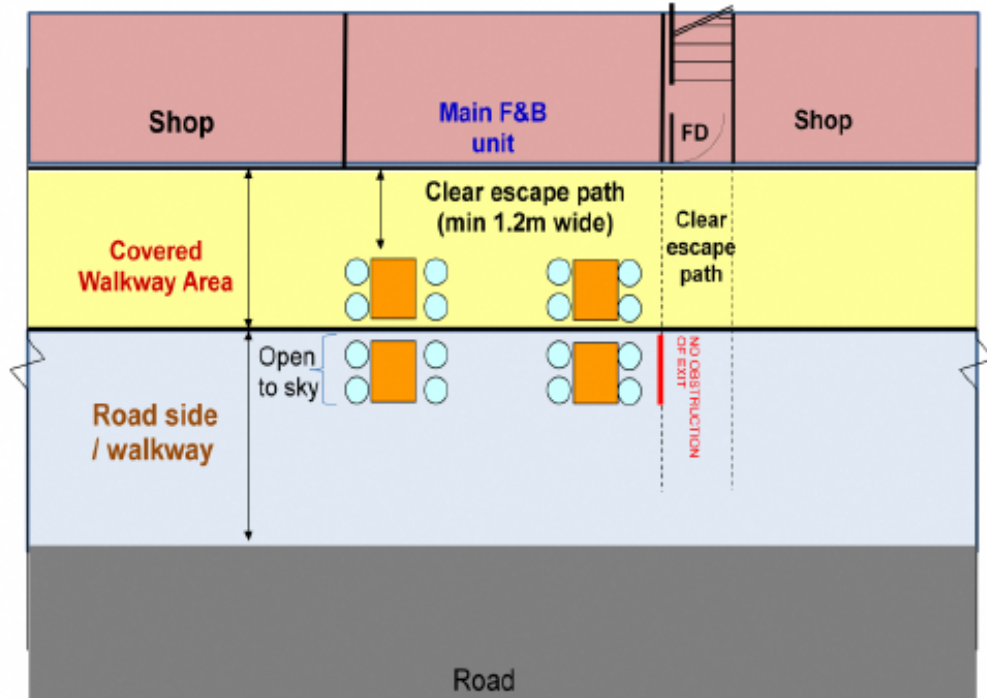
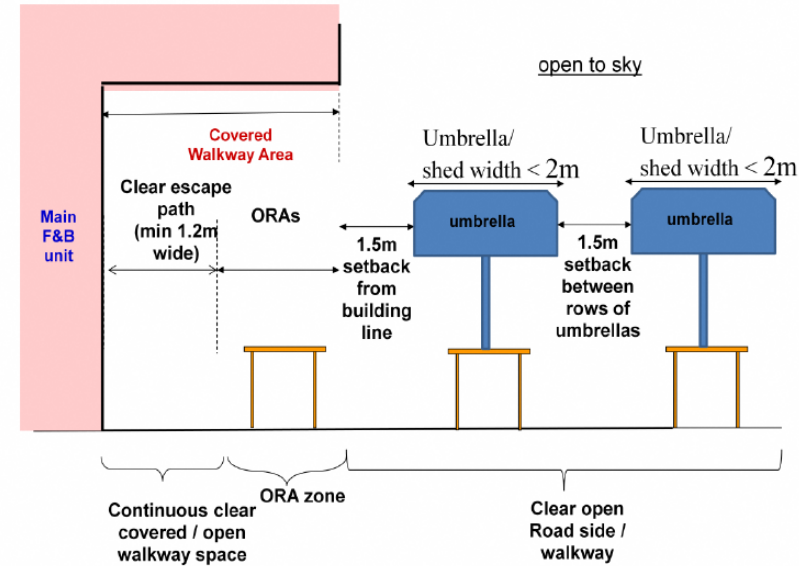
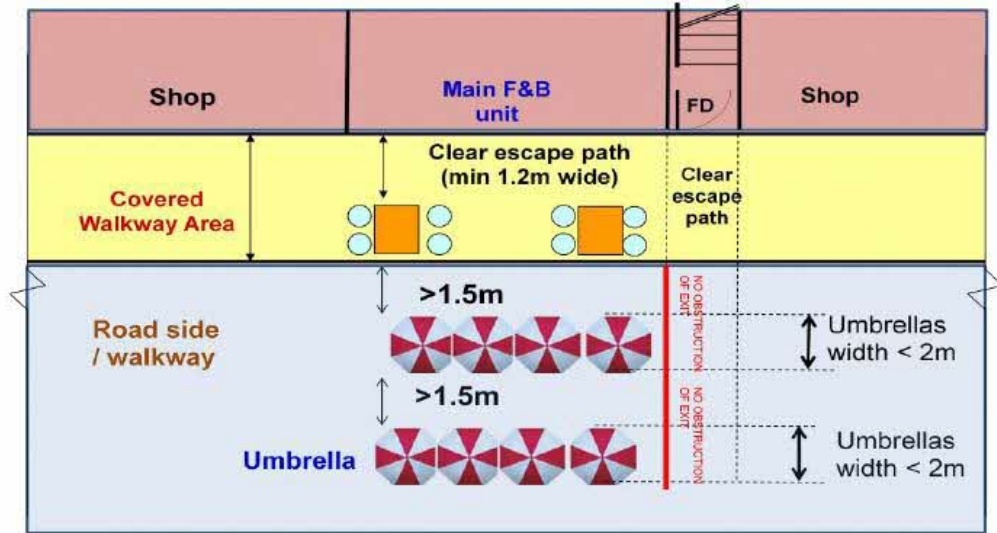


Fig 2b (Cross sectional view)

There shall be no encroachment of table(s), chair(s) or any form of obstruction on the escape path from the exit staircase discharge point to external space. The portion of covered ORA beyond the building lines and abutting the escape path shall be demarcated from the escape path with a red colour line of width not less than 50mm. Red colour wordings, “NO OBSTRUCTION OF EXIT”, of height not less than 100mm shall be marked along the line at regular interval of not more than 1.5m.

**ORA with umbrella**

FSR 6.2



When umbrellas are used to provide shelter for diners, its size shall not be larger than 2m in diameter or 2m x 2m square. The umbrellas shall be placed at a distance of not less than 1.5m from the building line (eaves of building).

**ORA with canopy/awning projection greater than 1m but not exceeding 2m  
(With auto retraction)**

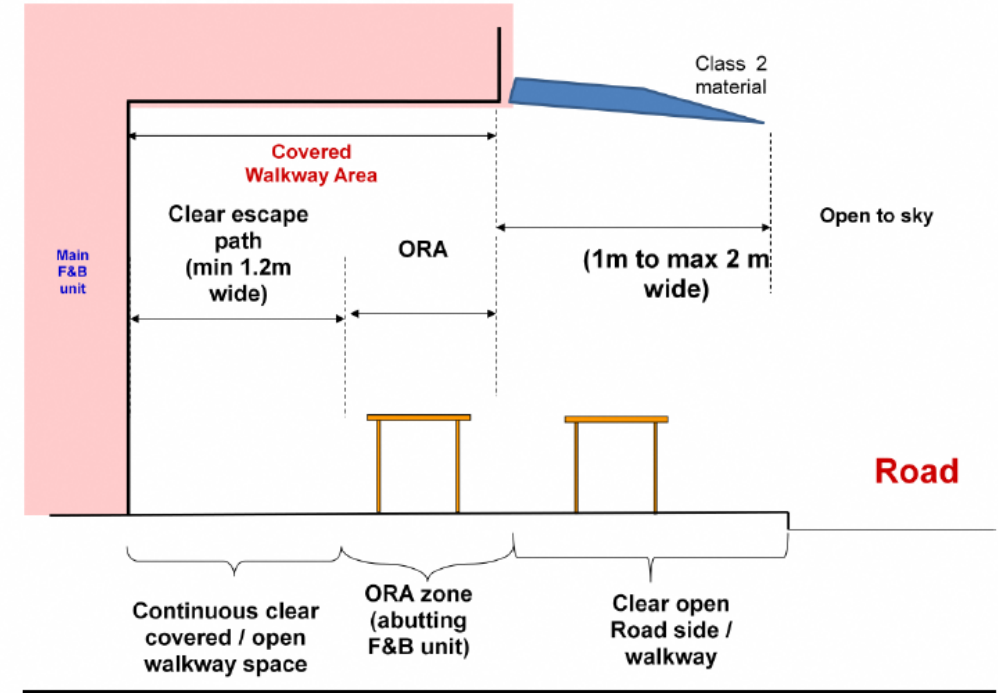
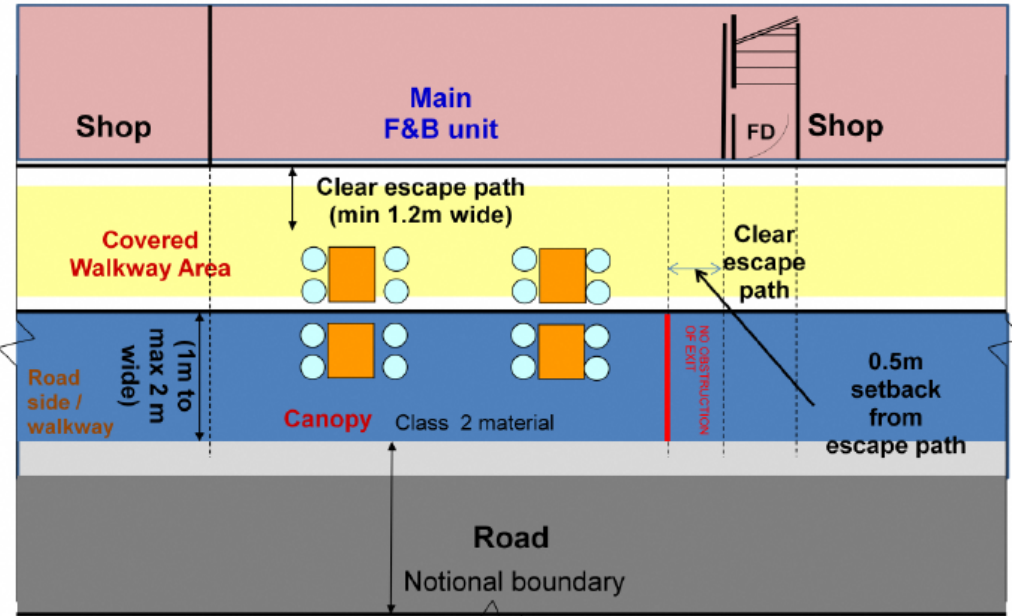


Fig 6b (Cross sectional view)

A minimum separation distance of 0.5m between the canopy/awning and the nearer edge of the exit staircase discharge path shall be maintained. This separation requirement is exempted if the awning/canopy is designed to retract automatically when fire/smoke is detected within the F&B unit or its ORA.

# Fire Safety Certificate



Please quote our ref. no. in all future correspondences

Your Ref : ES20200207-96164

Our Ref : CBP/A01116/20

Date : 24-Feb-2020

### Notice Of Approval

**Applicant:**



**Qualified Professional:**

AEDAS PTE LTD  
11 NORTH BUONA VISTA DRIVE  
#12-07 METROPOLIS TOWER 2  
SINGAPORE 138589

Attn: TONY ANG KONG SIONG

Dear Sir or Madam

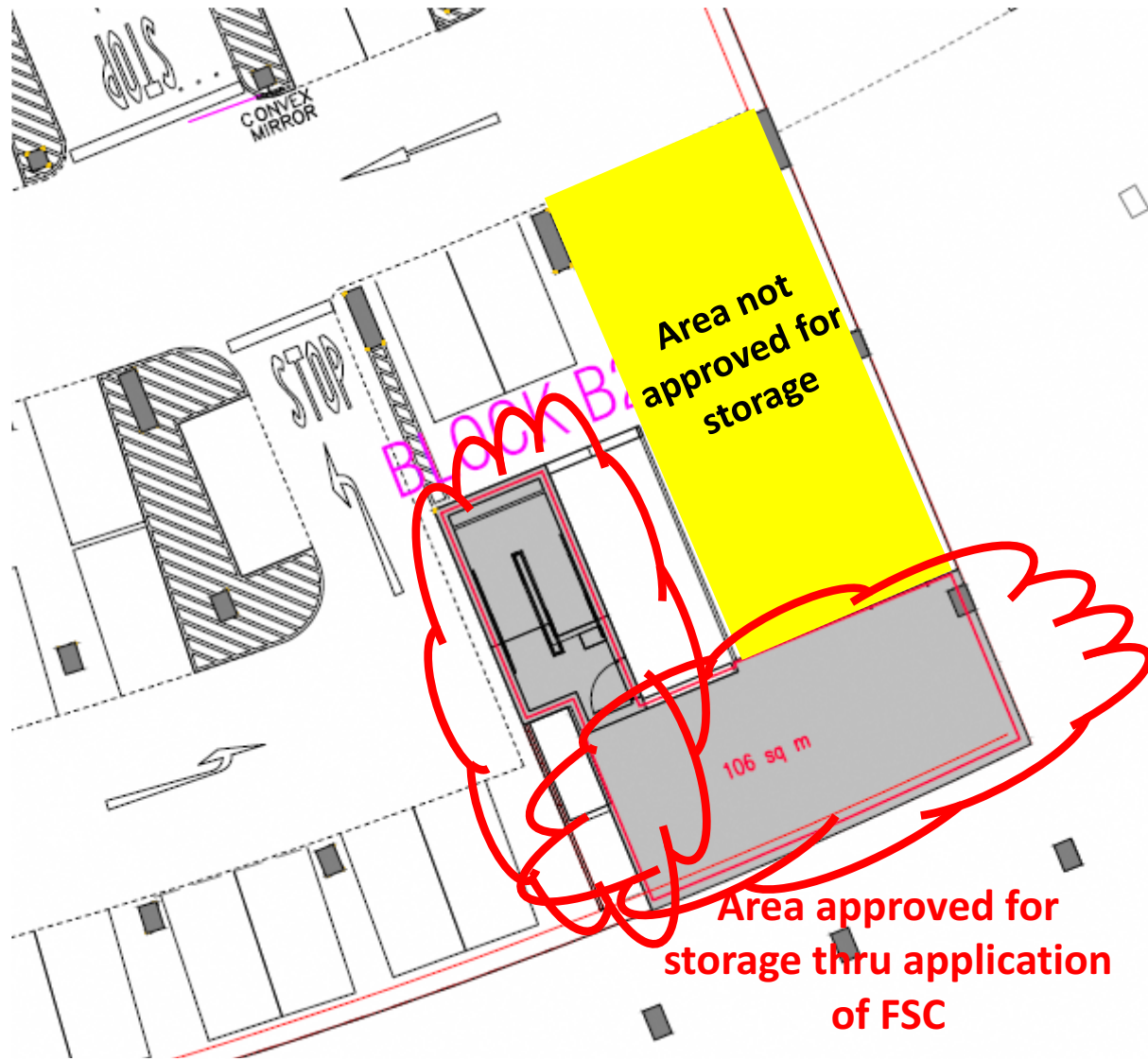
**PROPOSED ADDITIONS AND ALTERATIONS INVOLVING A NEW HOTEL STORAGE AREA AT BASEMENT**

We are pleased to inform that your application has been approved on 24-Feb-2020 based on your statutory declaration of full compliance to the Fire Code in accordance with Section 23(4) of the Fire Safety Act.

Please note, your approval may be revoked if your project plans change or are found to contain any non-compliance.

Yours sincerely

ANG AI HUA NANCY  
for Commissioner  
Singapore Civil Defence Force



- **Above example , Building Owner applied Change Of Use of carpark / loading bay to storage via FSC.**
- **Items place outside storage areas or FSC area.**

# SYSTEM TESTING

Check fire system functionality during fire alarm servicing

## FCC

- Main , Sub Alarm Panel not isolated, trouble, earth fault
- Mimic Panel status all OK ( use lamp test)
- PA system no fault
- Fan Panel no tripping
- DECAM panel no fault
- Lift Panel , Homing not isolated



## **Sprinkler Pump Room**

- All Duty pump on standby
- Jockey pump on standby
- Wet Riser Pump on standby
- Hosereel Pump on standby
- Transfer Pump (if any) on standby
- All out going valves including control valves excepting testing valve in OPEN position and strapped
- Sprinkler / Wet Riser/ Hosereel tank water level is full, valves properly strapped and secured.
- Water tank water level

## **Sprinkler Control Valve Risers**

- No storage

## **Breeching Inlet / Hydrants**

- Clear of obstructions
- Housed in protective enclosure & rigidly supported

## **Smoke Control**

- Below curtain not obstructed
- Replacement Air , auto doors not obstructed and can open upon smoke detector activation
- AHU / FCU in smoke zone shut down
- Beam detectors not obstructed

## **Water Monitor ( atrium space)**

- System on standby
- Valve in open position

## **Gen set**

- Check system on standby
- Check fuel level

## **SITE SURVEY**

### **Non System**

- FAP ( 1m clearance)
- Fire Engine Accessway clear of obstructions ( Containers, storage)
- No illegal alteration / change of use ( illegal store at carpark, roof top)
- No obstructions / combustibles at corridors, staircase, smoke stop / fire lift lobbies
- No stacking , clearance of 50cm below sprinklers
- Check Fire Extinguisher serviceability .
- Exit lights / Emergency lights serviceability

# CONCLUSION

1. Obtain **Fire Safety Report** from Owner / FSSD / Building Architect
2. For Performance Base buildings, obtain **Fire Safety Engineering Report (FSER)** from Owner / FSSD / Fire Safety Engineer
3. Ensure the documents are sufficient, to carry out your **role** as FSM
4. Test the fire safety system , **rectify any non compliance**
5. For addressable Fire Alarm System , consult the system programmer for **all the inputs / outputs of the Fire Alarm System to ensure all are functioning**
6. Carry out your maiden fire drill when taking over, to assess the **familiarity of Fire Wardens / Occupants during evacuation.**



# THANK YOU

