



# FSD Connects

with Registered Fire Service Installation Contractors  
and Building Professionals

## Fire Safety Requirements for Data Centres and Battery Rooms

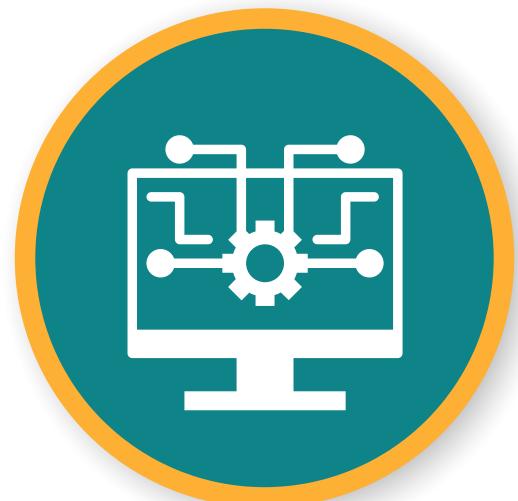
Fire Services Department  
Senior Station Officer  
LAU Yin-pok



# Contents



**Background of Data Centres  
and Battery Rooms**



**Findings in the review of FSI  
requirements**



**Amendment of FSI  
requirements**

# Background



## Policy Address

- Hong Kong is striving to become an international innovation and technology (I&T) centre



## Hong Kong Innovation and Technology Development Blueprint

- To formulate facilitation policies for technology industries
- To attract Mainland and overseas technology enterprises to set up operations in Hong Kong



## Ranking of Hong Kong's data centre market

- 2nd in Asia - Pacific Region
- 6th in Global



Rapid Growth for the demand of

Data Centres and its associated facilities is expected

# Uninterruptible Power Supply (UPS)

- Commonly adopted in data centre to maintain power supply to essential equipment
- The use of lithium-ion batteries in UPS is rising



# Advantage of utilizing lithium-ion batteries



**Small in size**



**High energy intensity**



**Light weight**



**High charging efficiency**

## **Situation of application of lithium-ion batteries in Data Centres in Hong Kong**

Visits to data centres in Hong Kong were conducted by FSD in Nov 2024

### ***Result of the visits***

***Over 50% of battery rooms in data centres are utilizing lithium-ion batteries***

# Fire risks of lithium-ion batteries



## Thermal runaway

- A self-sustaining increase in temperature due to a chain reaction of events
- Often self-sufficient and continue to burn without access to additional oxygen.
- This process can potentially heat up adjacent cells/packs, resulting in cascading thermal runaway

## Re-ignition

- Residual heat or remaining chemical reaction inside the batteries may still continue to develop chain reactions within the Li-ion batteries and leading to re-ignition



A Review started in  
Oct 2024

FSI Requirements for

1

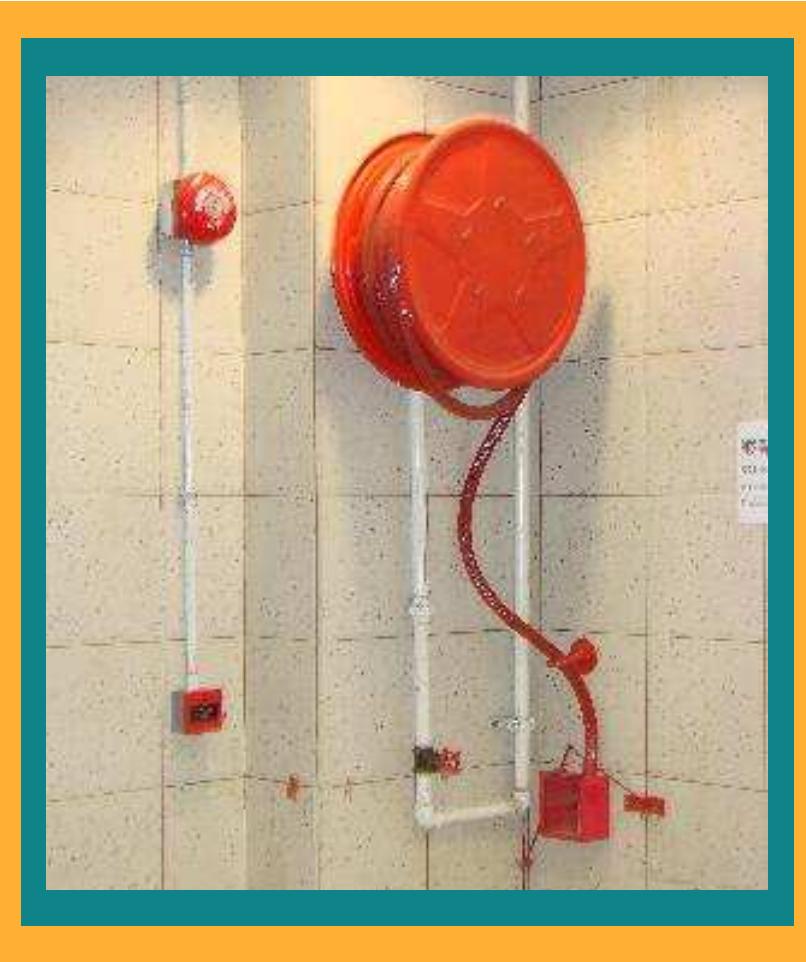
*Data Centres*

2

*Battery rooms*

# Extant Major FSI Requirements for Data Centres

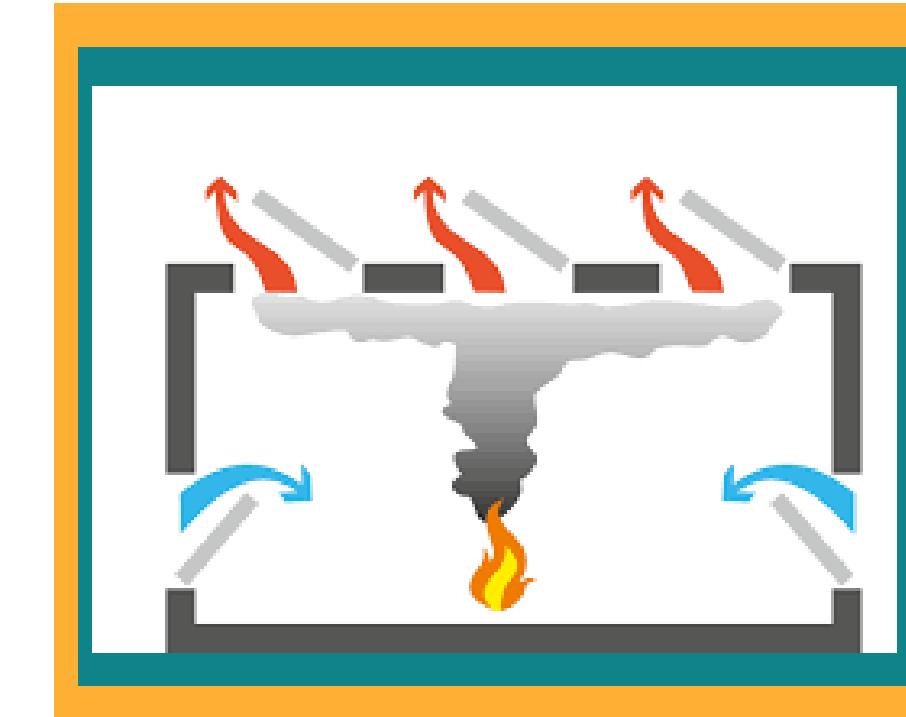
Currently regarded as “industrial building”



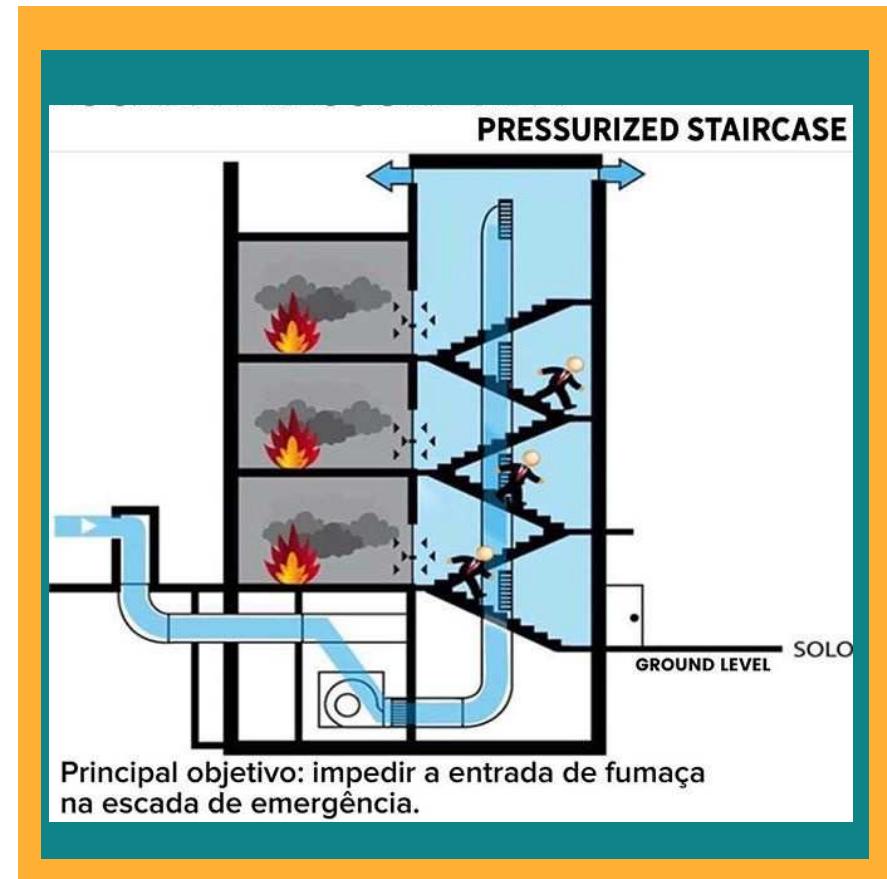
Fire hydrant/hose reel system



Sprinkler system/  
gas extinguishing  
system



Smoke extraction  
system



Pressurization of  
staircase

# Fire risk of Data Centre

## Lower fire load density (FLD)

FLD of Data Centre: 400 MJ/m<sup>2</sup>\*

FLD of industrial ware house: 1180 MJ/m<sup>2</sup>\*



## Lower occupant load density

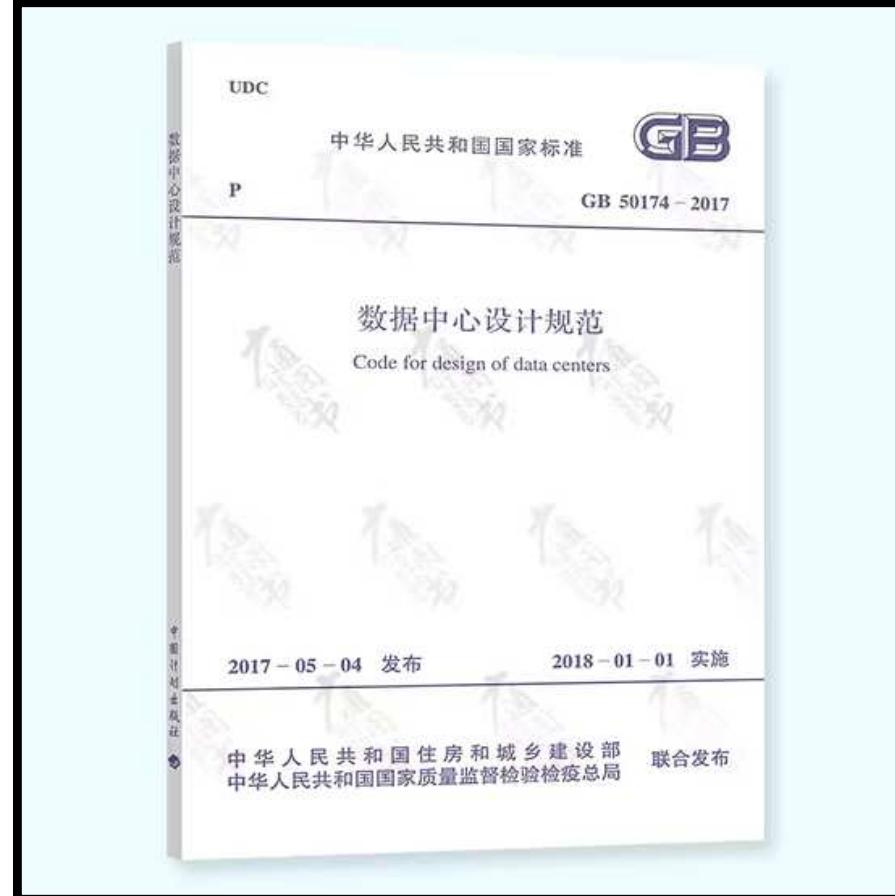
Access to Data Centre usually restricted to specialized staff

**Smoke extraction system is not necessary**

**Pressurization of staircase is not necessary**

# GB (国家标准)

## Major FSI provision for data centre



### Fire suppression system for server room:

- Gas suppression system;
- Water mist system; or
- Sprinkler system

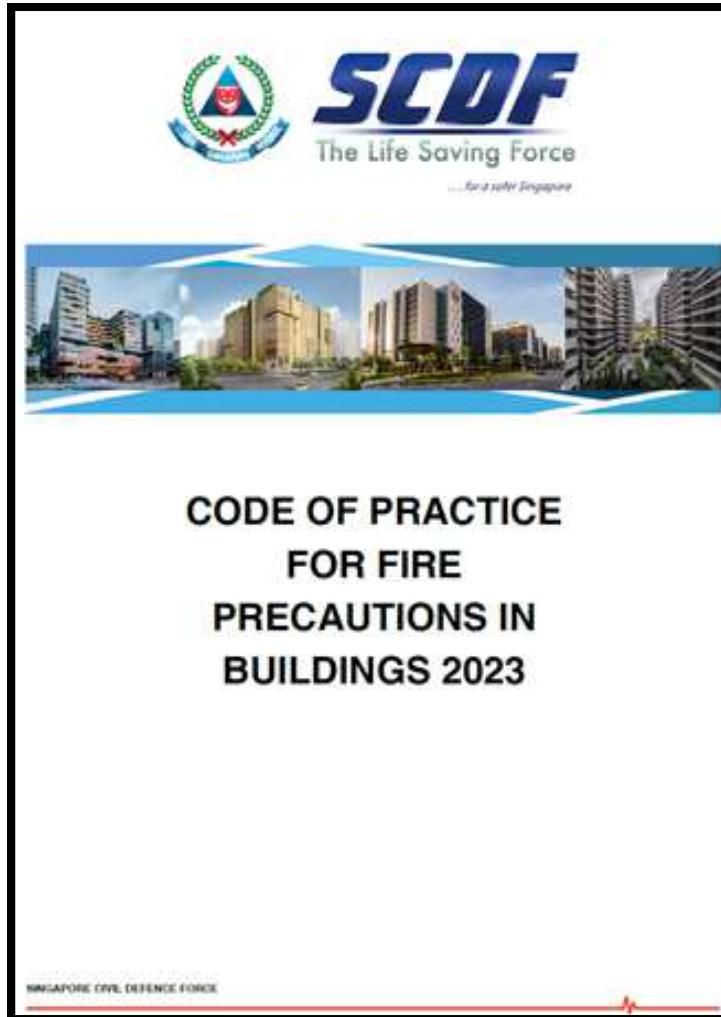
### Fire suppression system for other area:

- Sprinkler system

### Others:

- Fire alarm system; and
- Fire hydrant/hose reel system

# International standards



Data centre is categorized as industrial building

- Smoke extraction system is required for **all buildings** with large compartment
- Pressurization of staircase is required for **all buildings** with height exceeds 24m

## Singapore Fire Code

***Smoke extraction system and pressurization of staircase are not specifically required for data centres***

# International standards



**NFPA**

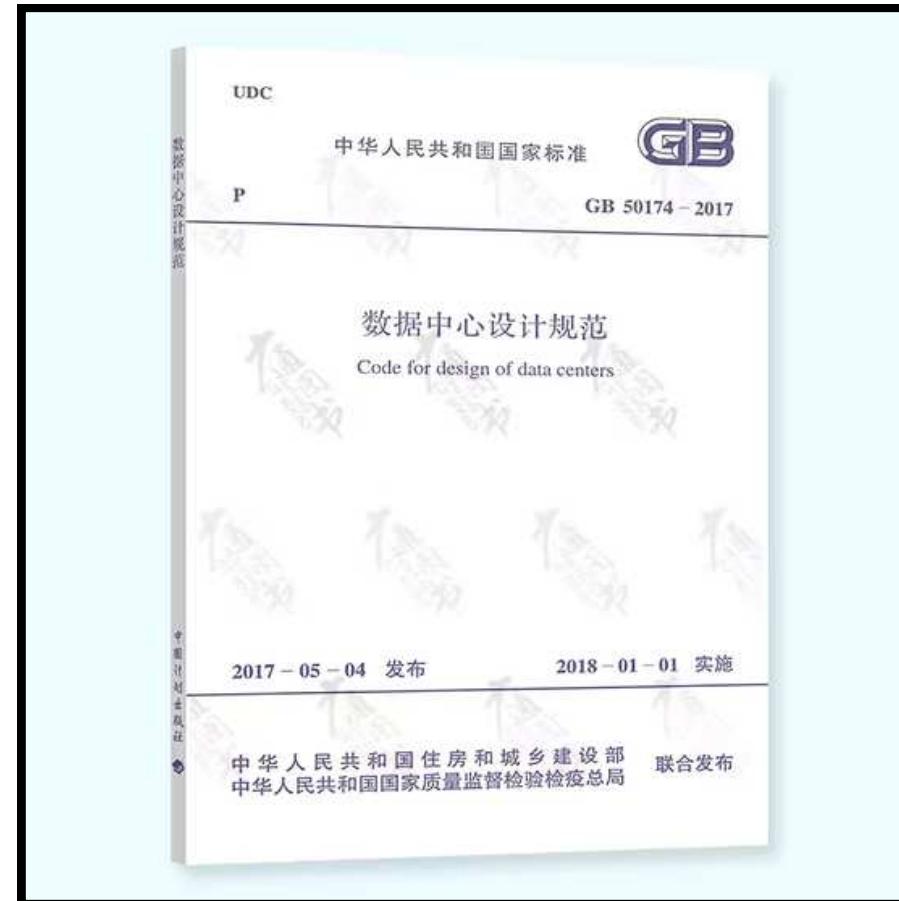
Major FSI provision for data centre

Fire suppression system:

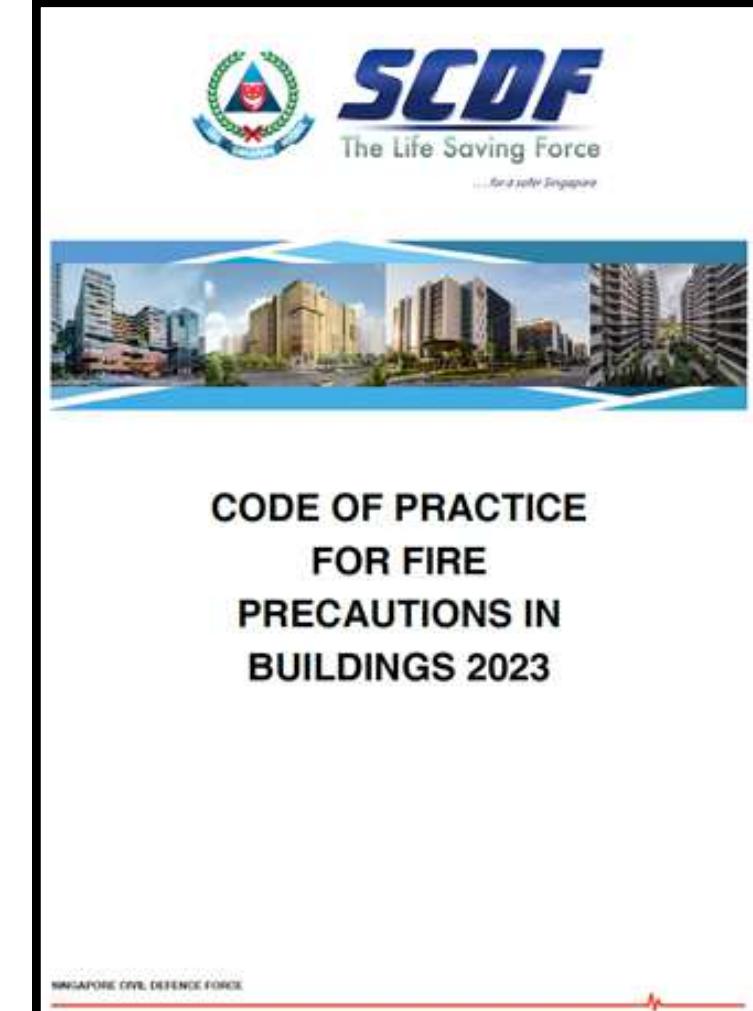
- Gas suppression system;
- Water mist system; or
- Sprinkler system

Others:

- Fire alarm system
- Fire detection system; and
- Fire hydrant/hose reel system



**GB (Chinese standard)**



**Singapore Fire Code**



**NFPA**

***Smoke extraction system and pressurization of staircase are not required for data centres in the above standards***

# Proposed requirements for Data Centre

*Addition of Definition of Data Centres*

&

*Addition of specific FSI  
requirements for Data Centres*

# Proposed requirements for Data Centre

## Addition of Definition of Data Centres

“Data Centres” means

Premises used for data processing services but exclude activities involving direct provision of customer services, retail services or goods, which often attract a large number of visiting members of the public to the premises.

# Proposed requirements for Data Centre

## Addition of specific FSI requirements for Data Centres

- Automatic actuating devices
- Automatic fixed installation other than water
- Emergency generator
- Emergency lighting
- Exit sign
- Fire alarm system
- Fire control centre
- Fire detection system
- Fire hydrant/hose reel system
- Fireman's lift
- Portable hand-operated approved appliance
- Sprinkler system
- Ventilation/air conditioning control system



2



# Review on FSI Requirements for *Battery rooms*



# Extant FSI Requirements for Battery Rooms

**Served as plant room of a building, normally providing secondary power supply (Not for battery storage)**



**gas extinguishing system**



**Fire detection system**



**Fire alarm system**

# Extant FSI Requirements for Battery Rooms



**gas extraction system**



**Exit Sign**



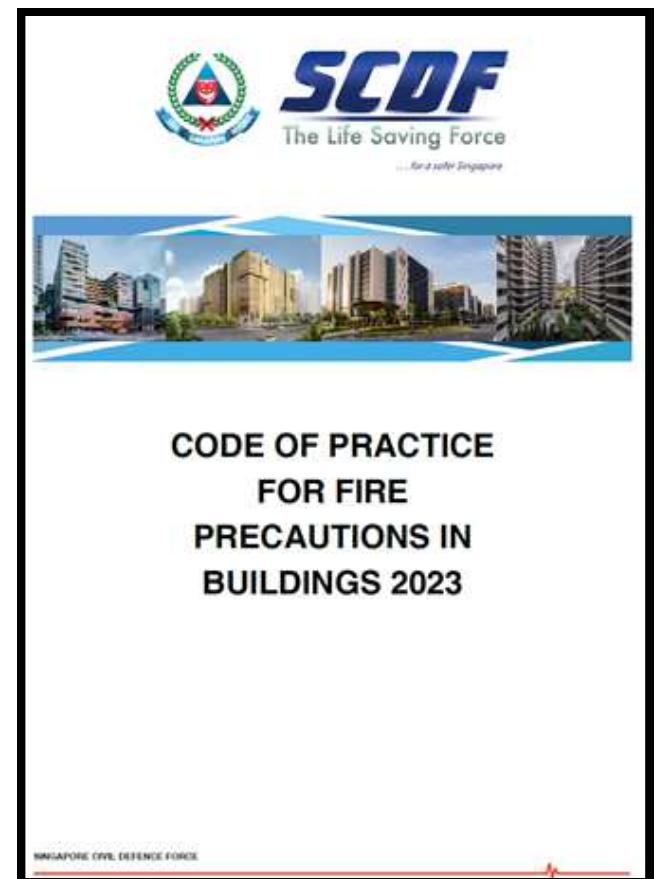
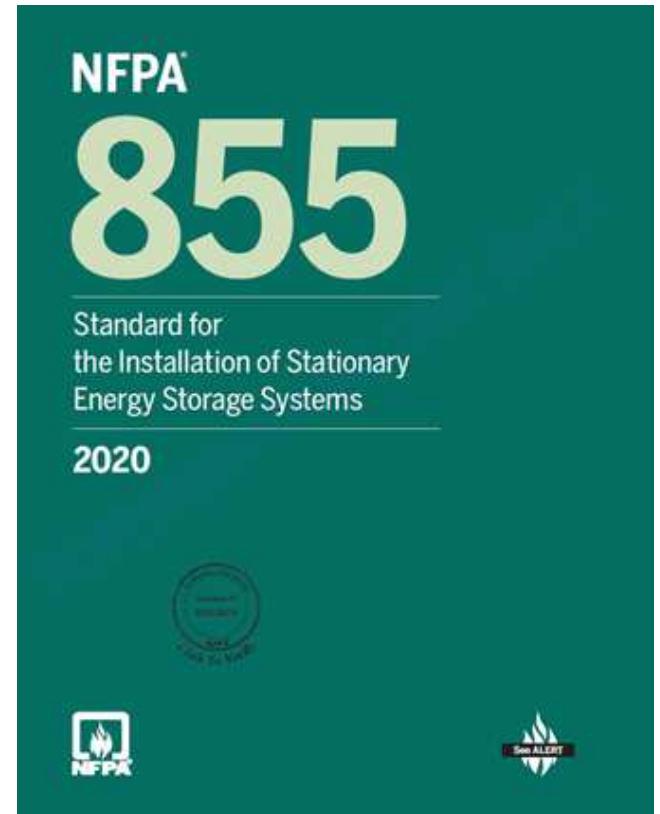
**Fire extinguisher**



**Ventilation/air conditioning control system**

# International standards

Code	Battery capacity per each compartment (kWh)	Fire suppression system using water
NFPA855	>20 / max 600 kWh	Yes
Singapore Fire Code 2023	>20 / max 600 kWh	Yes



***Water to be the most effective media in tackling fires involving lithium ion batteries***

# Proposed requirements for Battery Rooms

## *Update on FSI requirements for Battery Rooms*

“Automatic fixed installation using water” shall be provided for fire compartment containing lithium-ion batteries with capacity in excess of 20kWh

&

Lithium-ion batteries with a capacity over 600 kWh in a fire compartment is subject to case-by-case basis (fire engineering report shall be provided)

# Proposed requirements for Battery Rooms

## *Update on FSI requirements for Battery Rooms*

Fire compartment containing lithium-ion batteries with a capacity not exceeding 20 kWh

*OR*

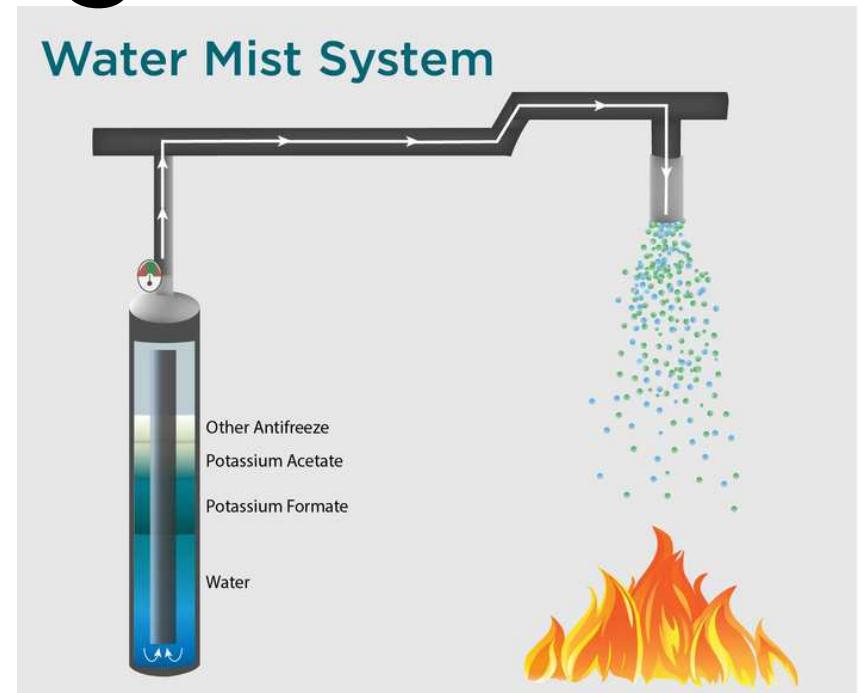
Fire compartment containing other types of batteries regardless of capacity

Provision of “Automatic fixed installation using water” is **strongly encouraged**, though not mandatory.

## Automatic fixed installation using water

Include:

- Deluge system
- Drencher system
- Sprinkler system
- Water mist system
- Water spray system



***In order to provide maximum flexibility on the choice of FSI and deal with the quick evolving technology, applicants can propose suitable system with acceptable standard***



# Consultation

Information paper stipulating the review findings and proposed requirements had been circulated to relevant stakeholders including:

1. Relevant government departments
2. Professional bodies
3. trade

**Generally positive feedbacks  
were received**



# FSD Circular Letter No. 2/2025 and 3/2025



**Issued on 26 June 2025**



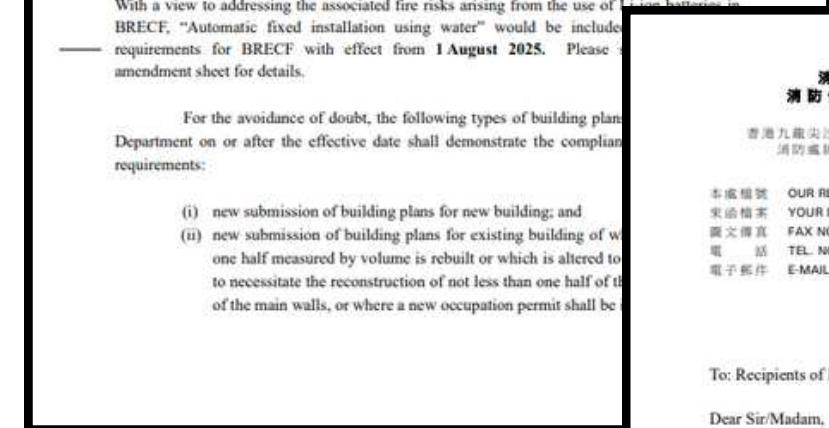
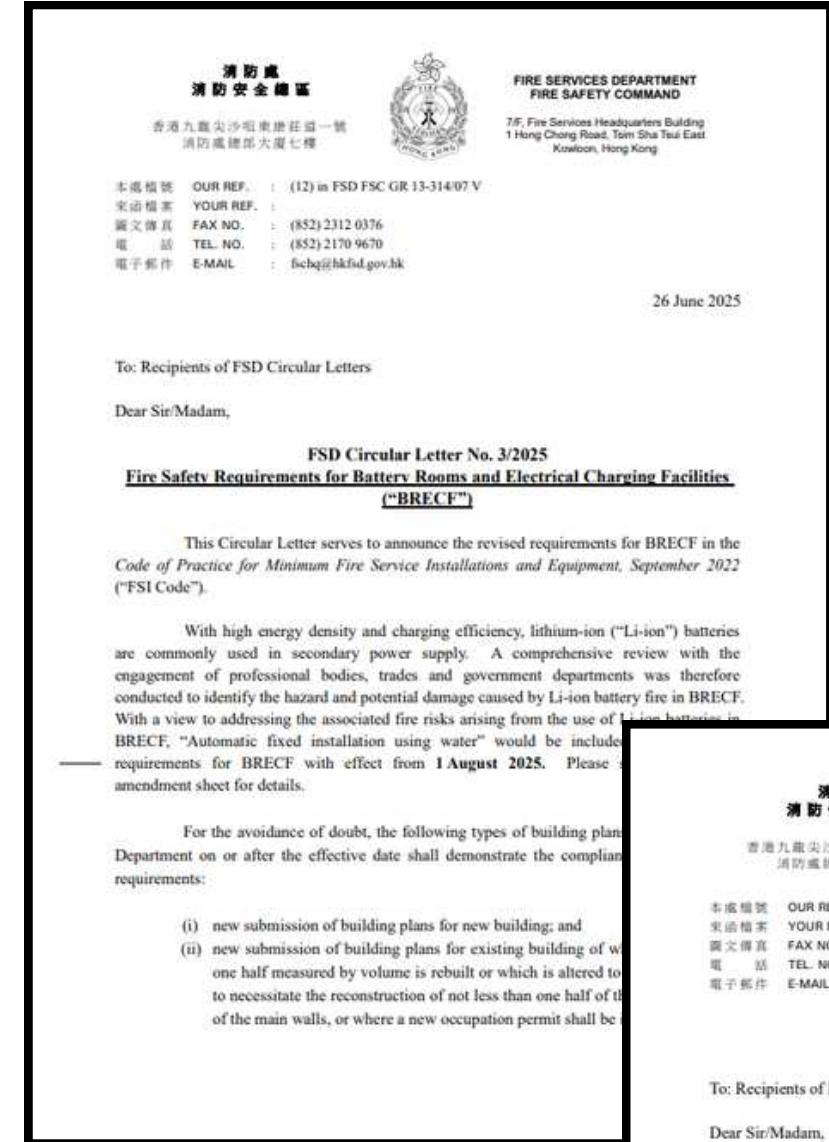
**New requirements take effect from 1 August 2025**



**Mandatory for new submission of building plans for new building or total conversion of existing building**



**For existing buildings to retrofit/install appropriate FSI according to the revised requirements, separate enquiry submission shall be submitted for approval**



# Thank You

For Your Attention





**FSD Connects**  
with Registered Fire Service Installation  
Contractors and Building Professionals

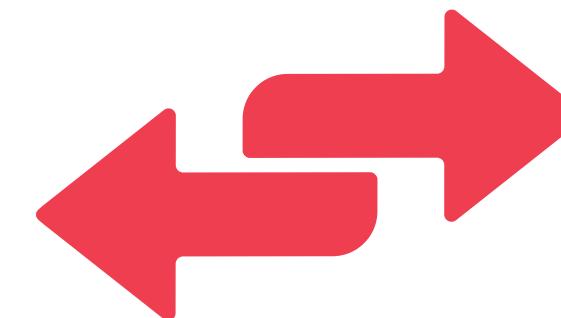
**Points to Note for  
Submission of FSI Plans for  
Smoke Control Systems for  
Acceptance Inspection of FSI**

**Fire Services Department  
Senior Station Officer  
LAU Yin-pok**



# To expedite the construction of new buildings

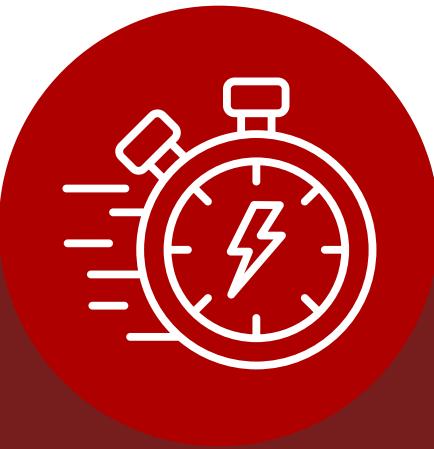
FSI Plans for Smoke Control System are essential for the construction of buildings, prior vetting is necessary



Reduce the required processing time

Reduce repeated submission

# Measures to expedite the procedures for FSI Plan Submission for Smoke Control System



Expedite the approval of FSI Plan for acceptance inspection

The processing time to be reduced from normally not more than 12 weeks to **not more than 8 weeks**

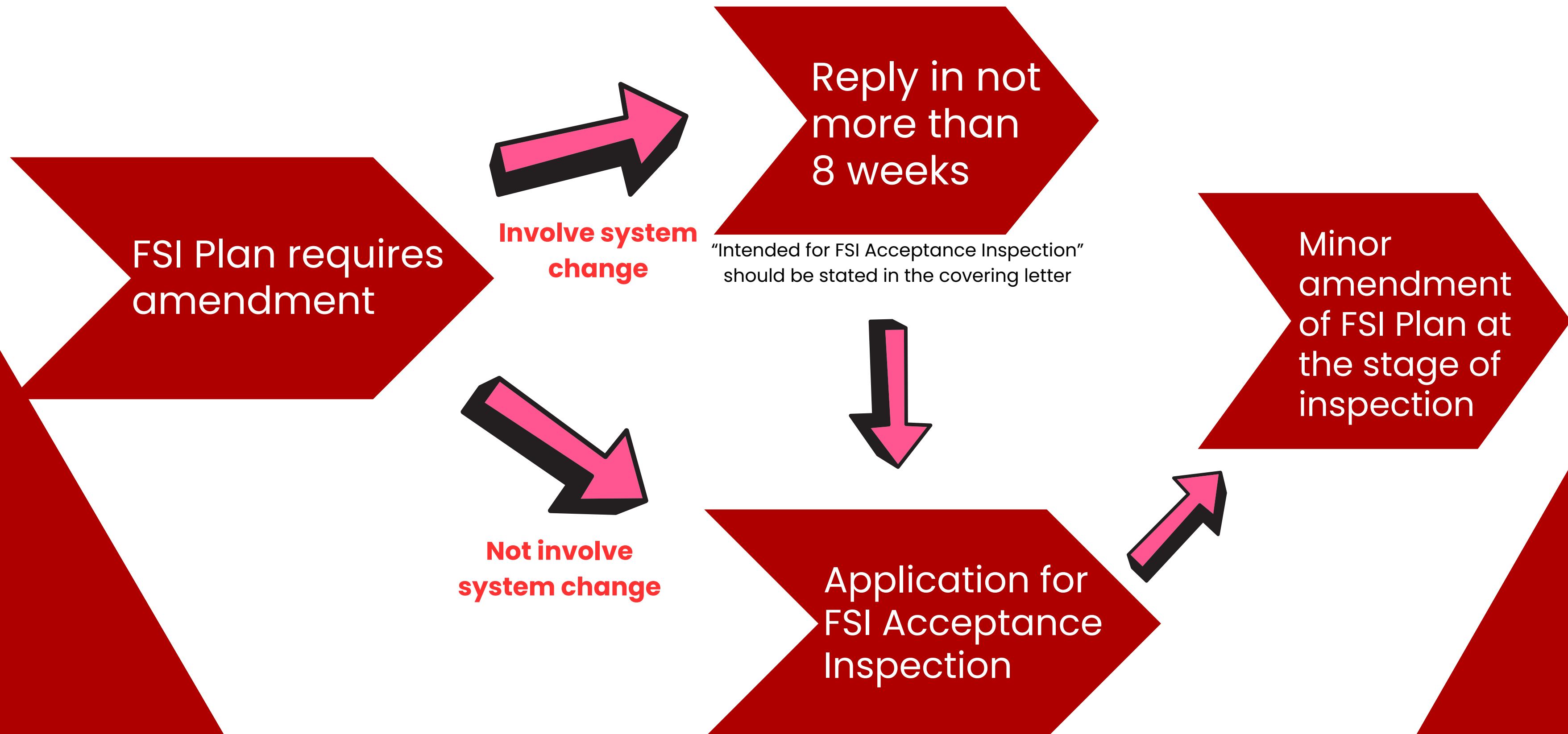
\*the reduced processing time will be granted only once for each system of each building



Effect minor amendment to previously endorsed FSI Plans at the stage of acceptance inspection

Amendment shall not involve changes in system design and performance

# Procedures for FSI Plan Submissions for Smoke Control System



# Amendment involve system change

## Smoke Extraction System

1

Changes of compartment volumes in the GBP that lead to smoke extraction rate changes

## Ventilation/air-conditioning Control System

2

Change of control method

## Staircase Pressurization System

3

Change of number or size of door leading from staircase/lobby to accommodation

# Guidance Notes

NP/113 – Points to Note for Submission of FSI Plans for Smoke Control Systems for Acceptance Inspection of FSI

Attached in the reply letter for first approval of GBP submission and FSI Plan submission

NP/113



## Points to Note

### for Submission of FSI Plans for Smoke Control Systems for Acceptance Inspection of FSI

This Note outlines the enhanced procedures for the submission of fire service installation (FSI) plans accompanied with Form FSI/314 for smoke control systems (SCS), i.e. smoke extraction system, pressurization of staircase and ventilation/air conditioning (V/AC) control system, required for application for acceptance inspection of FSI.

The extant procedures stipulated in FSD Circular Letter No.1/2015 specify that prior vetting is required for FSI plans related to SCS. To ensure accuracy and minimize the need for drawing amendments during the acceptance inspection, it is advisable to use the latest set of approved General Building Plans (GBP) when preparing FSI plans for SCS. This approach not only accurately reflects the actual site conditions but also serves as a reliable as-built record.

While prior vetting of FSI plans for SCS remains mandatory, the following submission methods may be adopted to facilitate the trade in submitting Form FSI/314 for SCS:-

(1) Submission of SCS FSI plans based on the latest set of approved GBP which is for FSI Acceptance Inspection

- When submitting Form FSI/314 for SCS, the AP shall include a covering letter that explicitly states the submission is based on the latest set of approved GBP and is intended for “FSI Acceptance Inspection”.
- The processing time of this type of submission will be reduced from normally not more than 12 weeks to normally not more than 8 weeks.
- To prevent abuse of this measure, the reduced processing time will be granted only once for each system of the building.

(2) FSI Acceptance Inspection based on stamped SCS FSI plans according to the previously approved GBP

- The AP and RPE, where applicable, shall submit a declaration letter along with FSI/501 application undertaking that any minor changes<sup>1</sup> not reflected on the stamped FSI plans for SCS do not affect the system design and performance. A sample of the declaration is enclosed in Appendix I of this Note. This declaration letter shall be accompanied with a summary and part plans, indicating the proposed minor changes on the stamped FSI plans.

<sup>1</sup> Example of minor changes:- changes of duct routing, relocation of system equipment, amendment on equipment designation etc



**Thank You  
For Your Attention**



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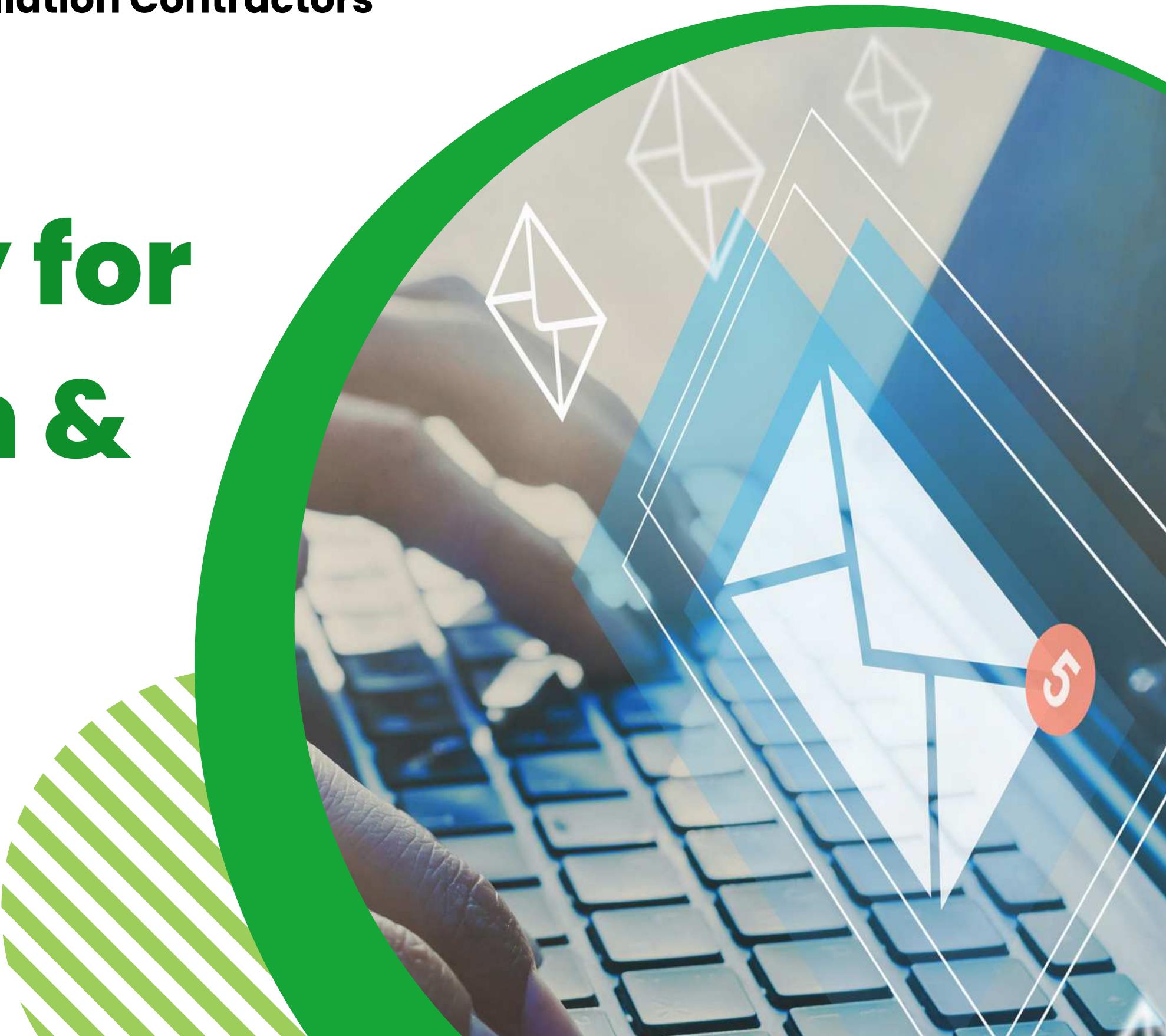


## Electronic Reply for GBP Submission & Electronic FS161

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**New Projects Division**

22 July 2025





# Background

## Digital Government:

- Full digitalisation of government services

## From 30 June 2024:

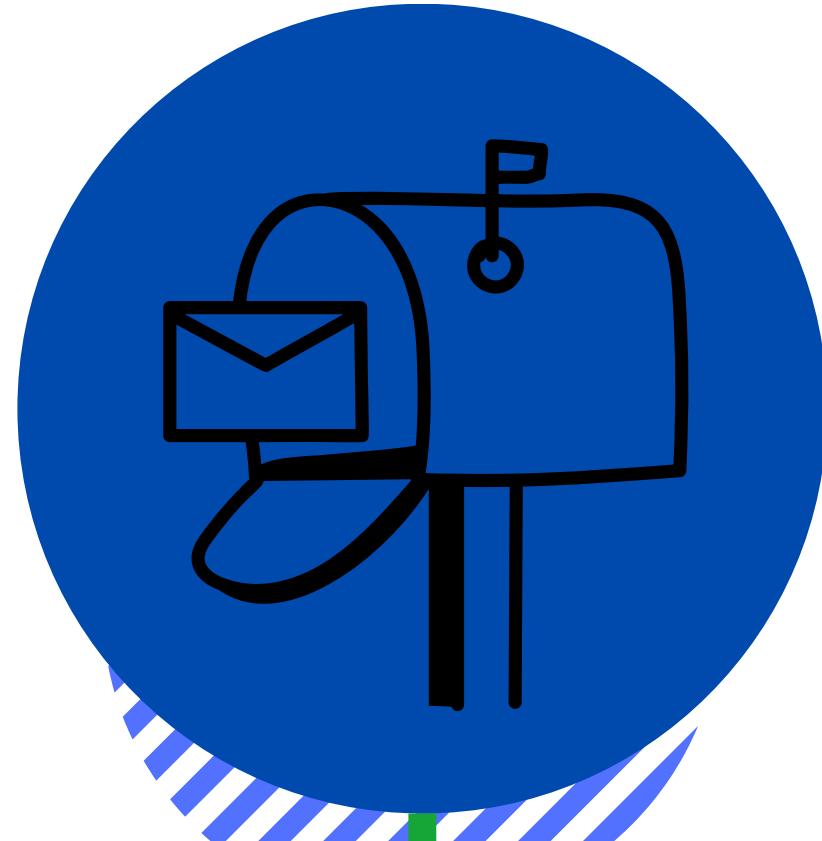
- Accept voluntary e-submission of GBP via ESH
- → Electronic Reply + Electronic FS161 (e-FS161)
- Target 2027 mandatory e-submission
- **Paper** GBP submission → **Paper** reply

NEW

## From 1 August 2025:

- **Paper** GBP Submission → **Electronic** Reply





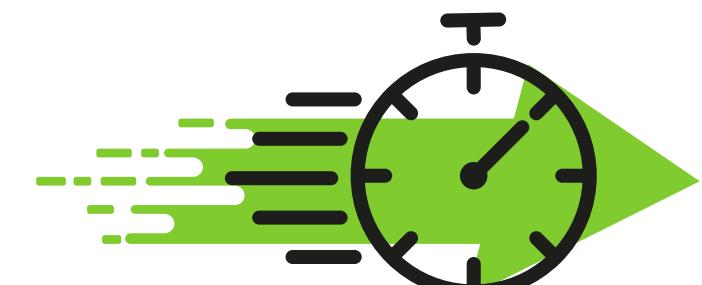
# Paper Reply

- By Post
- Time required ~4-5 working days

# Electronic Reply

- By Email\*
- Time required ~1 working day

*\*For both Paper and Electronic GBP Submission*



3-4 working days **faster!!**



# Reply Letter via Email



**Sender:** [no\\_reply@hkfsd.gov.hk](mailto:no_reply@hkfsd.gov.hk)

**Title:** 申請電子牌照／證書相關事宜 Matters Related to Application for e-Licence/e-Certificate (香港消防處 Hong Kong Fire Services Department)

**Attachment:** Reply Letter + Payment Notice (if FS161 to be issued)

就題述事宜，本處現已發出一份文件，並夾附於此電郵中，詳情請參閱附件。

如有任何查詢，請於辦公時間內聯絡本處相關單位。

香港消防處

\*\*注意：\*\*此為自動發送消息，請勿回覆本郵件。

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Dear Sir/Madam,

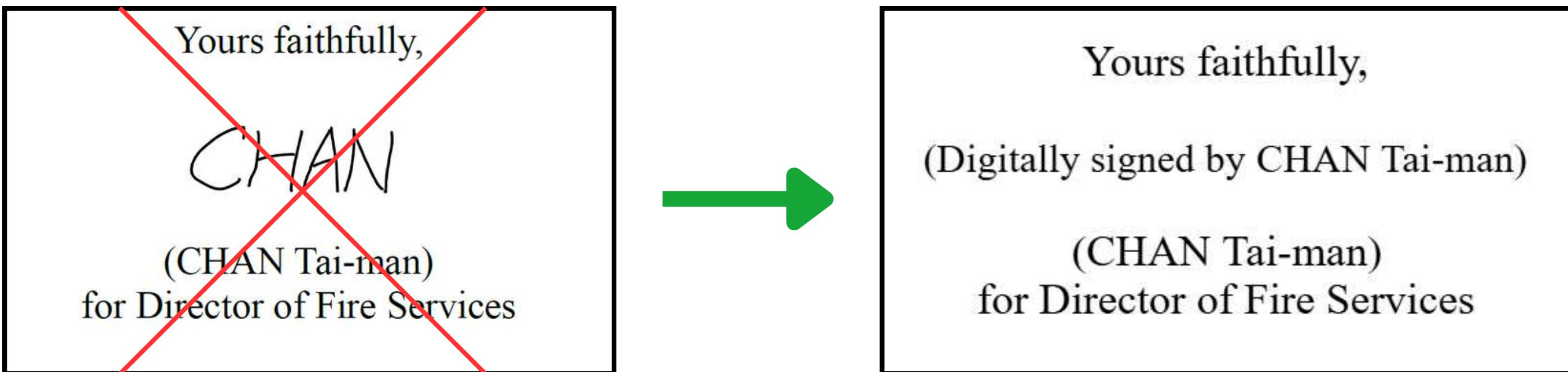
As regards the captioned subject, a document has been issued by this Department and enclosed in this email. Please refer to the attachment for details.

If you have any enquiry, please contact concerned units during office hours.

Hong Kong Fire Services Department

\*\*Note:\*\* This is an automated message; please do not reply to this email.

# Electronic Reply



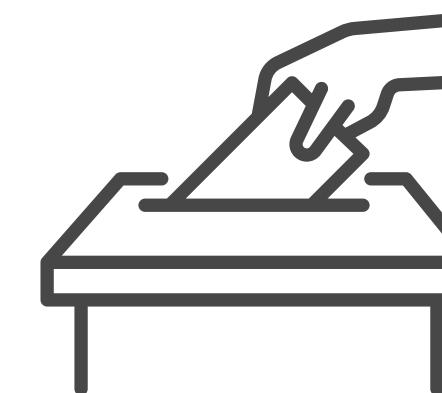
Digitally Endorsed

# Payment Method

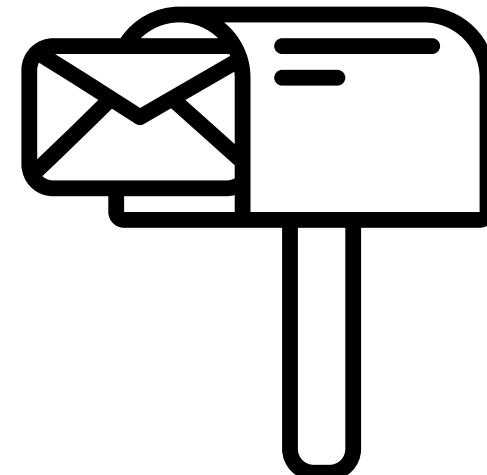
- **Remain unchanged**



In-person (by cash, Faster Payment System (FPS) or cheque)



Drop-in box (cheque only)



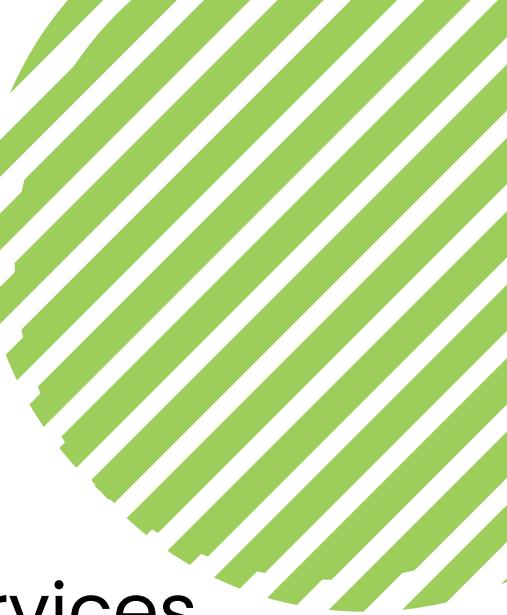
By post (cheque only)



Electronic Payment (e-payment)



# e-FS161 via Email



**Sender:** [no\\_reply@hkfsd.gov.hk](mailto:no_reply@hkfsd.gov.hk)

**Title:** 電子牌照／證書 e-Licence/e-Certificate (香港消防處 Hong Kong Fire Services Department)

**Attachment:** e-FS161

PDF  
e-FS161.pdf  
29 KB

先生／女士：

閣下申請的電子牌照／證書現已簽發，且夾附於此電郵中，詳情請參閱附件。

如有任何查詢，請於辦公時間內聯絡本處相關單位。

感謝您選用香港消防處的電子牌照及證書服務。

香港消防處

\*\*注意：\*\*此為自動發送消息，請勿回覆本郵件。

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Dear Sir/Madam,

Please be informed that the electronic licence/certificate which you applied for has been issued and enclosed in this email. Please refer to the attachment for details.

If you have any enquiry, please contact concerned units during office hours.

Thank you for using the e-Licence/e-Certificate service of HKFSD.

Hong Kong Fire Services Department

\*\*Note:\*\* This is an automated message; please do not reply to this email.



本處編號: OUR REF. : FP 8/88888  
回文傳真: FAX NO. : (852) 2722 6234  
電話: TEL. NO. : (852) 3971 9999  
電子郵件: E-mail : ado\_np\_99@hkfsd.gov.hk

AP  
c/o AP Company

[Email: AP@hkfsd.gov.hk]

Dear Sir/Madam,

Address : ABC Road

Proposal : A single-storey building

I refer to your submitted building plans through the Building  
received by this Department on 23.6.2025.

The amended plans have been examined and found satisfactory. The Services requirements have been incorporated on the building plans and are the requirement(s) for this building remaining fully applicable. A Fire Services endorsement will be issued to you direct to your given email address upon confirmation of the payment. Payment can be made according to the instructions on the attached Payment Slip.

One set of the plans is retained for record. The other set is due for your collection at the North Wing, Fire Services Headquarters Building, 7th Floor, 2/F, Centre Parc, 100 Queen's Road, Tsim Sha Tsui East, Kowloon during the following hours:-

Monday to Friday (except public holidays) 9:00a.m. – 12:30p.m. and 1:30p.m. – 4:30p.m.

Please be reminded that should the proposed amendment(s) to the building plans, including the addition of new sprinkler/heat/smoke detector heads, revised layout drawing(s) shall be submitted within 3 months from the date of this letter, the uncollected plan(s) will be deemed to be abandoned by you and will be disposed of without further notification.

Please bring along the original copy of this letter and the electronic payment record with you when collecting the building plan(s). You may also collect the building plan(s) within 3 months from the date of this letter, the uncollected plan(s) will be deemed to be abandoned by you and will be disposed of without further notification.

Should you have any enquiries, please contact the case officer, Mr. C. O. Wong, tel. no. 3971 8888. If necessary, you may also contact his supervisor, Mr. C. K. Wong, tel. no. 3971 9999.

Your sincerely,

(Digitally signed)

(CHAN  
for Director)

c.c. BD (Ref.: ef(2) in BD 2/8888/88)

# Collecting Paper GBP

## For GBP with endorsement (e-FS161 to be issued)

### 1. Settle Payment

2. Presenting the electronic reply letter at *North Wing, 7th floor, Fire Services Headquarters Building*

## For GBP without endorsement

1. Presenting the electronic reply letter at *New Projects Division, 2/F, Centre Parc*

# Designated Email Address

## Paper GBP Submission:

- State in **Cover Letter**

For example:

Designated Email Address for FSD: abc@abc.com



## Electronic GBP Submission (ESH):

- **Email Address of Contact Person**

CPS Code	FSD
Status	 Full Name : CHAN Siu-ming
Registry Group	 Tel : 88888888
RC	 E-mail : <a href="mailto:abc@abc.com">abc@abc.com</a>
Case Officer	

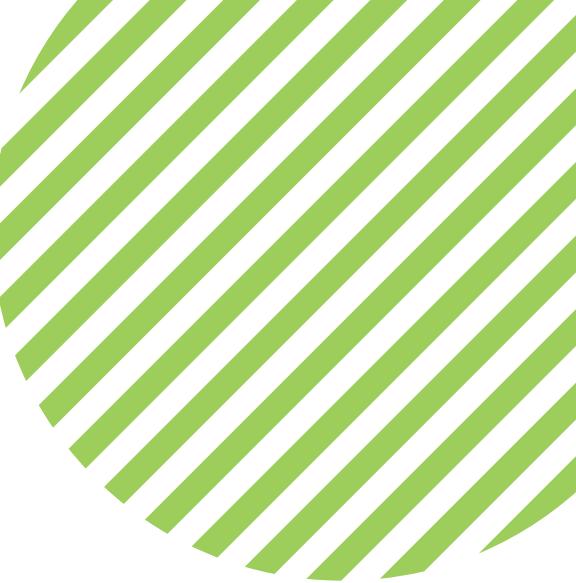
Contact Person

[CHAN Siu-ming](#)

Referral ID

88888

District Area



# Thank You

# Q & A

