It comprises 7 parts and 1 annex:

- Part A  Introduction
- Part B  Means of Escape
- Part C  Fire Resisting Construction
- Part D  Means of Access
- Part E  Fire Properties of Building Elements and Components
- Part F  Fire Safety Management
- Part G  Guidelines on Fire Engineering
- Annex A  List of Codes of Practice and Guides issued by Licensing Authorities for Licensed Premises
Part A : Introduction - **Fire Safety Objectives**

(a) **Life Safety**

1. protection of life of building *occupants*
2. minimization of fire spread *between fire compartments*
3. *prevention of building collapse* as a result of fire
4. facilitation of *firefighting and rescue* by fire services personnel

(b) **Property Protection**

1. minimization of fire spread *between fire compartments*
2. *prevention of building collapse* as a result of fire
3. minimization of fire spread *between buildings*
4. facilitation of *firefighting and rescue* by fire services personnel
Part A: Introduction - **Functional Statements**

- **Means of Escape**: B(P)R 41(1)
- **Fire Resisting Construction**: B(C)R 90
- **Means of Access**: B(P)R 41A, 41B, 41C and 41D
- **Fire Safety Management**: The fire safety provisions provided in a building shall be available during fire emergency.
Part A: Introduction - Performance Requirements for Means of Escape

Performance Requirement B1
A building, fire compartment or storey should be provided with adequate means of escape for all occupants to evacuate safely without being overwhelmed by the effects of fire.

Performance Requirement B2
A building, fire compartment or storey should have adequate fire safety provisions to protect evacuating occupants from the impact of fire.

Performance Requirement B3
The means of escape within a building should have adequate lighting for identification of the locations of exits and paths of travel to an exit in case of fire.

Performance Requirement B4
Sufficient warning should be provided to the building occupants to evacuate in case of outbreak of fire.

Performance Requirement B5
Building management should provide an appropriately and effectively managed process to allow for orderly evacuation in case of fire.

Performance Requirement B6
Adequate signs should be provided for identification of the means of escape in case of fire.

Performance Requirement B7
Means of escape for tall buildings should be appropriately designed to:
(a) allow occupants to take a short rest safely, whilst evacuating;
(b) minimise the threat of smoke within staircases; and
(c) provide an area for firefighting staging activities.
Part A : Introduction - **Performance Requirements for Fire Resisting Construction**

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Performance Requirement C1
A building should be provided with adequate fire safety provisions to inhibit the spread of fire:

(a) within a building;
(b) between buildings or other property;
(c) to allow occupants to evacuate safely; and
(d) to allow fire service intervention.

Performance Requirement C2
A building should be constructed to maintain its stability in case of fire to:

(a) allow sufficient time for occupants to evacuate safely;
(b) allow fire service intervention.

Performance Requirement C3
The openings or penetrations at fire barriers should be adequately protected to maintain their level of performance in case of fire.

Performance Requirement C4
Building elements should have adequate provisions to minimise the spread of smoke.

Performance Requirement C5
The functions of the fire safety provisions of a building should maintain for a reasonable period of time during a fire.

Performance Requirement C6
Fire safety provisions should be provided to a building or parts of a building undergoing construction, demolition, alteration, repair or maintenance with due consideration to the hazard imposed by the works and the fire safety precautions available.
Part A : Introduction

Performance Requirements for Means of Access

**Performance Requirement D1**
A building should be provided with the following provisions to assist firefighting:

- (a) Access staircases for firemen;
- (b) Fireman’s lifts;
- (c) Firefighting and rescue stairways; and
- (d) Emergency vehicular access.

Performance Requirement for Fire Safety Management

**Performance Requirement F1**
The fire safety provisions of a building should be kept in good working order and evacuation procedure are effectively implemented in case of fire.
Compliance with Performance Requirements

- complying with the Deemed-to-Comply provisions or
- formulating an Alternative Solution which complies with the Performance Requirements, or
- a combination of (a) and (b).
Part A: Introduction - 8 Use Classifications:

1. Residential
   - 1a. House type dwellings
   - 1b. Flats
   - 1c. Tenement houses

2. Hotel and similar Transient Accommodation

3. Institutional
   - 3a. Health/child care facilities
   - 3b. Detention and correctional centres

4. Commercial
   - 4a. Business facilities
   - 4b. Mercantile facilities

5. Assembly
   - 5a. Places of Public Entertainment
   - 5b. Educational establishments
   - 5c. Transport facilities
   - 5d. Other assembly premises

6. Industrial
   - 6a. Industrial workplaces
   - 6b. Warehouses
   - 6c. Storage, manufacturing of hazardous / dangerous goods premises

7. Car parks

8. Plant Rooms & the like
Part A: Introduction – **Definitions**

**“Bounding Conditions”** means the set of fire safety provisions that **must be maintained** as a result of a performance-based approach to the fire safety design and that if **altered will invalidate** the performance-based fire safety design.

**“Compartment area”** means the **area** of the floors of a building contained within the external surfaces of a fire compartment.

**“Element of Construction”** means:

- any floor, beam, column, or hanger;
- any loadbearing wall or loadbearing member other than a member forming the roof or part of the roof;
- any required staircase including the landings and supports thereto.

(Note: Any **raised flooring system** at a height of not more than 600 mm from the original floor will not be considered as an element of construction. In such case, the compartment walls or other fire barriers should start from the structural floor and not just rest on the raised floor.)
Part A : Introduction – **Definitions**

**“Fire barrier”** means the construction that has a fire resistance rating separating one space from another. It may form part of a fire compartment.

**“Fire compartment”** means a space enclosed by fire barriers or appropriate construction to all sides such that fire will not spread from the space; or spread into adjoining space.

**“Fire resistance rating (FRR)”** means the period of time that a building element is capable of resisting the action of fire when tested in accordance with ISO 834, BS 476: Parts 20 to 24 or equivalent. Fire resistance ratings are designated by three terms, to represent the make up of the element of construction, i.e. $X/Y/Z = 120/120/120$, where:

- **X** - *Stability* fire resistance rating (minutes)
- **Y** - *Integrity* fire resistance rating (minutes)
- **Z** - *Insulation* fire resistance rating (minutes)
Part A: Introduction – **Definitions**

“Protected Exit” & “Ultimate Place of Safety”
# Part B: Means of Escape

## Assessment of occupant capacity (Table B1)

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of bedspaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Boarding houses, hostels, hotels, motels, guesthouses</td>
<td>2</td>
</tr>
<tr>
<td>Dormitories</td>
<td></td>
</tr>
<tr>
<td>3a</td>
<td>4</td>
</tr>
<tr>
<td>Day care centres, nurseries, child care centres</td>
<td></td>
</tr>
<tr>
<td>Hospitals (areas other than the patient care areas)</td>
<td>3</td>
</tr>
<tr>
<td>Patient care areas</td>
<td></td>
</tr>
<tr>
<td>3b</td>
<td></td>
</tr>
<tr>
<td>Detention and Correctional Centres</td>
<td></td>
</tr>
<tr>
<td>4a</td>
<td>9</td>
</tr>
<tr>
<td>Offices</td>
<td></td>
</tr>
<tr>
<td>- Board rooms, conference rooms, function rooms</td>
<td>10</td>
</tr>
<tr>
<td>- Staff rooms</td>
<td>9</td>
</tr>
<tr>
<td>4b</td>
<td></td>
</tr>
<tr>
<td>Retail shops / Department Stores</td>
<td></td>
</tr>
<tr>
<td>(including arcade and common areas)</td>
<td></td>
</tr>
<tr>
<td>Basement, G/F, 1/F &amp; 2/F</td>
<td>3</td>
</tr>
<tr>
<td>3rd floor &amp; above</td>
<td>4.5</td>
</tr>
<tr>
<td>5a</td>
<td></td>
</tr>
<tr>
<td>Sports Stadia</td>
<td></td>
</tr>
<tr>
<td>- standing</td>
<td>0.6</td>
</tr>
<tr>
<td>- removable seating</td>
<td>0.5</td>
</tr>
<tr>
<td>- fixed seating</td>
<td></td>
</tr>
<tr>
<td>- bench seating</td>
<td>450mm/person</td>
</tr>
<tr>
<td>Indoor sports facilities</td>
<td></td>
</tr>
<tr>
<td>- Sports / activity areas</td>
<td>10</td>
</tr>
<tr>
<td>- standing</td>
<td>0.5</td>
</tr>
<tr>
<td>- removable seating</td>
<td>0.5</td>
</tr>
<tr>
<td>- fixed seating</td>
<td></td>
</tr>
<tr>
<td>- bench seating</td>
<td>450mm/person</td>
</tr>
<tr>
<td>Theatres</td>
<td></td>
</tr>
<tr>
<td>- Seating areas</td>
<td></td>
</tr>
<tr>
<td>- Foyer areas</td>
<td>0.5</td>
</tr>
</tbody>
</table>
Part B: **Means of Escape**

Lighting requirements for exit routes / refuge area / PPE (Clauses B5.5, B18.2(g), B18.3 and B25.6)

- Lighting can be a combination of natural and artificial light (30 lux min.)
- Backed up by emergency lighting system should be provided according to the FSI Code (2 lux deleted)

Requirements on directional and exit signs to be provided to exit routes (Clauses B5.10, B17.2) in accordance with the FSI Code (new)
Part B: **Means of Escape**

Signage for roof **not accessible** by required staircases *(Clause B5.11)*

![This staircase has no access to the roof.](image)

Access to another required staircases without passing through other person’s private premises *(Clause B8.2)* *(new for 15-storey)*

**Clause B8.2**

Where two or more required staircases are needed, people using one required staircase should be able to gain access to at least one other required staircase at any time, without having to pass through other person’s private premises. Such access should be provided in the following manners:

(a) at each floor;

(b) in case of domestic building or composite building not exceeding 15 storey in height above the lowest ground storey, at least every 5 storeys, or

(c) in case of **refuge floor(s) are provided at intermediate floor(s)**, at the refuge floor(s) and the roof.

*Security measures that prevent access to a required staircase must be automatically deactivated upon actuation of a fire alarm or in power failure situation.*
Part B: Means of Escape

Exits at Ground Floor (Clause B9.1) (protected lobby clarified)

Clause B9.1

The enclosing walls of every required staircase should be so continued at ground storey as to separate from the remainder of the building any passage or corridor leading from the required staircase to its ground storey discharge point. Every opening from the ground storey to such passage or corridor should be separated from it by a protected lobby; provided that:

Ventilated staircase (Clause B10.5) (open staircase deleted)

- At least 60% of its perimeter is open to external air with at least 50% of the opening is on the long face and at least 25% of the opening is on the other faces;
- The length of opening should be measured on plan and is open from the top of the balustrade or parapet to the underside of the flight of the staircase immediately above;
- The openings should be evenly distributed across the elevations; and
- Complying with the requirements in Part C (i.e. Fire Resisting Construction)
Part B: **Means of Escape**

**Travel Distance** for Use Classes 1 & 2 (i.e. Residential & Hotels) (Clauses B11.2 and B11.3) *(no more ‘Direct Distance’)*

- deadend travel distance (d1) < 24m
- deadend travel distance (d2) < 15m
- (d3) < 24m
Part B : **Means of Escape**

**Travel Distance for Other Use Classifications**

(Clauses B11.2 and B11.3)

- **Use Class 3:**
  - \( d_1 \) or \( d_4 + d_5 \) < 12m
- **Others:**
  - \( d_1 \) or \( d_4 + d_5 \) < 18m

- **Use Class 3:**
  - \( d_1 + d_7 \) < 30m
- **Others:**
  - \( d_1 + d_7 \) < 36m
Part B: **Means of Escape**

**Travel Distance for Balcony Approach**

*(Clauses B11.2 and B11.3)*

**With deadend situation:**

- Use Classes 3 to 8: Deadend travel distance \(d1 < 24\text{m}\)

**Not in deadend situation:**

- Use Classes 1 & 2: \(d4 \text{ or } d5 + d6 < 45\text{m}\)
- Other Use Classes: \(d2 + d4 \text{ or } d1 + d5 + d6 < 45\text{m}\)
Part B : Means of Escape

Access to exit for domestic unit having three or more levels (Clause B11.4) (new, e.g. for penthouse units)

Clause B11.4

Where a flat has three or more levels, at least two levels should each have an access to a protected exit.
### Part B: Means of Escape

**Discharge value of a required staircase** *(Table B3 and B4) (no more 1900mm)*

#### Table B3: Discharge Value of a Required Staircase in a Non-Sprinkler Protected Building

<table>
<thead>
<tr>
<th>No. of storeys served</th>
<th>Width of required staircase</th>
<th>1050mm but under 1200mm</th>
<th>1200mm but under 1350mm</th>
<th>1350mm but under 1500mm</th>
<th>1500mm but under 1600mm</th>
<th>1600mm but under 1700mm</th>
<th>1700mm to 1800mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>210</td>
<td>240</td>
<td>270</td>
<td>300</td>
<td>320</td>
<td>340</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>242</td>
<td>278</td>
<td>315</td>
<td>351</td>
<td>377</td>
<td>402</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>274</td>
<td>315</td>
<td>352</td>
<td>395</td>
<td>434</td>
<td>464</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>306</td>
<td>345</td>
<td>388</td>
<td>435</td>
<td>491</td>
<td>526</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>338</td>
<td>370</td>
<td>410</td>
<td>455</td>
<td>515</td>
<td>563</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>370</td>
<td>400</td>
<td>445</td>
<td>489</td>
<td>565</td>
<td>605</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>402</td>
<td>430</td>
<td>478</td>
<td>524</td>
<td>605</td>
<td>650</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>434</td>
<td>460</td>
<td>512</td>
<td>569</td>
<td>650</td>
<td>695</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>466</td>
<td>490</td>
<td>556</td>
<td>615</td>
<td>706</td>
<td>754</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>498</td>
<td>520</td>
<td>598</td>
<td>660</td>
<td>756</td>
<td>796</td>
<td></td>
</tr>
<tr>
<td>Each additional storey</td>
<td>32</td>
<td>38</td>
<td>45</td>
<td>52</td>
<td>62</td>
<td>72</td>
<td></td>
</tr>
</tbody>
</table>

#### Table B4: Discharge Value of a Required Staircase in a Sprinkler Protected Building

<table>
<thead>
<tr>
<th>No. of storeys served</th>
<th>Width of required staircase</th>
<th>1050mm but under 1200mm</th>
<th>1200mm but under 1350mm</th>
<th>1350mm but under 1500mm</th>
<th>1500mm but under 1600mm</th>
<th>1600mm but under 1700mm</th>
<th>1700mm to 1800mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>420</td>
<td>480</td>
<td>540</td>
<td>600</td>
<td>660</td>
<td>720</td>
<td>780</td>
</tr>
<tr>
<td>2</td>
<td>452</td>
<td>518</td>
<td>585</td>
<td>651</td>
<td>718</td>
<td>784</td>
<td>850</td>
</tr>
<tr>
<td>3</td>
<td>484</td>
<td>556</td>
<td>630</td>
<td>702</td>
<td>768</td>
<td>834</td>
<td>904</td>
</tr>
<tr>
<td>4</td>
<td>516</td>
<td>600</td>
<td>675</td>
<td>743</td>
<td>810</td>
<td>877</td>
<td>944</td>
</tr>
<tr>
<td>5</td>
<td>548</td>
<td>652</td>
<td>730</td>
<td>805</td>
<td>872</td>
<td>940</td>
<td>1008</td>
</tr>
<tr>
<td>6</td>
<td>580</td>
<td>700</td>
<td>795</td>
<td>870</td>
<td>940</td>
<td>1010</td>
<td>1080</td>
</tr>
<tr>
<td>7</td>
<td>612</td>
<td>750</td>
<td>875</td>
<td>950</td>
<td>1020</td>
<td>1100</td>
<td>1180</td>
</tr>
<tr>
<td>8</td>
<td>644</td>
<td>800</td>
<td>955</td>
<td>1030</td>
<td>1110</td>
<td>1180</td>
<td>1260</td>
</tr>
<tr>
<td>9</td>
<td>676</td>
<td>850</td>
<td>1035</td>
<td>1110</td>
<td>1180</td>
<td>1260</td>
<td>1340</td>
</tr>
<tr>
<td>10</td>
<td>708</td>
<td>900</td>
<td>1115</td>
<td>1180</td>
<td>1260</td>
<td>1340</td>
<td>1420</td>
</tr>
<tr>
<td>Each additional storey</td>
<td>32</td>
<td>38</td>
<td>45</td>
<td>51</td>
<td>57</td>
<td>62</td>
<td>72</td>
</tr>
</tbody>
</table>
Part B: **Means of Escape**

Requirements on security measures installed at exit doors *(Clause B13.2)* *(clearer requirement ‘should not be encased’)*

**Clause B13.2**

If it is necessary to secure an exit door against entry from outside, the locking device should be of the type that is capable of being readily opened from the inside without the use of a key. When a push plate, push bar or a single action lever handle is installed, it should not be encased. A locking device which is electrically operated should be capable of automatic release upon actuation of an automatic heat or smoke detection system or the operation of an alarm system or a central manual override designed and installed to the satisfaction of the Director of Fire Services. Upon power failure, the electrical locking device should be released automatically. In the case of a door to a required staircase or a protected lobby of the required staircase, the security mechanism should not affect compliance with the requirements in Clause B8.2.
Part B : **Means of Escape**

Provision of **protected lobby** to the required staircase serving basement *(Clause B17.5)*

A protected lobby should be provided to every required staircase serving the basement, *except*

- the required staircase provided with a **pressurization** system complying with the FSI Code; or
- it is an **independent** staircase
Part B : **Means of Escape**

**Special Provisions on Means of Escape for Use Classification 5a (Section 3) (clearer requirements on MoE for PPE)**

- The requirements on in PNAP APP-14 have been incorporated (Clauses B19.2, B20.9, B27.1 to B27.9)

- Clause B27.2(vi) states at the transition point (a cinema in a non-domestic bldg) where there is a change in the dimension of treads and risers should be provided with:
  - a flat landing of length not less than twice the width of the required staircase; and
  - a notice in English and Chinese with words and characters “**Beware of steps change**” and “小心梯級高度改變” of not less than 50mm high.
Means of Escape

Part B

Exit Requirements for Use Classification 5a (e.g. PPE) (Section 3)

- Use Classification 5a < 12m above pavement level, the exit width should comply with Table B2.

- Use Classification 5a > 12m above pavement level, the exit width should comply with Table B5. (i.e. wider)

- Minimum exit width is 1050mm

<table>
<thead>
<tr>
<th>Occupant Capacity</th>
<th>Minimum Number of Exits</th>
<th>Minimum Total Width of Exit Route (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-200</td>
<td>2</td>
<td>2400</td>
</tr>
<tr>
<td>201-300</td>
<td>2</td>
<td>2600</td>
</tr>
<tr>
<td>301-500</td>
<td>2</td>
<td>4300</td>
</tr>
<tr>
<td>501-750</td>
<td>3</td>
<td>6400</td>
</tr>
<tr>
<td>751-1000</td>
<td>4</td>
<td>8500</td>
</tr>
<tr>
<td>1001-1250</td>
<td>5</td>
<td>10400</td>
</tr>
<tr>
<td>1251-1500</td>
<td>8</td>
<td>12500</td>
</tr>
<tr>
<td>1501-1750</td>
<td>7</td>
<td>14600</td>
</tr>
<tr>
<td>1751-2000</td>
<td>8</td>
<td>16700</td>
</tr>
<tr>
<td>2001-2500</td>
<td>10</td>
<td>20900</td>
</tr>
<tr>
<td>2501-3000</td>
<td>12</td>
<td>24900</td>
</tr>
</tbody>
</table>
Every buildings should be divided into fire compartment not exceeding the size ($m^2$) stipulated in Table C1.

Every element of construction and fire barrier should have an FRR not less than that specifies in Table C1.

All openings, joints and penetrations should be protected by materials with FRR not less than that of the fire barriers (i.e. no more $\frac{1}{2}$ FRP of that of the wall).
## Part C: Fire Resisting Construction

<table>
<thead>
<tr>
<th>Elements of construction or other components</th>
<th>Criteria to the satisfied</th>
<th>Method of Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stability</td>
<td>Integrity</td>
</tr>
<tr>
<td>4 Loadbearing wall not being a fire barrier</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>6 Loadbearing wall being a fire barrier</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>7 Non-loadbearing wall being a fire barrier</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>9 Fire shutter, fire stop, fire dampers</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Enclosure around or sealing system for services other than Item 14</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>13 Fixed light (including frame, glazing &amp; fixing)</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>
**Part C: Fire Resisting Construction**

**Separation between Adjoining Buildings (Clause C5.2) (new)**

\[ \alpha \leq 135^\circ : \]
- Separation < 900mm
  - External wall/roof should be imperforated and having an FRR \( \geq \) the FRR of the internal element of construction/storey below the roof
- Separation between 900mm and 1800mm
  - Fixed light having an FRR \( \geq \) the FRR of that storey
- Separation > 1800mm
  - Unprotected opening

\[ \theta > 135^\circ : \]
- Separation < 900mm
  - External wall should be imperforated and having an FRR \( \geq \) the FRR of internal element of construction
- Separation > 900mm
  - Unprotected opening
Protection of flats in **Use** Classifications 1 and 2 (Clause C6.1) (new)

- **Common internal corridor** should be protected by fire barriers having an FRR that complies with Table C1;
- **Doors** of each flat/guestroom should have an FRR not less than that of the common internal corridor;
- A **smoke seal** should be installed to each fire rated door.
Part C : **Fire Resisting Construction**

Separation between **different Use Classifications** and/or **different occupancies**

Any part of a building that are of **different Use Classifications and/or different occupancies** should be separated by fire barriers having **the longer FRR** in respect of the Use Classification (Clause C7.1)

Fire barrier is **not required** for:

- ancillary use (Clause C7.2)
- different occupancies for Use Classification 4a and retail shops in Use Classification 4b (Clause C7.3)
- shopping arcade in Use Classification 4b (Clause C7.4)

Part C : Fire Resisting Construction

Protection of openings through fire barriers

(Clause C8.1) (clearer requirements)

- Any openings in the fire compartment wall should be protected by fire rated doors and fire shutters having an FRR, with regard to the criteria of integrity and insulation, of not less than that of the fire compartment.

- The requirement on the criterion of insulation for fire rated doors and fire shutters is not apply when the total width of the openings to be formed is not more than 25% of the length of such compartment wall.
Part C : **Fire Resisting Construction**

**Protection of Lifts**

- FRR of *lift shaft* \(\geq 120/120/120\) *(Clause C9.1)*
- Holes in a lift shaft wall – filled and sealed to maintain the FRR of the wall *(Clause C9.1)*
- FRR of *lift door* at the landing \(\geq -/120/-\) *(Clause C9.1)* *(i.e. insulation not required)*
- Where a lift serving *basement* is connected with the storeys above ground storey, a smoke seal lobby should be provided to the lift doors at *basement*. *(Clause C9.1)*
- Provided that the lift machine or pulley room is completely separated by fire barriers from the rest of the building, fire resisting construction is *not required* for the lift car, including its shaft and landing doors, serving a *single* fire compartment. *(Clause C9.2)*
Part C: Fire Resisting Construction

Protection of openings between floors (Clause C10.1)(clearer requirements)

- This Clause is applicable to sprinkler protected building only.

- 450mm downstand with FRR not less than -/30/- should be provided around the opening at the underside of the floor/false ceiling.

- smoke curtain activated by a smoke detection system may be accepted, other alternatives in Para. 12.1 are deleted.
Part C: **Fire Resisting Construction**

Protection of atrium (Clause C10.3) (new)

- the atrium should be **separated** from the rest of the building by fire barriers having an FRR of not less than that of the surrounding.
- a < 15m with a maximum of 3 interconnected floors
- volume < 28000 m³
- An effective **sprinkler** system to the satisfaction of the Director of Fire Services
Clause C11.1
- Spandrel having FRR $\geq$ that of intervening floor
- $a \geq 900$ mm spandrel
- $b \geq 500$ mm projection (new)
- This Clause does not apply to single family house or a sprinkler protected building

Clause C11.2
- For Use Classification 1, openings of not more than 110mm in diameter are allowed at the fire rated spandrel of the kitchen and bathroom for the passing of plumbing and drainage pipe.
Part C: Fire Resisting Construction

Protection of domestic kitchen (Clause C13.3)

Kitchen adjacent to the single exit door of Use Classification 1 should be separated from the rest of the premises by:
- Walls ≥ -/30/30
- Door ≥ -/30/30

Protection of open kitchen (Clause C13.4) (new)

- The flat and the lobby outside the flat unit should be provided with smoke detectors
- Sprinkler head should be provided at the ceiling immediately above the open kitchen
- The smoke detectors and sprinkler should be complied with the FSI Code and The alarm signal should be linked to the fire services control panel/ the building management office/the caretaker’s office and the common fire alarm system of that floor
- A 600mm wide shielding wall having an FRR of not less than -/30/30 should be provided adjacent to the flat exit door
Part C: Fire Resisting Construction

Protection of Basement (Clause C14.1)

4hrs (forming the compartment) and 2hrs (within basement)

Clause C14.1

Every basement should be provided with the following:

(a) fire barriers forming the fire compartment between the ground storey and a basement should have an FRR of not less than -/240/240. This includes all required staircases serving the basement.

(b) all elements of construction of the basement should have an FRR of not less than 240/240/240;

(c) fire barriers forming fire compartment walls within basements should have an FRR of not less than -/120/120, and

(d) where a basement has the same Use Classification as the ground storey and any upper storeys, the basement may be united with the ground and upper storeys, provided that every element of construction and fire barriers in all such storeys should have an FRR of not less than that of the basement as specified in (a), (b) and (c) above.
Part C: Fire Resisting Construction

Bottom gap of fire rated door (Clause C16.4)
(4mm ➔ 10mm max)

Clause C16.4

All fire rated doors should be closely fitted around their edges to impede the passage of smoke or flame. The bottom gap between such doors and the floor should not exceed 10mm.

Commentary

The bottom gap between the fire rated door and the floor shall be not more than the designed values of such door specified in the fire test report.
Part C: **Fire Resisting Construction**

**FRR requirements of protected lobby (Clause C16.5)**

- If the FRR of D1 \(\geq\) the FRR of the fire barriers of that storey, FRR is not required for D2; or

- If D1 and D2 have the same FRR, the FRR of D1 and D2 \(\geq\) \(\frac{1}{2}\) of the FRR of the fire barriers of that lobby.

- D1 and D2 should be *smoke sealed*. 
Part C: Fire Resisting Construction

Fire Safety Provisions for Cinemas and Theatres

Clause C18.1

- The requirements on fire resisting construction for cinemas in PNAP APP-14 have been incorporated.

Clause C18.2

- Theatres should be sprinkler protected
- The proscenium wall separating the stage and the seating area should have an FRR of not less than -/60/60 and fire curtain of not less than -/30/-. 
Part D: **Means of Access**

(Not many amendments)

**Maximum distance** to be served by a fireman’s lift (Clause D8.4) and a firefighting and rescue stairway (Clause D15.6)

- The max. direct line measurement (open plan) is changed from 40m => 45m

Protection of a firefighting and rescue stairway (FRS) (Clauses D17.2) (from double => not less than)

**Clause D17.2**
The perimeter enclosing walls that separate the access staircase, the fireman's lift and the lobby in a firefighting and rescue stairway from the floor served by the stairway, together with any supporting structure and floor slabs forming the enclosures of the stairway should have an FRR of not less than that required for the elements of construction in that floor.
Part E: Fire Properties of Building Elements and Components

Acceptable test standards (Clause E1.3)

- Relevant parts of the International standard of ISO
- The national standards stipulated in this Part
- Where it is intended to use other standards, authorized persons should demonstrate complying with Clause E16.2 that such standards are equivalent or not inferior to the international or the national standards stipulated in this Part.
Part E: Fire Properties of Building Elements and Components

This Part provides test standards for:

- Loadbearing elements (Subsection E3)
- Non-loadbearing elements (Subsection E4)
- Doors, windows, shutters (Subsection E5)
- Ventilation ducts (Subsection E6)
- General penetrations (Subsection E7)
- Fire and smoke dampers (Subsection E8)
- Smoke leakage for fire rated doors and doors with smoke seals (Subsection E9)
- Non-combustibility (Subsection E10); Limited combustibility (Subsection E11)
- External facades (Subsection E12)
- Internal wall and ceiling linings and decorative finishes (Subsection E13)
- Floor linings and floor coverings (Subsection E14)
- Acoustic and thermal insulation (Subsection E15)
Part F: **Fire Safety Management**

Where the fire safety design of a building,

- follow the **Deemed-to-Comply** provisions, this Part is advisory in nature

- the fire safety management plan supporting the fire **safety assessment report** will form part of the approved general building plans and the compliance of fire safety management plan will be imposed as a **condition** when granting modification under the BO s.42
The fire safety management plan includes:

- **maintenance plan**: approved plans; documents & maintenance schedules & repair records etc.

- **training plan**: staff duties; training programmes & fire drills etc.

- **fire action plan**: procedures in case of fire; who to inform occupants and assist them to escape to the ultimate place of safety; any contingency plan or evacuation plan etc.
Part G: Guidelines on Fire Engineering

- Section 1 – Introduction
- Section 2 – Framework for Fire Engineering
- Section 3 – Introduction to Fire Engineering
- Section 4 – Methodologies of Fire Engineering
- Section 5 – Fire Safety Sub-systems
- Section 6 – Design by Fire Engineering
- Section 7 – Fire Safety Assessment Report
- Section 8 – Bounding Conditions
- Section 9 – Computer Model
- Section 10 – References

(please refer to the Code for details)
Part G Section 5: Sub-systems concept

- Fire Engineering Design Meets PRs
- Guidance (e.g., Building Classification / Occupancy, etc.)
- Fire Initiation and Development (Sub-system 1)
- Smoke Development, Spread and Control (Sub-system 2)
- Fire Detection, Warning and Automatic Suppression (Sub-system 3)
- Fire Spread, Impact and Control (Sub-system 4)
- Occupant Characteristics and Evacuation (Sub-system 5)
- Fire Service Intervention (Sub-system 6)

Evaluation Acceptance? (Deterministic / Probabilistic / Equivalence or Absolute)
Final key point: Main Concept of Fire Safety

MoE

FRC

MoA

(End of my presentation. Thank you!)