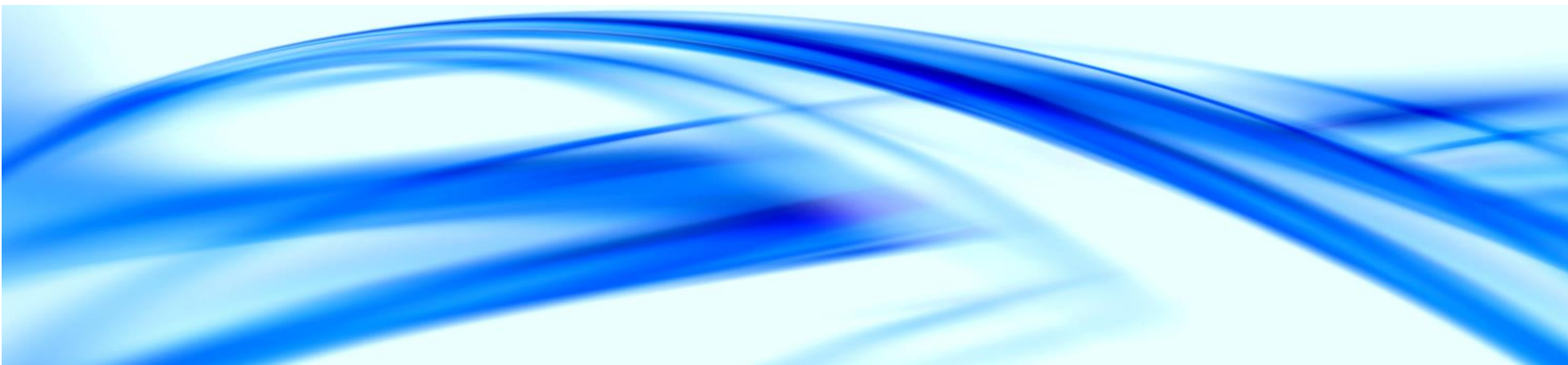


# **Roles of Fire Services Department in processing of general building plan and acceptance inspection under the Buildings Ordinance, Cap 123**



## **Fire Services Department New Projects Division**

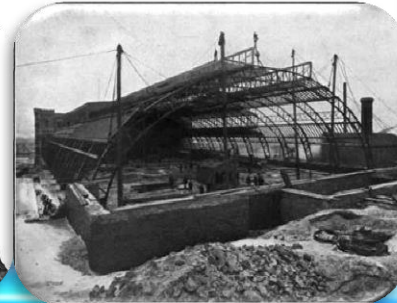
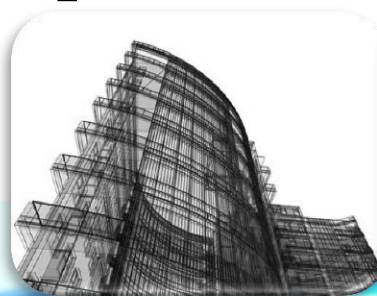
**Mr. Adam LAM  
Divisional Officer**



# Content



- **Statutory role of FSD**
- **Procedures for building plans submission**
- **Processing of GBPs**
- **Information required in GBPs**
- **Types of licensed / registered premises**
- **Common issues encountered**
- **Fire Engineering Approach**
- **Acceptance Inspection of FSIs**





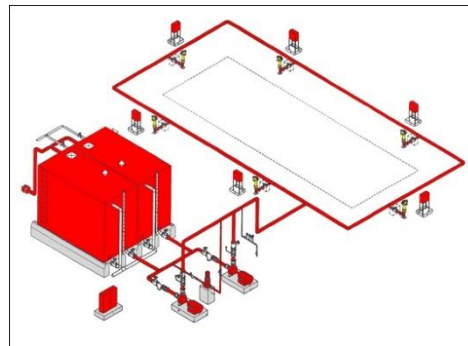
# **Statutory role of FSD in the development process and related certifications**

# Statutory Role of FSD



## Buildings Ordinance

Imposing **fire service installations** requirements for buildings



# Buildings Ordinance



## Approval of Building Plans

Section 16(1)(b), Buildings Ordinance  
Chapter 123, Laws of HK

“The Building Authority may refuse to give his approval of any plans of building works where the plans are not endorsed with or accompanied by a certificate from the Director of Fire Services”



Serial No.: A 206923  
Fire Services Department,  
HONG KONG

Our Ref.: \_\_\_\_\_  
Date: \_\_\_\_\_

Sir/Madam,

Address: \_\_\_\_\_  
\_\_\_\_\_

Description of Building: \_\_\_\_\_  
\_\_\_\_\_

This is to certify that the requirements of this Department have been incorporated in your plans.

One set of your plans stamped and signed by this Department on \_\_\_\_\_ is returned together with an additional copy of this certificate for submission to the \* *Building Authority/Director of Housing*.

Note:—Any amendments to plans after approval by this Department should be resubmitted in duplicate through the \* *Buildings/Housing* Department for further vetting prior to the commencement of any construction works.

Yours faithfully,

\_\_\_\_\_ for Director of Fire Services

Issued in accordance with Sub-paragraph (ii) of Paragraph (b) of Subsection (1) of Section 16 of the Buildings Ordinance.  
\* Delete where inappropriate  
FS 161 (Rev. 9/09)

# Buildings Ordinance



## Commencement of Building Works

Section 16(3)(b), Buildings Ordinance  
Chapter 123, Laws of HK

“The Building Authority may refuse to give his consent to the commencement of any building works or street works where he has not received such other documents as may be prescribed by regulations”



Serial No.: A 206923  
Fire Services Department,  
HONG KONG

Our Ref.: \_\_\_\_\_  
Date: \_\_\_\_\_

Sir/Madam,  
Address: \_\_\_\_\_  
Description of Building: \_\_\_\_\_

This is to certify that the requirements of this Department have been incorporated in your plans.

One set of your plans stamped and signed by this Department on \_\_\_\_\_ is returned together with an additional copy of this certificate for submission to the \* *Building Authority/Director of Housing*.

Note:—Any amendments to plans after approval by this Department should be resubmitted in duplicate through the \* *Buildings/Housing* Department for further vetting prior to the commencement of any construction works.

Yours faithfully,  
  
for Director of Fire Services

Issued in accordance with Sub-paragraph (ii) of Paragraph (b) of Subsection (1) of Section 16 of the Buildings Ordinance.  
\* Delete where inappropriate  
F.S. 161 (Rev. 9/00)

# Buildings Ordinance



## Occupation Permit

Section 21(6)(d), Buildings Ordinance Chapter 123, Laws of HK

“The Building Authority may refuse to issue a temporary occupation permit or an occupation permit under this section where the applicant for the permit fails to produce to the BA a certificate from the D of FS in such form as may be prescribed certifying that he is satisfied that the fire service installations and equipment shown on the plans aforesaid have been provided and are in efficient working order and satisfactory condition”



# Certifications



## Fire Services Certificate (FS 161)

- ✓ issued by Director of Fire Services
- ✓ is required before commencement of building works

(New Projects Division)

### 16. Grounds on which approval or consent may be refused

- (1) The Building Authority may refuse to give his approval of any plans of building works where—
  - (a) the plans are not such as are prescribed by regulations or are not such as he may have required under this section;
  - (b) the plans are not endorsed with or accompanied by a certificate from the Director of Fire Services certifying either—
    - (i) that, having regard to the purpose to which the building is intended to be put (which purpose shall be stated in the certificate), no fire service installation or equipment is necessary in connexion with the building that will result from the carrying out of the building works shown on the plans; or
    - (ii) that the plans have been examined and are approved by him as showing all such fire service installations and equipment as in his opinion, having regard to the purpose to which the building is intended to be put (which purpose shall be stated in the certificate), comprise the minimum fire service installations and equipment necessary for such building in accordance with a Code of Practice published from time to time by the Director of Fire Services; (*Added 3 of 1964 s. 2*)



# Certifications




## Fire Services Certificate (FS 172)

- Section 21(6)(d), Buildings Ordinance, Chapter 123, Laws of HK
- Before issue of occupation permit (O.P.) by Building Authority, the FSI provided for the building has to be tested/inspected to the satisfaction of Director of Fire Services

(Fire Service Installations Division)

ORIGINAL—WHITE PAPER  
DUPLICATE—YELLOW PAPER  
TRIPPLICATE—LIGHT BLUE PAPER

Serial No. A 004897



FIRE SERVICES DEPARTMENT  
HONG KONG

OUR REF: \_\_\_\_\_  
YOUR REF: \_\_\_\_\_

DATE .....

Fire Service Installations and Equipment at:—  
.....  
.....  
.....  
.....

This certificate is issued in accordance with Section 21 of the Buildings Ordinance Subsection 6(d), and certifies that the Director of Fire Services is satisfied that the fire service installations and equipment shown on the building plans approved by him have been installed in accordance with Sub-paragraph (ii) of Paragraph (b) of Subsection (1) of Section 16 of the Buildings Ordinance and were in efficient working order and satisfactory condition at the time of their inspection on .....

.....  
.....

for Director of Fire Services.

# Procedures for Building Plans Submission



## Centralized Processing System (CPS)



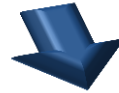
# Centralized Processing System



**Authorized Persons**



**Buildings Department**



**Other Govt. Depts.**



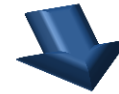
**Planning Department**



**Lands Department**

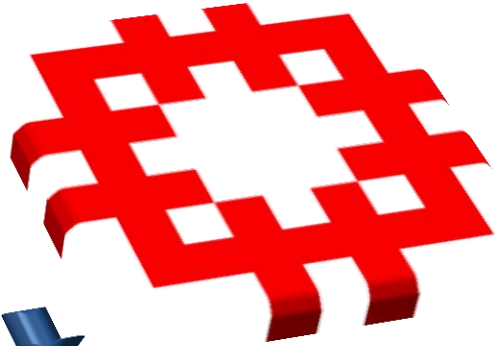


**Fire Services Department**



**New Projects Division**

# Other Departments



Housing Authority (ICU)

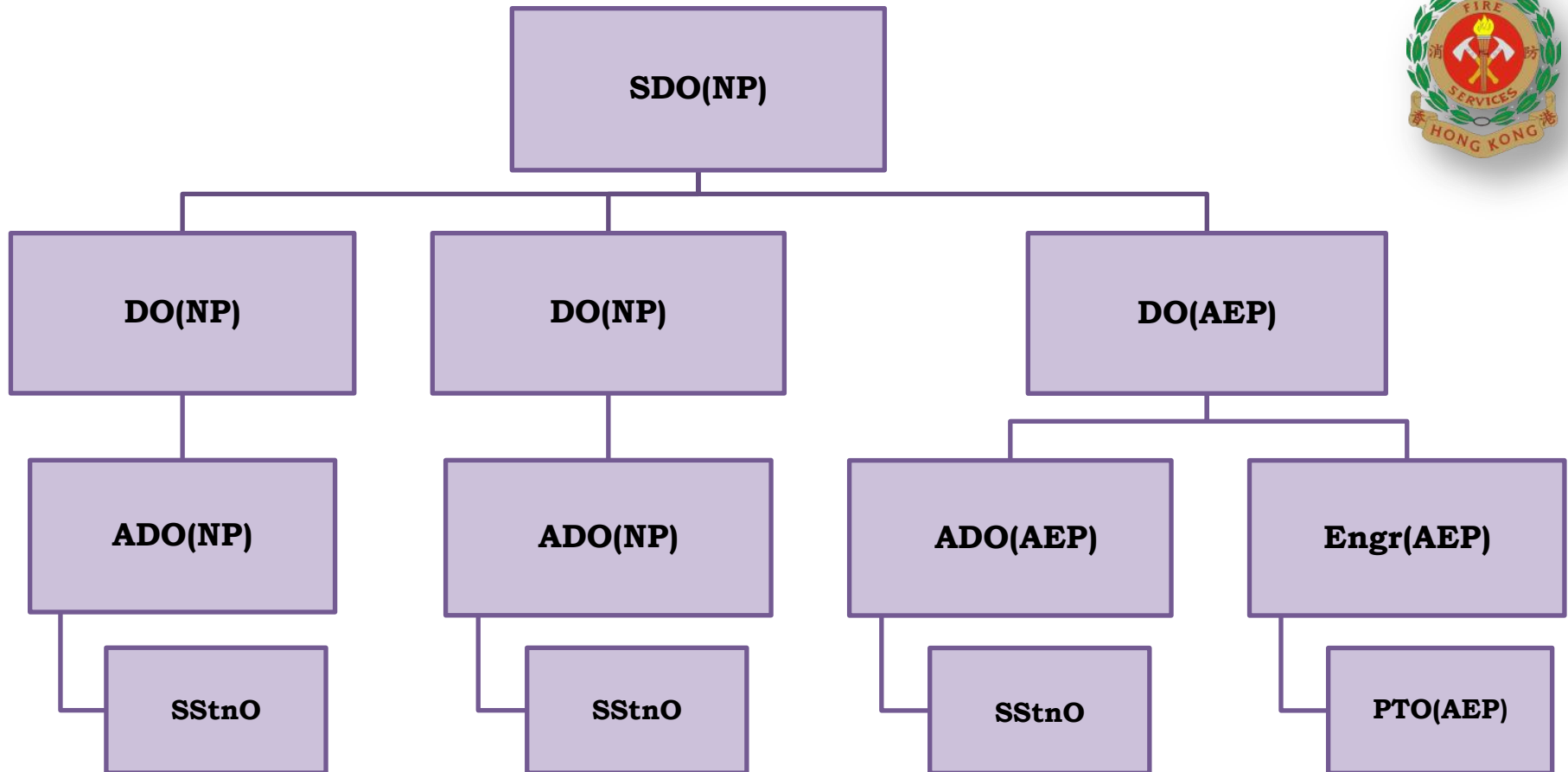
via Authorized Persons



Fire Services Department



# Structure of New Projects Division

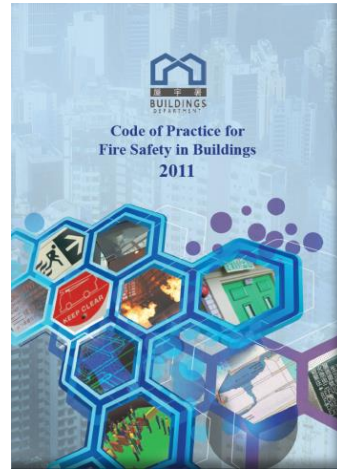


- **Formulation of fire safety requirements for new buildings & alteration and addition works to existing buildings**
- **Endorsement of general building plans and the issue of certificate following satisfactory incorporation of fire service installations into plans**
- **Advising Authorized Persons & consultants on fire safety matters**
- **Endorsement/vetting of fire service installation plans**

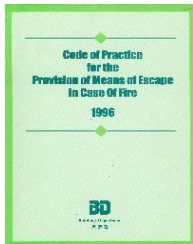
# Prescriptive Requirements



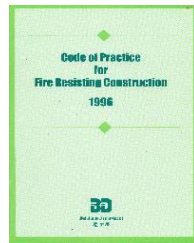
MoA Code



FS Code 2011



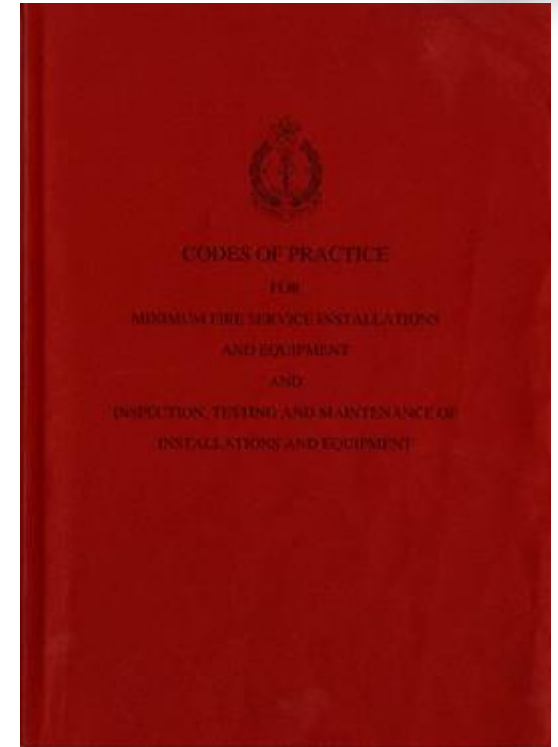
MoE Code



FRC Code



FSD Circular Letters

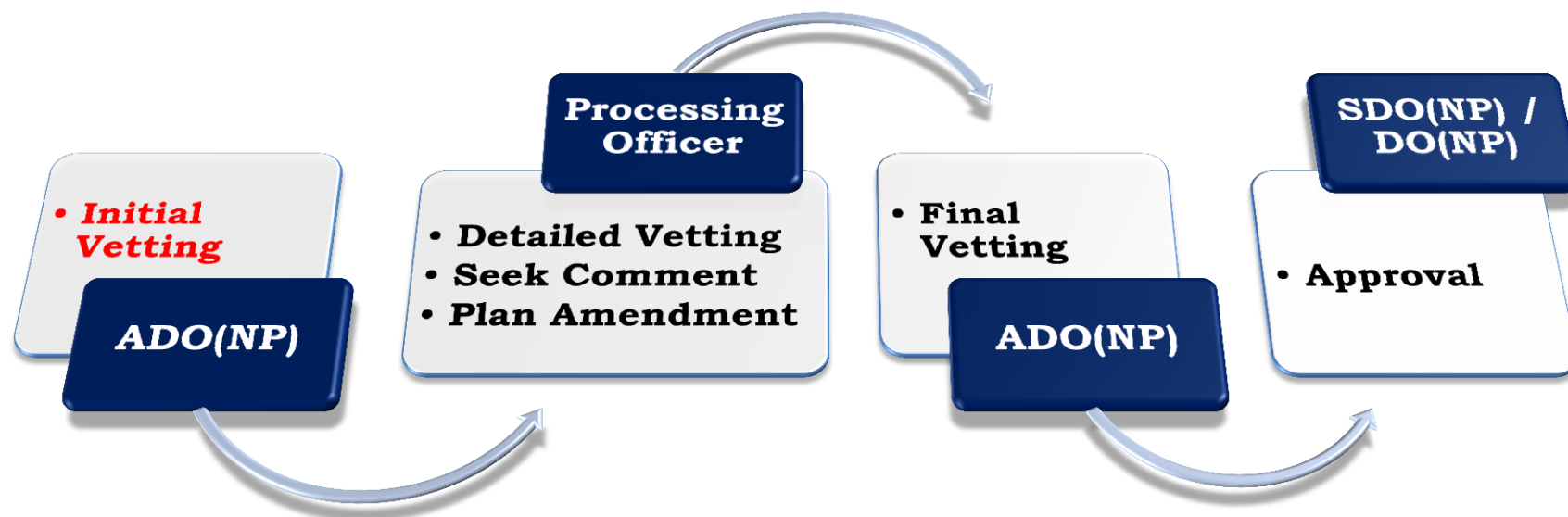


FSI Code 2012

# Plan Processing Mechanism



## New Projects Division



**Three Tiers Plan Processing Mechanism**

# Plan Processing Mechanism



## New Projects Division



**Three Tiers Plan Processing Mechanism**



# Plan Processing Mechanism



Internal Comments for licensed / registered premises

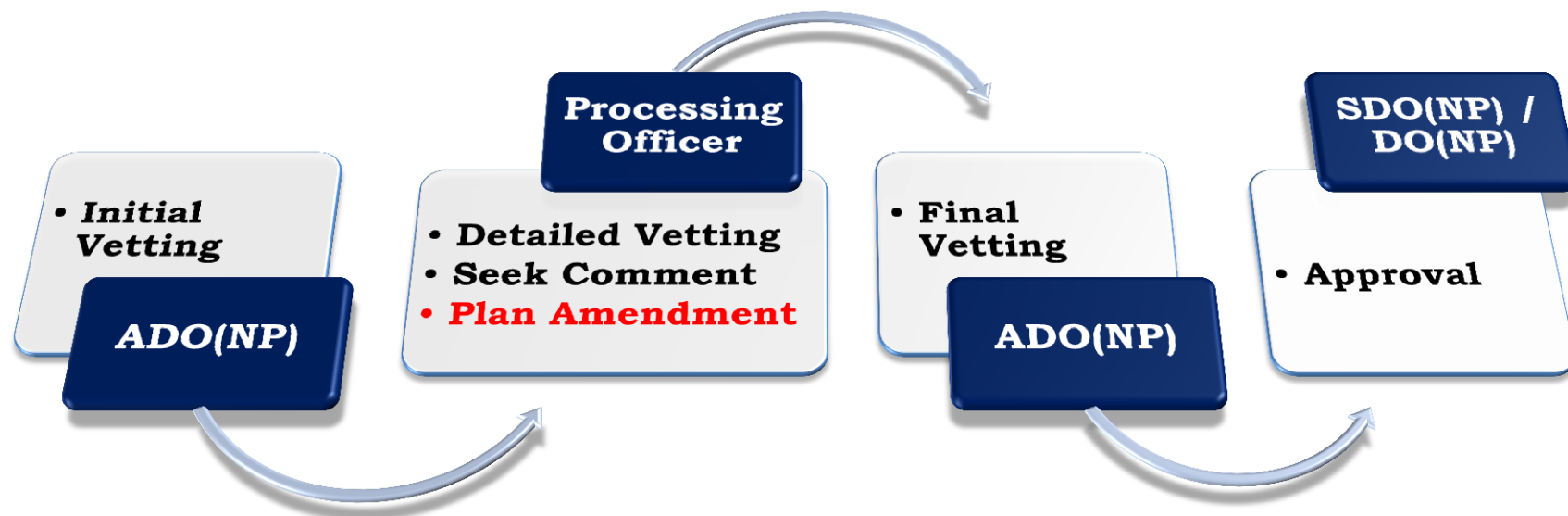
- Sitting of premises
- Additional requirements for fire service installations

Licensed / Registered Premises	Responsible Office
Dangerous Goods Store	Dangerous Goods Division
Hotel	Licensing Authority Division
Hospital	Community Relations Section
	Ambulance Command
Restaurant / Place of Public Entertainment	Respective Regional Offices
RCHE / RCHD	
School / CCC / Kindergarten	

# Plan Processing Mechanism



## New Projects Division



**Three Tiers Plan Processing Mechanism**

# Plan Processing Mechanism



Appendix B  
(PNAP ADM-2)

AP may be **invited** to make necessary amendment.

- Minor Amendment
  - **NOT** involve:-
    - **Structural Change**
    - **Major Fire Service Installation**
- PNAP ADM-2 Appendix B
  - Recommendations

## Fire Service Installations Proposals

1. Upon submission of building plans to BD, the covering letter should be copied to the Fire Services Department (FSD).
2. The two/three\* sets of plans for referral to the FSD should be clearly identified by a suitable note in bold lettering in the lower right hand corner of every plan and should show the proposed fire service installations and equipment referred to in Buildings Ordinance section 16(1)(b)(ii).
3. After checking, the plans will be dealt with in one of the following ways :
  - (a) If the plans are acceptable, FSD would issue a standard letter (with a copy to BD) notifying the AP to collect the set of endorsed plans from FSD. If a certificate is issued for the purpose of Buildings Ordinance section 16(1)(b)(ii), the AP shall endeavour to collect the certificate and pay the fee as specified in Regulation 3 of the Fire Services Department (Reports and Certificates) Regulations (Cap. 95C).
  - (b) If the plans are acceptable subject to minor changes, the AP will be invited by the FSD to make the necessary amendment. The procedure in sub-paragraph (a) above will then follow.
  - (c) If the plans are not acceptable, FSD would retain one set of plans and issue a letter (with a copy to BD) notifying the AP of the adverse comments and to collect the remaining set of plans from FSD. Such comments will not be repeated in any of BD's communication with the AP.
4. No matter the plans are acceptable or not, the relevant set of plans should be collected by the AP within 3 months from the date of the notification letter from FSD. Otherwise, the uncollected plans will be deemed to be no longer required by the AP, and FSD will make arrangement for the disposal of those plans without further notification.
5. The Director of Fire Services may sometimes make additional recommendations which are not related to the issue of a certificate under Buildings Ordinance section 16(1)(b). His various comments will therefore be grouped under the following headings :
  - (a) Reasons for Refusal of a Certificate under Buildings Ordinance section 16(1)(b)
  - (b) Strongly Recommended Practice  
These are recommendations which if not adopted may render the completed building a fire hazard resulting in possible abatement action under the Fire Services Ordinance.
  - (c) Recommendations of a Purely Optional Nature  
The adoption of these recommendations is considered to be good practice.

\* 3 sets if subject to the Fire Safety (Commercial Premises) Ordinance or the Fire Safety (Buildings) Ordinance.  
(Rev. 2/2009)

# Plan Processing Mechanism



## New Projects Division

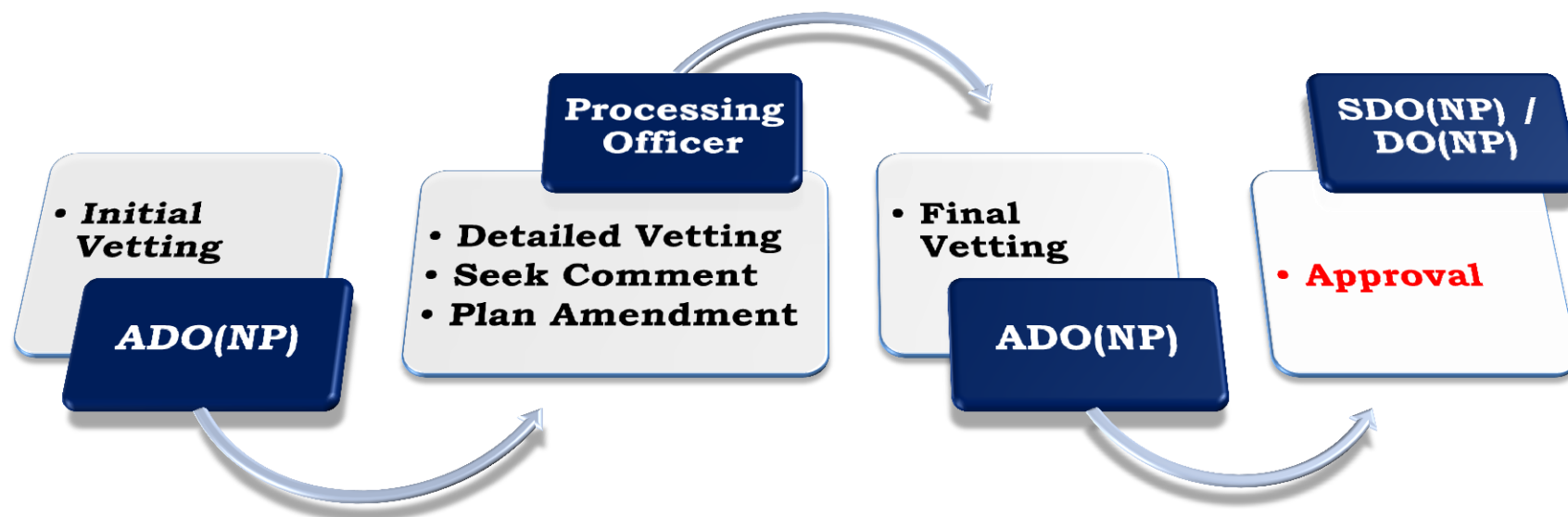


**Three Tiers Plan Processing Mechanism**

# Plan Processing Mechanism



## New Projects Division



**Three Tiers Plan Processing Mechanism**

# Plan Processing Mechanism



Dear Sir/Madam,

Address : \_\_\_\_\_

Proposal : \_\_\_\_\_

I refer to your submitted building plans through the Buildings Department which were received by this Department on 13.9.2013.

As further amendments to the re-submitted plans have been made, the following additional/modified Fire Services requirements shall be incorporated in and clearly noted on your plans before the required certificate to be issued: -

- (i) Sprinkler inlets and valves of respective system shall be provided and properly indicated on plans;
- (ii) Fire detection system shall be provided to the entire basement except car parking area;
- (iii) There shall be sufficient hydrants and hose reels to ensure that every part of the building can be reached by a length of not more than 30m of Fire Service hose and hose reel tubing. Your attention is drawn to the revised requirements for fire hydrant / hose reel system, which was come into effect on 1 October 2013, as promulgated in FSD Circular Letter No. 2/2013;
- (iv) Emergency lighting shall be provided throughout the entire hotel areas and all exit routes leading to ground level in accordance with BS 5266: Part 1:2011, BS EN 1838:1999 and FSD Circular Letter 1/2006;
- (v) Fire extinguishers of appropriate type and sand buckets shall be provided to all E&M plant rooms, loading/unloading areas and car parking areas;
- (vi) All pressurized staircases required shall serve all basement floors;
- (vii) If natural venting of staircases is to be provided, it should follow the requirements stipulated in para. 1.2 of the FSI Code. The locations and calculations of openable areas and the remote controls for top vents shall be demonstrated on plans;
- (viii) Dynamic smoke extraction system shall be provided to all basement floors (B1/F to B3/F) except areas solely for car parking purpose;

.../P.2

- 2 -

- (ix) Static or dynamic smoke extraction system is required for all internal means of escape serving all guest rooms unless the route itself is provided with openable windows communicating to the **open air** and the aggregate area of such windows exceeds 6.25% of the floor area of that route. Windows opening into light well, atrium, etc. is unacceptable; and
- (x) Street fire hydrants shall be provided along the internal EVA in accordance with para. 5.25 of the FSI Code.

The attached recommendations (NP/108) shall be observed whenever and wherever they are applicable.

I should be grateful if you would re-submit two sets of plans incorporating the above requirements through the Centralized Processing System to this Department for formal approval. Meanwhile, One set of the plans is retained for record. The other set is ready for your collection at the Licensing & Certification Command Headquarters, Fire Services Headquarters Building, 5<sup>th</sup> floor, No. 1, Hong Chong Road, Tsim Sha Tsui East, Kowloon during the following hours:-

Monday to Friday (except public holidays) 8:30 a.m-1:00 p.m. and 2:00 p.m.-5:45 p.m.

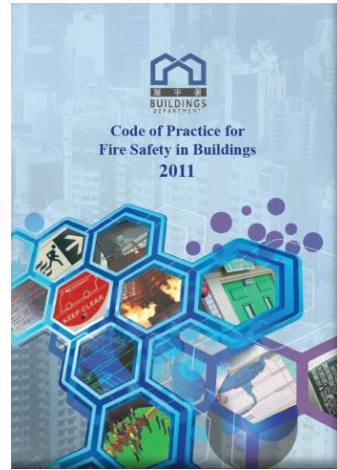
Please bring along the original copy of this letter with you when collecting the building plan(s). Your attention is invited to paragraph 4 of Appendix B of PNAP 30 (Rev. 2/2009) in that if you do not collect the building plan(s) within 3 months from the date of this letter, the uncollected plan(s) will be deemed to be no longer required by you and will be disposed of without further notification.

Should you have any enquiries, please contact the case officer Mr \_\_\_\_\_ at tel. no. 2733 7580. If necessary, you may also contact his supervisor, Mr \_\_\_\_\_ at tel. no. 2733 7854.

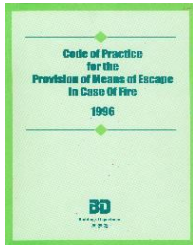
# Information required in the building plans submission stage



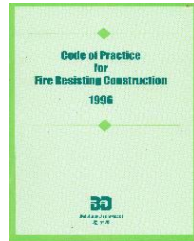
MoA Code



FS Code 2011



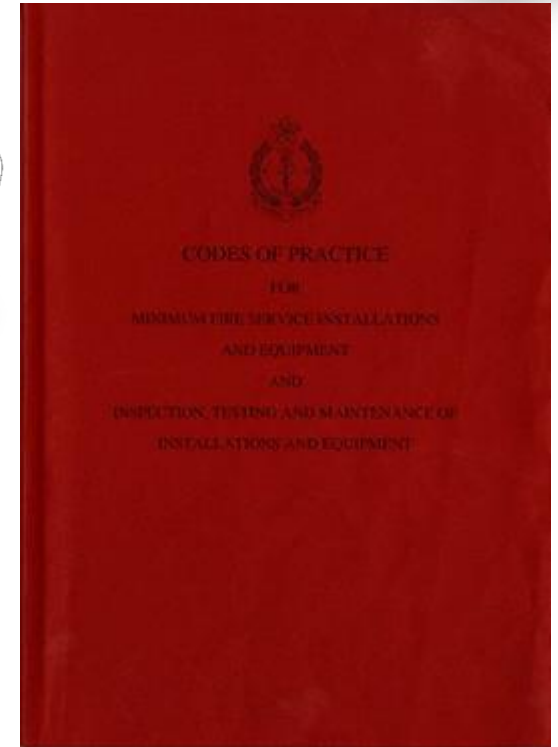
MoE Code



FRC Code



FSD Circular Letters



FSI Code 2012

# Information required in the building plans submission stage – CoP for FSI



- ❑ FSI requirements in buildings are formulated in accordance with the intended use, height and size of the building
  
- ❑ Classification of buildings
  - Commercial
  - Composite
  - Domestic
  - Special risks
  - Hotel
  - Industrial
  - Institutional



# Information required in the building plans submission stage – CoP Contents



- ❑ Part I - General
- ❑ Part II - Table and Definitions of Systems/ Installations/Equipment
- ❑ Part III - Classification of Premises and Definitions
- ❑ Part IV - Requirements for Premises
- ❑ Part V - Specification

# Information required in the building plans submission stage – CoP Typical FSIs

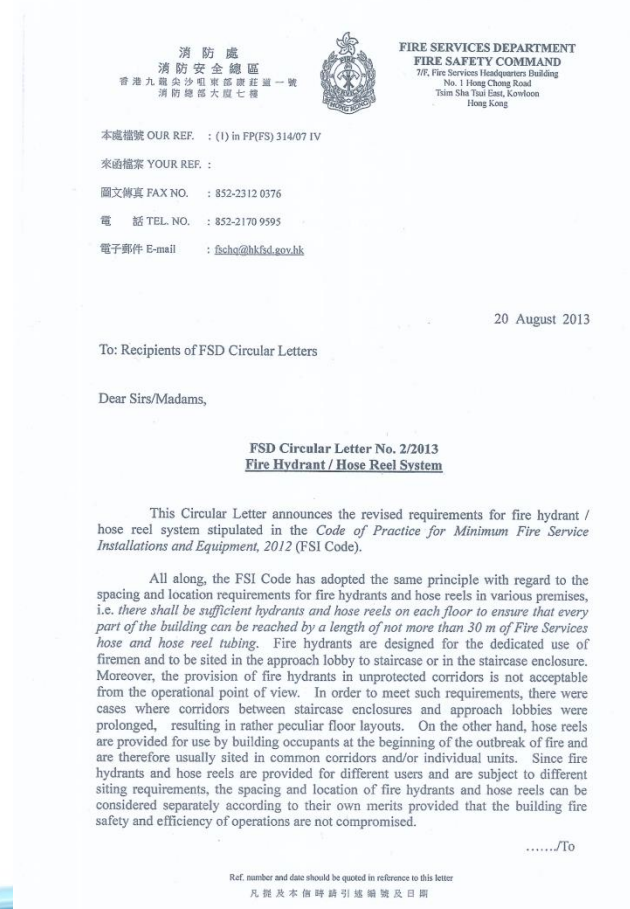


- Audio/visual advisory system
- Automatic actuating device
- Automatic fixed installation other than water
- Automatic fixed installation using water
- Drencher system
- Emergency generator
- Emergency lighting
- Exit sign
- Fire alarm system
- Fire detection system
- Fire hydrant/ hose reel system
- Sprinkler system

# Information required in the building plans submission stage – FSD Circular Letters



- To supplement information and requirements not readily covered in the FSI Code
- To disseminate FSD's current policies and procedures.



# Information required in the building plans submission stage

## (i) Site Location



Nearby Buildings / Special Hazards

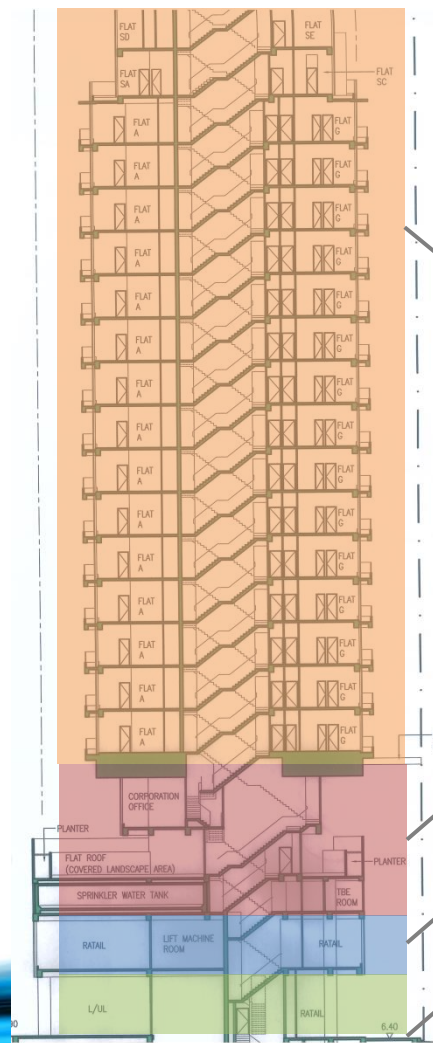
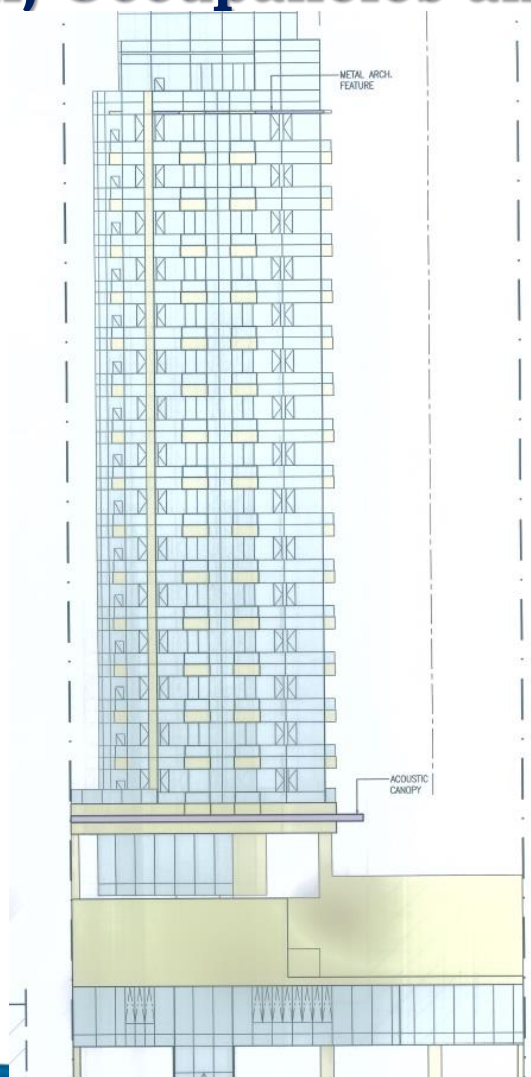
Access Road

Street Fire Hydrants



# Information required in the building plans submission stage

## (iii) Occupancies and Layout of the Buildings



4.23 Domestic Building – High Rise

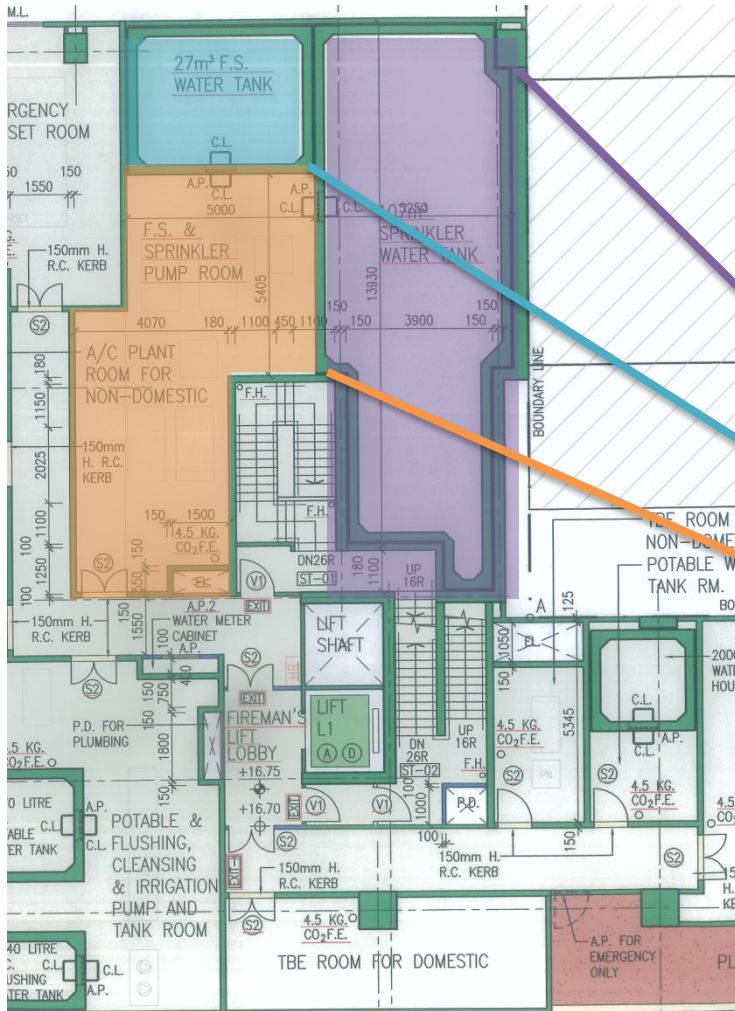
4.31 Institutional Building – Low Rise

4.14 Commercial Building – Low Rise

4.26 Garage

# Information required in the building plans submission stage

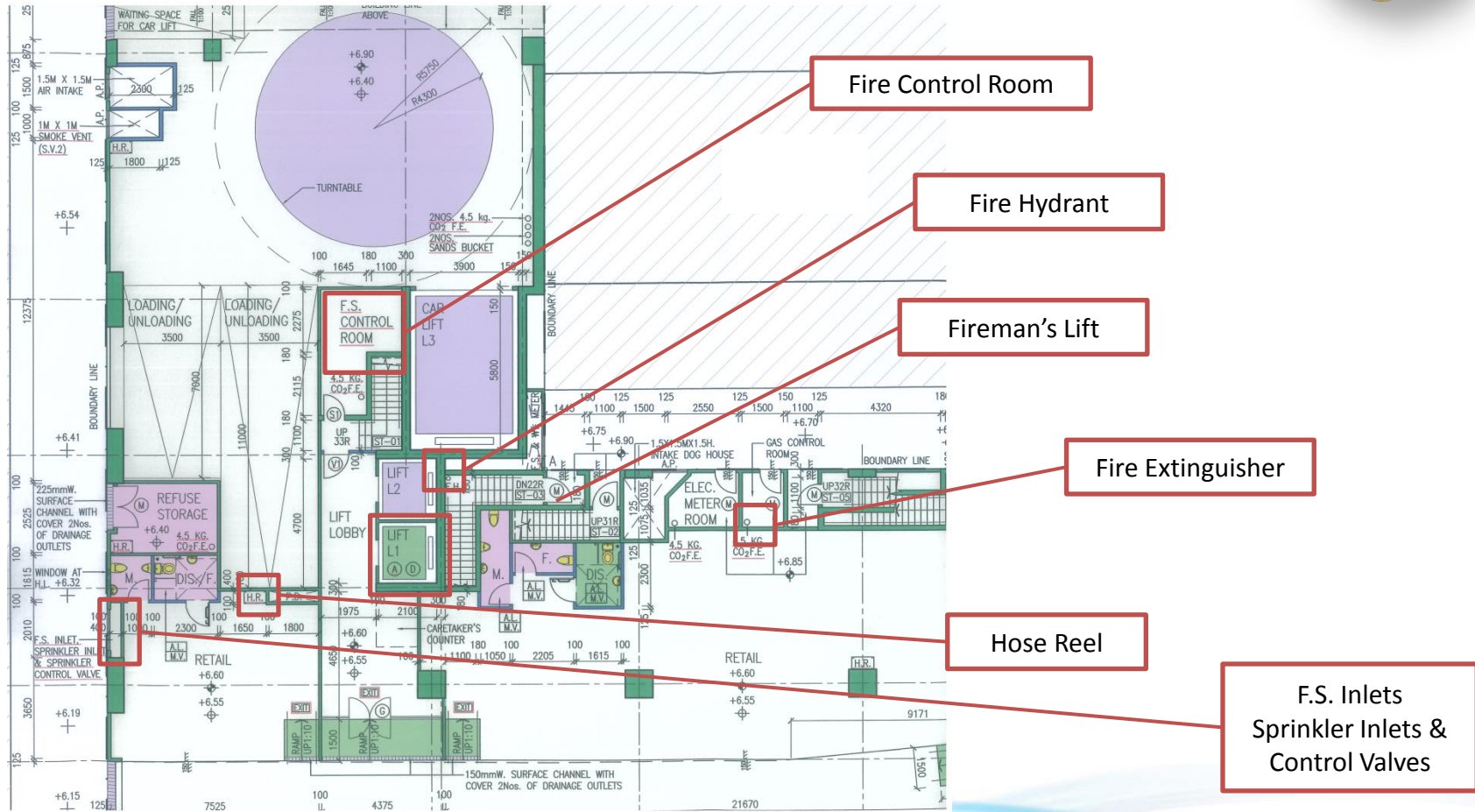
## (iv) Key Elements of Major FSI



- Fire hydrant / hose reel
- Sprinkler
- Drencher
- Water supply
- Tank sizes
- Duty pumps
- Intermediate booster pumps
- Inlets
- Control valves

# Information required in the building plans submission stage

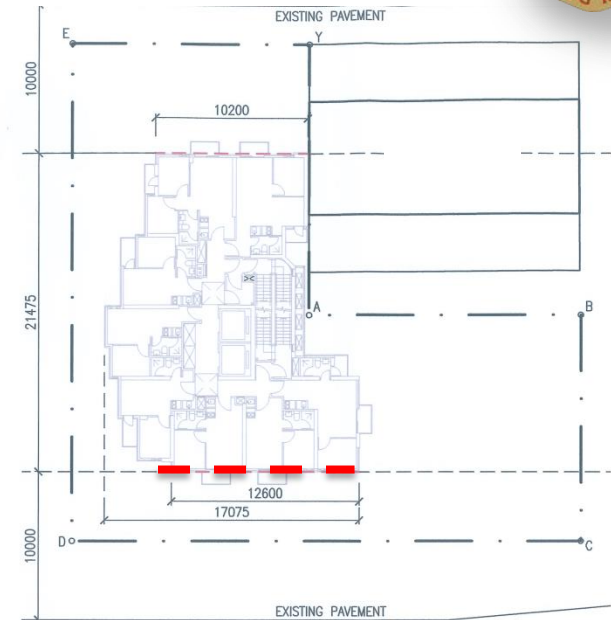
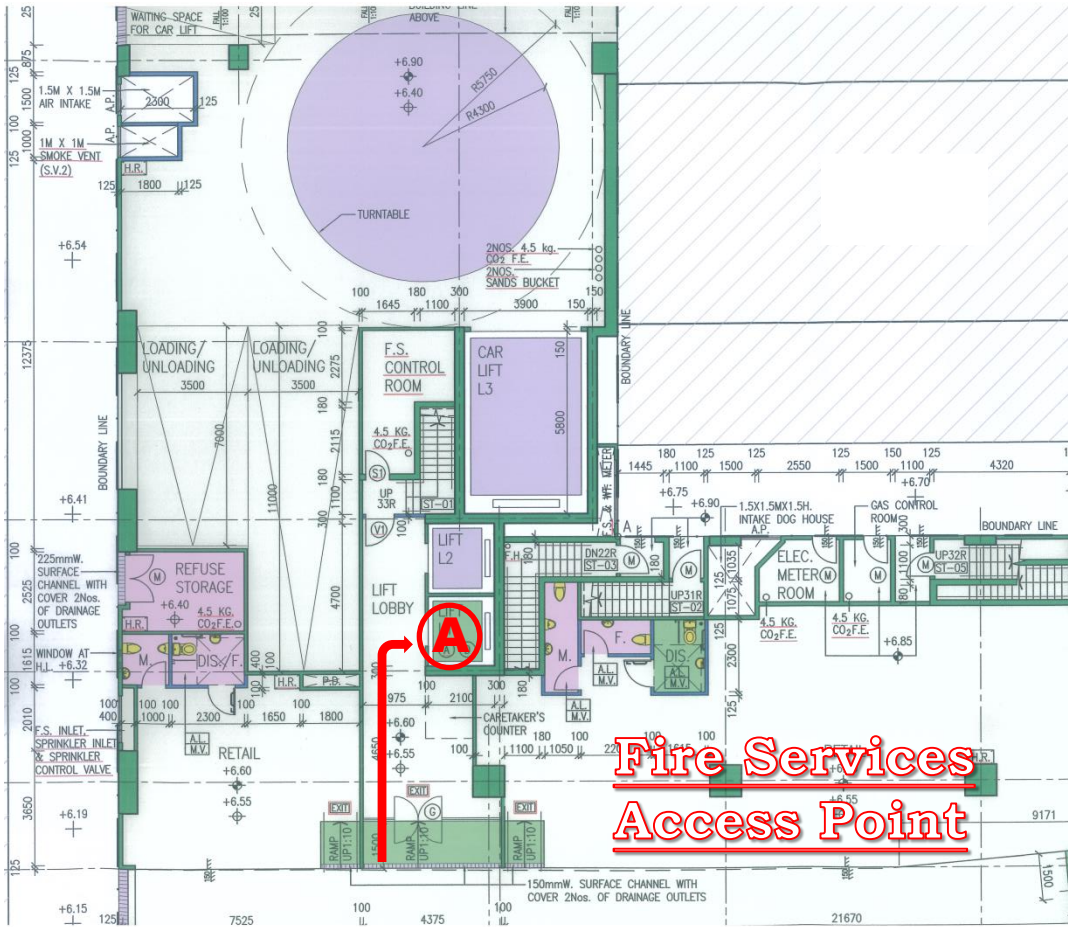
## (iv) Locations of FSI





# Information required in the building plans submission stage

## (v) Provisions of Means of Access (BD's jurisdiction)



E.V.A. DIAGRAM FOR TYPICAL (7/F-22/F)

DEMONSTRATION OF TOTAL LENGTH OF PERIMETER OF BUILDING AT TYP FLOOR  
 = 17.075 + 21.475 + 17.075 + 21.475  
 = 77.100 m

DEMONSTRATION OF PERIMETER OF TYPICAL FLOOR  
 10M OF E.V.A.  
 = 12.600 + 10.200 = 22.800  
 = 22.800 / 77.100 x 100% = 29.572% > 25%

**EVA Plans**

# Types of licensed / registered premises with fire safety requirements



## Food Premises

- Restaurant
- Factory Canteen
- Food Factory / Bakery
- Karaoke Establishment in Restaurant



## Places of Public Entertainment (PPE)

- Cinema
- Theatre
- Public Skating Rinks
- Public Bowling Alleys
- Massage Establishment
- Club



## School Premises

- Designed School
- Non-Designed School Premises
- Child Care Centre
- Kindergarten

# Types of licensed / registered premises with fire safety requirements



## Dangerous Goods

- Fuel Tank Room
- Petrol Filling Stations
- DG Stores



## Hotels Guesthouses

- Holiday camps
- Purpose built hotels
- Tourist guesthouses

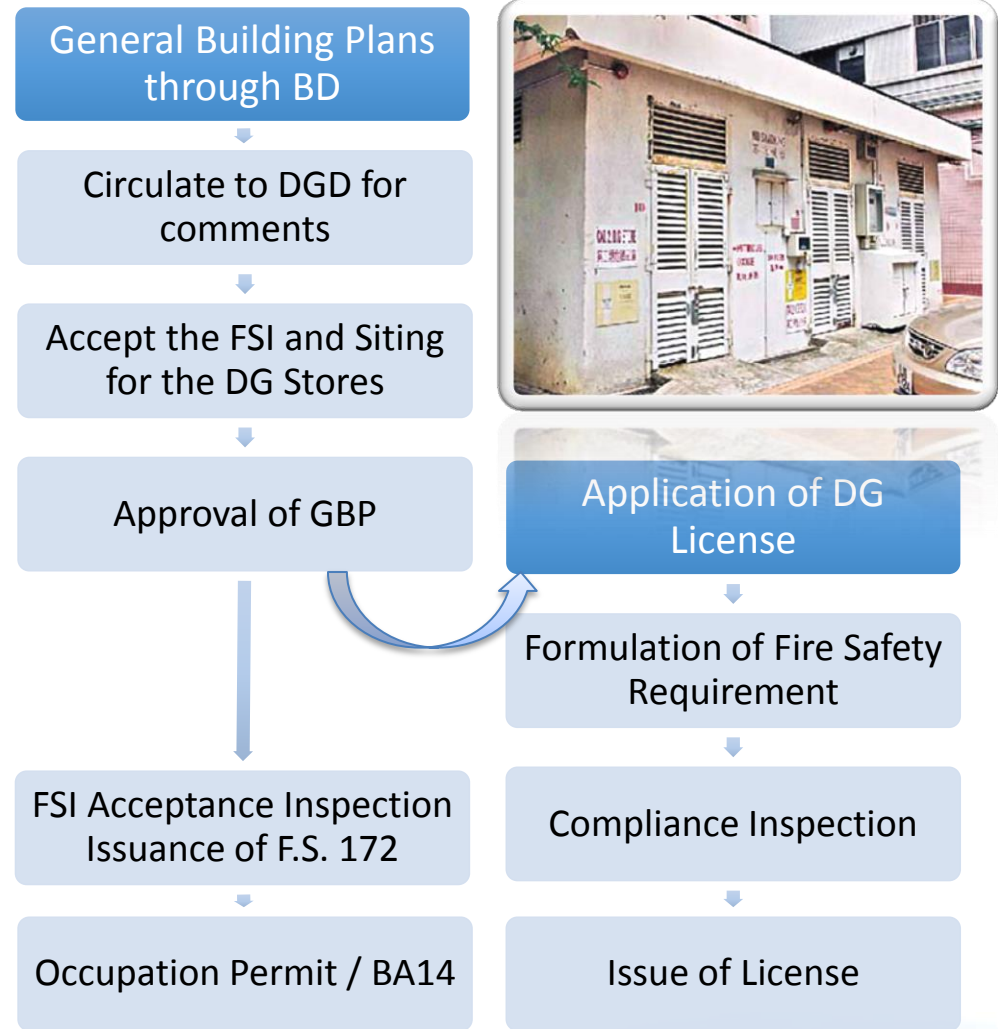


## Residential Care Homes

- Residential care home for the elderly
- Residential care homes for persons with disabilities

# Dangerous Goods Stores

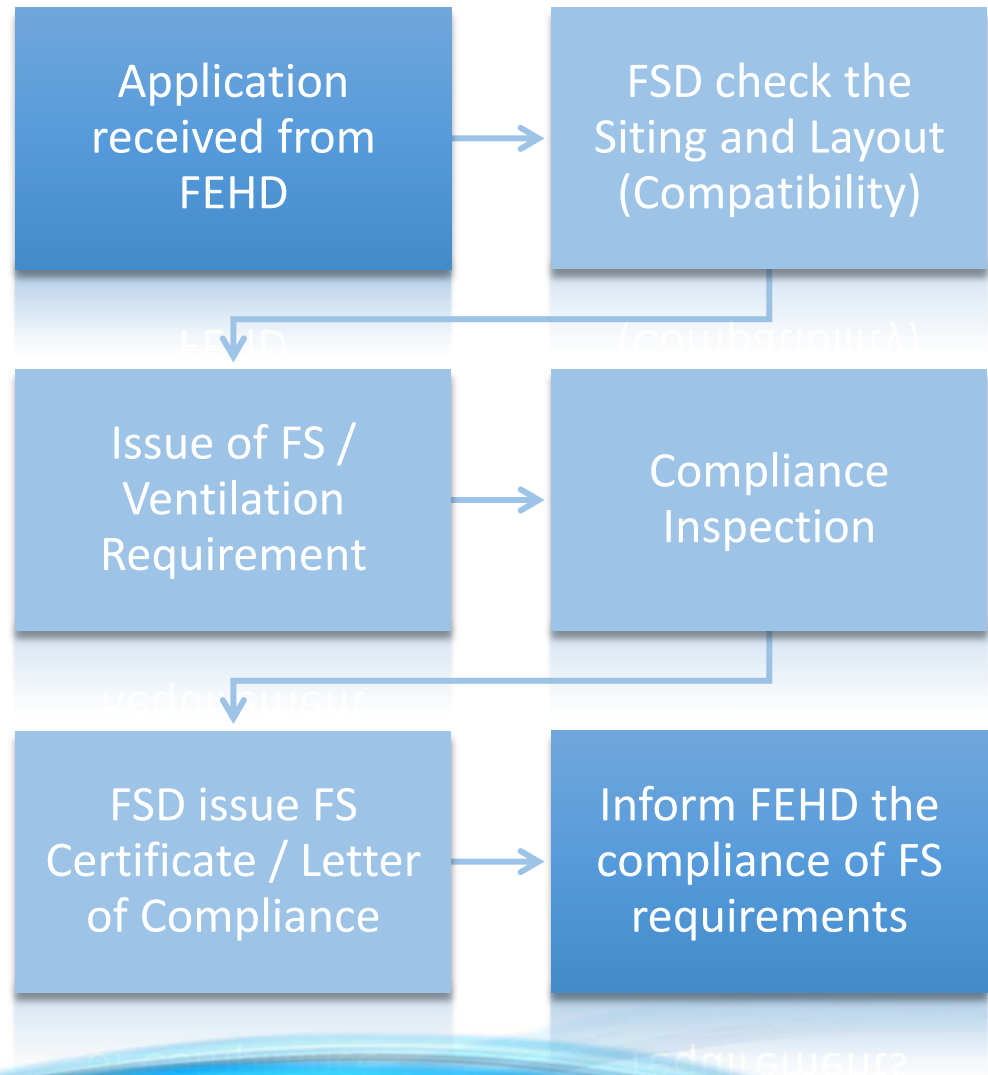
- ❖ Licensing Authority : FSD
- ❖ Dangerous Goods Division
- ❖ Cat. 2 to 10 Dangerous Goods excluding Liquefied Petroleum Gas
- ❖ Cap. 295 DANGEROUS GOODS ORDINANCE

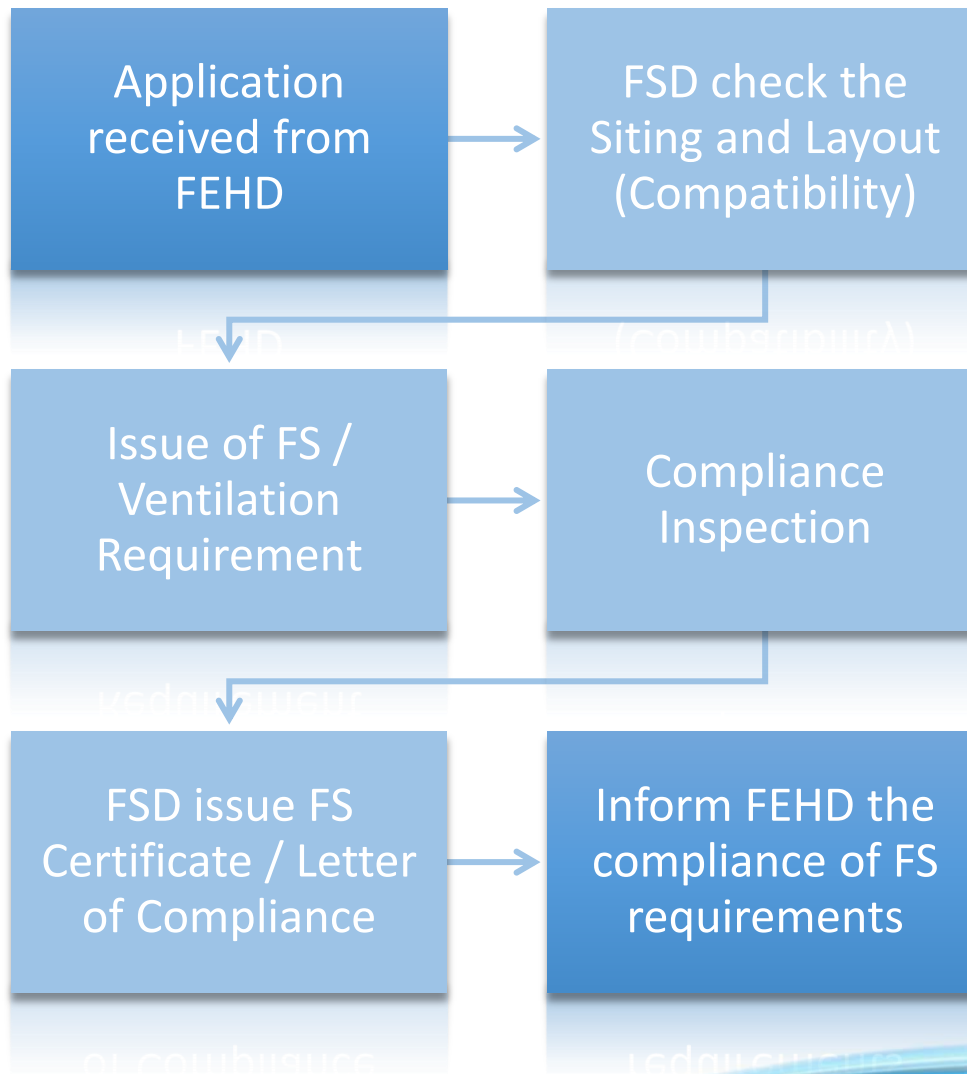




## Food Premises

- ❖ Licensing Authority : the Food and Environmental Hygiene Department (FEHD)
- ❖ Regional Offices:
  - i. Hong Kong and Kowloon West
  - ii. New Territories and Kowloon East
- ❖ Cap 132X Food Business Regulation – Section 33B  
*“No licence shall be granted by the Director under section 31 unless the applicant for such licence produces to the Director a certificate from the Director of Fire Services...”*





# Places of Public Entertainment

- ❖ Licensing Authority : the Food and Environmental Hygiene Department (FEHD)
- ❖ Regional Offices:
  - i. Hong Kong and Kowloon West
  - ii. New Territories and Kowloon East
- ❖ Cap 172A Place of Public Entertainment Regulations – Regulation 3 “Licences”



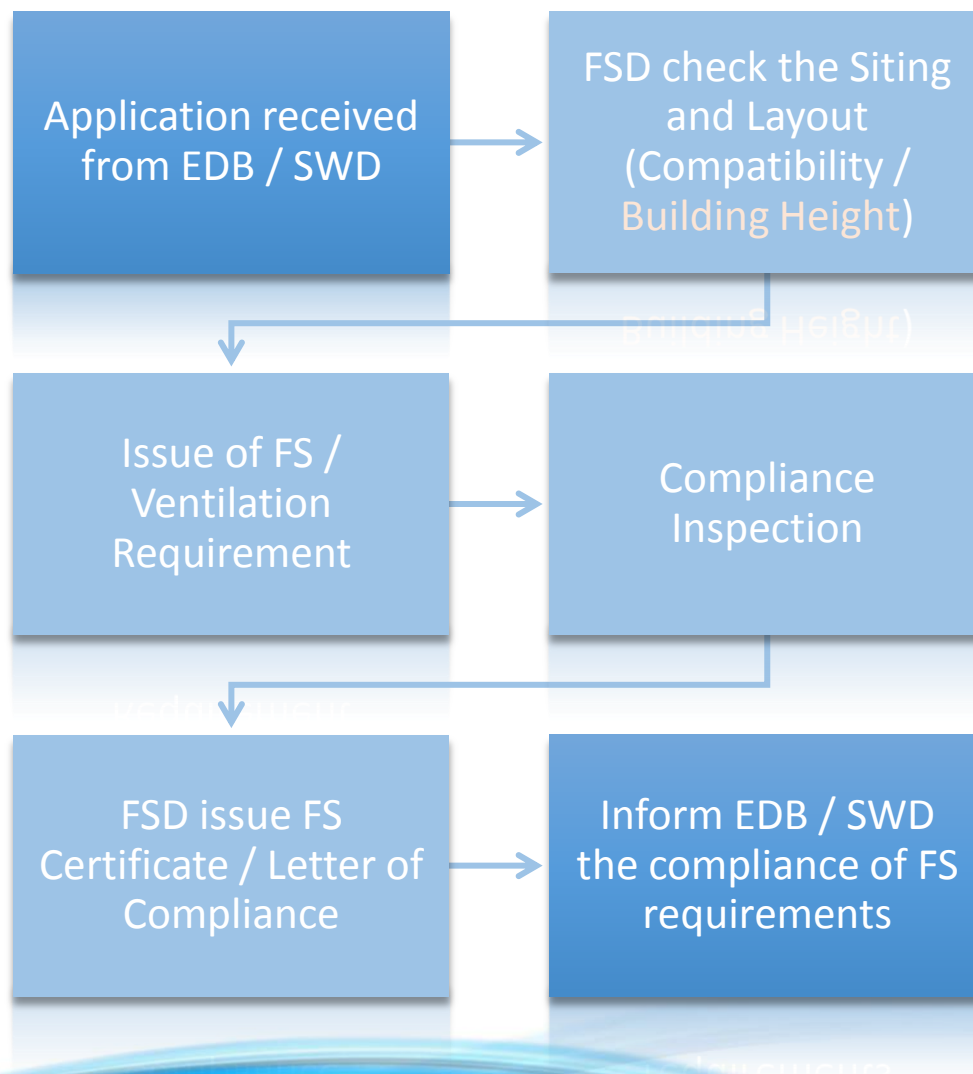
# School Premises



教育局  
Education Bureau



- ❖ Licensing Authorities :
  - i. **Schools**  
Education Bureau (EDB)
  - ii. **Child Care Centre**  
Social Welfare Department (SWD)
- ❖ Regional Offices:
  - i. Hong Kong and Kowloon West
  - ii. New Territories and Kowloon East
- ❖ Cap 279A Education Regulations
- ❖ Cap 243 Child Care Services Ordinance



# Other Licensed / Registered Premises with Fire Safety requirements

## Hotels & Guesthouses

- Home Affairs Department
- Office of the Licensing Authority (LA)
- Cap. 349 Hotel and Guesthouse Accommodation Ordinance



## Residential Care Home for the Elderly

- Social Welfare Department
- Licensing Office of Residential Care Homes for the Elderly (LORCHE)
- Cap. 459 Residential Care Homes (Elderly Persons) Ordinance



## Residential Care Home for Persons with Disabilities

- Social Welfare Department
- Licensing Office of Residential Care Homes for Persons with Disabilities (LORCHD)
- Cap. 613 Residential Care Homes (Persons with Disabilities) Ordinance





# Considerations of FSD for Licensed Premises



Type	Responsible Department	Consideration by FSD
Food Premises / PPE	FEHD	FSI, Compatibility of Occupancy, accessibility, etc.
Clubs	HAD	FSI, Compatibility of Occupancy, accessibility, etc.
Schools	ED	Height (30m), Co-existence with premises of another nature, FSI, Compatibility of Occupancy, accessibility, etc.
Child Care Centre	SWD	Height (12m), Co-existence with premises of another nature, FSI, Compatibility of Occupancy, accessibility, etc.

# Considerations of FSD for Licensed Premises



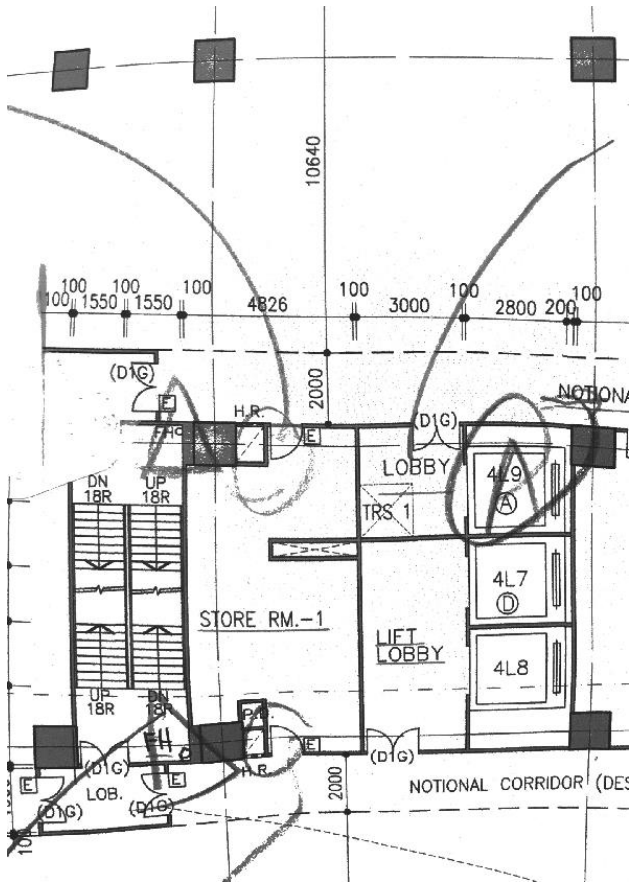
Type	Responsible Department	Consideration by FSD
Dangerous Goods Store	FSD	MoE, EVA, FSI, ventilation, FRP, etc.
Guest Houses / Hotel	HAD	FSI, Compatibility of Occupancy, accessibility, etc.
Residential Care Home for the Elderly / Person with Disability	SWD	Height (24m), Co-existence with premises of another nature, FSI, Compatibility of Occupancy, accessibility, etc.

# Common issues encountered



## Means of Access:

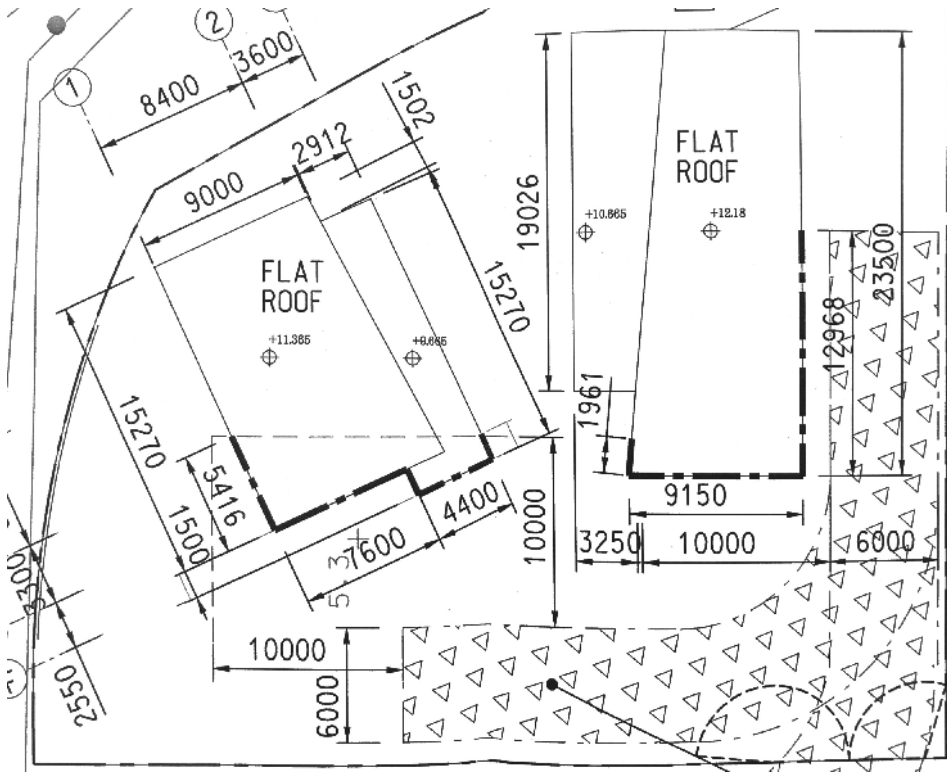
- Lobby to a fireman's lift does not have a protected access to an exit route
- Width of FSAP < 1.5m
- FSAP closed with doors or gates not readily openable without the use of a key
- Actual walking distance from FSAP to the doors of the fireman's lift > 18m
- Pattern of service of fireman's lift is irregular



# Common issues encountered



## EVA:



- Width of EVA < 7.3 m
- Omission of emergency crash gates
- EVA specification not shown
- Façade served by EVA was not calculated floor by floor
- EVA calculation not correct

# Common issues encountered



## **EVA: PNAP APP-136**

Re-issued under new categorization in August 2009 as Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers		<b>APP-136</b>
<b>Buildings Department</b>	<b>Practice Note for Authorized Persons and Registered Structural Engineers</b>	<b>288</b>
<b>Building (Planning) Regulation 41D Emergency Vehicular Access</b>		

- Extend and alignment of EVA (to be clearly marked as EVA on plan and be so coloured)
- Width, inner/outer turning radii, loading capacity and gradient
- Location of all types of EVA signage and crash gate
- If there is overhead , a separate sectional drawing showing the clear headroom of the structure to be incorporated into the EVA plan
- A block plan showing the major façade of the building served by the EVA
- Calculation on the total length of the façade of the building to be served by the EVA and the percentage of such length over the total length of all perimeter walls of the building
- Use of paving materials other than hard paving

# Problems in FSI Provisions



## Water supply:

- FS Notes:- Street Fire Hydrant System shall be provided for the development.
  - Pump, Tank & Private SFH (Not from WSD)
- SFH were not 100 m staggered on alternative sides along EVA
- Distance between nearest SFH and the far most FS inlet **>100 m** (measured by hose laying distance)
- Location of SFH pump was not shown
- Size of **a single SFH tank**  $< 245 \text{ m}^3$



# Problems in FSI Provisions



## **Fire Hydrant/Hose Reel system (FH/HR):**

- Fire hydrants - not provided to every s/c
- Hose reel – insufficient coverage
- FS tank - undersized
- Inlet – not in a prominent position
- Tank size in FS Notes not tally with tank size shown in plans
- Share use of system
- Standard missing (FSD Circular Letter 2/2013)



# Problems in FSI Provisions



## **Sprinkler system:**

- Incomplete standard (LPC Rules incorporating BS EN 12845:2003 and the FSD Circular Letter 3/2006 & 3/2012)
- Inappropriate tank size and hazard group
- Reduced tank size but NO direct link to FSCC
- FRT sprinkler are not provided in B/F
- Tank size in FS Notes not tally with tank size shown in plans
- No pre-approval for alternative provisions, e.g.:
  - Improvised sprinkler
  - Omission of sprinkler in floor/ceiling void





# Problems in FSI Provisions



## Fire detection system:

- Incomplete standard (BS 5839 Part 1:2002 + A2:2008 and the FSD Circular Letter 1/2009, 3/2010 & 2/2012)
- Panel location - not indicated on plans



# Problems in FSI Provisions



## Other FSIs:

- Emergency lighting
  - throughout the entire building and all exit routes leading to ground level in accordance with **BS 5266: Part 1 and BS EN 1838**
- Exit sign
  - ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building in accordance with **FSD Circular Letter 5/2008**
- Fire Control Centre
  - F.S. Control Room
  - Location not at the main building entrance



# Problems in FSI Provisions



## Other FSIs (Con't):

- Smoke extraction system
  - reason for non-provision not tally with the fact
    - Fire compartment less than 7,000m<sup>3</sup>
    - Openable windows > 6.25% of the floor area
    - the designed fire load - Low, e.g. office, school, etc.
- Staircase Pressurization
  - standard missing (BS 5588: Part 4 1998)
  - reason for non-provision not tally with the fact
    - natural venting of staircase (BS 5588: Part 5 1991)
    - Openable windows > 6.25% of the floor area
    - the designed fire load of the building is low, e.g. NO shops, restaurant, loading/unloading area



# FS notes Standardization



## **FS Notes:**

### ***Clear***

- 3 nos. of FH/HR system shall be provided to the entire development
- (1 no. for Tower A, 1 no. for Tower 2 & 1 no. for Podium Floor)

### ***Logical***

- No Fire Detection System shall be provided for the domestic towers
- Fire detectors shall be provided for domestic units with open kitchen

### ***Simple***

- No redundant statement
- FH/HR system shall be provided in accordance with CoP
- Fixed fire pumps for FH/HR shall be of 450 l/min at a running pressure of not less than 350kPa

**(CLS)**

# FS notes Standardization



## FS Notes:

- 1. *System***
- 2. *Standard***
- 3. *Location***
- 4. *Layout plan***

**(S.S.L.L.)**

# FS notes Standardization



## Sprinkler System

An automatic sprinkler system (S) shall be provided in accordance with the LPC Rules incorporating BS EN 12845:2003 and the FSD Circular Letter 3/2006 & 3/2012 (S) in all parts of the buildings including staircases, common corridors and toilets except E&M plant rooms and areas approved by FSD in letter ref. (XX) in FP 8/XXXXX dated XX.XX.XXXX (L)

(L) – Spr Tank, Pump, Inlets, etc.

- Hazard group
- Tank size
- Direct telephone line to FSCC



# FS notes Standardization



## Fire Hydrant/Hose Reel System

Fire Hydrant/Hose Reel System (S) shall be provided in accordance FSD CoP and FSD Circular Letter 2/2013 (S) for the entire building (L)

(L) - FS Tank, Pump, Inlets, etc.

- Tank size
- Intermediate booster pump

# FS notes Standardization



## Fire Detection System

Fire detection system (S) shall be provided in accordance with BS 5839 Part 1:2002 + A2:2008 and the FSD Circular Letter 1/2009, 3/2010 & 2/2012 (S) for all E&M plant rooms and in areas not covered by automatic fixed installations except areas approved by FSD in letter ref. (XX) in FP 8/XXXXX dated XX.XX.XXXX (L)

**(L) – Panel location**

- Direct telephone line to FSCC





# FS notes Standardization



## Smoke Extraction System (Non-provision)

Smoke extraction system **shall NOT be provided** to \*compartment \_\_\_\_\_ as

- \*compartment of the atrium does not exceed 28,000 m<sup>3</sup> /
- fire compartment does not exceed 7,000 m<sup>3</sup> /
- openable windows > 6.25% of the floor area of that compartment



**Tally with plans and facts**

# Measures to increase efficiency



- Submit GBP (up to FSD standard)
  - Avoid lots of amendments in GBP since PO often needs to sacrifice extra plan processing time to advise and review AP's amendments
- Highlight all the amendments in the amended plans
- Avoid submission of redundant enquiries (e.g. Pre GBP submission enquiry)





# Fire Engineering Approach (FEA)

# Fire Engineering Approach



## Fire Safety Solution

- Scientific and engineering principles
- Rules
- Expert judgment



## Based on

- Phenomena and effects of fire
- Reaction and behaviour of people to fire



# Fire Engineering Approach



## Adopted when:

Genuine difficulty in code compliance



Re-issued under new categorization in August 2009 as Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers APP-87

Buildings Department Practice Note for Authorized Persons and Registered Structural Engineers 204

## Difficulties

- Building size
- Usage
- Complexity
- Location

### Guide to Fire Engineering Approach

This practice note provides guidance on fire engineering approach for the design of new buildings or alteration and addition works in existing buildings to meet the fire safety objectives and performance requirements of Building (Construction) Regulation 90, Building (Planning) Regulations 41, 41A, 41B & 41C and as an alternative to the prescriptive requirements set out in the three Codes of Practice for Means of Escape, Means of Access for Firefighting and Rescue and Fire Resisting Construction, covering fire safety in buildings.

#### Objectives

2. Fire engineering design offers a flexible alternative where it is impracticable to comply with prescriptive provisions in the Codes, especially when designing for special or large and complex buildings or alteration and addition works in existing buildings. The aim is to provide for an overall level of safety that is equivalent to that which would result if fire safety was achieved through full compliance with the prescriptive provisions of the relevant codes of practice. The acceptability of fire engineering approach is recognised in paragraph 3 of the Codes. Fire engineering design provides a framework for practitioners to demonstrate that the performance requirements of legislation are met, or in some cases bettered, even though some of the design solutions adopted fall outside or short of the prescriptive provisions in the Codes when additional fire safety measures are proposed to compensate for the deviation or shortfall.

3. To achieve this objective it is important to understand the performance requirements and the prescriptive provisions that are required as a minimum to comply with the legislation. If the design being considered is not substantially different from the prescriptive provisions or can be readily accommodated by adopting conservative assumptions, it may simply be a case of demonstrating like-for-like substitution or "equivalence" with prescriptive provisions and fire safety objectives without having to embark on a full fire safety strategy. However, practical test may be required where necessary to demonstrate the equivalence by practitioners.

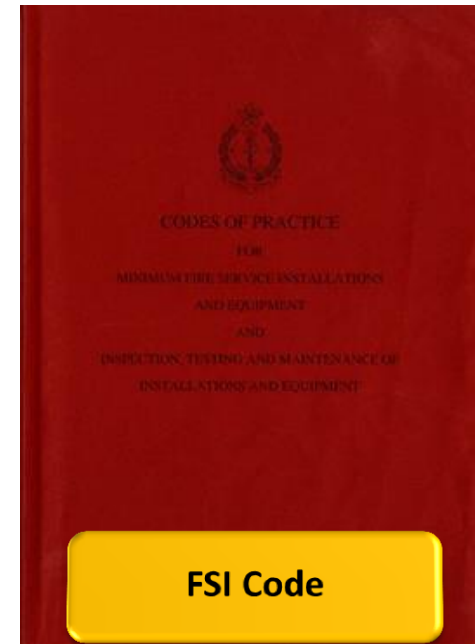
# Fire Engineering Approach



## Para 1.3

### Discretionary powers of the Director of Fire Services

For buildings of special designs or hazards which necessitate special considerations, the Director of Fire Services may accept, on a case by case basis, **fire engineering approach** as an alternative to the prescriptive provisions provided that the fire engineering approach **shall not** provide a level of safety **inferior to** that provided by **prescriptive requirements**.

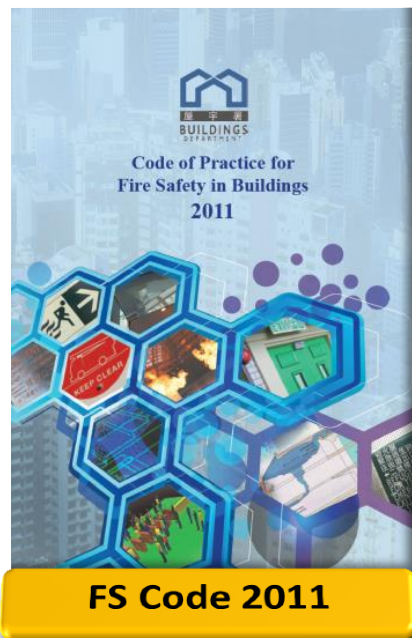


# Fire Engineering Approach



## 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 Models
- Section 10 – References



# Fire Engineering Approach



## Fire Safety Committee



### Composition

#### Chairman

AD/NB1, Buildings Department

#### Official Members

- Case Officer CBS/NBD1, BD
- Non-case Officer CBS/NBD1, BD (on rotational basis)
- Non-NBD1 CBS CBS from other divisions (on rotational basis)
- CSE CSE/NBD2, BD (on rotational basis)
- **SDO(NP)**

#### Non-official members (on rotational basis)

- Authorized person
- Fire safety practitioner
- Fire safety expert from academia

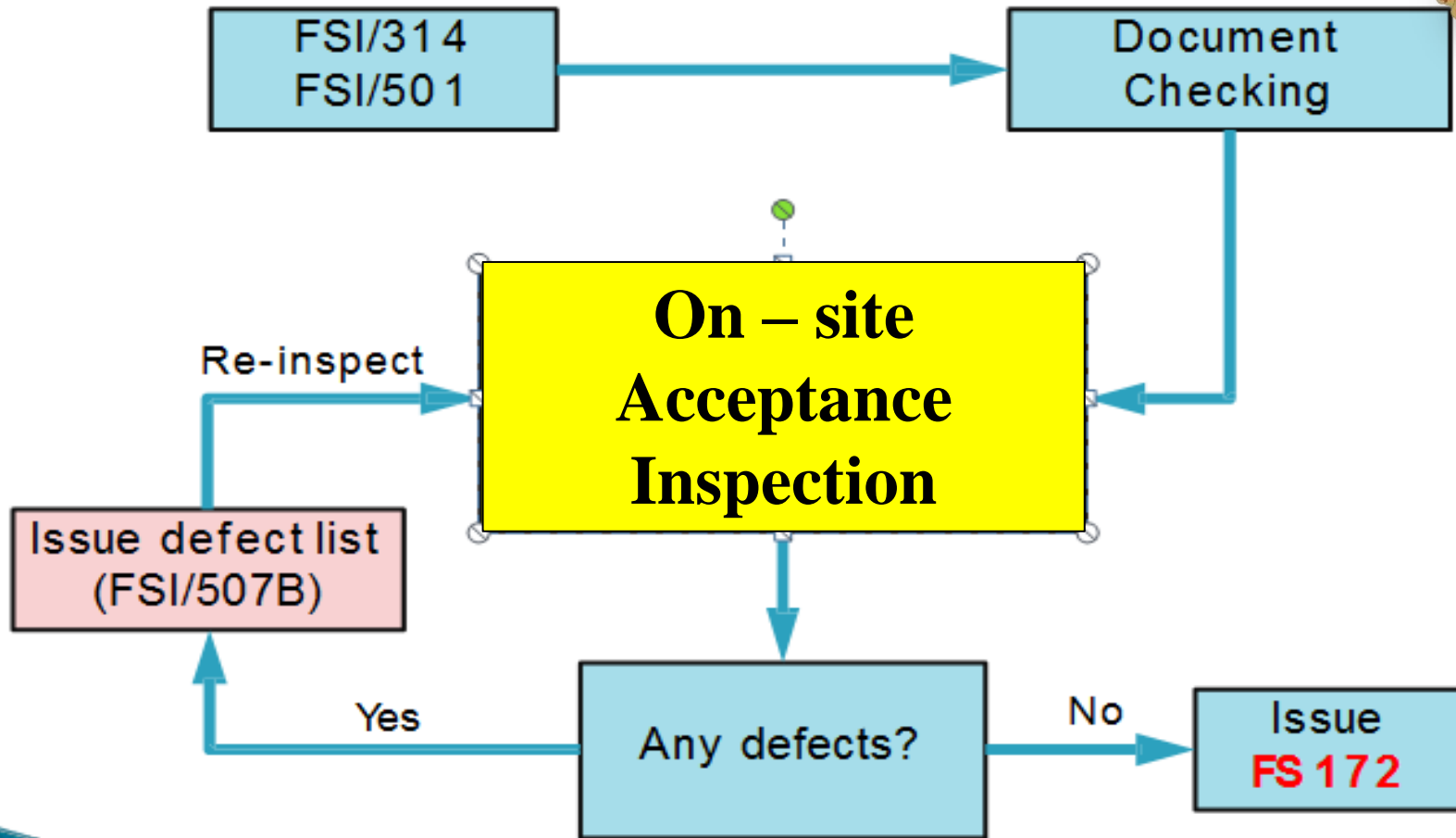


# Fire Engineering Approach



Section 2, Part F of *CoP for Fire Safety in Building 2011*  
Changes in **GBP** may need corresponding adjustment of approved **FER** as well as **FSMP** and vice versa.

# Acceptance Inspection of FSIs



# Acceptance Inspection of FSIs



## FSD Circular Letter No. 1/2005

- Form FSI/501: Application Form
- Form FSI/314 with 2 sets of as-fitted FSI layout\*
- Testing and Commissioning (T&C) Checklists
- FSIs Equipment List & relevant supporting document

\* Smoke Control Systems required prior approval

# Acceptance Inspection of FSIs



## Application for Acceptance Inspection

Years	FSI/501	No.	%
2016	received	560	-
	rejected	<b>184</b>	33
	withdrawn	62	11
2017*	received	508	-
	rejected	<b>137</b>	27
	withdrawn	68	13

# Acceptance Inspection of FSIs



Items	2016		2017	
	No.	%	No.	%
Incomplete / Mistakenly-filled Form	85	46	64	47
Outstanding/Incomplete T&C Checklist	73	40	54	39
Outstanding/Incomplete Equipment List or Supporting Documents	26	14	19	14
Total:	184	-	137	-

# Acceptance Inspection of FSIs



## Incomplete/Mistakenly-filled Form

- FSIs System not listed out/specified
- No approved GBP date
- Missing the name of AP/RFSIC
- AP signature date earlier than FSI completion date
- The date of GBP not tally with approved one
- Not an original signature

# Acceptance Inspection of FSIs



## Outstanding/Incomplete T&C Checklists

- Actuation Devices & Operation of Fire Shutter
- CO2/Clean Agent Extinguishing System
- Emergency Generator Installation
- Fire Detection and Fire Alarm System
- Fire Hydrant and Hose Reel System
- Staircase Pressurization System
- Street Fire Hydrant System

# Acceptance Inspection of FSIs



## Outstanding/Incomplete Equipment List or Supporting Documents

- Without signature on the list
- Missing information of systems or equipment
- Non-FSI load to emergency generator
- Approval of fuel tank room
- Insufficient FSI plans



# Acceptance Inspection of FSIs



## Factors making Acceptance Inspection/Functional Test **IMPOSSIBLE**

- Electricity power supply for FSIs unavailable
- Water for water-based FSIs unavailable\*
- Incomplete installation of FSIs
- Numerous defects of FSIs
- Incomplete building works
- Temporary structures

\* Functional test continues if temporary water supply available

# Acceptance Inspection of FSIs



**Incomplete  
Pipework of  
Sprinkler**



# Acceptance Inspection of FSIs



**Blockage of  
Sprinkler head**



# Acceptance Inspection of FSIs



**Improper Installation of FSIs**



# Acceptance Inspection of FSIs



**Improper Installation of  
Emergency Lighting**

# Acceptance Inspection of FSIs



- **Discrepancies** noted :
  - Issue Inspection report
  - List all the defective/ outstanding items for rectifications/ clarifications
  - Re-inspection
- **First-come, first-served ASAP**

SAMPLE

FSI/507B-1 (7/2007)

**Fire Service Department / Fire Protection Command**

File No. 19/XXXXX

Initial / Re-inspection Report on Fire Service Installation / VAC Control System /  
Smoke Extraction System / Pressurization of Staircase System Inspection and Testing

**Part I**

1. Building Address : \_\_\_\_\_XX

2. Inspection Result : (Defects noted by Inspecting Officer) :-

2.1 DTL is not connected.

2.2 Construction notes of building name is not submitted.

2.3 Construction notes of Address & building Description is not submitted.

2.4 Underlying notes of VAC system (RFP to owner) is not submitted.

2.5 Appointment of FSI equipment list is required.

2.6 Appointment of FSI checklist is required.

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Remark : AP/AP representative is confirmed that no lining material (F.S. notes 7.1 & 7.2) is installed in this project.  
to be continued (Total 1 Sheets including this one)

3. A letter / memo confirming the above defects will / will not be sent

Signature : \_\_\_\_\_  
Inspecting Officer : XXX XXX XXX  
Date : XX / 19 / XXXX

**Part II**

4. I confirm that the defects as stated above have been brought to my attention

Authorized person (or representative) <u>XXX XXX XXX</u> Signature _____ Dated <u>XX / 19 / XXXX</u>	Installation Contractor (or representative) <u>XXX XXX XXX</u> Signature _____ Dated <u>XX / 19 / XXXX</u>
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Note : Appointment for re-inspection should be made by AP by telephone to the Senior Building Services Inspector (telephone no. 2733 7549) after the above defects have been remedied. Fresh application for inspection (FSI/501) is not necessary unless it is so required in a refusal letter / memo.  
If you have found the inspection report unjustified or wish to appeal any points made in this report, please contact Fire Staff Officer of Licensing and Certification Command at Telephone no. 2733 7605.

Thank  
You

