

Building Services Branch
Testing and Commissioning
Procedure No. 4
for
Lift, Escalator and Passenger Conveyor Installation
in
Government Buildings
of
Hong Kong Special Administrative Region

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**Building Services Branch
Architectural Services Department
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**B.S.B. Testing and Commissioning Procedure No. 4
Lift, Escalator and Passenger Conveyor Installation**

Action

1. Introduction

- 1.1 In the following text, 'Lifts and Escalators Installation' means 'Lifts and/or Escalators and/or Passenger Conveyors Installation'.
- 1.2 This procedure is intended to lay down the minimum testing and commissioning requirements on a new 'Lifts and Escalators Installation' or on an existing 'Lifts and Escalators Installation' after major alteration/ replacement work.

2. Responsibility of Building Services Branch (BSB)

- 2.1 The responsibility of BSB staff is limited to the following aspects of work with respect to Testing and Commissioning (T & C).
 - (a) To vet and approve the T & C procedures proposed and submitted by the Contractor.
 - (b) To witness those T & C procedures as specified.
 - (c) To receive the 'Inspection and Performance Test Reports' in the format as in Appendices A and/or B of this BSB T&C Procedure No. 4.
 - (d) To receive the latest version of 'Certification of Test and Examination' required by 'Code of Practice on the Examination, Testing and Maintenance of Lifts and Escalators' issued by Electrical and Mechanical Services Department. The 1996 edition is attached as Annex A to D.

3. General Requirements

- 3.1 The Contractor shall submit his T & C procedures to the Project Building Services Engineer (Project BSE) for approval. The submission shall be made at least one month before the commencement of T & C.

Contractor

- | | | |
|-----|---|--------------------------|
| 3.2 | Where tests are required to be witnessed by BSB staff, the Contractor shall give due advance notice (usually not less than three days) of his intention and provide details of date, time and type of tests to be performed. | Contractor |
| 3.3 | Upon completion of the T & C work, the Contractor's Registered Lift Engineer and/or Registered Escalator Engineer shall complete and sign the 'Inspection and Performance Test Reports' and 'Certification of Test and Examination' to the effect that the 'Lift and Escalator Installation' has been thoroughly examined and found to be free from obvious defects. | Contractor |
| 3.4 | Copies of these Test Report(s) and Certifications(s) shall be passed to the relevant maintenance branches/division of EMSD via Project BSE. | Contractor/
BSB Staff |
| 3.5 | The Contractor is required to note that carrying out the T & C procedures as required herein does not preclude him from complying with all other statutory/contractual requirements. | Contractor |

4. Testing and Inspection

- | | | |
|-----|---|------------|
| 4.1 | Testing and inspection shall be as per requirements set down in the latest General Specification for Lift, Escalator and Passenger Conveyor Installation, latest Code of Practice on the Examination, Testing and Maintenance of Lifts and Escalators issued by EMSD, the latest relevant British Standards and other acceptable international standards. | Contractor |
| 4.2 | Tests demonstrating the performance characteristics of the 'Lifts and Escalators Installation' shall be performed by the Contractor in the presence of BSB staff who shall be accompanied by the Contractor's approved representative all the time during test and examination. | Contractor |
| 4.3 | The Contractor shall provide all the necessary staff, labour, materials and equipment for a through test and examination of the 'Lifts and Escalators Installation'. | Contractor |

5. Commissioning

- | | | |
|-----|--|--------------------------|
| 5.1 | With all the test results being satisfactory in all aspects according to the requirements in the specification, the 'Lifts and Escalators Installation' shall be commissioned by the Registered Lift Engineer and/or Registered Escalator Engineer of the Contractor and witness by the project BSB staff. | Contractor/
BSB Staff |
|-----|--|--------------------------|

**CERTIFICATION OF TEST AND EXAMINATION FOR
ELECTRIC PASSENGER LIFTS*/FREIGHT LIFTS*/
NON-COMMERCIAL VEHICLE LIFTS***

1. Description of Installation

Location : _____

Manufacturer : _____ Plant No. : _____

Lift Identification No. : _____ Length of Travel _____ m

Levels Served _____

Rated Load _____ kg _____ Persons Rated Speed _____ m/s

Power Supply at Time of Test _____ Volt _____ Phase _____ Hz

Levelling tolerance ± _____ mm Number of Starts _____ /hr

Car Floor Area _____ m²

Machine Room Location : above lift well*/below lift well*/at side*/Others _____

Is this a fireman lift? Yes No

Is this lift for disabled persons? Yes No

2. Static Examination - Mechanical
 - 2.1 Suspension
 - (a) Suspension Ropes

Certification No. & Date of Issue _____

(i) Number _____ (ii) Nominal Diameter _____ mm
 - (b) Type of Anchorages : Car _____
 - Counterweight _____
 - Have the anchorages been examined and found in good working condition? Yes No

 - 2.2 Safety Gear

Has the safety gear been certified in accordance with clause 5.11.1 of COP on The Design & Construction, Part 1? Yes No

Certification No. & Date of Issue _____

 - 2.3 Energy Dissipation Buffers N.A.*/Fitted*
 - (a) Have the buffers been certified in accordance with clause 6.2.1 of COP on The Design & Construction, Part 1? Yes No
 - (b) Certification No. & Date of Issue _____
 - (c) Is the buffer switch functioning properly? Yes No

 - 2.4 Energy Accumulation Buffers N.A.*/Fitted*
 - (a) Have the buffers been certified in accordance with clause 6.2.1 of COP on the design & construction, Part 1? N.A. Yes No
 - (b) Certification No. & Date of Issue _____
 - (c) Do the buffers comply with clause 6.2.2 of COP on The Design & Construction, Part 1? Yes No

 - 2.5 Brake

Does the brake sustain the static car, in the lower part of its travel, with the rated load plus 25% (passenger/general freight lifts) or 50% (non-commercial vehicle lifts/industrial truck loaded freight lifts)? Yes No

 - 2.6 Overspeed Governor
 - (a) Has the governor been certified in accordance with clause 5.12.1 of COP on The Design & Construction, Part 1? Yes No
 - (b) Certification No. & Date of Issue _____
 - (c) Is the data plate in accordance with clause 11.6 of COP on The Design & Construction, Part 1? Yes No

**CERTIFICATION OF TEST AND EXAMINATION FOR
ELECTRIC PASSENGER LIFTS*/FREIGHT LIFTS*/
NON-COMMERCIAL VEHICLE LIFTS***

- | | | | |
|------|--|------|--------|
| | (d) Does the governor rope conform of clause 5.12.6 of COP on The Design & Construction, Part 1? | Yes | No |
| | (e) Is the governor rope slack switch working properly? | Yes | No |
|
 | | | |
| 3. | Static Examination - Electrical | | |
|
 | | | |
| 3.1 | Insulation Resistance to Earth | | |
| | (a) Lift Motor _____ MΩ | | |
| | (b) MG Set (if fitted) : Motor _____ MΩ Generator _____ MΩ | | |
| | (c) Power System _____ MΩ (d) Safety Circuits _____ MΩ | | |
| 3.2 | Earthing | | |
| | (a) Is the maximum continuity resistance to earth less than 0.5Ω? | Yes | No |
| | (b) Is the car connected to controller earthing terminal by a separate conductor $\geq 0.75 \text{ mm}^2$? | Yes | No |
| 3.3 | Protection of Conductors | | |
| | Is the fixed wiring in conduit or trunking (or fittings which ensure equivalent protection) throughout? | Yes | No |
| 3.4 | Phase Failure Device | | |
| | Does the phase reversal and phase failure device operate correctly? | Yes | No |
|
 | | | |
| 4. | Dynamic Tests | | |
|
 | | | |
| 4.1 | Safety Contacts/Circuits | | |
| | (a) Have the contacts at each landing entrance been proved to ensure that when broken there is no movement of the car? | Yes | No |
| | (b) Have the mechanical locks at each landing entrance been proved for positive locking? | Yes | No |
| | (c) Have the car door/gate contacts been proved so that when broken there is no car movement? | Yes | No |
| | (d) If separate terminal stopping switches are fitted, do they operate satisfactorily? | N.A. | Yes No |
| | (e) Do the final limit switches remove the motor supply before the car or counterweight contact the buffers? | Yes | No |
| | (f) Have the stopping devices on the car top, in the pulley room and pit, been proved so that when broken no movement of the car occurs? | Yes | No |
| | (g) Have all other switches/contacts in the safety circuit been proved so that when broken no car movement occurs? | Yes | No |
| | (h) Does the earthing of the most remote contact (lock or push button) operate a fuse or trip a breaker without delay? | Yes | No |
| | (i) Are all other electromechanical interlocks working properly? | Yes | No |
| 4.2 | Car Top Control Station | | |
| | (a) Speed Up _____ m/s | | |
| | (b) Speed Down _____ m/s | | |
| | (c) Does the design and operation of the car top station comply with clause 10.3.1.3 of COP on The Design & Construction, Part 1? | Yes | No |

**CERTIFICATION OF TEST AND EXAMINATION FOR
ELECTRIC PASSENGER LIFTS*/FREIGHT LIFTS*/
NON-COMMERCIAL VEHICLE LIFTS***

- 4.3 Clearances and Runbys
- (a) With the counterweight on its fully compressed buffers, how much further can the lift car move upwards before it hits any obstruction? _____ mm
 - (b) What is the distance between the car roof and the lowest parts of roof of the lift well, when the car levels with top floor? _____ mm
 - (c) With the car resting on its fully compressed buffers, is there a sufficient space to accommodate a rectangular block as specified in clause 1.5.3(a) of COP on The Design & Construction, Part 1 with at least 0.5m between the bottom of the pit and the lowest point of the car? Yes No
 - (d) Distance of bottom runby of car _____ mm
 - (e) Distance of bottom runby of counterweight _____ mm
- 4.4 Door Tests
- (a) Type of sliding doors _____ Horizontal*/Vertical*/collapsible*
 - (b) Form of operation of doors _____ Manual*/Powered*
 - (c) Power supply to door control circuit _____ V
 - (d) Maximum force at the mid-point of the travel _____ N
 - (e) Does the protective device reverse the doors in accordance with clause 4.6.2.2 of COP on The Design & Construction, Part 1? Yes No
 - (f) Do the car doors fulfil the requirements of clause 4.10 of COP on The Design & Construction, Part 1? Yes No

5. Measurements of the Electrical System

- (a) Particulars of Lift Motor (as stated in data plate)
 Maker _____ Drive System _____
 Serial No. _____ Speed _____ rpm Frequency _____ Hz
 Power rating _____ kW Rated Voltage _____ V Current Rating _____ A
- (b) Particulars of MG Set Drive Motor*/Convertor* (as stated in data plate)
 Maker _____ Serial No. _____
 Power rating _____ kW Voltage _____ V
 Current Rating _____ A Speed _____ rpm Frequency _____ Hz
 (Note : Speed and frequency not applicable for converter)
- (c) Current and Speed Test (at mid-point of travel)

	Lift Motor Speed	Lift Speed	Lift Motor Input		System Input MG Set*/Convertor*	
No Load Down	rpm	m/s	V	A	V	A
Full Load Up	rpm	m/s	V	A	V	A

**CERTIFICATION OF TEST AND EXAMINATION FOR
ELECTRIC PASSENGER LIFTS*/FREIGHT LIFTS*/
NON-COMMERCIAL VEHICLE LIFTS***

(d) Overcurrent protection devices

	Lift Motor	MG Set Drive Motor	Converter
Type			
Settings			

Governor Type _____ Serial No. _____

		Electrical	Mechanical
Device Tripping	Marked	m/s	m/s
Speed	Measured	m/s	m/s

State how the governor was tested on the installation:
Simulation*/Free Fall*/Actual Overspeed*/Others* _____

6.2 Counterweight Governor (if fitted)

Governor Type _____ Serial No. _____

		Electrical	Mechanical
Device Tripping	Marked	m/s	m/s
Speed	Measured	m/s	m/s

State how the governor was tested on the installation:
Simulation*/Free Fall*/Actual Overspeed*/Others* _____

7. Car Safety Gear Tests

Notes : The following tests should be conducted with the car descending, with the brake open and the machine continuing to run till the ropes slip or become slack.

- (a) Progressive Type N.A.*/Fitted*
- (i) Does the safety gear operate correctly when engaging at rated speed with the rated load uniformly distributed in the lift car? N.A. Yes No
- OR
- (ii) Does the safety gear operate correctly when engaging at levelling or inspection speed with 125%/150% rated load uniformly distributed in the lift car? N.A. Yes No
- (b) Instantaneous Type N.A.*/Fitted*
- Does the safety gear operate correctly when engaging at rated speed with the rated load uniformly distributed? Yes No
- (c) What was the speed and the stopping distance when the test was conducted?
Speed _____ m/s Stopping Distance _____ mm
- (d) After the lift car was brought to a halt in the above test was the floor horizontal, or sloping less than 5% from the horizontal? Yes No

**CERTIFICATION OF TEST AND EXAMINATION FOR
ELECTRIC PASSENGER LIFTS*/FREIGHT LIFTS*/
NON-COMMERCIAL VEHICLE LIFTS***

8. Counterweight Safety Gear Test
Note: The following tests should be conducted with the counterweight descending, with the brake open and the machine continuing to run till the ropes slip or become slack.
- | | | | | |
|--|----|---------------|-----|----|
| (a) Progressive Type | | N.A.*/Fitted* | | |
| (i) Does the safety gear operate correctly when engaging at rated speed with the car empty? | | N.A. | Yes | No |
| | OR | | | |
| (ii) Does the safety gear operate correctly when engaging at levelling or inspection speed with the car empty? | | N.A. | Yes | No |
| (b) Instantaneous Type | | N.A.*/Fitted* | | |
| Does the safety gear operate correctly when engaging at rated speed with the car empty? | | | Yes | No |
9. Buffer Tests
- | | | | | |
|---|--|--|-----|----|
| (a) For Car Buffers | | | | |
| (i) When the car was brought into contact with the buffers at rated load at rated speed, or at a speed for which the stroke of the buffers has been calculated, was the operation satisfactory? | | | Yes | No |
| (ii) Do the buffers recover automatically after operation? | | | Yes | No |
| (b) For Counterweight Buffers | | | | |
| When the counterweight was brought into contact with the buffers with the car empty at rated speed, or a speed for which the stroke of the buffers has been calculated, was the operation satisfactory? | | | Yes | No |
10. Traction Checks
- | | | | | |
|--|--|--|-----|----|
| (a) Does the car stop under emergency conditions | | | | |
| (i) with the car empty when travelling upwards at rated speed? | | | Yes | No |
| (ii) with the rated load plus 25% when travelling downwards in the lower part of the lift well at rated speed? | | | Yes | No |
| (b) With the counterweight resting on its fully compressed buffers. Is it impossible for the empty car to be raised under power? | | | Yes | No |
11. Duty Cycle Test
Does the lift operate satisfactorily for a period of at least 0.5 hours when running with rated load, full travel and intermediate stops at a rate of starts equal to the number of starts per hour recommended in Item 1?
- | | | | | |
|--|--|-----|--|----|
| | | Yes | | No |
|--|--|-----|--|----|
12. General (Lift Work)
- | | | | | |
|---|--|------|-----|----|
| (a) Is the maximum load indicated in the car and does it comply with clause 11.2.1 of COP on The Design & Construction, Part 1? | | Yes | | No |
| (b) Does the fireman lift operation function correctly? | | N.A. | Yes | No |
| (c) Are the emergency instructions displayed in the machine room? | | | Yes | No |
| (d) Does the emergency operation system function correctly in accordance with clause 8.5 of COP on The Design & Construction, Part 1? | | | Yes | No |
| (e) Does the emergency lighting of the car comply with clause 4.16.3 of COP on The Design & Construction, Part 1? | | | Yes | No |

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- (f) What are the means of emergency communication of passenger in the lift car?
Intercom*/Alarm bell/Others _____
- (g) Does the overload device operate satisfactorily? Yes No
13. General (Other works)
- (a) Is the machine room artificial lighting adequate for maintenance purposes? Yes No
- (b) Does the artificial lighting in the lift well comply with clause 1.7(b) of COP on The Design & Construction, Part 1? Yes No
- (c) Are the machine room conditions satisfactory? Yes No
- (d) Are the provisions for ventilating the machine room adequate? Yes No
- (e) Are the machine room doors or trap doors fitted with a suitable lock to comply with clause 3.15.3 and clause 3.15.4 of COP on Building Works for Lifts and Escalators? Yes No
- (f) Are the safety means of access to all items of equipment in accordance with COP on The Design & Construction. Part 1 and COP on Building Works for Lifts and Escalators?
If no. state details _____ Yes No
- (g) Are the hoistway emergency doors (if fitted), in compliance with clause 3.2 of COP on Building Works for Lifts and Escalators? N.A. Yes No
- (h) Documents (copy only) in respect of exemptions (if any) shall be provided for reference. N.A. Yes No

14. Declaration

I certify that on _____ the equipment was thoroughly examined and found to be free from obvious defects, and to comply with the COP on The Design & Construction, Part 1, COP on Examination, Testing and Maintenance of Lifts and Escalators and COP on Building Works for Lifts and Escalators with the exception of the following items and that the foregoing is an accurate record of the test and examination carried out.

Exceptions:

Name & Registration No. of
Registered Lift Engineer

Signature of Registered Lift Engineer

Name of Registered Lift Contractor

Date

Remarks: COP means Code of Practice

**CERTIFICATION OF TEST AND EXAMINATION FOR
HYDRAULIC PASSENGER LIFTS*/FREIGHT LIFTS*/
NON-COMMERCIAL VEHICLE LIFTS***

1. Description of Installation
- Location : _____
- Manufacturer : _____ Plant No. : _____
- Lift Identification No. : _____ Length of Travel _____ m
- Levels Served _____
- Rated Load _____ kg _____ Persons Rated Speed Up _____ m/s
- Dia. of Ram _____ m Ram Action: Direct*/Indirect* Type of Ram: Single*/Telescopic*
- Power Supply at Time of Test _____ Volt _____ Phase _____ Hz
- Levelling tolerance \pm _____ mm Number of Starts _____ /hr
- Car Floor Area _____ m²
- Machine Room Location : above lift well*/below lift well*/at side*/Others _____
- Is this a fireman lift? Yes No
- Is this lift for disabled persons? Yes No
- Device provided against free fall and descent with excessive speed of the car:-
- (i) Safety gear tripped by overspeed governor Yes No
- (ii) Safety gear tripped by failure of suspension gear or by safety rope Yes No
- (iii) Rupture valve Yes No
- (iv) Restrictor Yes No
- Devices/system provided against creeping of the car:-
- (i) Safety gear tripped by downward movement of the car Yes No
- (ii) Pawl device Yes No
- (iii) Clamping device Yes No
- (iv) Electrical anti-creep system Yes No
2. Static Examination - Mechanical
- 2.1 Jack
- Single Jack Multi Jack Number of Jacks _____
- In multi jack system, are the jacks, in compliance with clause 8.1.3 of COP on The Design & Construction, Part 2? Yes No
- 2.2 Suspension
- (a) Suspension Ropes
- (i) Certification No. & Date of Issue _____
- (ii) Number _____ Nominal Diameter _____ mm
- (b) Type of Anchorages : Car _____
- Counterweight (if provided) _____
- Have the anchorages been examined and found in good working condition? Yes No
- 2.3 Suspension Chains N.A.*/Fitted*
- (a) Number _____ (b) Pitch _____ mm (c) Type and Construction _____
- 2.4 Safety Gear N.A.*/Fitted*
- Has the safety gear been certified in accordance with clause 5.10.1.5 of COP on The Design & Construction, Part 2? Yes No
- Certification No. & Date of Issue : _____
- 2.5 Energy Dissipation Buffers N.A.*/Fitted*
- (a) Have the buffers been certified in accordance with F5 of BS5655, Part 2 Yes No
- (b) Certification No. & Date of Issue : _____
- (c) Is the buffer switch functioning properly? Yes No

**CERTIFICATION OF TEST AND EXAMINATION FOR
HYDRAULIC PASSENGER LIFTS*/FREIGHT LIFTS*/
NON-COMMERCIAL VEHICLE LIFTS***

2.6	Energy Accumulation Buffers		N.A.*/Fitted*
(a)	Have the buffers been certified in accordance with F5 of BS5655 Part 2	N.A.	Yes No
(b)	Do the buffers comply with clause 6.2.3 of COP on The Design & Construction, Part 2?		Yes No
2.7	Overspeed Governor		N.A.*/Fitted*
(a)	Has the governor been certified in accordance with F.4.3 of BS5655 Part 2?		Yes No
(b)	Certification No. & Date of Issue : _____		
(c)	Is the data plate in accordance with clause 11.6 of COP on The Design & Construction, Part 2?		Yes No
(d)	Does the governor rope conform to clause 5.12.6 of COP on The Design & Construction, Part 2?		Yes No
(e)	Is the governor slack rope switch working properly?		Yes No
3.	Static Examination - Electrical		
3.1	Insulation Resistance to Earth		
(a)	Pump Motor _____ M Ω		
(b)	Power System _____ M Ω		
(c)	Safety Circuits _____ M Ω		
3.2	Earthing		
(a)	Is the maximum continuity resistance to earth less than 0.5 Ω ?		Yes No
(b)	Is the car connected to controller earthing terminal by a separate conductor $\geq 0.75 \text{ mm}^2$?		Yes No
3.3	Protection of Conductors		
	Is the fixed wiring in conduit or trunking (or fittings which ensure equivalent protection) throughout?		Yes No
3.4	Phase Failure Device		
	Does the phase reversal and phase failure device operate correctly?		Yes No
4.	Dynamic Tests		
4.1	Safety Contacts/Circuits		
(a)	Have the contacts at each landing entrance been proved to ensure that when broken there is no movement of the car?		Yes No
(b)	Have the mechanical locks at each landing entrance been proved for positive locking?		Yes No
(c)	Have the car door/gate contacts been proved so that when broken there is no car movement?		Yes No
(d)	If separate terminal stopping switches are fitted, do they operate satisfactorily?	N.A.	Yes No
(e)	Does the final limit switch operate in accordance with clause 6.3 of COP on The Design & Construction, Part 2?		Yes No
(f)	Have the stopping devices on the car top, in the pulley room and pit been proved so that when broken no movement of the car occurs?		Yes No

**CERTIFICATION OF TEST AND EXAMINATION FOR
HYDRAULIC PASSENGER LIFTS*/FREIGHT LIFTS*/
NON-COMMERCIAL VEHICLE LIFTS***

	(g)	Have all other switches/contacts in the safety circuit been proved so that when broken no car movement occurs?	Yes	No
	(h)	Does the earthing of the most remote contact (lock or push button) operate a fuse or trip a breaker without delay?	Yes	No
	(i)	Are all other electromechanical interlocks working properly?	Yes	No
4.2	Car Top Control Station			
	(a)	Speed Up _____ m/s		
	(b)	Speed Down _____ m/s		
	(c)	Does the design and operation of the car top station comply with clause 10.3.1.3 of COP on The Design & Construction, Part 2?	Yes	No
4.3	Clearances and Runbys			
	(a)	Will the car and counterweight (if fitted) clear all obstacles when driven at slow speed:		
	(i)	with the car and rated load compressing the car buffers?	Yes	No
	(ii)	with the counterweight (if fitted) compressing its buffer (car empty)?	N.A.	Yes No
	(iii)	with the ram fully extended to the ram stop?	Yes	No
	(b)	What is the distance between the car roof and the lowest parts of roof of the lift well, when the car levels with top floor?		_____ mm
	(c)	With the car resting on its fully compressed buffers, is there a sufficient space to accommodate the rectangular blocks as specified in clause 1.5.2(a) of COP on The Design & Construction, Part 2 with at least 0.5m between the bottom of the pit and the lowest point of the car?	Yes	No
	(d)	Distance of bottom runby of car		_____ mm
	(e)	Distance of bottom runby of counterweight (if fitted)		_____ mm
4.4	Door Tests			
	(a)	Type of sliding doors	Horizontal*/Vertical*/collapsible*	
	(b)	Form of operation of doors	Manual*/Powered*	
	(c)	Power supply to door control circuit		_____ V
	(d)	Maximum force at the mid-point of the travel		_____ N
	(e)	Does the protective device reverse the doors in accordance with clause 4.6.2.2 of COP on The Design & Construction Part 2?	N.A.	Yes No
	(f)	Do the car doors fulfil the requirements of clause 4.10 of COP on The Design & Construction, Part 2?	Yes	No
5.	Measurements of the Hydraulic and Electrical System			
	Note: 1 bar = 10 ⁵ N/m ² = 10 ⁵ Pa			
	(a)	With rated load in the car and highest floor level, state static hydraulic pressure		_____ bar
	(b)	When subject to 200% of full load pressure applied between the non-return valve and the jack (included) for a period of 5 minutes, is there evidence of any pressure drop or leakage of hydraulic fluid?	Yes	No

**CERTIFICATION OF TEST AND EXAMINATION FOR
HYDRAULIC PASSENGER LIFTS*/FREIGHT LIFTS*/
NON-COMMERCIAL VEHICLE LIFTS***

- (c) Particulars of the pump motor (as stated on data plate)
 Maker _____ Drive System _____
 Serial No. _____ Speed _____ rpm Frequency _____ Hz
 Power Rating _____ kW Rated Voltage _____ V Current Rating _____ A
- (d) Particulars of the pump (as stated on data plate)
 Maker _____ Serial No. _____ Type _____
- (e) Current and Speed Tests (at mid-point of travel)

	Hydraulic pressure (See Note 1)	Lift Speed	Motor Input (See Note 2)	
No Load Up	bar	m/s	V	A
Full Load Up	bar	m/s	V	A

or down direction valve, and the supply line to the cylinder

Note 2 - The motor current readings on conductors adjacent to the motor terminal block should be taken with the motor running steadily.

- (f) Pressure relief valve operated at pressure of _____ bar and was the integrity of the pipework satisfactory? Yes No
 - (g) Is the relief valve secured against any unauthorized interference? Yes No
 - (h) Does the check valve hold the car with rated load at floor level? Yes No
 - (i) Does the rupture valve function correctly? N.A. Yes No
 - (j) Does the operation of the manual lowering valve lower the car at a slow speed not exceeding 0.3 m/s? Yes No
 - (k) In the case of an indirect acting lift, does the slack chain*/ropes* switch or pressure switch prevent operation of the lift until pressure is re-established by the re-setting of the switch? N.A. Yes No
 - (l) Are precautions against any overheating of the fluid provided? Yes No
6. Governor/Safety Ropes/Suspension Gear Tests
- (a) Governor _____ Serial No. _____ N.A.*/Fitted*

		Electrical	Mechanical
Device Tripping	Marked	m/s	m/s
Speed	Measured	m/s	m/s

State how the governor was tested on the installation:

Simulation*/Free Fall*/Actual Overspeed*/Others* _____

OR

- (b) Safety Rope
 If the safety gear*/clamping device* is tripped by a safety rope, does the triggering mechanism operate satisfactory? N.A. Yes No
- (c) Suspension Gear
 If the safety gear */clamping device* is tripped by the failure of suspension gear, does the triggering mechanism operate satisfactory? N.A. Yes No

**CERTIFICATION OF TEST AND EXAMINATION FOR
HYDRAULIC PASSENGER LIFTS*/FREIGHT LIFTS*/
NON-COMMERCIAL VEHICLE LIFTS***

7.	Car Safety Gear Tests	N.A.*/Fitted*	
	Note : The following tests should be conducted with the car descending.		
	(a) Progressive Type		
	Does the safety gear operate correctly if engaged at levelling/ inspection/rated speed* with 100%*/125%*/150%* of the rated load uniformly distributed in the lift car.	Yes	No
	OR		
	(b) Instantaneous Type		
	Does the safety gear operate correctly if engaged at rated speed with 100%*/125%* of the rated load uniformly distributed in the lift car?	Yes	No
	(c) What was the speed and the stopping distance when the test was conducted?		
	Speed _____ m/s Stopping Distance. _____ mm		
	(d) After the lift car was brought to a halt in the above test, was the car floor horizontal, or sloping less than 5% from the horizontal?	Yes	No
8.	Clamping Device Tests		
	(a) Progressive Type		
	Does the clamping device operate correctly when engaging with 125%*/150%* of the rated load uniformly distributed in the lift car?	Yes	No
	(b) Instantaneous Type		
	Does the clamping device operate correctly when engaging with 125% of the rated load uniformly distributed in the car?	Yes	No
9.	Buffer Tests		
	(a) For Car Buffers		
	(1) When the car was brought into contact with the buffers at rated load and at rated speed, or at a speed for which the stroke of the buffers has been calculated, was the operation satisfactory?	Yes	No
	(2) Do the buffers automatically return to their designed position after undergoing compression?	Yes	No
	(b) For Counterweight Buffers (if fitted)		
	When the counterweight was brought into contact with the buffers with the car empty and travelling at rate speed, or a speed for which the stroke of the buffers has been calculated, was the operation satisfactory?	N.A.	Yes No
10.	Anti-Creep		
	Does the anti-creep device operate in accordance with conditions stipulated in clause 10.3.1.4 of COP on The Design & Construction Part 2?	Yes	No
11.	Duty Cycle Test		
	Does the lift operate satisfactory for a period of at least 0.5 hour when running with rated load over the full travel distance and serving intermediate stops at a rate equal to the number of starts per hour as stated in Item 1?	Yes	No

**CERTIFICATION OF TEST AND EXAMINATION FOR
HYDRAULIC PASSENGER LIFTS*/FREIGHT LIFTS*/
NON-COMMERCIAL VEHICLE LIFTS***

12. General (Lift Work)
- | | | | |
|-----|--|------|--------|
| (a) | Is the maximum load indicated in the car and does it comply with clause 11.2.1 of COP on The Design & Construction, Part 2? | Yes | No |
| (b) | Does the fireman lift operation function correctly? | N.A. | Yes No |
| (c) | Are the emergency instructions displayed in the machine room? | Yes | No |
| (d) | Does the manual emergency operation system function correctly in accordance with clause 8.9 of COP on The Design & Construction, Part 2? | Yes | No |
| (e) | Does the emergency lighting of the car comply with clause 4.16.3 of COP on The Design & Construction, Part 2? | Yes | No |
| (f) | What are the means of emergency communication for passengers in the lift car?
Intercom*/Alarm bell*/others* : _____ | | |
| (g) | Does the overload device operate satisfactorily? | Yes | No |
13. General (Others Work)
- | | | | |
|-----|--|------|--------|
| (a) | Is the machine room artificial lighting adequate for maintenance purposes? | Yes | No |
| (b) | Does the artificial lighting in the lift well comply with clause 1.7(b) of COP on The Design & Construction, Part 2? | Yes | No |
| (c) | Are the machine room conditions satisfactory? | Yes | No |
| (d) | Are the provisions for ventilation of the machine room adequate? | Yes | No |
| (e) | Are the machine room doors or trap doors fitted with a suitable lock to comply with clause 3.15.3 and clause 3.15.4 of COP on Building Works for Lifts and Escalators? | Yes | No |
| (f) | Are the safety means of access to all items of equipment in accordance with the COP for The Design & Construction, Part 2
If no, state details _____ | Yes | No |
| (g) | Are the hoistway emergency door (if fitted), in compliance with clause 3.2 of COP of Building Works for Lifts and Escalators? | N.A. | Yes No |
| (h) | Documents (copy only) in respect of exemptions (if any) shall be provided for reference. | N.A. | Yes No |

14. Declaration
I certify that on _____ the equipment was thoroughly examined, found to be free from obvious defects, and to comply with the COP on The Design & Construction, Part 2, COP on Examination, Testing and Maintenance and COP on Building Works for Lifts and Escalators with the exception of the following items and that the foregoing is an accurate record of the test and examination carried out.

Exceptions:

Name & Registration No. of
Registered Lift Engineer

Signature of Registered Lift Engineer

Name of Registered Lift Contractor

Date

Remarks: COP means Code of Practice

**CERTIFICATION OF TEST AND EXAMINATION FOR
ESCALATORS/PASSENGER CONVEYORS**

1. Description of Installation

Location : _____
 Environment : Outdoor*/Indoor*
 Manufacturer : _____ Plant No. : _____
 Identification No. : _____ Model No. : _____
 Angle of Inclination : _____ degree Rated Speed : _____ m/s
 Vertical Rise : _____ m Capacity : _____ Person/Hours
 Step Width : _____ mm Step Depth : _____ mm
 No. of Exposed Steps between Combplates : _____ Step Height : _____ mm
 Distance between Handrail Centrelines : _____ mm
 Horizontal Travel Distance of the Steps at the ends : _____ mm
 Contract Power Supply : _____ Volt _____ Hz _____ Phase
 Type of Balustrade : Opaque*/Tempered Glass*/Others* _____
 Machinery Location : Inside Truss*/Outside Truss*
 Is yellow band provided on side edges*/leading*/trailing* edge? Yes No
 Is sump pump provided at upper*/lower* station? Yes No
 Is remote monitoring facilities provided? Yes No

2. Static Examination

(a) Are the combplates and terminal guides adjusted properly? Yes No
 (b) Has the brake(s) been examined and found to be in order? Yes No
 (c) Is an auxiliary brake provided? Yes No

3. Dynamic Tests

(a) Has the operation brake been tested at no load*/full load* up*/down* condition? Yes No

AND

The stopping distance is _____ mm

Does the auxiliary brake operate properly? N.A. Yes No
 Does the overspeed device operate properly? N.A. Yes No

4. Driving Motor Current Tests

Driving Motor Manufacturer : _____ Serial Number _____
 Voltage at Time of Test : _____ Rated Power : _____
 Form of Overload Protection :

3-Phase circuit breaker	Running Current (A)	
	Up	Down
Overloads in each phase		
Others _____	No Load	

Separate supply for machine compartment/power socket? Yes No

**CERTIFICATION OF TEST AND EXAMINATION FOR
ESCALATORS/PASSENGER CONVEYORS**

5. Clearance
- | | | | |
|-----|---|-----|----|
| (a) | Is the clearance between consecutive steps not exceeding 6 mm? | Yes | No |
| (b) | Is the clearance between step and adjacent skirting not exceeding 4mm? | Yes | No |
| (c) | Is the total clearance between step and both skirting not exceeding 7mm? | Yes | No |
| (d) | Is the clearance between the upper surface of the step and the root of the comb teeth not exceeding 4mm? | Yes | No |
| (e) | Is the distance between the floor and the lower point of the handrail into the newel within the range of 0.1m to 0.25m? | Yes | No |
6. Insulation Resistance to Earth
- | | | | |
|-----|-------------------------------|-----|----------------------------------|
| (a) | Power System _____ M Ω | (d) | Safety Circuits _____ M Ω |
|-----|-------------------------------|-----|----------------------------------|
7. Earthing
- | | | | |
|-----|--|-----|----|
| (a) | Is all metalwork enclosing conductors bonded to earth? | Yes | No |
| (b) | Is the maximum continuity resistance to earth less than 0.5 Ω ? | Yes | No |
8. Half Hour Run
- The escalator*/passenger conveyor* is to run unladen fifteen minutes in the up*/forward* direction followed by fifteen minutes in the down*/backward* direction.
- | | | | |
|--|--|-----|----|
| | | Yes | No |
|--|--|-----|----|
- Observation : _____
-
9. General (Escalator*/Passenger Conveyor* Work)
- Have the following items where fitted been checked for correct operation?
- | | | | |
|-----|----------------------------------|------|--------|
| (a) | Emergency Stop Switches | Yes | No |
| (b) | Broken Step Chain Device | Yes | No |
| (c) | Broken Drive Chain*/Belt* Device | Yes | No |
| (d) | Handrail Inlet Switch | Yes | No |
| (e) | Non-reversal Device | Yes | No |
| (f) | Combplate Switch | Yes | No |
| (g) | Operation Brake | Yes | No |
| (h) | Step Sagging Device | Yes | No |
| (i) | Skirt Panel Switch | Yes | No |
| (j) | Phase Protection Device | Yes | No |
| (k) | Overspeed Device | N.A. | Yes No |
| (l) | Broken Handrail Device | N.A. | Yes No |
| (m) | Auxiliary Brake | N.A. | Yes No |

**CERTIFICATION OF TEST AND EXAMINATION FOR
ESCALATORS/PASSENGER CONVEYORS**

10. General (Other Works)

Have the following items been properly provided

(1)	(a)	Notice/pictographs for Passengers.	Yes	No
	(b)	Guard at Ceiling Intersection.	N.A.	Yes No
	(c)	Rigid guard adjacent to escalator handrail.	N.A.	Yes No
	(d)	Notice on access door to machinery spaces?	N.A.	Yes No
(2)	Do the unrestricted landing areas comply with clause 1.2.1.1 of COP on The Design & Construction, Part 4?			Yes No
(3)	Does the clear height above step*/belt* comply with clause 1.2.2 of COP on The Design & Construction, Part 4?			Yes No

11. Exemptions (if any)*

12. Declaration

I certify that on _____ the equipment was thoroughly examined and found to be free from obvious defects, and to comply with the COP on The Design & Construction, Part 4, COP on Examination, Testing and Maintenance of Lifts and Escalators and COP on Building Works for Lifts and Escalators with the exception of the following items and that the foregoing is an accurate record of the test and examination carried out.

Exceptions:

Name & Registration No. of
Registered Escalator Engineer

Signature of Registered Escalator
Engineer

Name of Registered Escalator Contractor

Date

Remarks: COP means Code of Practice

**CERTIFICATION OF TEST AND EXAMINATION FOR
ELECTRIC SERVICE LIFT**

1. Description of Installation

Location : _____

Manufacturer : _____ Plant No. : _____

Lift Identification No. : _____ Length of Travel _____ m

Levels Served _____

Rated Load _____ kg Rated Speed _____ m/s

Power Supply at Time of Test _____ Volt _____ Phase _____ Hz

Machine Room Location : above lift well*/below lift well*/at side*

Car Floor Area _____ m² Car internal height _____ mm

2. Examinations and Tests
 - 2.1 Suspension
 - (a) Suspension Ropes
 - (i) Number _____ (ii) Nominal Diameter _____
 - (b) Type of Anchorages : Car _____
Counterweight _____

Have the anchorages been examined and found in good working conditions? Yes No
 - 2.2 Car Safety Gear Tests N.A.*/Fitted*

Note : The following test should be conducted with the car descending.

 - (a) Progressive Type

Does the safety gear operate correctly if engaged at inspection */rated* speed with 125% rated load uniformly distributed in the lift car? N.A. Yes No
 - (b) Instantaneous Type

Does the safety gear operate correctly if engaged at rated speed with rated load uniformly distributed in the lift car? N.A. Yes

No
 - (c) What were the speed and stopping distance for the above test?

Speed _____ m/s Stopping Distance _____ mm
 - 2.3 Counterweight Safety Gear Tests N.A.*/Fitted*

Note : The following test should be conducted with the counterweight descending.

 - (a) Progressive Type

Does the safety gear operate correctly if engaged at inspection*/rated* speed with the lift car empty? Yes No
 - (b) Instantaneous Type

Does the safety gear operate correctly if negated at rated speed with lift car empty? Yes No

(Delete either (a) or (b) or both)
 - 2.4 Overspeed Governor*/Safety Rope*/Suspension Failure Device* Test N.A.*/Fitted*
 - (a) Car N.A.*/Fitted*
 - (i) Governor

Type _____ Serial No. _____

**CERTIFICATION OF TEST AND EXAMINATION FOR
ELECTRIC SERVICE LIFT**

Car Governor

Device	Tripping Speed (m/s)	
	Marked	Measured
Electrical		
Mechanical		

State how the governor was tested on the installation:

Simulation*/Free Fall*/Actual Overspeed*/Others* _____

OR

(ii) Safety Rope*/Suspension Failure Device*
Does the triggering mechanism operate correctly? Yes No

(b) Counterweight N.A.*/Fitted*

(i) Governor
Type _____ Serial No. _____

Device	Tripping Speed (m/s)	
	Marked	Measured
Electrical		
Mechanical		

State how the governor was tested on the installation:

Simulation*/Free Fall*/Actual Overspeed*/Others* _____

(ii) Safety Rope*/Suspension Failure Device*
Does the triggering mechanism operate correctly? Yes No

2.5 Brake
Is the brake capable of stopping the machine when the lift is travelling at its rated speed whilst carrying the rated load plus 25% Yes No

2.6 Buffer Tests
(a) Car Buffer
When the lift was brought into contact with the buffer with rated load at rated speed, was the operation satisfactory? Yes No

(b) Counterweight Buffer
When the counterweight was brought into contact with the buffer with the car empty at rated speed, was the operation satisfactory? Yes No

2.7 Insulation Resistance and Earthing
(a) Lift Motor _____ MΩ
(b) Safety Circuit _____ MΩ
(c) Is the maximum continuity resistance to earth less than 0.5Ω? Yes No

2.8 Safety Contacts/Circuits
(a) Have the contacts at each landing door been proved so that when broken there is no movement of the car? Yes No
(b) Have the car door contacts been proved so that when broken there is no movement of the car? Yes No
(c) Do the terminal stopping switches operate satisfactory? Yes No
(d) Do the stopping device in machine room and in pit operate correctly? Yes No
(e) Does the earthing of the most remote contact (lock or push button) operate a fuse or trip a breaker? Yes

No

**CERTIFICATION OF TEST AND EXAMINATION FOR
ELECTRIC SERVICE LIFT**

2.9 Current and Speed Tests (at mid-point of travel)

	Lift Motor Speed (rpm)	Lift Speed (m/s)	Motor Input	
			(V)	(A)
No Load Down				
Full Load Up				

2.10 Traction Checks

Does the car stop under emergency conditions

- | | | |
|---|-----|----|
| (a) with the car empty when travelling upwards in the upper part of the lift well at rated speed? | Yes | No |
| (b) with rated load plus 25% when travelling downwards in the lower part of the lift well at rated speed? | Yes | No |

3. General

- | | | |
|---|-----|-----|
| (a) Are the maximum load and warning notice displayed at each landing in compliance with clause 10.1 and clause 10.3.1 of COP on The Design & Construction, Part 3? | Yes | No |
| (b) Are the emergency instructions displayed in the machine room? | Yes | No |
| (c) Is the machine room lighting adequate for maintenance purpose? | Yes | No |
| (d) Are the provisions for ventilating the machine room adequate? | Yes | No |
| (e) Is each machine room door or trap door complied with the COP on Building Works for Lifts and Escalators? | Yes | No |
| (f) Is the clear space in front of the controller not less than 900mm in depth? If no, state details in Item 4. | | Yes |
| No | | |
| (g) Is the access to machine room and to all equipment safe and convenient? | Yes | No |

4. Others

5. Declaration

I certify that on _____ the equipment was thoroughly examined and found to be free from obvious defects and to comply with the COP on The Design & Construction, Part 3, COP on Examination, Testing and Maintenance and COP on Building Works for Lifts and Escalators with the exception of the following items and that the foregoing is an accurate record of the test and examination carried out.

Exceptions:

Name & Registration No. of
Registered Lift Engineer

Signature of Registered Lift Engineer

Name of Registered Lift Contractor
Remarks : COP means Code of Practice

Date

LIFT INSPECTION AND PERFORMANCE TEST REPORT

Project Title : _____

Location of Installation: _____

Contractor/Sub-contractor: _____

Contract/Sub-contract No. : _____

Completion Date: _____

Make and Model No. of Lift: _____

- Symbols * Delete as appropriate
 # Barrier Free Access Lift Requirement
 ⊗ Fireman's Lift Requirement

A. <u>General Information</u>		
	<u>Particulars</u>	<u>Remarks</u>
Lift Number		
Type (Passenger (P), Bed (B), Freight (F) or Service (S))	*P/*B/*F/*S	
Capacity - Person - Load	person kg	
Rated Speed	m/s	
Travel	m	
Total Number of Entrances		
Location of Designated Point of Entry	* G/F/ * ___/F	
Floor served	___/F to ___/F	
Location of Machine Room	*above lift well/ *below lift well/* at side	
Designed as Fireman's Lift ⊗	*Yes/*No	
Fireman's switch location ⊗	*at ___ Floor/*NA	usu. G/F

Tested/Checked by (Name of Contractor's Representative) _____

Signature _____

Witnessed by (Name of BSB Site Staff) _____

Signature(s) _____

A. General Information (Cont'd)		
	<u>Particulars</u>	<u>Remarks</u>
Designed as 'Barrier Free Access Lift'[#]	*Yes/*No	
If designed as 'Barrier Free Access Lift'[#], does the lift serve every floor of the building	*Yes/*No	
Lift Car Dimension - width x depth x height	____ m x ____ m x ____ m	
Location of Group Supervisory Panel		
Rated Supply Voltage/ Lift Motor Rating	____ V ____ phase / ____ kW	
Power System Application <i>For rated speed Specified power system</i> ≤ 1.0 m/s AC geared, two speed ≤ 1.75 m/s AC geared, VV/ VVVF or DC geared, VV > 1.75 m/s AC, VV/ VVVF or DC gearless, VV <i>Bed/Passenger AC, VV/ VVVF or DC, VV</i>	*Geared/*Gearless *AC/*DC *VVVF/*VV/*AC-2 *Inverter/*MG Set	
Buffer Type <i>For rated speed Specified buffer type</i> ≤ 1.0 m/s Spring ≤ 1.6 m/s Spring with buffered return no limit Oil	*Spring/*spring with buffered return/*oil	
Automatic control System	*Automatic push button/ *Down collective control/ *Directional collective control/ *Group supervisory control/ *Others (pls specified)	

Tested/Checked by (Name of Contractor's Representative) _____

Signature _____

Witnessed by (Name(s) of BSB Staff) _____

Signature(s) _____

B. Inspection and Performance Test

Note 1: In the result column,

means (operating satisfactory and complied with specified requirement).

X (operating unsatisfactory or do not complied with requirement. Please give detail),

NA (not applicable)

Note 2: Italic words in this column means tests recommended to be witnessed by PBSI or PBSI's representative and shall have been completed before hand over to client for operation

Abbreviation

GS General Specification for Lift, Escalator and Passenger Conveyor Installation in Government Buildings issued by Architectural Services Department (1996 Ed)

COP(D) Code of Practice on the Design and construction of Lifts and Escalators issued by Electrical and Mechanical Services Department (1993 Ed)

COP(ETM) Code of Practice on the Examination, Testing and Maintenance of Lifts and Escalators issued by Electrical and Mechanical Services Department (1996 Ed)

BFA Design Manual Barrier Free Access 1997 issued by Buildings Department

	<u>Check</u>	<u>Result</u> ^(Note1)	<u>Witnessed by PBSI or PBSI's Rep.</u> ^(Note2)	<u>Remarks</u>
1.	Landing fixture at Designated Point of Entry :			
a)	Landing call button with illuminated call acceptance signal <i>(The call button shall be of vandal-resistance design. Electronic touch(A) or micro movement push (B) shall be provided for Office Building and where specified in the Particular Specification.)</i>	*√/*X/*NA (*A / *B/ *other ____ _____)	*Yes/*No	GS B11.1
b)	Position of call buttons shall be not less than 900 mm and not more than 1200 mm above finish floor level of the lift hall. #	*√/*X/*NA	*Yes/*No	BFA 5.7.1(c)
c)	An illuminated visual indicator and an audible signal shall be provided at the lift entrance to indicate the lift car arrival and its direction of travel. The audible signal shall sound once for UP direction and twice for DOWN direction, and shall activate before arrival of the lift. #	*√/*X/*NA	*Yes/*No	BFA 5.8.1(a)
d)	Tactile and Braille floor designations shall be provided on the jambs on both side of each lift entrance, by means of Arabic numerals, minimum 60 mm high, raise 1 mm, and at 1200 mm above finished floor level. #	*√/*X/*NA	*Yes/*No	BFA 5.8.1(b)
e)	Where a building contains some lifts that do not comply with BFA requirement, each of those lifts that do comply shall be identified at each landing served, by not fewer than one international symbol for access for persons with a disability. #	*√/*X/*NA	*Yes/*No	BFA 5.8.1(e)

Tested/Checked by (Name of Contractor's Representative) _____

Signature _____

Witnessed by (Name(s) of BSB Staff) _____

Signature(s) _____

B. Inspection and Performance Test**Note 1:** In the result column,

means (operating satisfactory and complied with specified requirement).

X (operating unsatisfactory or do not complied with requirement. Please give detail),**NA** (not applicable)**Note 2:** *Italic words in this column means tests recommended to be witnessed by PBSI or PBSI's representative and shall have been completed before hand over to client for operation*

<u>Check</u>	<u>Result</u> ^(Note1)	<u>Witnessed by PBSI or PBSI's Rep.</u> ^(Note2)	<u>Remarks</u>
1. Landing fixture at Designated Point of Entry (cont'd) :			
f) Where all lifts in a building comply with BFA requirement (including a building with only one lift), at least one international symbol for access for persons with a disability shall be provided at each lift lobby where entry to the building can be gained. [#]	*√/*X/*NA	*Yes/*No	BFA 5.8.1(f)
g) Emergency key switch for bed/passenger. <i>(to be tested according to GS B11.2.)</i>	*√/*X/*NA	*Yes/*No	GS B11.2
h) Direction indicator.	*√/*X/*NA	*Yes/*No	GS B11.3
i) Illuminated position indicator.	*√/*X/*NA	*Yes/*No	GS B11.3
j) Arrival audible and visual signal. <i>(For group control of two or more lifts, a "pre-arrival chiming system" in the form of audible and visual signal before the arrival of each lift shall be provided.)</i>	*√/*X/*NA	*Yes/*No	GS B11.4
k) Message indicator. <i>(Message indicator shall be made with minimum 120 x 16 dot-matrix type LED display. These messages shall be written alternatively in English and Chinese.)</i>	*√/*X/*NA	*Yes/*No	GS B11.5
l) Home landing operated by manually operated key switch.	*√/*X/*NA	*Yes/*No	GS B21.3
m) Alarm bell. <i>(150 mm diameter.)</i>	*√/*X/*NA	*Yes/*No	GS B8.11
n) Stainless steel "When there is a fire do not use the lift" notice.	*√/*X/*NA	*Yes/*No	GS B13.3
o) Stainless steel "name of the company, telephone number and emergency instructions" notice.	*√/*X/*NA	*Yes/*No	GS B13.3

Tested/Checked by (Name of Contractor's Representative) _____

Signature _____

Witnessed by (Name(s) of BSB Staff) _____

Signature(s) _____

B. Inspection and Performance Test**Note 1:** In the result column,

means (operating satisfactory and complied with specified requirement).

X (operating unsatisfactory or do not complied with requirement. Please give detail),**NA** (not applicable)**Note 2:** *Italic words in this column means tests recommended to be witnessed by PBSI or PBSI's representative and shall have been completed before hand over to client for operation*

<u>Check</u>	<u>Result</u> ^(Note1)	<u>Witnessed by PBSI or PBSI's Rep.</u> ^(Note2)	<u>Remarks</u>
2. Landing fixture at other floors :			
a) Landing call button with illuminated call acceptance signal <i>(The call button shall be of vandal-resistance design. Electronic touch(A) or micro movement push (B) shall be provided for Office Building and where specified in the Particular Specification.)</i>	*√/*X/*NA (*A / *B/ *other _____)	*Yes/*No	GS B11.1
b) Position of call buttons shall be not less than 900 mm and not more than 1200 mm above finish floor level of the lift hall. #	*√/*X/*NA	*Yes/*No	BFA 5.7.1(c)
c) An illuminated visual indicator and an audible signal shall be provided at the lift entrance to indicate the lift car arrival and its direction of travel. The audible signal shall sound once for UP direction and twice for DOWN direction, and shall activate before arrival of the lift. #	*√/*X/*NA	*Yes/*No	BFA 5.8.1(a)
d) Tactile and Braille floor designations shall be provided on the jambs on both sides of each lift entrance, by means of Arabic numerals, minimum 60 mm high, raise 1 mm, and at 1200 mm above finished floor level. #	*√/*X/*NA	*Yes/*No	BFA 5.8.1(b)
e) Where a building contains some lifts that do not comply with BFA requirement, each of those lifts that do comply shall be identified at each landing served, by not fewer than one international symbol for access for persons with a disability. #	*√/*X/*NA	*Yes/*No	BFA 5.8.1(e)
f) Where all lifts in a building comply with BFA requirement (including a building with only one lift), at least one international symbol for access for persons with a disability shall be provided at each lift lobby where entry to the building can be gained. #	*√/*X/*NA	*Yes/*No	BFA 5.8.1(f)
g) Emergency key switch for bed/passenger. <i>(to be tested according to GS B11.2.)</i>	*√/*X/*NA	*Yes/*No	GS B11.2

Tested/Checked by (Name of Contractor's Representative) _____

Signature _____

Witnessed by (Name(s) of BSB Staff) _____

Signature(s) _____

B. Inspection and Performance Test			
<p>Note 1: In the result column, means (operating satisfactory and complied with specified requirement). X (operating unsatisfactory or do not complied with requirement. Please give detail), NA (not applicable)</p> <p>Note 2: Italic words in this column means tests recommended to be witnessed by PBSI or PBSI's representative and shall have been completed before hand over to client for operation</p>			
<u>Check</u>	<u>Result</u> ^(Note1)	<u>Witnessed by PBSI or PBSI's Rep.</u> ^(Note2)	<u>Remarks</u>
2. Landing fixture at other floors (Cont'd) :			
h) Direction indicator.	*√/*X/*NA	*Yes/*No	GS B11.3
i) Illuminated position indicator.	*√/*X/*NA	*Yes/*No	GS B11.3
j) Arrival audible and visual signal. <i>(For group control of two or more lifts, a "pre-arrival chiming system" in the form of audible and visual signal before the arrival of each lift shall be provided.)</i>	*√/*X/*NA	*Yes/*No	GS B11.4
k) Message indicator. <i>(Message indicator shall be made with minimum 120 x 16 dot-matrix type LED display. These messages shall be written alternatively in English and Chinese.)</i>	*√/*X/*NA	*Yes/*No	GS B11.5
l) Stainless steel "When there is a fire do not use the lift" notice.	*√/*X/*NA	*Yes/*No	GS B13.3
3. Car and landing Doors :			
a) The distance between the car and landing sills. <i>(shall not exceed 35 mm.)</i>	____mm	*Yes/*No	GS B10.1
b) The clear height of all entrances on car and landings. <i>(shall not be less than 2m.)</i>	____m	*Yes/*No	GS B10.1
c) For Passenger Lift. <i>(two panels, centre opening with automatic power opening and closing unless otherwise specified in particular specification.)</i>	*√/*X/*NA /*other ____ _____	*Yes/*No	GS B10.2
d) For Bed/Passenger Lift. <i>(two speed, multi-panels, side opening with automatic power opening and closing unless otherwise specified in particular specification.)</i>	*√/*X/*NA /*other ____ _____	*Yes/*No	GS B10.3

Tested/Checked by (Name of Contractor's Representative) _____

Signature _____

Witnessed by (Name(s) of BSB Staff) _____

Signature(s) _____

B. Inspection and Performance Test

Note 1: In the result column,

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3. Car and landing Doors (Cont'd) :			
e) For Goods Lift. <i>(*manually operated, horizontally sliding/*power operated, automatic horizontal sliding/*vertically bi-parting, manually operated or power closing unless otherwise specified in particular specification.)</i>	*√/*X/*NA /*other _____ _____	*Yes/*No	GS B10.4
f) For Goods Lift. <i>(Visual panel to be provided for manually operated door.)</i>	*√/*X/*NA	*Yes/*No	GS B10.6
g) For Service Lift. <i>(manually operated, vertical bi-parting unless otherwise specified in particular specification.)</i>	*√/*X/*NA /*other _____ _____	*Yes/*No	GS B10.7
h) Doors should be of the horizontally sliding type, power-operated and automatically controlled. <i>{recommended requirement.}#</i>	*√/*X/*NA	*Yes/*No	BFA 5.7.2(c)
i) An audible signal should be provided to signify the closing action of the doors to alert persons. <i>{recommended requirement.}#</i>	*√/*X/*NA	*Yes/*No	BFA 5.7.2(d)
j) 'Door open' alarm should be provided for manually operated doors and power assisted door.	*√/*X/*NA	*Yes/*No	GS B10.12
k) Emergency landing door unlocking device to be provided for every door.	*√/*X/*NA	*Yes/*No	GS B10.13
l) Doors tested to be operating without undue vibration.	*√/*X/*NA	*Yes/*No	
m) Doors tested to be operating without excessive noise.	*√/*X/*NA	*Yes/*No	
n) Doors opening time.	sec	*Yes/*No	
o) Doors closing time.	sec	*Yes/*No	

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4. Safety devices for doors :			
a) Mechanical Safety edge.	*√/*X/*NA	*Yes/*No	GSB10.11
b) Light ray.	*√/*X/*NA	*Yes/*No	GSB10.11
c) Electronic detector/*other (Please specify) _____.	*√/*X/*NA	*Yes/*No	GSB10.11
d) Sensing range shall extend from not more than 25 mm above the sill to a minimum of 1.8 m above the sill.	*√/*X/*NA	*Yes/*No	GSB10.11
e) The door re-opening device for a fireman's lift shall not of light, flame heat or smoke sensitive type.®	*√/*X/*NA	*Yes/*No	GSB10.11
5. Lift car :			
a) Car minimum internal dimensions of 1200 mm x 1100 mm wide with a minimum clear door width of 750 mm. #	*√/*X/*NA	*Yes/*No	BFA 5.7.1(a)
b) Car minimum internal dimensions of 1500 mm x 1400 mm wide with minimum clear door width of 850 mm. <i>{recommended requirement to allow wheelchair to turn inside a lift.}</i> #	*√/*X/*NA	*Yes/*No	BFA 5.7.2(a)
c) For the number of lifts in a building exceeds three, access shall be provided to every floor by at least one lift having minimum internal car dimensions of 1500 mm x 1400 mm wide with a minimum clear door width of 850 mm. <i>(recommended requirement.}</i> #	*√/*X/*NA	*Yes/*No	BFA 5.7.2(b)
d) For service lift, the car dimension and rated load shall not exceed: (floor area 1.00 m ² depth/width 1.4 m height 1.2 m rated load 250 kg)	*√/*X/*NA	*Yes/*No	GS B24.1
e) Hand rails shall extend to within 150 mm of the corners at the rear and sides of the car. #	*√/*X/*NA	*Yes/*No	BFA 5.7.1(a) GS B8.4
f) Car floor material/finish.	*Rubber tile/ *chequer plate/ *other_____	*Yes/*No	

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5. Lift car (Cont'd) :			
g) Car panel material/finish.	*Stainless steel / *Formica/ *other _____	*Yes/*No	
h) Type of lighting.	*Fluorescent/* Tungsten / *other _____	*Yes/*No	
i) Illuminance (Lux level measured on car floor). <i>(To be not less than 150 lux.)</i>	lux	<i>*Yes/*No</i>	GS B8.9
j) Emergency Lighting Illuminance. (Lux level measured on car floor)	lux	<i>*Yes/*No</i>	GS B8.10
k) Air change per hour. <i>(To be not less than 20 hr⁻¹.)</i>	hr ⁻¹	<i>*Yes/*No</i>	GS B8.4
l) Noise level inside car with ventilation fan running. <i>(To be not more than NC45.)</i>	NC _____	<i>*Yes/*No</i>	GS B8.4
m) Lighting and ventilation fan shall be switch off within 5 to 15 minutes after the last registered call is answered.	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS B8.4
n) CCTV camera inside lift car.	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS B20.6
o) For goods lift in markets and abattoirs, call walls, roof and floor shall be of stainless steel. Drain water storage tank shall be provided and the control buttons and position indicator shall be of vandal resistant stainless steel type.	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS B8.5
p) Lift car emergency exit in lift car top c/w electrical safety cut off switch and alarm bell. Minimum size 500 mm x 350 mm or 400 mm in diameter.	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS B8.12
q) Car top station comprise at least 'stop' switch, 'normal/inspection' switch, directional inspection and movement buttons protected against accidental operations.	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS B9.6
r) Stainless steel load plate. (person & kg)	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS B13.1

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5. Lift car (Cont'd) :			
s) Stainless steel "No smoking" notice in English and Chinese characters.	*√/*X/*NA	*Yes/*No	GS B13.3
t) Stainless steel "When there is a fire do not use the lift" notice in English and Chinese characters.	*√/*X/*NA	*Yes/*No	GS B13.3
u) Car operating without undue vibration. <i>(when travelling inside the lift car.)</i>	*√/*X/*NA	*Yes/*No	
v) Car operating without excessive noise. <i>(when travelling inside the lift car.)</i>	*√/*X/*NA	*Yes/*No	
w) Overload device. <i>(to be tested according to GS B15.1 and B15.2. Floating platform type is not acceptable.)</i>	*√/*X/*NA	*Yes/*No	GS B15.1; GS B15.2 & GS B 15.4
x) Full load device. <i>(to be tested according to GS B15.3 Floating platform type is not acceptable.)</i>	*√/*X/*NA	*Yes/*No	GS B15.3 & GS B15.4
y) Leveling Accuracy: <i>For rated Speed Maxi deviation</i> ≤ 1.0 m/s 25 mm > 1.0 m/s 10 mm <i>Bed/Passenger</i> 10 mm <i>Hydraulic</i> 5 mm	Empty Up mm	*Yes/*No	measure the maximum deviation
	Down mm	*Yes/*No	
	Full load Up mm	*Yes/*No	
	Down mm	*Yes/*No	
6. Control station in car:			
a) Call button with acceptance signal engraved in Arabic number to correspond with the landing served.	*√/*X/*NA	*Yes/*No	GS B9.1
b) "Door open" & "Door close" push buttons.	*√/*X/*NA	*Yes/*No	GS B9.1

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6 Control station in car (Cont'd):			
c) Audible & visible signals in connection for overload.	*√/*X/*NA	*Yes/*No	GS B9.1
d) Two-way intercom system between car and master control station.	*√/*X/*NA	*Yes/*No	GS B9.1 GS B20.4
e) Alarm push button with protection from being operated accidentally; the colour to be yellow. <i>(For Barrier Free Access Lift. The emergency alarm push button shall be in tactile bell shape #.)</i>	*√/*X/ *Tactile bell/*NA	*Yes/*No	GS B9.1 BFA 5.7.1(e)
f) The graphics for tactile markings for open-door and close-door push buttons, emergency alarm button, and main entrance level are according to Fig 14 of Design Manual Barrier Free Access, copy attached. <i>{recommended requirement.}</i> [#]	*√/*X/*NA	*Yes/*No	GS B9.1 BFA 5.7.2(e)
g) Position of essential lift control buttons (i.e. emergency alarm push button, control to activate intercom, and door opening push buttons) shall be not less than 900 mm and not more than 1200 mm above the floor of the lift car. [#]	*√/*X/*NA	*Yes/*No	BFA 5.7.1(c)
h) Braille and tactile markings shall be placed either on or to the left of the control buttons. These markings shall be Arabic numerals and/or symbols. Tactile markings shall have a minimum dimension of 15 mm high and be raised 1 mm minimum. [#]	*√/*X/*NA	*Yes/*No	BFA 5.7.1(d)
i) An emergency alarm push button together with a buzzer, an indication light for acknowledgment and an intercom shall be provided in the lift car and be connected to the building management office or the caretaker's office. The building management office of the caretaker's office shall be equipped with a buzzer, an indication light and an intercom connected to the lift car(s). [#]	*√/*X/*NA	*Yes/*No	BFA 5.7.1(f)
j) The indication light for acknowledgment shall be in the form of blinking light adjacent of the intercom speaker and a notice "when light blinks, please speak or press alarm button again" (in English and Chinese) shall be provided next to the blinking light. This system shall be backed up by an emergency electricity supply. [#]	*√/*X/*NA	*Yes/*No	BFA 5.7.1(g)

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6 Control station in car (Cont'd):			
k) All lift control buttons should have a minimum dimension of 20 mm. <i>{recommended requirement.}</i> [#]	*√/*X/*NA	*Yes/*No	BFA 5.7.2(f)
l) Tactile markings should be of high contrasting colour. <i>{recommended requirement.}</i> [#]	*√/*X/*NA	*Yes/*No	BFA5.7.2(g)
m) A verbal annunciation (in Cantonese and English) shall be provided to indicate the stopping floor. [#]	*√/*X/*NA	*Yes/*No	BFA 5.8.1(d)
n) Emergency key switch for bed/passenger lift. <i>(to be tested according to GS B11.2.)</i>	*√/*X/*NA	*Yes/*No	GS B11.2
o) Light switch, alarm reset switch, fan switch and cleaner's stop-switch to be in the form of key switches or housed in a recessed metal box with hinged or sliding lid which shall be key-locked.	*√/*X/*NA	*Yes/*No	GS B9.1
p) Addition control station with 'call buttons with acceptance signals', 'alarm push button', 'door open' and door close button'. <i>(for passenger lifts of 21 persons capacity or larger.)</i>	*√/*X/*NA	*Yes/*No	GS B9.2
q) Non-stop button & key-operated attendant control switch. <i>(for lifts with attendant control.)</i>	*√/*X/*NA	*Yes/*No	GS B9.3
r) Car position indicator. <i>(shall be of digital type display with lamp matrix. The legends shall have a minimum height of 30 mm.)</i>	*√/*X/*NA	*Yes/*No	GS B9.4
s) Illuminated visual indicators shall be provided to indicate the direction of travel and the car position. Characters on the position indicator shall have a minimum dimension of 50 mm high. [#]	*√/*X/*NA	*Yes/*No	BFA 5.8.1(c)

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7. When lift stop close to a landing and the supply to the door operator disconnected, it shall be possible:			
a) To open or partly open the car door by hand from the landing.	*√/*X/*NA	*Yes/*No	
b) To open or partly open the car door together with the landing door linked to it, if they are coupled, by hand from within the car.	*√/*X/*NA	*Yes/*No	
8. Safety Gear and Overspeed Governor:			
a) Safety gear provided for the lift car.	*√/*X/*NA	*Yes/*No	GS B14.1
b) Safety gear provided for the counterweight. <i>(only required when accessible space exist underneath the counterweight.)</i>	*√/*X/*NA	*Yes/*No	GS B14.1
c) The safety gear shall be tripped by its own overspeed governor. Tripping of safety gears by devices which operate electrically, hydraulically or pneumatically is not allowed.	*√/*X/*NA	*Yes/*No	GS B14.2
d) Type of safety gear. <i>For rated Speed Type permissible</i> ≤0.63 m/s instantaneous ≤0.1.0 m/s instantaneous with buffered effect > 1.0 m/s progressive Service lift instantaneous	*√/*X/*NA	*Yes/*No	GS B14.2 GS B24.7
e) Overspeed governor shall be of centrifugal type operating at a speed at least equal to 115 % of the rated speed. The means of adjusting the overspeed governor shall be sealed.	*√/*X/*NA	*Yes/*No	GS B14.4
f) The motor control and brake control circuits shall be opened before or at the same time as the governor trips.	*√/*X/*NA	*Yes/*No	GS B14.5
g) The diameter of the governor rope. <i>(shall not be less than 6 mm.).</i>	_____mm	*Yes/*No	GS B14.6
h) For service lift: Safety gear provided for the lift car and counterweight. <i>(only required when accessible space exist beneath the lift well.)</i>	*√/*X/*NA	*Yes/*No	GS B24.7

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<p>9. Automatic Control System (the following control system shall be tested according to the Lift company's recommended procedure and methodology. Any special testing equipment required, such as portable computer, shall be provided by the Lift Company):</p>			
<p>a) For all lifts other than services lifts Full load device to be provided that will detect the load condition and allow landing calls to be by-passed.</p>	*√/*X/*NA	*Yes/*No	GS B18.1
<p>b) For single lift with automatic push button control Automatic push button control shall allow only one call to be registered at a time. The car shall answer one call before another call can be registered.</p>	*√/*X/*NA	*Yes/*No	GS B18.2
<p>c) For single lift with down collective control. (Simplex) <i>(see GS B18.3 for the detailed control algorithm.)</i></p>	*√/*X/*NA	*Yes/*No	GS B18.3
<p>d) For single lift with directional collective control. <i>(see GS B18.5 for the detailed control algorithm.)</i></p>	*√/*X/*NA	*Yes/*No	GS B18.5
<p>e) For two inter-connected lifts with down collective control. (Duplex) <i>(see GS B18.4 for the detailed control algorithm.)</i></p>	*√/*X/*NA	*Yes/*No	GS B18.4
<p>f) For two inter-connected lifts with directional collective control. <i>(see GS B18.6 for the detailed control algorithm.)</i></p>	*√/*X/*NA	*Yes/*No	GS B18.6
<p>g) For 2-8 inter-connected lifts with automatic group supervisory control. <i>(see GS B18.7 for the detailed control algorithm regarding(1) flexible service sectors;(2) heavy "Up" traffic; (3)heavy "Down" traffic; (4)Light Traffic; (5) Pre-arrival chiming; (6) traffic sentinel; (7) car preference; (8) car separation.)</i></p>	*√/*X/*NA	*Yes/*No	GS B18.7

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10. Machine Room :			
a) Air Conditioning.	*√/*X/*NA	*Yes/*No	
b) Ventilation fan with Guard.	*√/*X/*NA	*Yes/*No	
c) Ventilation fan duty.	m³/s	*Yes/*No	
d) Ventilation openings protected against rain.	*√/*X/*NA	*Yes/*No	
e) Socket outlet.	*√/*X/*NA	*Yes/*No	
f) Direction indicator on machine.	*√/*X/*NA	*Yes/*No	
g) Direction indicator on governor.	*√/*X/*NA	*Yes/*No	
h) Hoist rope are well set into groove.	*√/*X/*NA	*Yes/*No	
i) Motor starting full load up/no load down without any roll back.	*√/*X/*NA	*Yes/*No	
j) Motor enclosure, class of cooling.	IP_____ IC_____	*Yes/*No	
k) Motor starting method.	*Delta/Star /*Auto-trans /*other_____	*Yes/*No	
l) Motor starting Current.	__A for _sec	*Yes/*No	Upward full load
m) Motor running Current.	__A	*Yes/*No	Upward full load
n) Circuit current of motor drive system.	__A	*Yes/*No	Upward full load
o) Maximum regenerative power.	_____kW	*Yes/*No	
p) Total harmonic distortion (THD).	_____% at _____A motor current	*Yes/*No	Also refer to GS A6.9
q) Total power Factor. <i>(shall be not less than 0.85.)</i>		*Yes/*No	Upward full load

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10. Machine Room (Cont'd):			
r) Time for lift car to travel from lowest floor to highest floor.	sec	*Yes/*No	
s) Emergency operation devices (e.g. smooth wheel, electrical operation, emergency lowering. (for hydraulic lift) <i>(to be tested according to GS B16.4 and GS B16.5.)</i>)	*√/*X/*NA (detail _____)	*Yes/*No	GS B16.4 GS B16.5
t) A board or suitable container for the necessary tools, together with clear instructions on the method for releasing the brake and moving the lift car in an emergency shall be provided and positioned in a conspicuous manner.	*√/*X/*NA (detail _____)	*Yes/*No	GS B13.4
u) Emergency lighting for control panel. <i>(to be minimum 50 lux.)</i>	_____ lux	*Yes/*No	GS A6.6
v) Handrail and cat ladder for platform.	*√/*X/*NA	*Yes/*No	
w) Fire extinguisher.	*√/*X/*NA	*Yes/*No	
x) Spring type lock for machine room.	*√/*X/*NA	*Yes/*No	
y) Self locking device for machine room door. (but can be opened without key from inside of machine room.)	*√/*X/*NA	*Yes/*No	
z) Log book.	*√/*X/*NA	*Yes/*No	
11. Lift well & pit:			
a) Permanent lighting in lift well at 7 m maximum apart with two ways switch at lift pit & machine room.	*√/*X/*NA	*Yes/*No	GS A6.2
b) Emergency door provided at 11 m maximum spacing and interlocked with electric safety device. <i>(min 0.5 x 1.8 m H)</i>	*√/*X/*NA	*Yes/*No	GS B10.14
c) Stoppers provided on ends of guide rails.	*√/*X/*NA	*Yes/*No	

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13. Hydraulic system (for hydraulic lift only):			
a) System. <i>(For direct acting system, ram shall be installed on side or on back of lift car. Ram installed underneath the lift car is not permissible.)</i>	*Direct/ *Indirect	*Yes/*No	GS B23.1
b) Anti-creep device. <i>(The device shall automatically return the car to the landing level at a speed not exceeding 0.15 m/s in the event of a leakage causing the car to move downward for more than 75 mm but within the unlocking zone.)</i>	*√/*X/*NA	*Yes/*No	GS B23.2
c) Ram. <i>(The ram shall not be subjected to bending stresses or eccentric loading.)</i>	*√/*X/*NA	*Yes/*No	GS B23.2
d) Cylinder. <i>(Cylinder shall be subjected to axial loads only.)</i>	*√/*X/*NA	*Yes/*No	GS B23.2
e) Suspended system. <i>(For suspended system, a low pressure switch in the hydraulic line or a slack rope switch shall be incorporated which will initiate the closing of the lowering valve in the event of the car being prevented from descending by an obstruction.)</i>	*√/*X/*NA	*Yes/*No	GS B23.2
f) Pump and motor. <i>(The pump and motor shall be properly aligned. The unit shall be mounted on vibration isolators.)</i>	*√/*X/*NA	*Yes/*No	GS B23.2
g) Hydraulic System. <i>(A silencer unit shall be fitted. Oil filter shall be fitted on the pump inlet with stop cock for filter cleaning and filter change.)</i>	*√/*X/*NA	*Yes/*No	GS B23.2
h) Pump flow rate.	litre/sec	*Yes/*No	

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13. Hydraulic system (for hydraulic lift only) (Cont'd):			
i) Working pressure.	kPa	*Yes/*No	GS B23.2
j) Oil tank capacity. <i>(The capacity shall be adequate for to prevent the entrance of air or gases in to the system.)</i>	litres	*Yes/*No	GS B23.2
k) Sight glass tube for oil tank.	*√/*X/*NA	*Yes/*No	GS B23.2
l) Oil level monitoring device. <i>(The device shall give a visual and audible signal in the control panel when the oil level is at alarming low level.)</i>	*√/*X/*NA	*Yes/*No	GS B23.2
m) Rigid steel pipe shall be used. Piping shall be effectively isolated from the building structure.	*√/*X/*NA	*Yes/*No	GS B23.2
n) Safety Gear. <i>(For safety gear fitted to direct acting hydraulic lift, provision shall be made to absorb any impact loading at the cross-head due to the inertia of the ram and attachments.)</i>	*√/*X/*NA	*Yes/*No	GS B23.5
o) Safety Gear. <i>(Integral or flange-bolted rupture valve to be fitted which shall stop the descent of car cage.)</i>	*√/*X/*NA	*Yes/*No	GS B23.5
p) Re-levelling device. <i>(The device shall automatically return the lift to the floor should the lift creep down from floor level for a distance not exceeding 75 mm.)</i>	*√/*X/*NA	*Yes/*No	GS B23.6

Tested/Checked by (Name of Contractor's Representative) _____

Signature _____

Witnessed by (Name(s) of BSB Staff) _____

Signature(s) _____

Contractor's Testing Engineer

Name in Full : _____

Date: _____

Company Chop : _____

ESCALATOR INSPECTION AND PERFORMANCE TEST REPORT

Project Title : _____
Location of Installation: _____
Contractor/Sub-contractor: _____
Contract/Sub-contract No. : _____ **Completion Date:** _____
Make and Model No. of Lift: _____

Symbols * Delete as appropriate
 # Barrier Free Access Escalator Requirement
 Legend GS General Specification for Lift, Escalator and Passenger Conveyor Installation
 in Government Buildings issued by Architectural Services Department (1996 Ed)

A. General Information		
	<u>Particulars</u>	<u>Remarks</u>
Escalator Number		
Type	*indoor/*outdoor	
Capacity	person/hr	
Rated Speed (shall be less than 0.75 m/s)	m/s	GS C10.6
Angle of Inclination <i>For rated speed</i> <i>Angle of inclination</i> $\leq 0.75 \text{ m/s}$ $\leq 30^\circ$ $\leq 0.50 \text{ m/s}$ $\leq 35^\circ$	°	GS C10.6
Vertical Rise	m	
Machinery location	at upper landing/ *other	
Motor Rating (GS specified integrally mounted, AC squirrel cage, three phase induction motor of continuous rating, reversible type with high starting torque and low starting current)	kW	GS C10.4
Step tread and riser (GS specified die-cast aluminum)	die-cast aluminum/ *other	GS C1.2
Comb (GS specified wear resistant aluminum alloy with antislip pattern)	*wear resistant aluminum alloy with antislip pattern/*other	GS C5.1
Tracks (GS specified steel or aluminum die casting for curved section and steel or aluminum extrusion for straight section)	*steel/*aluminum / *others	GS C3.1 GS C3.2
Landing Plate (GS specified stainless steel or wear resistant aluminum alloy)	*stainless steel/*wear resistance aluminum alloy	GS C4.2
Balustrade Skirting (GS specified 2 mm stainless steel. Embossed, perforated or roughly textured materials are not allowed)	*hairline stainless steel/ *other	GS C6.1(1)
Internal and External Panelling (For stainless steel panel, the thickness shall be a least 2 mm thick. For glass balustrade, the glass shall be of a laminated or tempered type with thickness at least 6 mm)	*hairline stainless steel/ *laminated or tempered glass/ *other	GS C6.1(3)
Decking	*stainless steel/*aluminum. polish & anodised/*other	GS C6.1(4)
Handrail (GS specified multi-layered canvas with exposed surface covered with smooth abrasive resistant rubber)	multi-layered canvas with exposed surface covered with smooth abrasive resistant rubber*/*other	GS C7.1
Truss	*Steel/ *other	GS C8.1

Tested/Checked by (Name of Contractor's Representative) _____ Signature _____

Witnessed by (Name(s) of BSB Staff) _____ Signature(s) _____

B. <u>Inspection and Performance Test</u>				
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Legend				
GS	General Specification for Lift, Escalator and Passenger Conveyor Installation In Government Buildings issued by Architectural Services Department (1996 Ed)			
COP(D)	Code of Practice on the Design and construction of Lifts and Escalators issued by Electrical and Mechanical Services Department (1993 Ed)			
COP(ETM)	Code of Practice on the Examination, Testing and Maintenance of Lifts and Escalators issued by Electrical and Mechanical Services Department (1996 Ed)			
BFA	Design Manual Barrier Free Access 1997 issued by Buildings Department			
	<u>Check</u>	<u>Result</u> ^(Note1)	Witnessed by PBSI or PBSI's Rep. <small>(Note2)</small>	<u>Remarks</u>
1. Steps :				
a)	Width. (<i>the width of any step shall be 1000 mm.</i>)	mm	*Yes/*No	GS C1.1
b)	Depth. (<i>the depth of any step in the direction of travel shall not be less than 400 mm.</i>)	mm	*Yes/*No	GS C1.5
c)	Rise. (<i>the rise of step shall not be more than 240 mm.</i>)	mm	*Yes/*No	GS C1.5
d)	25 mm yellow band marked on landing/trailing edges with durable and wear resistant materials to show demarcation between comb and cleat.	*√/*X/*NA	*Yes/*No	GS C1.1
e)	Clear height above step. (<i>the clear height above the steps at all points shall not be less than 2.30 m.</i>)	m	*Yes/*No	GS C1.6
f)	Flat steps. (<i>there shall be at least a length of two complete steps, i.e. 0.80 m, at either end of the escalator.</i>)	*√/*X/*NA	*Yes/*No	GS C1.7
g)	Illumination level at tread surface. (<i>shall be not less than 50 lux.</i>)	lux	*Yes/*No	COP(D)1.4. 3
h)	Steps, step chain and tracks shall be operating quietly.	*√/*X/*NA	*Yes/*No	GS C1.3 GS C2.3
2. Combs:				
a)	Combteeth section shall be adjustable horizontally and vertically. Section forming the comb teeth shall be readily removable in case of emergency.	*√/*X/*NA	*Yes/*No	GS C5.2
b)	Combteeth shall mesh well with the slot of the tread surface of steps.	*√/*X/*NA	*Yes/*No	GS C5.2

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3. Balustrades:			
a) Interior profile angle of inclination. (<i>shall be at least 25 ° to horizontal.</i>)	°	*Yes/*No	GS C6.1(2)
b) The newel including the handrails shall project beyond the root of the comb teeth. (<i>at least 0.6 m in the longitudinal direction.</i>)	m	*Yes/*No	GS C6.1(5)
c) Brush brittle type dress guards made of nylon filaments shall be provided along the full length of lower part of skirting panels.	*√/*X/*NA	*Yes/*No	GS C6.2
d) External claddings. (<i>shall be with at least 1/2 hr. fire resistance and provided by other.</i>)	*√/*X/*NA	*Yes/*No	GS C6.3
e) Vertical obstruction guard shall be provided at floor intersections and on criss-cross escalators.	*√/*X/*NA	*Yes/*No	COP(D)1.2.3 COP(D)1.2.5
f) Footlight provided at lower and upper landing.	*√/*X/*NA	*Yes/*No	
g) For slim type escalator, i.e. escalator with the horizontal distance between the balustrade interior panelling greater than the distance between handrail, rated speed shall not exceed 0.5 m/s.	*√/*X/*NA	*Yes/*No	GS C6.5
h) For slim type escalator, nominal width of the step shall be at least 0.8 m.	*√/*X/*NA	*Yes/*No	GS C6.5
i) For slim type escalator, the distance between projection of the comb intersection line and the point at the newel where the handrails change their direction of movement shall be at least 1.2.	*√/*X/*NA	*Yes/*No	GS C6.5
4. Handrails:			
a) Surface smooth and without undulation.	*√/*X/*NA	*Yes/*No	
b) The speed of handrail is observed to be deviated from the speed of the steps by. (<i>shall not be more than 2 %.</i>)	% / *synchronous	*Yes/*No	GS C7.2

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4. Handrails: (Cont'd)			
c) Safety guard provided at entry & exit at newel to prevent pinching of fingers and hand.	*√/*X/*NA	*Yes/*No	GS C7.3
d) Width. (<i>shall be between 70 mm to 100 mm.</i>)	mm	*Yes/*No	GS C7.5
e) The horizontal distance between the outer edge of handrail and walls or other obstacles. (<i>shall be less than 80 mm</i>)	mm	*Yes/*No	GS C7.6
5. Driving Machinery and Braking:			
a) Each escalator shall be independently driven.	*√/*X/*NA	*Yes/*No	GS C10.1
b) The driving machine shall incorporate a worm reduction gear housed in a lubricated box.	*√/*X/*NA	*Yes/*No	GS C10.2 GS C10.3
c) Effective means of lubricating the bearings and moving parts shall be provided. Drip pans shall be provided for the entire length of the escalator to contain any waste and lubricants within the truss.	*√/*X/*NA	*Yes/*No	GS C9.1 GS C9.2
d) The brake shall be mechanically applied and electrically held off. (<i>Spring to apply brake shoe and the spring in compression state.</i>)	*√/*X/*NA	*Yes/*No	GS C11.1
e) Auxiliary brake provided to act on main drive shaft when chain or belt fail.	*√/*X/*NA	*Yes/*No	GS C11.2
f) Hand winding device. (<i>shall not be of crank handle nor perforate type.</i>)	*√/*X/*NA	*Yes/*No	GS C11.3
g) Hand winding device shall be marked for up and down operation. The device shall be painted yellow.	*√/*X/*NA	*Yes/*No	GS C11.3
h) Measure the stopping distance for: no load. downward loaded. (<i>For rated speed Stopping distance between</i> <i>0.50 m/s 0.20 m & max 1.00 m</i> <i>0.65 m/s 0.30 m & max 1.30 m</i> <i>0.75 m/s 0.35 m & max 1.50 m</i>)	mm mm	*Yes/*No	GS C11.4

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5. Driving Machinery and Braking: (Cont'd)			
i) Measure the time to reach upper/lower landing. <i>(from the time one step completely leaving the comb to the time that step beginning to enter the comb of the destination landing.)</i>	sec	<i>*Yes/*No</i>	
j) Total harmonic distortion. (THD)	_____ % at _____ A motor current	<i>*Yes/*No</i>	
k) Total power Factor. <i>(shall be not less than 0.85.)</i>		<i>*Yes/*No</i>	rated speed under no load
6. Machinery Space:			
a) Light with switch. <i>(permanent lighting shall be provided in the machinery space and which can be switched without passing over or reaching over any part of the machinery.)</i>	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS C17.1
b) 3 pin switched socket shall be fitted adjacent to the light switch.	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS C17.2
c) Emergency stop switch shall be provided.	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS C17.3
d) Notice 'Machinery space – danger, access prohibited to unauthorized person' on each access door shall be provided.	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS C17.4
e) Notice indicating the name of the manufacturer and the manufacturer's serial number shall be provided.	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS C17.5
f) Notice for automatic start escalator shall be provided.	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS C17.6
g) The following notices shall also be fixed in the vicinity: <ul style="list-style-type: none"> • Small children must be held firmly • Dogs must be carried • Stand facing the direction of travel; keep feet away from sides; • Hold the handrail • Transportation of bulky and heavy loads not permitted 	<i>*√/*X/*NA</i>	<i>*Yes/*No</i>	GS C17.7

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7. Safety Device:			
a) Emergency stop devices placed in conspicuous positions at or near to landing. (<i>For escalator with rises above 12 m, additional emergency stop devices are required.</i>)	*√/*X/*NA	*Yes/*No	GS C14.1(1)
b) Broken step chain device.	*√/*X/*NA	*Yes/*No	GS C14.1(2)
c) Broken drive chain device.	*√/*X/*NA	*Yes/*No	GS C14.1(3)
c) Broken step device.	*√/*X/*NA	*Yes/*No	GS C14.1(4)
d) Broken handrail device.	*√/*X/*NA	*Yes/*No	GS C14.1(5)
e) Non-reversal device.	*√/*X/*NA	*Yes/*No	GS C14.1(6)
f) Comb obstruction device.	*√/*X/*NA	*Yes/*No	GS C14.1(7)
f) Skirting switches.	*√/*X/*NA	*Yes/*No	GS C14.1(8)
g) Handrail entry device.	*√/*X/*NA	*Yes/*No	GS C14.1(9)
h) Phase protection relay.	*√/*X/*NA	*Yes/*No	GSC14.1(10)
i) Speed governor.	*√/*X/*NA	*Yes/*No	GSC14.1(11)
j) Motor overload relay.	*√/*X/*NA	*Yes/*No	GSC14.1(12)
8. Control Station:			
a) The control stations at both upper and lower landing newel shall be so positioned as to enable any person operating any switches to have a full view of escalator.	*√/*X/*NA	*Yes/*No	GSC15.1
b) All the control switches shall be provided with clearly engraved markings both in English and Chinese.	*√/*X/*NA	*Yes/*No	GSC15.1
c) Emergency stop switch c/w red button & protected from accidental contact.	*√/*X/*NA	*Yes/*No	GSC15.1

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8. Control Station: (Copnt'd)			
d) Two key operated direction switches.	*√/*X/*NA	*Yes/*No	GSC15.1
e) Alarm button.	*√/*X/*NA	*Yes/*No	GSC15.1
f) Footlight switch.	*√/*X/*NA	*Yes/*No	GSC15.1
9. Controller:			
a) Location. (<i>shall be located at the upper landing.</i>)	*√/*X/*NA	*Yes/*No	GSC16.2
b) The controller shall be fitted inside a stainless steel dust proof cabinet.	*√/*X/*NA	*Yes/*No	GSC16.3
10. Weather proof Escalator:			
a) The escalator shall be protection by canopy or similar structure. (<i>provided by other.</i>)	*√/*X/*NA	*Yes/*No	GS C19.1
b) Treatment of truss for protection against water.	*hot-dipped galvanised/ *epoxy paint/ *Other	*Yes/*No	GS C19.2
c) Automatic oiler shall be provided for chain lubrication. Device for separation of oil and water shall be provided when the lubricating system is of re-circulating type.	*√/*X/*NA	*Yes/*No	GS C19.3
d) Permanent drain point at bottom of escalator pit. (<i>provided by other.</i>)	*√/*X/*NA	*Yes/*No	GS C19.6
e) Submersible pump & control device.	*√/*X/*NA	*Yes/*No	
f) An alarm giving the warning of flooding at the lowest escalator pit coupled with a timer to stop the escalator after a preset time.	*√/*X/*NA	*Yes/*No	GS C19.6

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11. Miscellaneous Items:			
a) Clear signals or indications for going up/down shall be provided, e.g. consistent clear sounds or signals. <i>{recommended requirement[#].}</i>	*√/*X/*NA	*Yes/*No	BFA 5.9.1(a)
b) Remote start stop facilities provided.	*√/*X/*NA	*Yes/*No	
c) Automatic start stop facilities provided.	*√/*X/*NA	*Yes/*No	
d) Special notice for the above if remote/automatic start stop facilities provided.	*√/*X/*NA	*Yes/*No	
e) On/Off control linked with fire detection system.	*√/*X/*NA	*Yes/*No	
f) The sides and undersides of escalator enclosed by F.R.P. materials.	*√/*X/*NA	*Yes/*No	
g) Vent provided for machine space of escalator.	*√/*X/*NA	*Yes/*No	

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Signature(s) _____

Contractor's Testing Engineer
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Date: _____

Company Chop : _____