TESTING AND COMMISSIONING PROCEDURE

FOR

FIRE SERVICE INSTALLATION

IN

GOVERNMENT BUILDINGS

OF

THE HONG KONG SPECIAL ADMINISTRATIVE REGION

2022 EDITION

ARCHITECTURAL SERVICES DEPARTMENT
THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

PREFACE

This Testing and Commissioning (T&C) Procedure aims to lay down the minimum testing and commissioning requirements to be carried out on Fire Service Installation in Government Buildings of the Hong Kong Special Administrative Region (HKSAR). Such requirements are applicable to both new installations upon completion and existing ones after major alteration.

The present edition was developed from the General Specification for Building Services Installation in Government Buildings of the Hong Kong Special Administrative Region 2022 Edition that was established by the Architectural Services Department (ArchSD).

Electronic version of this T&C Procedure is to be viewed on and free for download from the ArchSD Internet homepage. As part of the Government's efforts to limit paper consumption, hard copies will not be put up for sale.

The ArchSD welcomes comments on this T&C Procedure at any time since the updating of this T&C Procedure is a continuous process to tie in with technological advances.

DISCLAIMER

This T&C Procedure is solely compiled for Fire Service Installation carried out for or on behalf of the ArchSD in Government premises of the HKSAR.

There are no representations, either expressed or implied, as to the suitability of this T&C Procedure for purposes other than that stated above. Users who choose to adopt this T&C Procedure for their works are responsible for making their own assessments and judgement of all information contained here. The ArchSD does not accept any liability and responsibility for any special, indirect or consequential loss or damages whatsoever arising out of or in connection with the use of this T&C Procedure or reliance placed on it.

The materials contained in this document may not be pertinent or fully cover the extent of the installation in non-government buildings and there is no intimated or implied endorsement of the sales, supply and installation of the materials and equipment specified in this T&C Procedure within the territory of the HKSAR.

TABLE OF CONTENTS

Testing and Commissioning Procedure for Fire Service Installation

1. Introduction

The procedures stated in this Testing and Commissioning (T&C) Procedure cover the activities in preliminary tests and inspections, functional performance tests and the commissioning of newly completed Installations and existing ones after major alteration. They are so compiled to facilitate the work of Project Building Services Engineer (PBSE) and Project Building Services Inspector (PBSI) / Project Electrical and Mechanical Inspector (PEMI), who are appointed as the Supervising Officer's Representatives, in the following aspects with respect to testing and commissioning :

(a) to vet and approve the T&C procedures proposed and submitted by the contractor for the Fire Service Installation (Contractor);

(b) to witness those T&C procedures as specified; and

(c) to accept the T&C certificates and other supporting data.

The Contractor shall carry out the T&C works as detailed in this T&C Procedure. Supplementary T&C plans may be proposed by the Contractor as appropriate and agreed by PBSE, e.g. for special equipment supplied and/or installed by the Contractor.

The administrative requirements for T&C works are in general as specified in the General Specification for Building Services Installation in Government Buildings of the Hong Kong Special Administrative Region 2022 Edition and all current corrigenda/amendments thereto published before the date of first tender invitation for the Contract issued by the ArchSD (the General Specification).

All words and expressions shall have the meaning as assigned to them under the General Specification unless otherwise specified herein.

2. Objectives of the Testing and Commissioning Works

The objectives of the T&C works are:

(a) to verify proper functioning of the equipment/system after installation;

(b) to verify that the performance of the installed equipment/systems meet with the specified design intent and statutory requirements, if any, through a series of tests and adjustments; and

(c) to capture and record performance data of the whole Installation as the baseline for future operation and maintenance.

For the avoidance of doubt, depending on the specific demands of individual installation, the PBSE may require additional or substitute T&C works in regard to any elements in the Installation other than those indicated in this T&C Procedure.

3. Scope of the Testing and Commissioning Works

3.1 Tests and Inspections during Construction

The purpose of these tests is to ensure that all components and systems are in a satisfactory and safe condition before start up. Preliminary adjustment and setting of equipment at this stage shall also be carried out at the same time to pave way for the coming functional performance tests.

Before carrying out any test, the Contractor shall ensure that the Installations comply with all relevant statutory requirements and regulations. The T&C works shall also comply with all site safety regulatory requirements currently in force. In particular, the Contractor shall note the statutory requirements listed in the General Specification in carrying out the works.

3.2 Functional Performance Tests

The purpose of functional performance tests is to demonstrate that the Installations can meet the functional and performance requirements as specified in the Contract. Functional performance tests should proceed from the testing of individual components to the testing of different systems in the Installations.

The Contractor may have to make temporary modifications as the tests proceed. The specific tests required and the order of tests will vary depending on the type and size of systems, number of systems, sequence of construction, interface with other installations, relationship with the building elements and other specific requirements as indicated in the Contract. The testing of systems may have to be carried out in stages depending on the progress of work or as proposed by the Contractor.

Part of the tests may be required to be carried out in suppliers' premises in accordance with the provisions as specified in the Contract.

Any performance deficiencies revealed during the functional performance tests must be evaluated to determine the cause. After completion of the necessary corrective measures, the Contractor shall repeat the tests.

If any test cannot be completed because of circumstances that are beyond the control of the Contractor, it shall be properly documented and reported to the PBSE, who shall then liaise with the relevant parties to resolve the situation. The Contractor shall resume his testing work immediately upon the attainment of a suitable testing environment.

3.3 Commissioning, Statutory Tests and Inspections

Commissioning is the advancement of the Installations from the stage of static completion to full working conditions and to meet the performance requirements as specified in the Contract. This will include setting into operation and regulation of the Installations. Fine-tuning of the commissioned system shall be done by the Contractor to match system performance to the actual needs of the building occupier more closely.

The Contractor shall carry out tests for the Installations to meet statutory requirements as specified in the Contract. After the proper testing and commissioning of the Installations, the Contractor shall notify the appropriate authority as specified in the Contract, through the PBSE of the completion of the Installations and its readiness for inspection and testing. The Contractor shall arrange for the necessary inspections and tests as required by the Authority.

Statutory tests and inspections required shall include, but not limited to, those specified in the Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment, current edition published by Fire Services Department, the Government of the Hong Kong Special Administrative Region (hereinafter refer to as FSDCoP).

Before notifying the appropriate statutory authority for inspection, the Contractor shall arrange a mock up inspection and test with the PBSE/PBSI to demonstrate the readiness of the fire service installation for statutory inspection. The mock up test shall be a full inspection test same as the statutory inspection to be conducted for appropriate statutory authority. The Contractor shall prepare and make ready all documents required for statutory inspection that will be examined during the mock up inspection and statutory inspection. The Contractor shall follow all relevant requirements in the Contract.

Further mock-up test(s) shall be required if the installation fails to meet with the satisfaction of the PBSE/PBSI in the test. The Contractor should not arrange inspection with the statutory authority till the satisfactory completion of the mock-up inspection and accepted by the PBSE/PBSI.

3.4 Documentation and Deliverables

The Contractor shall submit his proposed T&C procedures together with the Testing and Commissioning Progress Chart shown in **Annex I** to PBSE for approval.

All inspection and T&C results shall be recorded by the Contractor in the appropriate test record forms. A complete set of these forms can be found in **Annex II**.

Data recorded in other formats may also be acceptable subject to prior approval of the PBSE. Upon completion of all the required T&C works, the Contractor shall complete and sign a testing and commissioning certificate as shown **Annex II** to the effect that the agreed T&C works have been duly carried out.

A functional performance test report covering all measured data, data sheets, and a comprehensive summary describing the operation of the system at the time of the functional performance tests shall be prepared and submitted to the PBSE. Deviations in performance as specified in the Contract or the design intent should be recorded, with a description and analysis included.

Where required in the Contract, the Contractor shall conduct a final evaluation of the performance of the Installations, the results of which shall be included in the commissioning report.

4. Testing and Commissioning Procedures

4.1 Water System Tests

Water systems and circuits shall be tested hydraulically to a minimum pressure of 1,000 kPa or 1.5 times the working pressure whichever is higher applied at the highest point of the system and held for a period of not less than 15 minutes or the required period as stipulated in the relevant design standards or FSD Circular Letters whichever is the higher, without leaks appearing. For automatic sprinkler system, the hydraulic test for all installation pipework shall be in accordance with the LPC Rules for Sprinkler Installations and the modifications in FSD Circular Letters.

All pipework shall be thoroughly cleaned and flushed before test. The Contractor shall ascertain that there is adequate drainage nearby to discharge by large hose in order to ensure flooding of low level areas will not occur. Where necessary, the Contractor shall provide chemical cleaning to the pipes. After flushing out the pipework, a flow test shall be performed on the hydrant/hose reel system in accordance with the requirements of the FSDCoP.

A water supply test with the drain and test valves fully opened shall be made on the sprinkler system in accordance with the requirements of Loss Prevention Council Rules for Automatic Sprinkler Installations (including all the LPC Technical Bulletins, Notes, Commentary, and Recommendation) incorporating BS EN 12845, FSD Circular Letters as required in the General Specification and all the subsequent amendments by the FSD (hereinafter collectively referred to as LPC Rules for Sprinkler Installation). An alarm test for at least 30 seconds on the water gong shall also be carried out by opening the test valve to ensure that it shall sound continuously after water flow in the system is detected. All controls and air supply system for the pre-action system, recycling pre-action system and dry pipe system shall also be tested.

An actual water discharge test shall be performed on the long throw sprinkler system/ extended coverage of sprinkler system/drencher/deluge/water spray/water mist system and for other automatic fixed installations using water to test the actual system performance. The T&C procedure of the actual water discharge test shall be submitted by the Contractor and approved by the Supervising Officer prior to the testing and commissioning.

For street hydrant system without pumps, the Contractor shall test the incoming water supply pressure at a nearby supply point and at such time as agreed with the PBSE/PBSI before the commencement of the installation works to establish the adequacy of the water supply pressure. If the supply pressure is inadequate, the Contractor shall propose remedial measures for the approval of the PBSE. The Contractor shall find and select the most appropriate nearby supply point for the test.

The Contractor shall provide whatever hoses or drainage channels required to safely remove the test water discharged while carrying out these tests in order to ensure that no damage to the building and property will be caused by the test water.

The Contractor shall submit hydraulic test certificates/reports that shall be signed by the Contractor's Commissioning Engineer in Charge (CEIC) and by the PBSE or the PBSI who has witnessed the test. The test certificates/reports shall contain the following particulars: -

- Date of test
- Apparatus or section under test
- Makers number (if any)
- Nature, duration and conditions of test
- Result of test
- Name of Registered Fire Service Installation Contractor's representative (in block letter) in charge of test; and
- Name of Employer's representative at witness the test

4.2 Electrical and Alarm System Tests

Electrical wiring systems shall be tested generally as required by the General Specification, Testing and Commissioning Procedure for Electrical Installation in Government Buildings, Hong Kong, issued by the Architectural Services Department, the HKSAR (hereinafter referred to as EE_TC), and this T&C Procedure. Extra low voltage wiring shall be insulation tested to a D.C. voltage of twice the normal working voltage of the system. Any tests that are liable to cause damage to the delicate components such as those incorporating electronic circuits shall be carried out with the components disconnected.

Smoke detectors shall be checked for correct sensitivity settings by means of manufacturer's test set and for operation by simulated smoke tests. The smoke detectors shall be tested and checked for correct settings after every cleaning and right after the occupation of the building.

Rate-of-rise heat detectors shall be tested by gentle application of a heat source such as hair dryer. Fixed temperature heat detectors must not be tested other than using simulated tests.

Each sensing element of the multi-sensor detectors shall be checked for correct sensitivity settings by means of manufacturer's test set approved by the PBSE and for operation by simulated tests.

Soak test of at least 1 week shall be carried out for all automatic detectors at the time after the completion of all works including fitting-out works and the whole area is cleaned up, normally at the time of occupation by users or immediately after. Such test shall be deemed to be successful only if during such period no false fire alarm is occurred or necessary action has been taken to rectify the causes.

Battery capacity shall be tested by discharging through the alarm circuits and being charged via the incorporated charger unit. The specific gravity of the electrolyte shall be tested with a clean hydrometer where applicable. Battery voltage shall be checked.

The Contractor shall arrange power failure load tests to prove proper functioning of the fire service installation and the associated power supply changeover control during power failure and fire mode.

The input D.C. supply to the alarm supervisory circuitry shall be checked for correct voltage and stability such as to match the signal and alarm triggering devices.

For fire alarm direct link to the FSD or FSD's approved centre, the Contractor shall, unless approved by the PBSE, initiate the fire alarm direct link applications to the appropriate agencies within 3 months after commencement of the Contract so that the fire alarm direct link will be

connected and tested before the fire service inspections. The Contractor shall submit a copy of the application document to the PBSE/PBSI for record.

The Contractor shall co-ordinate and shall closely monitor the status of completion of fire alarm direct link and the telephone line before the fire service inspections by the FSD. The Contractor shall apply for and provide at the Contractor's own cost the required telephone point for connection of the fire alarm direct link as required. If the Contractor cannot complete the fire alarm direct link by the date of fire service inspection by the FSD, the Contractor shall be responsible for providing all necessary manpower and telephone equipment, at the Contractor's own expenses, solely for the purpose for a 24-hour/day full attendant service to substitute the fire alarm direct link, to the approval of the FSD and the PBSE, up to the date of the completion of the fire alarm direct link. The fire alarm direct link shall be tested to the satisfaction of PBSE and FSD after connection.

4.3 Gaseous Extinguishing System Tests

Gaseous extinguishing system and manifolds shall be tested in accordance with the relevant requirements of the General Specification, and all requirements of FSD including FSD Circular Letters and Fire Protection Notices of the Fire Services Department, the HKSAR (hereinafter collectively referred to as FSD Requirements and Circular Letters). Pipework shall be tested for 10 minutes to a minimum of 1.5 times the operating pressure of the system and 1,000 kPa whichever is larger. A 'puff' test(s) to the installed pipework is required.

The Contractor shall allow carrying out on-site full discharge test after completion of the installation when required by the FSD to confirm the design conditions can be met and to the satisfaction of the FSD and approval of the PBSE. Room integrity test should be conducted in accordance with NFPA 2001 and the statutory requirements. The Contractor shall follow relevant FSD Requirements and Circular Letters on the requirements of discharge tests. The Contractor shall refill the gas cylinders with the design agents after the tests and reset all the equipment after the discharge test.

4.4 Emergency Lighting and Exit Sign Tests

Each self-contained luminaire, internally illuminated exit sign and central battery system shall be energised from its battery by simulation of a failure of the supply to the normal lighting for a period of the rated duration of the battery. During this period all luminaires and/or signs shall be examined and tested in accordance with BS 5266-1, BS EN 50172, BS EN 1838, BS EN 60598-1, BS EN 60598-2-22, the requirements of the FSD and the Buildings Department wherever applicable to ensure that they are functioning correctly and properly to the relevant requirements. All tests required in the FSDCoP and in this T&C Procedure shall be carried out and recorded.

For those emergency lighting systems with battery and backed up by emergency generators, each emergency generator shall be started up and allowed to energise the emergency lighting system for a continuous period of at least 1 hour. During this period all luminaires and/or signs shall be examined visually to ensure that they are functioning correctly. The start up time of the generator and the illumination level in terms of 'lux' and 'cd/m^2' etc. shall be recorded and the Contractor shall ensure that the start up time matches with FSD's requirements.

For emergency lighting system and exit signs provided with central monitoring, testing and logging system, the system shall be tested in accordance with the manufacturer's specification and to meet the requirements in the FSDCoP, EE_TC and this T&C Procedure.

Where indicated that there is emergency lighting installation and/or exit signs in a building carried out by others and not included in the work under the Installations, the Contractor shall follow the requirements of the General Specification with particular attention to Clause 8.1.11.1.12. The Contractor shall include the emergency lighting installation and exit signs as part of the fire service installation in the submission to the FSD with the necessary information to be provided by the relevant parties.

4.5 Emergency Generator Tests

The Contractor shall carry out full visual inspection, safety check, functional and performance test for the emergency generator installation. The tests shall include measurement on noise confirming compliance with the statutory requirements and/or conditions as required by the Environmental Protection Department, the HKSAR.

After full test of the fire service installations in a building or premises has been carried out, with all systems connected to the mains electricity supply, the mains electricity supply shall be switched off to simulate power failure and the emergency generator shall start automatically.

When the emergency generator has gained its capacity and is ready to accept the fire service load, each fire service installation shall be switched on until all installations are in operating conditions. If an automatic starting programme or device is provided for controlling the starting sequence of the equipment using emergency power supply, the programme or device shall be allowed to operate and test. A 'simultaneous running' test shall then take place and shall last for a continuous period of 1 hour. During this period, the performance of each fire service installation shall be monitored and recorded.

After 1 hour of testing, the emergency generator set shall be examined and all instruments, safety devices etc. shall indicate normal running of the generator.

The fuel tank shall be topped up after the tests.

Where the emergency generator installation is provided as work under the installations, in addition to the tests required by the FSD, the Contractor shall test and commission the emergency generator installation complying with the requirements in the Contract.

Where indicated that there is emergency generator installation in the same building carried out by others and not included in the work under the Installations, the Contractor shall follow the requirements of the General Specification, with particular attention to Clause 8.1.11.3. The Contractor shall include the emergency generator installation as part of the fire service installation in the submission to the FSD with the necessary information to be provided by the relevant parties.

4.6 Hot Smoke Tests

Hot smoke tests shall be carried out where specified or required by the FSD. The Contractor shall prepare and submit proposals including all calculations, designs, and computer fluid

dynamic simulations, etc., arrange, co-ordinate and carry out the hot smoke tests to meet the purpose for simulating the prototype of a real fire under specific dynamic buoyant flow of smoke and heat intensity in a controlled manner and for assessing the performance of smoke management system, smoke control system and smoke extraction system with the given building geometry. Hot smoke tests shall follow FSDCoP, Australian Standard AS 4391 "Smoke Management System – Hot Smoke Test" or approved international standards and practises and to the satisfaction of the FSD and the PBSE. The Contractor shall be responsible for the submissions to the FSD and obtain comments and approval from the FSD and all relevant parties on the detailed requirements and arrangement for the hot smoke test at early stage of the Contract.

The Contractor shall provide all materials, equipment, facilities, fuels, manpower and the like for hot smoke tests. The Contractor shall co-ordinate and arrange with the Building Contractor to provide all necessary temporary protections to the building finishes, parts, fixtures, furniture, services and other building works during the tests. The Contractor shall submit the details of such requirements to the Building Contractor in good times before the tests and to the PBSE for approval. The Contractor shall supply and install all necessary protections and allow all appropriate provisions to other parts of the building not covered by the Building Contractor so as not to cause any damage, and to keep any disturbance to the possible minimum to any occupants or services during hot smoke tests. The Contractor shall co-ordinate with the Building Contractor and the FSD and shall propose a suitable location and a suitable fire size according to the proposals approved by the FSD for carrying out the hot smoke tests. The Contractor shall carry out risk assessments of the hot smoke tests and allow adequate protections and provisions for the risks. The Contractor shall employ a standby fire brigade including fire engine from the FSD during hot smoke tests for the purpose of fire safety. The Contractor shall deem to allow all necessary insurance coverage for the hot smoke tests when such or any part of it is not covered under the general insurance policy of the Building Contractor for the Site.

The Contractor shall arrange and co-ordinate with relevant parties in carrying out the hot smoke tests. The Contractor shall employ a qualified professional engineer to arrange the details and co-ordinate the hot smoke tests. The engineer employed shall be a Registered Professional Engineer in Hong Kong under the Engineers Registration Ordinance (Cap. 409) in fire, building services or mechanical discipline (or equivalent approved professional qualifications) with proof of experience of at least 3 years in hot smoke test and Fire Service Installation works. The professional status and qualifications of the Registered Professional Engineer shall also be acceptable by FSD and the Supervising Officer.

Hot smoke tests shall be carried out to verify the effectiveness of the smoke management systems and the like included in the work under the installations before the compliance inspections of the FSD. Where hot smoke tests indicate deficiency in any systems, the Contractor shall rectify them to the satisfaction of the FSD and the PBSE at no additional cost. Where the smoke management systems are not included in the work under the installations, the Contractor shall report the deficiency to the PBSE and propose improvement measures. The Contractor shall submit a detailed test report at the end of each test that shall include all the measurement results and data, recommendations and improvement measures. A final report shall be prepared and submitted after the compliance inspections for the approval of the FSD.

Details of the hot smoke test requirement shall refer to the General Specification and FSDCoP.

4.7 Tests on Other Fire Service Installations

Tests on fire service installations other than those listed in this T&C Procedure shall be in accordance with the FSDCoP and FSD Requirements and Circular Letters, and the approved detailed testing and commissioning procedures proposed by the Contractor and approved by the PBSE. The Contractor shall propose and submit detailed testing and commissioning procedures for all fire service installations for approval by the PBSE where such details of testing and commissioning are not available in EE_TC, FSDCoP and this T&C Procedure. The detailed testing and commissioning procedures submitted shall be comprehensive and sufficient to demonstrate the functioning and performance of all the systems and equipment.

Annex I

Testing and Commissioning Progress Chart for Fire Service Installation

Contract Number : _____

Contract Title : _____

Name of Sub-contractor : _____

Name of Main Contractor : _____

Contract Period: __/__/20__ to __/__/20__ *Revised /Actual Completion Date: __/__/20__
dd/mm/yyyy dd/mm/yyyy

	Testing and Commissioning Progress Chart for Fire Service Installation (Rev.) (Note 1)																		
		Dates (Note 2)																	Remark
	Activities	Reference to T&C Procedure Clause	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
1.	Hydrant and Hose Reel System	3.1																	
	Visual inspection																		
	System Readiness for Hydraulic Test																		
	Functional and performance test																		
	Submission of test record																		
2.	Automatic Sprinkler System	3.2																	
	Visual inspection																		
	System Readiness for Hydraulic Test																		
	Functional and performance test																		
	Submission of test record																		
3.	Manual and Automatic Fire Alarm System and Fire Alarm Control System	3.3																	
	Visual inspection																		
	Functional and performance test																		
	Submission of test record																		

	Testing and Commissioning Progress Chart for Fire Service Installation (Rev.) (Note 1)																		
		Dates (Note 2)																	Remark
	Activities	Reference to T&C Procedure Clause	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
4.	Gaseous Extinguishing System	3.4																	
	Visual inspection																		
	System Readiness for Pneumatic Test																		
	System Readiness for Puff Test																		
	Functional Test																		
	Submission of test record																		
5.	Street Hydrant	3.5																	
	Visual inspection																		
	System Readiness for Hydraulic Test																		
	Functional and performance test																		
	Submission of test record																		
6.	Drencher System	3.6																	
	Visual inspection																		
	System Readiness for Hydraulic Test																		
	Functional and performance test																		
	Submission of test record																		
7.	Audio/Visual Advisory System	3.7																	
	Visual inspection																		
	Functional and performance test																		
	Submission of test record																		
8.	Portable Hand-Operated Approved Appliances	3.8																	
	Visual inspection																		
9.	Fire Shutters	3.9																	
	Visual inspection																		
	Functional test																		
	Submission of test record																		

	Testing and Commissioning Progress Chart for Fire Service Installation (Rev.) (Note 1)																		
		Dates (Note 2)																	Remark
	Activities	Reference to T&C Procedure Clause	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
10.	Emergency Generator Installation	3.10																	
	Visual inspection																		
	Functional test																		
	Submission of test record																		
11.	Emergency Lighting & Exit Signs	3.11																	
	Visual inspection																		
	Functional test																		
	Submission of test record																		
12.	VAC Control System	3.12																	
	Visual inspection																		
	Functional test																		
	Submission of test record																		
13.	Pressurisation of Staircases System	3.13																	
	Visual inspection																		
	Functional test																		
	Performance test																		
	Submission of test record																		
14.	Smoke Extraction System	3.14																	
	Visual inspection																		
	Functional test																		
	Performance test																		
	Submission of test record																		
15.	Hot Smoke Test	3.15																	
	Visual inspection																		
	Functional test																		
	Performance test																		
	Submission of test record																		
16.	Submission of T&C Certificate																		

Notes

* Delete as appropriate

(1) Insert revision no.

(2) Insert additional columns as necessary
S - schedule % completion
A - actual % completion

Annex II

Testing and Commissioning Certificate for Fire Service Installation

Contract Number : _____

Contract Title : _____

Part 1 Details of Project

1.1 Project title : _____

1.2 P.W.P. No. : _____

1.3 Contract Number : _____

1.4 Sub-contractor : _____

1.5 Main Contractor : _____

1.6 Name of *PBSE : _____

1.7 Name of *PBSI : _____

Part 2 Declaration

2.1 I certify that the Fire Service Installation as specified in the Contract/Sub-contract/Quotation at the above location has been inspected, tested and commissioned in accordance with this Testing and Commissioning (T&C) Procedure and/or any other procedures as agreed between the *PBSE and the Contractor. The results are satisfactory in the aspects as mentioned in Part 3 and/or as recorded in Part 4 of this Certificate, except that indicated in the COMMENTS items.

2.2 I also certify that site tests have been performed in accordance with the requirements set in this T&C Procedure and that the results are satisfactory. A record of the tests has been prepared and submitted to the *PBSE.

Name of Authorised Contractor's Representative:	Signature:
Designation /Post of Contractor's Representative:	Date Signed:
Name and Stamp of Contractor:	Telephone Number:

* delete /amend if required

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI

Part 3 : Items to be Inspected and Tested

3.1 Fire Hydrant and Hose Reel System

Type of Building: *Domestic/Industrial/ Godown/ Others

3.1.1 F.S.I. Drawings Against Building Plans

3.1.1.1 Check nos. and locations of:

a)	Fire service inlets	*Yes/No/N.A.	*Yes/No/N.A.
b)	Fire hydrants and hose reels	*Yes/No/N.A.	*Yes/No/N.A.
c)	Fixed fire pumps	*Yes/No/N.A.	*Yes/No/N.A.
d)	Intermediate booster pumps	*Yes/No/N.A.	*Yes/No/N.A.
e)	Water tank and capacity	*Yes/No/N.A.	*Yes/No/N.A.

3.1.2 Plumbing Line Diagram

3.1.2.1 Check:

a)	Pipings are suitably connected to the fire pumps, fire hydrants, hose reels and fire service inlets.	*Yes/No/N.A.	*Yes/No/N.A.
b)	Size of the rising mains are correct.	*Yes/No/N.A.	*Yes/No/N.A.
c)	Size and height of the inter-connection header pipe(s) for fire service inlets is correct.	*Yes/No/N.A.	*Yes/No/N.A.
d)	By-pass pipings for intermediate booster pumps.	*Yes/No/N.A.	*Yes/No/N.A.
e)	F.S. appliance to be provided by FSD to test the system. (to be confirmed by FSD)	*Yes/No/N.A.	*Yes/No/N.A.

3.1.3 Visual Inspection

3.1.3.1 Water Supply

a)	Is an independent town main connection provided for the FH/HR installation alone?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does the size of the incoming water pipe from the town mains up to the supply tank tally with the vertical plumbing diagram approved by W.S.D.	*Yes/No/N.A.	*Yes/No/N.A.

c) Are the effective water capacity correct of the :

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	(i) Supply tank?	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Transfer tank?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are the ball valves of the water tank readily accessible?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Does the size of the water pump suction water pipe from the tank match the size of the pump suction inlet?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are levels of suction pipes correct?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are puddle flanges of the same sizes as the water pump suction pipes?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are automatic priming arrangements provided for suction lift condition?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is anti-overheating circulating pipe provided?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Is vortex inhibitor provided and clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are water tanks clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Has the Fire Service Completion Advice issued?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.3.2	Pipework		
a)	Are water pipes up to 150 mm dia. to BS EN 10255 / ISO 65/ BS EN 10217-1 medium grade or other approved type?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are water pipes larger than 150 mm dia. to BS EN 545:2010 Class 64 (dia. 200 – 350) or Class 50 (dia. 400 – 600) or other approved type?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are U/G water pipes to BS EN 545:2010 Class 100 (dia. 80 -150), Class 64 (dia. 200 – 350) or Class 50 (dia. 400 – 600) or to BS EN 10255 / ISO 65 heavy grade or other approved type?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are U/G water pipes protected with two coats of bituminous paint and wrapped with self-amalgamating tapes and mastics having minimum 55% overlapping?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are water pipes up to 50 mm dia. operating at working pressure not exceeding 1600 kPa provided with screw joints?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are water pipes of dia. larger than 50 mm and up to 150 mm operating on or below 1600 kPa provided with mechanical pipe couplings or screwed joints?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are water pipes of dia. larger than 150 mm provided with flanged joints and flanged fittings?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are U/G water pipes provided with mechanical pipe couplings or other approved couplings?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
i)	Are water pipes provided with adequate disconnecting flanges, mechanical pipe couplings or screwed unions for future ease of dismantling?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are pipes suitably connected to the fire pumps, hydrants, hose reels and fire service inlets?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are bends of water pipes larger than 50 mm dia. and bends of water pipes installed outside false ceiling/concealed void of long radius type, or as approved?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are galvanised mild steel sleeves provided for pipes through wall or slab?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are spaces between water pipes and pipe sleeves through wall or slab filled with approved fire proof material and sealant?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are fire rated pipe sleeves provided for pipes through fire rated wall or slab?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are spaces between water pipes and pipe sleeves through fire rated wall or slab filled with approved fire proof material and sealant?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Are adequate clearances provided between pipe and sleeve?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Are sleeves projected at least 100 mm above finish floor level and at least 150 mm above roof finish	*Yes/No/N.A.	*Yes/No/N.A.
r)	Are pipes installed without being embedded in concrete structure?	*Yes/No/N.A.	*Yes/No/N.A.
s)	Are adequate pipe hangers and supports provided as required?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Are pipe hangers and supports rigidly fixed and unbroken?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Are expansion pipe joints provided at location through building expansion joint?	*Yes/No/N.A.	*Yes/No/N.A.
v)	Are strainers in water pipes cleaned?	*Yes/No/N.A.	*Yes/No/N.A.
w)	Are adequate air vents and drain cocks provided?	*Yes/No/N.A.	*Yes/No/N.A.
x)	Are valves closed at clockwise rotation?	*Yes/No/N.A.	*Yes/No/N.A.
y)	Are valves locked at OPEN position with security devices including chains, padlocks, tamper-proof serially numbered security tags, and durable warning labels to prevent tampering/unauthorised operation, and with a log book to keep track of maintenance services and operation, of the valves?	*Yes/No/N.A.	*Yes/No/N.A.
z)	Are by-pass pipings provided for intermediate booster pumps?	*Yes/No/N.A.	*Yes/No/N.A.
aa)	Are pressure gauges of correct specification?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
ab)	Are isolating cocks/valves provided for pressure gauges?	*Yes/No/N.A.	*Yes/No/N.A.
ac)	Are sprinkler heads provided at top of refuse chutes?	*Yes/No/N.A.	*Yes/No/N.A.
ad)	Do water pipe sizes tally with drawings?	*Yes/No/N.A.	*Yes/No/N.A.
ae)	Are equipotential earth bondings provided for all sections of the pipeworks?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.3.3	Fire Hydrant		
a)	Do the layouts of the hydrant tally with the latest approved building plans?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are outlets of male round thread?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are outlets of female instantaneous?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are outlets adaptable to F.S.D equipment?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are the hydrant valves individually controlled by wheel operated screw valve designed to open in counter-clockwise direction?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the direction of opening engraved in both English and Chinese on the wheel of the valve?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are the centre of coupling of hydrant outlets between 800mm and 1200mm above finished floor level?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is the hydrant outlet provided with bronze caps complete with chains?	*Yes/No/N.A.	*Yes/No/N.A.
i)	If the hydrant is located in a recess to which a door is fitted, is such door fitted with non-lockable pull open handle and with the words “FIRE HYDRANT ((消防栓), lettering of which shall be of at least 50mm high?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Is adequate clearance provided around the hydrant outlet and valve for the free use of the hydrant?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Is the outlet not obstructing any door opening, or any existing exit route?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are the hydrants at positions without being concealed by adjacent opened doors?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is water fed by gravity?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Is water fed by fixed fire pump?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.3.4	Hose Reel		

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
a)	Do the layouts of the hose reels tally with the latest approved building plans?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is the length of the tubing not exceeding 30 m?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the internal bore of tubing not less than 19mm in diameter?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the hose reel drum not less than 150mm in diameter?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is nozzle fitted with simple two-way on/off valve and the valve is not spring loaded?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are the control valves of gate type or of simple two-way ball type?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are the gates valves are closed by clockwise rotation?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are the rising mains and associated pipework not less than 40mm nominal bore?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are the pipes feeding individual hose reel are not less than 25mm nominal bore.	*Yes/No/N.A.	*Yes/No/N.A.
j)	Can every part of the building be reached by a nozzle?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Is the nozzle capable of projecting a 6-metre jet?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are the control valves sited adjacent to the nozzles?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is the orifice of nozzle not less than 4.5 mm?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are the control valves and nozzles 1350 mm or less above finished floor level, and for a recessed type hose reel not more than 500 mm from the surface of the wall?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are guide rings provided for fixed type hose reel?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Is suitable guide ring provided to permit easy withdrawal of the hose reel tubing?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Are the jet nozzles unbroken and housed in glass-fronted cabinet secured under lock and key?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Is the guide bracket unbroken and installed?	*Yes/No/N.A.	*Yes/No/N.A.
s)	Are strikers provided inside the cabinets?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Are manual fire alarm call points sited at a prominent position near the hose reels?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Are the manual fire alarm call points not more than 1200 mm above the finished floor level?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
v)	Upon actuation of any manual fire alarm call point in the building, shall the fixed fire pump come into operation regardless of the zoning of the fire alarm call point?	*Yes/No/N.A.	*Yes/No/N.A.
w)	Are operation instruction notices provided for and adjacent to each of the hose reels?	*Yes/No/N.A.	*Yes/No/N.A.
x)	Is the notice clearly marked with the standard wordings in English and Chinese characters of at least 5mm high in red letters on white background or vice versa?	*Yes/No/N.A.	*Yes/No/N.A.
y)	Are hose reels of swinging cradle type?	*Yes/No/N.A.	*Yes/No/N.A.
z)	Can the cradle be swung freely into the corridor or passage when required?	*Yes/No/N.A.	*Yes/No/N.A.
aa)	Is the tubing of the hose reels properly wound round the drum without kinking?	*Yes/No/N.A.	*Yes/No/N.A.
ab)	Are the outer faces of the hose reels flush with the wall when the reels are not in use?	*Yes/No/N.A.	*Yes/No/N.A.
ac)	Door fitted to the hose reel cabinet.	*Yes/No/N.A.	*Yes/No/N.A.
	i) Do such doors cause no undue obstruction and no interference with any exit point when in open position?	*Yes/No/N.A.	*Yes/No/N.A.
	ii) Do such doors cause no obstruction to the hose being run out in either direction?	*Yes/No/N.A.	*Yes/No/N.A.
	iii) Are the doors of the hose reel cabinets or recesses provided without any locks?	*Yes/No/N.A.	*Yes/No/N.A.
	iv) Are the doors clearly bear “FIRE HOSE REEL”(消防喉轆) with characters of at least 50 mm high?	*Yes/No/N.A.	*Yes/No/N.A.
	v) Are control valves and nozzles sited in a discernible and accessible position of not more than 500 mm from the surface of the doors?	*Yes/No/N.A.	*Yes/No/N.A.
	vi) Are the operation instruction notices fixed immediately below the words “FIRE HOSE REEL” on the outer surface of the doors?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.3.5	Rising Mains		
a)	Are air relief valves provided for rising mains?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are draining facilities provided at the lowest points of rising mains?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are the rising mains of the correct sizes? (Industrial/Godown – not less than 100 mm nominal bore, Others – not less than 80 mm nominal bore)	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
d)	Are the rising mains supply the correct number of hydrant outlets (2 outlets per floor for industrial/godown and 1 outlet per floor for other buildings)?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is each rising main provided with an independent F.S. inlet?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are rising and down-coming mains permanently primed?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is there any provision of by-pass for intermediate booster pump?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is/Are the Header pipe(s) provided to connect the fire service inlets to the rising mains if there is more than 1 rising main in the system?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is/Are the Header pipe(s) with a maximum height of 30 m above ground level?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are the rising mains interconnected by header pipes of correct sizes? (Industrial/Godown – not less than 150 mm nominal bore, Others – not less than 100 mm nominal bore).	*Yes/No/N.A.	*Yes/No/N.A.
k)	For godown/industrial buildings, is the rising main provided for each staircase with a fire service inlet?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are the number and location of fire service inlets conforming to latest approved building plan?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

3.1.3.6 Fire Pump

a) Pump/Motor Set Data :

		Fixed Fire Pump		Intermediate Pump		Transfer Pump	
		Duty	Standby	Duty	Standby	Duty	Standby
Location							
Quantity (No(s).)							
Manufacturer	Pump						
	Motor						
Model No.	Pump						
	Motor						
Serial	Pump						
	Motor						
Motor Power (kW)							
Pump Power (kW)							
Flow rate (l/min)							
Pressure (kPa)							
Starting method							

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
b)	Is electricity used for driving the pump? If no, please specify.	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is secondary power supply provided for electric pumps?	*Yes/No/N.A.	*Yes/No/N.A.
d)	If no, is diesel engine driven standby pump provided?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are alternative means of starting the pump manually, in addition to manual fire alarm call points provided, where the pump is not electrically operated?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are starting instructions for diesel driven pump prominently displayed in the pump room?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are the motor/pump set rotating parts protected by safety guards?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are pump motors protected by HRC fuses?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Can the pump just be stopped by switching off at the pump control installed near the pump, rather than by any automatic means?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are manual fire alarm call points wired for starting the pump?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are the pumps duplicated for duty and standby use?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are the fire pump starters wired through a selector switch for duty and standby pump selection?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are pumps permanently primed?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are non-return valve(s) provided to prevent water backflow into the water tank?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Is pump motor power rated at 20% higher than the required hydraulic power for the rated flow of the system?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Are emergency lock-off buttons provided adjacent to pump motors with visual and audible indication on the panel with a common fault signal repeated at the main fire control panel when the pump is locked?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Are the status of each fire pump comprising “Power Supply On”, “Pump Running” and “Pump Failed” monitored and displayed at the pump control panel in the pump room?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Are such signals repeated to fire control room or a status panel at the main entrance of the building?	*Yes/No/N.A.	*Yes/No/N.A.
s)	Are all fire pumps housed in suitable enclosures and designed solely for accommodating pumps for fire service installations?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Are pump enclosures clearly marked in English and Chinese characters?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
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Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
u)	Are the pumps enclosures suitably locked to prevent unauthorised tampering of the pumps?	*Yes/No/N.A.	*Yes/No/N.A.
v)	Are doors to pump rooms provided with automatic door closers?	*Yes/No/N.A.	*Yes/No/N.A.
w)	Are pump rooms laid clear of any exit or normal communication routes through the premises?	*Yes/No/N.A.	*Yes/No/N.A.
x)	Are pump rooms clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
y)	Are doors to pump rooms clearly labelled “FIXED FIRE PUMP” (消防泵) *and/or “INTERMEDIATE BOOSTER FIRE PUMP” (中途泵)?	*Yes/No/N.A.	*Yes/No/N.A.
z)	Are the running and static pressure at any hydrant outlet not exceeding 850kPa?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.3.7	Intermediate booster pump		
a)	Height between the topmost hydrant and the lowest F.S. inlet (m):	_____	_____
b)	No. of rising main:	_____	_____
c)	Required aggregate flow (l/min):	_____	_____
d)	Are the pumps duplicated for duty and standby use?	*Yes/No/N.A.	*Yes/No/N.A.
	i) Is one set of intermediate booster pumps consisting of duty and standby to feed all rising mains in the same system?	*Yes/No/N.A.	*Yes/No/N.A.
	ii) Are two/three pumps of same capacity provided using sequential starting as duty pumps with one standby to achieve required flow and pressure within 30 seconds?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is the standby pump energised within 15 seconds upon failure of the duty pump and take over the role of duty pump?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are the motors driving the pumps rated to give 20% more power in addition to the hydraulic power required for the rated flow?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are all pumps permanently primed and electrically driven?	*Yes/No/N.A.	*Yes/No/N.A.
h	Does the pump continue to run irrespective of power interruption when start button is activated?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are the Start/stop push buttons with pump status indicator lights (comprising “power supply on”, “pump running” and “pump failed” indicators for each pump) and alarm buzzer provided adjacent to the fire service inlets?	*Yes/No/N.A.	*Yes/No/N.A.

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Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
j)	Are the above switches clearly labelled in English and Chinese characters “INTERMEDIATE BOOSTER PUMP CONTROL" (中途泵開關掣) of at least 5 mm high?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are the status of each fire pump comprising “Power Supply On”, “Pump Running” and “Pump Failed” monitored and displayed at the pump control panels in the pump enclosures?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are such signals repeated to fire control room or a status panel at the main entrance of the building?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are all fire pumps housed in suitable enclosures and designed solely for accommodating pumps for fire service installations?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are the pump enclosures suitably locked and laid clear of any exit or normal communication routes through the premises?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are the pump enclosures clearly marked in English and Chinese characters?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Is the intermediate booster pump utilised as the fixed fire pump?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Do the running and static pressure at any hydrant outlet not exceeding 850 kPa?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.3.8	Fire Service Inlet		
a)	Are the fire service inlet couplings between 600 mm and 1000 mm above finished floor level?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the fire service inlets suitably enclosed and protected?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are the fire service inlets readily accessible by Fire Services personnel?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is a non-return valve provided for each inlet?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are the fire service inlet enclosures clearly and permanently labelled “F.S. INLET” (消防入水掣) with characters at least 50 mm high?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is each inlet affixed with a metal identification plate raised on engraved with English and Chinese characters?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.3.9	Miscellaneous		
a)	Are all pipeworks and metal works properly painted?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is proper identification provided for pipeworks, wirings and equipment?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.1.4	Testing and Commissioning		
3.1.4.1	Pipeworks		
a)	Are hydraulic tests performed satisfactorily for water tightness of all sections of the pipeworks? (Test records on Part 4.1 Table 1)	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is flushing out of all water pipes performed?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is flushing out of all hose reel tubing performed?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Do the automatic air release valves function properly?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Do the pressure reducing valve sets function properly? (Test records on Part 4.1 Table 2)	*Yes/No/N.A.	*Yes/No/N.A.
f)	Do the gate valves, stop valves and globe valves function properly?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.4.2	Electrical Wiring		
a)	Is the electrical wiring system tested satisfactorily in accordance with the T&C Procedure for Electrical Installation and to Electricity Ordinance requirements?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does the battery charger function properly?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the telephone link connected and functioning?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is permanent electricity supply connected?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is emergency electricity supply available?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.4.3	Fire Pump		
a)	Do the pumps and motors run at the designed discharge water pressure and operating electrical current? (Test records on Part 4.1 Table 3)	*Yes/No/N.A.	*Yes/No/N.A.
b)	Do the pumps run at an acceptable noise and vibration levels?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Do the pump control switches and indicating lights function properly?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Do the pump protective devices function properly?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Do the fixed fire pumps come into operation upon actuation of any manual fire alarm call point, regardless of the zoning of the fire alarm call point?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
f)	Are the status of fire pumps including "power supply on", "pump running" and pump failed" displayed at the pump control panel and repeated at the main fire service control panel?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Do the float switches in the water tanks for controlling the transfer pumps function properly?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Do the high and low water level alarms and indications for the water tanks function properly?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are the temperatures of the pump bearings satisfactorily at running condition?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are the temperatures of the pump motors satisfactorily at running condition?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Do the pressure gauges function properly?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Is water leakage from the pump shafts at an acceptable level?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Do the non-return valves function properly?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Does the pressure relief valve of the anti-overheating circulating pipe function properly? (Operate at _____ kPa)	*Yes/No/N.A.	*Yes/No/N.A.
o)	Do the pressure switches controlling the duty and standby pumps operate properly? (Test records on Part 4.1 Table 4)	*Yes/No/N.A.	*Yes/No/N.A.
p)	Is the standby pump energised within 15 second upon electrical and mechanical failure of the duty pump and take over the role of duty pump?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Is the duty pump maintained in operation in case of power changeover?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.4.4	Fire Service Inlet		
a)	Do the non-return valves of the F.S. inlets function properly?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Do the stop/start buttons, indicating lights and audible alarms for the intermediate booster pumps function properly?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Do the drain valves function properly?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.4.5	Hose reel		
a)	Can the hose reel tubing be drawn out freely and easily in any direction without obstruction?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the hose reels capable to cover within 6 m of each part of the occupied area? (Test Records on Part 4.1 Table 5)	*Yes/No/N.A.	*Yes/No/N.A.

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c)	Are the hose reels capable to project a water jet of 6 m or greater? (Test Records on Part 4.1 Table 5)	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the water tightness of the stop valves, nozzles, and tubing connections satisfactory when the fire pump is running?	*Yes/No/N.A.	*Yes/No/N.A.

3.1.4.6 Fire Hydrant

a)	Is the water tightness of the hydrant outlet satisfactory when the water pump is running?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Do the flow capacity and pressure test satisfy Fire Services Department's requirements as the following Table? (Test records on Part 4.1 Tables 6, 7 and 8)	*Yes/No/N.A.	*Yes/No/N.A.

Building Type	Rising Main	With fixed fire pump		
		No. of hydrant outlet operating	Running Pressure (kPa)	Minimum aggregate flow rate (l/min)
Industrial	1 or more	3	350 – 850	1350
All other types	1 or more	2	350 – 850	900

Building Type	Rising Main	With intermediate booster pump		
		No. of hydrant outlet operating	Running Pressure (kPa)	Minimum aggregate flow rate (l/min)
Industrial	1	3	350 – 850	1350
	2 or more	6	350 – 850	2700
Domestic	1 or more	2	350 – 850	900
All other types	1	2	350 – 850	900
	2 or more	4	350 – 850	1800

Note:
a) Each hydrant outlet shall have a flow of 450 L/min at a running pressure of not less than 350 kPa.
b) The running and static pressure at any fire hydrant outlet shall in no case exceed 850 kPa.

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		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.2	Automatic Sprinkler System		
3.2.1	Visual Inspection		
3.2.1.1	Water Supplies		
a)	Is an independent town main connection provided for the sprinkler system installation alone?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does the size of the incoming water pipe from the town mains up to the sprinkler tank tally with the vertical plumbing diagram approved by W.S.D.?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the effective water capacity correct of the :		
	(i) Sprinkler tank?	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Transfer tank?	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) Priming tank?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is an indication given before a water storage level drops more than 10% below its normal fill level?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are the ball valves of the water tank readily accessible?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Positive suction head:		
	(i) Is there at least two-thirds of the effective capacity of the suction tank above the level of the pump centre-line? AND	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Is the pump centre-line not more than 2m above the low water level of the suction tank? (*Remark: If the above conditions cannot be fulfilled, the pumps are in suction lift conditions.*)	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) Is the nominal diameter of suction pipe under positive suction correct? (LH – min. 65 mm dia., OH1&2 – min. 150 mm dia., OH3 & 4 – min. 200 mm dia)	*Yes/No/N.A.	*Yes/No/N.A.
g)	Suction lift condition:		
	(i) Is each water pump provided with an independent suction pipe?	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Is the nominal diameter of suction pipe under suction lift condition correct? (LH – min. 80 mm dia., OH1&2 – min. 150 mm dia., OH3 & 4 – min. 200 mm dia)	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) Are automatic priming arrangements provided for suction lift condition?	*Yes/No/N.A.	*Yes/No/N.A.
	(iv) Are sizes of priming water pipes correct? (LH – min. 25 mm dia., OH and HH – min. 50 mm dia.)	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	(v) Is each water pump provided with an independent priming tank? (LH – min. 100 litres, OH and HH – min. 500 litres)	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is the equivalent length of the suction pipe and fittings not more than 30m?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are levels of suction pipes correct?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are puddle flanges of the same size as the water pump suction pipes?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Is a foot valve or check valve fitted to the suction pipe where not less than one-sixth of the effective stored capacity contained below the centre-line of the pump and the low water level X?	*Yes/No/N.A	*Yes/No/N.A
l)	Is anti-overheating circulating pipe provided?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is vertex inhibitor provided and clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are strainers in water tank cleaned?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Is the tank clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Has the Fire Service Completion Advice issued?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.2	Spacing and Location of Sprinklers		
a)	Are spacing and location of sprinkler heads in accordance with LPC Rules regarding :		
	(i) Area of coverage?	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Maximum distance between sprinklers?	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) Minimum distance between sprinklers?	*Yes/No/N.A.	*Yes/No/N.A.
	(iv) Distance from wall/partition?	*Yes/No/N.A.	*Yes/No/N.A.
	(v) Distance from open face of building?	*Yes/No/N.A.	*Yes/No/N.A.
	(vi) Distance from beam?	*Yes/No/N.A.	*Yes/No/N.A.
	(vii) Distance from column?	*Yes/No/N.A.	*Yes/No/N.A.
	(viii) Clear space below sprinklers?	*Yes/No/N.A.	*Yes/No/N.A.
	(ix) Depth of ceiling void?	*Yes/No/N.A.	*Yes/No/N.A.
	(x) Obstruction below sprinklers?	*Yes/No/N.A.	*Yes/No/N.A.
	(xi) Canopy?	*Yes/No/N.A.	*Yes/No/N.A.

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		Date :	

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	(xii) Are construction of open ceiling spacing and location of sprinkler heads in accordance with LPC Rules?	*Yes/No/N.A.	*Yes/No/N.A.
	1) Open area of ceiling? (Not less than 70% open area including light fittings)	*Yes/No/N.A.	*Yes/No/N.A.
	2) Dimensions of opening? (Not less than 0.025m or not less than the depth of the ceiling)	*Yes/No/N.A.	*Yes/No/N.A.
	3) Distance of sprinklers? (Not exceed 3m)	*Yes/No/N.A.	*Yes/No/N.A.
	4) Vertical separation between sprinklers and ceiling? (Not less than 0.3 m for flat spray sprinkler and not less than 0.8 m for sprinklers other than flat spray sprinklers)	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is there any sheet metal or fire resistance sheet not less than 200mm wide and 150mm high located midway between the sprinklers or by using intervening construction features when there is possibility for adjacent sprinklers from wetting each other?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are there any baffles with its top edge extend above the sprinkler deflector by 50mm to 75mm if the baffles are fitted on the range pipe when there is possibility for adjacent sprinklers from wetting each other?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.3	Sprinkler Heads		
a)	Are sprinklers clean from contamination by paint, etc.?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are sprinklers of correct nominal K factor in accordance with LPC rules?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are sprinklers of correct temperature ratings? (68°C red bulb for normal use, 93°C green bulb for skylight)	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are replacement sprinklers provided and completed with cabinets? (LH - 6 Nos., OH - 24 Nos. & HH - 36 Nos. For more than 2 installations, added 50% to the figures.)	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is there a stock of spare sprinklers kept in the Fire Control Room of the premises adequate for operated or damaged sprinklers?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is sprinkler spanner provided and kept in sprinkler cabinet?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is the cabinet or cabinets located in a prominent and easily accessible position where the ambient temperature does not exceed 40°C?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are sprinkler guards provided at locations where the sprinklers are at a height less than 2 m from ground level or liable to damage?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are the Nos. of sprinklers installed on the range and distribution pipes in accordance with LPC Rules?	*Yes/No/N.A.	*Yes/No/N.A.

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j)	Are sprinklers installed in upright position for either type of pre-action installation unless otherwise recommended by the corresponding manufacturer of the installation?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are sprinkler heads installed in upright position for dry pipe system installations in cold room?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.4	Pipeworks		
a)	Are water pipes up to 150 mm dia. to BS EN 10255 / ISO 65 / BS EN 10217-1 medium grade or other approved type?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are water pipes larger than 150 mm dia. to BS EN 545 Class 64 (dia. 200 – 350) or Class 50 (dia. 400 – 600) or other approved type?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are U/G water pipes to BS EN 545 Class 100 (dia. 80 -150), Class 64 (dia. 200 – 350) or Class 50 (dia. 400 – 600) or to BS EN 10255 / ISO 65 heavy grade or other approved type?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are U/G water pipes protected with two coats of bituminous paint and wrapped with self-amalgamating tapes and mastics having minimum 55% overlapping?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are water pipes up to 50 mm dia. operating at working pressure not exceeding 1600 kPa provided with screw joints?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are water pipes of dia. larger than 50 mm and up to 150 mm operating on or below 1600 kPa provided with mechanical pipe couplings or screwed joints?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are water pipes of dia. larger than 150 mm provided with flanged joints and flanged fittings?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are U/G water pipes provided with mechanical pipe couplings or other approved couplings?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are water pipes provided with adequate disconnecting flanges, mechanical pipe couplings or screwed unions for future ease of dismantling?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are pipes suitably connected to the sprinkler pumps, sprinkler control valves and sprinkler inlets?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are bends of water pipes larger than 50 mm dia. and bends of water pipes installed outside false ceiling/concealed void of long radius type, or as approved?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are galvanised mild steel sleeves provided for pipes through wall or slab?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are spaces between water pipes and pipe sleeves through wall or slab filled with approved fire proof material and sealant?	*Yes/No/N.A.	*Yes/No/N.A.

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		Date :	

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n)	Are fire rated pipe sleeves provided for pipes through fire rated wall or slab?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are spaces between water pipes and pipe sleeves through fire rated wall or slab filled with approved fire proof material and sealant?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Are adequate clearances provided between pipe and sleeve?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Are sleeves projected at least 100 mm above finish floor level and at least 150 mm above roof finish	*Yes/No/N.A.	*Yes/No/N.A.
r)	Are pipes installed without being embedded in concrete structure?	*Yes/No/N.A.	*Yes/No/N.A.
s)	Are adequate pipe hangers and supports provided as required?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Are pipe hangers and supports rigidly fixed and unbroken?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Are expansion pipe joints provided at location through building expansion joint?	*Yes/No/N.A.	*Yes/No/N.A.
v)	Are adequate air vents and drain cocks provided?	*Yes/No/N.A.	*Yes/No/N.A.
w)	Are valves closed at clockwise rotation?	*Yes/No/N.A.	*Yes/No/N.A.
x)	Are outlet valves on fire service water tanks, sprinkler installation and elsewhere as specified locked at OPEN position with security devices including chains, padlocks, tamper-proof serially numbered security tags, and durable warning labels to prevent tampering/ unauthorised operation, and with a log book to keep track of maintenance services and operation, of the outlet valves?	*Yes/No/N.A.	*Yes/No/N.A.
y)	Do water pipe sizes tally with drawings?	*Yes/No/N.A.	*Yes/No/N.A.
z)	Can all sections of water pipes be drained with the exception of drop pipes to single sprinklers in a wet installation?	*Yes/No/N.A.	*Yes/No/N.A.
aa)	Are the water pipes suitably sloped and drained to the installation drain valve as far as practical?	*Yes/No/N.A.	*Yes/No/N.A.
ab)	Are the drain points adequate in the installation?	*Yes/No/N.A.	*Yes/No/N.A.
ac)	Are drain points connected to the nearest drain for routine testing of all flow switches?	*Yes/No/N.A.	*Yes/No/N.A.
ad)	Are installation drain pipes and valves of correct sizes? (min. for LH - 40 mm, OH and HH - 50 mm)	*Yes/No/N.A.	*Yes/No/N.A.
ae)	Are correct sizes of drain pipes and valves provided as per LPC rules for pipeworks to be drained?	*Yes/No/N.A.	*Yes/No/N.A.

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af)	Are pressure gauges of correct specification and complying with BS EN 837-1 or other appropriate standards as per G.S.?	*Yes/No/N.A.	*Yes/No/N.A.
ag)	Are isolating cocks/valves provided for pressure gauges?	*Yes/No/N.A.	*Yes/No/N.A.
ah)	Are strainers in water pipes cleaned?	*Yes/No/N.A.	*Yes/No/N.A.
ai)	Are installation control valves in accordance with G.S. and LPC Rules?	*Yes/No/N.A.	*Yes/No/N.A.
aj)	Are main stop valves secured at OPEN position with security devices including chains, padlocks, tamper-proof serially numbered security tags, and durable warning labels to prevent tampering/unauthorised operation, and with a log book to keep track of maintenance services and operation, of the valves?	*Yes/No/N.A.	*Yes/No/N.A.
ak)	Are main stop valves placed at proximity to an entrance to the premises?	*Yes/No/N.A.	*Yes/No/N.A.
al)	Are location plates for main stop valves provided with correct wording and character sizes?	*Yes/No/N.A.	*Yes/No/N.A.
am)	Are each set of alarm valve and alarm gong provided with identification label and number?	*Yes/No/N.A.	*Yes/No/N.A.
an)	Is the total equivalent length of water pipe between alarm valve and alarm gong 25 m or less?	*Yes/No/N.A.	*Yes/No/N.A.
ao)	Is the centreline of alarm gong higher than 6 m above the point of connection to the alarm valve?	*Yes/No/N.A.	*Yes/No/N.A.
ap)	Is the piping to alarm gong at least 20 mm diameter?	*Yes/No/N.A.	*Yes/No/N.A.
aq)	Are equipotential earth bondings provided for the pipeworks?	*Yes/No/N.A.	*Yes/No/N.A.
ar)	Have the electric monitoring type subsidiary stop valves given visual signals back to the fire alarm control and remote indicating panel to identify the status of subsidiary stop valves at open/close state with security devices?	*Yes/No/N.A.	*Yes/No/N.A.
as)	Have the security devices installed with warning labels and serial numbers and complied with the requirements of FSD Circular Letter No. 4/2010 and as approved by the Supervising Officer?	*Yes/No/N.A.	*Yes/No/N.A.
at)	Has the Contractor adopted the sprinkler subsidiary stop valves management system in accordance with the requirements of FSD Circular Letter No. 4/2010 on subsidiary stop valves?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.5	Dry Pipe Installation		
a)	Is the installation pressurised with air within the pressure range recommended by the alarm valve manufacturer and shall not exceed 400 kPa?	*Yes/No/N.A.	*Yes/No/N.A.

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
b)	Is each installation served by an independent air supply system?	*Yes/No/N.A.	*Yes/No/N.A.
c)	For cold room application, do automatic means provided to automatically shut down the air circulation fans when the sprinkler system operates?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is air-supply pipework fitted with pressure relief valve, non-return valve, stop valve (normally open), suitably sized restrictor, and by-pass with stop valve (normally strapped and padlocked closed)?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is the air-supply pipework connected to the installation above the normal priming water level of the dry alarm valve?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are air compressors equipped with automatic off-loading devices to depressurise the compressor prior to start up?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are air-supplies to sprinkler installations possessing a cold store dried by passing through a suitable air dryer or freezer?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is the restrictor in the air-supply pipework correctly sized to limit the mass flow of air from the air supply to the installation, so as to avoid delay of water discharge from the open sprinklers?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is filter provided at the upstream of the non-return valve and restrictor?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are restrictors made from non-corrosive materials such as austenitic stainless steel or copper alloy having orifices with rounded edges?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are distribution and range pipes of terminal range configuration (Gridded and looped configurations of pipework are not allowed)?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Is a test facility provided at the end of the hydraulically most remote range pipe on the installation, consisting of a 32 mm nominal diameter pipe and quick-acting test valve, with an outlet nozzle equivalent in size to the smallest sprinkler in the installation?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is the quick-acting test valve located in an easily accessible position and secured in the closed position with a suitable strap or chain?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Is the end of the test line capped or plugged?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Does the sprinkler installation in the dry-pipe mode comply with the following?:		
	(i) have an internal volume of air-filled pipe not exceeding :	*Yes/No/N.A.	*Yes/No/N.A.
	Light hazard 1.0 m^3		
	Ordinary hazard 2.5 m^3		
	High hazard 2.5 m^3		

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		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	Or		
	(ii) discharge water from the test facility within 60 seconds of opening the quick-acting test valve when the installation is in the normal stand-by condition.	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.6	Pre-action System		
a)	Is the sprinkler installation pipework charged with air under pressure in accordance with the recommendations of the manufacturer of the installation alarm valve, which shall not exceed 400 kPa for any standby condition and monitored to give the visual indication and audible alarm for a fault signal on reduction of the air pressure?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does the pre-action system control panel comply with the requirements of BS 5839-1 where appropriate and incorporate the necessary relays, timers, key type switches, alarm and trouble lights essential to the operation of the system?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Does the control panel employ printed circuit boards for the components and is completely factory wired and ready for connection on the Site?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is pre-action alarm valve operated by either of two independent solenoid valves or actuator mechanisms?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are the pre-action control panel relays and circuitry operating the pre-action alarm valve solenoid valves or actuator mechanisms duplicated and wired such that no single fault or failure shall render the installation inoperable?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Does the fire detection system used to activate a pre-action sprinkler system comply with the appropriate parts of BS 5839-1where appropriate and the following items	*Yes/No/N.A.	*Yes/No/N.A.
	(i) Each room or compartment protected by sprinklers shall have sufficient fire detectors to initiate release of the pre-action installation without the operation of any detectors external to the room or compartment or located within equipment.	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Fire detection systems employing coincidence connection (requiring a response from two detectors to initiate operation of the pre-action alarm valve) may be used with Type A and Type B pre-action installations. (Consideration shall be given to actuating the pre-action alarm valve on operation of a single fire detector where fast-developing fires may occur).	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) Any two detectors of a group of detectors which may initiate the operation of the pre-action alarm valve shall be separately connected to independent wiring circuits.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
g)	Is pre-action installation Type A / Type B? *(delete as appropriate)*	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is the volume of stored water supplies increased by the volume of the total pre-action installations?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is the time between multiple pre-action installations tripping and water discharging from any remote test valve on the installations under consideration not exceeding 60 seconds?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.7	Recycling System		
a)	Is the complete installation, including all equipment, components and wiring, approved by LPCB and accepted by the Fire Services Department (FSD)?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is it supplied from a proprietary manufacturer specialised in the manufacture of the system?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are the major components of each recycling installation consist of, but not limited to, the following :		
	(i) Recycling heat detector	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Fire resisting detector cable	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) Control panel	*Yes/No/N.A.	*Yes/No/N.A.
	(iv) Valve trim box	*Yes/No/N.A.	*Yes/No/N.A.
	(v) Batteries and charger	*Yes/No/N.A.	*Yes/No/N.A.
	(vi) Electric alarm bell	*Yes/No/N.A.	*Yes/No/N.A.
	(vii) Pipework and fittings	*Yes/No/N.A.	*Yes/No/N.A.
	(viii) Sprinkler head	*Yes/No/N.A.	*Yes/No/N.A.
	(ix) Flow control and other auxiliary valves	*Yes/No/N.A.	*Yes/No/N.A.
	(x) Air supply system including air compressor, piping and fittings	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are all the components LPCB approved as an integral part of the recycling installation?	*Yes/No/N.A.	*Yes/No/N.A.
	(i) Heat Detector		
	1) Is the heat detector a heat sensitive, normally closed, electrical detector which shall operate at a fixed temperature?	*Yes/No/N.A.	*Yes/No/N.A.
	2) Is it rate compensating and feature automatic recycling?	*Yes/No/N.A.	*Yes/No/N.A.

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Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3)	Is each detector complete with a tell-tale of zinc alloy?	*Yes/No/N.A.	*Yes/No/N.A.
4)	Are the detector units connected with low smoke fire resisting cable to the control panel?	*Yes/No/N.A.	*Yes/No/N.A.
5)	Is the heat probe stainless steel and the top colour coded for temperature set point and spacing?	*Yes/No/N.A.	*Yes/No/N.A.
6)	Is the conduit box attached with the detector fire and explosion proof and made of copper free aluminium with threaded conduit connections and adaptors provided for detector cables?	*Yes/No/N.A.	*Yes/No/N.A.
7)	Do the detectors have a 60 °C detection rating which can monitor up to a maximum of 149 m^2 of area under optimum conditions of a smooth ceiling?	*Yes/No/N.A.	*Yes/No/N.A.
8)	Are the detectors spaced for not more than 12 m apart and 6 m from walls or as approved?	*Yes/No/N.A.	*Yes/No/N.A.
(ii)	Fire Resisting Cable		
1)	Is the whole re-cycling preaction system wired with fire resisting cables?	*Yes/No/N.A.	*Yes/No/N.A.
2)	Does the fire resisting cable consist of copper conductors and withstand 815 °C temperature for at least 30 minutes?	*Yes/No/N.A.	*Yes/No/N.A.
3)	Are the binding tapes used with the cables flame retardant?	*Yes/No/N.A.	*Yes/No/N.A.
4)	Are the cables installed in cable trays or other approved supports, and be fastened by approved fasteners or clamps specially designed and constructed for the purpose?	*Yes/No/N.A.	*Yes/No/N.A.
5)	Does the fire resistance cable comply with the Clause 26.2 of BS 5839-1 for fire detection and fire alarm systems or other international standards which is acceptable to the Director of Fire Services?	*Yes/No/N.A.	*Yes/No/N.A.
(iii)	Control Panel		
1)	Does the control panel incorporate the necessary relays, timers, key type switches, alarm and trouble lights essential to the operation of the system?	*Yes/No/N.A.	*Yes/No/N.A.
2)	Does the panel employ printed circuit boards for the components and completely factory wired and ready for connection on the Site?	*Yes/No/N.A.	*Yes/No/N.A.

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3)	Does a key operated control located on the side of the control panel allow the re-cycling preaction system to be operated as a cycling pre-action system with the electrical detection circuit in service or as a dry system without the electrical detection circuit in service?	*Yes/No/N.A.	*Yes/No/N.A.
4)	Does an ON/OFF light incorporated to monitor the selection of the recycling ON/OFF switch?	*Yes/No/N.A.	*Yes/No/N.A.
5)	Is the control panel incorporate a system tripped light and a low air pressure light?	*Yes/No/N.A.	*Yes/No/N.A.
6)	Is a key operated thermal test button provided on the panel which act to open the detector circuit momentarily to cycle the system?	*Yes/No/N.A.	*Yes/No/N.A.
7)	Does a reset button on the panel reset the timer and alarm circuits after system operation?	*Yes/No/N.A.	*Yes/No/N.A.
(iv)	Valve Trim Box		
1)	Is a valve trim box provided to house electrical terminal blocks, 24 Volt D.C. solenoid valves, and pressure switches necessary for the operation of the recycling installation?	*Yes/No/N.A.	*Yes/No/N.A.
2)	Is it prewired and plumbed by the manufacturer for connections?	*Yes/No/N.A.	*Yes/No/N.A.
3)	Does it have a full opening door of 180° minimum for easy access to all components?	*Yes/No/N.A.	*Yes/No/N.A.
(v)	Flow Control Valve		
1)	Is the flow control valve a quick opening, differential diaphragm valve with a spring loaded floating clapper?	*Yes/No/N.A.	*Yes/No/N.A.
2)	Does the flow control valve facilitate manual or automatic on/off control?	*Yes/No/N.A.	*Yes/No/N.A.
3)	Is it used to control water pressure or water flow rates?	*Yes/No/N.A.	*Yes/No/N.A.
4)	Is the flow control valve used as pressure reducing valve to limit or conserve water flow?	*Yes/No/N.A.	*Yes/No/N.A.
(vi)	Air Supply		
1)	Is each recycling installation provided with an independent air supply system?	*Yes/No/N.A.	*Yes/No/N.A.

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	Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
2) Does each air supply system of the recycling installation consist of a compressor, pneumatic actuators, air maintenance devices, pressure monitoring valves, controls, wiring, copper pipework and fittings, and all other necessary accessories for the operation of the system?	*Yes/No/N.A.	*Yes/No/N.A.
3) Is the compressor of the compressed air system an oil-free, permanently lubricated type?	*Yes/No/N.A.	*Yes/No/N.A.
4) Is the compressor direct driven type with no belts or gears, and compatible with air maintenance devices and other system components for effective operation, with no special source of air required?	*Yes/No/N.A.	*Yes/No/N.A.
5) Is the compressor complete with thermal protection, air filters, safety relief valve and other protective provisions?	*Yes/No/N.A.	*Yes/No/N.A.
6) Is the air maintenance device an automatic, field-adjustable air maintenance provision for the compressed air system?	*Yes/No/N.A.	*Yes/No/N.A.
7) Is the air maintenance device equipped with pressure switch, restrictor check valve, strainer, bypass valve, etc. for the optimum operation of the system, and enable the compressor to be started under load?	*Yes/No/N.A.	*Yes/No/N.A.
8) Does the device provide a balancing means to minimise on-off cycling of the compressor and the need to rapidly relieve the system pressure to the actuation point?	*Yes/No/N.A.	*Yes/No/N.A.

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		Date :	

3.2.1.8 Sprinkler Pump

Pump/Motor Set Data:

		Sprinkler Pump		Sprinkler Intermediate Booster Pump		Jockey Pump	Transfer Pump	
		Duty	Standby	Duty	Standby	Duty	Duty	Standby
Location								
Quantity (No(s).)								
Manufacturer	Pump							
	Motor							
Model	Pump							
	Motor							
Serial No.	Pump							
	Motor							
Motor power (kW)								
Pump power (kW)								
Flow rate (l/min)								
Pressure (kPa)								
Starting method								

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
a)	Is electricity used for driving the pump? If no, please specify.	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is secondary power supply provided for electric pumps?	*Yes/No/N.A.	*Yes/No/N.A.
c)	If no, is diesel engine driven standby pump provided?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are alternative means of starting the pump manually where the pump is not electrically operated?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are starting instructions for diesel driven pump prominently displayed in the pump room?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are the motor/pump set rotating parts protected by safety guard?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are pump motors protected by HRC fuse?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Can the pump just be stopped by switching off at the pump control not installed near the pump, rather than by any automatic means?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are the pumps duplicated for duty and standby use?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are the fire pump starters wired through a selector switch for duty and standby pump selection?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are pumps permanently primed?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are non-return valve(s) provided to prevent water backflow into the water tank?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is pump motor power rated at 10% higher than the required hydraulic power?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are emergency lock-off buttons provided adjacent to pump motors with visual and audible indication on the pump control panel with a common fault signal repeated at the main fire service control panel when the pump is locked?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are the status of each fire pump condition comprising “Power Supply On”, “Pump Running” and “Pump Failed” monitored and displayed at the pump control panel in the pump room and repeated at a panel in the fire control room or at the main entrance of the building?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Are the diesel sprinkler pump sets installed with the manually operated shut down mechanism labelled as “SPRINKLER PUMP SHUT-OFF” 終止花灑泵運行?	*Yes/No/N.A.	*Yes/No/N.A.

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
q)	Has each switch for the dedicated power supply to an electric sprinkler pump motor labelled as " SPRINKLER PUMP MOTOR SUPPLY - NOT TO BE SWITCHED OFF IN THE EVENT OF FIRE " 花灑泵電源供應 – 在火警發生時切勿切斷電源?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Are doors to pump rooms clearly labelled "SPRINKLER PUMP" (消防花灑泵)?	*Yes/No/N.A.	*Yes/No/N.A.
s)	Are doors to pump rooms provided with locking devices?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Are doors to pump rooms provided with automatic door closers?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Are pump rooms clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
v)	Are intermediate booster pumps provided where the height between the topmost sprinkler heads and the lowest sprinkler inlet is in excess of 60 m?	*Yes/No/N.A.	*Yes/No/N.A.
w)	Is the intermediate booster pump utilised as the dual purpose sprinkler pump?	*Yes/No/N.A.	*Yes/No/N.A.
x)	If so, is pressure reducing valve set installed in duplicated and normally open position between pump suction pipe and sprinkler inlet?	*Yes/No/N.A.	*Yes/No/N.A.
y)	Are the intermediate booster pumps duplicated for duty and standby use?	*Yes/No/N.A.	*Yes/No/N.A.
	i) Is one set of intermediate booster pumps consisting of duty and standby in the same system?	*Yes/No/N.A.	*Yes/No/N.A.
	ii) Are two/three (one as standby) intermediate booster pumps of the same capacity provided to achieve required flow and pressure within 30 seconds?	*Yes/No/N.A.	*Yes/No/N.A.
z)	Do the intermediate booster pumps continue to run until it is stopped manually when start button is activated?	*Yes/No/N.A.	*Yes/No/N.A.
aa)	Are start/stop push buttons with pump running indication light and buzzer provided adjacent to the fire service inlet?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.9	Miscellaneous		
a)	Are all pipeworks and metal works properly painted?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is proper identification provided for pipeworks, wirings and equipment?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2	Testing and Commissioning		
3.2.2.1	Pipeworks		

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		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
a)	Are hydraulic tests performed satisfactorily for water tightness of all sections of the pipeworks? (Test records on Part 4.2.2 Table 1)	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is flushing out of all water pipes performed?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Do the automatic air release valves function properly?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2.2	Dry Pipe Installations		
a)	Is the air-supply pressure-relief valve set to relieve at a pressure of not more than 500 kPa in excess of the air pressure requirement of the installation dry alarm valve?	*Yes/No/N.A.	*Yes/No/N.A.
b)	With the installation valve primed in the ready position, is it possible to fully pressurise the installation in one hour, at any time?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2.3	Pre-action System		
a)	Does the fire detection system automatically give an alarm at the fire alarm control and indicating panel, pre-action system control panel and any repeater panels and operate two independent LPCB certified solenoid valves or actuator mechanisms either of which shall release (Type A or Type B) pre-action alarm valves?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Do the solenoid valves or actuator mechanisms energised or de-energised to operate a pneumatic pre-action valve control system?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Does the control panel work as follow?		
	(i) The duration of the battery stand-by power supply shall be at least 72 hours. After the 72-hour stand-by period, the stand-by power supply shall be capable of operating the pre-action control panel and solenoid valve or actuator to release the pre-action alarm valve.	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) The pre-action control panel shall initiate operation of the pre-action alarm valve immediately in the event of a fire alarm system fault (including a failure of the primary and stand-by power supplies) which result in failure to execute the appropriate actions in the event of fire.	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are the monitoring devices provided to give the following?		
	(i) Indication that any stop valves down-stream of the installation control valve set are fully open;	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Audible and visual warnings at the pre-action control panel that any monitored stop valve is not fully open;	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) Audible and visual warnings at the pre-action control panel that the cover to a condition indicator switch has been removed;	*Yes/No/N.A.	*Yes/No/N.A.

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		Date :	
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		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
(iv)	Audible and visual warnings at the pre-action control panel of short circuit or disconnection of the leads of any solenoid valve or actuator which is energised to open;	*Yes/No/N.A.	*Yes/No/N.A.
(v)	Audible and visual warnings at the pre-action control panel of short circuit or disconnection of the primary power supply, the secondary power supply or any battery charger associated with the operation of the pre-action system.	*Yes/No/N.A.	*Yes/No/N.A.

3.2.2.4 Recycling System

a) Heat Detector

(i)	When a detector is heated to the temperature set point, does a mechanical switch open and break the series circuit interrupting the flow of current?	*Yes/No/N.A.	*Yes/No/N.A.
(ii)	When the temperature drops below the set point, is the circuit re-established? At 420 °C sustained ambient temperature, does the tell-tale tab drop away, indicating possible detector damage?	*Yes/No/N.A.	*Yes/No/N.A.

b) Mode of Operation

(i)	Does the system work as follow?	*Yes/No/N.A.	*Yes/No/N.A.
(ii)	Water discharge cycling to be controlled by heat detectors installed at the roof or ceiling which operate as an electrical interlock causing the water flow control valve to open and close. A timer to be provided to delay closure of the flow control valve for a predetermined period of at least 5 minutes in each cycle after lowering of the temperature of the heat detectors.	*Yes/No/N.A	*Yes/No/N.A
(iii)	The fire alarm bell to continue to sound until the reset button is pushed. Should the temperature build to the trip point of any detector during any phase of the cycle, the system will continue to flow or immediately start the flow of water to the fire.	*Yes/No/N.A	*Yes/No/N.A

c) Control Panel

(i)	Does system operation or low air pressure activate the corresponding light and the audible trouble alarm and other alarms required which can be silenced by ON/OFF switches?	*Yes/No/N.A.	*Yes/No/N.A.
(ii)	Is the whole recycling installation designed and constructed as a fail-safe installation?	*Yes/No/N.A.	*Yes/No/N.A.
(iii)	If the detector circuit and/or pressurised air are unavailable for service, will the system turn into an ordinary automatic dry pipe or wet pipe system?	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	(iv) Do all alarms except the low air pressure alarm operate constantly unless shut off and cycling features are negated?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Air Supply		
	(i) Is the compressor operated by means of air pressure switches installed on the main pipe?	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) On detecting air leakage reduced to a predetermined value, does the compressor automatically cut-in, and cut-out after the air pressure has been built-up adequately?	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) Does the compressed air system allow the recharging of the recycling installation manually after the sprinkler system has been operated and the actuated sprinkler heads are replaced?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2.5	Electrical Wiring		
a)	Is the electrical wiring system tested satisfactorily in accordance with the T&C Procedure for Electrical Installation and to Electricity Ordinance requirements?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does the battery charger function properly?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the telephone link connected and functioning?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is permanent electricity supply connected?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is emergency electricity supply available?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2.6	Sprinkler Pump		
a)	Do the water pumps and motors run at the designed discharge water pressure and operating electrical current? (Test records on Part 4.2 Table 2)	*Yes/No/N.A.	*Yes/No/N.A.
b)	Do the water pumps run at an acceptable noise and vibration levels?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Do the water pump control switches and indicating lights function properly?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Do the water pump protective devices function properly?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Do the float switches in the water tanks controlling the water pumps function properly?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are the temperatures of the water pump bearings normal at running condition?	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
g)	Are the temperatures of the pump motors normal at running condition?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Do the pressure gauges function properly?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is water leakage from the pump shafts at an acceptable level?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Do the non-return valves function properly?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Does the pressure relief valve of the anti-overheating circulating pipe function properly? (Operate at _____ kPa)	*Yes/No/N.A.	*Yes/No/N.A.
l)	Do the pressure switches controlling the jockey, duty and standby pumps operate properly? (Test records on Part 4.2.2 Table 3)	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are the pumps fully operational within 30 sec. after starting?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Does the change-over from duty to standby pump complete within 30 sec.? (Change-over in ___ _____ sec.)	*Yes/No/N.A.	*Yes/No/N.A.
o)	Do the control, signal indication and start/stop of intermediate booster pumps follow similar requirements on fire hydrant/hose reel system of FSDCoP?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2.7	Sprinkler Inlet		
a)	Do the non-return valves of the sprinkler inlets function properly?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Do the drain valves function properly?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is each sprinkler inlet complete with a metal identification plate raised or engraved with English and Chinese characters and is there any clearly and permanently indication at the frontage of each sprinkler inlet enclosure marked with Chinese and English characters “SPRINKLER INLET” (花灑入水掣) of at least 50mm high?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2.8	Alarm Switch		
a)	Do the flow switches for zone operating indication and alarm function properly? (Test records on Part 4.2.2 Table 4)	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does the water alarm for each installation valve operate when the test valve is opened?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Do the high and low water level alarms and indication for the water tanks function properly?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are the alarm valves and subsidiary stop valves signals indicated at the main fire service control panel?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2.9	Proving of Water Supplies		

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
a)	Do the installation pressure and flow rate at each installation valve comply with the LPC Rules requirements? (Test records on Part 4.2.2 Tables 5 and 6)	*Yes/No/N.A.	*Yes/No/N.A.

3.3 Manual and Automatic Fire Alarm System and Fire Alarm Control System

3.3.1 Type of Equipment

3.3.1.1 Alarm annunciation panel

a) Manufacturer/Model No. of Alarm annunciation panel :
   i. Main panel : _____
   ii. Sub-panel/repeater panel, if any : _____

b) FSD approved type or listed by a recognised Product Certification Body *Yes/No

c) Battery for the Alarm annunciation panel *Yes/No

d) Conventional type *Yes/No
   Addressable type *Yes/No

3.3.1.2 Power Supplies

Mains supply : Supply Voltage/Phase/Hz _____

Secondary supply:	Emergency generator [ ]	Feed from main switch [ ]	Standby battery [ ]

Emergency generator : Rating of generator (kVA) _____

: Fuel oil supply capacity (Litres of oil) _____

Standby battery : Type of batteries _____

: Capacity of batteries (Ahr) _____

: Backup period for fire service (hr) _____

3.3.1.3 Detectors

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

a) Heater detector:

Manufacturer/model No. : _____
FSD approved type or listed by a recognised Product Certification Body : *Yes/No
Type :
- Fixed temperature *Yes/No
- Rate-of –rise temperature *Yes/No
- Combination *Yes/No
- Linear cable *Yes/No
- Others : _____

b) Smoke detector :

Manufacturer/model No. : _____
FSD approved type or listed by a recognised Product Certification Body : *Yes/No
Type :
- Point type ionisation *Yes/No
- Point type optical *Yes/No
- Beam *Yes/No
- Aspirating *Yes/No
- Others _____

c) Multi-sensor detector :

Manufacturer/model No. : _____
FSD approved type or listed by a recognised Product Certification Body : *Yes/No
Type of sensors :
- Heat sensing element _____
- Smoke sensing element _____
- CO sensing element _____
- Other sensing element _____

d) Flame detector:

Manufacturer/model No. : _____
FSD approved type or listed by a recognised Product Certification Body : *Yes/No
Type :
- Infra-red Yes/No
- Ultra-violet Yes/No
- Others _____

e) Smoke detector with sounder base

Manufacturer/model No. : _____
FSD approved type or listed by a recognised Product Certification Body : *Yes/No
Type :
- Infra-red Yes/No
- Ultra-violet Yes/No
- Others _____

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

f) Others :

Manufacturer/model No. : _____
FSD approved type or listed by a recognised Product Certification Body : *Yes/No
Type : _____

3.3.1.4 Manual Call Points

Manufacturer/model no. : _____

FSD approved type or listed by a recognised Product Certification Body : Yes/No

Type : Breakglass type [ ]
Resettable type [ ]
Others [ ]
(please specify _____)

3.3.1.5 Alarm Sounders

Manufacturer/model no. : _____

FSD approved type or listed by a recognised Product Certification Body : Yes/No

Type : Bell [ ]
Yodalarm [ ]
Horn [ ]
Siren [ ]
Electronic sounder [ ]
Others [ ]
(please specify _____)

3.3.1.6 Visual Fire Alarm Lamps

Manufacturer/model no. : _____

FSD approved type or listed by a recognised Product Certification Body (only for those lamps integrated with alarm sounders) : Yes/No

3.3.1.7 Fire Resistant Cables

Manufacturer/model no. : _____

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

3.3.2 **Zoning**

3.3.2.1 Detectors

Zone No.	Location	Total no. of detectors	Detector type *	Remark

Total no. of detectors …… Total no. of detector zones ……..

* S-smoke, H-heat, L-linear heat, B-beam smoke, A-aspirating smoke, F-flame, O-others (please specify)

3.3.2.2 Alarm Sounders

Zone No.	Location	Total no. of sounders	Remark

Total no. of sounders …… Total no. of sounder zones ……..……

3.3.2.3 Manual Call Points

Zone No.	Location	Total no. of call points	Remark

Total no. of manual call points …… Total no. of call point zones ……..……

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

3.3.2.4 Smoke detectors with sounder base

Zone No.	Location	Total no. of detectors with sounder base	Remark

Total no. of Smoke detectors with sounder base …… Total no. of sounder zones ……..……

3.3.2.5 Visual Fire Alarm Signal Lamps

Zone No.	Location	Total no. of VFA signal lamps	Remark

Total no. of VFA signal lamps …….. Total no. of VFA zones ……..……

(use separate sheets or computer printouts in full accordance with the above format if the space is not sufficient for inserting all the zones)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.3	Visual Inspection		
3.3.3.1	General		
3.3.3.1.1	All fire detection and equipment are conformed to FSD's requirements.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.1.2	All individual components of a fire alarm system including detectors and the control panel are mutually compatible.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.1.3	Operating instructions showing the fault indication or correct action that shall be taken in the event of a fire are provided adjacent to the alarm annunciation panel.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.1.4	Diagrammatic representation of the building, showing at least the building entrances, the circulation areas, the escape routes and the division of zones is provided on or adjacent to the alarm annunciation panel.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.1.5	As-fitted zoning schedule is provided adjacent to the alarm annunciation panel.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.1.6	Log book is provided adjacent to the alarm annunciation panel.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2	Detectors		
3.3.3.2.1	Appropriate types of detectors are provided in areas as indicated on the approved building plans.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.2	Detectors are provided in areas as indicated on the endorsed FSI plans.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.3	Detection zonings are properly labelled at the alarm annunciation panel.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.4	In the floor(s) where sleeping risk exists (e.g. hotel, guesthouse, hospital, hostel, etc.):		
	(a) Heat detector is used in kitchen and electrical and mechanical plant room.	*Yes/No/N.A.	*Yes/No/N.A.
	(b) Smoke detector is used in other areas except toilets, bathrooms and staircases where sprinkler is provided.	*Yes/No/N.A.	*Yes/No/N.A.
	(c) Sounder base is provided for smoke detectors installed in guestrooms of hotels/ guesthouse/ bedrooms of student hostels except for detectors installed inside concealed space.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.5	Detectors are provided according to basement according to the approved building plans.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.6	Intrinsically safe or flameproof detector is used in the environment which may have the presence of explosive or flammable gas and within potentially hazardous areas..	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.3.2.7	The aggregate floor area covered by any single detection loop circuit is ≦ 10,000 m^2 calculated on those portions of the premises installed with fire detectors.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.8	The aggregate floor area covered by a single detection zone is ≦ 2,000 m^2 calculated on those portions of the premises installed with fire detectors.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.9	Remote indicating lamps are provided outside the doors of rooms to show visually the position of the fire detection signal for search distance > 30 m.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.10	Remote indicating lamps outside doors (near door exit) are provided for detectors installed inside rooms if doors are likely to be locked.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.11	Remote indicating lamps are provided for detectors in inaccessible areas such as ceiling voids or floor voids, if addressable text display in conjunction with layout plans is not provided adjacent to the control and indicating equipment.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.12	All the remote indicating lamps are installed with name plates engraved with "Fire 火警" and graphic symbol showing the locations they serve. The wordings and graphic symbols are in full compliance with the FSD Circular Letter No. 6/2021.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.13	Detectors are provided for horizontal void ≧800mm high.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.14	Detectors are provided for horizontal void < 800mm and with the following conditions: (a) the void is such that extensive spread of fire or smoke, particularly between rooms and compartments, can take place before detection; or (b) on the basis of a fire risk assessment, the fire risk in the void is such as to warrant protection of the void.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.15	Clear space below each detector is ≧500mm except inside ceiling and floor voids and areas with no horizontal dimension greater than 1m.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.16	Point smoke detector is installed within the general ceiling height limit of 10.5m. (Note: ≦10% of ceiling height may exceed this limit and ≦12.5m)	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.17	Heat detector is installed within the general ceiling height of 9m for detector conforming to BS EN 54-5, Class A1 and 7.5m for conforming to other classes of BS EN 54-5. (Note: ≦10% of ceiling height may exceed this limit and ≦10.5m)	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.18	Under flat ceiling, horizontal distance between any point and the nearest heat detector is ≦5.3m.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.3.2.19	Under flat ceiling, horizontal distance between any point and the nearest smoke detector is ≦7.5m.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.20	In corridors ≦2m wide, heat detectors are sited at intervals of ≦10.6m or ≦5.3m from end wall.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.21	In corridors ≦2m wide, smoke detectors are sited at intervals of ≦15m or ≦7.5m from end wall.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.22	In detector installation, ceiling obstructions >10% overall ceiling height are treated as wall. (Note: Within horizontal voids, obstructions >10% of the height between structural floor and structural ceiling are treated as wall regardless of the void location)	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.23	In detector installation, partitions or storage racks reaching within 300mm of the ceiling are treated as wall.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.24	Detectors are mounted ≧1m from any air inlet of forced ventilation system.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.25	Horizontal ceiling comprises:		
	(a) a series of small cells (honeycomb ceiling), detector spacing is in accordance with Figure 11 & Table 1 of BS 5839-1	*Yes/No/N.A.	*Yes/No/N.A.
	(b) a number of closely spaced structural beams or joists, detectors spacing is in accordance with Figure 11 & Table 2 of BS 5839-1	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.26	Detector(s) is provided under intermediate horizontal surfaces such as ducts, loading platforms and storage racks in exceed of 3.5m in width and whose undersurface is in excess of 800mm above the floor (other than when the side of the duct or structure is in excess of 800mm from the wall or other ducts or structure).	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.2.27	Other than point type smoke and heat detectors, the following detectors are installed within ceiling height limit as specified in Technical Guidance or according to manufacturer's standard and specification. (a) Carbon monoxide detectors (b) Optical beam detectors (c) Aspirating smoke detectors (d) Flame detectors (e) Conventional type linear heat detectors (f) Optical fibres linear heat detectors (g) Video fire detectors (h) Others, please specify: ……...	*Yes/No/N.A.	*Yes/No/N.A.

3.3.3.3 Alarm Sounders

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.3.3.1	An alarm sounder (weatherproof type) is installed at the external/outside of the building (near the main entrance or the "Fire Service Access Point" as per FSD Circular Letter No. 6/2021).	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.3.2	An alarm sounder is provided near the control and indicating equipment.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.3.3	One alarm sounder is provided within 2 m of each hose reel point.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.3.4	The system is incorporated with at least two alarm sounders and each fire compartment is provided with at least one sounder. (Note: Meaning of fire compartment is as defined in the Code of Practice for Fire Safety in Buildings published by the Buildings Department, the HKSAR)	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.3.5	All alarm sounder cases are painted in red colour and clearly marked "FIRE ALARM" "火警" in white colour. The height of all the English and Chinese wordings shall not be less than 10 mm and 15 mm respectively.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.3.6	A clearly labelled facility is provided at or near the alarm annunciation panel to enable silencing of alarm signals.	*Yes/No/N.A.	*Yes/No/N.A.
	The operation of this facility shall:		
	(a) require a manual operation;	*Yes/No/N.A.	*Yes/No/N.A.
	(b) not cancel any visual signal of the alarm at the control equipment;	*Yes/No/N.A.	*Yes/No/N.A.
	(c) sound any fire alarm sounders configured to that zone if, following silencing of fire alarm sounders, a new zone goes into alarm, and normally shall also resound those fire alarm sounders which were previously sounding;	*Yes/No/N.A.	*Yes/No/N.A.
	(d) not prevent the correct operation of any control for starting or restarting the alarm sounders;		
	(e) not prevent the transmission of an alarm to an alarm receiving centre.	*Yes/No/N.A.	*Yes/No/N.A.
		*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.3.7	A clearly labelled facility for evacuate control is provided on or immediately adjacent to the control equipment to enable fire alarm sounders to be started.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.3.8	Each system incorporates at least two fire alarm sounders. At least one sounder is provided in each fire compartment. (Note: Meaning of fire compartment shall be as defined Code of Practice for Fire Safety in Buildings)	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.4	Manual Call Points		
3.3.3.4.1	Zoning of manual call points is at least one zone per floor or storey.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.3.4.2	One manual call point is located at each of the following equipment/location. (a) hose reel point; (b) adjacent to and within 2m from storey exits (or its entrance lobby if it leads only to the storey exit); (c) adjacent to staircase final exit to open air on G/F or place of ultimate safety.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.4.3	The travel distance for finding a manual call point is ≦ 30 m.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.4.4	For exit opening ≧12m in width, two manual call points are provided within 2m from each end of the opening before the exit (or before the entrance lobby if such lobby leads only to the exit).	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.4.5	Manual call points are fixed at a height of about 0.9-1.2m above the finished floor level.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.4.6	Manual call points are surface mounted or semi-recessed mounted as per manufacturer's design.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.5	Visual Fire Alarm (VFA) System		
3.3.3.5.1	VFA signal lamps are labelled "FIRE ALARM" "火警". The height of English and Chinese characters is not less than 10 mm and 15 mm, respectively.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.5.2	Visual alarm signal is in the form of red flashing light.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.5.3	VFA flashing light is visible to normal eyesight in all areas required to be protected.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.5.4	Each compartment is provided with at least one VFA signal lamp.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.5.5	One VFA point is located near every hose reel.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.5.6	Distance between any two VFA points is ≦60m.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.5.7	Areas to be covered by VFA system are in full compliance with the approved building plans and the Design Manual: Barrier Free Access of Buildings Department.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.5.8	The design of the VFA system conforms to : (a) NFPA 72 or (b) BS 5839-1	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.3.5.9	The power supply of the VFA system shall be from:		
	(a) D.C. supply source with back-up supply by battery; or	*Yes/No/N.A.	*Yes/No/N.A.
	(b) A.C. supply source with secondary supply from emergency generator; or	*Yes/No/N.A.	*Yes/No/N.A.
	(c) A.C. supply source with secondary supply from the main electricity supply obtained before the main supply switch.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.5.10	The mounting height of VFA is not less than 2.1 m.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.6	Time Related Systems and Transmission Delay Units		
3.3.3.6.1	Time related system and/or transmission delay unit are/is provided.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.6.2	Time related system and/or transmission delay unit are/is approved by FSD.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.6.3	An indicator light is provided on or adjacent to the control and indicating equipment showing the working or silent hours state of the system.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.6.4	A manual override switch is provided on or adjacent to the control equipment for de-activating the time related system when the building is unoccupied.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.7	Control and Indicating Equipment		
3.3.3.7.1	The alarm annunciation panel is located in an area on the ground floor and in the immediate vicinity of the building entrance easily to be accessed by the FSD or in the building's Fire Control Centre/Room.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.7.2	Repeater panels are provided at different entrances or other points of entry to be used by the FSD in accordance with the approved building plans.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.7.3	Where the control and indicating equipment is installed in a severe weather environment, a weatherproof protective enclosure with adequate ventilation is provided to protect it from being damaged by high humidity and water.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.7.4	Zone indications are provided at the control and indicating equipment.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.7.5	All the alarm and zone indications are displayed in both Chinese and English so that the origin of the alarm and zone positions in relation to this building can be easily, quickly and unambiguously identified.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.7.6	Manual call point and detection zone indications are given at the control and indicating panel even if addressable text information is available, by one or a combination of the following:		
	(a) LED indicators.		

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	(b) Visual Display Units.	*Yes/No/N.A.	*Yes/No/N.A.
	(c) Computer Graphics.	*Yes/No/N.A.	*Yes/No/N.A.
	(d) Other suitable means, (please specify ……..)	*Yes/No/N.A.	*Yes/No/N.A.
		*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.7.7	The operation of all manual controls and isolating devices shall be limited to authorised personnel. It may be provided by restricting access to the equipment by means of the following : -	*Yes/No/N.A.	*Yes/No/N.A.
	(a) the use of a lock.		
	(b) a key-operated switch.		
	(c) in a disciplined environment, by the use of a list of authorised personnel.		
	(d) other acceptable means. (please specify ……)		
3.3.3.7.8	The wirings are compatible with the type of control panel as recommended by the panel manufacturer. (2-wire system/4-wire system/twist pair/…….)	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.7.9	Operation of alarm silent facility should:		
	(a) require manual operation:	*Yes/No/N.A.	*Yes/No/N.A.
	(b) not cancel any visual signal;	*Yes/No/N.A.	*Yes/No/N.A.
	(c) sound any fire alarm sounders belonging to that alarm zone if a new zone goes into alarm;	*Yes/No/N.A.	*Yes/No/N.A.
	(d) not prevent correct operation of any control;	*Yes/No/N.A.	*Yes/No/N.A.
	(e) not prevent transmission of alarm to alarm receiving centre.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.8	Power Supplies		
3.3.3.8.1	Permanent electricity supply is connected.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.8.2	Battery powered standby supply is connected.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.8.3	Battery power supply is provided. (Voltage:……..… D.C. volts:….. Ahr:…...….)	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.8.4	Circuit supplying fire alarm system is not protected by a residual current device unless this is necessary to comply with the requirements of the Code of Practice for the Electricity (Wiring) Regulations published by the Electrical and Mechanical Services Department, the HKSAR (hereinafter referred to as EECoP).	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.3.8.5	Secondary (rechargeable) battery supplies are:		
	(a) of a type having a life of at least four years;	*Yes/No/N.A.	*Yes/No/N.A.
	(b) fixed with labels indicating the date of installation;	*Yes/No/N.A.	*Yes/No/N.A.
	(c) be with an automatic charger;	*Yes/No/N.A.	*Yes/No/N.A.
	(d) have battery charger capable of recharging the battery from fully discharged to fully charged within 12 hours; and	*Yes/No/N.A.	*Yes/No/N.A.
	(e) have capacity sufficient to maintain the system operation.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.8.6	Connections to the mains supply is via an isolating protective device (e.g. an isolating switch-fuse, circuit-breaker etc.) reserved solely for all the fire service installations.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.8.7	Every isolator, switch and protective device, other than the main isolator for the building that can supply for the fire alarm system is properly labelled as appropriate :	*Yes/No/N.A.	*Yes/No/N.A.
	(a) "FIRE ALARM" ''火警警報" ;		
	(b) "FIRE ALARM DO NOT SWITCH OFF" "火警警報切勿切斷電源" ; or		
	(c) "WARNING: THIS SWITCH ALSO CONTROLS THE SUPPLY TO THE FIRE ALARM SYSTEM" "警告: 此電掣乃供應火警警報系統電源".		
	All warning labels are engraved in white letter/ character with red colour background. The height of all the English and Chinese wordings is not less than 10 mm and 15 mm respectively.		
3.3.3.8.8	Normal and standby battery supplies can each be capable of supplying the maximum alarm load irrespective of the condition of the other supply.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.8.9	Power supply equipment for multiple occupancy buildings is sited in an area of common access.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.9	Cables, Wiring and Other Interconnections		
3.3.3.9.1	The entire system is conform to the requirements of EECoP.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.9.2	Cables used for :		
	(a) low voltage mains supply to the system i.e. from mains supply to all the panels and battery chargers; or		
	(b) power supply to alarm sounders, speakers, VFA lamps and flashing lights; or		
	(c) all parts of the critical signal paths i.e. between every fire alarm initiation point and the input terminals on, or within, each fire alarm device; or		

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		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	(d) extra low voltage supply from an external power supply (charger/ battery) to the system; or (e) final circuit providing low voltage mains supply to the system. shall comply with:		
	(i) standard fire resisting cables to PH 30 classification of BS EN 50200 and the 30 min, survival time tested to Annex E of same standard or BS 8434-1; or	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) enhanced fire resisting cables to PH 120 classification of BS EN 50200 and the 120 min, survival time tested to BS 8434-2; or	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) fire resisting cables of other international standards acceptable to FSD for use in fire alarm and detection system. (please specify: _____) (Note: for option (iii) above, FSD and ArchSD approval/acceptance letter shall be provided)	*Yes/No/N.A.	*Yes/No/N.A.
	and comprise the followings:		
	(1) MICS cables conforming to BS EN 60702-1 & BS EN 60702-2;	*Yes/No/N.A.	*Yes/No/N.A.
	(2) cables conforming to BS 7629;	*Yes/No/N.A.	*Yes/No/N.A.
	(3) cables conforming to BS 7846;	*Yes/No/N.A.	*Yes/No/N.A.
	(4) cables rated at 300/500V (or greater) that provide the same degree of safety to BS 7629	*Yes/No/N.A.	*Yes/No/N.A.
	(5) fire resisting cables of other international standards acceptable to FSD for use in fire alarm and detection system; (please specify: _____) (Note: for option (5) above, FSD and ArchSD approval/acceptance letter shall be provided);	*Yes/No/N.A.	*Yes/No/N.A.
	(6) cables exempted from the fire resisting requirements as per the Remarks section in Appendix I of FSD Circular Letter No. 2/2017.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.9.3	Cables other than MICS cable complying with BS EN 60702 or steel wire armoured cables complying with BS 7846 shall be mechanically protected if : (a) they are less than 2m above the floor level; or (b) physical damage or rodent attack is likely.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
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		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.3.9.4	Mechanical protection is provided to the cables by one of the following methods : (a) installation in metallic conduit, ducting or trunking; (b) by laying the cable in a channel or cable tray; (c) concealed in the structure of building; (d) using MICS cable complying with BS EN 60702 or steel wire armoured cable complying with BS 846.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.9.5	Conductors carrying fire alarm power or signals are separated from conductors used for other systems by one or more of the followings : (a) installation in metallic conduit, ducting, trunking or a channel reserved solely for fire alarm cables; (b) separated from other compartments by a strong, rigid and continuous partition of non-combustible material.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.9.6	All joints, other than those within system components, in a cable is enclosed within junction boxes labelled "FIRE ALARM" "火警警報" engraved in white letter/character with red colour background. The height of all the English and Chinese wordings is not less than 10 mm and 15 mm respectively to avoid confusion with other services.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.9.7	All conductors are having a cross-sectional area $\geqq 1mm^2$.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.9.8	Fire alarm cables are separated from cables of other services.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.9.9	Cables carrying power in excess of extra-low voltage are segregated from extra-low voltage fire alarm circuits.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.3.9.10	The colour of fire alarm cables are limited to $\leqq 2$ sets (4 nos.) of common colours and one of the colours is red.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4	Testing		
3.3.4.1	Detectors		
3.3.4.1.1	Upon actuation of any detector in the building, the correct audio/ visual warning device for the fire alarm and detection system is initiated.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.1.2	The sensitivity of all heat/smoke/flame detectors is correctly adjusted/ set and checked in full accordance with the manufacturer's recommendations.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.1.3	The zoning of detectors is correct.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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		Date :	
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		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.4.2	Alarm Sounders		
3.3.4.2.1	Upon the actuation of the detector or manual call point, alarm shall be given by alarm sounders installed near the main building entrance or "Fire Service Access Point" as per FSD Circular Letter No. 6/2021 and the alarm annunciation panel.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.2.2	Background noise (N) likely to persist for a period longer than 30 seconds.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.2.3	For domestic building, the minimum sound level of alarm sounders is measured at 3 m from the inside of the main entrance door with all windows fully opened and all doors shut off at all flats/units and the result is, …… dB(A) which is : (a) ≧ 60 dB(A); and (b) ≧ [5 dB(A) + ……. (background noise, N at item 3.3.4.2.2)] = …….. dB(A)	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.2.4	For buildings other than domestic building, the minimum sound level of alarm sounders is measured at 3 m from the inside of the main entrance door with all windows fully opened and all doors shut off at all rooms/ premises and the result is, …… dB(A) which is : (a) ≧ 65 dB(A); and (b) ≧ [5 dB(A) + ……. (background noise, N at item 3.3.4.2.2)] = …….. dB(A)	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.2.5	For all the guestrooms of hotels/guesthouses and bedrooms of student hostels, the fire alarm sound level measured right below the sounder base(s) of smoke detector and at 1m above floor level with all the guestrooms/bedrooms windows fully opened and doors closed is >65dB(A) or >5dB(A) above background noise.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.2.6	For premises designed for public entertainment, retail and similar premises, in which the sound pressure level of music >80dB(A), the music is muted automatically when a fire alarm signal is given.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.2.7	Failure of the power supply to the secondary sounders shall result in silencing of the noisy machines.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.2.8	Sounding sequence of alarm sounder operation complies with requirements stipulated in FSD Circular Letter No. 4/96, Part VIII. Item 4.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.3	Manual Call Points		
3.3.4.3.1	The zoning of manual call points is correct.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.4.3.2	Upon actuation of any manual call point in the building, the fixed fire pump serving the corresponding block comes into operation regardless of the zoning of the manual call point.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.3.3	Upon actuation of any manual call point in the building, the correct audio/ visual warning device for the fire alarm and detection system is initiated.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.3.4	The delay between operation of a manual call point and the giving of an "Evacuate" signal in the alarm zone within which the manual call point is located shall be $\leqq$ 3 seconds and others shall be $\leqq$ 10 seconds.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.4	Visual Fire Alarm Signals		
3.3.4.4.1	All VFA flashing light is visible to normal eyesight in the required protected areas when the fire alarm system is actuated.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.4.2	VFA signal is clearly distinguishable from any other non-fire service visual signals.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.5	Control and Indicating Equipment (CIE)		
3.3.4.5.1	Audio, visual alarms for the fire detection and alarm system, signals for system/ detector/ manual call point/ sounder fault and signals to all the ancillary equipment are given correctly at the control and indicating equipment.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.5.2	Direct telephone line (DTL) to the FSCC/authorised service provider's Computerized Fire Alarm Transmission System (CFATS) is functioning properly. (please state DTL no.: …….……)	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.5.3	The following panel functions and switches are working properly : (a) alarm silence and reset switches. (b) normal supply and standby battery supply. (c) Power on/failure indicator. (d) DTL failure indicator. (e) zone alarm/fault indicator.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.5.4	Two simultaneous faults on a manual call point or fire detector circuit shall not disable protection within an aggregate area greater than 10,000 m^2 calculated on those portions of the premises installed with fire detectors.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.4.5.5	Detector solely using as actuating devices for fire service systems such as fire shutter, VAC control, fixed installations other than water, fixed installations using water, pressurisation system, and smoke extraction systems are linked to the Computerised Fire Alarm Transmission System (CFATS) through DTL. (Note; This linking is not a mandatory requirement from FSD)	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.5.6	For addressable type alarm annunciation panel, a facility/provision is provided so that individual detector can be tested without either sounding an alarm or requiring the complete system to be disabled to prevent such an alarm.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.5.7	A fault indication is given at the CIE within 100 seconds of the occurrence of any of the following conditions:		
	(a) short circuit or open circuit in any circuits serving manual call points or fire detectors;	*Yes/No/N.A.	*Yes/No/N.A.
	(b) the removal of a manual call point or a fire detector that is designed to be detachable;	*Yes/No/N.A.	*Yes/No/N.A.
	(c) short circuit or open circuit of any circuits serving fire alarm devices;	*Yes/No/N.A.	*Yes/No/N.A.
	(d) short circuit or open circuit of any wiring between any power supply that is in a separate enclosure and the equipment to which it supplies power;	*Yes/No/N.A.	*Yes/No/N.A.
	(e) any earth fault that is capable of preventing the system from performing;	*Yes/No/N.A.	*Yes/No/N.A.
	(f) the rupture of any fuse, or the operation of any other protective device, that affects the ability of the system to perform;	*Yes/No/N.A.	*Yes/No/N.A.
	(g) a short circuit or open circuit in the wiring between separate control and/or indicating equipment that is provided;	*Yes/No/N.A.	*Yes/No/N.A.
	(h) a short circuit or open circuit in the wiring between main and any repeat control and/or indicating equipment (such as a mimic diagram) that is provided;	*Yes/No/N.A.	*Yes/No/N.A.
	(i) a short circuit or open circuit in the wiring between control equipment and any separate enclosure of equipment used for transmission of alarm signals to an alarm receiving centre;	*Yes/No/N.A.	*Yes/No/N.A.
	(j) removal from its circuit of a fire alarm device that is designed to be detachable.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.5.8	A fault indication is given, within the times indicated below, in the event of any of the following:		

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	(a) failure of the main power supply to any part of the system (within 30 min. of occurrence);	*Yes/No/N.A.	*Yes/No/N.A.
	(b) failure of the standby power supply (within 15 min. of occurrence);	*Yes/No/N.A.	*Yes/No/N.A.
	(c) failure of the battery charger (within 30 min. of occurrence);	*Yes/No/N.A.	*Yes/No/N.A.
	(d) reduction of the battery voltage to less than the voltage specified in BS EN 54-4 at which a fault warning shall be given (within 30 min. of occurrence).	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.5.9	System integrity		
	(a) Fire detection circuit		
	A fault on one circuit should not affect any other circuit; a single short circuit or open circuit fault should neither disable protection with aggregate floor area of more than 2,000 m^2 nor more than one floor of a building; and two simultaneous faults on one circuit should not disable protection within a gross floor area of more than 10,000 m^2.	*Yes/No/N.A.	*Yes/No/N.A.
	(b) Linear heat detectors		
	i) Protection area ≤ 2,000 m^2, a single short circuit or open circuit fault on the linear heat detection cable should not disable protection.	*Yes/No/N.A.	*Yes/No/N.A.
	ii) Protection area > 2,000 m^2, duplicate linear heat detection cables with its associated control panels should be provided.	*Yes/No/N.A.	*Yes/No/N.A.
	(c) Fire alarm sounders and/or visual alarm device where applicable:-		
	A single open circuit or short circuit fault on any circuit on any floor that serves fire alarm sounders and/or visual alarm device where applicable should not disable operation of fire alarm sounders and visual alarm device where applicable on the adjacent floor below and the adjacent floor above.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.6	Power Supplies		
3.3.4.6.1	For occupied premises, the standby battery is sufficient to maintain the system in operation for at least 24 hours, plus at least 30 min. for operating in the maximum "alarm" condition and capable of actuating the fire service installation as required.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.6.2	For unoccupied premises, the standby battery is sufficient to maintain the system in operation for at least 24 hours plus the maximum period likely to be unoccupied or for 72 hours in total, whichever is the less, plus at least 30 min. for operating in the maximum "alarm" condition and capable of actuating the fire service installation as required.	*Yes/No/N.A.	*Yes/No/N.A.

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Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.4.6.3	In buildings with standby generator that serves the fire alarm system for 6 hours standby capacity, the capacity of the standby battery is sufficient to maintain the system in operation for at least (24 – 6) = 18 hours, plus at least 30 min. for operating in the maximum "alarm" condition and capable of actuating the fire service installation as required.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.6.4	The normal or standby supply is indicated by a green indicator at the main indicating equipment.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.6.5	Each of the normal supply and the standby supply is capable of supplying the maximum alarm load of the system under all conditions.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.6.6	Secondary (rechargeable) battery supplies are:		
	(a) provided with an automatic charger;	*Yes/No/N.A.	*Yes/No/N.A.
	(b) with battery charger capable of recharging the batteries to its constant potential voltage setting in not more than 12 hours after fully discharged;	*Yes/No/N.A.	*Yes/No/N.A.
	(c) having sufficient capacity of standby batteries for operation of the system in both standby and alarm mode.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.7	Cables, Wiring and Other Interconnections		
3.3.4.7.1	Insulation test of all installed cables and wiring is made at 500 V D.C. and all insulation resistance between conductors, between each conductor and earth, and between each conductor and any screen are $\geqq 2\ M\Omega$.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.7.2	Earth continuity and earth-loop impedance is tested and the results are in compliance with the EECoP.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.4.7.3	Any other tests specified by the manufacturer of the system and their test results are in order. (Details of tests: _____)	*Yes/No/N.A.	*Yes/No/N.A.
3.3.5	Documentation		
3.3.5.1	The following equipment list and catalogues are provided (where applicable).		
	(a) alarm annunciation panel;	*Yes/No/N.A.	*Yes/No/N.A.
	(b) repeater panels;	*Yes/No/N.A.	*Yes/No/N.A.
	(c) detectors;	*Yes/No/N.A.	*Yes/No/N.A.
	(d) manual call points;	*Yes/No/N.A.	*Yes/No/N.A.
	(e) alarm sounders;	*Yes/No/N.A.	*Yes/No/N.A.
	(f) visual fire alarm signal lamps;	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	(g) fire resistant cables.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.5.2	FSD approval/acceptance letters or documents showing the listing of FSD recognised Product Certification Bodies for the following equipment are provided.		
	(a) alarm annunciation panel;	*Yes/No/N.A.	*Yes/No/N.A.
	(b) repeater panels;	*Yes/No/N.A.	*Yes/No/N.A.
	(c) detectors;	*Yes/No/N.A.	*Yes/No/N.A.
	(d) manual call points;	*Yes/No/N.A.	*Yes/No/N.A.
	(e) alarm sounders;	*Yes/No/N.A.	*Yes/No/N.A.
	(f) visual fire alarm signal lamps integrated with alarm sounders.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.5.3	Test certificates on fire properties or FSD's prior acceptance letters for all the fire resistant cables used are provided.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.5.4	Other than ordinary smoke and heat detectors, manufacturer's manual of the following types of detectors are provided.		
	(a) aspirating smoke detectors;	*Yes/No/N.A.	*Yes/No/N.A.
	(b) flame detectors;	*Yes/No/N.A.	*Yes/No/N.A.
	(c) video smoke detectors;	*Yes/No/N.A.	*Yes/No/N.A.
	(d) beam detectors;	*Yes/No/N.A.	*Yes/No/N.A.
	(e) linear heat cable/detectors;	*Yes/No/N.A.	*Yes/No/N.A.
	(f) others, please specify: ……..		
3.3.5.5	Sound level measurement (including background noise) reports for alarm sounders are provided.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.5.6	Calculation showing the required battery capacity is provided.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.5.7	Letter certifying the completion of the DTL to the FSCC/authorised service provider is provided.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.5.8	Confirmation or certification from the panel manufacturer on the compatibility for all the individual components of a fire alarm system such as fire detectors, alarm devices, manual call points, power supplies, interfacing equipment, remote indication and control panels is provided.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.3.5.9	FSD approval letter on Time Related System/Transmission Delay Unit is provided.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.5.10	As-fitted fire service installation drawings including the followings are provided : (a) schematic power supply and distribution diagrams and layout plans showing the types, size and routing of all power supply cables, fire resistant cables and wiring for the fire alarm and detection system; (b) wiring diagrams and layout plans of all junction boxes and distribution boards; (c) floor layout plans showing the location of each fire detection zone, detectors and detector types, manual call points, VFA signal lamps, alarm sounders, alarm annunciation panel and repeater panel(s) as applicable.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.6	Tools, Kits, Devices and Instruments for Addressable System		
3.3.6.1	Necessary tools, kits, electronic and computerised devices/instruments for initial setting, adjustment and subsequent resetting, retesting and re-commissioning of all the addressable detectors/ components are provided.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.6.2	Hardware and software licensing agreements and any future software upgrading for the tools, kits and devices/instruments required for the addressable system are wholly handed over, together with other spares and tools required for the whole fire services installation.	*Yes/No/N.A.	*Yes/No/N.A.
3.3.7	Measuring and Testing Instrument / Equipment Calibration		
3.3.7.1	Calibration certificates showing that the following (please specify) testing and measuring instruments or equipment have been calibrated by a recognised testing or calibration laboratory in the past 12 months are provided.		

	Type	Model No.	Serial No.
a)	_____	_____	_____
b)	_____	_____	_____
c)	_____	_____	_____
d)	_____	_____	_____
e)	_____	_____	_____

Note:

i) Detailed T&C procedure for fire alarm control system and fire alarm control panels (G.S. Section 8.3) shall be submitted by the Contractor and approved by the Supervising Officer prior to testing and commissioning

ii) A recognised laboratory shall be a testing or calibration laboratory with an accreditation from the Hong Kong Accreditation Service (HKAS) under the Hong Kong Laboratory accreditation Scheme (HOKLAS) or from other overseas laboratory accreditation bodies which have signed mutual recognition agreements with the HKAS.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

3.4 Gaseous Extinguishing System

Location/Room : _____

Type of Gas : *CO_2 / FM200 / NAFS III / Novec 1230 and other approved agents _____

Type of System:

Total Flooding	( )		Local Application	( )	
Modular	( )		Cylinder	( )	
Pre-engineered	( )		Engineered	( )	
High Pressure	( )		Low Pressure	( )	
Single Hazard	( )		Multiple Hazard	( )	
Primary Bank Only	( )		With Reserve Bank	( )	

Working/Design Drawing Ref. : _____

Approved Computer Programme Ref. : _____

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.4.1	Visual Inspection		
3.4.1.1	General		
a)	Is approved computer programme with computer calculation and isometric diagram for pipework enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is D.G. certificate for gas cylinder enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is charging certificate for approved agents enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is catalogue with approval letter(s) from FSD enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is certification for pneumatic test to pipings enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Does occupancy tally with approved building plans?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Does compartmentation of protected premises tally with approved building plans?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Does general layout tally with F.S.I. drawings?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are openings to adjacent compartment or external properly sealed or closable automatically before agent discharge?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
j)	Are permanent openings provided with automatic shutters?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are warning/instruction notices provided at entrance to the protected area?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are warning/instruction notices provided inside the protected area?	*Yes/No/N.A.	*Yes/No/N.A.

3.4.1.2 System Components

a)	Do the locations of the following components tally with the approved drawings regarding :			
	(i)	Audio alarm – bell, buzzer, etc.?	*Yes/No/N.A.	*Yes/No/N.A.
	(ii)	Visual alarm – light, strobe, etc.?	*Yes/No/N.A.	*Yes/No/N.A.
	(iii)	Detector?	*Yes/No/N.A.	*Yes/No/N.A.
	(iv)	Manual release?	*Yes/No/N.A.	*Yes/No/N.A.
	(v)	Piping?	*Yes/No/N.A.	*Yes/No/N.A.
	(vi)	Nozzles?	*Yes/No/N.A.	*Yes/No/N.A.
	(vii)	Gas cylinder / Agent container?	*Yes/No/N.A.	*Yes/No/N.A.
	(viii)	Control/indication panel?	*Yes/No/N.A.	*Yes/No/N.A.
	(ix)	Ignition/fuel source shut down device?	*Yes/No/N.A.	*Yes/No/N.A.
	(x)	Other mechanical/ electrical/ pneumatic operating device?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the following components approved/listed :			
	(i)	Actuating solenoid?	*Yes/No/N.A.	*Yes/No/N.A.
	(ii)	Cylinder valve assembly?	*Yes/No/N.A.	*Yes/No/N.A.
	(iii)	Gas Cylinder/agent container?	*Yes/No/N.A.	*Yes/No/N.A.
	(iv)	Flexible hose?	*Yes/No/N.A.	*Yes/No/N.A.
	(v)	Distributor/selector valve?	*Yes/No/N.A.	*Yes/No/N.A.
	(vi)	Pilot cylinder?	*Yes/No/N.A.	*Yes/No/N.A.
	(vii)	Alarm bell (for normal application)?	*Yes/No/N.A.	*Yes/No/N.A.
	(viii)	Siren/yodalarm?	*Yes/No/N.A.	*Yes/No/N.A.
	(ix)	Control/indication panel?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	(x) Remote manual release unit?	*Yes/No/N.A.	*Yes/No/N.A.
	(xi) Detector?	*Yes/No/N.A.	*Yes/No/N.A.
	(xii) Discharge nozzle?	*Yes/No/N.A.	*Yes/No/N.A.
	(xiii) Safety Barrier?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is permanent nameplate with adequate information provided to gas/agent cylinder? (CO_2 / FM200 / NAFS III / Novec 1230 / other approved agents _____)	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is reliable means of indication provided for the determination of pressure in gas/agent cylinder?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Does the above mentioned indication means account for variation of cylinder pressure with temperature?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is cylinder/container properly mounted/secured?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are nozzles provided with markings showing make, type, serial number and orifice size?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are quantity, type and orifice size of nozzles tally with computer calculation and isometric diagram for pipework?	*Yes/No/N.A.	*Yes/No/N.A.

3.4.1.3 Pipings

a)	Are pipings properly installed and secured in accordance with approved guide?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are all sections of the piping provided with equipotential earth bonding?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are pipings suitably protected against mechanical, chemical, vibration or other damage?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are pipings of the approved type? (Type - _____)	*Yes/No/N.A.	*Yes/No/N.A.

For 25 bar or 42 bar	For 25 bar only
BS EN 10216-1 and BS EN 10217-1 Seamless Schedule 80	BS EN 10255 Heavy Grade Butt Welded (up to and including 50 mm nominal pipe size)
ASTM A53/A53M	BS EN 10216-1 and BS EN 10217-1 Seamless Schedule 40 (up to and including 100 mm nominal pipe sizing)
ASTM A106/A106M	
or as approved	or as approved

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
e)	Are pipe joints of approved type provided? (Type - *screwed/welded/flanged, G.S. Clause 8.1.5.13)	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are pipings installed tally with computer calculation and isometric diagram for pipework?	*Yes/No/N.A.	*Yes/No/N.A.
3.4.1.4	Detection, Actuation & Control System		
a)	Is correct type of detector provided? (Type - *heat/smoke/_____)	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is operating alarm / indicator provided? (Type *Alarm/Indication / Both / Audio / Visual / Olfactory)	*Yes/No/N.A.	*Yes/No/N.A.
c)	Do electrical primary A.C. supply and secondary battery D.C. supply provide adequate capacity for both the detection and operating devices?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are the following electrical apparatus intrinsically safe or of flame-proof type? (For explosive atmosphere only e.g. fuel oil tank room)	*Yes/No/N.A.	*Yes/No/N.A.
	(i) Detector	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Fire alarm bell/sounder	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) Sparkless type opening/closing device	*Yes/No/N.A.	*Yes/No/N.A.
	(iv) Fan motor	*Yes/No/N.A.	*Yes/No/N.A.
	(v) Sparkless type ventilating duct damper closing device	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is manual control suitably protected against mechanical, weather or environmental damage?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is manual control easily accessible at all times?	*Yes/No/N.A.	*Yes/No/N.A.
3.4.1.5	Miscellaneous		
a)	Are all pipeworks and metal works properly painted?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the gas cylinder rooms clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is emergency electricity supply available fed by permanent electricity supply?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are bar code labels provided to the gas cylinder?	*Yes/No/N.A.	*Yes/No/N.A.
3.4.2	Testing and Commissioning		
3.4.2.1	General		

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
a)	Is the computer programme for the design of the system approved by FSD?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is the weight of required agent tally with computer calculation and charging certificate?	*Yes/No/N.A.	*Yes/No/N.A.
3.4.2.2	Pneumatical Test of Piping		
a)	Is the pneumatical test of the piping according to the following requirements satisfactory?	*Yes/No/N.A.	*Yes/No/N.A.
b)	For 25-bar System only		
	(i) Test in a closed circuit	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Test for a period of 10 min. to a minimum of 1.5 times the operating pressure of the system and 10 bars whichever is larger.	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) Pressurising the piping at 350 kPa incremental steps	*Yes/No/N.A.	*Yes/No/N.A.
3.4.2.3	Functional Test of System		
a)	Does AUTO/MANUAL selector key switch function properly?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Do detectors operate satisfactorily?	*Yes/No/N.A.	*Yes/No/N.A.
c)	If cross-zoning is employed, is the zoning of detectors satisfactorily arranged?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Does operating alarm/indication function properly?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Does actuating solenoid operate satisfactorily?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Does selector/distributor valve operate properly?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Does the manual control require a force of not more than 178 Newtons to secure operation?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Does the manual control require a movement of 356 mm or less to secure operation?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is the shut-down of ventilating system satisfactorily accomplished?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Do fire damper opening/closing devices operate satisfactorily?	*Yes/No/N.A.	*Yes/No/N.A.
k)	If time delay of not more than 30 sec is incorporated, does it function properly?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Does the battery charger function properly?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is the telephone link connected and functioning properly?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
n)	Does the system pass the 'puff test'?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Does the system pass the room integrity test with test report certified by the RFSIC responsible for the installation?	*Yes/No/N.A.	*Yes/No/N.A.
3.4.2.4	Practical Discharge Test (Dynamic Test) of System (Should be avoided wherever possible.)		
a)	By Designed Agent?	*Yes/No/N.A.	*Yes/No/N.A.
b)	By Approved Substitute?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Discharge agent used? - *CO_2/FM200/Novec 1230_____	*Yes/No/N.A.	*Yes/No/N.A.
d)	Does agent fully discharge within the time limit specified by FSD?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are pipings securely installed to prevent pipe displacement or hazardous movement during discharge?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Do piping and associated equipment remain mechanically and structurally sound after test?	*Yes/No/N.A.	*Yes/No/N.A.
3.4.2.5	Reinstatement of System After Discharge (Static Check)		
a)	Is replacement cylinder/container of the correct type with sufficient pressure and content provided?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is cylinder/container properly installed and connected?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is control/indication panel properly reset?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the electro-thermal link (ETL) properly replaced/ reinstated?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is actuating solenoid properly linked / connected?	*Yes/No/N.A.	*Yes/No/N.A.
3.5	Street Hydrant		
3.5.1	General		
a)	Is the system:		
	(i) supplied directly from Town Main;	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) supplied from Gravity Tank;	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) supplied from Pumps and Tank;	*Yes/No/N.A.	*Yes/No/N.A.
	(iv) supplied from Sea Water Pumps?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
b)	Is the followings tally with the approved building plans/fire service installation drawings? (FSD Ref. No. on Approved Building Plans/FSI drawings : _____ _____)		
	(i) quantity of street hydrant;	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) location of street hydrant;	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) location of pump room/enclosure;	*Yes/No/N.A.	*Yes/No/N.A.
	(iv) location of tank:	*Yes/No/N.A.	*Yes/No/N.A.
	(v) tank capacity?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.2	Visual Inspection		
3.5.2.1	Pipework, valves & associated fittings		
a)	Is each hydrant equipped with a control valve?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is each hydrant equipped with an isolation valve (applicable to system fed directly/indirectly from government main)?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the spindle of underground hydrant valve within 250 mm to 500 mm below the valve pit cover?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the size of underground control valve pit cover not greater than 300 mm x 300 mm and with "FH" marking engraved on the surface? (Remarks: isolation valve pit cover shall conform to WSD standards)	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is the valve pit of control valve located between 1.5 m to 3 m from the street hydrant?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the valve pit of control valve located outside the designated emergency vehicular access?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is there no obstruction within 1.5 m in front of and on two sides of the hydrant(s)?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are underground water pipes to BS EN 545:2010 Class 100 (dia. 80 -150), Class 64 (dia. 200 – 350) or Class 50 (dia. 400 – 600) or to BS EN 10255 / ISO 65 heavy grade or other approved type?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are underground water pipes protected with two coats of bituminous paint and wrapped with self-amalgamating tapes and mastics having minimum 55% overlapping?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are underground water pipes provided with mechanical pipe couplings or other approved couplings?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
k)	Are water pipes provided with adequate disconnecting flanges, mechanical pipe couplings or screwed unions for future ease of dismantling?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are bends of long radius type?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are water pipes installed without being embedded in concrete structure?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are valves closed at clockwise rotation?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are adequately sized manholes provided for valves?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Do water pipes sizes tally with drawings?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Are adequate clearances provided around the hydrant for its free use?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Are hydrants sited 6 metres or greater from the building?	*Yes/No/N.A.	*Yes/No/N.A.
s)	Is water supply pressure adequate?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Is hydrant number painted with size not less than 75mm at the hydrant (yellow for red hydrant and red for yellow hydrant)?	*Yes/No/N.A	*Yes/No/N.A

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

3.5.2.2 Street Fire Hydrant Pump (if provided)

a) Pump/Motor Set Data :

		Pump	
		Duty	Standby
Location			
Quantity (No(s).)			
Manufacturer	Pump		
	Motor		
Model No.	Pump		
	Motor		
Serial No.	Pump		
	Motor		
Motor power (kW)			
Pump power (kW)			
Flow rate (l/min)			
Pressure (kPa)			
Starting method			

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
b)	Are duplicate pumps provided for duty and standby use?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are the pumps having the following sources of power supply:		
	(a) electricity; and with	*Yes/No/N.A.	*Yes/No/N.A.
	(b) secondary power supply; or with	*Yes/No/N.A.	*Yes/No/N.A.
	(c) diesel engine driven standby pump?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are starting instructions for diesel engine driven pump prominently displayed in the pump room?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Can the pump be manually stopped by switching off at the pump control installed near the pump, rather than by any automatic means?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is a duty and standby selector switch provided on the pump panel for selection of duty and standby electric motor driven pumps?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are pump motors rated at 20% higher than the required hydraulic power?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are emergency lock-off buttons provided adjacent to pump motor with visual and audible indication on the pump control panel with a common fault signal repeated at the main fire service control panel when the pump is locked?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are pump motors protected by HRC fuses?	*Yes/No/N.A.	*Yes/No/N.A
j)	Are water pumps permanently primed?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are non-return valve(s) provided to prevent water backflow into the water tank?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Is anti-overheating circulating pipe provided?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are pressure gauges of correct specification?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are isolating cocks/valves provided for pressure gauges?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are equipotential earth bondings provided for all sections of pipeworks?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Are all the pumps housed in suitable rooms/enclosures designed solely for accommodating pumps or equipment for fire service installations?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Are doors to pump rooms/enclosures clearly labelled "FIRE PUMP" (消防泵)?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Are doors to pump rooms/enclosures provided with locking devices?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
s)	Are doors to pump rooms/enclosures provided with automatic door closers?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Are pump rooms/enclosures laid clear of any exit or normal communication routes through the premises?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Are pump rooms/enclosures clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.2.3	Supply Tank (If provided)		
a)	Are the water tank and its capacity clearly marked in English and Chinese characters?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Has the Fire Service Completion Advice been issued by WSD?	*Yes/No/N.A.	*Yes/No/N.A.
c)	For system where the tank bottom is > 20 m above the centre line of the outlet coupling of the lowest street hydrant in the system, is a bypass pipe (of the same size as the pump suction pipe) provided connecting the pump suction and discharge pipe with isolation valves and check valve?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Does the size of the incoming water pipe from the town mains up to the water tank tally with the vertical plumbing diagram approved by WSD?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are the effective water capacities of all the water tanks correct?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are the ball valves of the water tanks readily accessible?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Do the sizes of the pump suction water pipe from the tank match the size of the pump suction inlet?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are levels of suction pipes correct?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are puddle flanges of the same sizes as the water pump suction pipes?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are water tanks clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.2.4	Miscellaneous		
a)	Are all pipeworks and metal works properly painted?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are all the hydrant bodies painted in red colour for fresh water system and in yellow colour for sea water system (with white colour band when fed directly from Government trunk main)?	*Yes/No/N.A.	*Yes/No/N.A.
c)	For hydrants not in service, are all the caps for 100 mm outlets painted in blue colour?	*Yes/No/N.A.	*Yes/No/N.A.

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
d)	Is V-shaped arrow head (100 mm high and 50 mm wide) pointing toward each control valve painted on the hydrant top (yellow colour arrow for red coloured hydrant and red colour arrow for yellow coloured hydrant)?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is the number assigned for the hydrant painted on the body facing the roadway with size not less than 75 mm (in yellow colour for red coloured hydrant and in red colour for yellow coloured hydrant)?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is proper identification provided for pipeworks, wirings and equipment?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.3	Testing and Commissioning		
3.5.3.1	Pipeworks		
a)	Are hydraulic tests performed satisfactorily for water tightness of all sections of the pipeworks? (Test records on Part 4.5.2 Table 1)	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is flushing out of all water pipes performed?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Do the gate valves, stop valves and globe valves function properly?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.3.2	Electrical Wiring		
a)	Is the electrical wiring system tested satisfactorily in accordance with the T&C Procedure for Electrical Installation and to Electricity Ordinance requirements?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is permanent electricity supply connected?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is emergency electricity supply available?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.3.3	Street Fire Hydrant Pump		
a)	Is the tank refilling system in efficient working order (applicable to system with tank)?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Can the pump start automatically upon opening of any hydrant outlet?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Once started, can the pump (except the jockey pump) only be stopped manually at the pump room?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Do the water pumps and motors run at the designed discharge water pressure and operating electrical current? (Test records on Part 4.5.2 Table 2)	*Yes/No/N.A.	*Yes/No/N.A.
e)	Do the water pumps run at an acceptable noise and vibration levels?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Do the water pump control switches and indicating lights function properly?	*Yes/No/N.A.	*Yes/No/N.A.

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
g)	Are the status of each pump i.e. “Power Supply On”, “Pump Running” and “Pump Failed” monitored and displayed on the pump control panel located inside the pump room?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are the status signals of each pump repeated to :		
	(a) the fire control centre; or	*Yes/No/N.A.	*Yes/No/N.A.
	(b) a status panel at the building’s main entrance?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Do the water pump protective devices function properly?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Do the float switches in the water tanks for controlling the transfer water pumps function properly? (If transfer pump(s) is/ are provided to refill the water tank)	*Yes/No/N.A.	*Yes/No/N.A.
k)	Do the high and low water level alarms and indications for the water tanks function properly?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are the temperatures of the water pump bearings satisfactorily at running condition?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are the temperatures of the pump motors satisfactorily at running condition?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Do the pressure gauges function properly?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Is water leakage from the pump shafts at an acceptable level?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Do the non-return valves function properly?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Does the pressure relief valve of the anti-overheating circulating pipe function properly? (Operate at _____ kPa)	*Yes/No/N.A.	*Yes/No/N.A.
r)	Does the change-over from duty to standby pump complete within 15 sec.? (Change-over within _____ sec.)	*Yes/No/N.A.	*Yes/No/N.A.
s)	For diesel engine driven pump, is the operation of the pump starting pressure switch not affected by the main power supply failure?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.3.4	Street Hydrant		
a)	Is the water tightness of the hydrant outlets satisfactorily when the water pumps are running?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is equipment arrangement for flow rate and pressure test in accordance with FSD Requirements?	*Yes/No/N.A.	*Yes/No/N.A.

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
c)	Do the flow capacity and pressure tests satisfy FSD's requirements as the following Table? (Test Records on Part 4.5.2 Table 3)	*Yes/No/N.A.	*Yes/No/N.A.

Pressure and Flow Requirements for Street Hydrant

Description	Min. Flow Rate (l/min)	Min. Running Pressure (kPa)
Each 65 mm outlet Independently	2000	170
Two farthest 65 mm outlet Discharging simultaneously	4000 (total)	170

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.6	Drencher System		
3.6.1	Visual Inspection		
3.6.1.1	Water Supplies		
a)	Is an independent town main connection provided for the drencher system installation alone?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is an independent water tank provided for the drencher system?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Does the size of the incoming water pipe from the town mains up to the drencher tank tally with the vertical plumbing diagram approved by WSD?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the effective water capacity correct of the drencher tank?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are the ball valves of the water tank readily accessible?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the calculation of the water tank size available from the Contractor?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are levels of suction pipes correct?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are puddle flanges of the same size as the water pump suction pipes?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are automatic priming arrangements provided for suction lift condition?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Is anti-overheating circulating pipe provided?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Is vortex inhibitor provided and clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are strainers in water tank cleaned?	*Yes/No/N.A.	*Yes/No/N.A.
m	Is the tank clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.1.2	Deluge Valve		
a)	Is the deluge valve of automatic type operated by detection system installed in the same area as the drencher system?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Has the design of the deluge installation been consulted with and accepted by FSD?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the deluge valve set installed close to the inlet of the drencher system?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is it operated by a remote manual means?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is (Are) the manual operating device(s) with operation instruction displayed nearby and provided at location(s) acceptable to the Director of Fire Services?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Does each deluge valve control have less than 72 drenchers?	*Yes/No/N.A.	*Yes/No/N.A.

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.6.1.3	Spacing and Quantity of Drencher Heads/Water Spray Nozzles		
a)	Maximum distance between drencher heads/water spray nozzles: 2.4m	*Yes/No/N.A.	*Yes/No/N.A
b)	Maximum distance of drencher from opening/surface: 1.2m	*Yes/No/N.A.	*Yes/No/N.A
c)	Maximum No. of drencher heads/water spray nozzles on any horizontal pipe: 12	*Yes/No/N.A.	*Yes/No/N.A
d)	Maximum No. of drencher heads/water spray nozzles on any vertical pipe: 6	*Yes/No/N.A.	*Yes/No/N.A
e)	Is drencher system installed on all refuge floors to cover all external wall openings?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.1.4	Pipeworks		
a)	Are water pipes up to 150 mm dia. to BS EN 10255/ ISO 65/ BS EN 10217-1 medium grade or other approved type?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are water pipes larger than 150 mm dia. to BS EN 545 Class 64 (dia. 200 – 350) or Class 50 (dia. 400 – 600) or other approved type?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are U/G water pipes to BS EN 545 Class 100 (dia. 80 -150), Class 64 (dia. 200 – 350) or Class 50 (dia. 400 – 600) or to BS EN 10255 / ISO 65 heavy grade or other approved type?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are U/G water pipes protected with two coats of bituminous paint and wrapped with self-amalgamating tapes and mastics having minimum 55% overlapping?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are water pipes up to 50 mm dia. operating at working pressure not exceeding 1600 kPa provided with screw joints?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are water pipes of dia. larger than 50 mm and up to 150 mm operating on or below 1600 kPa provided with mechanical pipe couplings?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are water pipes of dia. larger than 150 mm provided with flanged joints and flanged fittings?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are U/G water pipes provided with mechanical pipe couplings or other approved couplings?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are water pipes provided with adequate disconnecting flanges, mechanical pipe couplings or screwed unions for future ease of dismantling?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are pipes suitably connected to the drencher pumps, deluge valve and drencher inlets?	*Yes/No/N.A.	*Yes/No/N.A.

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
k)	Are bends of water pipes larger than 50 mm dia. and bends of water pipes installed outside false ceiling/concealed void of long radius type, or as approved?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are galvanised mild steel sleeves provided for pipes through wall or slab?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are spaces between water pipes and pipe sleeves through wall or slab filled with approved fire proof material and sealant?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are fire rated pipe sleeves provided for pipes through fire rated wall or slab?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are spaces between water pipes and pipe sleeves through fire rated wall or slab filled with approved fire proof material and sealant?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Are adequate clearances provided between pipe and sleeve?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Are sleeves projected at least 100 mm above finish floor level and at least 150 mm above roof finish	*Yes/No/N.A.	*Yes/No/N.A.
r)	Are pipes installed without being embedded in concrete structure?	*Yes/No/N.A.	*Yes/No/N.A.
s)	Are adequate pipe hangers or supports provided as required?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Are pipe hangers and supports rigidly fixed and unbroken?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Are expansion pipe joints provided at location through building expansion joint?	*Yes/No/N.A.	*Yes/No/N.A.
v)	Are adequate air vents and drain cocks provided?	*Yes/No/N.A.	*Yes/No/N.A.
w)	Are valves closed at clockwise rotation?	*Yes/No/N.A.	*Yes/No/N.A.
x)	Are valves locked at OPEN position with security devices including chains, padlocks, tamper-proof serially numbered security tags, and durable warning labels to prevent tampering/unauthorised operation, and with a log book to keep track of maintenance services and operation, of the valves?	*Yes/No/N.A.	*Yes/No/N.A.
y)	Do water pipe sizes tally with drawings?	*Yes/No/N.A.	*Yes/No/N.A.
z)	Can all sections of water pipes be drained?	*Yes/No/N.A.	*Yes/No/N.A.
aa)	Are the water pipes suitably sloped and drained to the installation drain valve as far as practical?	*Yes/No/N.A.	*Yes/No/N.A.
ab)	Are installation drain pipes and valves of correct sizes?	*Yes/No/N.A.	*Yes/No/N.A.
ac)	Are correct sizes of drain pipes and valves provided as following for pipeworks to be drained?	*Yes/No/N.A.	*Yes/No/N.A.

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
ad)	Do pressure gauges comply with BS EN 837-1 or other appropriate standards as per G.S.?	*Yes/No/N.A.	*Yes/No/N.A.
ae)	Are isolating cocks/valves provided for pressure gauges?	*Yes/No/N.A.	*Yes/No/N.A.
af)	Are strainers in water pipes cleaned?	*Yes/No/N.A.	*Yes/No/N.A.
ag)	Are main stop valves secured at OPEN position with security devices including chains, padlocks, tamper-proof serially numbered security tags, and durable warning labels to prevent tampering/unauthorised operation, and with a log book to keep track of maintenance services and operation, of the valves?	*Yes/No/N.A.	*Yes/No/N.A.
ah)	Are main stop valves placed at proximity to an entrance to the premises?	*Yes/No/N.A.	*Yes/No/N.A.
ai)	Are location plates for main stop valves provided with correct wording and character sizes?	*Yes/No/N.A.	*Yes/No/N.A.
aj)	Are each set of alarm valve and alarm gong provided with identification label and number?	*Yes/No/N.A.	*Yes/No/N.A.
ak)	Is the total length of water pipe between alarm valve and alarm gong 25 m or less?	*Yes/No/N.A.	*Yes/No/N.A.
al)	Is the water pipe between alarm valve and alarm gong of correct size?	*Yes/No/N.A.	*Yes/No/N.A.
am)	Is a deluge valve installed closed to the inlet for the drencher system?	*Yes/No/N.A.	*Yes/No/N.A.
an)	Are manually operating devices complete with operating instruction displayed nearby the deluge valve	*Yes/No/N.A.	*Yes/No/N.A.
ao)	Is a hydraulic calculation of the drencher system provided by the Contractor?	*Yes/No/N.A.	*Yes/No/N.A
ap)	Are equipotential earth bondings provided for the pipeworks?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.1.5	Drencher Pump		
a)	Is electricity used for driving the pump? If no, please specify.	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is secondary power supply provided for electric pumps?	*Yes/No/N.A.	*Yes/No/N.A.
c)	If no, is diesel engine driven standby pump provided?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are alternative means of starting the pump manually where the pump is not electrically operated?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are starting instructions for diesel driven pump prominently displayed in the pump room?	*Yes/No/N.A.	*Yes/No/N.A.

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
f)	Are the motor/pump set rotating parts protected by safety guard?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are pump motors protected by HRC fuse?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Can the pump just be stopped by switching off at the pump control not installed near the pump, rather than by any automatic means?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are the pumps duplicated for duty and standby use?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are the fire pump starters wired through a selector switch for duty and standby pump selection?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are pumps permanently primed?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are non-return valve(s) provided to prevent water backflow into the water tank?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is pump motor power rated at 20% higher than the required hydraulic power?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are emergency lock-off buttons provided adjacent to pump motors with visual and audible indication on the pump control panel with a common fault signal repeated at the main fire service control panel when the pump is locked?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are the status of each fire pump condition comprising “Power Supply On”, “Pump Running” and “Pump Failed” monitored and displayed at the pump control panel in the pump room and repeated at a panel in the fire control room or at the main entrance of the building?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Are the pumps installed with the manually operated shut down mechanism labelled as “DRENCHER PUMP SHUT DOWN” “終止水濂泵運行”?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Is each switch on the dedicated power fed to an electric drencher pump motor labelled as “DRENCHER PUMP MOTOR NOT TO BE SWITCHED OFF IN THE EVENT OF FIRE” “水濂泵電源供應-在發生時切勿切斷電源”?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Are doors to pump rooms clearly labelled "DRENCHER PUMP" “水濂泵”?	*Yes/No/N.A.	*Yes/No/N.A.
s)	Are doors to pump rooms provided with locking devices?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Are doors to pump rooms provided with automatic door closers?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Are pump rooms clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
v)	Are intermediate booster pumps provided where the height between the topmost drencher heads and the lowest drencher inlet is in excess of 60 m?	*Yes/No/N.A.	*Yes/No/N.A.

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
w)	Is the intermediate booster pump utilised as the dual purpose drencher pump?	*Yes/No/N.A.	*Yes/No/N.A.
x)	If so, is pressure reducing valve set installed in duplicated and normally open position between pump suction pipe and drencher inlet?	*Yes/No/N.A.	*Yes/No/N.A.
y)	Are the intermediate booster pumps duplicated for duty and standby use?	*Yes/No/N.A.	*Yes/No/N.A.
	i) Is one set of intermediate booster pumps consisting of duty and standby in the same system?	*Yes/No/N.A.	*Yes/No/N.A.
	ii) Are two/three (one as standby) intermediate booster pumps of the same capacity provided to achieve required flow and pressure within 30 seconds?	*Yes/No/N.A.	*Yes/No/N.A.
z)	Do the intermediate booster pumps continue to run until it is stopped manually irrespective of power interruption when start button is activated?	*Yes/No/N.A.	*Yes/No/N.A.
aa	Are start/stop push buttons with pump running indication light and buzzer provided adjacent to the drencher inlet?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.1.6	Miscellaneous		
a)	Are all pipeworks and metal works properly painted?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are proper identification provided for pipeworks, wirings and equipment?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.2	Testing and Commissioning		
3.6.2.1	Pipeworks		
a)	Are hydraulic tests performed satisfactorily for water tightness of all sections of the pipeworks? (Test records on Part 4.6 Table 1)	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is flushing out of all water pipes performed?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Do the automatic air release valves function properly?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Do the gate valves, stop valves and globe valves function properly?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.2.2	Electrical Wiring		
a)	Is the electrical wiring system tested satisfactorily in accordance with the T&C Procedure for Electrical Installation?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does the battery charger function properly?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
c)	Is the telephone link connected and functioning?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is permanent electricity supply connected?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is emergency electricity supply available?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.2.3	Means of Actuation		
a)	Is the drencher system operated on actuation of the corresponding detector system or pilot sprinkler, for automatic system?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is the drencher system operated on actuation of manual release at the control valve and each exit door of the area served?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.2.4	Drencher Pump		
a)	Do the pumps and motors run at the designed discharge water pressure and operating electrical current?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Do the water pumps run at an acceptable noise and vibration levels?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Do the water pump control switches and indicating lights function properly?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Do the water pump protective devices function properly?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Do the float switches in the water tanks controlling the water pumps function properly?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are the temperatures of the water pump bearings satisfactorily at running condition?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Do the pressure gauges function properly?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is water leakage from the pump shafts at an acceptable level?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Do the non-return valves function properly?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Does the pressure relief valve of the anti-overheating circulating pipe function properly? (Operate at _____ kPa)	*Yes/No/N.A.	*Yes/No/N.A
k)	Do the pressure switches controlling the jockey, duty and standby pumps operate properly?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are the pumps fully operational within 30 sec. after starting?	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
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m)	Are pumps status; “Power supply on”, Pump running” and “Pump failed” monitored and displayed at the pump control panel and repeated at the main fire service control panel or at a status panel at the main entrance of the building?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Is the standby pump energised to operate within 15 sec. when the duty pump mechanically or electrically fails to operate?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.2.5	Proving of Water Supplies		
a)	Do the installation pressure and flow rate comply with the FSD requirements?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is the water flow from each nozzle the same and with a similarly uniform flow pattern?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the water flow rate maintained at not less than 10 l/min per m^2 of wall opening to be covered and allowing for wastage and uneven flow (15% additional capacity)?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the hydraulic pressure at either end along any water pipes identical?	*Yes/No/N.A.	*Yes/No/N.A.
3.7	Audio/Visual Advisory System		
3.7.1	Visual Inspection		
3.7.1.1	General		
a)	Does the layout of flashing light points and loudspeakers tally with the latest approved building plans and as-fitted drawings?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the flashing lights and loudspeakers provided for all areas that required the system?	*Yes/No/N.A.	*Yes/No/N.A.
3.7.1.2	Visual System		
a)	Is a system of coloured and flashing light installed?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the high level flashing lights with directional signs positioned with base between 2 m and 2.5 m above finished floor level?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are the low directional signs installed with lower edge not higher than 200 mm from finished floor level?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the above supplemented by low-level directional signs to indicate :	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
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	(i) the floor(s) to be evacuated by operating the lights on that floor/those floors in flashing mode?		
	(ii) the evacuation routes by following the low-level directional signs ?		
e)	Do the flashing lights remain intact?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Do the low level directional signs remain intact?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are the low level directional signs of photoluminous type to DIN 67510 Part 4 or equivalent?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is the colour of the lens/lamps of the flashing lights meet FSD requirements?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Does the visual system comply with the FSDCoP, BS 5499 and BS EN 60598?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Do the directional signs internally illuminated and in compliance with BS ISO 3864 Part 1?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are the lamp elements positioned to produce the best illumination effect for the sign?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Is a flashing light control gear integrated with each sign?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is an independent circuit including a separate set of lamp-holder, wiring and protective gear provided for each lamp element of exit signs and directional signs?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are the lamp elements of exit signs and directional signs in the “ON” condition in normal situation?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are flashing exit sign and flashing directional sign be synchronized inside AVAS protected area	*Yes/No/N.A.	*Yes/No/N.A.
3.7.1.3	Audio System		
a)	Desktop Microphone		
	(i) Is desktop microphone single zone type complete with condenser microphone on gooseneck for use with the amplifier?	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Is it complete with a minimum of 1m length cable and a plug?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Amplifier/Preamplifier		

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		Tel. No. :	
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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
(i)	Is the audio system provided with pre-amplifier and amplifier of sufficient power to drive all the loudspeakers and other equipment in the system?	*Yes/No/N.A.	*Yes/No/N.A.
(ii)	Does each amplifier and amplifier respectively have a 100% standby unit, so arranged that if any one unit failed, the corresponding standby unit shall take up the duty for the respective operation automatically within 15 seconds?	*Yes/No/N.A.	*Yes/No/N.A.
(iii)	Are amplifiers fully transistorised solid state device?	*Yes/No/N.A.	*Yes/No/N.A.
(iv)	Are the amplifiers provided with at least 10% spare capacity/power to drive all the speakers within the broadcasting zone?	*Yes/No/N.A.	*Yes/No/N.A.
(v)	Does each amplifier have a regulation of rated power output from no load to full load of 2 dB?	*Yes/No/N.A.	*Yes/No/N.A.
(vi)	Does the amplifier have an audio response level within +2 dB from 50 Hz to 14 kHz at full output, and the total harmonic distortion not exceed 1% at full load?	*Yes/No/N.A.	*Yes/No/N.A.
(vii)	Is the noise level of each amplifier at least 40 dB below maximum output with all inputs and outputs correctly terminated, and sensitivity to be such that full output can be obtained from a 2 mV microphone or equivalent input?	*Yes/No/N.A.	*Yes/No/N.A.
(viii)	Is amplifier maintaining a damping factor of not less than three over the frequency range of 100 to 5,000 Hz?	*Yes/No/N.A.	*Yes/No/N.A.
(ix)	Does amplifier have a low hum level and low over-shoot or ringing when a square wave generator is connected to the input level within the working range and variable tone control providing attenuation of the high frequencies, i.e. 0 – 20 dB at 8 kHz?	*Yes/No/N.A.	*Yes/No/N.A.
(x)	Is the amplifier of constant voltage output type not requiring dummy load to maintain matching of the amplifier output?	*Yes/No/N.A.	*Yes/No/N.A.
(xi)	Is the output provided with an overload protection device to prevent damage to the output stage from overload or a short circuit on the speaker lines?	*Yes/No/N.A.	*Yes/No/N.A.
(xii)	Are the signal incoming leads terminate at the rear of the amplifier through suitable screened type plug mountings?	*Yes/No/N.A.	*Yes/No/N.A.
(xiii)	Is a screw driver adjustment provided at the rear for each additional input for preset balancing of the inputs, when more than one input is required?	*Yes/No/N.A.	*Yes/No/N.A.
(xiv)	Are input sockets and output terminals well separated and in separate cut-outs in order to prevent coupling between the amplifier input and output?	*Yes/No/N.A.	*Yes/No/N.A.

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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
(xv)	Is preamplifier provided with connection to power amplifier, microphone, CD/DVD decks, EEPROM and other associated built-in recording and play back components/devices, and other audio equipment?	*Yes/No/N.A.	*Yes/No/N.A.
(xvi)	Does preamplifier have built in On/Off switch, headphone outlet and volume control for each channel, and with a LED VU meter provided to indicate the output level?	*Yes/No/N.A.	*Yes/No/N.A.
(xvii)	Is the power amplifier completed with mixer, for single broadcasting zone?	*Yes/No/N.A.	*Yes/No/N.A.
(xviii)	Is the power amplifier capable of connecting with microphone, CD/DVD decks, EEPROM and other associated built-in recording and play back components/devices, and other audio equipment?	*Yes/No/N.A.	*Yes/No/N.A.
(xix)	Does each power amplifier have built in with On/Off switch, headphone outlet, volume control for each channel and matching transformers with tapping to enable loudspeakers to be driven at 100V, 70V or 50V up to 8Ω?	*Yes/No/N.A.	*Yes/No/N.A.
(xx)	Is an LED VU meter provided to indicate the output level?	*Yes/No/N.A.	*Yes/No/N.A.
(xxi)	Is the power output adequate for the connected loudspeakers in the broadcasting zone?	*Yes/No/N.A.	*Yes/No/N.A.
(xxii)	For multiple broadcasting zones, is each zone provided with a power amplifier?	*Yes/No/N.A.	*Yes/No/N.A.
(xxiii)	Does power amplifier provided with input transformers for audio inputs from the preamplifier and built-in loudspeaker matching transformer?	*Yes/No/N.A.	*Yes/No/N.A.
(xxiv)	Does power amplifier have built in On/Off switch, headphone outlet and an LED VU meter showing the output level?	*Yes/No/N.A.	*Yes/No/N.A.
(xxv)	Is the power output adequate for the number of connected loudspeakers within the zone?	*Yes/No/N.A.	*Yes/No/N.A.

c) Loudspeaker

(i)	Are loudspeakers provide a crisp, clear audio reproduction for voice and alarm tone signalling, designed for fast and easy surface/flush installation on ceiling or wall?	*Yes/No/N.A.	*Yes/No/N.A.
(ii)	Are they constructed of sheet steel or high impact ABS plastic in white colour or as specified matching the false ceiling or wall finishes?	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
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(iii)	Does the back of each loudspeaker have an enclosure to prevent ingress of dirt to the speaker zone?	*Yes/No/N.A.	*Yes/No/N.A.
(iv)	For loudspeaker installed on false ceiling, is it flush mounted with the body fully recessed into the false ceiling?	*Yes/No/N.A.	*Yes/No/N.A.
(v)	Is loudspeaker equipped with tapped transformer suitable for the system operating voltage and having individual attenuator?	*Yes/No/N.A.	*Yes/No/N.A.
(vi)	Is the attenuator integral with the speaker unit and comprise carbon type volume controls with adjustment?	*Yes/No/N.A.	*Yes/No/N.A.
(vii)	Does loudspeaker have a maximum output rating of at least 1 watt and a frequency response of within +3 and –7 dB from 100 to 10,000 Hz with respect to 1 kHz?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Recording and Play Back Devices/Decks		
(i)	Is Recording and Play Back Devices/Decks a proprietary products with proven quality capable of recording and play back audio messages either on high quality CDs/DVDs or EEPROMs and other associated chips?	*Yes/No/N.A.	*Yes/No/N.A.
(ii)	Does it have-capacity for recording and playing back not less than 120 minutes of high quality audio messages?	*Yes/No/N.A.	*Yes/No/N.A.
(iii)	Have the details of the proposed recording and play back devices and decks been submitted to the Supervising Officer for approval?	*Yes/No/N.A.	*Yes/No/N.A.
(iv)	Is the recording and play back system approved by the FSD?	*Yes/No/N.A.	*Yes/No/N.A.
3.7.1.4	Control Panel/Console		
a)	Is the control panel/console located near the main entrance or in Fire Control Room?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is the control panel/console properly labelled and identified in both English and Chinese characters?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the control panel/console approved by FSD and compatible with the loudspeaker and flashing light system?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the control panel/console of robust construction with hinged door, gasket and cylinder type lock?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is the whole system fail-safe?	*Yes/No/N.A.	*Yes/No/N.A.

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f)	Is the audio system housed in a wall mounted panel for control and monitoring, and the control and monitoring system is backed up by battery and charger complying Sub-section 8.1.7 and Clause 8.1.8.10 of the General Specification?	*Yes/No/N.A.	*Yes/No/N.A.
3.7.1.5	Power Supply/Wiring		
a)	Is the permanent electricity supply connected?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is the battery an approved type?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are the wiring in concealed conduits?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are all cables running continuously from the originating point to termination, with no joint or connector?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are the wirings from amplifier output circuits to loudspeakers in twin cables with low power loss and protected against interference?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is each loudspeaker correctly phased?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are components include the following items and any other items necessary for the proper control and operation of the system to the satisfaction of the Fire Services Department?	*Yes/No/N.A.	*Yes/No/N.A.
	(i) Microphone control panel.		
	(ii) Speaker zone switchbank and annunciator module.		
	(iii) Tape transfer, power supervisor and remote transmission module.		
	(iv) Automatic timer sequencer which shall be a multi-function assembly to provide pre-recorded messages, timing sequences, transfer function plus supervisory signal to amplifiers.		
	(v) Alarm failure transfer units which shall transfer audio output from main duty amplifiers to standby amplifiers upon detecting the absence of a supervisory signal.		
	(vi) General alarm and all call module.		
	(vii) Alarm input transfer module for controlling the amplifiers.		
h)	Does the microphone control panel contain dual pre-amplifiers continuously supervised?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Can the microphone control panel transfer to the standby pre-amplifier upon failure of the duty unit?	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
		Date :	

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j)	Is it provided with a noise cancelling and microphone having a UL listed and supervised coil cord?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Does it include provision for automatic alarm zone override of speaker switching to ensure proper alarm zoning shall selector switches be left in an incorrect mode?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Does the speaker zone selector switchbank control the audio dispersion throughout the protected premises?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Does each switch permit the transfer of its zone of speakers into either all call, page and fire operation modes?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Will the failure of any zone be indicated by the corresponding amber LED?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are indicators for alarm and switchbank trouble provided?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Do tape transfer, power supervisor and remote transmission module supervise the remote rack equipment, provide output and supervision of the remote transmitting function, and control the sequencing of evacuation tape messages and the selection of tape track?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Will the system cause any interference with all electrical or electronic system, the telephone system, radio paging system, audible paging and other communication system and vice versa, whether they are in operation or not?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Is the operation of all controls automatic and as simple as possible?	*Yes/No/N.A.	*Yes/No/N.A.
s)	Have the operating procedures been provided to give concise and clear indications?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Are these indications accompanied by the connection diagram which show the various operation alternatives available to each equipment?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Do all equipment mounted in well ventilated but water protected stainless steel- enclosure and equipment rack?	*Yes/No/N.A.	*Yes/No/N.A.
v)	Where permanently fixed in position, do the top and undersides of the equipment readily accessible by means of removable panels?	*Yes/No/N.A.	*Yes/No/N.A.
w)	Are the stainless steel- enclosures secured and have sufficient space for cable routing and bending?	*Yes/No/N.A.	*Yes/No/N.A.
x)	Do all operating controls and equipment adequately labelled to assist ease of operation and maintenance of the system?	*Yes/No/N.A.	*Yes/No/N.A.
y)	Is the battery charger of automatic trickle charge type?	*Yes/No/N.A.	*Yes/No/N.A.
z)	Is the battery charger provided with a manual booster charging facility?	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
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aa)	Is the battery charger provided with voltmeter and charging ammeter?	*Yes/No/N.A.	*Yes/No/N.A.
3.7.1.6	Miscellaneous		
a)	Are proper identification provided for wirings and equipment?	*Yes/No/N.A.	*Yes/No/N.A.
3.7.2	Testing and Commissioning		
3.7.2.1	Operation of the System		
a)	Is the audio/visual advisory system interconnected with the fire alarm system of the building?	*Yes/No/N.A.	*Yes/No/N.A.
b)	When the fire alarm is activated, will the following operations be performed automatically?	*Yes/No/N.A.	*Yes/No/N.A.
	(i) The flashing light control gear of all the illuminated directional signs and exit signs which are incorporated with flashing lights within the fire alarm zone shall operate. The lamp elements shall be switched on and off continuously at a duration of 1 to 2 seconds. The flashing rate shall be continuously adjustable between 30 – 60 times per minute. All the lamp elements in the directional sign shall be lighted up and turned off simultaneously to produce the maximum visual effect. The process shall continue until the fire alarm is reset. Then the lamp elements shall the switched back to the normal ON condition automatically and shall be switched to the flashing mode again on receiving any further fire alarm signal.		
	(ii) The alarm bells and flashing light units within the alarm zone shall operate. After 10 seconds, the alarm bells shall stop while the flashing light units shall continue to flash. Then the pre-recorded audio alarm messages shall announce within the alarm zone to alert the occupants and direct them to evacuate immediately following the directional and exit signs. The alarm bells and the audio alarm messages shall repeat in sequence continuously until the fire alarm has been reset at the fire alarm panel.		
c)	Does audio alarm message in Cantonese and English announced repeatedly with the audio alarm bell signal in sequence?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the message in English as follow or as required by the Fire Services Department? "This is a fire alarm message. Please keep calm. Follow the flashing lights to the nearest exit. Do not use the lift." and in equivalent Cantonese as: "這是一個火警警報, 請保持冷靜, 依閃燈指示, 由就近出路牌方向離開, 切勿使用升降機。"	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
		Date :	
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		Tel. No. :	
		Date :	

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e)	Is the message audible in all areas within the specified zone of the building including toilets, stores, staircases, etc.?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the signal to noise ratio not less than 40 dB when the loudspeaker output level in the area concerned is not less than 20 dB above the background noise level normally expected in the respective area during fire conditions?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is the variation in sound power level between the outlet nearest to and farthest from the amplifier not exceed 3 dB?	*Yes/No/N.A.	*Yes/No/N.A.
3.7.2.2	Power Supply		
a)	Is the battery capable of operating the system at maximum alarm condition for at least 30 min.?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is the battery capable of operating the system at normal condition for at least 24 hours or 18 hours with emergency generator back-up?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the battery charger capable of recharging the batteries from fully discharged to its constant potential voltage setting in not more than 12 hours?	*Yes/No/N.A.	*Yes/No/N.A.
3.7.2.3	Testing of Wiring		
a)	Is the electrical wiring system tested satisfactorily in accordance with the T&C procedure for Electrical Installation and the Electricity Ordinance requirements?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the power supply cables of the audio/visual advisory system fire resisting cables conform to General Specification and FSD requirement?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the signal wiring system tested satisfactorily in accordance with the General Requirement for Electronic Contracts issued by the EMSD?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the wiring so arranged that any damage to the wiring for any one loudspeaker or directional sign will not affect the proper operation of other loudspeakers or directional signs?	*Yes/No/N.A.	*Yes/No/N.A.
3.8	Portable Hand – Operated Approved Appliances		
3.8.1	Visual Inspection		
a)	Are the appliances in the list of FSD approved?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are all mounting fixtures provided and fixed in place?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is sand bucket of 10 litres of more?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is fire extinguisher rechargeable hand-operated type?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
e)	Is fixed sprayer unit of self-contained automatically operated inert gas or dry powder type fixed with a sprinkler head of 68°C?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is there any observable damage on the appliance?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are all fire extinguishers and fixed sprayer unit provided with Certificate of Fire Service Installations and Equipment (F.S. 251) signed by a Class 3 registered fire service installation contractor (RFSIC)? (Certificates shall be enclosed)	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are bar code labels provided?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is batch approval certificate for fire extinguishers available?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are fire extinguishers placed in locations in accordance with the latest approved building plans and as-fitted drawings?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are cabinets for housing the fire extinguishers at outdoor robust and weather-proof with easily identifiable labels/ wordings fixed or engraved on them?	*Yes/No/N.A.	*Yes/No/N.A.
3.8.2	Remote Monitoring Unit		
a)	Are the remote monitoring units for fire extinguishers fixed in appropriate locations in full accordance with manufacturer's recommendations?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the local audio alarms for theft control, condition control, battery replacement alert and faulty operation of the remote monitoring unit functioning properly?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are the following operations functioning properly as per the requirements of Clause 8.1.10.5 of the G.S.?	*Yes/No/N.A.	*Yes/No/N.A.
	(i) Theft control	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Condition (discharged or partly discharged) control	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the remote alarm panel constructed of or enclosed with cabinet of at least 1.6mm stainless steel plate? or is it a proprietary panel accepted by FSD and manufactured with ISO 9001 system?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is the remote alarm panel functioning properly as per the requirements of Clause 8.1.10.5 of the G.S.?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Notes on Fire Extinguishers and Fire Blankets (Suitability and Maintenance)

I. CARBON DIOXIDE TYPE EXTINGUISHERS

Use: On electrical fires, flammable liquids, delicate equipment, important documents, or fires in confined spaces.

Note: Vapours will asphyxiate. Withdraw to open air after use.

Maintenance: This type of extinguisher shall be examined every 12 months and the following maintenance carried out :-

(i) The total weight shall be checked against that recorded when the extinguisher was put into service. If a loss of weight of more than 10 per cent is detected, the extinguisher shall be discharged and returned to the suppliers for examination, test and recharging.

(ii) The body of the extinguisher shall be examined and, if there are signs of damage or extensive external corrosion, the extinguisher shall be discharged and returned to suppliers for examination, test and recharging.

(iii) The discharge horn and hose shall be checked to see that it moves freely and shall be replaced if damaged is detected.

(iv) Hydraulic pressure test shall be carried out every five years on the cylinder in accordance with the manufacturers' instructions. Extreme care shall be exercised when preparing and conducting the test.

(v) Unserviceable extinguisher shall be discharged prior to disposal.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

II. WATER TYPE EXTINGUISHERS

Use: On fires involving woods, textiles and paper.

Never: On fires involving electrical or flammable liquids or metals.

Maintenance: This type of extinguisher shall be examined every 12 months and the following maintenance carried out :-

(GAS-CARTRIDGE TYPE)

(i) The vent holes in the cap shall be checked for cleanliness and free from obstruction.

(ii) Remove the headcap to check the liquid level. The liquid shall be topped up as necessary.

(iii) The nozzle, strainer and internal discharge tube shall be checked for cleanliness and free from obstruction. Defective items shall be replaced.

(iv) The gas cartridge shall be weighed and the weight checked against that marked on the cartridge. The cartridge shall be renewed if a loss of more than 10 per cent of the contents is recorded.

(v) No corrosion, damage or rust shall be visible either externally or internally. Special attention shall be paid to the concealed parts of the container.

(vi) Before the headcap is replaced and while the gas cartridge is unscrewed therefrom, the plunger or other operating device shall be checked to see that it operates freely. The washer shall be examined and replaced if necessary. The cap shall then be tightly screwed to the container to form a gas-tight joint.

(vii) Test 50 per cent of extinguishers by discharge every year in rotation so that all extinguishers are tested by discharge every two years. Should any extinguisher fail in the test, all cartridges in the remainder shall be replaced. Extreme care shall be exercised during preparing and conducting discharge test. Prior to discharging, the container shall be ensured in good condition such as no corrosion, damage or rust shall be visible externally or internally on any part of the container; otherwise hydraulic pressure test shall then be carried out to confirm the container structurally sound. Should there be doubt about the condition of the container, hydraulic pressure test shall be conducted instead.

(viii) Corroded parts shall be cleaned up and refinished after the hydraulic pressure test.

(ix) Hydraulic pressure test shall be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care shall be exercised when preparing and conducting the test.

(x) Before carrying out hydraulic pressure test, remove the headcap, disconnect the gas cartridge and clear the contents. Never empty the contents by discharging the extinguisher.

(xi) Also, before disposal of unserviceable fire extinguisher, remove the headcap, disconnect the gas cartridge and clear the contents. Never empty the contents by discharging the extinguisher.

(STORED-PRESSURE TYPE)

(i) The pressure indicating device shall be checked to see the correct pressure is being maintained within the extinguisher body.

(ii) The nozzle or branch-pipe (if fitted) and the pressure releasing valve in the cap shall be checked for cleanliness and free from obstruction. Defective items shall be replaced.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

(iii) No corrosion, damage or rust shall be visible externally on any part of the container. Special attention shall be paid to the concealed parts of the container.

(iv) Test 50 per cent of extinguishers by discharge every year in rotation so that all extinguishers are tested by discharge every two years. Should any extinguisher fail in the test, all extinguishers shall be overhauled and recharged.

(v) Prior to recharging, the container shall be ensured in good condition such as no corrosion, damage or rust was noted; otherwise hydraulic pressure test shall be conducted to confirm the container structurally sound.

(vi) Hydraulic pressure test shall be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care shall be exercised when preparing and conducting the test.

(vii) Unserviceable extinguisher shall be discharged prior to disposal.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

III. DRY POWDER TYPE EXTINGUISHERS

Use: On most fires, flammable liquids, metal fires or electrical fires.

Maintenance: This type of extinguisher shall be examined every 12 months and the following maintenance carried out :-

(GAS-CARTRIDGE TYPE)

(i) The vent holes in the cap shall be checked for cleanliness and free from obstruction.

(ii) The extinguisher shall be weighed to check that it contains the correct weight of powder. The weight when fully charged shall be recorded at the time of charging. If the weight is found to have dropped by more than 10 per cent, the dry powder shall be replaced by a fresh charge. Care shall be taken not to mix different types of dry powder because they could react with one another.

(iii) The powder shall be agitated to ensure it is free from caking.

(iv) Remove the headcap to check the condition of powder. The chemical shall be renewed if it is not in good condition.

(v) The nozzle and discharge control (if fitted) shall be checked for cleanliness and free from obstruction. Defective items shall be replaced.

(vi) The gas cartridge shall be weighed and the weight checked against that marked on the cartridge. The cartridge shall be renewed if a loss of more than 10 per cent of the contents is recorded.

(vii) No corrosion, damage or rust shall be visible either externally or internally. Special attention shall be paid to the concealed parts of the container.

(viii) Before the headcap is replaced and while the gas cartridge is unscrewed therefrom, the plunger or other operating device shall be checked to see that it operates freely. The washer shall be examined and replaced if necessary. The cap shall then be tightly screwed to the container to form a gas-tight joint.

(ix) Test 50 per cent of extinguishers by discharge every year in rotation so that all extinguishers are tested by discharge every two years. Should any extinguisher fail in the test, all cartridges in the remainder shall be replaced. Extreme care shall be exercised during preparing and conducting discharge test. Prior to discharging, the container shall be ensured in good condition such as no corrosion, damage or rust shall be visible externally or internally on any part of the container; otherwise hydraulic pressure test shall then be carried out to confirm the container structurally sound. Should there be doubt about the condition of the container, hydraulic pressure test shall be conducted instead.

(x) Corroded parts shall be cleaned up and refinished after the hydraulic pressure test.

(xi) Hydraulic pressure test shall be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care shall be exercised when preparing and conducting the test.

(xii) Before carrying out hydraulic pressure test, remove the headcap, disconnect the gas cartridge and the dry powder shall be collected for subsequent re-cycling/disposal. Never empty the contents by discharging the extinguisher.

(xiii) Also, before disposal of unserviceable fire extinguisher, remove the headcap, disconnect the gas cartridge and the dry powder shall be collected for subsequent re-cycling/disposal. Never empty the contents by discharging the extinguisher.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

(STORED-PRESSURE TYPE)

(i) The extinguisher shall be weighed to check it contains the correct weight of powder. If the weight is found to have dropped by more than 10 per cent, the dry powder shall be replaced by a fresh charge. Care shall be taken not to mix different types of dry powder because they could react with one another.

(ii) The pressure indicating device shall be checked to see the correct pressure is being maintained within the extinguisher body.

(iii) The nozzle or branch-pipe (if fitted) and the pressure releasing valve in the cap shall be checked for cleanliness and free from obstruction. Defective items shall be replaced.

(iv) No corrosion, damage or rust shall be visible externally on any part of the container. Special attention shall be paid to the concealed parts of the container.

(v) Test 50 per cent of extinguishers by discharge every year in rotation so that all extinguishers are tested by discharge every two years. The dry powder shall be discharged to an enclosure for collection and subsequent re-cycling/disposal. Should any extinguisher fail in the test, all extinguishers shall be overhauled and recharged.

(vi) Prior to recharging, the container shall be ensured in good condition such as no corrosion, damage or rust was noted; otherwise hydraulic pressure test shall be conducted to confirm the container structurally sound.

(vii) Hydraulic pressure test shall be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care shall be exercised when preparing and conducting the test.

(viii) Unserviceable extinguisher shall be discharged prior to disposal. The dry powder shall be discharged to an enclosure for collection and subsequent re-cycling/disposal.

Notes:

(a) Dry powder extinguishers must be thoroughly dry internally before they are recharged.

(b) Advice shall be obtained from the Fire Services Department as to the possible reaction between the powder or expellant and the material to protected.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

IV. CLEAN AGENT FIRE EXTINGUISHERS

Use: On electrical fires, flammable liquids, delicate equipment, important documents.

Maintenance: This type of extinguisher shall be examined every 12 months and the following maintenance carried out :-

(PORTABLE TYPE)

(i) The pressure indicating device shall be checked to see the correct pressure is being maintained within the extinguisher body.

(ii) The extinguisher shall be weighed to check against the total weight record when it is put into service. If a loss of weight of more than 10 per cent is detected, the extinguisher shall be discharged to a closed recycling system and returned to the supplier for examination, test and recharging.

(iii) The nozzle or branch-pipe (if fitted) and the pressure releasing valve in the cap shall be checked for cleanliness and free from obstruction. Defective items shall be replaced.

(iv) No corrosion, damage or rust shall be visible externally on any part of the container. Special attention shall be paid to the concealed parts of the container.

(v) If there are signs of damage or external corrosion, the extinguisher shall be discharged to a closed recycling system and returned to the suppliers for examination, test and recharging.

(vi) Hydraulic pressure test shall be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care shall be exercised when preparing and conducting the test.

(vii) Unserviceable extinguisher shall be discharged to a closed recycling system prior to disposal.

(FIXED SPRAYER UNIT)

(i) The pressure indicating device (if fitted) shall be checked to see the correct pressure is being maintained within the extinguisher body.

(ii) The extinguisher shall be weighed to check against the total weight record when it is put into service. If a loss of weight of more than 10 per cent is detected, the extinguisher shall be discharged to a closed recycling system and returned to the supplier for examination, test and recharging.

(iii) The deflector and the sensing element shall be checked and cleaned.

(iv) No corrosion, damage or rust shall be visible externally on any part of the container. Special attention shall be paid to the concealed parts of the container.

(v) If there are signs of damage or external corrosion, the extinguisher shall be discharged to a closed recycling system and returned to the suppliers for examination, test and recharging.

(vi) Hydraulic pressure test shall be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care shall be exercised when preparing and conducting the test.

(vii) Unserviceable extinguisher shall be discharged to a closed recycling system prior to disposal.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

V. FOAM (CHEMICAL) TYPE EXTINGUISHERS

Use: On fires involving flammable liquids.

Never: On electrical fires.

Maintenance: This type of extinguisher shall be examined every 12 months and the following maintenance carried out :-

(i) The nozzle and the vent holes in the cap shall be checked for cleanliness and free from obstruction.

(ii) Remove the headcap to check the liquid levels in the body and in the inner container. Any slight loss may be made up with water; otherwise a new charge shall be used.

(iii) No corrosion, damage or rust shall be visible either externally or internally. Special attention shall be paid to the concealed parts of the container.

(iv) Before the headcap is replaced, the plunger, the headcap lever for the sealing device or other operating device shall be checked to see that it operates freely. The washer shall be replaced if necessary and the cap shall then be tightly screwed to the container to form a gas-tight joint.

(v) Test 50 per cent of extinguishers by discharge every year in rotation so that all extinguishers are tested by discharge every two years. Should any extinguisher fail in the test, all shall be tested by discharge. Extreme care shall be exercised during preparing and conducting discharge test. Prior to discharging, the container shall be ensured in good condition such as no corrosion, damage or rust shall be visible externally or internally on any part of the container; otherwise hydraulic pressure test shall then be carried out to confirm the container structurally sound. Should there be doubt in the condition of the container, hydraulic pressure test shall be conducted instead.

(vi) Corroded parts shall be cleaned up and refinished after the hydraulic pressure test.

(vii) Hydraulic pressure test shall be carried out every five years on the outer container in accordance with the manufacturers' instructions; the inner container shall be examined to ensure it is in good condition and not leaking. Extreme care shall be exercised when preparing and conducting the test.

(viii) Before carrying out hydraulic pressure test, remove the headcap and clear the contents. Never empty the contents by discharging the extinguisher.

(ix) Also, before disposal of unserviceable extinguisher, remove the headcap and clear the contents. Never empty the contents by discharging the extinguisher.

Note:

Inverted type chemical foam extinguishers have ceased production and not permitted for sale. However, products already sold may continue to be used.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

VI. FOAM (MECHANICAL) TYPE EXTINGUISHERS

Use: On fires involving flammable liquids.

Never: On electrical fires.

Maintenance: This type of extinguisher shall be examined every 12 months and the following maintenance carried out :-

(GAS-CARTRIDGE TYPE)

(i) The vent holes in the cap shall be checked for cleanliness and free from obstruction.

(ii) Remove the headcap to check the liquid level. If the liquid level was found to have dropped by more than 10 per cent, the foam concentrate or foam solution as appropriate shall be replaced by a fresh charge.

(iii) The branch pipe, strainer and internal discharge tube shall be checked for cleanliness and free from obstruction. Defective items shall be replaced.

(iv) The gas cartridge shall be weighed and the weight checked against that marked on the cartridge. The cartridge shall be renewed if a loss of more than 10 per cent of the contents is recorded.

(v) No corrosion, damage or rust shall be visible either externally or internally. Special attention shall be paid to the concealed parts of the container.

(vi) Before the headcap is replaced and while the gas cartridge is unscrewed therefrom, the plunger or other operating device shall be checked to see that it operates freely. The washer shall be examined and replaced if necessary. The cap shall then be tightly screwed to the container to form a gas-tight joint.

(vii) Test 50 per cent of extinguishers by discharge every year in rotation so that all extinguishers are tested by discharge every two years. Should any extinguisher fail in the test, all cartridges in the remainder shall be replaced. Extreme care shall be exercised during preparing and conducting discharge test. Prior to discharging, the container shall be ensured in good condition such as no corrosion, damage or rust shall be visible externally or internally on any part of the container; otherwise hydraulic pressure test shall then be carried out to confirm the container structurally sound. Should there be doubt about the condition of the container, hydraulic pressure test shall be conducted instead.

(viii) Corroded parts shall be cleaned up and refinished after the hydraulic pressure test.

(ix) Hydraulic pressure test shall be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care shall be exercised when preparing and conducting the test.

(x) Before carrying out hydraulic pressure test, remove the headcap, disconnect the gas cartridge and clear the contents. Never empty the contents by discharging the extinguisher.

(xi) Also, before disposal of unserviceable fire extinguisher, remove the headcap, disconnect the gas cartridge and clear the contents. Never empty the contents by discharging the extinguisher

(STORED-PRESSURE TYPE)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

(i) The pressure indicating device shall be checked to see the correct pressure is being maintained within the extinguisher body.

(ii) The nozzle or branch-pipe (if fitted) and the pressure releasing valve in the cap shall be checked for cleanliness and free from obstruction. Defective items shall be replaced.

(iii) No corrosion, damage or rust shall be visible externally on any part of the container. Special attention shall be paid to the concealed parts of the container.

(iv) Test 50 per cent of extinguishers by discharge every year in rotation so that all extinguishers are tested by discharge every two years. Should any extinguisher failed in the test, all extinguishers shall be overhauled and recharged.

(v) Prior to recharging, the container shall be ensured in good condition such as no corrosion, damage or rust was noted; otherwise hydraulic pressure test shall be conducted to confirm the container structurally sound.

(vi) Hydraulic pressure test shall be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care shall be exercised when preparing and conducting the test.

(vii) Unserviceable extinguisher shall be discharged prior to disposal.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

VII. FIRE BLANKETS

Use:	On fires involving flammable liquids, such as small fires in the kitchen and laboratory.
Method For Use:	Drape the blanket over the flames to seal off air. Switch off heat and leave in position until cool.
Maintenance:	This blanket shall be examined every 12 months or after use in fire. The following maintenance shall be carried out :-

(i) Check for any deterioration.

(ii) Cleaning in accordance with the manufacturer's instructions as when necessary.

(iii) If manufacturer's instructions are not available, fire blanket can be washed (soak overnight in detergent, gently hand rinse in warm water). Do not machine wash or dry clean.

Remarks:

(i) Fire blankets are classified into two categories, namely:-
"Heavy Duty" fire blankets (BS 7944:1999); and
"Light Duty" fire blankets (BS EN 1869:2019)

(ii) Only "Heavy Duty" and "reusable" fire blankets will be approved as a Fire Services Standard Requirement.

(iii) "Light Duty" fire blankets may be accepted for use on a private basis and shall be disposed of after use.

Checked/Certified by : _____ Certificate No.:_____

(Name of person holding FSI class 3 registration)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.9	Automatic Actuating Devices and Operation of Fire Shutters		
3.9.1	Type		Sizes (mm)
	Single Steel Rolling Shutter	*Yes/No/N.A.	
	Double Steel Rolling Shutter	*Yes/No/N.A.	
	Push-up Type with Lifting Handle	*Yes/No/N.A.	
	Sliding Shutter	*Yes/No/N.A.	
	With Mechanical Gearing	*Yes/No/N.A.	
3.9.2	Installation		
a)	Where automatic self-closing devices are fitted, do they cause no interference to the manual opening and closing of the shutter?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Where smoke detectors are provided for the actuation of the shutter, are they fitted to both sides of the wall opening?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are smoke detectors installed as far as practicable to the provisions of the BS 5839-1:2017?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is permanent nameplate with adequate information provides?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are manual controls provided to both sides of the wall opening?	*Yes/No/N.A.	*Yes/No/N.A.
3.9.3	Shutter Operation		
a)	Does the automatic actuation device function satisfactorily?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does the manual controls function satisfactorily?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is secondary source of electricity supply provided?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the descending speed # of the shutter acceptable?	*Yes/No/N.A.	*Yes/No/N.A.

Descending time shall be within 15-60 seconds for shutters in openings in excess of 2.5 m in height; not faster than 8 seconds for other shutters in openings of height within 2.5 m and that the bottom rail of the shutter shall reach the mid-height in not less than half the total descending time of the shutter

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

3.10 Emergency Generator Installation

		Peak Starting Current (I_L)	Rated Input Power	Starting Method
(A)	Fire service installation			
i)	Fixed fire pump	No. x A	No. x kW	
ii)	Intermediate booster pump	No. x A	No. x kW	
iii)	Transfer pump	No. x A	No. x kW	
iv)	Sprinkler pump	No. x A	No. x kW	
v)	Fireman's lift	No. x A	No. x kW	
vi)	Fire detection system	No. x A	No. x kW	
vii)	Smoke extraction system	No. x A	No. x kW	
viii)	Staircase pressurisation	No. x A	No. x kW	
ix)	Exit sign/emergency lighting	No. x A	No. x kW	
x)	Others :	No. x A	No. x kW	
(B)	Other equipment (please specify)	A	kW	
		A	kW	
		A	kW	
		A	kW	
(C)	Estimated maximum simultaneous starting and running load		kW/ kVA	Remark : DOL/Star-delta/ Auto-transformer/ others

3.10.1 Emergency Generator Set Details

	Alternator	Prime Mover
Make	_____	_____
Model	_____	_____
Serial No.	_____	_____

Rated Capacity Power_____kVA Voltage: *380/220V

Power_____kW Speed_____rpm

Current_____A Power factor_____ Frequency_____Hz

3.10.2 Fuel

Type: [ ] Diesel [ ] other (please specify)

Type of tank: [ ] Built-in [ ] Separate

Separate fuel tank room is provided : *Yes/No

Capacity of service tank : _____l

Capacity of main fuel tank : _____ l

a. Fuel consumption _____ l/hr at full load

b. Fuel consumption curve of generator is attached : *Yes/No

c. Time allowed for max. fuel consumption at full load : _____ hours

d. Fuel storage is sufficient for 6 hrs. generator running to support fire service installation : *Yes/No

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.10.2.1	Has fuel tank room been inspected and approved by FSD Regional Office? (N.B. : Supporting document to be attached)	*Yes/No/N.A.	*Yes/No/N.A.
3.10.2.2	Has surveyor report for fuel tank been obtained as required by FSD Dangerous Goods Division?	*Yes/No/N.A.	*Yes/No/N.A.
3.10.2.3	Has DG licence for fuel tank room holding more than 2,500 litres diesel (or as approved) been obtained? (N.B. : Supporting document to be attached)	*Yes/No/N.A.	*Yes/No/N.A.
3.10.2.4	Emergency generator for fire service installations is located in separate room	*Yes/No/N.A.	*Yes/No/N.A.
3.10.3	Visual Inspection		
a)	Is adequate space (not less than 600 mm) provided all round emergency generator for maintenance/cleaning?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are air supply and discharge ductworks (if any) provided free from obstruction?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are air supply and discharge ductworks running in compartment other than emergency generator room enclosed with proper fire resisting material?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is service fuel tank in generator room made of 3 mm steel construction and of capacity less than 500 litres?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is generator built-in fuel tank not greater than 500 litres?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is fuel tank electrically earthed?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is a baffle wall of brick-work construction or of 9 mm metal sheet provided between the side of service tank (if installed) and generator, serving as a screen wall between the two?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is fuel refilling pump connected to secondary power supply?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is a shut off valve provided on the supply pipe from fuel tank to the service tank of generator?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Is capacity of battery capable of starting the generator 4 times consecutively and calculation sheet enclosed? (capacity : _____Ah)	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are the batteries kept in fully charged condition and is the trickle charge operating?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	Inside emergency generator room :		
l)	Is door sill of sufficient height provided to contain the total fuel contents of the service tank (if installed), fuel tank and sump of the generator?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are detailed operation instructions displayed?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Is a log book provided?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Is integrity of the FRP construction of generator room and the door intact?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Are the notices “Emergency Generator” and “No smoking” in 120 mm English and Chinese characters provided at the entrance to the emergency generator room?	*Yes/No/N.A.	*Yes/No/N.A.
3.10.4	Functional Testing		
a)	Can the manual starting facilities of the emergency generator operate satisfactorily?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Upon failure of normal electricity supply or a reduction of voltage to less than 70% of, will emergency generator:		
	(i) Automatically starts when the duration of power failure exceeds 1 second?	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Transfers to FS loads within 15 seconds?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is emergency generator capable of re-starting upon failure of first attempt in starting?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are audible and visual alarms given locally, and at fire control main panel when the generator starting sequence is locked out due to starting failure?	*Yes/No/N.A.	*Yes/No/N.A.
e)	After one hour of running test, do all instruments, safety devices, etc. indicate “normal” condition?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Will the generator set continue to run after a pre-determined time recommended by manufacturer unless it is stopped manually if the normal power supply has resumed?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are all testing carried out with generator room doors kept closed?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is warning signal given locally and at fire control main panel when manual/auto selector switch turn to manual position? (N.B. such provision is strongly recommended)	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is remote control valve on supply pipe to the service tank in good working order?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
j)	Are all moving parts effectively and rigidly guarded for safety?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are all hot parts properly insulated?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Is any exhaust leak detected inside generator room while the generator is running?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is actual loading or dummy load provided to carry out a simulated full load test?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Does emergency generator start at full load?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Does emergency generator pass the running test at full load?	*Yes/No/N.A.	*Yes/No/N.A.

Checked/Certified by : _____ Certificate No.:_____

(Name of electrical worker) Class :_____

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.11	Emergency Lighting & Exit Signs		
3.11.1	Visual Inspection		
a)	Are emergency luminaires provided in accordance with approved drawings?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are exit and directional signs provided in accordance with approved drawings and in each escape routes?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are there not less than two emergency luminaires in each space?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are centrally supplied emergency luminaires and self-contained emergency luminaires provided in accordance with approved drawings?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are emergency luminaires of approved type provided?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are exit and directional signs of approved type provided?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are self-contained exit signs and centrally supplied exit signs provided in accordance with approved drawings?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are the batteries for self-contained emergency luminaires and exit signs sealed nickel metal hydride type or an approved type?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are the batteries for centrally supplied emergency luminaires an approved type?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Is separate control or separate system provided for maintained type emergency luminaires and non-maintained type emergency luminaires for centrally supplied system?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Is calculation for the battery and charger capacity submitted for centrally supplied emergency luminaires system?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Is testing facilities provided for emergency luminaires and exit signs for weekly, monthly and annual tests?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are bar code labels provided to the battery lighting and central battery system?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are approved labels attached to the self-contained emergency luminaires which are identical in appearance to the general luminaires?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Is centrally monitoring, testing and logging system provided as specified? (Type : _____)	*Yes/No/N.A.	*Yes/No/N.A.
p)	Are the wirings in concealed conduits or of fire resistance type in accordance with the G.S.?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
q)	Does the exit sign comply with FSD requirements (letter sizes and colour)?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Is single type of exit sign installed within the same development or project?	*Yes/No/N.A.	*Yes/No/N.A.
s)	Are exit signs and directional signs installed with LED lamps as per the requirements of Clause 8.1.11.2 of the G.S.?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Are the emergency lighting and exit sign connected to emergency generator power supply?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Is the premise a place of public entertainment and the specific requirements followed?	*Yes/No/N.A.	*Yes/No/N.A.
v)	Is license or exemption for self-luminous sign illuminated by tritium or other radioactive source obtained from the Radiation Board? (remark: Self-luminous signs are not recommended for use)	*Yes/No/N.A.	*Yes/No/N.A.
w)	Are self-luminous signs illuminated by tritium or other radioactive sources indelibly marked at its lower corner to indicate the radiation hazard and the expiration date (Month/Year) of the sign for easy identification purposes and have a label at its back giving instruction or warning to users on the proper method of disposal as required by the Radiation Board?	*Yes/No/N.A.	*Yes/No/N.A.
x)	Are exit and directional signs positioned between 2 m and 2.5 m above floor level measured to the base of the sign?	*Yes/No/N.A.	*Yes/No/N.A.
y)	Is there any dark out LED cell(s) in LED exit and directional signs?	*Yes/No/N.A.	*Yes/No/N.A.
z)	Have the provision of emergency illumination from at least two luminaires, to facilities for use by disabled people regardless its size, been given.	*Yes/No/N.A.	*Yes/No/N.A.
3.11.2	Testing and Commissioning		
3.11.2.1	Emergency Lighting		
a)	Acceptance Testing		
	Do the installations comply with BS5266-1, BS EN 50172, BS EN 1838, BS EN 60598-1, BS EN 60598-2-22 and the requirements of the FSD and Buildings Department?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Discharge Test		
	(i) A discharge test, for 1 minute at the 10-hour discharge rate to be carried out on the battery of the emergency lighting, and the results to be entered in a register.	*Yes/No/N.A	*Yes/No/N.A

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
(ii)	For emergency lighting supplied by central battery systems with control and safety devices installed, the systems to be checked for the following :		
(1)	Connections between the battery and the source of charging current to be such that in no circumstances shall the battery discharge other than to the secondary lighting circuits.	*Yes/No/N.A	*Yes/No/N.A
(2)	A rectifier for battery charging to be for that purpose only and to be so regulated that the battery cannot discharge appreciably under normal conditions.	*Yes/No/N.A	*Yes/No/N.A
(3)	Voltage and hydrometer tests to be carried out and recorded in a register.	*Yes/No/N.A	*Yes/No/N.A
c)	Functional Test		
(i)	Do the emergency luminaires activated automatically within 5 seconds or within such shorter time specified elsewhere in the General Specification when normal supply is interrupted (G.S. Clause 8.1.11.1)?	*Yes/No/N.A	*Yes/No/N.A
(ii)	Do the lamp test button/other automatic emergency lighting testing facilities function as designed?	*Yes/No/N.A	*Yes/No/N.A
(iii)	Do the maintained type and non-maintained type emergency luminaires function as designed?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Performance Test		
(i)	Is the illumination level adequate when all emergency lightings are on using battery supply (at 5 s after power failure and at 60 s after power failure)?	*Yes/No/N.A	*Yes/No/N.A
(ii)	Is the illumination level adequate throughout and at the end of discharge test for the rated duration (G.S. Clause 8.1.11.1 and 8.3.1.6)?	*Yes/No/N.A.	*Yes/No/N.A.
(iii)	Can the battery be recharged to full load condition within specified period after the discharge test (24 hours in general, 12 hours for cinemas, theatres, etc.)?	*Yes/No/N.A	*Yes/No/N.A
(iv)	Does the central monitoring, testing and logging system perform as specified (G.S. Clause 8.1.11.1.7)? (Remark: Detailed testing and commissioning procedures to be submitted by the Contractor for approval.)	*Yes/No/N.A	*Yes/No/N.A

3.11.2.2 Exit and Directional Signs

a) Acceptance Testing

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	Does the installation comply with BS 5499 and BS 5266-1 and FSDCoP?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Discharge Test		
(i)	A discharge test, for 1 minute at the 10-hour discharge rate to be carried out on the battery, and the results to be entered in a register.	*Yes/No/N.A	*Yes/No/N.A
(ii)	For installation supplied by central battery systems with control and safety devices installed, the systems to be checked for the following :		
(1)	Connections between the battery and the source of charging current to be such that in no circumstances shall the battery discharge other than to the secondary lighting circuits.	*Yes/No/N.A	*Yes/No/N.A
(2)	A rectifier for battery charging to be for that purpose only and to be so regulated that the battery cannot discharge appreciably under normal conditions.	*Yes/No/N.A	*Yes/No/N.A
(3)	Voltage and hydrometer tests to be carried out and recorded in a register.	*Yes/No/N.A	*Yes/No/N.A
c)	Functional Test		
(i)	Is the illumination continuous during normal power supply?	*Yes/No/N.A	*Yes/No/N.A
(ii)	Is the illumination maintained automatically when normal supply is interrupted (within the time as specified)?	*Yes/No/N.A	*Yes/No/N.A
(iii)	Does the lighting testing facilities function as designed?	*Yes/No/N.A	*Yes/No/N.A
d)	Performance Test		
(i)	Is the illumination level adequate when all signs are on using battery supply?	*Yes/No/N.A	*Yes/No/N.A
(ii)	Is the illumination level adequate throughout and at the end of the discharge test for the rated duration?	*Yes/No/N.A	*Yes/No/N.A
(iii)	Can the battery be recharged to full load condition within specified period after the discharge test for the rated duration?	*Yes/No/N.A	*Yes/No/N.A
(iv)	Is the illumination of acceptable level in theatres, cinemas, etc. and other specified premises used for entertainment?	*Yes/No/N.A	*Yes/No/N.A

Checked/Certified by : _____ Certificate No.:_____

(Name of electrical worker) Class :_____

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.12	Ventilation and Air-conditioning (VAC) Control System		
3.12.1	System Data		
3.12.1.1	Method of overriding control (Refer to para. 5.27 in C.O.P for Minimum F.S.I. & Equipment and FSD Circular Letter No. 2/2005): Method * A/B/C/D combination of		
3.12.1.2	Shut down of the MVAC systems utilising: * Conventional AFA/ Addressable AFA/ BMS/ CCMS/ Probe type detector		
3.12.1.3	On/Off status monitoring of MVAC systems at: FS Control Room/B.M. Office/MVAC Control Console		
3.12.2	Visual Inspection		
3.12.2.1	MVAC layouts		
a)	For override control method "A" (Methods refer to FSDCoP), are the compartments for the purpose of fire protection clearly identified?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Do the sizes and flow rates of the MVAC systems and associated air ducts tally with the FSD endorsed MVAC layouts?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are all the MVAC systems required to be included in the VAC control system highlighted on the air-side schematic diagram?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are all the interlocking MVAC systems highlighted?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are the supply/ return/ intake/ exhaust points installed at the correct level?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the Smoke Extraction/ Pressurisation of Staircases/ Toxic Air Extraction/ Kitchen Ventilation/ Fume Cupboard Ventilation excluded from the VAC control system?	*Yes/No/N.A.	*Yes/No/N.A.
3.12.2.2	Probe-type Smoke Detector		
a)	Are the probes installed at appropriate positions that smoke can be effectively collected and released (i.e. not at bends of air duct)?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
b)	Are the probes length (>2/3 duct width in most products) and model appropriate?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the pair of smoke collecting and releasing probes installed correctly in relative positions as recommended by the manufacturers and that adequate pressure difference can be achieved for effective smoke collecting?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are the filters at the end of the smoke collecting/ releasing probes clean and properly installed?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is the smoke collecting probe installed in such a way that the smoke collecting holes are facing the air stream being detected?	*Yes/No/N.A.	*Yes/No/N.A.
3.12.2.3	Manual Override Switch		
a)	Is it provided adjacent to but without damaging to the Fire Alarm Control Panel of the building and easy to operate?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is durable label with proper wordings in Chinese and English provided for identification?	*Yes/No/N.A.	*Yes/No/N.A.
3.12.3	Testing and Commissioning		
3.12.3.1	Manual Override Switch		
a)	Can all the MVAC systems involved in the VAC control system be shut off when this switch is activated?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does any breakage in circuit wiring of this switch cause the above MVAC systems to shut down?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are the above MVAC systems unable to resume operation while fire signal still exists?	*Yes/No/N.A.	*Yes/No/N.A.
3.12.3.2	Probe-type Smoke Detector		
a)	Does the MVAC system shut down or fault signal indicated on the panel when the detector head is removed from its mounting base?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does the MVAC system shut down or fault signal indicated on the panel when the power supply to the detector is lost?	*Yes/No/N.A.	*Yes/No/N.A.
3.12.3.3	MVAC System		

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
a)	Each MVAC system shall operate steadily to its rated speed and capacity first. Smoke is generated and conveyed to the lower pressure side of the MVAC system or air duct where it can be collected and detected. After a reasonably short period of time, the MVAC system must be able to shut down and a signal will be relayed to the F.S. Panel in the F.S. Control Room. All other MVAC systems installed within and serving the same compartment must also be shut down through interlocking arrangement. No MVAC system can resume normal function unless the fire signal registered has been cleared. (Test records on Part 4, 4.11 Table 1)	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is the VAC control system design for the MVAC system fail-safe?	*Yes/No/N.A.	*Yes/No/N.A.

3.12.3.4 Central Mechanical Fresh Air Supply and/ or Exhaust Systems

a)	The central fresh air supply and/ or exhaust system shall be shut down.	*Yes/No/N.A.	*Yes/No/N.A.
b)	The central fresh air supply and/or exhaust system shall not require to be shut down but the fresh air and/or exhaust to the affected compartment/unit shall be closed off from the central system by actuation of a local motorised smoke damper.	*Yes/No/N.A.	*Yes/No/N.A.
c)	Shut down of the mechanical ventilating systems utilising a multiplex automatic fire alarm or Building Automation System shall be permitted so long as the multiplex system is on the Fire Services Department list for this type of equipment/system.	*Yes/No/N.A.	*Yes/No/N.A.

3.13 Pressurisation of Staircases System

(Note: VAC control, building envelope and the floor finishes under subject staircase doors must be completed before T&C)

Working / Design Drawing Ref. :

System Design Calculation Ref. :

System Operating Principles & Sequence Ref. :

(Note: As-fitted drawings, and the formal documents showing the system design calculation and the system operating principles & sequences must be ready and available on the Site at the time of T&C)

3.13.1 Requirements of Pressurisation of Staircases System

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

a)	Designation of pressurised staircase (the designation shall be the same as the building plan & F.S. drawing & test report)	_____	
b)	Pressurised space :		
	- Escape staircase; or	*Yes/No/N.A.	*Yes/No/N.A.
	- Fire fighting staircase.	*Yes/No/N.A.	*Yes/No/N.A.
c)	Equipment to be provided :		
	- Single fan with motor: or	*Yes/No/N.A.	*Yes/No/N.A.
	- Duplicated fans complete with motors: or	*Yes/No/N.A.	*Yes/No/N.A.
	- Single fan with duplicated motors: or	*Yes/No/N.A.	*Yes/No/N.A.
	- Others : _____	*Yes/No/N.A.	*Yes/No/N.A.
d)	Design air velocity passing through the door between pressurised space and accommodation area	_____ m/s	
e)	Design differential pressure between the pressurised space and accommodation	_____ Pa	
f)	Design door opening force	_____N (≦100N)	

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.13.2	Visual Inspection		
3.13.2.1	General		
a)	Are FSD approved working/design drawings available?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is FSD approved document on system design calculation available?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the formal document on system operating principles / sequences available?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are approved procedures for testing & commissioning enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are the following documentations enclosed?		
	i) Equipment list of staircase pressurisation system complete with related test reports;	*Yes/No/N.A.	*Yes/No/N.A.
	ii) Equipment list of builder's work (such as doorset, door closer & etc) complete with related test reports;	*Yes/No/N.A.	*Yes/No/N.A.
	iii) Certifying the building air tightness condition during the testing is equivalent to the occupation condition.	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are the following staircase pressurisation working drawings tally with the approved/agreed building plans?		
	i) Classifications of pressurised spaces for means of escape / fire fighting & rescue;	*Yes/No/N.A.	*Yes/No/N.A.
	ii) Designations of staircase number and fireman's lift number, fire fighting access number;	*Yes/No/N.A.	*Yes/No/N.A.
	iii) Locations of staircase pressurisation plant rooms;	*Yes/No/N.A.	*Yes/No/N.A.
	iv) Fire resisting of plant rooms is same as the pressurised space;	*Yes/No/N.A.	*Yes/No/N.A.
	v) Air intake positions;	*Yes/No/N.A.	*Yes/No/N.A.
	vi) Discharge positions of overpressure relief.	*Yes/No/N.A.	*Yes/No/N.A.
g)	Simplified schematic diagram for all staircase pressurisation systems shall be provided adjacent to the staircase pressurisation control panel.	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is the complete installation, including all equipment, components and wiring, approved by the Supervising Officer and accepted by the Fire Services Department?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are all submissions to FSD certified and signed by Registered Professional Engineer under CAP 409?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are the fan motors duplicated with belt connected for duty and standby used for buildings with more than one pressurised staircase?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
k)	Are sleeping risk premises and where designated by the Director of Fire Services, provided with a single pressurised staircase, duplicate fans and motors?	*Yes/No/N.A.	*Yes/No/N.A.

3.13.2.2 Staircase Pressurisation Fan

Fan / Motor Set Data :		Single Supply Fan		Multiple Supply Fan			
		Duty Motor	Duplicated Motor	No. 1 Duty Fan	No. 1 Standby Fan	No. 2 Duty Fan	No. 2 Standby Fan
Location							
Manufacturer	Fan						
	Motor						
Model	Fan						
	Motor						
Serial No.	Fan						
	Motor						
Motor power (kW)							
Nominal fan power(kW)							
Design Flow rate (l/s)							
Design Pressure (kPa)							
Starting method							

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
a)	Is pressurisation fan & motor supplied from one single proprietary manufacturer specialised in the manufacture of the pressurisation of staircases system?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the rotating parts of fan/motor set protected by safety guard?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is nominal fan motor power rated at 20% higher than the required hydraulic power?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the insulation of motor windings capable of operating at design conditions for a period of one hour in an ambient temperature of 250 °C?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are emergency lock-off buttons provided adjacent to fan motors and easily accessible for operation and with visual and audible indication on the panel when the fan is locked?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are pressurisation fan motors protected with HRC fuses?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are staircase pressurisation fans connected with an approved secondary power supply?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are starting instructions for pressurisation of staircases system prominently displayed in the fan room with a glass front frame?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are the fans installed in a separate fire resistant plant room or enclosed by fire resistant enclosure with an FRP not less than that of the staircase served?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are doors to fan rooms clearly labelled "STAIRCASE PRESSURISATION FAN ROOM"?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are doors to fan room provided with key locking devices?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are door(s) to fan room provided with automatic door closer(s)?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are fan room(s) clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Shall the plant room housing the staircase pressurisation fans contain no other services?	*Yes/No/N.A.	*Yes/No/N.A.
3.13.2.3	Air Intake		
3.13.2.3.1	For air intake not located at roof floor		
a)	Is notice in Chinese & English characters with “Staircase pressurisation intake for (pressurisation space)” provided?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is position of air intake located away from any potential fire hazards (such as basement smoke vent)?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
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		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
c)	Is air duct provided from the intake to the fan when air intake is distant from the fan?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is smoke detector of a type suitable for use in air duct / plenum installed?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Can the pressurisation system be shut down when the duct type smoke detector is activated?	*Yes/No/N.A.	*Yes/No/N.A.
3.13.2.3.2	For air intake located at roof floor		
a)	Are two air intakes, which spaced apart and facing different directions, provided?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is each intake capable of providing the full air requirements of the system?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is independently operated smoke control damper with duct type smoke detector provided at each intake?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is override switch to reopen the closed damper and to close the open damper provided?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is no smoke discharge within 5 m of any direction of air intake?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is notice in Chinese & English characters “Staircase pressurisation intake for (pressurisation space)” provided?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is air duct provided from the intake to the fan when air intake is distant from the fan?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is smoke control damper properly actuated when the duct type smoke detector is activated?	*Yes/No/N.A.	*Yes/No/N.A.
3.13.2.4	Ductworks and Air Injection Point		
a)	Are multiple injection points provided when the pressurised staircase exceeds 11m?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is vertical distance between injection points not greater than 12 m or three storeys?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are volume control dampers of air injection points properly secured?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is injection duct work passing through other fire compartment constructed to have the same FRP required for either the pressurised space or the compartment through it passes, whichever is the greater?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is injection point of a single injection point system away from the final exit door?	*Yes/No/N.A.	*Yes/No/N.A.

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Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
f)	Does ductwork construction complied with or not less than DW144 standard?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is aluminium sheet and aluminium pop rivet not provided in flat oval duct longer than 1 m?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are pressurisation ductworks and associated fittings constructed with flange joints for future ease of dismantling?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are gaps / spaces between ductwork and wall openings filled with approved sealant?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Is there NO section of ductwork embedded in concrete structure?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are adequate hot-dipped galvanised duct hangers or supports provided as required?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are duct hangers and supports rigidly fixed and in good conditions?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are expansion duct joints provided at locations through building expansion joints?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Is equipotential bonding provided for the ductwork?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Is the system NOT equipped with fire / smoke dampers or any other restrictions along the passage of supply & exhaust air in accordance with the approved drawings?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Is certified leakage test report of ductwork (DW143 and DW144 as approved) including concrete air duct works and shafts for supply air purposes enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Do sizes of air duct, discharge outlet and pressure relief damper sizes tally with drawings?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Are testing points/facilities provided in the installation?	*Yes/No/N.A.	*Yes/No/N.A.
3.13.2.5	Air Release System		
a)	Does spread of smoke between different fire compartments not likely happen in both normal operation and fail-safe mode?	*Yes/No/N.A.	*Yes/No/N.A.
b)	When the operation of air release system is automatic, is it actuated by the same detector / device that actuates the rest of the pressurisation system?	*Yes/No/N.A.	*Yes/No/N.A.
c)	When the accommodation space is partitioned or compartmented into offices or similar unit, is the air relief vent provided at :-		

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	i) between the door into pressurised space and the start of the partitioning? or,	*Yes/No/N.A.	*Yes/No/N.A.
	ii) on each office & unit, the size of each air relief vent is capable of discharging the total air flow from the pressurised space?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is air release vent located at or immediately below ceiling level?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Type of air release system :		
	- Vertical Shaft (go to item (f) – (g)); or	*Yes/No/N.A.	*Yes/No/N.A.
	- Special vents at the building periphery (go to item (h) – (j)); or	*Yes/No/N.A.	*Yes/No/N.A.
	- Mechanical air release (go to item (k) – (m)) .	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is top vent provided at the vertical shaft?		
g)	When the shaft is designed for dual purpose, is automatic control fire & smoke damper (note: fusible link type fire & smoke damper is NOT acceptable) provided at each branch duct?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are special vents for external vent provided on at least two sides of the sealed building?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is fail safe protection provided to the ventilator?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are components of ventilator in full compliance with BS7346-1/ BS7346-2?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Is extraction flow rate greater than the total pressurised air flow rate of all served staircase pressurisation systems?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Is extraction system including ductwork capable of working at the appropriate temperature and period of time (250^{o}C for 1 hour for building with sprinkler system, 600^{o}C for 2 hours for building without sprinkler system)?	*Yes/No/N.A.	*Yes/No/N.A.
m)	When the central exhaust system also serves for mechanical air release,		
	i) is component & ductwork of central exhaust system capable of working at the appropriate temperature and period of time (250^{o}C for 1 hour for building with sprinkler system, 600^{o}C for 2 hours for building without sprinkler system)? and,	*Yes/No/N.A.	*Yes/No/N.A.
	ii) when the related pressurisation system is actuated, is the function of VAC control system and VAC manual override switch for shutting down the central exhaust system deactivated? and,	*Yes/No/N.A.	*Yes/No/N.A.
	iii) for pressurisation system for fire fighting, is the local motorised smoke damper in fire floor opened and dampers for other compartments / units closed? or,	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
		Date :	
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		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	iv) for pressurisation system for escape, are the local motorised smoke dampers in fire floor and two above floors opened and dampers for other compartments / units closed?	*Yes/No/N.A.	*Yes/No/N.A.
3.13.2.6	Over-Pressure Relief System		
a)	Type of over pressure relief system -automatic opening of external exit doors on operation of the fan; (go to (b) and (c)) -barometric pressure relief vents/damper; -Mechanical exhaust go to (j))	[ ] [ ] or [ ] or	
b)	Door lock, latch, bolt, push bar & etc. are not provided at the external exit doors?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Warning label: “Over pressure relief door. Do not obstruct” (超壓時放壓門，不要阻塞) is provided in English and Chinese characters at the external exit doors?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are the outlets clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is the system provided with “over pressure” prevention?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are the pressure relief outlets of automatic mechanical type and free to swing?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is the framework of pressure relief damper of 3.2 mm stainless steel rigid channel section or of approved design?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is wire mesh provided at the external opening of relief vent / damper?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is relief vent / duct passed through other fire compartment enclosed by fire rated material and is the FRP the same as the pressurised space or passed through fire compartment, whichever is greater?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Is free area of relief vent / damper “A_X” $\geqq$ 0.16 m^2 x (total required airflow (m^3/s) through the open doors – air supply satisfying the pressure differential requirement (m^3/s) in pressurised space)? *(Ref: See equation (24) of section 14 of BS 5588: Part 4)*	*Yes/No/N.A.	*Yes/No/N.A.
k)	Fan can be activated by differential pressure sensor?	*Yes/No/N.A.	*Yes/No/N.A.
3.13.2.7	Pressure Sensor		
a)	Is the pressure sensor operated at normal ambient conditions ($\geqq$ 40 °C & 99 % R.H.)?	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
b)	Are the pressure sensors and its associated equipment of industrial process grade conforming to BS EN 60654-4 or equivalent?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is separate pressure differential system provided for each pressurised system?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is end of pressure sensing tube properly terminated at the pressurised space and accommodation with proper mechanical protection?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is label of "Sensing point of staircase pressurisation system" "樓梯增壓系統感應點" clearly indicated in English and Chinese characters provided?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the pressure sensing unit(s) connected with fire rated cables of high temperature grade to BS 6724 suitable for operating at 250 °C?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is the high temperature grade fire rated type cable enclosed in galvanised steel conduit and run within the pressurised space in the fire resistance duct?	*Yes/No/N.A.	*Yes/No/N.A.
3.13.2.8	Electrical Wiring / Fire Resisting Cable		
a)	Are the power supply cables for pressurised system, controller, pressure sensor & etc in full compliance with :-		
	- BS 6387 Cat CWZ? or,	*Yes/No/N.A.	*Yes/No/N.A.
	- BS 6207 or BS EN 60702? or,	*Yes/No/N.A.	*Yes/No/N.A.
	- other international standards (_____) acceptable to the Director of Fire Services? or,	*Yes/No/N.A.	*Yes/No/N.A.
	- criteria for exemption as mentioned in the FSDCoP?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the binding tapes used for the cables of flame retardant?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are the cables installed in cable trays or other approved supports, and fastened by approved fasteners or clamps specially designed and constructed for the purpose?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are the cables installed outside the pressurised staircase enclosed by fire resistant enclosure with FRP not less than that of the compartment served or 2 hrs FRP, whichever is the higher?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are the cables enclosed with protective enclosures to reduce the likelihood of failure due to external effects – mechanical, electrical or physical?	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
f)	Are electrical supplies for all equipment (such as fans, air relief damper, over-pressure device, controller, supervisory panel & etc) fed with an approved secondary source power supply?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is the electrical wiring system tested satisfactorily in accordance with the T&C Procedure for Electrical Installation and the Electricity Ordinance?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are power supplies for the differential pressure sensors, control, overpressure devices, air release devices distributed from the sub-circuit of staircase pressurisation system?	*Yes/No/N.A.	*Yes/No/N.A.
3.13.2.9	Control Panel		
a)	Is the control panel provided for each pressurisation of staircases system and located adjacent to the fire control panel?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is the control panel for each pressurisation of staircases system normally manned or installed in accordance with the approved drawings?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Requirements of the main switchboard and/or local control panel:-		
	i) Is the construction complying with BS EN 61439-1: and BS EN 61439-2: and fabricated from not less than 2 mm panel steel and installed in a room having (_____) hour FRP (including self-closing doors) without other equipment installed therein; or,	*Yes/No/N.A.	*Yes/No/N.A.
	ii) Are all controls, starters, relays, etc suitable for continuous operation at 250°C for not less than 1 hour?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Does the control panel incorporate the necessary switches with same method/direction of operation?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Does the control panel incorporate the necessary relays, timers, key type switches, alarm and trouble lights essential to the operation of the system?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the indicator light actuated by devices that sense the effective operation of the relevant components (i.e. airflow switch / air pressure switch) of the pressurisation system?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Does the control panel incorporate manual override facility with manual reset & are audio / visual indications provided?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is the pressurisation of staircases system operated via the actuation of manual override facility?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are all switches and indicators clearly labelled (red letters on white background, not less than 3 mm high) to indicate the operating positions and systems served?	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
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		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
j)	A further label shall be provided with letters not less than 6 mm high stating that the controls shall be operated by authorised personnel.	*Yes/No/N.A.	*Yes/No/N.A.
k)	Switches for all staircase pressurisation systems shall be grouped in one area of the panel together with those for smoke extraction systems or the like. On/Off switches for each fan shall be provided.	*Yes/No/N.A.	*Yes/No/N.A.
l)	All switches shall have the same method/direction of operation.	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is the cubicle type motor control panel tested satisfactorily in accordance with the T&C Procedure for Electrical Installation and the Electricity Ordinance?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Is manual override switch provided on local fan control panel locked in "Automatic control" position?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Is an indication signal transmitted to the supervisory control panel, when local fan control panel is in manual control mode?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Is the signalling test for the control panel remain satisfied including power status, normal and fire mode status, motorised fire and smoke dampers status, duct type smoke detector status, fan running and motor failure, manual operation and power failure?	*Yes/No/N.A.	*Yes/No/N.A.
3.13.2.10	Miscellaneous		
a)	Are all ductworks, metal works, wirings and equipment properly painted for identification?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are door sets (i.e. doors, frames and ironmongery hardware) complying with Building Authority's requirement and suitable for use continuously at 35 °C and 100% RH, and with certificates enclosed as required?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are all components, materials and workmanship complying fully with the requirements of FSDCoP?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Does compartmentation of pressurisation plant room tally with that of the staircase served?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are warning / instruction notices provided at entrance & inside the protected areas that are normally occupied?	*Yes/No/N.A.	*Yes/No/N.A.
f)	If, however, except for sleeping risk premises, is the total air requirement for each pressurised staircase made up from two or more separate supplies acting together (e.g. top and bottom plants)? (If yes, then no further duplication of equipment is necessary)	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are all doors sets (i.e. doors, frames and hardware) providing access to or from any pressurised staircase to the satisfaction of the Building Authority?	*Yes/No/N.A.	*Yes/No/N.A.

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		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
h)	Are supplementary gaskets to assist in preventing smoke leakage NOT provided? NO supplementary gasket shall be allowed?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are self closers provided for all the doors to ensure integrity of the enclosure? The closers shall have been part of a "door, door frame and ironmongery" test assembly which has successfully passed the test in accordance with British Standard 476: Part 22? Are the closers of such a design that they cannot be defeated i.e. no removable pins or bolts, etc.?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Is the minimum FRP for the enclosure of the pressurisation E&M plant equal to or greater than the pressurised space served (FRP of enclosure is _____ hrs.)?	*Yes/No/N.A.	*Yes/No/N.A.
k)	When plant room served more than one pressurisation system, is separate fire rated enclosure provided to each pressurisation system in order to maintain fire compartmentation between different pressurised spaces?	*Yes/No/N.A.	*Yes/No/N.A.
l)	When fan room is used as an air plenum, are all the control panels located outside the fan room, or protected by fire resistant enclosure(s)?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are door sets installed in such a manner to be smoke leakage proof?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are all joints between frames & building structure provided with sealants in compliance with BS 476: Part 23?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Is finished sill under the closed doors wear resistant?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Notice plates according to FSD Circular Letter No.8/2021:-		
	i) For every staircase protected by pressurisation of staircases system, are notice plates firmly affixed at a conspicuous position outside the final exit, inside and outside the exit on the top floor and inside and outside the exit/entrance of the staircase(s) on the refuge floor?	*Yes/No/N.A.	*Yes/No/N.A.
	ii) Are the notice plates bilingual bearing the words "Staircase Pressurization Class A/B*" and "樓梯增壓 A/B 類*" with letter height not less than 50 mm and painted in red on a white or stainless steel background as shown in the Figure I of the circular letter?	*Yes/No/N.A.	*Yes/No/N.A.
	iii) Is a red indicator light provided as shown in the Figure I of the circular letter and is on while the supply fan of the pressurisation of staircases system is in operation?	*Yes/No/N.A.	*Yes/No/N.A.

3.13.3 Testing and Commissioning

3.13.3.1 Mode of Operation

a)	Is pressurisation of staircases system automatically activated?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
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		Date :	
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		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
b)	Does the system actuate directly from the local automatic fire alarm control panel and remain in operation? (Refer to FSDCoP)	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are manual reset and monitoring provision with audio / visual indications provided? (Refer to FSDCoP)	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is pressurisation of staircases system monitored by BMS/BAS/CCMS?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is pressurisation of staircases system isolated from BMS/BAS/CCMS under "fire" mode?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the fan just be stopped by switching off at the fan control rather than by any automatic means?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are non-return damper(s) provided to prevent backflow between parallel connected multiple pressurised fans?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is there no transmission of actuating signals for the staircase pressurisation system effected by multiplex or similar devices unless such devices have the approval or certification of one of the Testing Authorities recognised by the Fire Services Department?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are all systems automatically actuated and remained in operation? Is it able for manually reset and monitored by audio and visual indication? Are actuation of all systems directed from the local automatic fire alarm panel whenever that panel transmits a 'Fire' signal to the Fire Service Communication Centre?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Where any building or that portion of a building immediately adjacent to a designated pressurised staircase is not provided with a smoke detection system, are smoke detectors installed at a distance not exceeding 1 m from and outside the access doors to the staircase or its approach lobbies to activate the system?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Is variable flow control for fan(s) adopting for "normal" operating mode?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Is (Are) frequency controller(s) provided for pressurisation fan(s) in order to achieve the variable flow volume?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is (Are) modulating control bypass damper(s) provided for pressurisation fan in order to achieve the variable flow volume?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Is performance test carried out and is the test result satisfactory?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Is measurement of door opening force carried out and is the result satisfactory?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Is measurement of differential pressure across the pressurised space and accommodation carried out and is the result satisfactory?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
q)	Is measurement of pressurised air flow carried out and is the result satisfactory?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Is the air intake fire/ smoke damper closed when the duct type smoke detector is activated? or	*Yes/No/N.A.	*Yes/No/N.A.
s)	Is the staircase pressurisation system shut down when the duct smoke detector at air intake is activated (for the air intake only facing in one direction)?	*Yes/No/N.A.	*Yes/No/N.A.
t)	In order to prevent overpressure in pressurised space, is fail safe protection for over-pressure release provided on conditions of :-		
	i) failure of controller?	*Yes/No/N.A.	*Yes/No/N.A.
	ii) failure of pressure switch?	*Yes/No/N.A.	*Yes/No/N.A.
	iii) failure of wiring of pressure switch?	*Yes/No/N.A.	*Yes/No/N.A.
	iv) failure of actuator of by-pass damper?	*Yes/No/N.A.	*Yes/No/N.A.
	v) failure of wiring of actuator (by-pass damper)?	*Yes/No/N.A.	*Yes/No/N.A.
	vi) failure of over pressure exhaust fan?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Are the following functional tests of actuation in order?		
	i) by building fire alarm system; (Note: manual fire alarm is not recommended for air relief system which is automatically controlled in the fire zones)	*Yes/No/N.A.	*Yes/No/N.A.
	ii) by smoke detection system;	*Yes/No/N.A.	*Yes/No/N.A.
	iii) by sprinkler system;	*Yes/No/N.A.	*Yes/No/N.A.
	iv) by point type smoke detector mounted in the accommodation area adjacent to the doors (within 1 m) leading to the protected space at each storey served by the system;	*Yes/No/N.A.	*Yes/No/N.A.
	v) by selecting the manual mode on the supervisory control panel.	*Yes/No/N.A.	*Yes/No/N.A.
v)	Is changeover from the duty equipment to the standby equipment automatically operated when failure occurred in the duty equipment?	*Yes/No/N.A.	*Yes/No/N.A.
w)	Is the system capable of achieving between 90% & 110% of the new volumetric requirements within 5 sec. of a door being opened or closed (for the over pressure release system by using variable supply fans or dampers)?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.13.3.2	Others		
a)	Are all relevant parts of the pressurisation of staircases system tested satisfactorily in accordance with the T&C Procedure for Air-conditioning, Refrigeration and Mechanical Ventilation Installation?	*Yes/No/N.A.	*Yes/No/N.A.

Checked/Certified by :_____ Engineer Registration No.:_____

(Name of engineer satisfying the General Specification & FSDCoP requirements)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

3.14 Smoke Extraction System

Working / Design Drawing Ref. :

System Design Calculation Ref. :

System Operating Principles & Sequence Ref. :

3.14.1 Requirements of Smoke Extraction System

Zone / Location : _____

Application / Usage : _____

Volume of Compartment : _____m^3 *Atrium / Basement

Type of Extraction System : *Static / Dynamic

Operating Air Flow Pattern : *Scouring Pattern / Cross Flow Effect with low level supply and high level extraction

Design Volume : _____m^3 Total Air Change per Hour : _____

Minimum Smoke Removal Rate : _____ m^3/s

Minimum Supply or Make-up Air Rate : _____ m^3/s
(Min. 80% of overall extraction rate)

Maximum airflow velocity based on free area of grille :	Specified	Measured
(a) make-up air inlets not mechanically propelled :	3 m/s	_____ m/s
(b) make-up air inlets mechanically propelled :	6 m/s	_____ m/s
(c) extract grilles or outlets :	6 m/s	_____ m/s

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.14.2	Visual Inspection		
3.14.2.1	General		
a)	Are FSD approved working / design Drawings available?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does general layout tally with F.S.I. drawings?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Does occupancy tally with that mentioned in approved building plans?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Does compartmentation of protected premises tally with that marked in approved building plans?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Does system layout tally with that in approved building plans and F.S.I. drawings?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is smoke zone boundary and auto smoke curtain location in accordance to approved smoke control layout?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is approved system design calculation enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are the system operating principles / sequence enclosed? (The operating principles shall include the full operation modes, including, but not limited to, “normal”, “fire” and “no power”.)	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are technical catalogues enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are approved procedures and set up details for testing & commissioning available?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Is the design of the complete installation, including all equipment, components and wiring, approved by the Supervising Officer and accepted by the Fire Services Department available?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are all systems completed and tested to ensure that they are functioning correctly before the final full test and demonstration take place with FSD Officers in attendance?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Has a full set of test and functional operation check records submitted accompanying Register Professional Engineer’s signature confirming or otherwise that he is satisfied that the installation(s) are operating in accordance with his design and the requirements of F.S.D?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Have the format / methods of the required operational and functional test been agreed with FSD before the work commences?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are all systems with “fail safe” design to ensure a free passage of smoke in accordance with approved drawings?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Are the fire shutters tested to the relevant requirements of the T&C Procedure for Fire Service Installation?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
q)	Has exemption been granted for one extraction / supply system used to serve several compartments?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Where the motorised fire and smoke dampers are required, is validated test certificate- for the entire assembly of the fire and smoke damper to maintain efficient operation at 250°C for not less than one hour provided?	*Yes/No/N.A.	*Yes/No/N.A.
s)	Has the Director of Fire Services approved the adoption of performance based fire engineering approach?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Where the smoke extraction rate is designed with fire engineering approach, is the maximum area of the smoke reservoir restricted to 2000 m^2?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Is a separate system provided for each Atrium or Basement compartment?	*Yes/No/N.A.	*Yes/No/N.A.
v)	Is static smoke extraction system and associated facilities provided as specified and employed as part of the designed system (e.g. in atrium or basement)?	*Yes/No/N.A.	*Yes/No/N.A.
w)	Is the static smoke extraction system installed as approved (e.g. smoke vent size and separation, provision of smoke curtain, actuation, etc.)?	*Yes/No/N.A.	*Yes/No/N.A.
x)	All systems shall be provided with remote on/off/override control at the fire control panel.	*Yes/No/N.A.	*Yes/No/N.A.
y)	Shafts used for smoke extraction purposes shall contain no other services.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

3.14.2.2 Dynamic Smoke Extraction Fan(s)

Fan / Motor Set Data :		Supply Fan		Extraction Fan	
		Duty Motor	Duplicated Motor	Duty Motor	Duplicated Motor
Location					
Manufacturer	Fan				
	Motor				
Model	Fan				
	Motor				
Serial No.	Fan				
	Motor				
Motor Power (kW)					
Nominal Fan Power (kW)					
Design Flow Rate (l/s)					
Design Pressure (kPa)					
Starting Current (A)					
Starting Method					

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
a)	Is smoke extraction fan (supply and extraction) supplied from a proprietary manufacturer specialised in the manufacture of the system?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the fans connected directly to outside by non-combustible ductwork including flexible connection?	*Yes/No/N.A.	*Yes/No/N.A.
c)	If the fans are installed within the service compartment, is the fan system (including fans, motors, drives, electrical works, ductworks, boundary of compartment) protected by a fire resisting material of rating not less than one hour?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the supply / makeup air rate at least 80% of the overall extraction rate?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is the supply or makeup air supplied from an independent supply air system?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are the rotating parts of fan/motor set protected by safety guard?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is fan motor(s) power rated at 20% higher than the required nominal fan power?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is the insulation of motor windings capable of operating at design conditions for a period of one hour in an ambient temperature of 250 °C?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is the fan itself coated with finishing material capable of withstanding exposure to an ambient temperature of 250 °C for a period of not less than one hour without producing smoke or any toxic fumes, and certified by the fan manufacturer?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are emergency lock-off buttons provided adjacent to fan motors and easily accessible for operation and with visual and audible indication on the fire control panel when the fan is locked?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are fan motors protected with HRC fuses?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are smoke extraction fans connected with power supply from secondary source?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Are starting instructions for dynamic smoke extraction system prominently displayed in the fan room with a glass front frame?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are doors to smoke extraction plant rooms clearly labelled "SMOKE EXTRACTION FAN ROOM"?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are doors to smoke extraction plant room provided with locking devices?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Are doors to smoke extraction plant room provided with automatic door closer(s)?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
q)	Are smoke extraction plant room(s) clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
3.14.2.3	Ductworks		
a)	Is air intake distant from any potential fire hazards and is prevented from contamination by the same source of smoke?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are locations of smoke discharge outlets governed by the following criteria :		
	i) At least 5 metres in any direction away from any make-up air intake or any other openings into the building?	*Yes/No/N.A.	*Yes/No/N.A.
	ii) Air is prohibited to discharge into any means of escape or free air path of the fireman's staircase?	*Yes/No/N.A.	*Yes/No/N.A.
	iii) Discharge shall be at least 3 metres above the surrounding horizontal surface from the bottom of the outlets?	*Yes/No/N.A.	*Yes/No/N.A.
	iv) Air shall not be discharged downward if the discharge point is less than 6 metres in height?	*Yes/No/N.A.	*Yes/No/N.A.
	v) Air discharge shall not be under any canopy or overhang?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are ductwork and associated fittings fabricated from galvanised sheet steel but not aluminium?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Does the size of the outside air intake duct tally with vertical air flow diagram approved by FSD?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is the ductwork clear of debris?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is ductwork constructed with enclosure of fire rated resistant equivalent to that of the compartment served, and suitable for continuous operation at 250 °C for not less than 1 hour?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are ductworks and associated fittings constructed to DW143 and DW144 and subsequent amendments as approved?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is ductwork and associated fittings constructed with flange joints for future ease of dismantling?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are gaps / spaces between ductwork and wall opening filled with approved sealant?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Is any section of ductwork embedded in concrete structure?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are adequate duct hangers or supports provided as required?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are duct hangers and supports rigidly fixed and unbroken?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
m)	Are expansion duct joints provided at location through building expansion joint?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are equipotential bondings provided for the ductworks?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Does system clear from any fire / smoke dampers or any other restrictions of air passage as approved?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Does system ductwork contain other service facilities?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Is certified Leakage Test Report of Ductwork (DW143 & DW144 as approved) enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Do sizes of air duct, discharge outlet and pressure relief damper sizes tally with drawings?	*Yes/No/N.A.	*Yes/No/N.A.
s)	Is testing point / facility provided in the installation?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Are motorised fire / smoke dampers provided only for system where one extraction or supply system is used to serve several compartments as approved?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Is damper complete with electric motor actuator enclosed with fire rated enclosure and capable of withstanding ambient temperature of at least 250 °C for at least one hour?	*Yes/No/N.A.	*Yes/No/N.A.
v)	Is damper module installation fully sealed between the module frame and the mounting from by gaskets and actuator of the damper with material capable of withstanding exposure than ambient temperature of at least 250 °C for at least one hour without producing smoke or any toxic fumes and certified by the damper manufacturer?	*Yes/No/N.A.	*Yes/No/N.A.
w)	Are fire and smoke dampers provided at the main exhaust outlet louvre and / or main supply intake louvre and are they approved by FSD?	*Yes/No/N.A.	*Yes/No/N.A.
x)	Do fire and smoke dampers comply with UL 555S class I or other international standards?	*Yes/No/N.A.	*Yes/No/N.A.
y)	If smoke extraction system ductwork passes through compartment, does the part of ductwork outside the serviced compartment comply with the following :	*Yes/No/N.A.	*Yes/No/N.A.
	i) Insulation with fire rated period of 30 minutes in compliance with the Code of Practice for Fire Resisting Construction issued by the Buildings Department?	*Yes/No/N.A.	*Yes/No/N.A.
	ii) Fire resisting construction to BS 476 : Part 24?	*Yes/No/N.A.	*Yes/No/N.A.
	iii) Totally enclosed by fire resisting construction to BS 476 : Part 20, to the same fire resisting period as the serviced compartment or the containing compartment, whichever is the higher?	*Yes/No/N.A.	*Yes/No/N.A.

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		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	iv) Hard body impact test to BS EN 1128 with exterior surface free from accidental mechanical damage?	*Yes/No/N.A.	*Yes/No/N.A.
z)	Is the ductwork tested satisfactorily in accordance with the T&C Procedure for Air-conditioning, Refrigeration, Ventilation and Central Monitoring & Control System Installation?	*Yes/No/N.A.	*Yes/No/N.A.
3.14.2.4	Smoke Detector		
a)	Is the smoke-collecting probe installed properly?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is appropriate type (early detection type / early response type) of smoke detector provided within smoke extraction system?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the pair of smoke collecting and releasing probes installed correctly in relative positions as recommended by the manufacturers and that adequate pressure difference can be achieved for effective smoke collection?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are the filters at the end of the smoke collecting / releasing probes clean and properly installed?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is(are) designated smoke detector(s) provided at the air intake for smoke extraction system?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the smoke detector designed to override all other controlling devices and shut down the smoke extraction system being served by the respective fan upon the sensing of smoke at the air intake by the designated smoke detector?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is the smoke detector connected with fire resisting cable to the control panel?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is the functioning of smoke detector tested satisfactorily?	*Yes/No/N.A.	*Yes/No/N.A.
3.14.2.5	Electrical Wiring / Fire Resisting Cable		
a)	Is proper identification provided for wiring and equipment?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is the whole smoke extraction system wired with fire resisting cables?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are the power supply cables in full compliance with :-		
	- BS 6387 Cat CWZ? or	*Yes/No/N.A.	*Yes/No/N.A.
	- BS 6207 or BS EN 60702? or	*Yes/No/N.A.	*Yes/No/N.A.
	- other international standards (_____) acceptable to the Director of Fire Services? or	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
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Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
	- criteria for exemption as mentioned in the FSDCoP?	*Yes/No/N.A.	*Yes/No/N.A.
	- Clause 8.1.9.9 of the General Specification?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are the binding tapes used for the cables of flame retardant?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are the cables installed in cable trays or other approved supports, and are fastened by approved fasteners or clamps specially designed and constructed for the purpose?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are the cable routes provided with proper protective enclosure to reduce the likelihood of failure due to external effects – mechanical, electrical or physical?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is the electrical wiring system tested satisfactorily in accordance with the T&C Procedure for Electrical Installation and to Electricity Ordinance?	*Yes/No/N.A.	*Yes/No/N.A.
3.14.2.6	Control Panel		
a)	Is control / indication panel properly reset?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is control panel provided for each smoke extraction system and located adjacent to the fire control panel?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the control panel for each smoke extraction system normally manned or installed in accordance with the approved drawings?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the cubicle type control panel constructed from 2 mm thick (min) panel steel and conform to BS EN 60439-1?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Does the control panel installed in a room or enclosure with FRP of 2 hrs or more containing no other equipment?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Does the control panel incorporate the necessary switches with the same method / direction of operation?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Does the control panel incorporate the necessary relays, timers, key type switches, alarms and trouble lights essential to the operation of the system?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are the controls, starters, relays, etc., suitable for continuous operation at 250 °C for not less than one hour?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is the indicator light actuated by devices that sense the effective operation of the relevant components (i.e. airflow switch / air pressure switch) of the smoke extraction system?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Does the control panel incorporate manual override facility with manual reset and are audio & visual indications provided?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
k)	Is the smoke extraction system individually operated via the actuation of manual override facility?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are all switches and indicators clearly labelled (red letters on white background, not less than 3 mm high) to indicate the operating positions and systems served?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is the cubicle type motor control panel tested satisfactorily in accordance with the T&C Procedure for Electrical Installation and to Electricity Ordinance?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are switches for all smoke extraction systems grouped in one area of the panel together with those for staircase pressurisation systems or the like? Where the smoke extraction system is served by both supply and extract fans, are on/off switches for each fan provided?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Is label provided with letters not less than 6 mm high stating that the controls shall be operated by authorised personnel?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Are labels permanent, legible and firmly secured (adhesive is not satisfactory) and are they lettered in both English and Chinese by engraving or similar?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Is simplified schematic diagram for all smoke extraction systems provided adjacent to the smoke extraction control panel?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Is the signaling test for the control panel remain satisfactory including power status, normal and fire mode status, motorised fire and smoke dampers status, duct type smoke detector status, fan running and motor failure, manual operation and power failure?	*Yes/No/N.A.	*Yes/No/N.A.
3.14.2.7	Indication and Control		
a)	Is the power light ON (green light)?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does the panel indicate normal working condition?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are all the indicating lamps functional?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Do the main power failure and system fault activate :		
	(i) Visual signal?	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Audible signal?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Does the fault silence switch silence the audible alarm while leaving visual light ON?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Does the alarm silence switch silence the audible alarm while leaving the red alarm indicating light ON until the system is reset?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
g)	Do alarm and fault reset switches operate properly?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Does test switch for simulating alarm condition and operate properly?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Does lamp test switch operate properly?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Does the disconnect switch for transmitter, release devices, etc. operate properly with both visual and audible alarms activated?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Do the following panel functions work properly?		
	(i) Can alarm silence/reset.	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Normal supply / battery supply	*Yes/No/N.A.	*Yes/No/N.A.
	(iii) Power on / failure indicator.	*Yes/No/N.A.	*Yes/No/N.A.
3.14.2.8	Miscellaneous		
a)	Are warning / instruction notices provided at areas of testing?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are warning / instruction notices provided inside the testing area(s) which are normally occupied?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are all ductworks and metal works properly painted?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is proper identification provided for ductworks, wiring and equipment?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Do door sets (i.e. doors, frames and ironmongery hardware) comply with Building Authority's requirement and suitable for use continuously under 35 °C and 100% RH with certificates enclosed as required?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Do architectural details with all components, materials and workmanship comply with the requirements of the FSDCoP?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are warning / instruction notices provided at entrance & inside the protected areas which are normally occupied?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Do smoke curtain systems used for separating different smoke compartments comply with BS EN 12101 Part 1and with material comply with BS 476 Part 20 approved?	*Yes/No/N.A.	*Yes/No/N.A.

3.14.3 Testing and Commissioning

3.14.3.1 Mechanical Test

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
a)	Are all relevant parts of dynamic smoke extraction system tested satisfactorily in accordance with the T&C Procedure for the Air-conditioning, Refrigeration, Ventilation and Central Monitoring & Control System Installation?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Has full and complete records been taken of all tests and the results submitted with not less than the following in the report :		
	(i) Record of pressure testing during construction?	*Yes/No/N.A.	*Yes/No/N.A.
	(ii) Resulting airflow rate, current, belt tensions, shaft speeds, etc. included in the report?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Has mechanical check for motorised smoke / fire damper been conducted and accepted by Registered Professional Engineer under CAP 409?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are smoke curtains dropped down smoothly and the bottom bars stop at the correct position?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is electro-thermal link properly installed & reinstated and accepted by Registered Professional Engineer under CAP 409?	*Yes/No/N.A.	*Yes/No/N.A.
3.14.3.2	Functional Test of System (System in MANUAL mode)		
a)	Does AUTO / MANUAL selector key switch function properly and switched to manual mode upon the test?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Do smoke detectors operate satisfactorily?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Does operating alarm / indication function properly?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the shutdown of Mechanical Ventilation and Air-conditioning system satisfactorily accomplished?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Do fire damper opening / closing devices operate satisfactorily?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the start-up / operation of Smoke Extraction system satisfactorily accomplished and remained in operation until manually reset?	*Yes/No/N.A.	*Yes/No/N.A.
3.14.3.3	Control and Actuation Check		
a)	Are all systems for smoke extraction automatically actuated and remained in operation until manually reset?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is any transmission of actuating signals from the AFA panel for the operation of the smoke extraction systems affected by multiplexer or addressable or similar devices unless such devices have the approval or certification of one of the testing authorities recognised by FSD?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
c)	Is individual smoke extraction component provided with a manual key operated ON / OFF switch with indicator light provided on the fire control panel?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are switches for all smoke extraction / removal systems grouped in one area of the panel together with those for staircase pressurisation systems or the like?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are all switches have the same method / direction of operation?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are indicator lights actuated by a device that senses effective operation, such as a centrifugal switch or an air pressure switch, of the relevant smoke / air handling system?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are all switches and indicators clearly labelled (red letters on white background, not less than 3 mm high) to show operating positions and systems served and stating that the controls shall be operated only by authorised personnel?	*Yes/No/N.A.	*Yes/No/N.A.
3.14.3.4	Initial start		
a)	Are the electrically driven fans equipped with audio and visual warnings to indicate the fault signals?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the following functional tests in control circuitry conducted :		
	i) The proper function of interlocking devices between fans and dampers?	*Yes/No/N.A.	*Yes/No/N.A.
	ii) The proper function of remote on / off operation?	*Yes/No/N.A.	*Yes/No/N.A.
	iii) The correct balancing and direction of air flow?	*Yes/No/N.A.	*Yes/No/N.A.
3.14.3.5	Smoke Extraction Test		
a)	Is the fire compartment maintained at all times?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are the system and associated components of a “fail safe” design to ensure a free passage of smoke in accordance with approved drawings?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the travel of smoke in counter-flow direction to that of the egress / escape route?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are egress / escape routes kept free from smoke (i.e. smoke flow shall be away from the escape route)?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are air / smoke flow paths under “scouring” or “cross-flow” effect in all areas within the fire compartment as approved?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the smoke travelling distance shorter than 30 m before entering the nearest point of intake of the extraction system?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
g)	Is smoke extraction point provided within each unit of floor area of 500 m^2?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is smoke extraction point located at high level?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are points of smoke extraction evenly distributed and located at high level in the space?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Does makeup air supply follow an air path as direct and short as possible, and enter at low level in order to avoid premature mixing with the hot gases?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Is the smoke contained effectively within the smoke reservoirs?	*Yes/No/N.A.	*Yes/No/N.A.
3.14.3.6	Mode of Operation		
a)	Is smoke extraction system automatically activated?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does the system actuate directly from the local automatic fire alarm control panel and remain in operation? (Refer to FSDCoP)	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are manually reset and monitor by audio & visual indication function provided? (Refer to FSDCoP)	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are designated smoke detection system / detector(s) provided for smoke extraction system?	*Yes/No/N.A.	Yes/No/N.A.
e)	Is smoke extraction system monitored by BMS/BAS/CCMS?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is control of smoke extraction system isolated from BMS/BAS/CCMS under “fire” mode?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Can the fan just be stopped by switching off at the fan control rather than by any automatic means?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are non-return damper(s) provided to prevent back-flow between parallel connected multiple fans?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is alarm signal repeated to fire control room or status panel at the main entrance of the building?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Where a sprinkler system is provided. Is the system designed to activate by a flow switch on the main sprinkler feed pipe serving the area?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Is power changeover of the system properly operated?	*Yes/No/N.A.	*Yes/No/N.A.

Checked/Certified by :_____ Engineer Registration No.:_____

(Name of engineer satisfying the General Specification & FSDCoP requirements)

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

3.15 Hot Smoke Test

Working / Design Drawing Ref.:

System Design Calculation Ref.:

System Operating Principles & Sequence Ref.:

3.15.1 Requirements of Hot Smoke Test

Zone / Location : _____

Application / Usage : _____

Volume of compartment : _____m^3 Atrium height : _____m

Operating air flow pattern : *Scouring pattern / Cross flow effect with low level supply and high level extraction

Minimum smoke removal rate : _____m^3/s

Method of integration between smoke extraction and detection systems : _____

Maximum airflow velocity based on free area of grille :

(a) make-up air inlets not mechanically propelled : _____m/s

(b) make-up air inlets mechanically propelled : _____m/s

(c) extract grilles or outlet : _____m/s

Details of fire trays (quantity & size) : _____ nos.; _____mm x mm

Total fuel consumption : _____ kg ± _____ g

Approximate heat output : _____ kW/m^2

Details of water bath trays (quantity & size) : _____ mm x mm

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

3.15.2 Instrument for Hot Smoke Test

Instrument		Model No.	Manufacturer	Serial No.	Calibration Date	Calibration Expiry Date
1)	*Smoke Generator(s)					
2)	*Tracer Smoke					
3)	*Fire Chamber					
4)	*Combustion Fuel					
5)	*Thermal Couples					
6)	*Temperature Sensor(s)					
7)	*Anemometer					
8)	*Clamp-on Ammeter					
9)	*Voltmeter					
10)	*Tachometer					
11)	*Pitot-Static Tubes					
12)	*Inclined Manometers					
13)	*U gauges					
14)	*Fire Fighting Equipment					
15)	*Breathing Apparatus					
16)	*Static Photo Camera					
17)	*Video Camera					
18)	Others (please specify)					

* Delete if not applicable

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.15.3	Visual Inspection		
3.15.3.1	General		
a)	Are FSD approved working / design drawings available?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Does general layout tally with F.S.I. drawings?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Does occupancy tally with that mentioned in approved building plans?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Does compartmentation of protected premises tally with that marked in approved building plans?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Does system layout tally with that in approved building plans and F.S.I. drawings?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are all wet fire service installations completed with full testing & commissioning?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are all automatic fire alarm installations completed with full testing & commissioning?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are all static & dynamic smoke extracting installations completed with full testing & commissioning?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is smoke zone boundary and auto smoke curtain location in accordance to approved smoke control layout?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Is approved system design calculation enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are the system operating principles / sequence enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Are technical catalogues enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Is approved computer programme enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
n)	Are all finishes of building envelop completed with full inspection?	*Yes/No/N.A.	*Yes/No/N.A.
o)	Are FSD approved procedures and set up details for Testing & Commissioning available?	*Yes/No/N.A.	*Yes/No/N.A.
p)	Does the smoke re-enter into the building through building openings or fresh air intake louvres?	*Yes/No/N.A.	*Yes/No/N.A.
q)	Is mock-up test with set up details for Testing & Commissioning hot smoke test available and approved by the Supervising Officer?	*Yes/No/N.A.	*Yes/No/N.A.
r)	Is detail of approved organisation chart available for Testing & Commissioning?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
s)	Are details of members of approved fire fighting team and auxiliary team available for Testing & Commissioning?	*Yes/No/N.A.	*Yes/No/N.A.
t)	Are formal evacuation procedures for all approved visiting personnel available?	*Yes/No/N.A.	*Yes/No/N.A.
u)	Is endorsed proposal for recording / monitoring equipment and associated provisions enclosed?	*Yes/No/N.A.	*Yes/No/N.A.
v)	Is design of the complete Testing & Commissioning setup, including all equipment, components and wiring, approved by the Supervising Officer and accepted by the FSD available?	*Yes/No/N.A.	*Yes/No/N.A.
w)	Are all systems completed and tested to ensure that they are functioning correctly before the final full test and demonstration take place with FSD Officers in attendance?	*Yes/No/N.A.	*Yes/No/N.A.
x)	Has a full set of test and functional operation check records submitted accompanying Register Professional Engineer's signature confirming or otherwise that he is satisfied that the installation(s) are operating in accordance with his design and the requirements of F.S.D?	*Yes/No/N.A.	*Yes/No/N.A.
y)	Have the format / methods of the required operational and functional test been agreed with FSD before the work commences?	*Yes/No/N.A.	*Yes/No/N.A.
z)	Are all fire fighting squads available throughout the testing process?	*Yes/No/N.A.	*Yes/No/N.A.
aa)	Is the safety arrangement and precautions for the test approved by the Supervising Officer and accepted by the FSD?	*Yes/No/N.A.	*Yes/No/N.A.
3.15.3.2	Smoke Detector		
a)	Is the smoke collection probe installed?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is approved type of smoke detector provided?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the pair of smoke collecting and releasing probes installed correctly in relative positions as recommended by the manufacturers and that adequate pressure difference can be achieved for effective smoke collection?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are the filters at the end of the smoke collecting / releasing probes clean and properly installed?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Do(es) designated smoke detector(s) be provided at the air intake for smoke management system?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the smoke management supply fan tripped off upon the sensing of smoke at the air intake passage by the designated smoke detector?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
g)	Is the smoke detector connected with fire resisting cable to the control panel?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is the functioning of smoke detector tested satisfactorily?	*Yes/No/N.A.	*Yes/No/N.A.
3.15.3.3	Miscellaneous		
a)	Are warning / instruction notices provided at areas of testing?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are warning / instruction notices provided inside the testing area(s) which is(are) normally occupied?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are warning/instruction notices provided at entrance & inside the protected areas, which are normally occupied?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is static photo recording carried out to record the smoke movement upon the hot smoke test?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is video recording carried out to record the smoke movement upon the hot smoke test?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the smoke contained effectively within the smoke reservoirs?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
3.15.4	Testing and Commissioning		
3.15.4.1	Mechanical Test		
a)	Are the ductwork and all relevant parts of the systems for the hot smoke test tested satisfactorily in accordance with the T&C Procedure for Air-conditioning, Refrigeration, Ventilation and Central Monitoring Control System Installation?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are preliminary and visual test on the sealing of all openings in the ductwork using chemical "white" smoke generators be carried out?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Has mechanical check for motorised smoke / fire damper been conducted and accepted by Registered Professional Engineer under CAP 409?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are smoke curtains dropped down smoothly and the bottom bars stop at the correct position?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is electro-thermal link properly installed & reinstated and accepted by Registered Professional Engineer under CAP 409?	*Yes/No/N.A.	*Yes/No/N.A.
3.15.4.2	Functional Test of System (System in MANUAL mode)		
a)	Does AUTO/MANUAL selector key switch function properly and switched to manual mode upon the test?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Do smoke detectors operate satisfactorily?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Does operating alarm / indication function properly?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the shutdown of mechanical ventilation and air-conditioning system satisfactorily accomplished?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Do fire damper opening / closing devices operate satisfactorily?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Is the start-up / operation of smoke management system satisfactorily accomplished and remained in operation until manually reset?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Is the static/dynamic smoke extraction system tested and found satisfactorily in accordance with the T&C requirements of smoke extraction system?	*Yes/No/N.A.	*Yes/No/N.A.
3.15.4.3	Smoke test		
a)	Is the fire size identified with total heat output estimated to ensure the test to be carried out without damage to the building?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI
b)	Does the submission provide details on the selection process for the safe fire size?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Does the submission provide details on the configuration of thermocouple tree?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Is the plume temperature reading data logged with computer programme and linked to trigger the alarm signal for executing fire suppression, if required?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Is the smoke contained effectively within the smoke reservoirs?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are all smoke management systems and controls functioned properly as designed and co-ordinated?	*Yes/No/N.A.	*Yes/No/N.A.

Checked/Certified by: _____ Engineer Registration No.:_____

(Name of engineer satisfying the General Specification & FSDCoP requirements)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

	Items tested/ checked by Contractor	Items witnessed by PBSE/PBSI

3.16 Comments (if any)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

Part 4 : Test Records attached to the Test Certificate

4.1 Record of Tests on Hydrant and Hose Reel System

Project title (with location) : _____

P.W.P. / Project No. : _____

*Contract/Sub-contract/Quotation No. : _____

Date of Test : _____

Type, Model & Serial No. of Instrument used : _____

Date of calibration : _____

4.1.1 System Data

Type of building : *Industrial/godown/domestic/others

FSI Drawing Ref. : _____

Water tank capacity :

(a) Supply tank : *9/18/27/36 m^3 Location: _____

(b) Transfer tank : _____ m^3 Location: _____

Height of topmost hydrant and lowest F.S. Inlet : _____ m
(if exceeds 60 m, intermediate booster pumps/supply tank are required)

Total No. of twin type F.S. inlet : _____ Nos.

Total No. of hydrant riser : _____ Nos.

Intermediate booster pumps :_____ Nos.

Transfer pumps : _____ Nos.

Fixed fire pumps : _____ Nos.

Total No. of hydrant outlet (single type) : _____ Nos.

Total No. hydrant outlet (double type) : _____ Nos.

Total No. of hose reel (30 m) : _____ Nos.

Size of incoming water main : _____ mm dia.

Size of hydrant rising main : *80/100 mm dia.
(Industrial/godown - 100 mm, Others - 80 mm)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.1.2 Records

Table 1 Record of Hydraulic Test of Pipeworks

Date	Location/Section	Start		End		Duration (min)
		Time	Pressure (kPa)	Time	Pressure (kPa)	

(This form can also be used for hydraulic test carried out during the construction period)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

Table 2 Test Records on Pressure Reducing Set

Pressure Reducing Set No.	Riser/Stair No.	Floor Level	Pressure (kPa)	
			Upstream	Downstream

Table 3 Test Record of Pump/Motor Set

Pump/Motor Set		Pump Discharge Pressure (kPa)	Motor Current (Amp)
Fixed Fire Pump	Duty		
	Standby		
Intermediate Booster Pump	Duty		
	Standby		
Transfer Pump	Duty		
	Standby		

Table 4 Fire Service Pump Pressure Switch Setting

System Pressure: _____ kPa

	Cut-in Pressure (kPa)	No Flow Pressure (kPa)
Duty Pump	N/A	
Standby Pump		

Table 5 Test Records on Range of Hose reel

Floor Level	Range (m)	Area not within hose reel coverage

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Table 6 Test Records on Flow Capacity and Pressure of Hydrant outlet (Fixed fire pump)

Zone	Location of Hydrant outlet	Floor Level	Riser/Stair No.	Pressure (kPa)	Flow rate (l/min)
	Topmost outlet				
	Bottom outlet				

Table 7 Test Records on Static Pressure at the Lowest Hydrant Outlet

Floor Level	Riser/Stair No.	Pressure (kPa)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Table 8 Test Records on Flow Capacity and Pressure of Hydrant outlet (with intermediate booster pump)

Zone	Location of Hydrant outlet	Floor Level	Riser/Stair No.	Pressure (kPa)	Flow rate (l/min)
	Topmost outlet				
	Bottom outlet				

Remark:

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.2 Record of Tests on Automatic Sprinkler Installation

Project title (with location) : _____

P.W.P. / Project No. : _____

*Contract/Sub-contract/Quotation No. : _____

Date of Test : _____

Type, Model & Serial No. of Instrument used : _____

Date of calibration : _____

4.2.1 System Data

Hazard classification: *LH/OH(1)/ OH(2)/ OH(3)/ OH(4)/ HHP/ HHS

Type of town mains: *single end feed/ double end feed/ direct feed/ unrestricted

Height of highest sprinkler above lowest sprinkler : _____ m

Water tank capacity :

1. Sprinkler tank : _____ m^3 Location : _____
2. Transfer tank : _____ m^3 Location : _____
3. Priming tank : _____ m^3 Location : _____

Type of system : *wet/ dry/ pre-action/ pre-action /re-cycling/ deluge

Total Nos. of sprinkler head :

Types	Nos.
_____	_____
_____	_____
_____	_____

Total Nos. of installation control valve set : _____Nos.

Total Nos. of subsidiary stop valve : _____Nos.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Nos. of sprinkler head connected to each subsidiary stop valve :

Subsidiary Stop Valve (Zone)	Nos. of Sprinkler Head			Total
	Types	Concealed	Exposed	
1				
2				
3				
4				
5				
6				

Use separate sheet for large installation.

Nos. of sprinkler head connected to each sprinkler installation valve :

Installation Valve No. (Floor/Zone)	Nos. of Sprinkler Head			Total
	Types	Concealed	Exposed	
1				
2				
3				
4				
5				
6				

Use separate sheet for large installation.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.2.2 Records

Table 1 Record of Hydraulic Test of Pipeworks

Date	Location/Section	Start		End		Duration (min)
		Time	Pressure (kPa)	Time	Pressure (kPa)	

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Table 2 Test Record of Pump/Motor Set

Pump/Motor Set		Pump Discharge Pressure (kPa)	Motor Current (A)
Jockey Pump			
Sprinkler Pump	Duty		
	Standby		
Intermediate booster pump	Duty		
	Standby		
Transfer Pump	Duty		
	Standby		

Table 3 Sprinkler Pump Pressure Switch Setting

System Pressure: _____ kPa

	Cut-in Pressure (kPa)	Cut-out Pressure (kPa)
Jockey Pump		

	Cut-in Pressure (kPa)	No Flow Pressure (kPa)
Duty Pump		
Standby Pump		

Note: Duty pump cut-in pressure shall be not less than 80% of the design/maintained pressure in the trunk main.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

Table 4 Test Records for Operation of Flow Switch

Zone Controlled by Flow Switch (Floor level or area)	Floor Level or Area where Alarm Bells Sound	Sprinkler Annunciation Panel					
		Indication		Buzzer		Sprinkler Pump Cut-in	
		Items tested by Contractor	Items witnessed By BS site staff	Items tested by Contractor	Items witnessed by BS site staff	Items tested by Contractor	Items witnessed by BS site staff
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No
		*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No	*Yes/No

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Table 5 Test Record of Proving of Water Supplies with Measuring Orifice Fitted

Installation Valve No.	Flow Rate (l/min)	Installation Pressure (kPa)	# Actual Minimum Running Pressure (kPa)
1			
2			
3			
4			
5			

- Actual minimum running pressure = Installation pressure - Static pressure of highest sprinkler

Table 6 Test Record of Proving of Water Supplies with Standard Test Orifice Fitted

Installation Valve No.	Installation Pressure (kPa)		Running Flow Rate (l/min)
	Standing	Running	

Note: These records are reference for future testing.

Remark:

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.3 Record of Tests on Manual and Automatic Fire Alarm System and Fire Alarm Control System

Project title (with location) : _____

P.W.P. / Project No. : _____

*Contract/Sub-contract/Quotation No. : _____

Date of Test : _____

Type, Model & Serial No. of Instrument used : _____

Date of Calibration : _____

4.3.1 System Data

Quantity (Nos.)		Zone								Total
		1	2	3	4	5	6	7	8	
Manual Call Point										
Alarm Bell										
Visual Fire Alarm										
Fire Detector	Heat									
	Smoke									
	Probe Unit									
Sprinkler Flow Switch										

System voltage : _____ V d.c. Battery _____ Ah

4.3.1.1 Type of Equipment

4.3.1.1.1 Alarm annunciation panel

Manufacturer/Model No. of Alarm annunciation panel:

(Main panel : _____)

(Sub-panel, if any : _____)

a) FSD approved type *Yes/No

b) Conventional (electronic) type *Yes/No

Addressable type *Yes/No

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.3.1.1.2 Detectors

a) Heat detector:

Manufacturer/model No. : _____

Type : _____

Location : _____

b) Smoke detector : _____

Manufacturer/model No. : _____

Type : _____

Location : _____

c) Multi-sensor detector : _____

Manufacturer/model No. : _____

Type : _____

Location : _____

e) Others (please specify) : _____

Manufacturer/model No. : _____

Type : _____

Location : _____

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.3.2 Records

Table 1 Test Record of Manual Call Points, Alarm Bells Visual Fire Alarms and Control Panel

Location of Manual Call Point	Floor on which Alarm Bell Sound	Floor on which Visual Fire Alarm Flash	Control Panel			
			Zone No. and Indication (No./NO/OFF)	Fire Signal	Fault Signal	Fire Pump Cut-in (ON/OFF)

Table 2 Test Record of Detector and Control Panel

Location/ Identification of Detector (Heat/Smoke)	LED Indicator Local/Remote (ON/0FF)	Floor on which Alarm Bell Sounds and Visual Fire Alarm Flashes	Control Panel		
			Zone No. and Indication (No./ON/OFF)	Buzzer (ON/OFF)	Fault Signal

Remark:

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.4 Record of Tests on Gaseous Extinguishing Installation

Project title (with location) : _____

P.W.P. / Project No. : _____

*Contract/Sub-contract/Quotation No. : _____

Date of Test : _____

Type, Model & Serial No. of Instrument used : _____

Date of Calibration : _____

4.4.1 System Data

Location/Room : _____

Type of Gas : *CO_2 / FM200 / _____

Type of System :

Total Flooding	(	)	Local Application	(	)
Modular	(	)	Cylinder	(	)
Pre-engineered	(	)	Engineered	(	)
High Pressure	(	)	Low Pressure	(	)
Single Hazard	(	)	Multiple Hazard	(	)
Primary Bank Only	(	)	With Reserve Bank	(	)

Working/Design Drawing Ref. : _____

Approved Computer Programme Ref. : _____

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.4.2 Records

Table 1 Automatic Gas Flooding System

Test	System Condition	System Action	Alarm Bell and Warning lights	Yod-Alarm and Warning lights	Indication on Panel	Test Result	Remarks
1	Normal	1.1 No	OFF	OFF	Supply healthy and System Auto	*Yes/No	
2	Detection zone '1' or '2' actuated	2.1 System actuated	ON	OFF	Zone fire	*Yes/No	
3	Detection Zone '1' and '2' actuated	3.1 Warning sign actuated	ON	ON	Zone fire	*Yes/No	
		3.2 Fire dampers/opening closing devices operated _____ sec.	ON	ON	Zone fire and gas discharged	*Yes/No	
		3.3 Discharge actuating solenoid operated or gas discharged after a time delay of sec of	ON	ON	Zone fire and gas discharged	*Yes/No	
		3.4 Gas totally discharged within _____ sec.	ON	ON	Zone fire and gas discharged	*Yes/No	For practical discharge test only
		3.5 Restore gas discharge mechanism	ON	OFF	Zone fire and gas discharged	*Yes/No	
		3.6 Press the 'Reset button on the control panel	OFF	OFF	Supply healthy and System Auto	*Yes/No	

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Table 1 Automatic Gas Flooding System (Cont'd)

Test	System Condition	System Action	Alarm Bell and Warning lights	Yod-Alarm and Warning lights	Indication on Panel	Test Result	Remarks
4	Manual operation	4.1 Pull the manual pull handle outside the protected compartment	ON	ON	Zone fire	*Yes/No	
		4.2 Warning sign actuated	ON	ON	Zone fire	*Yes/No	
		4.3 Fire dampers/opening closing devices operated	ON	ON	Zone fire and gas discharged	*Yes/No	
		4.4 Discharge actuating solenoid operated or gas discharged after a time delay of _____ sec.	ON	ON	Zone fire and gas discharged	*Yes/No	
		4.5 Gas totally discharged within _____ sec.	ON	ON	Zone fire and gas discharged	*Yes/No	For practical discharge test only
		4.6 Restore gas discharge mechanism	ON	OFF	Zone fire and gas discharged	*Yes/No	
		4.7 Press the 'Reset' button on the control panel	OFF	OFF	Supply healthy	*Yes/No	
5	Look-off condition	5.1 Turn key switch to 'Manual' mode	OFF	OFF	System manual	*Yes/No	

Remark:

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.5 Record of Tests on Street Hydrant

Project title (with location) : _____

P.W.P. / Project No. : _____

*Contract/Sub-contract/Quotation No. : _____

Date of Test : _____

Type, Model & Serial No. of Instrument used : _____

Date of Calibration : _____

4.5.1 System Data

Water supply : *Town main/pump and sump tank

Sump tank : _____ m^3

Total No. of hydrant : _____ Nos.

Type of hydrant : *Swam-neck/Pedestal

4.5.2 Records

Table 1 Record of Hydraulic Test of Pipeworks

Date	Location/Section	Start		End		Duration (min)
		Time	Pressure (kPa)	Time	Pressure (kPa)	

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Table 2 Test Record of Pump/Motor Set

Pump/Motor Set		Pump Discharge Pressure	Motor Current (A)
Jockey Pump			
Street Hydrant Pump	Duty		
	Standby		

Table 3 Test Record of Pressure and Flow of Street Hydrant

Street Hydrant Outlet (Two farthest outlets discharge simultaneously)	Flow Rate (l/s)	Pressure (kPa)

Remark:

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.6 Record of Tests on Drencher System

Project title (with location) : _____

P.W.P. / Project No. : _____

*Contract/Sub-contract/Quotation No. : _____

Date of Test : _____

Type, Model & Serial No. of Instrument used : _____

Date of calibration : _____

4.6.1 System Data

Type of town mains : *single end feed/ double end feed/ direct feed/ unrestricted

Water tank capacity : _____ m^3 at Location : _____

Total Nos. of drencher head/water spray nozzle : _____ Nos.

Total Nos. of deluge valve set : _____Nos.

Nos. of drencher head/water spray nozzle connected to each deluge valve set :

Deluge Valve (Zone)	Types/Nos. of Drencher Head/ Water Spray Nozzle		Total	Area of opening protected by Drencher (sq m)
	Types	No.		
1				
2				
3				
4				
5				
6				
7				
8				
9				

Use separate sheet for large installation.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.6.2 Records

Table 1 Record of Hydraulic Test of Pipeworks

Date	Location/Section	Start		End		Duration (min)
		Time	Pressure (kPa)	Time	Pressure (kPa)	

Table 2 Test Record of Pump/Motor Set

Pump/Motor Set		Pump Discharge Pressure (kPa)	Motor Current (A)
Drencher Pump	Duty		
	Standby		
Intermediate booster pump	Duty		
	Standby		

Table 3 Drencher Pump Pressure Switch Setting

System Pressure: _____ kPa

Pump/Motor Set	Cut-in Pressure (kPa)	No Flow Pressure (kPa)
Duty		
Standby		

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Table 4 Test Record of Proving of Water Supplies with Measuring Orifice Fitted

Deluge Valve No.	Flow Rate (l/min)	Installation Pressure (kPa)	# Actual Minimum Running Pressure (kPa)
1			
2			
3			
4			
5			

Note: # - Actual minimum running pressure = Installation pressure - Static pressure of highest nozzle

Discharge density = Flow rate /Area of opening = _____ l/min/m^2

Time of discharge = Effective tank size / Flow rate = _____ min

Table 5 Test Record of Proving of Water Supplies with Standard Test Orifice Fitted

Installation Valve No.	Installation Pressure (kPa)		Running Flow Rate (l/min)
	Standing	Running	

Note: These records are reference for future testing.

Remark:

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.7 Record of Tests on Audio/Visual Advisory System

Project title (with location) : _____

P.W.P. / Project No. : _____

*Contract/Sub-contract/Quotation No. : _____

Date of Test : _____

Type, Model & Serial No. of Instrument used : _____

Date of Calibration : _____

Table 1 Test Record of Loudspeakers

Location of Loudspeakers	Floor on which Loudspeakers Operated	Control Panel	
		Zone No. and Indication (No./NO/OFF)	Loudspeaker (ON/OFF)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Table 2 Test Record of Flashing Light/Flashing Directional Sign

Location/ Identification of Flashing Lights	Flashing Lights (ON/OFF)	Control Panel	
		Zone No. and Indication (No./ON/OFF)	Flashing Light (ON/OFF)

Note: Flashing lights in the same area shall operate in synchronous mode.

Remark:

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.8 Record of Tests on Fire Shutters

Project title (with location) : _____

P.W.P. / Project No. : _____

*Contract/Sub-contract/Quotation No. : _____

Date of Test : _____

Type, Model & Serial No. of Instrument used : _____

Date of Calibration : _____

Table 1 Test Record of Fire Shutters

Location of Fire Shutters	Operation				
	Zone No. and Indication (No./NO/OFF)	Buzzer (ON/OFF)	Fire Shutters (Close by fire signal automatically – Yes/No)	Manual Control (Re-open by holding control button – Yes/No)	Fire Shutters (Re-open after fire signal cleared – Yes/No)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Table 2 Test Record of Detector and Control Panel

Location/ Identification of Detector (Heat/Smoke)	LED Indicator Local/Remote (ON/OFF)	Floor on which Alarm Bell Sound	Control Panel	
			Zone No. and Indication (No./ON/OFF)	Buzzer (ON/OFF)

Remark:

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.9 Record of Tests on Emergency Generator Installation

Project title : _____

*P.W.P./Project No. : _____

*Contract/Sub-contract/Quotation No. : _____

Date of test : _____

Test instruments used : _____

Type	Model	Serial No.	Date of Calibration

4.9.1 Equipment Details

4.9.1.1 Generator Set

a) Manufacturer : _____

b) Model : _____

c) Net prime rating (MCR) (kW) : _____

4.9.1.2 Diesel Engine

a) Make : _____

b) Model : _____

c) Serial No. : _____

d) Rated power (kW) : _____

e) Speed (rpm) : _____

f) Governor : _____

g) Turbocharger (type/model) : _____

4.9.1.3 Alternator

a) Make : _____

b) Model : _____

c) Serial No. : _____

d) Rated kVA : _____

e) Voltage (V) / Full load current (A) : _____

f) Phase / Rated p.f. : _____

g) Insulation class : _____

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.9.1.4 Starting Battery

a) Manufacturer : _____

b) Make/Model No. : _____

c) No(s). of battery / Voltage (V) : _____

d) Ampere hour : _____

e) Starting time (sec) : _____

4.9.1.5 Lifting Hoist

a) Manufacturer : _____

b) Make / Model No. : _____

c) Safe working load (kg) : _____

d) Lifting height (m) : _____

e) Test Certificate : _____ *Yes/No _____

4.9.1.6 Other Accessories

a) Name plate of manual bypass switch : _____

b) Name plate of auto-changeover switch : _____

4.9.2 Type of Control

4.9.2.1	Starting	*Automatic/Manual
4.9.2.2	Loading Transfer to Generator	*Automatic/Manual
4.9.2.3	Stopping	*Automatic/Manual
4.9.2.4	Load Transfer to Mains	*Automatic/Manual

4.9.3 Insulation Resistance Test (Temporarily open alternator star point)

4.9.3.1	L1 phase to earth	Mega ohm _____
4.9.3.2	L2 phase to earth	Mega ohm _____
4.9.3.3	L3 phase to earth	Mega ohm _____
4.9.3.4	L1 phase to L2 phase	Mega ohm _____
4.9.3.5	L2 phase to L3 phase	Mega ohm _____
4.9.3.6	L3 phase to L1 phase	Mega ohm _____

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.9.4 Installations and Equipment Connected

	Peak Starting Current (I_L)	Rated Input Power	Starting Method
(a) Fire service installation			
Fixed fire pump	No. x A	No. x kW	
Intermediate booster pump	No. x A	No. x kW	
Sprinkler pump	No. x A	No. x kW	
Fireman's lift	No. x A	No. x kW	
Fire detection system	No. x A	No. x kW	
Smoke extraction system	No. x A	No. x kW	
Staircase pressurisation	No. x A	No. x kW	
Exit sign/emergency lighting	No. x A	No. x kW	
Others :	No. x A	No. x kW	
(b) Other equipment (please specify)			
…….	A	kW	
…….	A	kW	
…….	A	kW	
…….	A	kW	
…….	A	kW	
…….	A	kW	
Estimated maximum simultaneous starting and running load		kW/ kVA	Remarks : D.O.L. / Star-delta/ Auto-transformer/ others

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.9.5 Control Function Test

Control Function Test			Function Test	Setting	Remarks
a. Starting	Manual				
	Simulate Mains Failure	Test 1 ^			
		Test 2 **			
	Delay Start Timer				
	Delay Repeat Start				
b. Stopping	Manual				
	Resumption of Mains ***				
	Delay Stop Timer ****				
c. Engine Protection	Overload Trip (MCCB)				
	Engine Overspeed	HL			
		LL			
	Low Lub-oil Pressure (kPa)	HL			
		LL			
	High Water Temp. (°C)	HL			
		LL			
	Under Voltage Trip				
	Overvoltage Trip				
d. Others	Response Time from Mains Failure to Changeover (sec)				
	Battery 4 Attempt Start				
	Quick closing Mechanism				
	Governor Function				
	Voltage Regulator (346V - 380V)				
	Auto-starting of Vent. Fan				
	Manual Override Facilities				
	Phase Sequence of Alternator Output				
	Frequency Setting				

Note: ^ Refer to function test on capability to start and transfer load to generator automatically.

** Refer to function test on capability to start but without load transfer if mains resumes during engine starting.

*** Refer to function test on capability to automatic transfer load back to mains automatically after a preset time delay and immediately back to generator if mains fails within the above time delay period.

**** Refer to function test on capability to cool engine for a preset period after load is transferred to mains.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.9.6 On Load Test

4.9.6.1 All loadings connected : *Yes/No

4.9.6.2 Frequency (Hz) : _____

4.9.6.3 Maximum starting current (I_{LMAX}):

L1: _____ A L2: _____ A L3: _____A

4.9.6.4 Voltage dip: _____ % Voltage recovery time: _____seconds

4.9.6.5 Running (Current (I_L)

L1: _____ A L2: _____ A L3: _____A

4.9.6.6 Voltage (Volts)

L1-L2: _____ L2-L3: _____ L3-L1: _____

L1-N: _____ L2-N: _____ L3-N: _____

4.9.6.7 Engine speed (RPM) : _____

4.9.6.8 Duration of on-load test (hr) : _____

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.9.7 Dummy Load Test

Time from start							
Duration (HR) (minimum)		1/2	1/2	1	1	1	1/2
Duration (HR) (actual)							
Frequency (Hz)							
Current (Amp)	L1						
	L2						
	L3						
Voltage (Volt)	L3-L2 / L1-N						
	L2-L3 / L2-N						
	L3-L1 / L3-N						
Dummy Load	kW						
	% Full Load	0	25%	50%	75%	100%	110%
Engine Speed (RPM)							
Cooling Water Temp.							
Engine Oil Temp. (°C)							
Engine Oil Pressure (kPa)							
Fuel Consumption (l)							
Engine Room Temperature (°C)							

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.9.8 Earthing Protection Test

Measured Earthing Resistance : _____	
Earthing Relay : Make : _____ Model : _____ Serial No. : _____ Rated Current : _____	Current Setting : Time Setting : _____ Function Test : _____

Remark:

Checked/Certified by : _____ Certificate No.: _____

(Name of electrical worker) Class _____

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.10 Record of Tests on Emergency Lighting & Exit Signs

4.10.1 System Data

Quantity (Nos.)	Floor								Total
	1	2	3	4	5	6	7	8	
Emergency Light									
Exit Sign									
Directional Sign									

Type of emergency lighting :

Floor 1 Type : _____ Battery operating Hours: _____

Test facilities: *Auto/Self/Remote/Manual

Floor 2 Type: _____ Battery operating Hours: _____

Test facilities: *Auto/Self/Remote/Manual

Note: 1. Add more floors where necessary.

2. Specify self-contained or centrally supplied, maintained or non-maintained, etc.

Type of exit sign :

Floor 1 Type: _____ Battery operating Hours: _____

Test facilities: *Auto/Self/Remote/Manual

Floor 2 Type: _____ Battery operating Hours: _____

Test facilities: *Auto/Self/Remote/Manual

Note: 1. Add more floors where necessary.

2. Specify self-contained or centrally supplied, maintained or non-maintained, etc.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.10.2 Record of Test

4.10.2.1 Emergency Lighting

Location	Type (self-contained/central battery system, battery type, etc.)	Quantity	Activated within 5sec during normal power failure (Yes/No)	Operating hours (if tested)	Voltage	Current	Lux	Test facilities checked (Yes/No)
Floor 1								
Floor 2								
Floor 3								
Floor 4								
Floor 5								
Floor 6								
Floor 7								
Floor 8								
Floor 9								
Floor 10								

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.10.2.2 Exit Signs

Location	Type (self-contained/battery kit/central battery system, battery type, etc.)	Number	Activated within 5sec during normal power failure (Yes/No)	Operating hours (if tested)	Voltage	Current	cd/m^2	Test facilities checked (Yes/No)
Floor 1								
Floor 2								
Floor 3								
Floor 4								
Floor 5								
Floor 6								
Floor 7								
Floor 8								
Floor 9								
Floor 10								

Remark:

Checked/Certified by : _____ Certificate No.: _____

(Name of electrical worker) Class _____

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.11 Record of Tests on Ventilation and Air-conditioning (VAC) Control System

Table 1. Test Records on Overall Performance of VAC Control System

Ref. No. and type of MVAC system	Method of Tripping off	Shut down by Method of Tripping off	Fire signal registered in FS Panel	MVAC system unable to restart while fire signal exists	Operate Manual override switch to shut off the MVAC system and test on 'FAIL SAFE'	Other MVAC system interlocked

Remark:

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.12 Record of Tests on Pressurisation of Staircases System

Project title (with location) :

*P.W.P. / Project No. :

*Contract/Sub-contract/Quotation No. :

Date of Test :

Type, Model & Serial No. of Instrument used :

Date of calibration :

4.12.1 System Data

Type of building : *Industrial/Godown/Domestic/Others

FSI Drawing Ref. :

Staircase pressurisation fan room : (Location)

Total nos. of staircase pressurisation fan : No(s).

Total nos. of floor level : Nos.

Total nos. of door opening (single leaf) : Nos.

Total nos. of discharge outlet : Nos.

Total nos. pressure relief damper : Nos.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.12.2 Records

Table 1 Record of Air Velocity

Staircase Ref. No :	S. P. Fan Ref. No. :
Equipment Location :	Total Pages of Records :

Open Door Location	Air Velocity (Remarks (i) referred)						Remarks
	Velocity 1 (m/s)	Velocity 3 (m/s)	Velocity 5 (m/s)	Velocity 7 (m/s)	Velocity 9 (m/s)	Average Door Velocity (Criteria : > ___ m/s)	
	Velocity 2 (m/s)	Velocity 4 (m/s)	Velocity 6 (m/s)	Velocity 8 (m/s)	Velocity 10 (m/s)		

Remarks :

(i) Take at least 10 measurements, uniformly distributed over the doorway for accurate air velocity measurement.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Table 2 Record of Door Opening Force and Pressure Differential Measurement

Staircase Ref. No	:		S. P. Fan Ref. No.	:	
Equipment Location	:		Total Pages of Records :		

Floor Level	Location	Pressure Differential Across Door (Pa) (Criteria : ≧50 Pa ± 10% or ≧45 Pa ± 10%) Notes (i), (ii) and (iii) referred	Door Opening Force (Newton) (Criteria : ≦ 100 N or as required by FSD)	Remarks

Notes :

(i) For Class A System

(a) Measure the differential pressure across a closed door between the pressurised stair and the lobby/corridor, the pressure difference shall be ≧50 Pa ± 10%.

(ii) For Class B System

(a) Measure the differential pressure across lift well and accommodation area with all doors closed, the pressure difference shall be ≧50 Pa ± 10%.

(b) Measure the differential pressure across stairway and accommodation area with all doors closed, the pressure difference shall be ≧50 Pa ± 10%.

(c) Measure the differential pressure across closed doors between each lobby and accommodation area with all doors closed, the pressure difference shall be ≧45 Pa ± 10%.

(iii) All measurements shall be made when all doors to the lift, stair and lobby and the final exit doors are closed and the air release path from the accommodation area is open.

Checked/Certified by : _____ Engineer Registration No.: _____

(Name of engineer satisfying the General Specification & FSDCoP requirements)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.13 Record of Tests on Smoke Extraction System

Project Title (with location)	:	
P.W.P. / Project No.	:	
*Contract/Sub-contract/Quotation No.	:	
FSI Drawing Ref.	:	
Date of Test	:	
Type, Model & Serial No. of Instrument used	:	
Date of calibration	:	

4.13.1 System Data

Type of extraction system	:	*Static / Dynamic/_____	
Total air change per hour	:		
Total nos. of smoke extraction fan	:		No(s).
Total area of air intake opening	:	Nos.	m^2
Total nos. of discharge outlet or smoke vent	:		Nos.
Size of discharge outlet or smoke vent	:		m^2
Total nos. of smoke curtain	:		No(s).
Height of smoke curtain above ground	:		m
Smoke removal rate	:		m^3/s
Minimum supply or make-up air rate	:		m^3/s
Makeup air inlet velocity	:		m/s
Exhaust air discharge velocity	:		m/s

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.13.2 On-Site Inspection Data

		Yes	No	Remark
Smoke outlet less than 30 m	:	☐	☐	
Make up air velocity less than 3 m/s	:	☐	☐	
Extract air velocity less than 6 m/s	:	☐	☐	
Air inlet 5 m away from extract air discharge to outdoor	:	☐	☐	

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.13.3 Records

Table 1 Record of Static Smoke Extraction System(s) Activated by Fire Signal(s)

Smoke Extraction System	:		Make Up Ref. No.	:	
Equipment Location	:		Smoke Discharge Ref. No.	:	

Locations (Make up)	Open by fire signal automatically – Yes/No	Failsafe to Open – Yes/No	Interlocking with designated Smoke Discharge – Yes/No	Remarks

Locations (Smoke Discharge)	Discharge open by fire signal automatically – Yes/No	Discharge failsafe to open – Yes/No	Smoke barrier(s)/curtain(s) actuated by fire signal automatically – Yes/No	Barrier(s)/curtain(s) failsafe to drop – Yes/No	Remarks

Remarks :

Checked/Certified by : _____ Engineer Registration No.: _____

(Name of engineer satisfying the General Specification & FSDCoP requirements)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

Table 2 Record of Dynamic Smoke Extraction System(s)

Smoke Extraction System	:		Intake Fan Ref. No.	:	
Equipment Location	:		Exhaust Fan Ref. No.	:	

Locations (Intake)	Air Flow Volume and Velocity from Intake Fans					Remarks
	Velocity 1 (m/s)	Velocity 2 (m/s)	Velocity 3 (m/s)	Velocity 4 (m/s)	Total Air Flow Volume (m^3/s)	

Locations (Discharge)	Air Flow Volume and Velocity from Exhaust Fans					Remarks
	Velocity 1 (m/s)	Velocity 2 (m/s)	Velocity 3 (m/s)	Velocity 4 (m/s)	Total Air Flow Volume (m^3/s)	

Remarks :

Checked/Certified by : _____ Engineer Registration No.: _____

(Name of engineer satisfying the General Specification & FSDCoP requirements)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.14 Record of Hot Smoke Test

Project title (with location) : _____

P.W.P. / Project No. : _____

*Contract/Sub-contract/Quotation No. : _____

Date of Test : _____

Type, Model & Serial No. of Instrument used : _____

Thermocouple temperature sensors : _____

Temperature data logger : _____

Trace smoke generators : _____

Thermometer : _____

Others : _____

Date of calibration for thermocouple temperature Sensors : _____

4.14.1 System Data

Type of building : *Industrial / Godown / Domestic / Others

FSI Drawing Ref. : _____

Compartment volume : _____ m^3

Headroom height : _____ m

Total smoke extraction rate : _____ m^3/s

Total F.A. make up rate : _____ m^3/s

Total air change rate : _____

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.14.2 System Design Assumption

		Yes	No	Remark
Air flow based on 8 air change per hour	:	☐	☐	
Air flow based on fire load calculation	:	☐	☐	
Air flow based on other method	:	☐	☐	
Natural smoke extraction system	:	☐	☐	
Natural F.A. make up system	:	☐	☐	

4.14.3 On-Site Inspection Data

Total smoke extraction rate	:		m^3/s
Total F.A. make up rate	:		m^3/s
Smoke clear high	:		m

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.14.4 Records

Table 1 Record of Hot Smoke Test Inspection

Design fire size	:	
Method of simulation of fire size	:	
Type of fuel for fire simulation	:	
Type of smoke generator	:	
Internal building height	:	
Time to actuate alarm	:	
Measured max ceiling temperature	:	

Time Elapsed (minutes)	Ambient Temperature (°C)	Ceiling Temperature (°C)	Thermocouple Tree Temperature (°C)									
			T1	T2	T3	T4	T5	T6	T7	T8	T9	T10

Checked/Certified by : _____ Engineer Registration No.: _____

(Name of engineer satisfying the General Specification & FSDCoP requirements)

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.15 Record of Certification on Design by Contractor

Project title (with location) : _____

*P.W.P. / Project No. : _____

*Contract/Sub-contract/Quotation No. : _____

*Contractor/Sub-contractor : _____

FSD Ref. : _____

Drawing No. : _____

I certify that the following Fire Service Installations as specified in the *Contract/Sub-contract/Quotation have been designed in accordance with relevant standards, guidelines, codes of practice, statutory regulations, and good trade practice to meet with the functional, performance, operation and maintenance requirements and in accordance with the Contract requirements. I certify that the Fire Service Installations have been checked and tested satisfactorily to comply with the design:

1. _____
2. _____
3. _____
4. _____
5. _____

* Delete if not applicable

Name in full: (Designer's firm)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Company Chop :			

Note: 1. This certificate must be signed by the person responsible for the design and authorised by the designer Firm/Company.

2. The person authorised by the designer Firm/Company shall possess the relevant qualifications required by the Particular Specification and the General Specification.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	