

Fire Services Department

Experience sharing on Acceptance Inspection of FSI

25.6.2018

Welcoming Address

Deputy Chief Fire Officer
(Licensing and Certification)
Mr. Derek Armstrong CHAN

Summary of Seminar on 24.11.2017

➤ Processing of GBP

- Prioritization of submissions

Top priority to New/Major, and Final Amendment submission

- Case Officer System

➤ Procedures for Acceptance Inspection of FSIs

- Points to note in Submission of Form:

FSI/501 – Application for Inspection and Testing of FSI and Equipment

FSI/314 – Fire Service Installation Schematic Drawings / As-fitted Layout Drawings

➤ Experience Sharing

(1) Documentary Submission

- Common mistakes noticed during acceptance inspection

(2) FSI Acceptance Inspection

- Common defects noticed in on-site acceptance inspection

Measures taken since seminar on 24.11.2017

Streamline the process of acceptance inspection

- **Pre-inspection meeting with AP & RFSIC**
- On need basis
- Preliminary Document checking
- Coordination of inspection schedule

Measures taken since seminar on 24.11.2017

- **Prepare standard document checklist**

(e.g. FS251 for portable equipment and DG Approval for fuel tank of Emergency generator. etc)

Launched on 8 Jan 2018 and updated on 14 May 2018

- **Conduct Seminars to the trade and Institutions, e.g. HD, HKIA, FSIC, HKIS & HKIE**

5 Seminars were held from Nov 2017 to May 2018

Measures taken since Seminar on 24.11.2017

➤ Issue FS Certificate

Overall Document Checking efficiency enhanced

- Minor amendments of general building plans or FSI/314 drawings
- Supplementary document submissions

Measures taken since seminar on 24.11.2017

- Video in FSD website

Seminar PowerPoint and Video uploaded onto FSD website

- Letter to FSIC on FSD Circular Letter No.1 /2015

issued on Nov 2017 and Jun 2018 to FSIC on guidelines on Documents required for Application for Compliance Inspection, e.g. FSI 314, FSI 501 & T&C checklist

Flow of Presentation

- **Experience Sharing**
 - FSI Acceptance Inspection
 - Overall Review
- **Q & A session**

FSI Acceptance Inspection

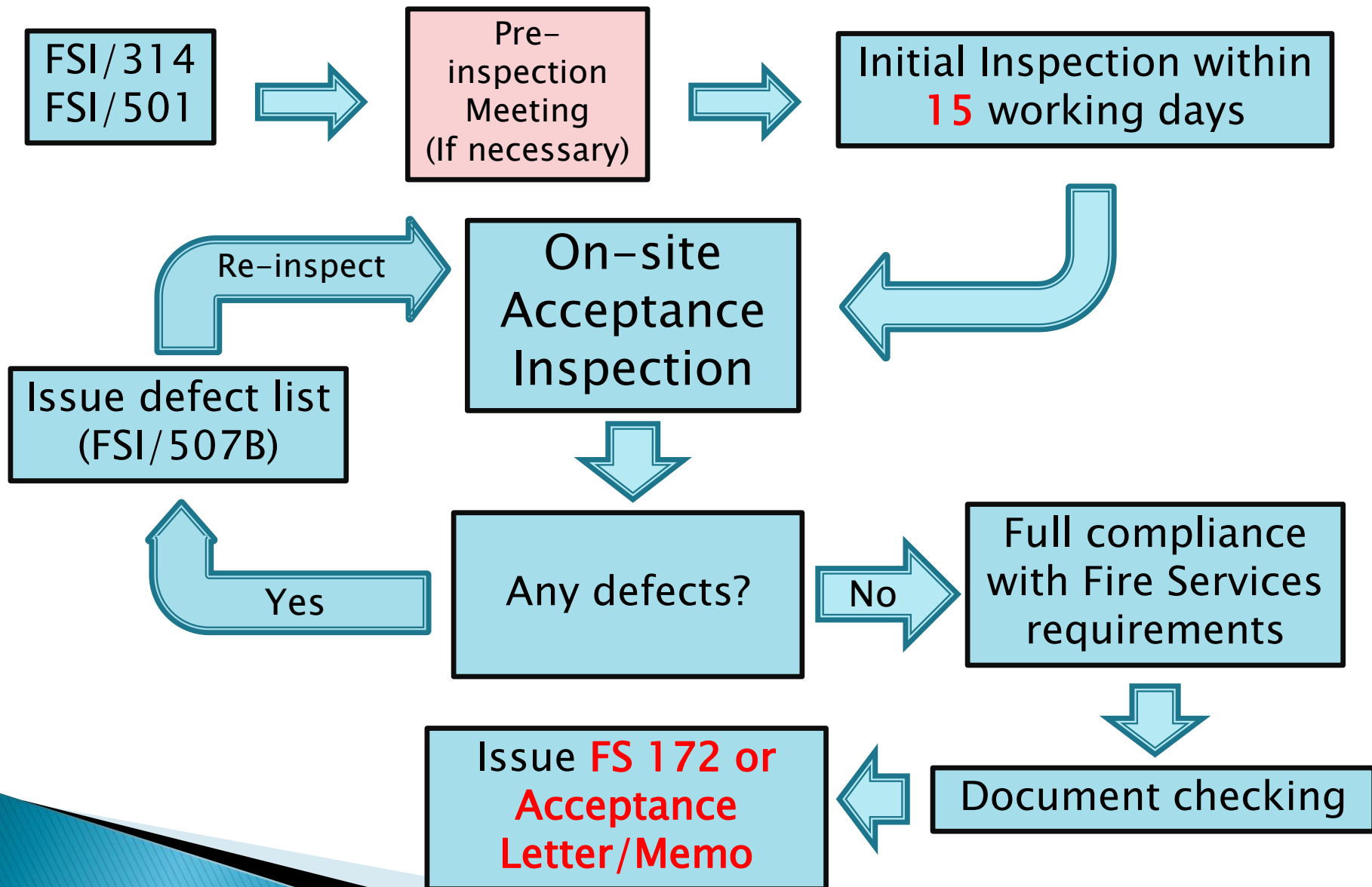
Senior Engineer (Fire Protection)
Ir LEUNG Kam-man

FSD Circular Letter No. 1 /2015

- ❑ **Form FSI/501** : Application Form
- ❑ **Form FSI/314** with two sets of as-fitted FSI layout plans*
- ❑ Testing and Commissioning **(T&C) Checklists**
- ❑ FSIs **Equipment List** & relevant supporting documents
- ❑ Document submission for FSI Equipment

*Remarks: FSI/314 drawings for Smoke Control Systems required prior approval

Workflow for FSI Acceptance Inspections



Pre-inspection Meeting

- To enhance the overall efficiency of acceptance inspection

- On **need basis**:
 1. Review the actual project status and site readiness
 2. Review Document Checklist
 3. Coordinate inspection schedule

Document Checklist

FSD website for free download:

- Self-checking by AP/RFSIC and
- Signature by AP/RFSIC

Documents Checklist for Acceptance Inspection

Date: _____ FP Ref. no. *8/43/ _____
 *19/20/43/ _____
 Fire Service Installation Plans for Building at _____

A. Document(s) prepared by AP:		Yes	No	N.A.
1	List of Approved building plan list related to the application			
2	Confirmation of building name and actual building address			
3	Confirmation of building description and address shown on FS172/Acceptance Letter/Memo			
4	Confirmation for particular of FS172 if A&A works areas (BA13) is involved			
5	Owner's particular			
6	Confirmation letter for fireman's lift no., no. of served floor and location of fireman switch with copy of use permit			
7	FSCA or WWO 46 Pt. V			
8	Use Permits for Fireman/non-Fireman Lifts			
9	Confirmation of no VAC system installed on site			
10	2 sets of as-built EVA drawing indicated with as-built signages			
11	Location list of open kitchens if any			
12	Undertaking letter for EVA loading for Government Project			
13	Supporting document for Fire Safety Management Plan for open kitchen, such as letter from BD and FSD			
14	Confirmation for the location of suspended false ceiling with layout plans			

B. Document(s) prepared by Owner		Yes	No	N.A.
1	Undertaking letter for DTL (with supporting document from services provider)			
2	Undertaking letter for VAC.			
3	Valid invoice for existing DTL.			
4	FS 251 for existing FSIs.			

C. Document(s) prepared by RFSIC		Yes	No	N.A.
1	Essential load calculation if emergency generator is not provided. (with schematic wiring diagram chopped by supply's company, if any)			
2	Emergency Generator			
	- Survey report for fuel tank			
	- Acceptance letter/D.G. licence for fuel tank room			
	- Battery calculation			

Documents Checklist for Acceptance Inspection

	- Fuel consumption curve			
	- Door curb volume calculation			
	- Document for special approval/exemption from FSD, such as non-FS loading connecting to emergency generator			
3	FH/HR system			
	- Water tank calculation			
	- Pump performance calculation			
4	Fire detection and fire alarm system			
	- Battery calculation			
	- Zoning schedule			
	- Sound level report			
	- Supporting documents for charger capability of full charge-up within 24 hrs.			
5	Portable equipment			
	- FS 251			
	- Location list			
	- Valid gazette			
6	Sprinkler system			
	- Water tank calculation			
	- Pump curve			
	- Signed confirmation of available NPSH of sprinkler system and required NPSH of sprinkler pump			
	- Endorsed size of suction pipe calculation			
	- Number of sprinkler heads in each zone and sprinkler installation			
	- Endorsed calculation of pipe diameters between the design point in the most remote area of the installation and the control valve set for low rise system. The calculation is certified by RFSIC.			
	- Endorsed calculation of pipe diameters between the highest design point in an installation and the zone subsidiary stop valve at the same floor level for high rise system. The calculation is certified by RFSIC.			
	- List of the orifice size, if orifice plates are used for balancing an installation or accommodating pump characteristic			
7	Clean agent extinguishing system			
	- Approved computer calculation			
	- As fitted isometric diagram for pipework			
	- Hydraulic test report for pipework			
	- D.G. certificate for gas cylinder			

Pre-inspection Meeting

- AP/ RFSIC substantiated the **site readiness** for acceptance inspection;
- **Signed document checklist**; and
- AP/ RFSIC justify all FSIs have **undergone proper Testing and Checking**

Documents Checklist for Acceptance Inspection

	- Charging report			
	- Summary list c/w location of area protected and cylinder room, weight of required agent, D.G. certificate no., no. of nozzles, no. of smoke detectors & etc.			
8	Pressurization of staircase			
	- Confirmation from AP for the Building air tightness condition during the testing is equivalent to the occupation condition			
	- Equipment list of builder's work (such as doorset, door closer & etc.) c/w related test reports			
	- Confirmation letter from AP for Fire Resisting Rating of Fan Rooms and Duct Shaft			
	- Provided duplicate of valid calibration certificate for testing instrument on site			
	- Test report for air leakage of all metal ductwork			
	- Test record 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			
	- Confirmation letter from AP for Fire Resisting Rating of Fan Rooms and Duct Shaft			
	- Provided duplicate of valid calibration certificate for testing instruments on site			
	- Test report for air leakage of all metal ductwork			
	- Test reports 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			
10	Valid calibration certificates for testing instrument as per FSD Circular Letter No. 1/2016			
11	Test reports (such as emergency lightings, exit signs, visual fire alarms and modules for automatic fire alarm system monitor) presenting to inspecting officer during FSD inspection			
12	Approval for Non-provision or exemption of Fire Service Provision			
13	Approval for method statement of fire service installations such as extended coverage sidewall sprinkler, long throw sprinkler, high pressure sprinkler and hot smoke test etc.			

Documents Checklist for Acceptance Inspection

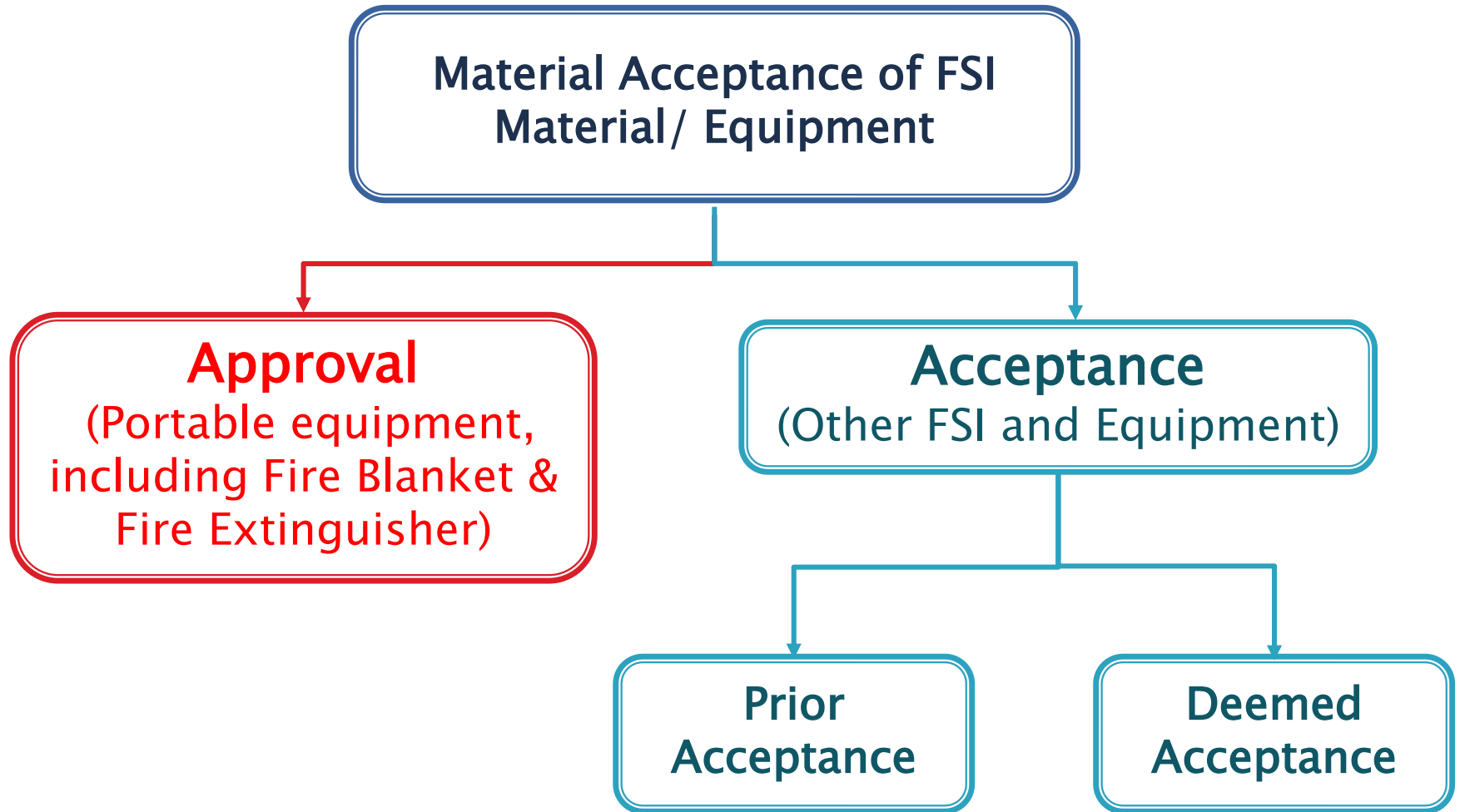
I hereby certify that the above documents have been checked in order and FS equipment/installation in accordance with the approved FSI plans have been installed and tested in efficient working order.

Signature of A/P _____ Signature of RFSIC _____
 Name of A/P _____ Name of RFSIC _____
 Date _____ RFSIC Number _____

 Date _____
 Stamp of RFSIC _____

*First version of document checklist was introduced on 8.1.2018 and second version on 14.5.2018

Material Acceptance



List of FSI requiring FSD Prior **Approval**/Acceptance

No.	Type	No.	Type
1.	Automatic Actuating Device	10.*	Fire Blanket
2.	Automatic Fixed Installation other than Water	11.*	Fire Extinguisher
3.	Automatic Fire Alarm System	12.	Fire Retardant Solution
4	Manual Fire Alarm System	13.	Flammable Liquid Dispensing Device for Petrol Filling Station
5.	Automatic Fixed Installation using water	14.	Flammable Liquid Storage Tank for Petrol Filling Station
6.	Fire Hydrant/Hose Reel System	15.	Smoke Extraction System
7.*	Fixed Automatically Operated Approved Appliance (Wall/Ceiling Mounted Type)	16.	Not specified
8.	Fixed Foam System/Equipment	17.	Other
9.	Gas Detection System		

* FSD Website: (Fire Protection > Licensing and Certification > List of FSI and other products requiring FSD's prior Approval/Acceptance)

Common FSI and Equipment and other products **NOT** requiring FSD Prior Acceptance

Emergency Lighting



**Exit Sign
(including Directional Sign)**



**Strobe Light NOT integrated
with Alarm/Sounder and/or NOT
in conjunction with Automatic
Fire Alarm System**



**Module for Automatic Fire
Alarm System Monitor**



**Door Releasing Device NOT to be
used in conjunction with
Automatic Fire Alarm System**



Smoke Stop Door



* FSD Website (Fire Protection > Licensing and Certification > Common FSI and other products NOT requiring FSD's prior Acceptance)

Material Acceptance– Approval

- Pursuant to Regulation 3 of the Fire Service (Installations and Equipment) Regulations, Cap. 95B, Laws of Hong Kong, all **portable equipment, i.e. portable fire extinguishers and fire blankets,** shall be **approved** by the Director of Fire Services before they are allowed to be supplied or sold in Hong Kong.

** For details, please see Fire Protection Notice No.15*

Material Acceptance – Acceptance

- Applicable to fire service installations (FSI) and equipment **other than all portable equipment**
- Prior Acceptance
 - No product certification
 - Only test assessment report
- Deemed Acceptance
 - Listed and published by renowned and well-established Product Certification Bodies for public access
 - Installation being in conformity with all relevant local requirements

Material Acceptance

- All applications for approval / acceptance of FSI and equipment, **other than the listed equipment** shall be submitted to the **Investigation and Research Section of the Licensing and Certification Command** for processing and evaluation.

- **Supporting documents :-**
 1. **Full test report;**
 2. **Technical details and drawings;** and
 3. **Product catalogue,** etc.

Material Acceptance – Test Report

- Expired test report for application is **not accepted**.
- Expiry date as specified
- Valid for **10 years**.

- **Technical assessment report** shall only be accepted if
 1. Technical justifications based on actual test results
 2. The conclusion was drawn with the substantiation of valid test reports
 3. Made by recognized laboratory

Material Acceptance

Product Standard:

- Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment (CoP)
- FSD Circular Letter
- Local requirements
- If not specified, appropriate International or national standard should be used

Points to note in Material Assessment Letter

消防處
牌照及審批總區
通風系統課
九龍尖沙咀東康莊道1號
消防總部大廈5樓



FIRE SERVICES DEPARTMENT
LICENSING & CERTIFICATION COMMAND
Ventilation Division
5/F, Fire Services Headquarters Building
No. 1 Hong Chong Road, Tsim Sha Tsui
Hong Kong

Remark

本處檔號 OUR REF: FP(LC)316/23
來函檔號 YOUR REF:
圖文傳真 FAX:
電話 TEL:

**1. Application:
Smoke Control System**

**3. Usage limitation:
Not be exposed to
hot smoke**

(a) For fans with external motors or belt driven motors, those external motors and components shall not be exposed to hot smoke.
(b) This letter supersedes our previous letter of the same series dated 19.1.2017.
(c) This assessment is subject to review by January 2022.

Dear Sir,

**ABC "DEF" Series
Fans for Smoke Extraction Systems**

I refer to your letter dated XX.XX.XXXX enclosing the catalogues, certificates, test reports and other supporting documents for the captioned products and supplementary information submitted via your letters dated YY.YY.YYYY.

We have no objection in principle to the use of ABC "DEF" Series fans for smoke control systems in Hong Kong subject to compliance with Part IV of the FSD Circular Letter No. 4/96, the Code of Practice for Minimum Fire Service Installations and Equipment (April 2012) and the following details:

Manufacturer : ABC
Product Name : "DEF" Series

Type and Size :

Item	Model Series	Fan Type	Fan Range
1	DEF	Axial fan	315 to 2,600 mm

**4. Review date:
January 2022**

**2. Size Range applicable:
" 315 to 2600mm "**

Construction ("DEF") :

- (a) Fan housing : Mild steel with epoxy paint/galvanized steel
- (b) Impeller hubs & blades : Die-cast aluminum alloy
- (c) Motor support : Galvanized steel
- (d) Terminal box : Die-cast aluminum alloy

Motor ("DEF") :

- (a) Manufacturer: ABC
- (b) Bearing grease: GHI
- (c) Bearing clearance: C3
- (d) Motor insulation: Class H
- (e) Utilization: Thermal Class F
- (f) Frame Size: 71 - 355

Yours faithfully,

(XXX)
for Director of Fire Services

Material Acceptance

➤ Basic usage principle

Product



Installation

- Approval
- Prior Acceptance
- Deemed Acceptance (Listed Product)

Complied with relevant local requirements including:

- FSD Circular Letter;
- Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment (CoP); and
- Inspect, Test and Maintain by RFSIC

Overall Review

Engineer (FSI)

Ir LAW Chi-keung, Peter

Application for Acceptance Inspections

Years	FSI/501	No.	%
2017	received	704	–
	rejected	158	22
	withdrawn	107	15
2018*	received	387	–
	rejected	58	15
	withdrawn	47	12

* From Jan to May

Reasons for Application **Rejection**

Items	2017		2018	
	No.	%	No.	%
Incomplete / Mistakenly-filled Form	77	49	28	48
Outstanding/Incomplete T&C Checklist	60	38	16	28
Outstanding/Incomplete Equipment List or Supporting Documents	21	13	14	24
Total:	158	–	58	–

* From Jan to May

Incomplete Input of Form FSI/501

- FSIs System not listed out /specified
- No GBP approval date
- Missing AP/RFSIC Name/Signature
- AP signature date earlier than FSI completion date
- Input of the date of GBP is not tally with that of approved GBP
- Not an original signature

Outstanding / Incomplete T&C Checklists

- Actuation Devices and 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

Outstanding/Incomplete Equipment List or supporting documents

- Without signature on the List
- Missing information of systems or equipment
- Approval for the connection of Non-FSI load to the emergency generator
- DG Approval/license of fuel tank room
- Insufficient FSI plans

Document Checking

The AP and RFSIC shall submit

- **Testing and Commissioning Checklists**
- Fire Services Installations – **Equipment List**
 - 1) Listing certificates/ records/ documents/ printouts from product certification bodies;
 - 2) FSD approval/ acceptance letters;
 - 3) Test certificates/ data sheets/ catalogues/ calculations; and
 - 4) Other necessary technical information.

Common mistakes found during document checking

- **Photocopied documents** submitted instead of original documents with signature and company chop
- **Building plan:** submitted building plan in FSI501 was not updated/finalized
- **Equipment List:** missing or incorrect model number/list-year
- **FM200 system:** Incorrect cylinder number in checklist

Common mistakes found during document checking

- **Open-kitchen:** Fire safety management plan was not approved before FSI/501 Submission
- **FS251:** not available during FSI/501 Submission
- **DG approval/license** for Fuel tank room of emergency generator not available during FSI/501 Submission
- **Wrong calculation:** Water Tank Volume, Room volume calculation for FM200 system, etc.
- **Mistakenly filled** Testing and Checking checklist

Pre-inspection Meeting

Period		No.	%
2017 (21 Nov – 31 Dec)	No of Pre-inspection meeting held	<u>20</u>	
	Proceed to inspection	<u>15</u>	<u>75</u>
	Reject	1	5
	Withdraw	4	20
2018 (1 Jan – 31 May)	No of Pre-inspection meeting held	<u>62</u>	
	Proceed to inspection	<u>55</u>	<u>89</u>
	Reject	0	0
	Withdraw	7	11

Review of Cases underwent Pre-inspection Meeting

- To prevent **premature application** for initial acceptance;
- Formulate **inspection schedule**; and
- **Improve efficiency** for acceptance inspection

Total	Duration #	
	< 3 months	
	Cases	%
15*	12	80

Duration from Receipt of FSI/501 to Issuance of FS172

* 15 cases proceeded to acceptance inspection after pre-inspection meeting in 2017

FSI Acceptance Inspection

Unsatisfactory inspection result :

- Issue Inspection report(FSI/507B)
- List all the defective/ outstanding items for rectifications /clarifications
- Explain to AP/RFSIC about the details
- Re-inspection First-come, first-served ASAP

Inspection report (FSI/507B)

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 : XXX

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

2.1 DIT is not connected
2.2 Construction letter of building owner is not submitted.
2.3 Construction letter of Architect & building Description is not submitted.
2.4 Undertaking letter 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.

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)	XXX XXX XXX	Installation Contractor (or representative)	XXX XXX XXX
Signature		Signature	
Dated	XX / 19 / XXXX	Dated	XX / 19 / XXXX

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.

Way Forward

- Continue the pre-inspection meeting
- Review the content of document checklist regularly
- Conduct briefing regularly to the trade for better communication
- Video uploaded onto FSD website

Thank You