



FSD CONNECTS WITH THE CONSTRUCTION INDUSTRY

Experience Sharing on Fire Safety of Buildings,
Acceptance Inspection, Maintenance and Product
Approval of FSI

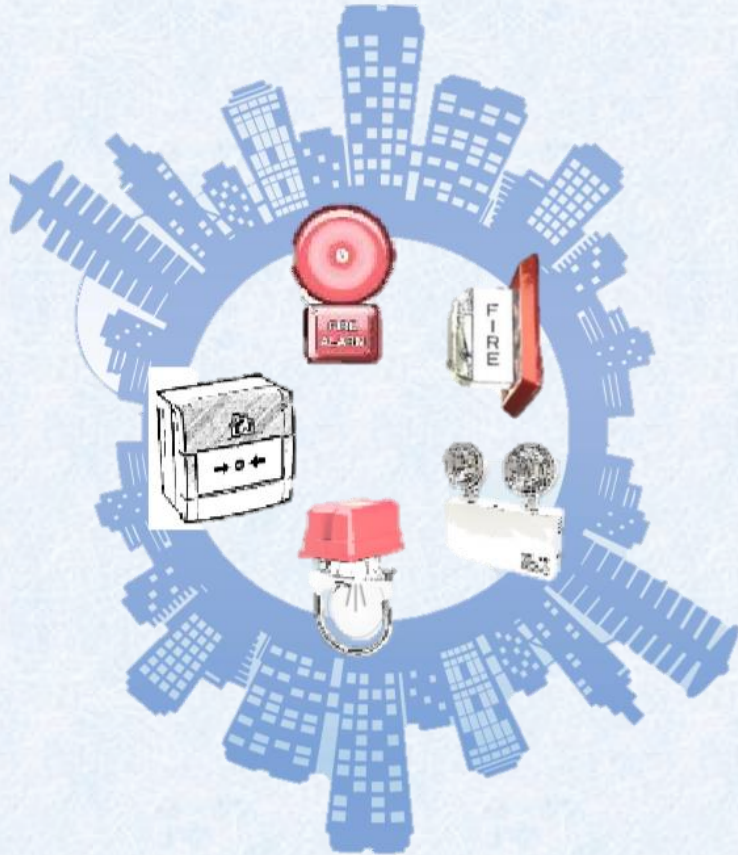
17th July 2020

Welcoming Address



**Assistant Director
(Licensing and Certification)
Ir LEUNG Kwun-hong, FSDSM**

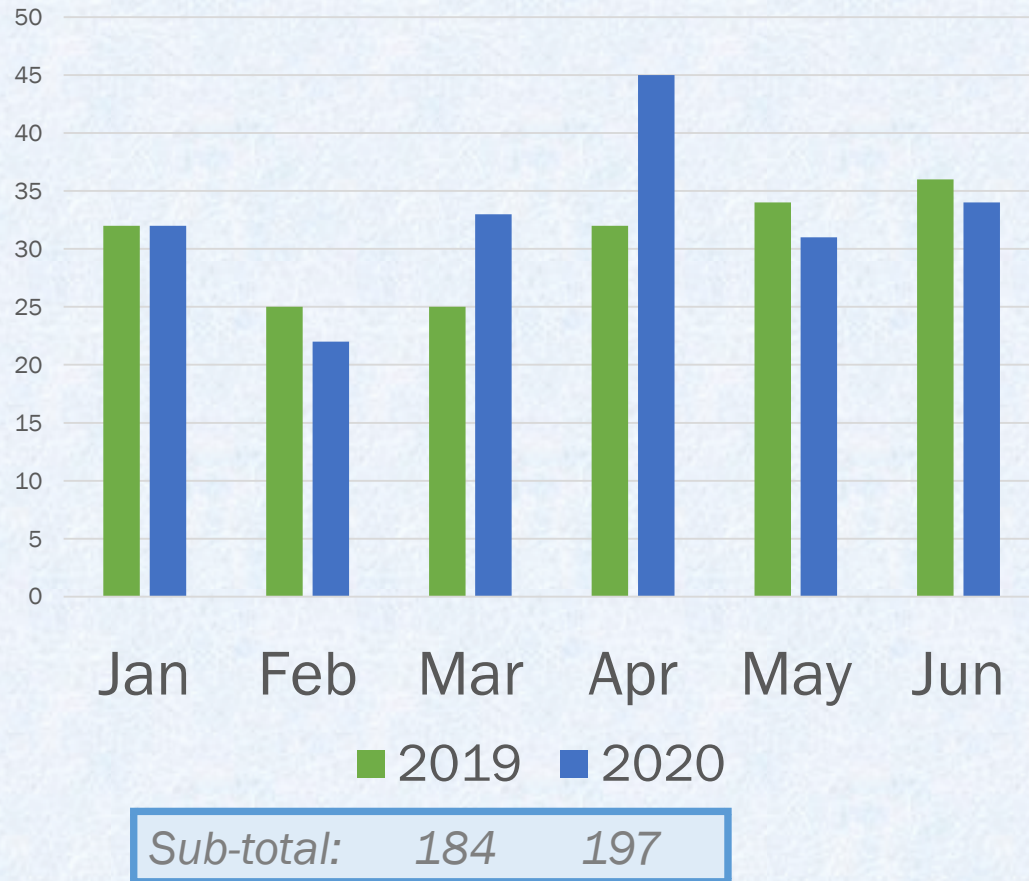
OBJECTIVES



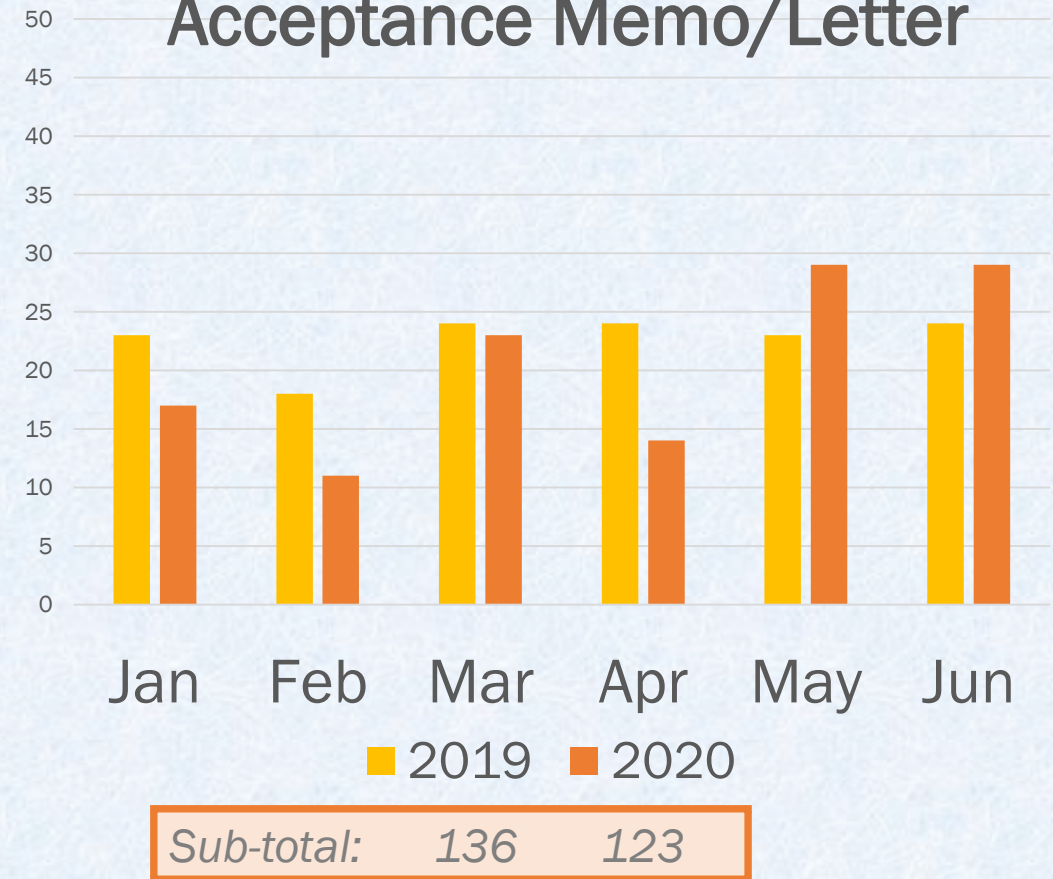
- Facilitate the trade in meeting the standards of fire safety design and FSI in buildings
- Foster swift processing of GBP and efficient acceptance inspection of FSI
- Strengthen connectivity, collaboration and partnership with the trade

First Half Year of 2020

Form FSI/501 Submitted



Issuance of F.S.172 & Acceptance Memo/Letter



Year of 2020

- **FSD Circular Letter No. 1/2020**

Revised Application Procedure for Inspection and Testing of Fire Service Installations and Equipment in New Building

- **FSD Circular Letter No. 2/2020**

Annual Inspection Checklists for Fire Hydrant/Hose Reel Systems and Supply Tanks Chinese Version

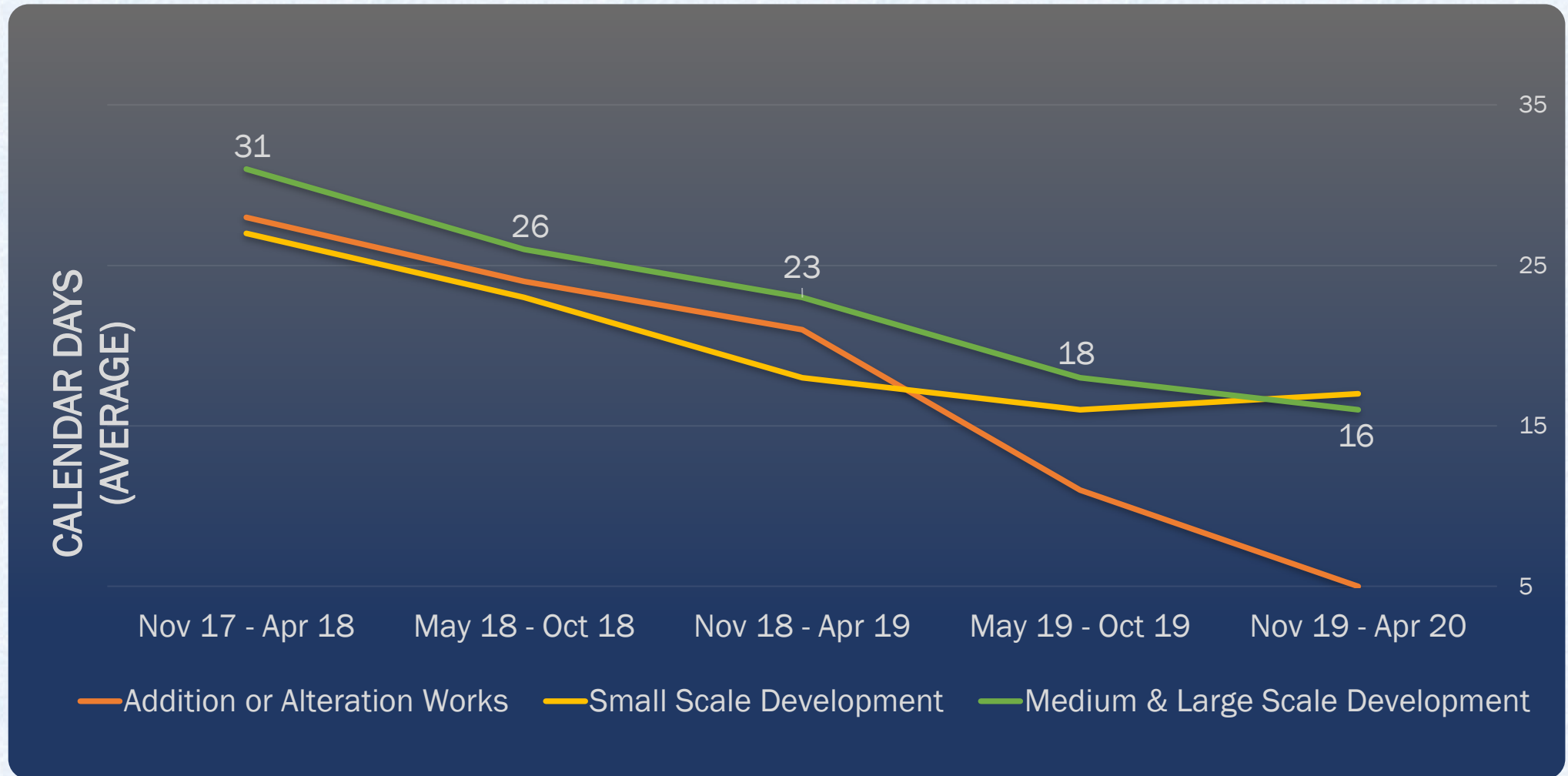
- **Advisory Letter dated 3.7.2020**

Temporary Measure for Making Minor Amendments to FSI Plans subsequent to FSI Acceptance Inspection of New Buildings

- **FSD Circular Letter No. 3/2020**

Facilitation Measures of Application for Approval of Portable Equipment and Acceptance of Fire Service Installations and Equipment (FSIs) and Fire Safety Products

Document Checking - Duration



*Cases **without** the need of re-inspection

Agenda of Today

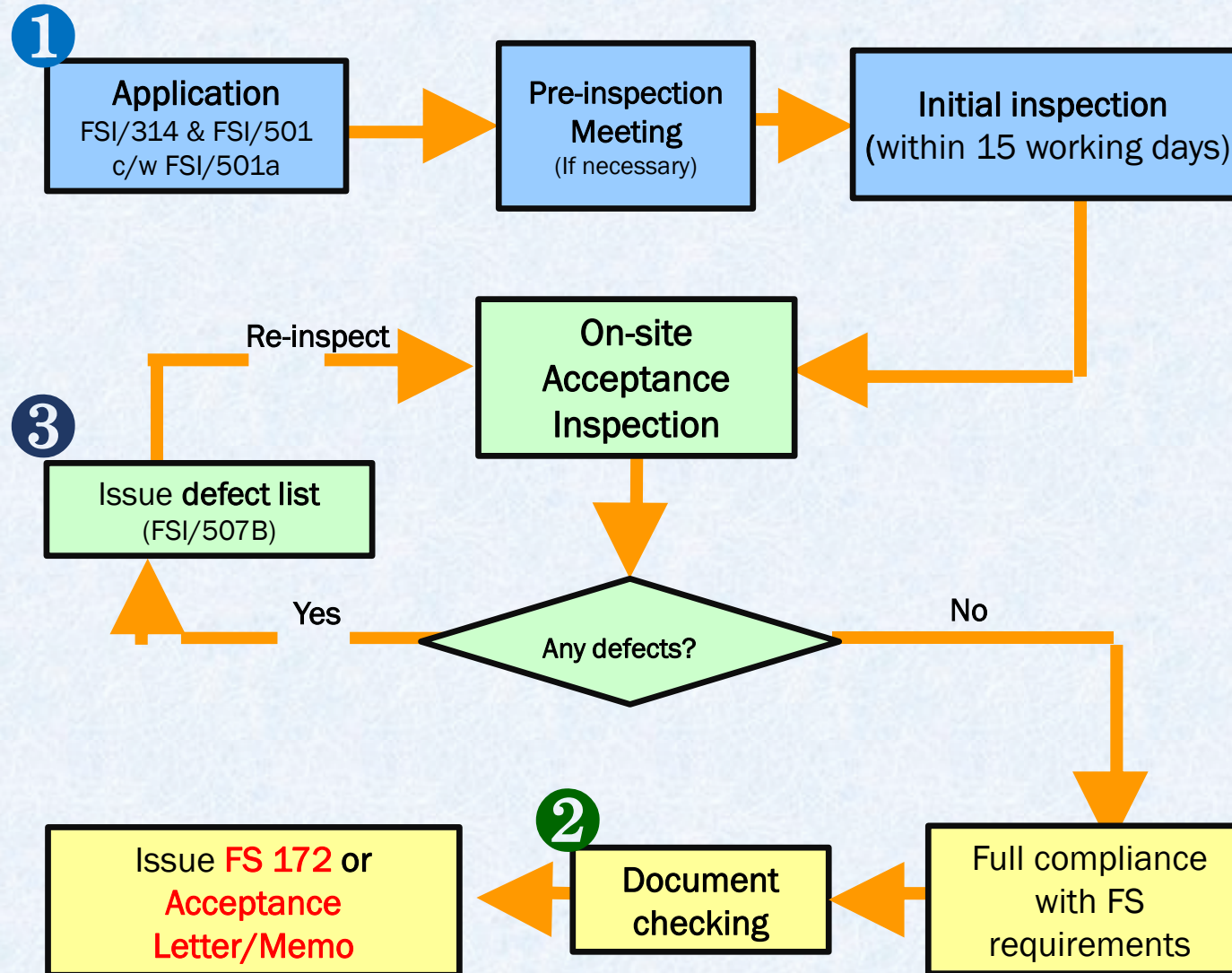
1	FSI Acceptance Inspection & Case Sharing	Engr CHAN Wai-lam FSID/LC
2	Annual Inspection Checklists on Sprinkler System	ADO LAW Ka-yan FSITF/LC
3	Electrical Installations for Electric Vehicle	ADO LEE Yat-ching NP/FS
4	Approval of Portable Equipment / Acceptance of FSI Products	SStnO YAM Ka-wang Pol/LC
5	Introduction of Best Practice for Design, Installation, Acceptance and Maintenance of FSI	SStnO CHOI Wing-yiu FSITF/LC
6	Fire Safety (Industrial Buildings) Ordinance Cap 636	ADO YEUNG Chi-yung Sup/FS
7	Q & A	DCFO WONG Chun-yip

Experience sharing on FSI Acceptance Inspection & Case Sharing

Engineer(FSI)
Ir CHAN Wai-lam, Kelly

Today's Sharing ...

- ① Analysis of the revised application procedure
- ② Facilitation measure for Document Submission
- ③ Case sharing on irregularities



FSI/501
APPLICATION

ON-SITE INSPECTION

DOCUMENT
CHECKING

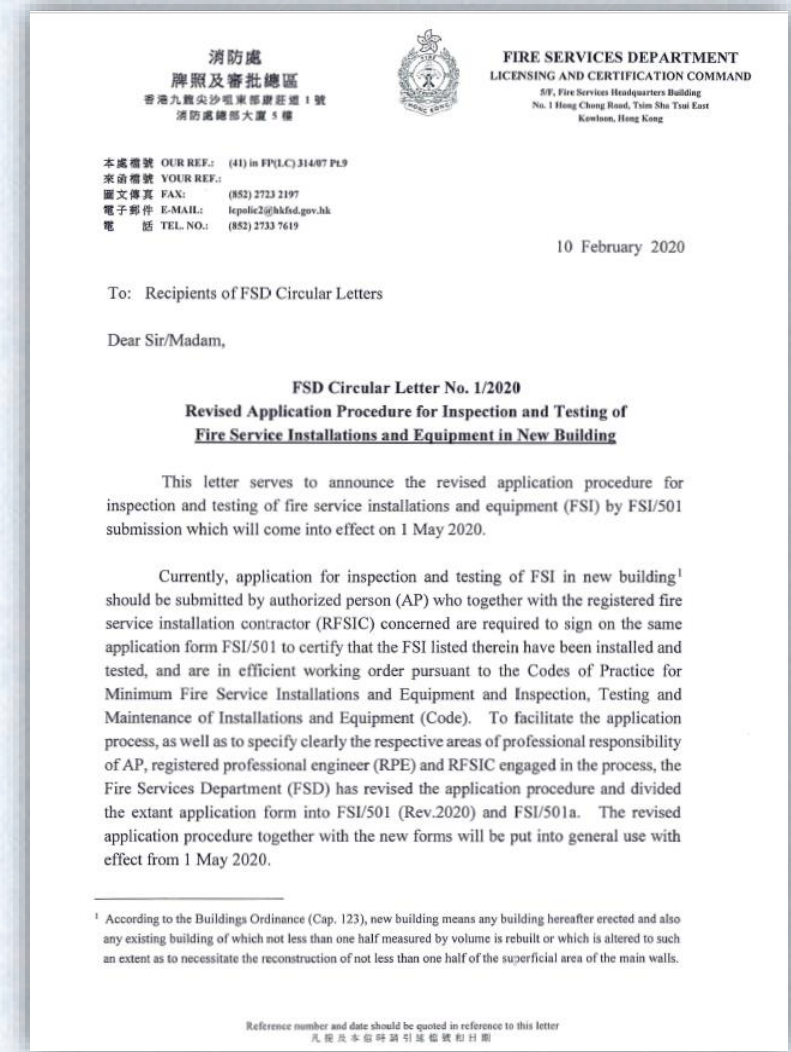
Analysis of the Revised Application Procedure

Revised Application Procedures for FSI Acceptance Inspection

- FSD Circular Letter No.1/2020
- Effective on 1 May 2020
- Introduced on 25.3.2020 via Webinar



FSD Webinar on
25.3.2020



FSI/501

Section 21(6)(d) of the Buildings Ordinance (Cap. 123)
Application for Inspection and Testing of Fire Service Installations and Equipment

FP Ref. No. *8/43/_____ *19/20/43/_____

Types of Fire Service Installations and Equipment:

- | | | |
|--|--|--|
| <input type="checkbox"/> Audio/Visual Advisory System | <input type="checkbox"/> Fire Blanket | <input type="checkbox"/> Sand Bucket |
| <input type="checkbox"/> Automatic Actuating Device | <input type="checkbox"/> Fire Control Centre | <input type="checkbox"/> Sprinkler System |
| <input type="checkbox"/> Automatic Fixed Installation other than Water | <input type="checkbox"/> Fire Detection System | <input type="checkbox"/> Static Smoke Extraction System |
| <input type="checkbox"/> Deluge System | <input type="checkbox"/> Fire Hydrant/Hose Reel System* | <input type="checkbox"/> Street Fire Hydrant System |
| <input type="checkbox"/> Drencher System | <input type="checkbox"/> Fixed Automatically Operated Approved Appliance | <input type="checkbox"/> Supply Tank |
| <input type="checkbox"/> Dust Detection System | <input type="checkbox"/> Fixed Foam System | <input type="checkbox"/> Ventilation/Air Conditioning Control System |
| <input type="checkbox"/> Dynamic Smoke Extraction System | <input type="checkbox"/> Gas Detection System | <input type="checkbox"/> Water Mist System |
| <input type="checkbox"/> Emergency Generator | <input type="checkbox"/> Gas Extraction System | <input type="checkbox"/> Water Spray System |
| <input type="checkbox"/> Emergency Lighting | <input type="checkbox"/> Portable Fire Extinguisher | <input type="checkbox"/> Water Supply |
| <input type="checkbox"/> Exit Sign | <input type="checkbox"/> Pressurization of Staircase | <input type="checkbox"/> Others _____ |
| <input type="checkbox"/> Fire Alarm System | <input type="checkbox"/> Ring Main System with Fixed Pump(s) | |

Please tick the appropriate box(es).

Address of Premises

Part A : (to be completed by Registered Professional Engineer (if applicable))

I hereby certify that the *staircase pressurization system(s)/dynamic smoke extraction system(s)/water mist system(s)/other system(s) (please specify) _____ listed above and in the attached FSI/501a, which was/were approved by the Fire Services Department (FSD) on _____ (FSD Ref. No. _____), has/have been installed and tested in accordance with the FSD's requirements. I am satisfied that the above systems are operating in accordance with the approved design and the requirements of the FSD.

Full Name: _____ Discipline: _____

Registered Professional Engineer Number: _____ Date: _____

Signature of Registered Professional Engineer: _____

Part B : (to be completed by Authorized Person)

I hereby certify that:

- the fire service installation(s)/equipment listed above and in the attached FSI/501a has/have been installed in accordance with the approved building plans stamped by the FSD on _____ and is/are ready for inspection;
- Fire Service Completion Advice in respect of fire service installation(s)/equipment requiring government water main connection has been *applied for/issued by the Water Supplies Department (copy *attached/not attached);

* Please delete as appropriate.
FSI/501 (Rev. 2020)

phone service rewire; finance 23)/an correct ion or sional



AP

RPE



FSI/501a

RFSIC Ref. No. RC _/_____-_____
(RFSIC Reg No.) (Submission Date) ()
(yyyyymmdd) ↑

Certificate of Completion of Installation of Fire Service Installations and Equipment in New Buildings (Discrete No. Assigned by RFSIC)

FP Ref. No. *8/43/_____ *19/20/43/_____

Types of Fire Service Installations and Equipment:

- | | | |
|--|--|--|
| <input type="checkbox"/> Audio/Visual Advisory System | <input type="checkbox"/> Fire Blanket | <input type="checkbox"/> Sand Bucket |
| <input type="checkbox"/> Automatic Actuating Device | <input type="checkbox"/> Fire Control Centre | <input type="checkbox"/> Sprinkler System |
| <input type="checkbox"/> Automatic Fixed Installation other than Water | <input type="checkbox"/> Fire Detection System | <input type="checkbox"/> Static Smoke Extraction System |
| <input type="checkbox"/> Deluge System | <input type="checkbox"/> Fire Hydrant/Hose Reel System* | <input type="checkbox"/> Street Fire Hydrant System |
| <input type="checkbox"/> Drencher System | <input type="checkbox"/> Fixed Automatically Operated Approved Appliance | <input type="checkbox"/> Supply Tank |
| <input type="checkbox"/> Dust Detection System | <input type="checkbox"/> Fixed Foam System | <input type="checkbox"/> Ventilation/Air Conditioning Control System |
| <input type="checkbox"/> Dynamic Smoke Extraction System | <input type="checkbox"/> Gas Detection System | <input type="checkbox"/> Water Mist System |
| <input type="checkbox"/> Emergency Generator | <input type="checkbox"/> Gas Extraction System | <input type="checkbox"/> Water Spray System |
| <input type="checkbox"/> Emergency Lighting | <input type="checkbox"/> Portable Fire Extinguisher | <input type="checkbox"/> Water Supply |
| <input type="checkbox"/> Exit Sign | <input type="checkbox"/> Pressurization of Staircase | <input type="checkbox"/> Others _____ |
| <input type="checkbox"/> Fire Alarm System | <input type="checkbox"/> Ring Main System with Fixed Pump(s) | |

Please tick the appropriate box(es).

The above fire service installation(s)/equipment has/have been installed at (address of premises)

and the installation work was completed on _____. I hereby certify that such fire service installation(s)/equipment, which was/were installed according to the FSI plans submitted under the cover of FSI/314 dated _____ and/or building plans approved by FSD on _____ has/have been tested and, to the best of my knowledge, is/are in efficient working order in accordance with the Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment published from time to time by the Director of Fire Services.

Original/certified true copies of the following documents are attached as follows:

- Completed testing and commissioning checklist(s)
- *Listing certificate(s)/record(s)/document(s)/printout(s) from product certification bodies
- *FSD approval/acceptance letter(s)
- *Test certificate(s)/data sheet(s)/catalogue(s)/calculation(s)
- Others (please specify, e.g. Fire Safety Management Plan, Fire Engineering Report): _____

Please tick the appropriate box(es).

Remarks: Relevant test report(s) for dynamic smoke extraction system/ staircase pressurization system endorsed by the Registered Professional Engineer, if applicable, should be attached.

This certificate shall be issued by RFSIC to the person on whose instructions the installation work was undertaken and a copy thereof shall be forwarded to the Director of Fire Services within 14 days after completion of the work.

* Please delete as appropriate.
FSI/501a

ipment) able on uses or r. _____

RFSIC



Observations on the FSI/501 Applications

- ① **Incomplete Application Form FSI/501**
- ② **Outstanding submission of Copy of Certificate [FSI/501a]**
- ③ **Improper submission of Certificate [FSI/501a]**

For example ...

Incomplete Application Form FSI/501

Signature of Registered Professional Engineer. _____

Part B : (to be completed by Authorized Person)

I hereby certify that:

1. the fire service installation(s)/equipment listed above and in the attached FSI/501a has/have been installed in accordance with the approved building plans stamped by the FSD on _____ and is/are ready for inspection;
2. Fire Service Completion Advice in respect of fire service installation(s)/equipment requiring government water main connection has been *applied for/issued by the Water Supplies Department (copy *attached/~~not attached~~);

**Missing of the approved building plans*
stamped date**

* Please delete as appropriate.
FSI/501 (Rev. 2020)

P. 1/2

* Pursuant to 16(1)(b)(ii) of Buildings Ordinance (Cap. 123)

Incomplete Application Form FSI/501

Full Name of Authorized Person: _____

Signature of Authorized Person: _____ Date: 5 June 2020

RFSIC Ref. No(s). of FSI/501a attached to this application form:

**Missing of Certificates
Reference no.**

Additional information, if any:

RFSIC Ref. No(s). of FSI/501a attached to this application form:

- (i) RC2/2733 – 20200501 – 01
- (ii) RC3/7619 – 20200501 – 01

Additional information, if any:

- (i) One set of approved GBP stamped by FSD on 19.08.2019; and
- (ii) Document checklist for FSI acceptance inspection

I hereby declare that to the best of my knowledge and belief, the information provided above is true, correct and complete. I understand that if I wilfully give any false information, make any misrepresentation or withhold any material information in this application form, the case may be referred to appropriate professional registration bodies/disciplinary boards for necessary action.

Signature of Registered Professional Engineer

Signature of Authorized Person

Missing of Signature

I hereby declare that to the best of my knowledge and belief, the information provided above is true, correct and complete. I understand that if I wilfully give any false information, make any misrepresentation or withhold any material information in this application form, the case may be referred to appropriate professional registration bodies/disciplinary boards for necessary action.

XXXX

Signature of Registered Professional Engineer
(if applicable)

XXXX

Signature of Authorized Person

* Please delete as appropriate.
FSI/501 (Rev. 2020)

P. 2/2

RPE



&



AP

Improper submission of Certificate [FSI/501a]

FP Ref. No. *8/43/ _____

*19/20/43/ _____

I understand that this Certificate is issued under Regulation 9 of the Fire Service (Installations and Equipment) Regulations. Any registered fire service installation contractor (RFSIC) commits an offence and is liable on conviction to a fine at level 5 pursuant to Regulations 9(2A) and 9(3) of the same Regulations, if it issues or forwards a certificate thereunder, or a copy thereof, which is false or misleading in a material particular.

(For Class 1 & 2 RFSIC):

Registration No.: _____

RFSIC Name: _____

Full Name of Authorized Signatory:

Authorized Signature: _____ Company Chop: _____

(For Class 3 RFSIC):

Registration No.: _____

RFSIC Name: _____

Signature: _____

Office address: _____

Telephone No.: _____

Date: _____

Remarks: Fixed automatically operated approved appliance and portable hand-operated approved appliance should be certified by Class 3 RFSIC via separate FSI/501a

Fixed automatically operated
approved appliance
Portable hand-operated
approved appliance
should be certified by
**Class 3 RFSIC via separate
FSI/501a**

Improper submission of Certificate [FSI/501a]

The above fire service installation(s)/equipment has/have been installed at (address of premises)

and the installation work was completed on _____. I hereby certify that such fire service installation(s)/equipment, which was/were installed according to the FSI plans submitted under the cover of FSI/314 dated _____ and/or building plans approved by FSD on _____, has/have been tested and, to the best of my knowledge, is/are in efficient working order in accordance with the Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment published from time to time by the Director of Fire Services.

Original/certified true copies of the following documents are attached as follows:

- Completed testing and commissioning checklist(s)
- *Listing certificate(s)/record(s)/document(s)/printout(s) from product certification bodies
- *FSD approval/acceptance letter(s)
- *Test certificate(s)/data sheet(s)/catalogue(s)/calculation(s)
- Others (please specify, e.g. Fire Safety Management Plan, Fire Engineering Report): _____

Please tick the appropriate box(es).

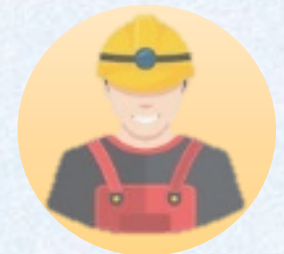
Remarks: Relevant test report(s) for dynamic smoke extraction system/ staircase pressurization system endorsed by the Registered Professional Engineer, if applicable, should be attached.

This certificate shall be issued by RFSIC to the person on whose instructions the installation work was undertaken and a copy thereof shall be forwarded to the Director of Fire Services within 14 days after completion of the work.

* Please delete as appropriate.
FSI/501a

P. 1/2

**Within 14 days
a Copy to FSD**



RFSIC
21

Documents required for Application for Inspection and Testing of FSI

- Form FSI/501 + FSI/501a
- Form FSI/314 with two sets of as-fitted FSI layout plans
- Testing and Commissioning (T&C) Checklists
(e.g. AAD, Emergency Generator, AFA, FH/HR, SPS, SFH etc.)
- FSIs Equipment List & relevant supporting documents



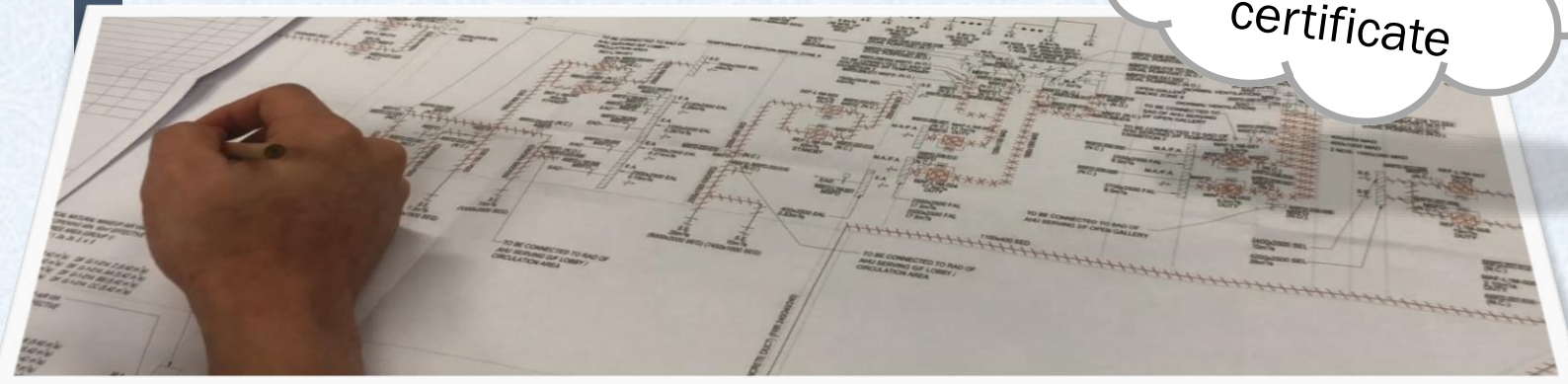
Facilitation Measure for Document Submission

Temporary measure for FSI plans amendment

- Facilitation for the document checking process
- Option for RFSICs to amend FSI plans outside FSD's office
- With immediate effect

Maintain
Social
Distancing

Speed up the
process of
issuing FS
certificate



消防處
牌照及審批總區
香港九龍尖沙咀東部康莊道1號5樓
消防總部大廈

FIRE SERVICES DEPARTMENT
LICENSING AND CERTIFICATION COMMAND
FIRE SERVICES HEADQUARTERS BUILDING,
No.1 Hong Chong Road, 5/F,
Tsim Sha Tsui East, Kowloon,
Hong Kong.

本處編號 Our Ref.: (76) in FP 209/G/IX
查詢編號 Your Ref.:
文傳真 Fax: (852) 2367 3631
話 Tel. No.: (852) 2733 7619
電子郵件 E-mail: lcpolic2@hkfsd.gov.hk

To: Recipients of FSD Circular Letters

Dear Sir/Madam,

**Temporary Measure for Making Minor Amendments to
Fire Service Installations (FSI) Plans subsequent to
FSI Acceptance Inspection of New Buildings**

There are often cases where approved FSI plans of new buildings call for minor amendments after the completion of FSI acceptance inspection, and the usual practice is to have the amendments made by the Registered Fire Service Installation Contractors (RFSICs) in the office of the FSI Division of the Fire Services Department (FSD). To address the requirement for social distancing in the current pandemic situation and to speed up the process of issuing Fire Services Certificate or acceptance memo/letter, we have introduced a temporary measure **with immediate effect** for such cases.

Instead of doing the amendment work in the FSI Division office, the RFSICs may now opt to make arrangements with the case officer of the FSI Division, under which they can collect the approved FSI plans from the officer and have the minor amendments made outside FSI Division Office. A flowchart of the temporary arrangement is shown in the Appendix for easy reference.

Notwithstanding the above temporary measure, your attention is particularly drawn to the following:

(a) The RFSICs shall be responsible for the safe custody of the collected copies of approved FSI plans. Loss of and damage to the plans may render the completed FSI acceptance inspection invalid. As a consequence of which, a fresh submission of plans for approval and a fresh submission of forms FSI/501 and FSI/501a for FSI acceptance inspection may be required; and

Ref. Number and date should be quoted in reference to this letter
凡提及本信時請引述編號及日期

3 July 2020

Temporary measure for FSI plans amendment

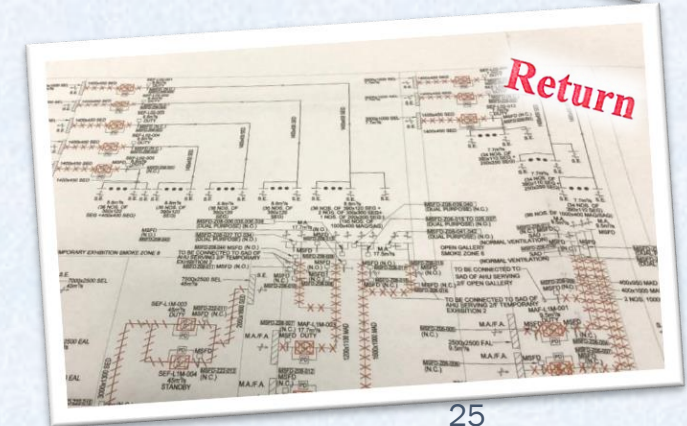
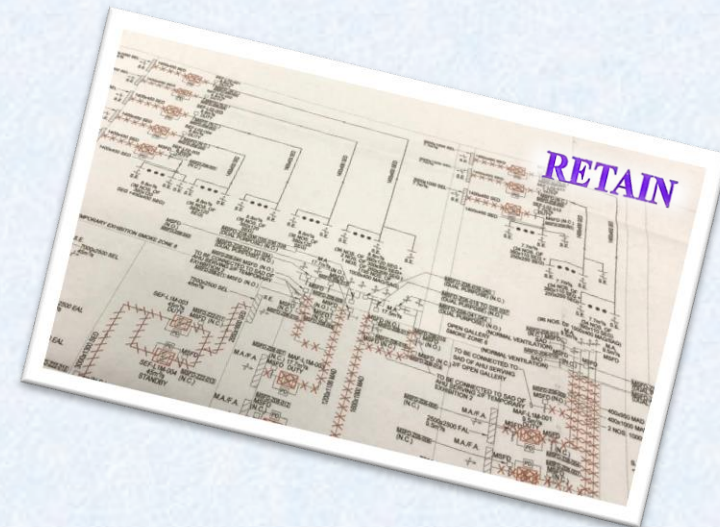
OUTSIDE FSID'S OFFICE

- ❑ After completion of on-site inspection
- ❑ On request of RFSIC with undertaking letter:
 - Obtain “**RETAIN**” FSI plans from case officer
 - Amend both FSI plans “**RETAIN**” & “**RETURN**”

At FSID's OFFICE

- ❑ Verify the amended “**RETAIN**” and “**RETURN**” plans with the case officer as per the results of FSI acceptance inspection
- ❑ Make further amendment in case of discrepancy

- ❑ RFSIC retains the amended “**RETURN**” plans



- To enhance the efficiency of document checking
- To properly maintain record of drawings for new buildings

Part A. Document(s) prepared by AP:

21	Electronic copies of the as-built and approved GBP in PDF format including amendment record if necessary.			
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Part C. Document(s) prepared by RFSIC:

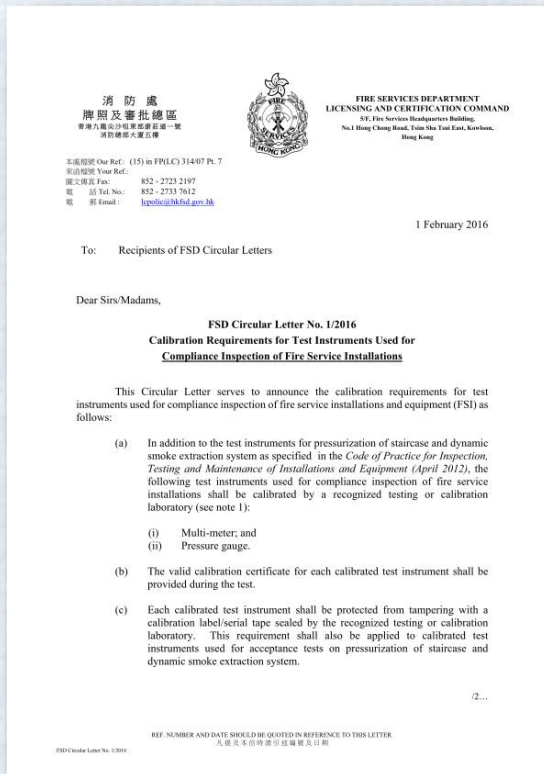
15	Electronic copies of the as-built and approved FSI314 (FSI and Smoke Control Systems) in PDF format including amendment record if necessary.			
16	Electronic copies of the approved fire engineering report in PDF format if the project had adopted fire engineering approach.			

AP & RFSIC are encouraged to furnish the building's owner with a set of electronic copies

Document Checklist [Rev. E (9/2019)]

- To ensure the validity of calibration certificate
- Certified True Copy to be provided.

FSD Circular Letter No.1/2016



Part C. Document(s) prepared by RFSIC:

8	Pressurization of staircase			
	- Equipment list of builder's work (such as doorset, door closer & etc.) c/w related test reports			
	- Provided duplicate of valid calibration certificate for testing instrument			
	- Test report for air leakage of all metal ductwork on site			
	- Testing and Commissioning Checklist for the system and certified by RPE			
	- Letter from RPE to certify the system had been completed and tested in accordance with FSD's requirements and approved drawings			
9	Smoke extraction system			
	- Provided duplicate of valid calibration certificate for testing instruments			
	- Test reports for air leakage of all metal ductwork on site			
	- Test reports for the system and certified by RPE (Dynamic Smoke Extraction System only)			
	- Letter from RPE to certify the system had been completed and tested in accordance with FSD's requirements and approved drawings (Dynamic Smoke Extraction System only)			
10	Emergency Lightings			
	- Valid test reports or listing certificates issued by recognized bodies presenting to inspection officer during FS inspection			
11	Valid calibration certificates for testing instrument as per FSD Circular Letter No. 1/2016			

Case Sharing on Irregularities and Observations

Testing & Commissioning



No defects



Application of FSI/314 & FSI/501



On-site Acceptance Inspection

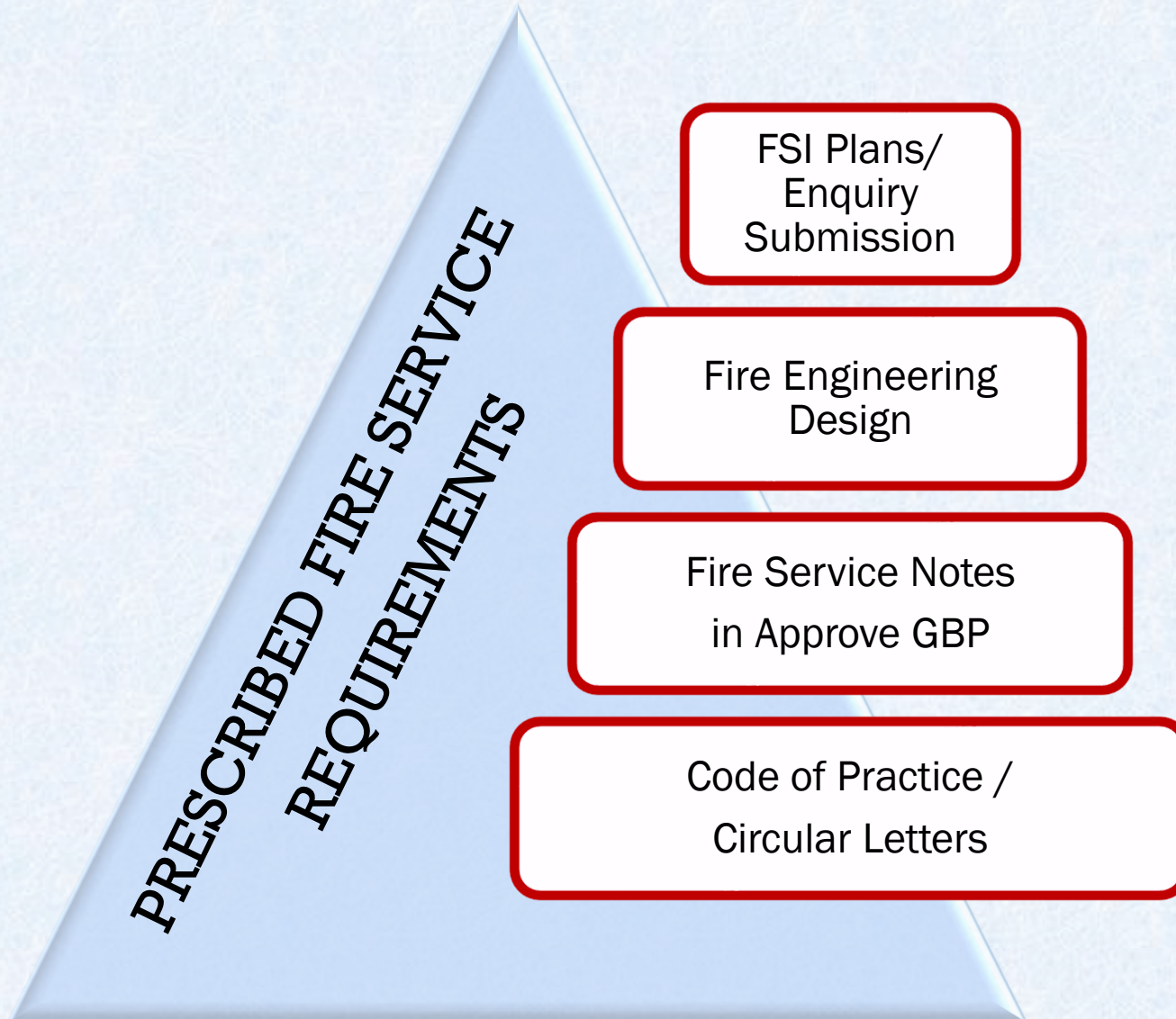


Cases without the need of re-inspection

Scale of Projects	Nov 17 – Oct 18 (12 months)	Nov 18 – Oct 19 (12 months)	Nov 19 – Jun 20 (8 months)
Addition or Alteration Works	71%	75%	94%
Small Scale Development <i>[Single building no more than 6 storey]</i>	63%	58%	82%
Medium & Large Scale Development <i>[Single building more than 6 storey or multiple buildings]</i>	47%	49%	56%

Common site observation ...

Common Defects associated with prescribed requirements



- ◆ Inconsistence with approved conditions, for example:-
 - Exemption of Sprinkler Coverage
 - Non-FSI load connection to emergency generator
 - Assumption made in fully hydraulic calculations
 - Provision listed in F.S. Notes

Improper installation of exit sign



Improper type of directional sign



Incomplete F.S. & Sprinkler inlet enclosure



Obstruction of FSI by other services

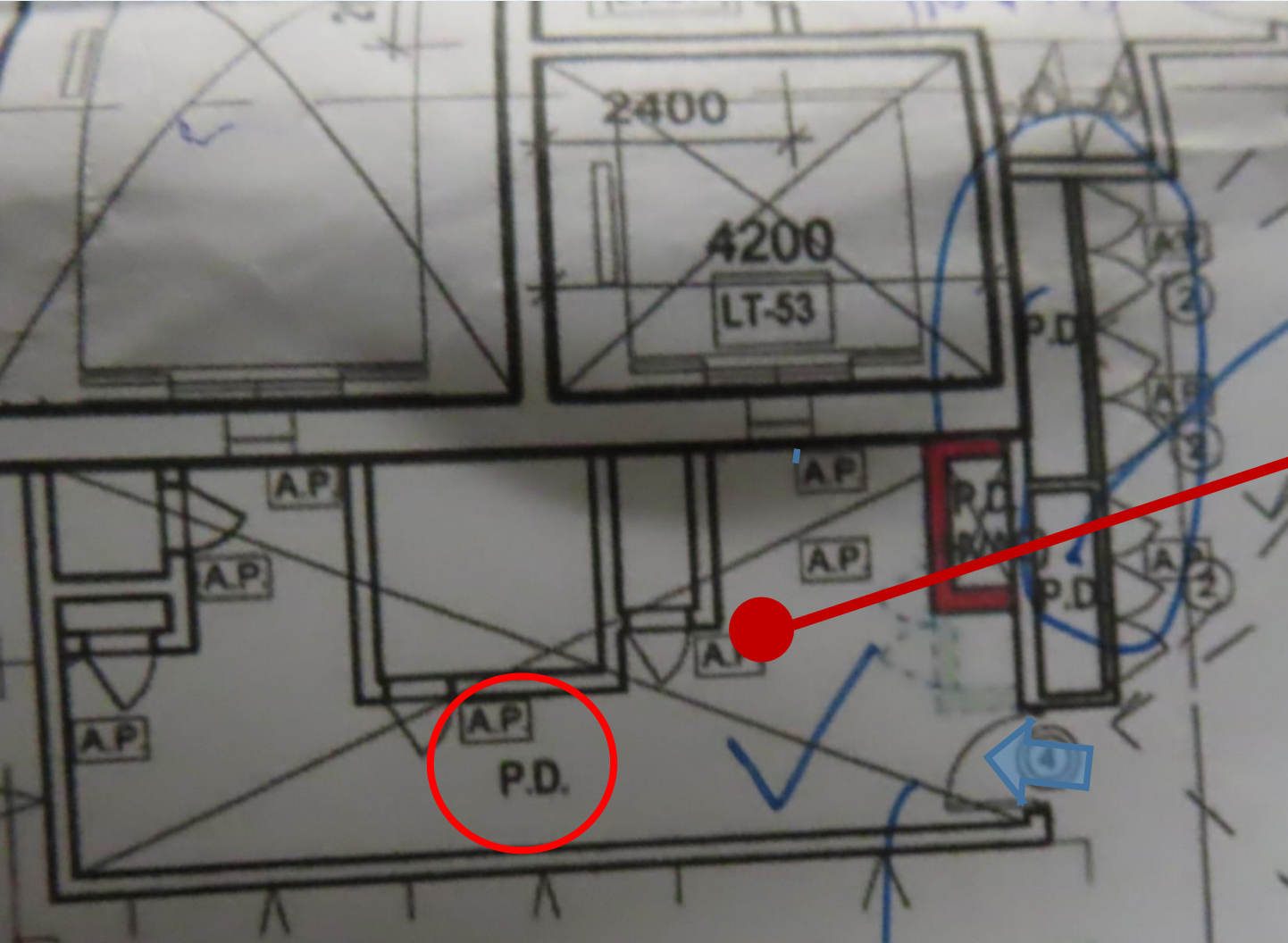


Exit Sign was obstructed by vent duct

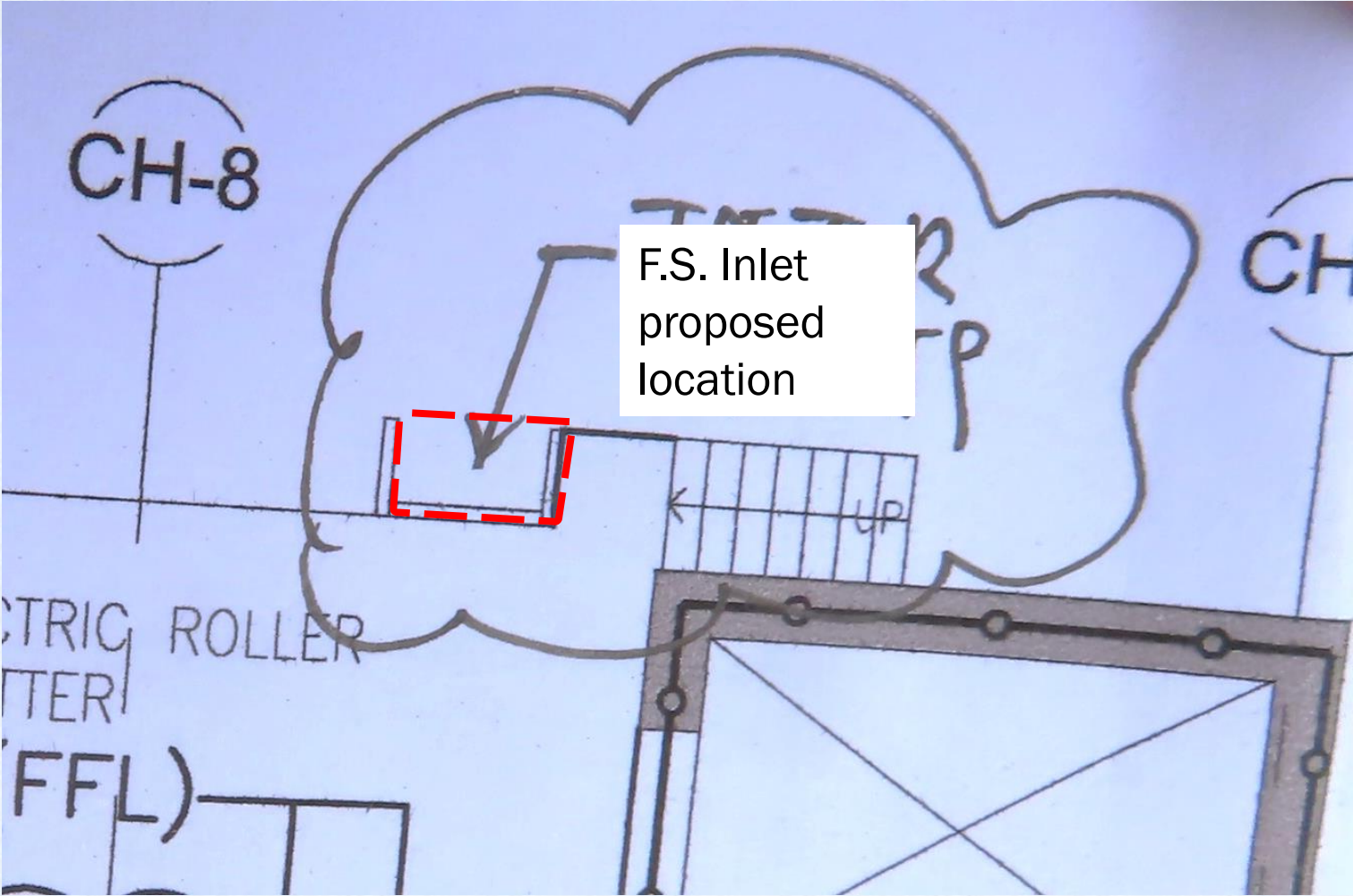


Sprinkler heads were obstructed by ductworks

Clarification of "pipeduct" usage



Not tally with layout drawing

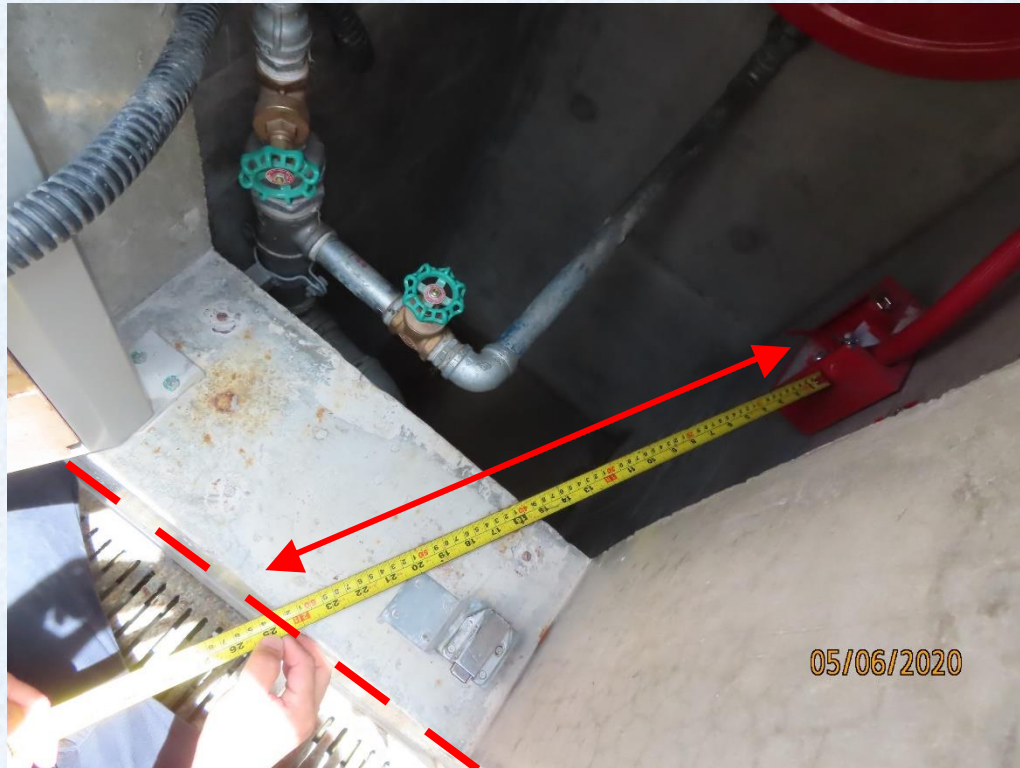


Improper installation of FSI



Hand-wheel's operation ineffective

Improper location of the nozzle

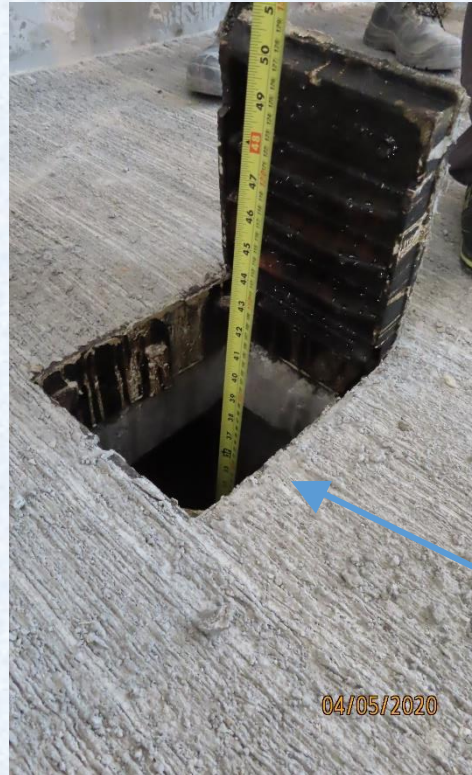


Control valve and nozzle are sited in a discernible and accessible position should be of not more than 500 mm from the surface of the doors

More than 500 mm is not acceptable

Reference: FSD Circular Letter 1/2015 – Appendix 5

Improper installation of FSI



Spindle of the underground valve should be within 250 – 500 mm below valve pit cover



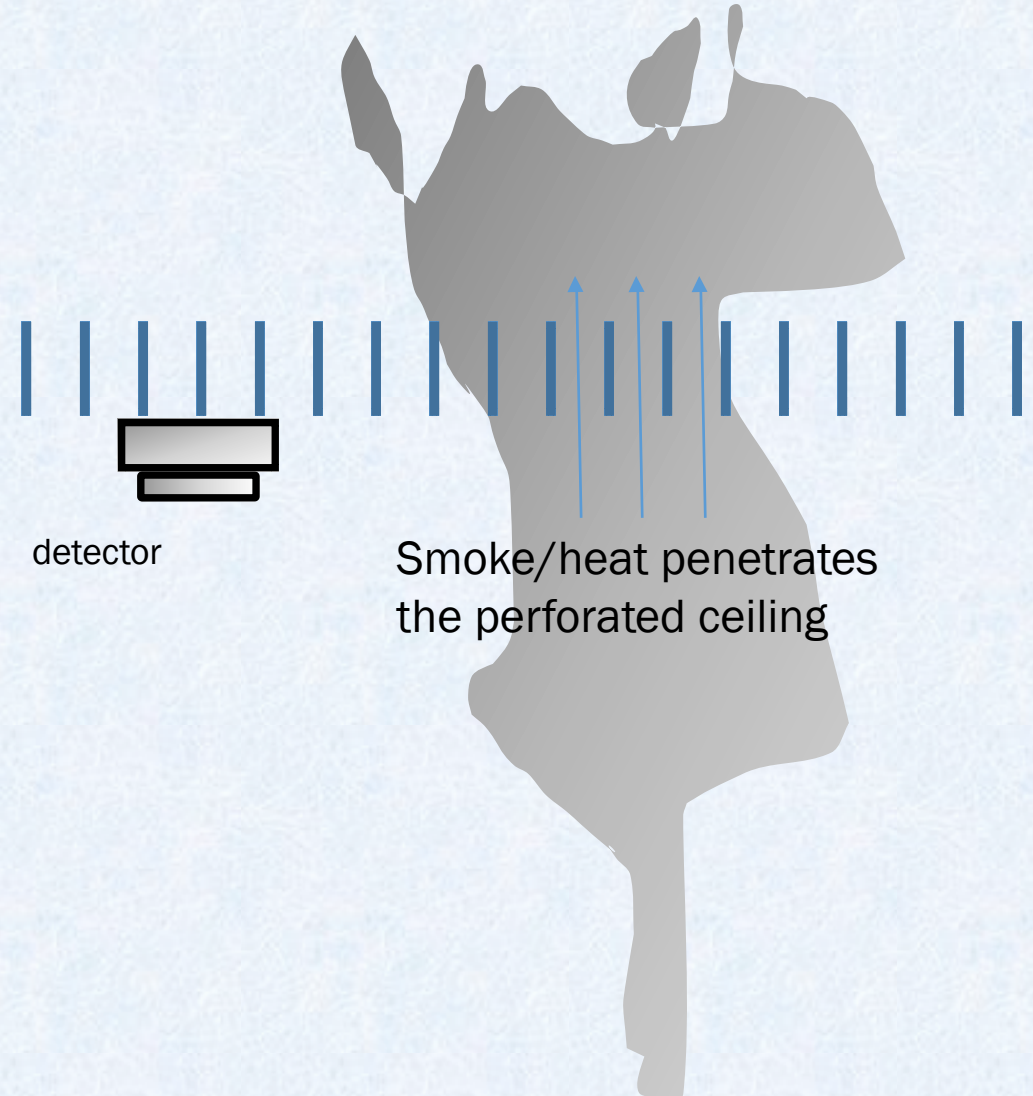
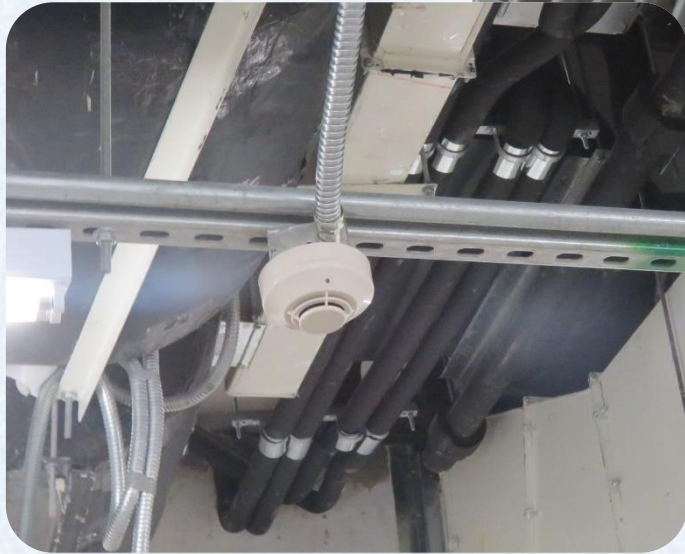
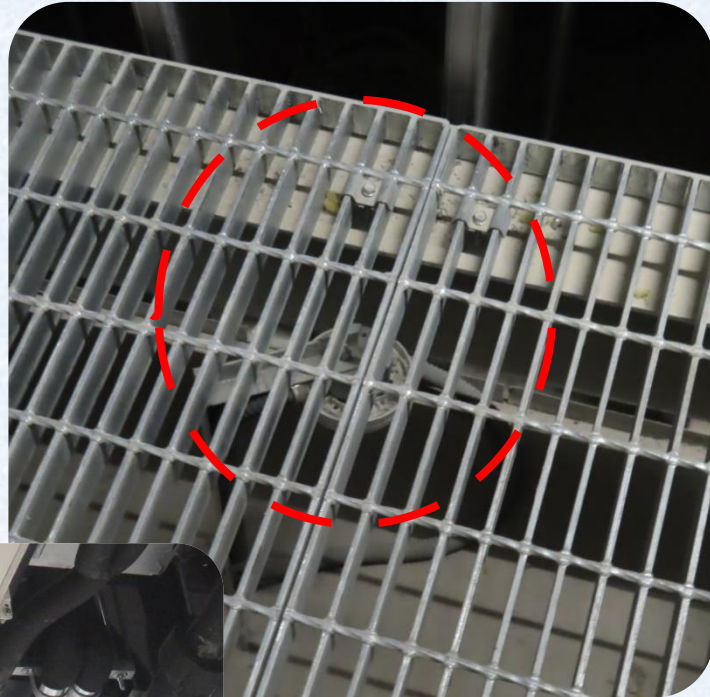
Reference: FSD Circular Letter 1/2015 – Appendix 7

Obstruction to smoke detector



Reference: Figure 8 of BS 5839-1:2002+A2:2008

Improper installation of smoke detector



Reference: Figure 11 of BS 5839-1:2002+A2:2008

Improper location of Automatic Actuating Devices (AAD)



- Clearance below detector should be maintained of 500 mm at least
- Detectors should not be mounted within 1m of any air inlet of a forced ventilation system

Reference: FSD Circular Letter 1/2015 – Appendix 4 – T&C Checklist for Fire Detection and Fire Alarm System

Exceeded static pressures of Fire Hydrant system

Static pressure at hydrant outlet exceeded 850 kPa

1100 kPa



HINTS FOR SUCCESSFUL INSPECTION



1

Assure Collaborative Involvement

- Liaisons among RPE, owner, AP, consultant, RFSIC and etc.

2

Familiar with acceptance criteria

- Submit Accurate T&C Report and doc.
- Possess good understanding of project specific FS provision

3

Perform High quality of works

- Confirm Site Readiness and Safety
- Prepare Smooth Rundown

4

Avoid Alternation to Prescribed F.S. Requirements

- Ensure consistence among site condition and design
- Strictly follow approved condition

Target Time for Vetting FSI Plan Submission

Types of FSI Plan Submission

- New Buildings (including airport expansion projects)
 - *FSI/314*
- Railway Development Projects under SSCC / TSSC
 - *RDS/Form-1*

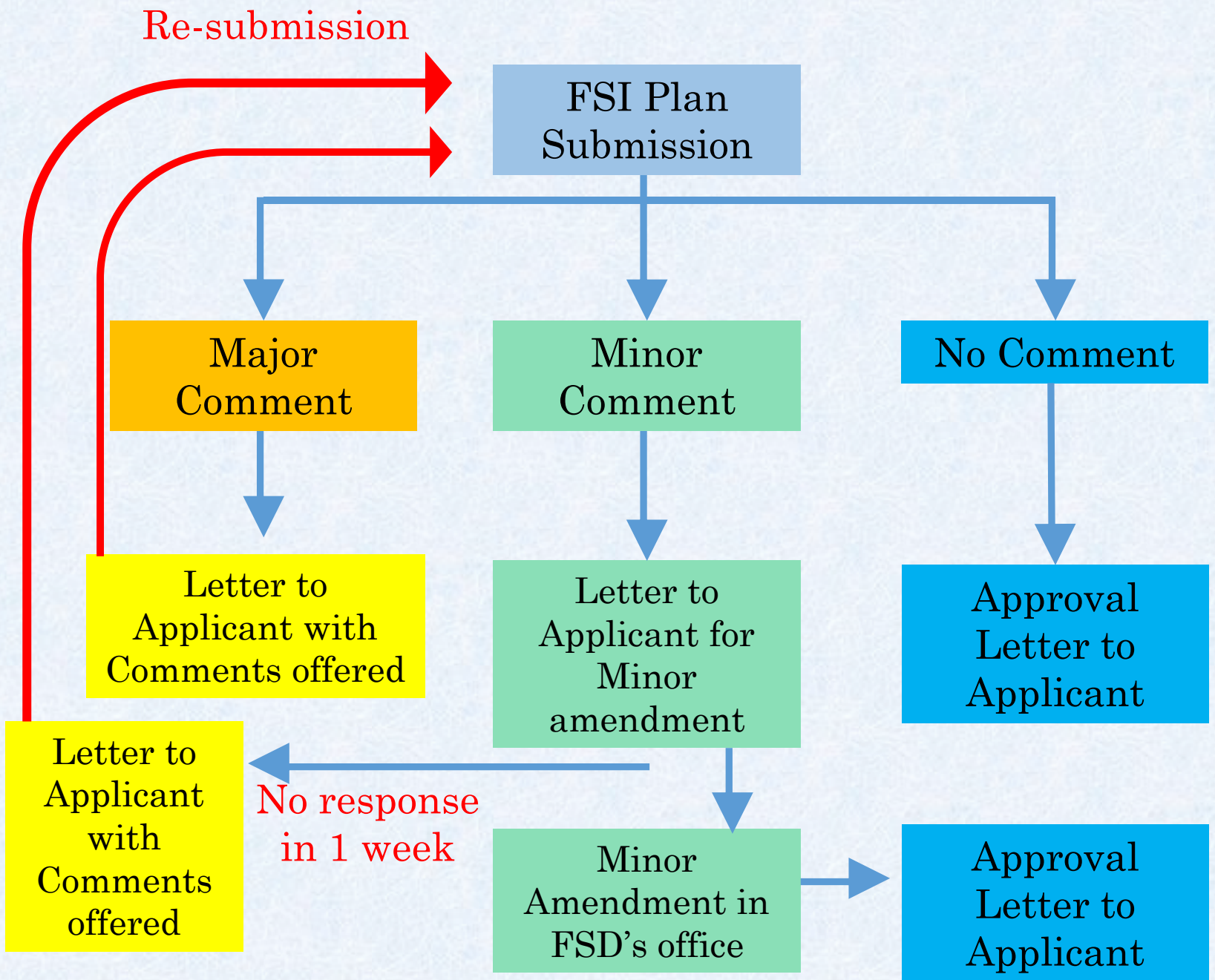
Vetting of FSI Plan Submission

Plans
REQUIRED
Detailed Vetting

- Smoke Control Systems for all projects
Normally not more than 12 Weeks
- FSI Plans for Railway Development Projects
8-12 Weeks (Depending project's complexity)

Plans
NOT REQUIRED
Detailed Vetting

- FSI Plans for new buildings (excluding smoke control system)
Follow FSI/501 processing time



- FSI Systems (other than Smoke Control Systems)
- From 8 weeks to 12 weeks, depending on the complexity of projects.
- Smoke Control Systems (SES / SPS / VAC)
- Normally not more than 12 weeks.

Thank You

Implementation of Annual Inspection Checklists for Sprinkler System



- Objectives
- Content of Checklist



- Implementation Arrangement
- The Way Forward

Ms. LAW Ka-yan
Assistant Divisional Officer (FSITF)



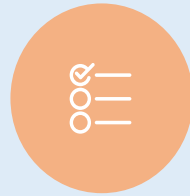


01

- Objectives
- Contents of Checklist

Objectives

**Specify and standardize
the procedures of A/I**



**Maintain the level of
quality of workmanship**



AIM




**Assist FSI Owners to have
a consistent and practical
tool for standard of FSI
maintenance**



Improve the quality control

Comparison

Existing Requirement

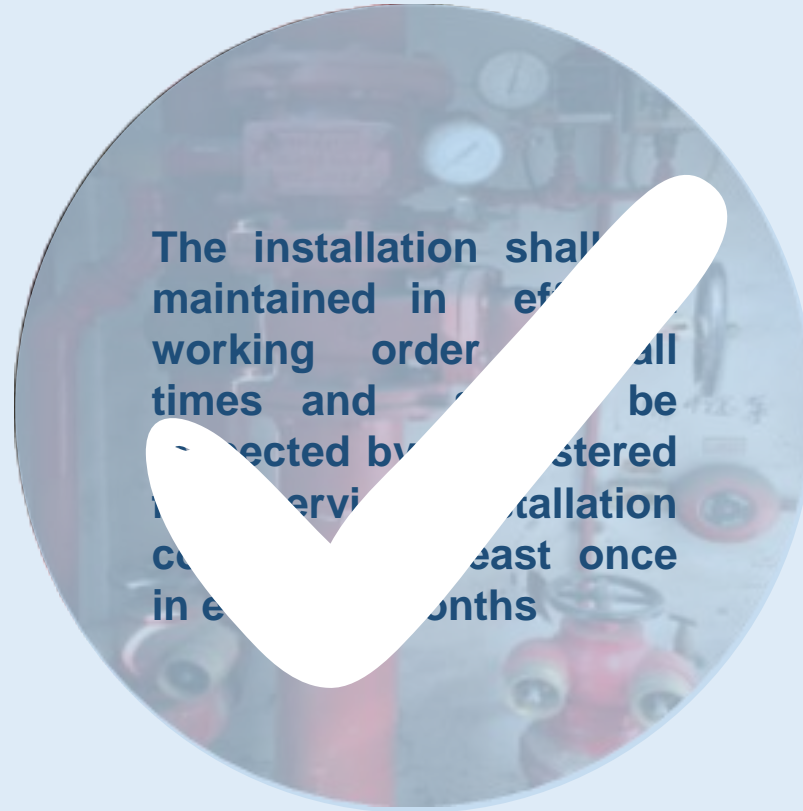


The installation shall be maintained in efficient working order at all times and shall be inspected by a registered fire service installation contractor at least once in every 12 months

Comparison

New Requirement

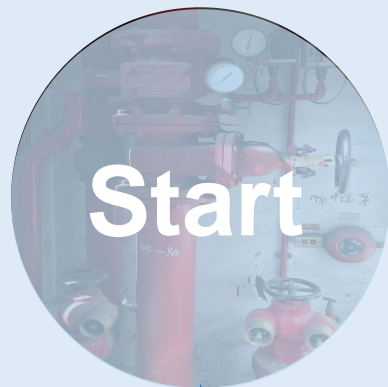
- Type of Water Supply ✓
- Sprinkler Pump Installation ✓
- Sprinkler Intermediate Booster Pump Installation ✓
- Sprinkler Inlet ✓
- Pressure Reducing Valve (PRV) ✓



The installation shall be maintained in efficient working order at all times and shall be inspected by a registered professional servicing installation contractor at least once in every 12 months.

- ✓ Sprinkler Control Valve
- ✓ Water Columning Prevention Device(s)
- ✓ Flow Switch
- ✓ Subsidiary Stop Valve
- ✓ Sprinkler and Multiple Jet Control (MJC)
- ✓ Other Observations

Contents





Type of Water Supply

Sprinkler Intermediate Booster Pump Installation



Pressure Reducing Valve (PRV)



Sprinkler Pump Installation



Sprinkler Inlet





Sprinkler Control Valve



**Water Columning
Prevention Device(s)**



Flow Switch



Subsidiary Stop Valve



**Sprinkler and
Multiple Jet
Control (MJC)**



Other Observations





02

- Implementation Arrangement
- The Way Forward

Implementation Arrangement

Sign

RFSIC is required to sign the checklist and FS 251 the same AS

Fill

Serial number of the FS 251 will be filled in the checklist

Forward

Forward a copy of the same to the person on whose instructions the work was undertaken



核對表上是否
需要簽名?



RFSIC should keep the checklist by scanned or hard copy, for at least **7 years**, for verification by the FSD upon request.

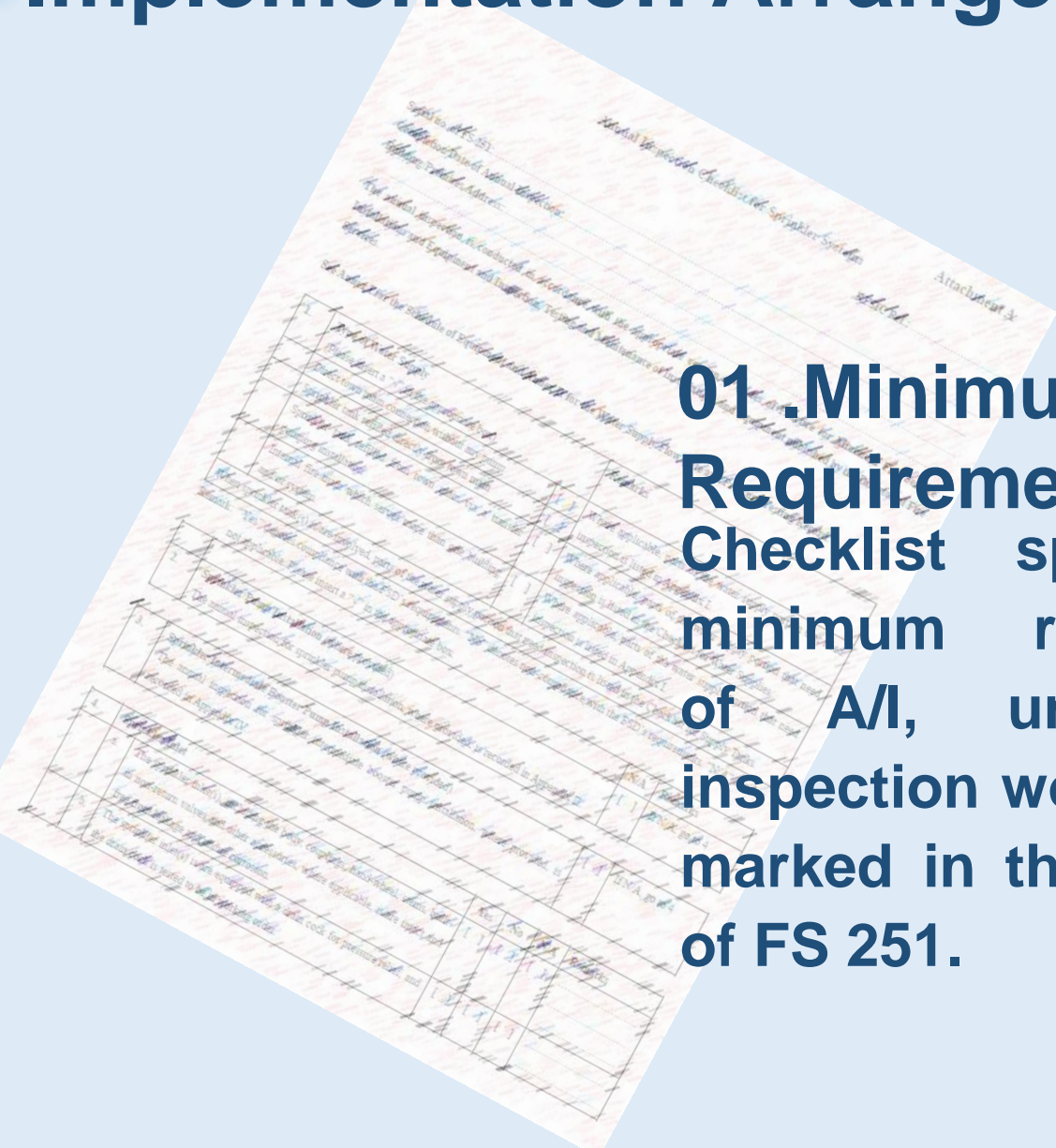
Implementation Arrangement

Audit check for the A.I. checklist

- Established mechanism
- Scheduled audit check
- Random selection
- Any FSI related investigation



Implementation Arrangement



01 .Minimum Requirement Checklist specify the minimum requirement of A/I, uncompleted inspection would not be marked in the first part of FS 251.

02 .Other Observations
Other Observations would not shown on FS 251 if not related to the function of FSI.

The Way Forward



Review

The arrangement will be reviewed after 12 months of the implementation.



CoP

Incorporate into CoP in the future



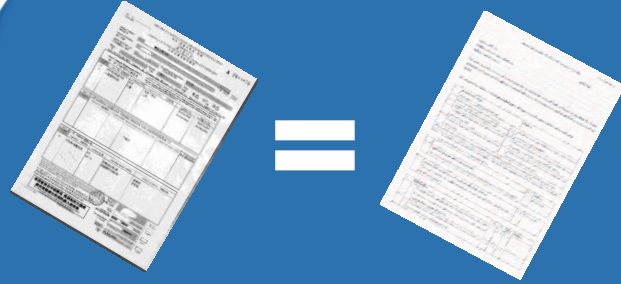
FIRE ALARM



Direction

All checklist for other FSIs would be introduced in due course.

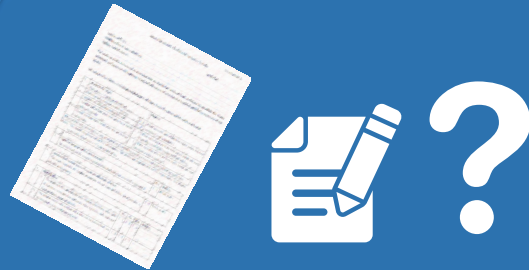
Review of Annual Inspection Checklists on FH/HR



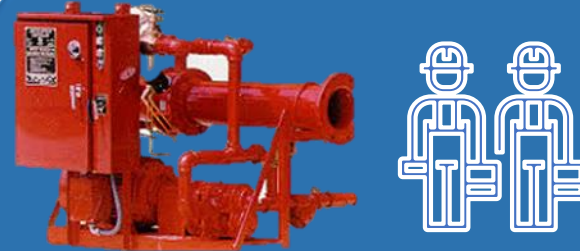
FS 251= Checklist



Role of AS



Record for A.I.
Checklist



Myths of Intermediate
Booster Pump



***If you have any enquiries, please call 2733 1567 to contact FSITF.**

Fire Safety of Electrical Installations for Electric Vehicle



Assistant Divisional Officer(NP)
Mr. LEE Yat-ching



THE
FIRE PROTECTION
RESEARCH FOUNDATION

Literature study on EV fires



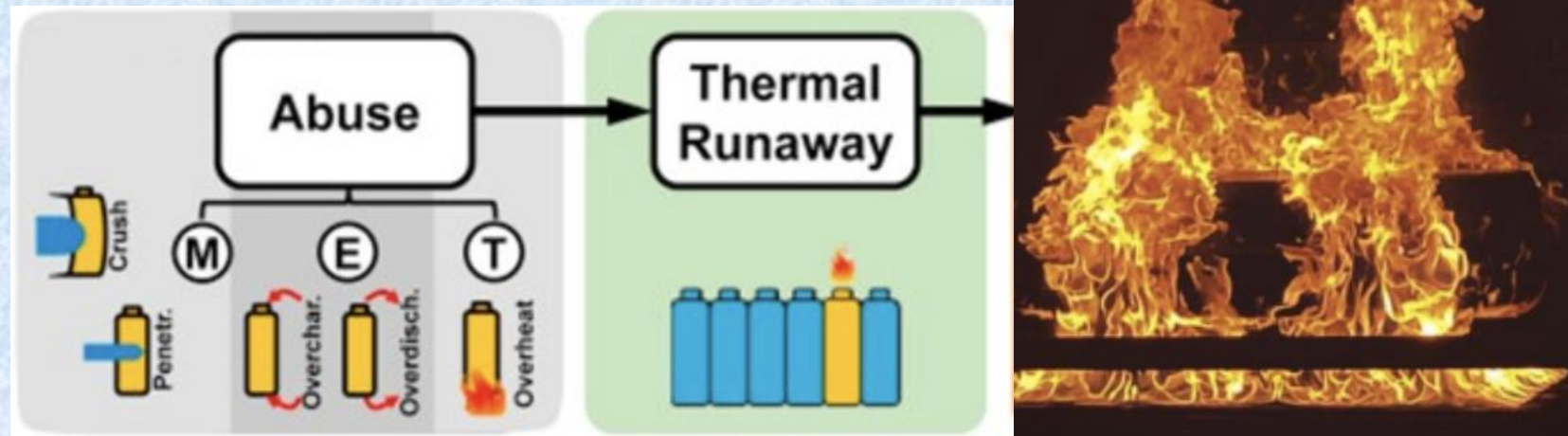
NFCC
National Fire
Chiefs Council

- **A Review of Battery Fires in Electric Vehicles – HK**
https://www.researchgate.net/publication/338542510_A_Review_of_Battery_Fires_in_Electric_Vehicles
- **Responding to Electric Vehicle Battery Fires – USA**
https://www.researchgate.net/profile/Elizabeth_Richter3/publication/329467810_Development_of_a_solid_propellant_gas_generator_SPGG_system_for_fire_suppression_in_aviation-Design_of_a_combustion_chamber/links/5coa4953a6fdcc494fdfcc3/Development-of-a-solid-propellant-gas-generator-SPGG-system-for-fire-suppression-in-aviation-Design-of-a-combustion-chamber.pdf#page=232
- **Fire-suppression systems for battery energy storage systems – USA**
<https://www.pmengineer.com/articles/93694-fire-suppression-systems-for-battery-energy-storage-systems>
- **Preparing car parks for the risks of charging electric vehicles – UK**
<https://blog.coltinfo.co.uk/preparing-car-parks-for-the-risks-of-charging-electric-vehicles>
- **A review of lithium ion battery failure mechanisms and fire prevention strategies - The Netherlands**
<https://www.sciencedirect.com/science/article/pii/S0360128518301801>

EV Fires

Thermal Runaway in battery

- Mechanical abuse (i.e. TA)
- Electrical abuse (i.e. overcharge)
- Thermal abuse (i.e. extreme weather or external source)



EV Fire Incidents

- Traffic Accident (post crash fire)
- Charging
- Stationary (self-ignition)



Hong Kong
23 Nov 2018



Source: <https://youtu.be/IlHv32QXVXE>

Carpark Fire Incident in HK



King Lam Estate Multi-storey Car Park
Po Lam
26 Sept 2018

Source: <https://youtu.be/9Xc-kl6osiU>

Fire-Suppression for EVs

Ref.:

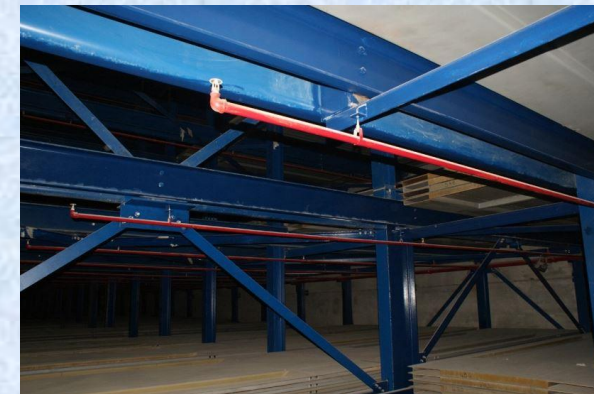
Responding to Electric Vehicle Battery Fires - USA

https://www.researchgate.net/profile/Elizabeth_Richter3/publication/329467810_Development_of_a_solid_propellant_gas_generator_or_SPGG_system_for_fire_suppression_in_aviation-Design_of_a_combustion_chamber/links/5c0a4953a6fdcc494fdcc3/Development-of-a-solid-propellant-gas-generator-SPGG-system-for-fire-suppression-in-aviation-Design-of-a-combustion-chamber.pdf#page=232

A Review of Battery Fires in Electric Vehicles - HK

https://www.researchgate.net/publication/338542510_A_Review_of_Battery_Fires_in_Electric_Vehicles

- **EV fires are difficult to extinguish**
 - Requiring large quantities of suppressant
 - Re-ignition of battery
- **Suppressant**
 - Carbon dioxide or other chemicals
 - ✓ Suppress fire
 - ❖ Cannot cool down battery (re-ignition may occur)
 - Water
 - ✓ Suppress fire
 - ✓ Cool down battery (prevent re-ignition)
- **Hazard to Firefighters**
 - Electrical shock
 - Explosion of battery



Fire Safety Provisions for EV Charging Facilities in Car Park

- Fireman's Emergency Switch
- Fire Extinguisher

Additional requirement for car parks without sprinkler protection:-

- Fire Detection System (Heat Detectors)

Thank you



Facilitation Measures

Application for Approval/Acceptance of Fire Service Installations and Equipment (FSI) and Fire Safety Products

Senior Station Officer (Investigation and Research)
YAM Ka-wang



Approval/Acceptance of FSI and Fire Safety Products



Fire Protection Notice No.15

- Promulgated in 2007 (FSD Circular Letter 1/2007)
- Guideline for application of acceptance of FSI
- Introduction of Product Certification (Listed Product)



防火通告第十五號
FIRE PROTECTION NOTICE NO. 15

消防裝置及設備的產品認可指引
GUIDANCE FOR PRODUCT APPROVAL OF
FIRE SERVICE INSTALLATIONS AND EQUIPMENT

FSI and Other Fire Safety Products



FSI and other Fire Safety Products

(Compulsory for Portable Equipment)



(Submission of Test Report)

Product Certification



- ✓ Certification from PCBs
(accredited under Hong Kong Certification Body Accreditation Scheme (HKCAS)/
Multilateral Recognition Arrangement (MLA))
- ✓ Product Certification System recognized by FSD

**Product Testing and
Certification**



Surveillance Audits

- Tested to appropriate standard
- Conformity Assessment
- Certification from PCB

- Testing and Inspection of samples from
 - ✓ manufacturing points (**compulsory**); or
 - ✓ manufacturing points AND open market

Application for Approval/Acceptance

Insufficient Information

- ✗ No test report
- ✗ No drawing
- ✗ No product catalogue



Re-application

Invalid Documents

- ✗ FSI not tested to acceptable standard(s)
- ✗ Report issued by non-accredited Laboratories
- ✗ Reports not in original/certified true copy

Facilitation Measures - Application Form

(To be submitted in the application)

Product Information

Model number, Manufacturer, Testing Information

Checklist for required documents

Test Reports, Product Drawing, Catalogue, Technical Details

Requirements of documents

Date of Issue, Scope of Testing, Issuer, Legibility, Language, etc.

甲項 - 申請人資料
Section A - Applicant Information

(a) 公司編號 Company Reference No.:

(b) 申請人姓名 Applicant Name:

(c) 公司名稱 Company Name:

(d) 公司地址 Company Address:

(e) 聯絡人姓名 Contact Person Name:

(f) 電話號碼 Telephone No.:

(g) 傳真號碼 Fax No.:

(h) 電郵地址 E-mail Address:

乙項 - 產品資料
Section B - Product Information

請從《認可手提設備、接納消防裝置及設備和消防安全產品的申請指引》附錄一的名單內選擇有關的系統及組件。
Please select the relevant system and component from the list as provided in the Appendix I of Guidance for Application for Approval of Portable Equipment / Acceptance of Fire Service Installations and Equipment of Fire Safety Products.

(a) 系統 System:

(b) 組件 Component:

(c) 品牌名稱 Brand Name:

(d) 型號/系列 Model Number/Series:

(e) 製造商名稱 Manufacturer Name:

(f) 製造商地址 Manufacturer Address:

丙項 - 產品測試資料
Section C - Product Testing Information

(a) 測試機構 Testing Agency:

(b) 測試報告編號 Test Report No.:

(c) 測試標準 Testing Standard:

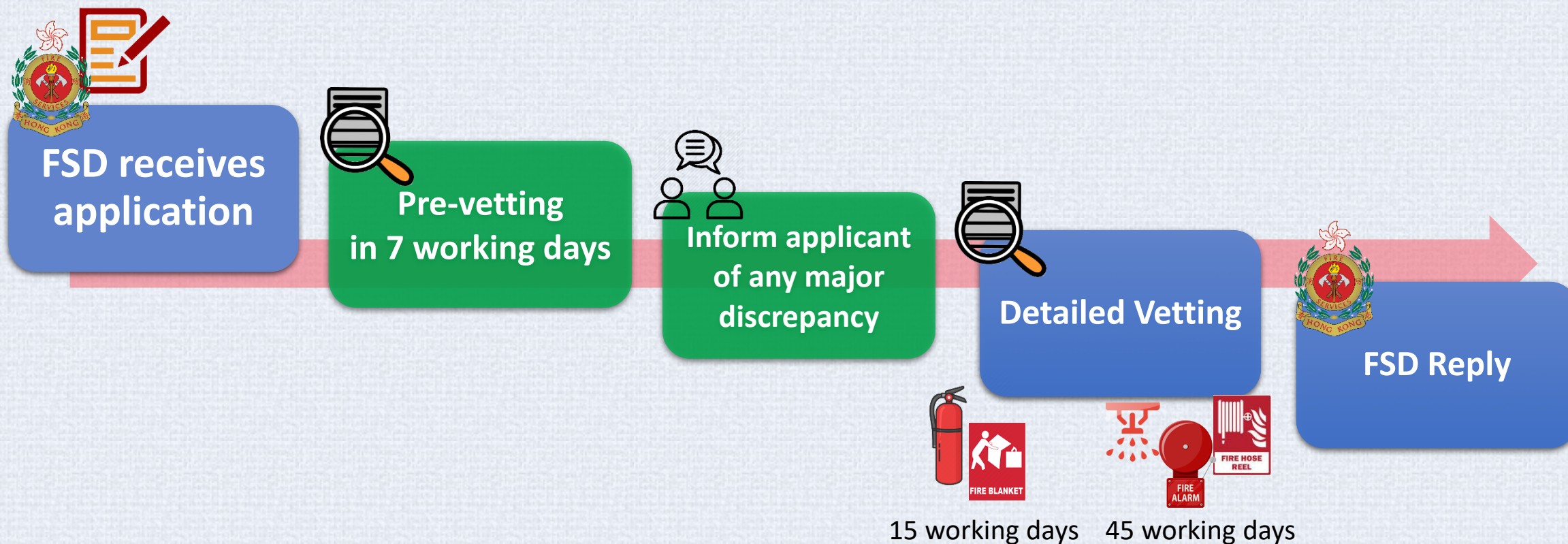
(d) 簽發日期 Issue Date:

(e) 失效日期 (如有) Expiry Date (if any):

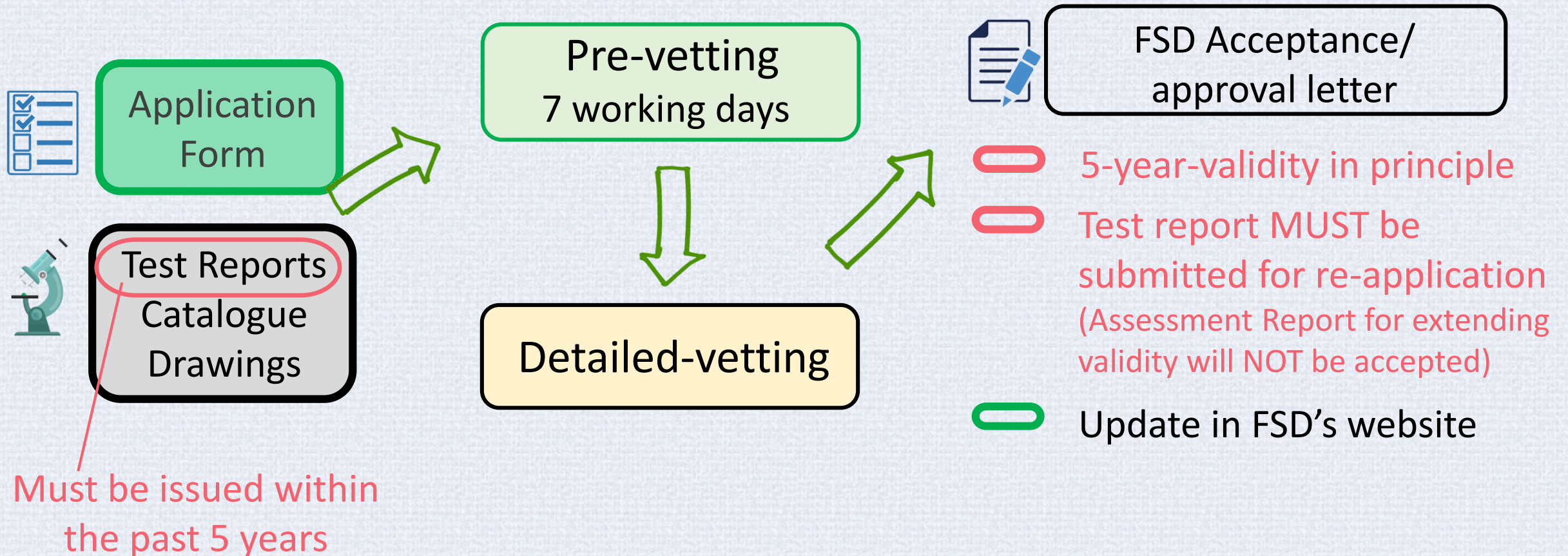
*如表格不足, 可自行影印
If extra forms are required, please feel free to make photocopies

所需文件 Required Document	文件要求 Requirements of Documents
(a) 認可手提設備、接納消防裝置及設備和其他產品申請表 Application Form for Approval of Portable Equipment (Acceptance of Fire Service Installations and Equipment and Fire Safety Products)	(i) 按要求填寫 Completed as required
(b) 重新申請 Re-Application	(i) 消防處最近一次發出的覆函所要求的其他文件, 以及隨附的核對表 (如適用) Other document(s) requested by FSD in its latest reply letter and the attached checklist, where appropriate (ii) 消防處覆函副本及隨附的核對表 (如有) Copy of FSD's reply letter(s), and the attached checklist, if any
(c) 測試證書/報告 Test Certificate/Report	(i) 測試採用「最低限度之消防裝置及設備守則與裝置及設備之檢查、測試及保養守則」和消防處通函內所載的最新標準進行 (如適用) The latest testing standards as stipulated in the Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment (COP) and FSD Circular Letter(s) (FSDCL) shall be adopted for the test, where appropriate (ii) 測試如非採用上文第(i)段所述的標準進行, 則產品須按照消防處處長接納的國際/國家標準進行 If the testing standards stated in (i) above have not been adopted, the product shall be tested against international/national standards acceptable to the Director of Fire Services (iii) 測試實驗室應以下認可機構認可進行有關測試: The testing laboratory shall be accredited to carry out the test by the following accreditation bodies: (a) 香港認可處由香港實驗室認可計劃認可; 或 Hong Kong Accreditation Service (HKAS) and accredited under the Hong Kong Laboratory Accreditation Scheme (HOKLAS); or (b) 與香港認可處簽訂了《相互承認安排》的中國合格評定國家認可委員會; 或 China National Accreditation Service for Conformity Assessment (CNAS) which has signed Mutual Recognition Arrangement with the HKAS; or (c) 與香港認可處簽訂了《相互承認安排》的海外認可機構。 Overseas accreditation bodies which have signed Mutual Recognition Arrangements with the HKAS (iv) 測試報告以中文或英文撰寫, 或翻譯為中文或英文本, 並經有關測試實驗室核證無誤 The test report shall be prepared in Chinese or English or translated into Chinese or English and certified to be correct by the respective testing laboratory (v) 測試報告完整, 並附有封面、測試記錄和合格的測試結果 It shall be a full test report with cover page, test record and positive test results (vi) 測試報告應在過去五年內發出 The test report shall have been issued within the past 5 years (vii) 測試報告為正本/已備有關測試實驗室核證無誤的副本 The test report shall be an original copy/a copy certified by the respective test laboratory to be true and correct

Facilitation Measures - Pre-vetting arrangement



FSD Acceptance/Approval - Facilitation Measures



Thank you



Best Practice for Design, Installation, Acceptance and Maintenance of Fire Service Installations and Equipment

消防裝置及設備的設計、安裝、驗收及保養良好實務指引

Presented by
SStnO CHOI Wing-yiu FSITF

Target Recipients

➤ RFSIC

➤ AP

➤ RPE

➤ The Hong Kong Association of Property Management Companies

➤ The Hong Kong Federation of Insurers

➤ Government Departments (e.g. EMSD, BD)

Design



Points to Note for GBP Submission
Two sets of plans submitted to BD for referral to FSD



Points to Note for FER Submission
Non-compliant designs and relevant technical constraints should be clearly listed



Points to Note for FSMP Submission
Undertaking letter shall be submitted by owner of development to declare the incorporation of FSMP to DMC

New Submission			
Item	Item	Reference	✓ / ✗
1	Two sets of plans submitted to BD for referral to FSD (Remark: Three sets for works under Fire Safety (Commercial Premises) Ordinance or the Fire Safety (Buildings) Ordinance)	PNAP ADM-2	
2	Prescriptive FSI provided according to building occupancies	FSD CoP	
3	Scale of plan provided	--	
4	International standards of various FSIs incorporated in FS Notes	--	
5	Reference of FSD Circular Letter incorporated in FS Notes	FSD Website	
6	FS Notes shall tally with the layout plans (e.g. FS tank location/size)	--	
7	Non-code-compliance items submitted in the form of written enquiry prior to GBP submission	--	
8	Provision of Fireman's Lift		
9	Provision of EVA		
10	Provision of FSI for open kitchen		
Amended Plan			
1	Amendment made in previous submission incorporated in the latest submission		
2	Submission area clearly indicated on plan		
3	Amendments highlighted/ underlined on layout plans/ FS Notes		

FER Submission	
Item	✓ / ✗
A Fire safety assessment strategy report should be prepared by fire safety consultant and submitted to the Authorities by AP of the development	
The parts of building which are non-compliant to code(s) shall be identified	
Non-compliant designs and relevant technical constraints should be clearly listed	
The alternative solutions to compensate the non-code compliant elements shall be clearly stated	
Reasonable fire size shall be estimated in mathematical approach or by software; and the growth rate according to type of development and usage shall be provided with justification	
Formulation of tenability criteria including smoke layer height, radiated heat transfer, convective heat transfer, toxicity, visibility and smoke temperature shall be clearly stated	
Proper establishment of the worst fire scenario for conducting fire safety analysis	
Proper evaluation of evacuees shall be provided according to building type and usage as defined in the FS Code 2011	
Detection time, alarm time, pre-movement time shall be determined by the type of fire detection system used, building management level and occupant characteristics	
Proper formulation of evacuation speed of evacuees by referring to international guidelines with justification	
Sensitivity assessments (such as the ineffectiveness of one largest exit) shall be carried out to verify the sustainability of tenable conditions and safe evacuation	
Actuation methodology of FSI system shall be identified with demonstration which is technically sound	
Proper assessment on the fire safety level of the development and occupants against the established tenable conditions	

FSMP Submission	
Item	✓ / ✗
1	Bounding Conditions shall be included in the GBP
2	Bounding Conditions shall be included in the DMC
3	Undertaking letter shall be submitted by owner of development to declare the incorporation of FSMP to DMC
4	The maintenance plan shall include comprehensive description of: <ul style="list-style-type: none"> FSI provisions Maintenance interval Maintenance methodologies Special maintenance arrangement for relevant FSI Relevant daily housekeeping checklist incorporating the features of the premises
5	Escape routes as shown in FSMP shall tally with the ones as delineated in the latest approved GBP
6	The training plan shall include: <ul style="list-style-type: none"> Facilities management team structure Details of roles and responsibilities of each staff Staff training program Details of fire drills
7	The fire action plan shall include comprehensive description of the procedures to be taken by each management staff in case of fire such as: <ul style="list-style-type: none"> Identification of fire location Assist in evacuation of occupant especially person with disabilities Provide assistance and information to FSD as required
8	Evacuation plans shall tally with the zoning and operation of fire alarm system as stated in FS Notes of GBP
9	Procedures for any shutdown of FSI for inspection, maintenance, modification or repair as laid down in FSD Circular Letter No. 3/2008 shall be followed
10	Hierarchy, force strength, relevant duties of the Fire Safety Management Team shall be explicitly elaborated



Installation

Design Consideration of Installation for Individual FSI

-Spacing & location of detector

- Fire Alarm System (MFA) : at each hose reel point



Acceptance

Observation

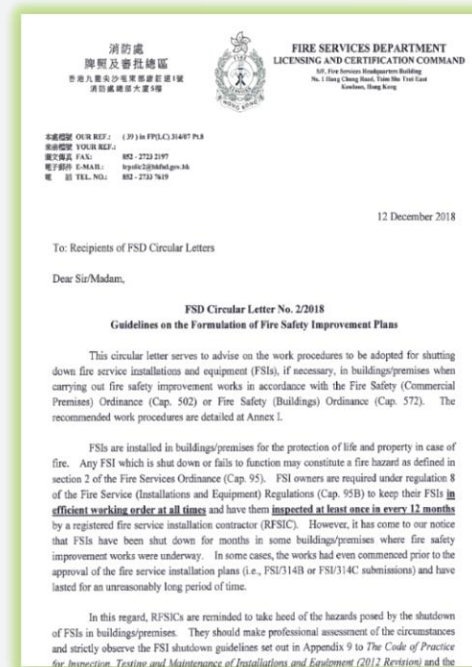
- Incomplete building works
- Smoke Stop Door found missing
- Incomplete installation of manual call point



Maintenance

Guidelines on the Formulation of Fire Safety Improvement Plans(FSD Circular Letter No. 2/2018)

- Detailed planning in advance is a prerequisite for the timely completion of works projects
- Major components should be installed at the initial stage
- RFSICs are advised to stick a BLUE label tape to the newly installed FSIs
- FSIs should be shut down at the conversion stage ONLY



Maintenance

Inspection, Maintenance, Modification and Repair FSI with Moving Parts(Letters to RFSIC dated 19.3.2019 & 22.11.2019)

- RFSICs are strongly requested to inspect, clean, test, recalibrate and lubricate (where appropriate) the moving parts of FSI systems(for example, FS/Sprinkler inlets)



Best Practice for Design, Installation, Acceptance and Maintenance of Fire Service Installations and Equipment

消防裝置及設備的設計、安裝、驗收及保養良好實務指引

- Estimate to be published in September 2020 (English Version)
- Hard and soft copies will be available
- Chinese Version will follow





Thank you!



Introduction of Fire Safety (Industrial Buildings) Ordinance Cap. 636

Assistant Divisional Officer (Support)
YEUNG Chi-yung

Contents

- Background
- Legislation
- Enforcement Mechanism
- Implementation

Background of Cap. 636

- Since the 1950s, Hong Kong's manufacturing industry has developed rapidly.
- The industrial areas: Kwun Tong, Cheung Sha Wan, San Po Kong, Kwai Chung and Tsuen Wan districts.
- Nowadays, different kinds of industrial activities still found in these old industrial buildings .



Background of Cap. 636

Severe fires in industrial buildings:

- *No.4 alarm fire in Ngau Tau Kok, Kowloon in June 2016*
- *No.3 alarm fire broke out in a warehouse on 8th floor of an industrial building in Cheung Sha Wan, Kowloon in July 2016.*



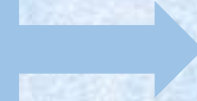
Background of Cap. 636

- Fire safety measures in all buildings generally meet the standards prevailing at the time of their construction.
- For better protection:
Fire safety provisions are to be enhanced to meet the current standard

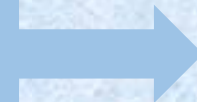


Background of Cap. 636

Industrial activities



Use of dangerous goods
or other chemicals



Bulk storage of
combustible materials



Legislation

For industrial buildings which constructed on or before **1 March 1987**, or building plans first submitted for approval on or before **1 March 1987**.



Legislation

Period of Time	Requirement for Provision of Sprinkler System
Pre-1973	<p>(a) Any compartment exceeding 7,000 m³;</p> <p>(b) Basements for storage exceeding 500 m²; and</p> <p>(c) Godown and warehouse where considered necessary by the Director of Fire Services.</p>
1973 to 1987	For all industrial buildings and godowns over 2 storeys
1987 to present	For all industrial buildings of total area exceeding 230 m ² .



Legislation

Existing legislation requiring the upgrading of fire safety standards of old buildings -

**Fire Safety (Commercial Premises)
Ordinance**

(Cap. 502, FS(CP)O)

Commercial Buildings

**Fire Safety (Buildings)
Ordinance**

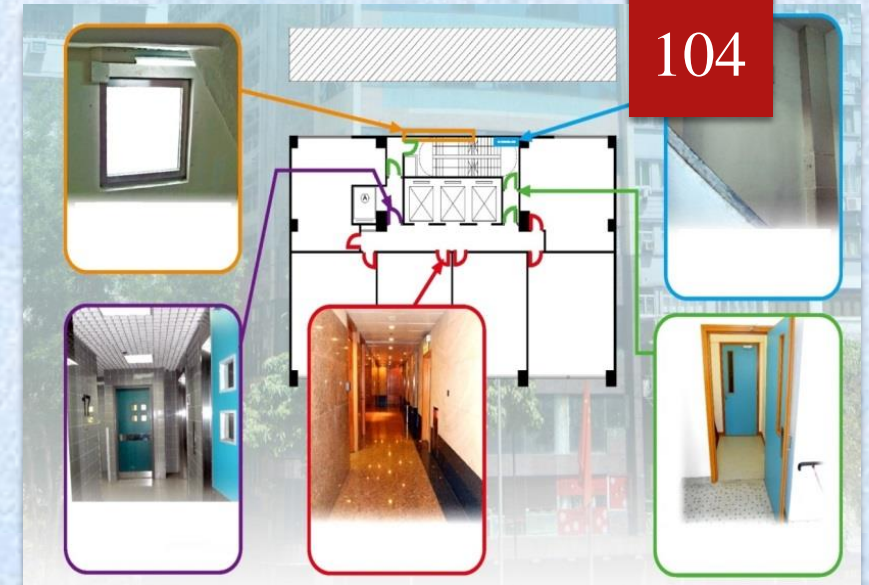
(Cap. 572, FS(B)O)

**Composite and Domestic
Buildings**

Legislation

Technical Feasibility Study

- 3 old industrial buildings of different ages and size/storeys were studied
- Generally feasible to carry out improvement works for pre-1987 industrial buildings



Legislation

- ▶ Briefed LegCo Panel on Security in April 2017
- ▶ Conducted a 2-month public consultation from August to October 2018
 - 19 written submissions received and all were generally supportive

Legislation

LegCo Meeting	12 December 2018	First Reading and commencement of Second Reading debate
Bills Committee Meeting	14 January 2019	Discussion of Bills
LegCo Meeting	27 May 2020	Resumption of Second Reading Debate
LegCo Meeting	11 June 2020	Passed Second Reading and Third Reading
Gazette	19 June 2020	Fire Safety (Industrial Buildings) Ordinance, Cap. 636

Target Buildings

- Buildings which were wholly or partly constructed for use as a **factory, industrial undertaking, godown, warehouse, place of bulk storage or similar industrial premises; AND**
- Constructed on or before **1 March 1987**, or building plans first submitted for approval on or before **1 March 1987**.

Enforcement Authorities (EAs)

▶ Director of Buildings

Fire safety construction



▶ Director of Fire Services

Fire service installations and equipment



Enforcement Mechanism Fire Safety Directions

EAs to inspect target Industrial Buildings



```
graph TD; A[EAs to inspect target Industrial Buildings] --> B[EAs to issue fire safety directions to owners / occupiers for compliance within a specified period]; B --> C[Owners / occupiers to carry out fire safety improvement works]; C --> D[EAs to issue certificate of compliance when satisfied that the fire safety directions have been complied with];
```

EAs to issue fire safety directions to owners / occupiers for compliance within a specified period

Owners / occupiers to carry out fire safety improvement works

EAs to issue certificate of compliance when satisfied that the fire safety directions have been complied with

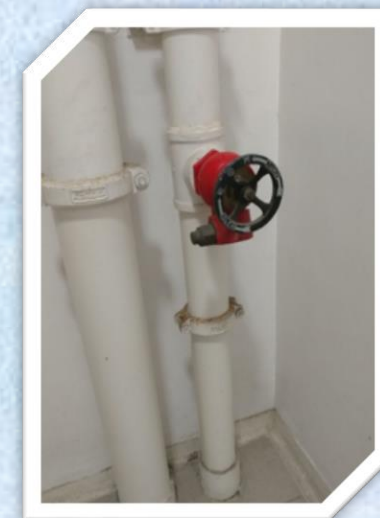
Publishing information

- ❑ To enhance the awareness of members of the public, including prospective buyers of industrial building units, of the outstanding legal liabilities
- ❑ To publish information on the fire safety directions, fire safety compliance orders and prohibition orders **in a Departmental Website**

Fire Safety Requirements

Fire service installations and equipment

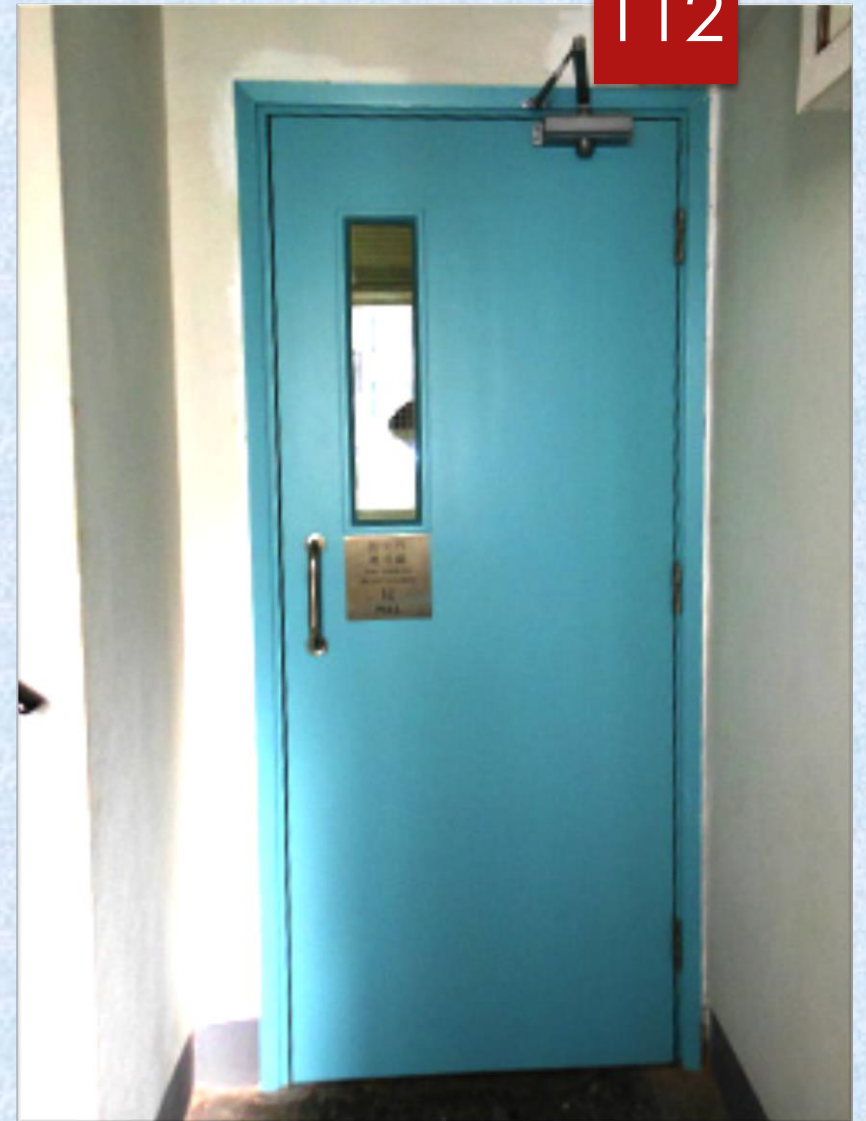
1. Automatic sprinkler system
2. Fire hydrant and hose reel system
3. Manual fire alarm system
4. **Emergency lighting**
5. Exit signs
6. Second source of electrical power supply
7. **Automatic cut-off device for mechanical ventilating system**

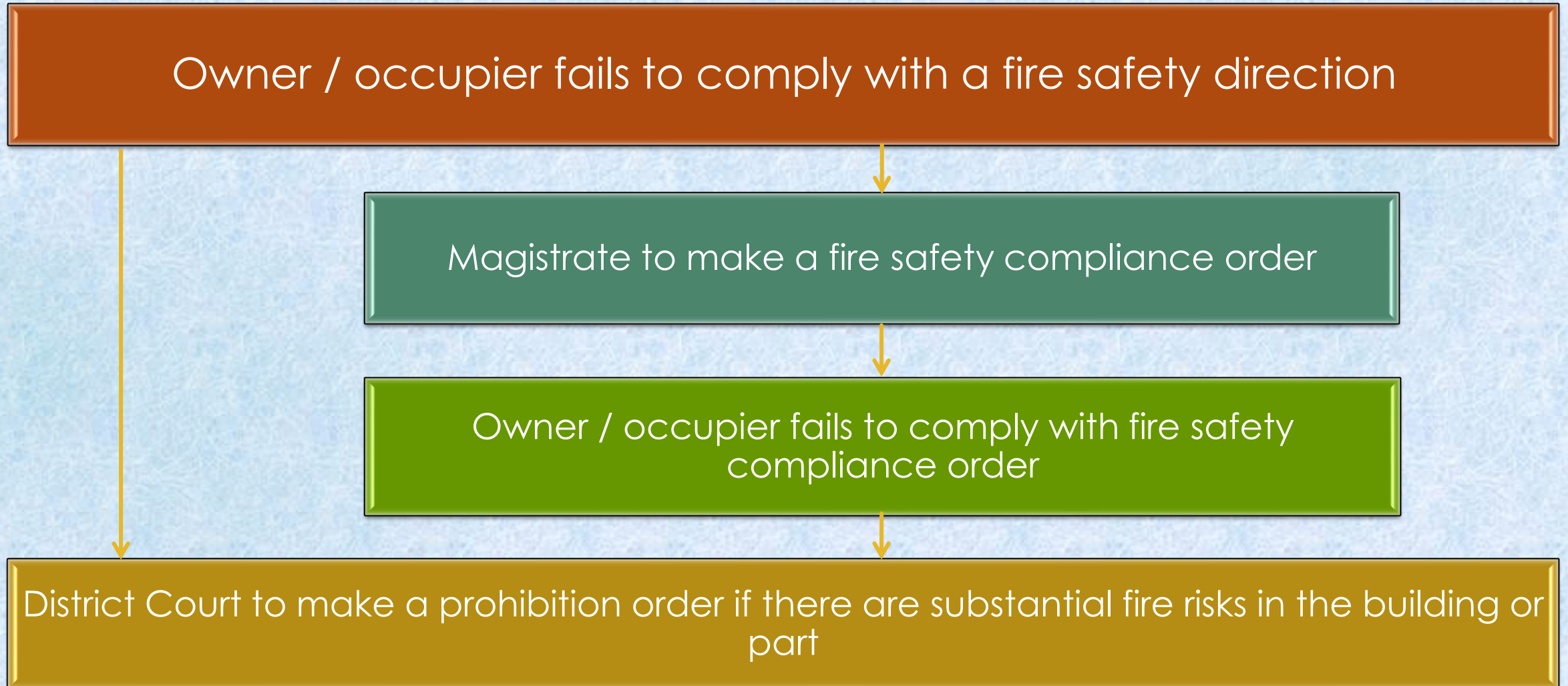


Fire Safety Requirements

Fire safety construction

1. Exit arrangements
2. Fireman's lifts
3. Exit routes and staircases with separating walls of fire resisting construction
4. Fire rated doors
5. Fire resistance of external walls
6. Fire resisting separation between different parts of building
7. Smoke vents to basements





Flexible and pragmatic approach

- ▶ Any difficulties for target industrial buildings in complying the requirement
- ▶ Flexible and pragmatic



Advisory Committee

- ▶ Alternative measure may be referred to an Advisory Committee
- ▶ Offering advice to the enforcement authorities from the perspectives of technical, cost and fire safety standard.



Implementation

- Around 1 100 Industrial Buildings will be subject to the regulation of the new Ordinance
- New Ordinance will be implemented in **two** phases, starting with some 400 IBs constructed or had their building plans submitted on or before **March 1973**, because the majority of these Industrial Buildings are not sprinkler-protected
- Preliminary target: Inspect about 90 industrial buildings each year
- Enforcement work: in Q4 2020 or Q1 2021 tentatively



Thank You
