Testing and Commissioning Checklist for Emergency Generator Installation

I. Reference

Project: ..... FSD Ref.: ….....

Address: .....

II. Installations and Equipment Connected (for record purpose)

Name of buildings
being protected: .....

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

III. Emergency Generator Set Details

		Alternator	Prime Mover
3.1 Make		.....	.....
3.2 Model		.....	.....
3.3 Serial No.		.....	.....
3.4 Rated Capacity	Power ..... kVA	Voltage: 380/220	Power ..... kW Speed: ..... rpm
	Current ..... A	Power factor	Frequency ..... Hz

IV. Fuel

4.1 Type: [ ] Diesel [ ] Other (please specify) .....

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

4.3 Separate fuel tank room is provided [ ] Yes [ ] No

4.4 Capacity of service tank: ..... litres Capacity of main fuel tank:..... litres

4.5 a. Fuel consumption ..... litres/hour rate 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 installations [ ] Yes [ ] No

		Yes	No	N/A	Remarks
4.6	Fuel tank room has been inspected and approved by Dangerous Goods Division. (N.B.: Supporting document is attached)	[ ]	[ ]	[ ]	.....
4.7	Surveyor report for fuel tank has been obtained as required by Dangerous Goods Division.	[ ]	[ ]	[ ]	.....
4.8	DG license for fuel tank room holding more than 2 500 litres diesel has been obtained. (N.B.: Supporting document is attached)	[ ]	[ ]	[ ]	.....

V. Visual Inspection

5.1	Adequate space (not less than 600 mm) is provided all round emergency generator for maintenance/cleaning.	[ ]	[ ]	[ ]	.....
5.2	Air supply and discharge ductworks (if any) are provided free from obstruction.	[ ]	[ ]	[ ]	.....
5.3	Air supply and discharge ductworks running in compartment other than emergency generator room are enclosed with proper fire resisting material.	[ ]	[ ]	[ ]	.....
5.4	Service fuel tank in generator room is made of 3 mm steel construction and of capacity less than 500 litres.	[ ]	[ ]	[ ]	.....
5.5	Generator built-in fuel tank is not greater than 500 litres.	[ ]	[ ]	[ ]	.....
5.6	Fuel tank is electrically earthed.	[ ]	[ ]	[ ]	.....

		Yes	No	N/A	Remarks

5.7	A baffle wall of brick-work construction or of 9 mm metal sheet is provided between the side of service tank (if installed) and generator, serving as a screen wall between the two.	[ ]	[ ]	[ ]	.....
5.8	Fuel refilling pump is connected to essential power supply.	[ ]	[ ]	[ ]	.....
5.9	A shut off valve is provided on the supply pipe from fuel tank to the service tank of generator.	[ ]	[ ]	[ ]	.....
5.10	Capacity of battery is capable of starting the generator 4 times consecutively and calculation sheet is enclosed. (Capacity: ..... Ah)	[ ]	[ ]	[ ]	.....
5.11	The batteries are kept in fully charged condition and the trickle charge is operating.	[ ]	[ ]	[ ]	.....
5.12	Inside emergency generator room,				
5.12.1	door sill of sufficient height is provided to contain the total fuel contents of the service tank (if installed), fuel tank and sump of the generator;	[ ]	[ ]	[ ]	.....
5.12.2	detailed operation instructions are displayed; and	[ ]	[ ]	[ ]	.....
5.12.3	a log book is provided.	[ ]	[ ]	[ ]	.....
5.13	Integrity of the fire resisting construction of generator room and the door is intact.	[ ]	[ ]	[ ]	.....
5.14	The notices “EMERGENCY GENERATOR” (應急發電機) and “NO SMOKING” (不准吸煙) in 120 mm English and Chinese characters are provided at the entrance to the emergency generator room.	[ ]	[ ]	[ ]	.....

VI. Functional Testing

6.1	All testing are carried out with the generator room doors kept closed.	[ ]	[ ]	[ ]	.....
6.2	The manual starting facilities of the emergency generator can operate satisfactorily.	[ ]	[ ]	[ ]	.....
6.3	Upon failure of normal electricity supply, emergency generator:—	[ ]	[ ]	[ ]	.....
6.3.1	automatically starts when the duration of power failure exceeds 1 second; and	[ ]	[ ]	[ ]	.....
6.3.2	transfers to FS loads within 15 seconds.	[ ]	[ ]	[ ]	.....
6.4	Emergency generator is capable of restarting upon failure of first attempt in starting.	[ ]	[ ]	[ ]	.....
		Yes	No	N/A	Remarks
6.5	Audible and visual alarms are given locally, and at fire control main panel when the generator starting sequence is locked out due to starting failure.	[ ]	[ ]	[ ]	.....

6.6	After one hour of running test, all instruments, safety devices, etc. indicate “normal” condition.	[ ]	[ ]	[ ]	.....
6.7	The generator set will continue to run after a pre-determined time recommended by manufacturer unless it is stopped manually if the normal power supply has resumed.	[ ]	[ ]	[ ]	.....
6.8	Warning signal is given locally and at fire control main panel when manual/auto selector switch turn to manual position. (N.B. such provision is strongly recommended)	[ ]	[ ]	[ ]	.....
6.9	Remote control valve on supply pipe to the service tank is in good working order.	[ ]	[ ]	[ ]	.....
6.10	All moving parts are effectively and rigidly guarded for safety.	[ ]	[ ]	[ ]	.....
6.11	All hot parts are properly insulated.	[ ]	[ ]	[ ]	.....
6.12	No exhaust leak is detected inside generator room while the generator is running.	[ ]	[ ]	[ ]	.....

VII. On Load Test

7.1 All loadings as listed in item 2 were connected [ ] Yes [ ] No

7.2 Frequency (Hz) .....

7.3 Maximum starting current (I_{LMAX})

R: ..... A Y: ..... A B: ..... A

7.4 Voltage dip: ..... % Voltage recovery time: .....seconds

7.5 Running current (I_L)

R: ..... A Y: ..... A B: ..... A

7.6 Voltage (Volts)

R-Y: ..... Y-B: ..... B-R:.....

R-N: ..... Y-N: ..... B-N: .....

7.7 Engine speed (rpm) .....

7.8 Duration of on-load test (hr.) .....

VIII. General Comments & Remarks

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_____
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_____
___

Full Name of
Design Engineer
(in block letters): ……...

Name of
Works *Specialist/ Agent
(in block letters): ……

Company Chop: ……..

Date: ……..

* delete as appropriate

Test conducted by:

…….….. (Signature)

……
Name of FSI Contractor's Representative (in block letters)

……
Company Chop

…….(RC /)
Name of FSI Contractor (FSI Contractor Registration Number)

Date ……