

Fire Safety Standards Advisory Group (FSSAG)
Matter Discussed in the 62nd FSSAG Meeting held on 19 May 2020

1 *Review of the Requirements for Emergency Lighting*

- ***Routine Inspection & Tests for Self-contained Emergency lighting System***
- ***Review of PPA 104 (Issued under cover of FSD Circular Letter No. 1/2006)***

Internal review had been conducted by FSD and it was considered appropriate and effective to group these items under one review. As such, these items would be merged with effect from this meeting under a new item called “Review on Emergency Lighting”.

Based on the market survey conducted by the HKFEMC for the self-contained type emergency lighting, the operation and maintenance (O&M) requirement for central battery emergency lighting and self-contained type emergency lighting were drafted and internally finalized on 17.3.2020. The finalized draft had been circulated to all SWG members on 18.3.2020 and asked for comment by 31.3.2020. No specific comment was received from the SWG members.

Further to consulting SWG members on proposed operation and maintenance (O&M) requirement for central battery emergency lighting and self-contained type emergency lighting (under item 2.2), same requirements, if endorsed by FSSAG, would be recommended for adoption to the revised PPA104 and PPA104A (the 5th revision).

The draft proposed adoption to the revised PPA104 and PPA104A (the 5th revision) had been sent to the two Regional Offices of FSD for comment and seeking view from the Business License Group (BLG) in March 2020. No specific comment was received. As such, the revised PPA104 and PPA104A (the 5th revision) and the (O&M) requirement for central battery emergency lighting and self-contained type emergency lighting would be circulated to all FSSAG members for final perusal. It was anticipated that the revised PPA104 and PPA104A (the 5th revision) and the (O&M) requirement could be endorsed in the next FSSAG meeting.

2 *Enhancement on Application Procedure for Approval/Acceptance of Fire Service Installations and Equipment (FSI) and other Products*

For the enhancement of current application procedure for approval/acceptance of FSI and other Products, a “Guidance for Application for Approval of Portable Equipment / Acceptance of FSI and Fire Safety Products” had been drafted and circulated in FSSAG meeting for comments.

It was agreed that a “Pre-vetting procedure” of application and a newly designed “Application Form for Approval of Portable Equipment / Acceptance of FSI and Fire Safety Products” would be introduced as the enhancement measures.

Apart from the aforesaid measures, to further safeguard the approval/acceptance mechanism, the following measures were brought up for comments:

- (a) For FSI and other Fire Safety Products, if they had been certified by recognized Product Certification Bodies (PCBs), such as LPCB, UL, FM, etc., they would be considered as "deemed to be accepted" by FSD. In general, product certification would include product testing, conformity assessment with certification and periodic surveillance inspection as stipulated in ISO/IEC 17067. In addition, the surveillance inspection must include the testing of sample(s) from manufacturing point(s), and desirably together with the sample(s) tested from the open market. An advisory letter in this regard had been issued by the FSD on 26.8.2014.
- (b) For acceptance/approval of FSI and Fire Safety Products by FSD, the validity period of acceptance/approval would be adjusted to a maximum of 5 years, subject to the "validity period/expiry date" stated in the test report and/or "change of condition" of the FSI/product. After the expiry of the approval/acceptance, applicant was advised to submit corresponding document(s) to FSD for re-assessment.

Members were invited to discuss on the enhancement measures on the proposed application for approval/acceptance of fire service installations and equipment (FSI) and other fire safety related products, in particular about certificated products, presented by the representative of FSD. The issue in this respect would be reiterated in the new FSD Circular Letter.

3 *Implementation of BS 5839: 2017 “Fire Detection and Fire Alarm Systems for Buildings – Part 1: Code of Practice for Design, Installation, Commissioning and Maintenance of Systems in Non-domestic Premises”*

The comments on the consolidated list of amendments was received and incorporated on 23.4.2020. FSD’s comment were given on 1.4.2020 and 23.4.2020 on the draft T&C checklist as prepared by FSICA. The list of amendment and T&C checklist were being finalized by SWG members prior to circulating to FSSAG Members for final comment. It was anticipated that the list of amendment and T&C checklist could be endorsed in the next FSSAG meeting.

4 *Review on LPC Sprinkler Rules 2015 incorporating BS EN 12845*

The comments from all members on the draft version of review of BE EN 12845 had been incorporated and the final version had been circulated to all member for reference on 21.2.2020. The circular letter was under preparation and would be issued soon.

5 *Automatic Operated Total Flooding Systems complying with NFPA Standard 2001*

The proposals from FSICA had been considered against the requirements of NFPA 2001-2018. FSD's views were as following:

(i) **Enclosure integrity requirement**

● **Clean agent gas suppression system installed in new development**

Enclosure integrity was critical for holding the suppression gas concentration in the enclosure at the required level throughout the holding time. It also had direct bearing on the amount of suppression gas of the system to be provided. Since it formed part of the requirements of NFPA 2001:2018, the enclosure integrity test signed by FSIC should be required prior to the submission of FSI/501. The test report justifying the satisfactory compliance with the requirements of the standard should be submitted with FSI/501 for verification.

● **New clean agent gas suppression system in existing premises**

For newly installed clean agent suppression system in existing premises, the enclosure integrity test report signed by FSIC should be submitted with FS 251.

● **Annual inspection on clean agent gas suppression system in existing premises**

A confirmation letter from the FSI owner should be provided to RFIC for appending to FS 251 for declaration **IF** there was **NO** works to the enclosure was carried out between two consecutive FSI inspections.

Should there be work **done** to the enclosure with impact on the enclosure integrity, enclosure integrity test should be carried out at the end of the relevant work and the test report should be kept for future submission with FS 251 after completing the annual inspection.

(ii) **Egress time study**

A letter from AP confirmation the development design in compliant with the Code of Practice for Fire Safety in Buildings (2011), or evacuation time calculation in fire engineering report accepted by the Buildings Department should be submitted when

submitting FSI/501.

(iii) Integrate building fire alarm system to serve as a clean agent suppression system releasing control panel

From the statement of NFPA 2001:2018, it could be understood that only listed building fire alarm system would be accepted for actuating the clean gas suppression system. It did not exclude the use of individual release control panel. Therefore, the use of listed individual release control panel was considered in line with the relevant requirement, and the use of building fire alarm panel, if listed for such purpose, was also acceptable for system actuation.

Members exchanged views and discussed the issue in detail. The outstanding subject matter was about the maintenance of FSI during Annual Inspection. Members would further discuss with FSICA in this aspect to see how to secure fire safety but at the same time not affecting the trade to a great extent.

6 *Circuit Isolator Requirement of Fire Detection and Fire Alarm System*

The proposal of this item had been agreed in last meeting. Minor textural amendments were made on the proposed diagram after meeting. This diagram would be recorded as final one and attached to the meeting minutes of this meeting to serve as an official record.

As no further comments on the final diagram had been received in the meeting, the proposed diagram was the final one. In the circumstances, members agreed that the item would be deleted in the next meeting.

7 *The use of fire resisting cable between the main switchboard and sub-switchboard for FSIs*

The principle of fire resisting cable application between the main switchboard and sub-switchboard for FSIs had been discussed and agreed in last FSSAG meeting. The fine-tuned schematic diagram on FR cable connection had been recorded as final one as no further comments from other members received.

As no further discussion on the issue was required, members agreed that the item would be deleted in the next meeting. The diagram would be attached to the minutes of meeting.

8 *The requirement of Fire Services Completion Advice (FSCA) for the issuance of FSI72*

As discussed in last meeting, it was requested that the endorsed WWO46 Part V should be submitted to FSD before the issuance of FS 172 or Acceptance letter/memo in order to ensure that permanent water connection had been connected and inspected by WSD. The feedback from members was welcome.

The meeting discussed the subject matter in detail. FSD had concluded that the endorsed WWO46 Part IV submitted by RFSIC was accepted for the issuance of FS 172 and the issue was supported and welcomed by Members.

As no further discussion on the issue was required, members agreed that the item would be deleted in the next meeting.

9 *Inspection, Maintenance, Modification and Repair of Fire Service Installations and Equipment with Moving Parts*

FSD reported that the checklists of Fire Hydrant / Hose Reel Systems and Supply Tanks specifying the maintenance and testing requirements had been introduced on 13.12.2019 via FSD Circular Letter 4/2019 and would be implemented on 1st April 2020. A web briefing covering this circular letter, as well as FSD Circular Letter 1/2020 relating to the revised application procedure for inspection and testing of FSI in new buildings, would be held at 1100 hours on 25.3.2020. The checklists would be reviewed after 12 months and the checklists for other FSI systems would also be rolled out in due course.

Members exchanged views and discussed the issue in detail. It was reiterated that there were actually no new requirements added to the checklists. The maintenance and testing requirements were there to facilitate RFSICs to ensure the FSI system was always kept in good condition.

10 *FSI Provisions for Automated Parking Facility (FSD)*

FSD informed the meeting that in 2019 Policy Address, the Chief Executive committed that the Government would strive to resolve the persisting shortage of car parking spaces in Hong Kong. Amongst other measures, the Automated Parking System (APS) was one of the feasible solutions that could achieve the goal. An APS was a mechanical parking system capable in delivering unmanned vehicles from a designated drop off area/point to any available parking space and subsequently retrieving them to the pick-up area/point in an automated manner.

With the Transport Department leading, various government departments had been working

closely to push the above initiative forward. The role of the Hong Kong Fire Services Department (HKFSD) was to ensure that these APSs if materialized in Hong Kong would be operated within acceptable fire safety condition. As APS was new in Hong Kong, it had not been included in the above CoP. Furthermore, owing to its unique design, mode of operation and envisaged fire risk, there was no similar or comparable occupancy/ premises in the CoP that could encompass the APS. Hence, there emerged the need of a new type of premises “APF” to be inserted into the CoP to cope with the foreseeable development.

Subject to the above, FSD had conducted a study and paid overseas visits to APFs in the UK and Germany in 2019. The formulation of fire safety requirements for APF was still underway and would be circulated once available.

11 Testing of Long-Throw Sprinkler System (FSD)

FSD reported that recently, the Long Throw Sprinkler (LTS) system was widely adopted in some projects in Hong Kong to protect the tall atrium areas in response to many irregular geometry & large space buildings. Since LTS system is a non-typical sprinkler design system, the pre-calculated design method stated in the LPC Rules BS EN 12845:2003 (“LPC Rules”) may not be applicable, a full calculated method (or “hydraulic calculation”) should be adopted with the submission to FSD for acceptance in advance. As a result, to verify the functionality as well as performance of the system to an efficient working order as designed, a full-scale water discharge test for the critical zone(s) with (i) the maximum demand flow and (ii) sprinkler head with marginal pressure, was/were required to conduct in order to verify the total flow rate, pump performance, water coverage and discharge density etc.

To facilitate the trade in progress of construction and to minimize possible water damage to the building (e.g. heritage building), such test could be conducted either off-site or on-site, either before or during the FSI acceptance inspection. Nevertheless, the installation of the LTS system should be completed and tested before a request of on-site test was made. In case an off-site test was proposed, a mock set-up with exactly the similar sprinkler installation should be arranged so as to reflect the real installation situation.

The selection of testing zone(s) should be able to demonstrate the LTS system satisfied the design criteria including but not limited to the following:

- Criteria 1: the minimum water pressure at the most unfavourable location of long throw sprinkler head;
- Criteria 2: the minimum average discharge density (mm/min);
- Criteria 3: the water distribution in the protected area (e.g. not more than 10% of the

protected area has an NDD less than 1.125 mm/min); and
Criteria 4: the water consumption within the sprinkler supply tank capacity.

The method statement for full-scale water discharge test following the Loss Prevention Standard – “LPS 1039: Issue 5.2 Requirements and testing methods for automatic sprinklers”, should be submitted to FSD for acceptance before carrying out the test.

12 Handling of Long Outstanding FSI Acceptance Inspection Cases (FSD)

FSD reported that there were six (6) recent cases not be ready over 3 - 5 months for carrying out FSI acceptance re-inspection. To facilitate completion of FSI acceptance inspection and subsequent issuing of FS Certificate, it was anticipated that project AP would arrange for defect rectification and completion of re-inspection within 2 months since issuance of Initial Inspection Report FSI/507B-1 from FSD. For cases not keeping FSD informed of any re-inspection arrangement over 2 months, FSD would issue final reminder notice to the project AP with copy to project owner, FSIC(s) and responsible RPE(s), as appropriate. If FSI acceptance re-inspection was not able to conduct within 3-week, cancellation of the application might then be considered. FSD reminded members that responsibilities of errors, defect rectification and subsequent FSI acceptance re-inspection arrangement which might lead to refusal or delay in issuing the Certificate (FS. 172) or acceptance memo/letter, rested with the project AP and /or the FSIC(s).

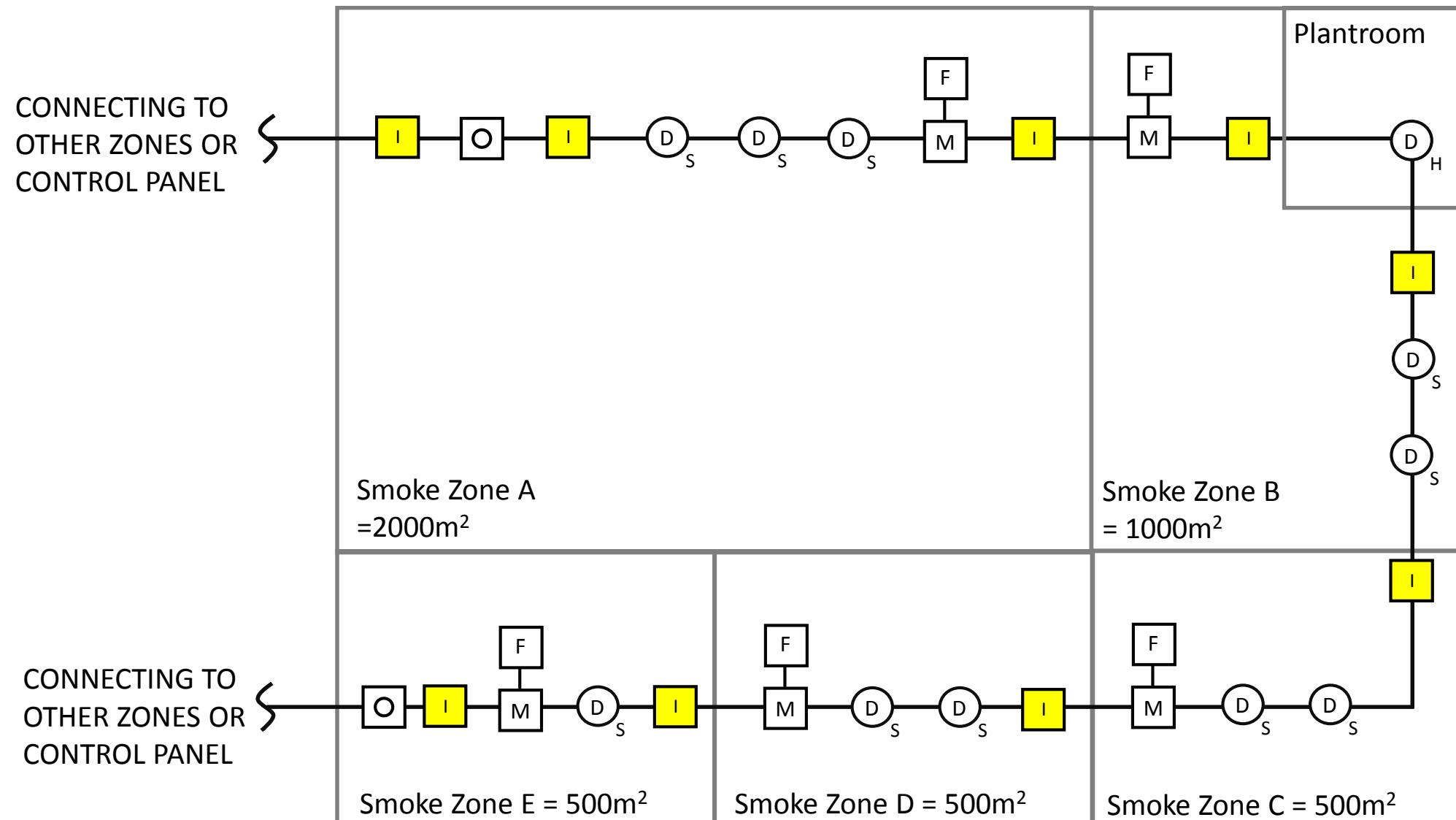
Fire Detection and Fire Alarm Systems Integrity Requirements for Circuits connecting other Fire Service Installations / Systems

Item	System / Components	Short circuit isolators to be provided or under a separate loop circuit	System Integrity Requirements under BS5839-1 Clause 12.2.2 b) and c) applies		Remarks
		(A) Provide signals to initiate the operation of other fire service installations	(B) Initiate signals and/or indicate fire alarm condition	(C) Monitor the correct functioning of the system and give warning of faults/Status	
1	Audio / Visual Advisory System		✓	✓	
2	Automatic Actuating Devices (AAD)	✓			Refer to FS COP 2012 clause 5.2, the detectors (AAD) shall be installed as far as practicable to BS 5839-1.
3	Monitoring Devices to monitor status for Automatic Fixed Installation other than Water			✓	
4	Automatic Fixed Installation using Water				
	a) Automatic Actuating Devices (including detector and output device / control module) to actuate item 4 System	✓			
	b) Monitoring Devices to monitor status for item 4 System (Pump status valve status Flow switch signal, water level status etc.)			✓	
5	Monitoring Devices to monitor status for Dust Detection System			✓	
6	Monitoring Devices to monitor status for Emergency Generator			✓	
7	Fire Alarm System		✓		
8	Fire Detection System		✓		
9	Fire Hydrant / Hose Reel System				
	a) Actuating Devices (Output device / Control Module) to actuate the fire pump	✓			
	b) Monitoring Devices to monitor status for Fire Hydrant / Hose Reel System (Pump status, water level status etc.)			✓	
10	Monitoring Devices to monitor status for Gas Detection System			✓	
11	Automatic Actuating Devices (including detector and output device / control module) to actuate individual Staircase Pressurization System	✓			See Note (c)
12	Automatic Actuating Devices (including detector and output device / control module) to actuate individual Smoke Extraction System	✓			See Note (c)
13	Ventilation / Air Conditioning Control System				
	a) For Method A and C (AFA Detectors or Sprinkler Flow Switches or Building Fire Alarm)		✓	✓	
	b) For Method B and D (including detector and output device / control module)	✓			
14	Monitoring on the Water Supply for Transfer Pump System			✓	
15	Smoke Detection System inside Open Kitchen		✓		

Notes :

- If AAD and Fire Alarm and Fire Detection Devices as mentioned in column (B) and (C) are integrated into multi-input / output module(s), a short circuit isolator should be provided for each of the module.
- For system components / devices not covered above, consultation should be made with the Fire Services Department.
- If the fire alarm/detection device (Fire Detector / Sprinkler Flow Switch etc.) under the Sprinkler System, Fire Detection System and Fire Alarm System will be utilized as AAD for actuation of smoke control systems, such devices should be isolated by short circuit isolator(s) or under separate loop circuit(s) for each smoke zone for smoke extraction system or for each Staircase Pressurization System. (See Appendix A for example)

**CIRCUIT ARRANGEMENT FOR FIRE DETECTION AND ALARM DEVICES USING AS
AUTOMATIC FIRE DETECTION AND AUTOMATIC ACTUATING DEVICES (ADDRESSABLE SYSTEM)
BY SHORT CIRCUIT ISOLATOR**



LEGENDS:

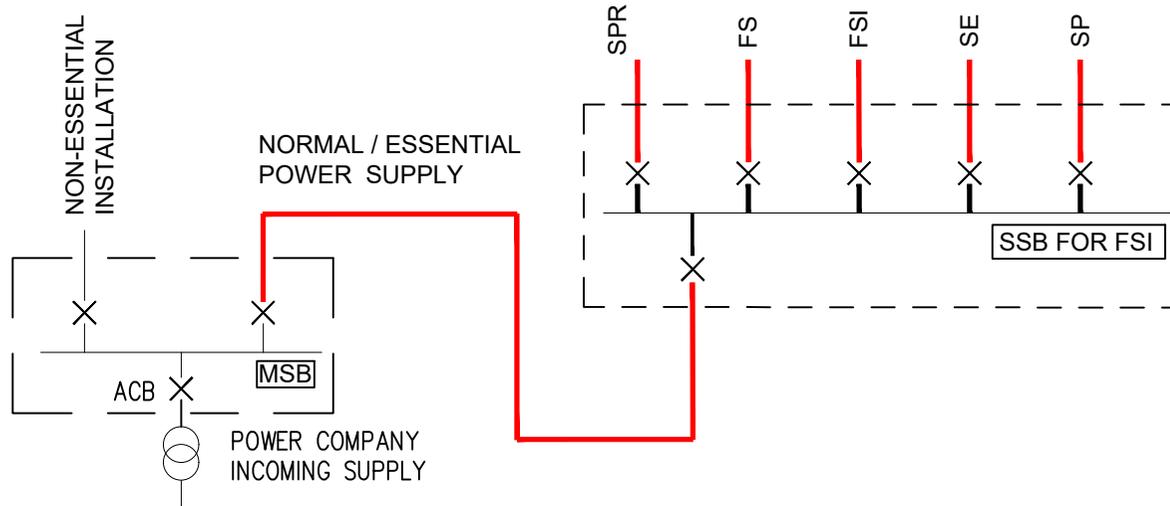
- | | | | | | |
|--|----------------------------|--|---------------------------------|--|---|
| | SMOKE DETECTOR (AFA & AAD) | | MANUAL CALL POINT (ADDRESSABLE) | | DEVICE FOR INTERFACING WITH NON-ADDRESSABLE EQUIPMENT |
| | HEAT DETECTOR (AFA) | | SPRINKLER FLOW SWITCH | | SHORT CIRCUIT ISOLATOR |

REMARKS:

- Smoke Zone A to E are provided with smoke extraction system(s).

GENERAL CONFIGURATION FOR CABLE / BUSDUCT ARRANGEMENT BETWEEN MSB AND SSB FOR FSI

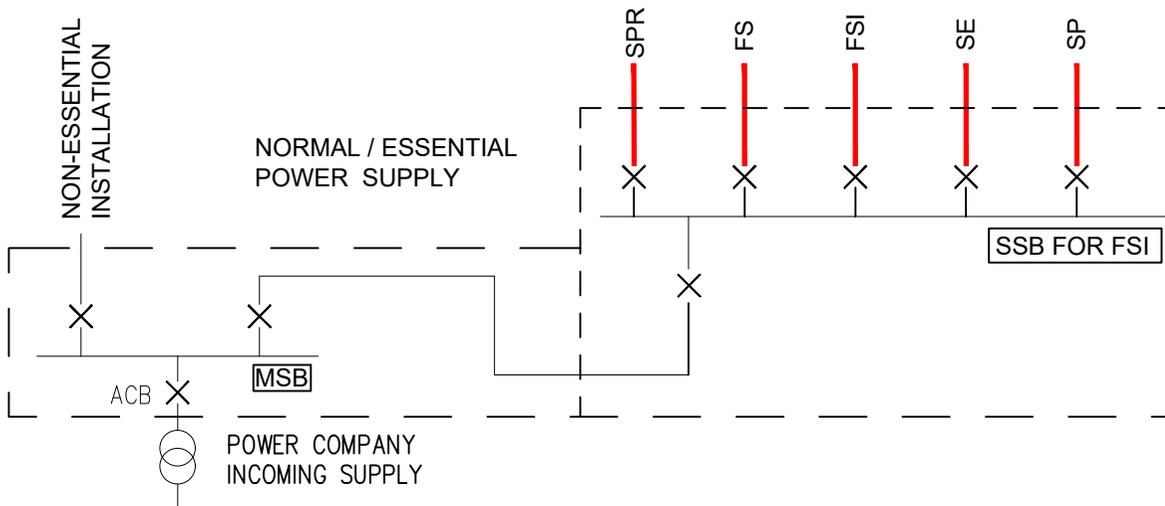
CASE 1



LEGEND	
SPR:	SPRINKLER SYSTEM
FS:	FIRE HYDRANT / HOSE REEL SYSTEM
SES:	SMOKE EXTRACTION SYSTEM
SPS:	STAIRCASE PRESSURIZATION SYSTEM
FSI:	OTHER FS INSTALLATION
MSB:	MAIN SWITCHBOARD
SSB:	SUB SWITCHBOARD
	FIRE RESISTING CABLE OR FIRE RESISTING BUSDUCT
	CIRCUIT BREAKER
	SWITCHROOM

SSB LOCATED IN ROOM FAR AWAY FROM THE MAIN SWITCHBOARD ROOM

CASE 2



SSB LOCATED WITHIN MAIN SWITCHBOARD ROOM OR JUST NEXT TO MAIN SWITCHBOARD ROOM