TESTING AND COMMISSIONING PROCEDURE

FOR

LIFT, ESCALATOR AND PASSENGER CONVEYOR

INSTALLATION

IN

GOVERNMENT BUILDINGS

OF

THE HONG KONG SPECIAL ADMINISTRATIVE REGION

2012 EDITION

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

PREFACE

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

The present edition was developed based on its 2007 edition by the Lift and Escalator Specialist Support Group that was established under the Building Services Branch Technical Information and Research & Development Committee of the Architectural Services Department (ArchSD). This T&C Procedure had incorporated latest changes in the Corrigendum No. GSLE01-2012 for the 2012 edition of the General Specification for Lift, Escalator and Passenger Conveyor Installation.

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

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

DISCLAIMER

This T&C Procedure is solely compiled for use on Lift, Escalator and Passenger Conveyor Installation carried out for or on behalf of the ArchSD in Government buildings of the HKSAR.

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

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Testing and Commissioning Procedure
Lift, Escalator and Passenger Conveyor Installation

1. Introduction

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

(i) to vet and approve the T&C procedures proposed and submitted by the contractor for Lift, Escalator and Passenger Conveyor Installation (LE Contractor);

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

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

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

The administrative requirements for T&C works are in general as specified in the General Specification for Lift, Escalator and Passenger Conveyor Installation 2012 Edition and all current corrigenda/amendments thereto published before the date of first tender invitation for the Contract issued by the ArchSD (the General Specification).

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

2. Objectives of the T&C works

The objectives of the T&C works are:

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

(ii) to verify that the performance of the installed equipment/systems meet with the specified design intent through a series of tests and adjustments; and

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

All the test results shall be recorded by the LE Contractor in the appropriate test record forms, the reference of which is shown against each individual test. A complete set of these forms is included in the relevant appendices and annexes of this T&C Procedure.

3. Scope of the T&C Works

3.1 Tests and Inspections during Installation

The purpose of these tests is to ensure that all components and systems are in a satisfactory and safe condition before start up. Prior to the installation, certain tests and inspections shall be carried out to ensure that proper materials and equipment complying with the specification are provided and that the site conditions are satisfactory and suitable for the execution of the installation. Preliminary adjustment and setting of equipment at this stage shall also be carried out at the same time to pave way for the coming functional performance tests.

Before carrying out any test, the LE Contractor shall ensure that the Lift, Escalator and Passenger Conveyor Installation (Installations) complies with all relevant statutory requirements and regulations. The T&C works shall also comply with all site safety regulatory requirements currently in force. In particular, the LE Contractor shall note the following:

(i) Lifts and Escalators (Safety) Ordinance (Cap. 327), and other subsidiary legislation

(ii) Electricity Ordinance (Cap. 406), and other subsidiary legislation

(iii) Code of Practice on the Design and Construction of Lifts and Escalators issued by Electrical and Mechanical Services Department, Government of The Hong Kong Special Administrative Region

(iv) Code of Practice for Lift Works and Escalator Works issued by Electrical and Mechanical Services Department, Government of The Hong Kong Special Administrative Region

(v) Code of Practice on the Design and Construction of Buildings and Building Works for the Installation and Safe Use of Lifts and Escalators issued by Building Authority, Government of The Hong Kong Special Administrative Region

(vi) Code of Practice for Safety at Work (Lift & Escalator) issued by Labour Department, Government of The Hong Kong Special Administrative Region

(vii) Code of Practice for the Electricity (Wiring) Regulations published by the EMSD

(viii) ISO 9386-1:2000, 'Power-operated lifting platforms for persons with impaired mobility – Rules for safety, dimensions and functional operation – Part 1 : Vertical lifting platforms

(ix) BS6440:1999, 'Powered Lifting Platforms for Use by Disabled Persons'

(x) ASME A18.1:2008, "Safety Standard for Platform Lifts and Stairway Chairlifts

(xi) Code of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment issued by the Fire Services Department of The Hong Kong Special Administrative Region

(xii) Buildings Energy Efficiency Ordinance (Cap. 610), and other subsidiary legislation

(xiii) Code of Practice for Energy Efficiency of Building Services Installation issued by Electrical and Mechanical Services Department of The Hong Kong Special Administrative Region, hereinafter referred as the "Building Energy Code" or "BEC"

(xiv) Code of Practice for Building Energy Audit issued by Electrical and Mechanical Services Department of The Hong Kong Special Administrative Region, hereinafter referred as the "Energy Audit Code" or "EAC"

(xv) Relevant National/International Standards and Codes of Practice

(xvi) Occupational Safety and Health Ordinance (Cap. 509), and other subsidiary legislation made under the Ordinance

(xvii) Factories and Industrial Undertakings Ordinance (Cap. 59), and other subsidiary legislation made under the Ordinance, including but not limited to Construction Site (Safety) Regulation

(xviii) Electricity supply rules of the relevant power supply companies

3.2 Functional Performance Tests

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

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

Part of the tests may be required to be carried out in suppliers' premises in accordance with the provisions in the General Specification and/or Particular Specification.

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

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

3.3 Commissioning and Statutory Inspections

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

Where necessary, after the proper testing and commissioning of the Installations, the LE Contractor shall notify the appropriate authority, as specified in the General Specification and/or Particular Specification, through the PBSE of the completion of the Installations and its readiness for final inspection.

3.4 Documentation and Deliverables

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

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

Data recorded in other formats may also be acceptable subject to prior approval of the PBSE. Upon completion of all the required T&C works, the LE Contractor's project engineer shall complete and sign an appropriate testing and commissioning certificate as shown in Appendix A, B, C and D to the effect that the agreed T&C works have been duly carried out.

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

Where required in the General Specification and/or Particular Specification, the LE Contractor shall conduct a final evaluation of the performance of the Installations, the results of which shall be included in the commissioning report.

4. T&C Procedures

4.1 Tests and Inspections during Installation

Certain tests will be carried out on different systems of the installation during construction to ensure their suitability for operating at the design conditions. Prior to the installation, certain tests and inspections shall also be carried out to ensure that proper materials and equipment complying with the specification are provided and that the site conditions are satisfactory and suitable for the execution of the installation. Certificates of such tests have to be issued together with certificates of any work tests.

Relevant Clauses

4.1.1 Lift Installation

A. Tests/Inspections to be carried out before installation — Clause 3.2 of Appendix A

(a) Factory Tests and Off-site Tests

(b) Site Inspection prior to Delivery of Equipment
- (i) Access
- (ii) Barrier
- (iii) Lighting
- (iv) Storage of Equipment

(c) Inspection of Major Materials/Equipment delivered to site
- (i) Check against approved lists
- (ii) Check for any abnormalities

(d) Lift Shaft and Lift Pit Inspection
- (i) Dimensions
- (ii) Finishes
- (iii) Adequacy and accuracy of builder's work provision and electrical work provision
- (iv) Straightness of shaft
- (v) Adequacy of safety measures

(e) Machine Room Inspection
- (i) Dimensions
- (ii) Finishes
- (iii) Adequacy and accuracy of builder's work provision
- (iv) Adequacy and accuracy of building services provisions
- (v) Adequacy of waterproofing/drainage provisions
- (vi) Adequacy of safety measures

(f) Adequacy and accuracy of associated builder's work and building services provisions such as door opening, opening on machine room floor, hoisting provision, power supply and cabling facilities etc

(g) Other tests/inspections relating to setting-outs, safety and quality etc required before commencing installation works

B. Tests/Inspections to be carried out during installation — Clause 3.3 of Appendix A

(i) Guide rails and fixing inside lift shaft
(ii) Guide shoes
(iii) Suspension rope termination including compensating chain/rope
(iv) Overspeed governor
(v) Buffer
(vi) Electrical installation in lift shaft
(vii) Electrical installation in machine room
(viii) Inspections required before energisation
(ix) Special requirements on Machine-room-less lifts (if applicable)

4.1.2 Escalator and Passenger Conveyor Installation

A. Tests/Inspections to be carried out before installation — Clause 3.2 of Appendix B

(a) Factory tests and off-site Tests

(b) Site inspection prior to delivery of equipment
  (i) Access
  (ii) Barrier
  (iii) Lighting
  (iv) Storage of Equipment

(c) Inspection of major materials/equipment delivered to site
  (i) Check against approved lists
  (ii) Check for any abnormalities

(d) Escalator pit inspection
  (i) Dimension
  (ii) Finishes
  (iii) Adequacy and accuracy of builder's work provision

(e) Adequacy and accuracy of associated builder's work and building services provisions

(f) Other tests/inspections relating to setting-outs, safety and quality etc required before commencing installation works

B. Tests/Inspections to be carried out during installation — Clause 3.3 of Appendix B

(i) Steps/Pallets
(ii) Combs
(iii) Balustrades
(iv) Handrails
(v) Driving machinery and braking
(vi) Footlight and step lights
(vii) Safety device
(viii) Control station
(ix) Controller
(x) Maintenance facilities
(xi) Electrical installation in escalator pit
(xii) Provisions for weatherproof/outdoor escalator
(xiii) Other inspection required before energisation

4.1.3 Vertical Lifting Platform Installation

A. Tests/Inspections to be carried out before installation — Clause 3.2 of Appendix C

(a) Factory tests and off-site tests

(b) Site inspection prior to delivery of equipment
(i) Access
(ii) Barrier
(iii) Lighting
(iv) Storage of equipment

(c) Inspection of major materials/equipment delivered to site
(i) Check against approved lists
(ii) Check for any abnormalities

(d) Vertical lift pit/ramp and concrete wall inspection
(i) Dimension
(ii) Finishes
(iii) Adequacy and accuracy of builder's work provision

(e) Adequacy and accuracy of associated builder's work and building services provisions

(f) Other tests/inspections relating to setting-outs, safety and quality etc. required before commencing installation works

B. Tests/Inspections to be carried out during installation

(i) Drive system
(ii) Liftway enclosure lighting
(iii) Platform
(iv) Landing door/gate
(v) Operation control system
(vi) Safety device
(vii) Call bell system
(viii) Supervisory control panel
(ix) Intercom system
(x) Close circuit television
(xi) Electrical installation in vertical lift pit
(xii) Provisions for weatherproof/outdoor vertical lifting platform
(xiii) Other inspection required before energisation

4.1.4 Stairlift Installation

A. Tests/Inspections to be carried out before installation

Clause 3.3 of Appendix D

(a) Factory tests and off-site tests

(b) Site inspection prior to delivery of equipment
  (i) Access
  (ii) Barrier
  (iii) Lighting and power
  (iv) Storage area

(c) Inspection of major materials/equipment delivered to site
  (i) Check against approved lists
  (ii) Check for any abnormalities

(d) Structural members of building for mounting of stairlift installation

(e) Stairlift railing

(f) Adequacy and accuracy of associated builder's work and building services provisions

(g) Other tests/inspections relating to setting-outs, safety and quality etc required before commencing installation works

B. Tests/inspections to be carried out during installation

(i) Guide rail
(ii) Platform carriage
(iii) Operation call station
(iv) Drive mechanism
(v) Operation control
(vi) Battery powered operation
(vii) Electrical installation
(viii) Provisions for weatherproof/outdoor stairlift
(ix) Other inspection required before energisation

4.2 Functional Performance Tests

4.2.1 Lift Installation — Clause 3.4 of Appendix A

(a) Landing fixture
(b) Car doors and landing doors
(c) Safety devices for doors
(d) Lift car
(e) Control station in car
(f) Car door operation
(g) Safety gear and overspeed governor
(h) Automatic control system
(i) Installations inside machine room
(j) Lift well and pit
(k) Counterweight
(l) Lift ride quality
(m) Hydraulic system (for hydraulic lift only)
(n) Machine-room-less lift

4.2.2 Escalator and Passenger Conveyor Installation — Clause 3.4 of Appendix B

(a) Combs
(b) Handrails
(c) Brakes
(d) Footlights and step lights
(e) Safety devices
(f) Driving machinery
(g) Machinery space
(h) Control station
(i) Controller
(j) Functional tests on automatic operations (for service-on-demand control only)
(k) Miscellaneous items

4.2.3 Vertical Lifting Platform Installation — Clause 3.4 of Appendix C

(a) Door/Gate lock
(b) Driving machine
(c) Hydraulic control device
(d) Control system
(e) Control stations
(f) Safety devices
(g) Miscellaneous items

4.2.4 Stairlift Installation — Clause 3.4 of Appendix D

(a) General operation
(b) Drive system
(c) Platform carriage
(d) Operation control
(e) Miscellaneous items

4.3 Commissioning and Statutory Inspections

4.3.1 Lift Installation

(a) Static examination - Mechanical — Clause 3.5 of Appendix A
(b) Static examination – Electrical
(c) Dynamic tests — Annex A or Annex B (for hydraulic lift) or Annex D (for service lift)
(d) Electrical system
(e) Hydraulic system (for hydraulic lift only)
(f) Governor/Safety ropes/Suspension gear tests
(g) Car safety gear tests
(h) Counterweight safety gear test
(i) Clamping device tests (for hydraulic lift only)
(j) Buffer tests
(k) Anti-creep (for hydraulic lift only)
(l) Traction check
(m) Duty cycle test
(n) General
(o) Other tests, inspections and examination as required

4.3.2 Escalator and Passenger Conveyor Installation

(a) Static examination — Clause 3.5 of Appendix B
(b) Dynamic Tests — Annex C
(c) Electrical system
(d) Clearance
(e) Half-hour run
(f) General
(g) Other tests, inspections and examination as required

4.3.3 Vertical Lifting Platform Installation

(a) Half hour run — Clause 3.5 of Appendix C
(b) Other tests, inspections and examination as required

4.3.4 Stairlift Installation

(a) Half hour run — Clause 3.5 of Appendix D
(b) Other tests, inspections and examination as required

Testing and Commissioning Certificate on Lift Installation

Part 1 : Details of Project

1.1 Project title (with location) :

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

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

1.4 *Contractor/Sub-contractor :

1.5 Make and Model No. of Lift :

1.6 PBSE :

1.7 PBSI :

Part 2 : Declaration

2.1 I certify that the Lift Installation as specified in the *Contract/Sub-contract/Quotation at the above location has been inspected, tested and commissioned in accordance with this Testing and Commissioning (T&C) Procedure (Note 1) *and/or any other procedures agreed between the PBSE and the LE Contractor. The results are satisfactory in the aspects as mentioned in Part 3 of this Certificate, except as indicated in the COMMENTS item(s).

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

Name of LE Contractor's Representative: _____	Signature: _____
Designation / Post of LE Contractor's Representative: _____	Date signed: _____
Name and Stamp of LE Contractor: _____	Telephone No.: _____

Note:

1. "T&C Procedure" refers to the Testing &Commissioning Procedure for Lift, Escalator and Passenger Conveyor Installation.
2. The LE Contractor's Representative signing this Certificate must be a person or representative authorized by the LE Contractor.

* Delete as applicable

Part 3 : Items Inspected and Tested

3.1. General

	Particulars	Remarks
Lift Number		
Type (Passenger (P), Bed (B), Goods (G) or Service (S))	***P/B/G/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/machine-room-less**	
For 'machine-room-less lift', type approval document from Electrical and Mechanical Services Department, Fire Services Department and other relevant government departments shall be submitted for inspection.	***Yes/No/NA**	
For 'machine-room-less lift', supporting quantitative information to substantiate that the machine-room-less lift is more energy efficient than the conventional lift with equivalent functions and performance in accordance with GS C25.7	***Yes/No**	GS C25.7
Fireman's Lift⊗	***Yes/No**	
Fireman's Switch Location⊗	***at ___ Floor/NA**	G/F or Designated Point of Entry

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

3.1. General (Cont'd)

	Particulars	Remarks
Identification of 'Barrier Free Access Lift' Provision of International Symbol of Accessibility at each landing for lifts complying with the barrier free access requirements	***Yes/No/NA**	GS C22.7
For 'Barrier Free Access Lift', does the lift serve every floor of the building[#]	***Yes/No/NA**	GS C22.7
Provision of Mirror inside a 'Barrier Free Access Lift' for use by wheelchair passengers Provision of a mirror inside a lift car with the mirror bottom edge set at 900mm above finished floor level	***Yes/No/NA**	GS C22.8
Lift Car Dimension (width x depth x height) *(minimum 1500x1400 mm for Barrier Free Access Lift)*	**____mm x ____mm x _____mm**	GS C22.1
Location of Group Supervisory Panel		
Rated Supply Voltage/ Lift Motor Rating	**_____V_____phase /_____kW**	
Power System Application *Application* — *Specified power system* *Speed ≤1.75 m/s* — *DC geared VV, ACVV or ACVVVF* *Speed >1.75 m/s* — *DC gearless VV, ACVV or ACVVVF* *Bed/Passenger* — *ACVV, ACVVVF or DCVV*	***Geared/Gearless** ***AC/DC** ***VVVF/VV**	GS C19
Buffer Type *For rated speed* — *Specified buffer type* *≤1.0 m/s* — *Energy accumulation (spring)* *≤1.6 m/s* — *Energy accumulation (spring) with buffered return* *no limit* — *Energy dissipation (oil)*	***Spring/** **Spring with buffered return/** **Oil**	GS C2
Ascending Car Overspeed Protection Means Type	***Act to the car/** **Act to the counterweight/** **Act on the rope system/** **Act on the traction sheave**	GS C14.8
Type of Protection Against Uncontrolled Car Movement	**Rope brake system/** **Others (pls specified)** _____	GS C14.9
Automatic Control System	***Automatic push button/** **Down collective control/** **Directional collective control/** **Group supervisory control/** **Others (pls specified)** _____	GS C18

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

3.2. Tests/Inspections to be carried out before installation

		Type Test or Manufacturer Test Certificates/Reports etc. submitted by LE Contractor	Remarks
3.2.1 Factory Tests and Off-site Tests			
a)	F.R.P. of landing doors *(not less than one hour)*	*√/X/NA	GS C10.1
b)	Integrity and Insulation Criteria on Fire Resistance of landing doors in accordance with BS476: Parts 20 & 22 *(for lift landings not isolated by fire resisting enclosures or lifts completely surrounded by stairwells)*	*√/X/NA ____ hr integrity ____ hr insulation	GS C10.1
c)	Landing Door Locking Devices	*√/X/NA	GS C10.10
d)	Safety Gear	*√/X/NA	GS C14.1 GS C14.2 GS C14.3
e)	Overspeed Governors	*√/X/NA	GS C14.4 GS C14.5
f)	Buffer	*√/X/NA	GS C2
g)	Suspension Ropes and Overspeed Governor Ropes	*√/X/NA	GS C4 GS C14.6 GS C14.7
h)	Ascending Car Overspeed Protection Means	*√/X/NA	GS C14.8
i)	Protection Against Uncontrolled Car Movement	*√/X/NA	GS C14.9
j)	Automatic Control System *(factory simulation test report or record shall be provided.)*	*√/X/NA	GS C18
k)	All locally applied paints and primers shall comply with the Air Pollution Control (VOC) Regulations, Cap. 311	*√/X/NA	GS B3.3
Other tests for setting to work, safety and quality etc. required before commencing installation works			
l)	(details of tests to be specified)	*√/X/NA	

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.2 Site Inspections for items provided by others prior to Lift Equipment delivered to site			
a) Access *(safe access shall be provided)*	*√/X/NA	*Yes/No	
b) Barrier *(shall be easy for delivery of equipment)*	*√/X/NA	*Yes/No	
c) Lighting *(adequate intensity of illumination)*	*√/X/NA	*Yes/No	
d) Storage of Equipment *(sufficient space provided with adequate security measure)*	*√/X/NA	*Yes/No	

3.2.3 Inspection of Materials/Equipment delivered to site

Check	Make	Model No.	Country of Origin	Approval document provided	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
1) Driving motor				*√/X/NA	*√/X/NA	*Yes/No	
2) Group controller				*√/X/NA	*√/X/NA	*Yes/No	
3) Suspension system				*√/X/NA	*√/X/NA	*Yes/No	
4) Overspeed governor				*√/X/NA	*√/X/NA	*Yes/No	
5) Safety gear				*√/X/NA	*√/X/NA	*Yes/No	
6) Guide rails				*√/X/NA	*√/X/NA	*Yes/No	
7) Braking system				*√/X/NA	*√/X/NA	*Yes/No	
8) Buffer				*√/X/NA	*√/X/NA	*Yes/No	
9) Travelling cable				*√/X/NA	*√/X/NA	*Yes/No	
10) Car and landing doors				*√/X/NA	*√/X/NA	*Yes/No	
11) Architrave				*√/X/NA	*√/X/NA	*Yes/No	

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check	Make	Model No.	Country of Origin	Approval document provided	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.3 Inspection of Materials/Equipment delivered to site (Cont'd)							
12) Indicators (position, direction and message)				*√/X/NA	*√/X/NA	*Yes/No	
13) Information Display System monitor				*√/X/NA	*√/X/NA	*Yes/No	
14) Information Display System audio & video equipment				*√/X/NA	*√/X/NA	*Yes/No	
15) Intercom facilities				*√/X/NA	*√/X/NA	*Yes/No	
16) Voice Announciator				*√/X/NA	*√/X/NA	*Yes/No	
17) CCTV system				*√/X/NA	*√/X/NA	*Yes/No	
18) Hydraulic Unit(for hydraulic lift only)				*√/X/NA	*√/X/NA	*Yes/No	
19) Hydraulic oil cooler (for hydraulic lift only)				*√/X/NA	*√/X/NA	*Yes/No	
20) Hydraulic oil heater (for hydraulic lift only)				*√/X/NA	*√/X/NA	*Yes/No	
21) Seismic Sensors				*√/X/NA	*√/X/NA	*Yes/No	
22) Mirco-movement Push Buttons				*√/X/NA	*√/X/NA	*Yes/No	
23) International Symbols of Accessibility				*√/X/NA	*√/X/NA	*Yes/No	
24) Others (pls provide details)				*√/X/NA	*√/X/NA	*Yes/No	

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3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.4	**Machine Room (provisions by others):**			
a)	Dimensions	*√/X/NA	*Yes/No	
b)	Wall, floor and ceiling finishes	*√/X/NA	*Yes/No	
c)	Adequacy of waterproofing/drainage provisions	*√/X/NA	*Yes/No	
d)	Ventilation openings provided and protected against rain	*√/X/NA	*Yes/No	
e)	Adequacy and accuracy of other builder's work provisions (such as door opening, floor openings, hoisting provision, etc.)	*√/X/NA	*Yes/No	
f)	Adequacy and accuracy of building services provisions (such as lighting points, power supply and cabling facilities etc.)	*√/X/NA	*Yes/No	GS B2.1 GS B2.2

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3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.5	**Lift well & pit (provisions by others):**			
a)	Dimensions	*√/X/NA	*Yes/No	
b)	Finishes	*√/X/NA	*Yes/No	
c)	Alignment of well	*√/X/NA	*Yes/No	
d)	Emergency door provided at 11 m maximum distance apart *(min 0.5 x 1.8 m H)*	*√/X/NA	*Yes/No	GS C10.15
e)	Ventilation opening for lift well provided	*√/X/NA	*Yes/No	
f)	Drain (including sump pit where required) in lift pit provided	*√/X/NA	*Yes/No	
g)	Waterproofing provision of lift pit provided	*√/X/NA	*Yes/No	
h)	Adequacy and accuracy of building services provisions (such as lighting points, power supply and cabling facilities etc.)	*√/X/NA	*Yes/No	
i)	Adequacy of other builder's works (please specify: _____)	*√/X/NA	*Yes/No	
3.2.6	**Conduit/trunking provided by Electrical Contractor**			
a)	From the lift well at the landing of designated point of entry to the position of the supervisory control panel.	*√/X/NA	*Yes/No	GS B2.2
b)	For the alarm buzzers/bells, call bell system and the supervisory control panel at the landing of designated point of entry between the lift well and the position of the panel.	*√/X/NA	*Yes/No	GS B2.2
c)	For the intercom system linking the lift well to machine room and the caretaker's office.	*√/X/NA	*Yes/No	GS B2.2
d)	For CCTV system inside the lift well and the machine room.	*√/X/NA	*Yes/No	GS B2.2
e)	For the telecommunication system such as the emergency telephone system.	*√/X/NA	*Yes/No	GS B2.2
Other tests/inspections for setting to work, safety and quality tests etc. required before commencing installation works				
		*√/X/NA	*Yes/No	
		*√/X/NA	*Yes/No	

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3.3. Tests/Inspections to be carried out during installation

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.3.1	**Overspeed Governor:**			
a)	Overspeed governor *(shall be of centrifugal type operating at a speed at least equal to 115 % of the rated speed, where the means of adjusting the overspeed governor shall be sealed)*	*√/X/NA	*Yes/No	GS C14.4
3.3.2	**Lift well & pit:**			
a)	Stoppers *(shall be provided on ends of guide rails)*	*√/X/NA	*Yes/No	
b)	Guide rails and fixing	*√/X/NA	*Yes/No	GS C1
c)	Guide shoes	*√/X/NA	*Yes/No	GS C3.2
d)	Suspension rope termination including compensating chain/rope	*√/X/NA	*Yes/No	GS C4
e)	Buffer	*√/X/NA	*Yes/No	GS C2
Other tests/inspections for setting to work, safety and quality tests etc. required before energisation				
		*√/X/NA	*Yes/No	
		*√/X/NA	*Yes/No	
3.3.3	**Lift Machine Room**			
a)	Motor Type complied with document approved by PBSE	*√/X/NA	*Yes/No	
b)	Provision for protection of Traction Sheaves, Pulleys and Sprockets	*√/X/NA	*Yes/No	GS C4.5
c)	Seismic sensors (shall be capable of detecting the primary wave and secondary wave of an earthquake and provide the protection against earthquake as specified in clause C14.10 of the GS) with audio & visual alarm on supervisory panel	*√/X/NA	*Yes/No	GS C14.10
d)	Provisions for Post-voltage-dip operation	*√/X/NA	*Yes/No	GS B2.10
e)	Digital multi-function metering devices installed	*√/X/NA	*Yes/No	GS B4.2

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3.3. Tests/Inspections to be carried out during installation (Cont'd)

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.3.4	**Machine-room-less Lifts**			
a)	Lockable lift equipment cabinet with hinged doors outside lift well for housing controls, devices, panels and facilities that is accessible by authorized persons only and can be locked without a key from outside and bears a warning notice.	*√/X/NA	*Yes/No	**GS C25.3**
b)	A window of the control panel for observing overspeed governor and motor brake.	*√/X/NA	*Yes/No	GS C25.3
c)	The platforms and works areas inside the lift well shall be adequate and able to support the weight of at least two persons and additional tools and equipment for carrying out the maintenance and repair.	*√/X/NA	*Yes/No	GS C25.3
d)	A suitable lockable container for storage of facilities, together with clear instructions on the method for releasing the brake and moving the lift car in an emergency.	*√/X/NA	*Yes/No	GS C25.5
3.3.5	**Lift Car:**			
a)	Means provided to minimize risk of dragging children's hands into gaps between car door panels and uprights.	*√/X/NA	*Yes/No	GS C10.1
b)	Height of detection devices for re-opening of lift door follows requirements of C22.4 of the GS.	*√/X/NA	*Yes/No	GS C22.4
3.3.6	**Building Management Office or Caretaker's Office:**			
a)	A repeater master station with 2-way speaker provided in the building management office or the caretaker's office.	*√/X/NA	*Yes/No	GS C20.3

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3.4. Functional Performance Tests

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.1	**Landing fixture at Designated Point of Entry:**			
a)	Landing call buttons with illuminated call acceptance signal *(shall be of vandal-resistance design, where electronic touch buttons (A) or micro movement push buttons (C) shall be provided for office buildings and location(s) specified in the particulars specification.)*	*√/X/NA (*A / C/ other ____ _____)	*Yes/No	GS C11.1
b)	Position of call buttons not less than 900 mm and not more than 1200 mm above finish floor level of the lift hall[#] *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	BFA 5.7.1(c)
c)	Tactile and Braille floor designations provided on the jambs on both sides of each lift entrance, by means of Arabic numerals, minimum 60 mm high, raised 1 mm, and at 1200 mm above finished floor level[#] *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	BFA 5.8.1(b)
d)	Where a building contains some lifts that do not comply with BFA requirement, each of those lifts that do comply identified at each landing served, by not fewer than one international symbol for access for persons with a disability[#] *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	BFA 5.8.1(e)
e)	Where all lifts in a building comply with BFA requirement (including buildings with only one lift), at least one international symbol for access for persons with a disability provided at each lift lobby where entry to the building can be gained[#] *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	BFA 5.8.1(f)
f)	Emergency key switch for bed/passenger lift	*√/X/NA	*Yes/No	GS C11.2
g)	Audible and visual direction indicators	*√/X/NA	*Yes/No	GS C11.3
h)	Illuminated position indicator	*√/X/NA	*Yes/No	GS C11.3
i)	Pre-arrival signal for group control of two or more lifts	*√/X/NA	*Yes/No	GS C11.4
j)	Message indicator	*√/X/NA	*Yes/No	GS C11.5
k)	Buzzer (alarm bell) *(the pattern of lift alarms shall be distinguishable from that of fire alarms and of the following two-tone pattern* *Low frequency: 600 Hz ±15% Duration: 600 ms ±20%* *High frequency: 920 Hz ±15% Duration: 300 ms ±20%)*	*√/X/NA	*Yes/No	GS C8.11
l)	Stainless steel "IN CASE OF FIRE DO NOT USE THE LIFT" notice	*√/X/NA	*Yes/No	GS C13.3

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3.4. Functional Performance Tests (Cont'd)

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.1	**Landing fixture at Designated Point of Entry: (Cont'd)**			
m)	Stainless steel "name of the company, telephone number and emergency instructions " notice	*√/X/NA	*Yes/No	GS C13.3
n)	Manual home landing operation *(shall be operated by manually operated key switch)*	*√/X/NA	*Yes/No	GS C21.3
o)	Emergency stop of lift car at the nearest landing in the direction of travel with lift doors open for emergency release of passenger, followed by triggering of an alarm in the supervisory panel under the emergency conditions stipulated in GS C16.8.	*√/X/NA	*Yes/No	GS C16.8
p)	Automatic re-start of lift car movement to the nearest landing after emergency stop upon a preset adjustable time delay under the conditions stipulated in GS C16.9.	*√/X/NA	*Yes/No	GS C16.9
3.4.2	**Landing fixture at other floors:**			
a)	Landing call buttons with illuminated call acceptance signal *(shall be of vandal-resistance design, where electronic touch buttons(A) or micro movement push buttons (C) shall be provided for office buildings and location(s) specified in the Particular Specification.)*	*√/X/NA (*A / C/ other ____ _____)	*Yes/No	GS C11.1
b)	Position of call buttons not less than 900 mm and not more than 1200 mm above finish floor level of the lift hall[#] *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	BFA 5.7.1(c)
c)	Tactile and Braille floor designations provided on the jambs on both sides of each lift entrance, by means of Arabic numerals, minimum 60 mm high, raised 1 mm, and at 1200 mm above finished floor level[#] *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	BFA 5.8.1(b)
d)	Where a building contains some lifts that do not comply with BFA requirement, each of those lifts that do comply identified at each landing served, by not fewer than one international symbol for access for persons with a disability[#] *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	BFA 5.8.1(e)
e)	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 provided at each lift lobby where entry to the building can be gained[#] *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	BFA 5.8.1(f)

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3.4. Functional Performance Tests (Cont'd)

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.2	**Landing fixture at other floors: (Cont'd)**			
f)	Emergency key switch for bed/passenger lift	*√/X/NA	*Yes/No	GS C11.2
g)	Audible and visual direction indicator	*√/X/NA	*Yes/No	GS C11.3
h)	Illuminated position indicator *(except for automatic group supervisory control system)*	*√/X/NA	*Yes/No*	GS C11.3
i)	Pre-arrival signal for group control of two or more lifts	*√/X/NA	*Yes/No*	GS C11.4
j)	Message indicator	*√/X/NA	*Yes/No	GS C11.5
k)	Stainless steel "IN CASE OF FIRE DO NOT USE THE LIFT" notice	*√/X/NA	*Yes/No	GS C13.3
3.4.3	**Car and landing Doors:**			
a)	Distance between the car and landing sills *(shall not exceed 35 mm)*	____mm	*Yes/No	GS C10.1
b)	Clear height of all entrances on car and landings *(shall not be less than 2m)*	_____m	*Yes/No	GS C10.1
c)	Doors for passenger lifts *(shall be of two panels, centre opening with automatic power opening and closing unless otherwise specified in Particular Specification)*	*√/X/NA/ other ____ _____	*Yes/No	GS C10.2
d)	Doors for bed/passenger lifts *(shall be of two speed, multi-panel, side opening with automatic power opening and closing unless otherwise specified in Particular Specification)*	*√/X/NA/ other ____ _____	*Yes/No	GS C10.3
e)	Doors for goods lifts *(shall be *manually operated, horizontally sliding/power operated, automatic, horizontal sliding/vertically bi-parting, manually operated or power closing unless otherwise specified in Particular Specification)*	*√/X/NA/ other ____ _____	*Yes/No	GS C10.4
f)	Visual panel for goods lift with manually operated door	*√/X/NA	*Yes/No	GS C10.6
g)	Doors for service lifts *(manually operated, vertical bi-parting unless otherwise specified in Particular Specification)*	*√/X/NA/ other ____ _____	*Yes/No	GS C10.7

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3.4. Functional Performance Tests (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.3	**Car and landing Doors: (Cont'd)**			
h)	Doors shall be of the horizontally sliding type, power-operated and automatically controlled[#] *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	BFA 5.7.2(c)
i)	Audible signal shall be provided to signify the closing action of the doors to alert persons[#] *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	BFA 5.7.2(d)
j)	'Door open' alarm *(shall be provided for manually operated doors and power assisted door)*	*√/X/NA	*Yes/No	GS C10.13
k)	Emergency landing door unlocking device *(shall be provided for every door)*	*√/X/NA	*Yes/No	GS C10.14
l)	Door operator	*√/X/NA	*Yes/No	GS C10.9
m)	Doors opening time	sec	*Yes/No	
n)	Doors closing time	sec	*Yes/No	
3.4.4	**Door re-opening device:**			
a)	Dual function safety edge	*√/X/NA	*Yes/No	GS C10.12
b)	Sensing range of electronic safety edge *(shall extend from not more than 25 mm above the sill to a minimum of 1.8 m above the sill but full height for bed/passenger lift)*	*√/X/NA	*Yes/No	GS C10.12 GS C10.3
c)	Fireman mode of fireman's lift *(electronic device shall be in operative[⊗])*	*√/X/NA	*Yes/No	GS C10.12

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3.4. Functional Performance Tests (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.5	**Lift car:**			
a)	Car minimum internal dimensions *(shall be of 1500 mm x 1400 mm wide with minimum clear door width of 850 mm#)*	*√/X/NA	*Yes/No	BFA 5.7.2(a) GS C22.1
b)	Car floor area, car internal dimension and rated load for service lift (*Car floor area shall comply to the following table:* *Rated Load (kg) Maximum Floor Area (m^2)* *10 0.15* *50 0.50* *100 0.75* *200 1.00* *250 1.00*	*√/X/NA	*Yes/No	GS C24.1
	Car internal dimension and rated load shall not exceed: *depth/width 1.4 m* *height 1.2 m* *rated load 250 kg)*	*√/X/NA	*Yes/No	GS C24.1
c)	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 C8.4 GS C22.3
d)	Car floor material/finish *(4mm studded rubber floor for passenger lift; 5mm stainless steel plate floor incorporating 2mm high multi-grip, non-slip pattern for goods lift)*	*Studded rubber / ss plate/ other_____	*Yes/No	GS C8.4 GS C8.5
e)	Car wall material/finish *(1.5 mm hairline stainless steel for passenger lift; 1.5 mm stainless steel with three-equally-spaced full length lateral protective oak battens of 200 mm by 25 mm thick for goods lift)*	*Stainless steel / other _____	*Yes/No	GS C8.4 GS C8.5
f)	Type of lighting *(shall be concealed type, minimum two energy efficient T5 fluorescent luminaries with separate electronic ballast unless otherwise specified)*	*Fluorescent / other _____	*Yes/No	GS C8.4 GS C8.9
g)	Illuminance (minimum 120 lux on lift floor level and minimum 150 lux at lift car control panel) For "barrier free access" lifts, illumination level shall not be less than 150 lux at both the lift floor level and lift car control panel.	Lift Floor Level : Lux Lift Control Panel : Lux	*Yes/No	GS C8.9
h)	Emergency lighting *(shall be switched on automatically in power failure)*	*√/X/NA	*Yes/No	GS C8.10
i)	Air change per hour *(shall be not less than 20 with car doors closed)*	_____air change per hour	*Yes/No	GS C8.4

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3.4. Functional Performance Tests (Cont'd)

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.5	**Lift car: (Cont'd)**			
j)	Noise level inside car with ventilation fan running *(shall be not more than 55dBA for passenger lift and 58 dBA for goods lift measured at a distance of 1 m from the fan)*	dBA	*Yes/No	GS C8.4 GS C8.5
k)	Automatic switching off of Ventilation Fan, Air-conditioning and Lighting inside a lift car within an adjustable period of 2 minutes to 15 minutes after the last registered call is answered	*√/X/NA	*Yes/No	GS C8.4
l)	Intercom	*√/X/NA	*Yes/No	GS C20.3
m)	CCTV camera	*√/X/NA	*Yes/No	GS C20.5
n)	Monitor for information display system *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	GS C9.7
o)	Car control buttons and position indicator for goods lift *(shall be of vandal resistant stainless steel type)*	*√/X/NA	*Yes/No*	GS C8.5 GS C8.6
p)	Stainless steel drain water storage tank for goods lift installed in markets and abattoirs	*√/X/NA	*Yes/No*	GS C8.5
q)	Emergency exit	*√/X/NA	*Yes/No	GS C8.12
r)	Car top control station *(shall comprise at least 'stop' switch, 'normal/inspection' switch, directional inspection and movement buttons that shall be protected against accidental operations)*	*√/X/NA	*Yes/No	GS C9.6
s)	Stainless steel load plate (no. of persons & kg)	*√/X/NA	*Yes/No	GS C13.1
t)	Stainless steel "No smoking" notice	*√/X/NA	*Yes/No	GS C13.3
u)	Stainless steel "IN CASE OF FIRE DO NOT USE THE LIFT" notice	*√/X/NA	*Yes/No	GS C13.3
v)	Overload device *(shall be tested according to GS C15.1 & 15.2, where floating car platform type device is not acceptable)*	*√/X/NA	*Yes/No	GS C15
w)	Full load device *(floating car platform type device not acceptable)*	*√/X/NA	*Yes/No	GS C15.4

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3.4. Functional Performance Tests (Cont'd)

Check			Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.5	**Lift car: (Cont'd)**				
x)	Leveling Accuracy: *Lift Type* — *Max. deviation* *Electric* — *10 mm* *Hydraulic* — *5 mm*	Empty up	mm	*Yes/No	GS C19 measure the maximum deviation
		Empty down	mm	*Yes/No	
		Full load up	mm	*Yes/No	
		Full load down	mm	*Yes/No	
y)	Moving to the nearest landing after emergency stop due to voltage dips or actuation of the seismic detection sensors		*√/X/NA	*Yes/No	GS C16.9
3.4.6	**Control station in car:**				
a)	Call button with acceptance signal *(shall be engraved in Arabic number to correspond with the landing served)*		*√/X/NA	*Yes/No	GS C9.1
b)	"Door open" & "Door close" push buttons		*√/X/NA	*Yes/No	GS C9.1
c)	Audible & visible signals for overload		*√/X/NA	*Yes/No	GS C9.1
d)	Two-way intercom system		*√/X/NA	*Yes/No	GS C9.1 GS C20.3
e)	Alarm push button with protection from being operated accidentally *(if specified in Particular Specification) (the colour shall be yellow; for Barrier Free Access lift, the emergency alarm push button shall be in tactile bell shape#)*		*√/X/Tactile bell/NA	*Yes/No	GS C9.1 GS C22 BFA 5.7.1(e)
f)	Graphics for tactile markings for open-door and close-door push buttons, emergency alarm button, and main entrance level in accordance with Fig. 14 of Design Manual Barrier Free Access# *(if specified in Particular Specification)*		*√/X/NA	*Yes/No	GS C22 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) not less than 900 mm and not more than 1200 mm above the floor of the lift car# (*if specified in Particular Specification)*		*√/X/NA	*Yes/No	GS C22 BFA 5.7.1(c)
h)	Braille and tactile markings placed either on or to the left of the control buttons# *(if specified in Particular Specification) (markings shall be Arabic numerals and/or symbols, where tactile markings shall also have a minimum dimension of 15 mm high and be raised 1 mm minimum)*		*√/X/NA	*Yes/No	GS C22 BFA 5.7.1(d)

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3.4. Functional Performance Tests (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.6	**Control station in car: (Cont'd)**			
i)	An emergency alarm push button together with a buzzer, an indication light for acknowledgment and an intercom provided in the lift car and connected to the building management office or the caretaker's office which shall be equipped with a buzzer, an indication light and an intercom connected to the lift car(s)#	*√/X/NA	*Yes/No	GS C22 BFA 5.7.1(f) GS C8.11
j)	Indication light for acknowledgment in the form of blinking light adjacent to the intercom speaker and a notice "When light blinks, please speak or press alarm button again" (in English and Chinese) provided next to the blinking light # *(if specified in Particular Specification) (shall be backed up by an emergency electricity supply in case of power failure)*	*√/X/NA	*Yes/No	GS C22 BFA 5.7.1(g)
k)	All lift control buttons with a minimum dimension of 20 mm# *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	GS C22 BFA 5.7.2(f)
l)	Tactile markings of high contrasting colour# *(if specified in Particular Specification)*	*√/X/NA	*Yes/No	GS C22 BFA 5.7.2(g)
m)	Voice annunciator (in Cantonese, Putonghua and English) for indicating the stopping floor#	*√/X/NA	*Yes/No	GS C22 BFA 5.8.1(d) GS C9.4
n)	Illuminated visual indicator for indicating the direction of lift car travel and the position of the lift car	*√/X/NA	*Yes/No	GS C22
o)	Characters shown on the lift car position indicator shall have a minimum height of 50mm	*√/X/NA	*Yes/No	GS C22
p)	Emergency key switch for bed/passenger lift	*√/X/NA	*Yes/No	GS C11.2
q)	Light switch, alarm reset switch, fan switch and cleaner's stop-switch *(shall 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 C9.1
r)	Additional control station with 'call buttons with acceptance signals', 'alarm push button', 'door open' and 'door close' button under the following circumstances : *(i)* passenger lifts of 21 persons capacity or larger *(ii)* accessible lifts *(iii)* *a lift car with more than one car doors*	*√/X/NA	*Yes/No	GS C9.2
s)	Non-stop button & key-operated attendant control switch for lifts with attendant control	*√/X/NA	*Yes/No	GS C9.3

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3.4. Functional Performance Tests (Cont'd)

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.7	**When the lift stops close to a landing and power 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 if it is stopped within the unlocking zone	*√/X/NA	*Yes/No	
3.4.8	**Safety Gear and Overspeed Governor:**			
a)	Safety gear for the lift car *(shall be tripped by its own overspeed governor, where tripping of safety gears by devices which operate electrically, hydraulically or pneumatically is not allowed)*	*√/X/NA	*Yes/No	GS C14.1 GS C14.2
b)	Safety gear for the counterweight *(required when accessible space exist underneath the counterweight)*	*√/X/NA	*Yes/No	GS C14.1
c)	Type of safety gear *For rated Speed* *Type permissible* *≤ 0.63 m/s instantaneous* *≤ 1.0 m/s instantaneous with buffered effect* *> 1.0 m/s progressive*	*√/X/NA	*Yes/No	GS C14.3
d)	Operation of the overspeed governor *(motor control and brake control circuits shall be opened before or at the same time as the governor trips)*	*√/X/NA	*Yes/No	GS C14.5
e)	The diameter of the governor rope *(shall not be less than 6 mm and shall be of flexible wire rope)*	____mm	*Yes/No	GS C14.6
f)	Ascending car overspeed protection means *(if requiring external energy to operate, the absence of energy shall cause the lift to stop and keep it stop)*	*√/X/NA	*Yes/No	GS C14.8
g)	Protection Against Uncontrolled Car Movement	*√/X/NA	*Yes/No	GS C14.9
h)	Safety gear for service lift car and counterweight *(required when accessible space exist beneath the lift well)*	*√/X/NA	*Yes/No	GS C24.7

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3.4. Functional Performance Tests (Cont'd)

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.9	**Automatic Control System** ***(the following control system shall be tested according to the lift manufacturer's recommended procedure and methodology. Any special testing equipment required, such as portable computer, shall be provided by the Contractor):***			
a)	All lifts other than service lifts *(full load device shall be provided, which will detect the load condition and allow landing calls to be by-passed)*	*√/X/NA	*Yes/No	GS C18.1
b)	Single lift with **automatic push button control** *(shall allow only one call to be registered at a time, where the car shall answer one call before another call can be registered)*	*√/X/NA	*Yes/No	GS C18.2
c)	Single lift with **down collective control (Simplex)** *(see GS C18.3 for the detailed control algorithm)*	*√/X/NA	*Yes/No	GS C18.3
d)	Two inter-connected lifts with **down collective control (Duplex)** *(see GS C18.4 for the detailed control algorithm)*	*√/X/NA	*Yes/No	GS C18.4
e)	Single lift with **directional collective control** *(see GS C18.5 for the detailed control algorithm)*	*√/X/NA	*Yes/No	GS C18.5
f)	Two inter-connected lifts with **directional collective control** *(see GS C18.6 for the detailed control algorithm)*	*√/X/NA	*Yes/No	GS C18.6
g)	2-8 inter-connected lifts with **automatic group supervisory control** *(see GS C18.7 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)*	*√/X/NA	*Yes/No	GS C18.7
h)	Group operation of lifts under emergency power supply *(automatic selector switch shall be provided and the operation of the fireman's lift(s) shall not be affected in any case)*	*√/X/NA	*Yes/No	GS C18.7
i)	Standby mode during off-peak for energy management *(in general, at least one lift car of a lift bank shall operate under a standby mode during off-peak period when the traffic demand is low)*	*√/X/NA	*Yes/No	GS B4.6

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3.4. Functional Performance Tests (Cont'd)

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.10	**Machine Room:**			
a)	Power supply points provided by others	*√/X/NA	*Yes/No	GS B2.1 & 2.2
b)	Direction indicator on machine	*√/X/NA	*Yes/No	
c)	Direction indicator on governor	*√/X/NA	*Yes/No	
d)	Hoist rope shall be well set into groove	*√/X/NA	*Yes/No	
e)	Provision for future Energy Audit *(multi-functional metering devices (A) or permanent provisions for connection of such devices (C) shall be provided)*	*√/X/NA *(A)/(C)	*Yes/No	GS B4.2
f)	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 provided and positioned in a conspicuous manner	*√/X/NA (detail _____)	*Yes/No	GS C13.4
g)	Fire extinguisher provided by others	*√/X/NA	*Yes/No	
h)	Handrail provided by others	*√/X/NA	*Yes/No	
i)	Lighting provided by others	*√/X/NA	*Yes/No	
j)	Log book provided	*√/X/NA	*Yes/No	
3.4.11	**Driving Machinery:**			
a)	Motor starting full load up/no load down shall be without any roll back	*√/X/NA	*Yes/No	
b)	Motor enclosure, class of cooling	IP_____ IC_____	*Yes/No	
c)	Motor starting method	*Delta/Star /Auto-trans /other____	*Yes/No	
d)	Motor starting Current	__A for _sec	*Yes/No	Upward full load
e)	Motor running Current	__A	*Yes/No	Upward full load
f)	Circuit current of motor drive system	__A	*Yes/No	Upward full load
g)	Maximum regenerative power	_____kW	*Yes/No	

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3.4. Functional Performance Tests (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.11 Driving Machinery: (Cont'd)				
h)	Total harmonic distortion (THD) *(shall not exceed the following:* ***Circuit Fundamental Current of Motor Drive Max THD %*** *400A ≦ I < 800A* — *15* *80 A ≦ I < 400A* — *22.5* *40 A ≦ I < 80A* — *35* *I < 40 A* — *40* *measured at the moment a lift car moving up at rated load rated speed; harmonic filter(s) shall be provided if the THD measured exceed the above values)*	_____% at _____A motor current *With/ *Without Harmonic Filter	*Yes/No	GS B4.1
i)	Total power factor (pf) of a motor drive circuit measured at the isolator connecting the lift equipment to the building's feeder circuit or the power source *(measured at lift moving up at rated load rated speed; shall be not less than 0.85)*	pf =	*Yes/No	GS B4.3
j)	Maximum allowable electrical power of traction lifts *(measured at lift moving up at rated load rated speed)*	_____kW *√/X	*Yes/No	GS B4.4
k)	Maximum allowable electrical power of hydraulic lifts *(measured at lift moving up at rated load rated speed)*	_____kW *√/X	*Yes/No	GS B4.4
l)	Motor efficiency *(shall not be less than 85 %)*	%	*Yes/No	GS B4.7
m)	Lift speed	m/s	*Yes/No	
n)	Emergency operation devices (e.g. smooth wheel, emergency electrical switch for electric lifts, and emergency lowering for hydraulic lifts, etc.)	*√/X/NA (detail _____)	*Yes/No	GS C16.4 GS C16.5 GS C23.3
o)	Protection of traction sheaves, pulleys and sprockets in accordance with EN 81-1:1998 to avoid (i) disengagement of slack ropes/chains from pulleys and sprockets, (ii) introduction of foreign objects between ropes/chains and pulleys/sprockets and (iii) bodily injuries	*√/X/NA	*Yes/No	GS C4.5

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3.4. Functional Performance Tests (Cont'd)

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.12	**Lift well & pit:**			
a)	Function of permanent lighting provided by others in lift well with two ways switch at lift pit & machine room	*√/X/NA	*Yes/No	GS B2.2
b)	Function of interlock among emergency doors and electric safety device	*√/X/NA	*Yes/No	GS C10.14
c)	Types of traveling cables complying with the GS: *Max. Speed* — *Type permissible* *≤1.0 m/s* — *rubber insulated & sheathed, flexible 3 to 18 cores, maximum freely suspended length15 m* *≤1.6 m/s* — *rubber insulated & sheathed, flexible 4 to 48 cores@, maximum freely suspended length 35 m* *≤1.6 m/s* — *PVC insulated & sheathed, flexible 3 to 24 cores @, maximum freely suspended length 35 m* *No limit* — *PVC insulated & sheathed, flexible 4 to 72cores, No limit on maximum freely suspended length* *No limit* — *Rubber insulated & sheathed, flexible 36 to72cores having strain-bearing center, No limit on maximum freely suspended length* ***@** Higher limits permissible if strain bearing material is included*	*√/X/NA	*Yes/No	GS B2.5
d)	Travelling cables *(shall be properly fixed with no twist or kink while travelling)*	*√/X/NA	*Yes/No	GS B2.5
e)	Function of lift pit lighting provided by others	*√/X/NA	*Yes/No	GS B2.2
f)	Screen between adjacent cars in lift pit provided by others	*√/X/NA	*Yes/No	GS C6.2
g)	Screen for counterweight in lift pit provided by others	*√/X/NA	*Yes/No	GS C6.3
h)	Function of drain provided by others in lift pit	*√/X/NA	*Yes/No	
i)	Function of submersible pump in lift pit	*√/X/NA	*Yes/No	
j)	Cat ladder provided by others in lift pit	*√/X/NA	*Yes/No	
k)	Cleanliness and dryness of lift pit	*√/X/NA	*Yes/No	

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3.4. Functional Performance Tests (Cont'd)

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.13	**Counter Weight:**			
a)	Counter weight = 40 to 45 % of contract load + weight of complete car	*√/X/NA _____ % of contract load	*Yes/No	GS C3.1
b)	Number of guide shoes *(shall be at least four)*	nos.	*Yes/No	GS C3.2
c)	Counter weight operating without excessive noise	*√/X/NA	*Yes/No	
3.4.14	**Hydraulic system (for hydraulic lift only):**			
a)	Drive system *(for direct acting system, ram shall be installed on side or on back of lift car **but not** underneath the lift car)*	*Direct/ Indirect	*Yes/No	GS C23.2
b)	Anti-creep 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)*	*√/X/NA	*Yes/No	GS C23.3
c)	Ram *(shall not be subjected to bending stresses or eccentric loading)*	*√/X/NA	*Yes/No	GS C23.3
d)	Cylinder *(shall be subjected to axial loads only)*	*√/X/NA	*Yes/No	GS C23.3
e)	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)*	*√/X/NA	*Yes/No	GS C23.3
f)	Pump and motor *(shall be properly aligned and mounted on vibration isolators with the pump capable of a continuous duty cycle of at least 45 motor starts per hour)*	*√/X/NA	*Yes/No	GS C23.3

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3.4. Functional Performance Tests (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.14 Hydraulic system (for hydraulic lift only): (Cont'd)				
g)	Hydraulic System *(shall be fitted with a silencer unit and with oil filter on the pump inlet with stop cock for filter cleaning and filter change)*	*√/X/NA	*Yes/No	GS C23.3
h)	Pump flow rate	litre/sec	*Yes/No	GS C23.3
i)	Working pressure	kPa	*Yes/No	GS C23.3
j)	Oil tank capacity *(shall be adequate to prevent the entrance of air or gases into the system)*	litres	*Yes/No	GS C23.3
k)	Sight glass tube for oil tank provided	*√/X/NA	*Yes/No	GS C23.3
l)	Oil level monitoring device *(shall give a visual and audible signal in the control panel when the oil level is at alarming low level)*	*√/X/NA	*Yes/No	GS C23.3
m)	Rigid steel pipe *(shall be effectively isolated from the building structure)*	*√/X/NA	*Yes/No	GS C23.3
n)	Safety Gear fitted to direct acting hydraulic lift *(not instantaneous type and shall be made to absorb any impact loading at the cross-head due to the inertia of the ram and attachments)*	*√/X/NA	*Yes/No	GS C23.6
o)	Safety Gear – integral or flange-bolted rupture valve *(shall stop the descent of car cage)*	*√/X/NA	*Yes/No	GS C23.6
p)	Re-levelling device *(shall automatically return the lift to the floor should the lift creep down from floor level for a distance not exceeding 75 mm)*	*√/X/NA	*Yes/No	GS C23.7

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3.4. Functional Performance Tests (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.15	**Machine-room-less lift (if specified in Particular Specification):**			
a)	Machine and overspeed governor *(shall be safely accessible from the car roof)*	*√/X/NA	*Yes/No	GS C25.3
b)	Inspection window *(shall be provided to allow maintenance personnel to observe the overspeed governor and motor brake)*	*√/X/NA	*Yes/No	GS C25.3
c)	Tripping and re-setting of the overspeed governor *(shall be remotely controllable outside the lift well)*	*√/X/NA	*Yes/No	GS C25.3
d)	Motor brake *(shall be remotely release-able outside the lift well)*	*√/X/NA	*Yes/No	GS C25.3
e)	Release of passengers *(shall be in a safe manner when the counterweight buffer is completely compressed)*	*√/X/NA	*Yes/No	GS C25.3
f)	Lighting *(shall sufficiently illuminate the overspeed governor and machine in the lift well)*	*√/X/NA	*Yes/No	GS C25.3
g)	Control panel located outside lift well (go to item 'h' if the location of the control panel is located inside lift well) *(shall be lockable and enclosed by a rigid enclosure of stainless steel frame and stainless steel sheet of minimum 1.5 mm thick, where the door of the enclosure shall not open towards the control panel and shall be fitted with a lock openable without a key from inside and lockable without a key from outside)*	*√/X/NA	*Yes/No	GS C25.4
h)	Control panel located inside lift well *(shall be located and fitted with proper working platform and access such that the maintenance personnel can carry out inspection and maintenance work in a safe and efficient manner)*	*√/X/NA	*Yes/No	GS C25.4
i)	Provision of a lockable container for storage of the following facilities for rescuing passengers, together with clear instructions on the method of releasing the brake and moving the lift car in the event of emergency : *(i) car lifting tool for moving the car* *(ii) weights for moving the car under balanced load condition, or other means approved by Supervising Officer)*	*√/X/NA	*Yes/No	GS C25.5
j)	Lift machinery shall be of low-fire-risk construction / type and the fire resistance period of lift well shall comply with the COP for Fire Resisting Construction.	*√/X/NA	*Yes/No	GS C25.6

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3.4. Functional Performance Tests (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.16 Lift ride quality:			
3.4.16.1 Pre-requisites for making lift ride quality measurements			
a) No presence of sound sources extraneous to the normal operation of the lifts or the building plant and equipment *(e.g. building environmental noise, audible construction, refurbishment or cleaning work etc.)*	*√/X/NA	*Yes/No	
b) Car fan or air conditioning not in operation	*√/X/NA	*Yes/No	
c) Audible alarms, chimes and announcement features inside the car not in operation	*√/X/NA	*Yes/No	
d) Alarms, chimes and announcement features equipped at landing not in operation if audible in the car	*√/X/NA	*Yes/No	
e) All building plant and equipment, including the adjacent lift(s), in normal service	*√/X/NA	*Yes/No	
3.4.16.2 Measuring Instrumentation:			
a) Consisting of the transducers to measure acceleration in each of the three orthogonal axes; a transducer to measure the sound pressure level; data acquisition system; data processing system; and data storage system	*√/X/NA	*Yes/No	
b) Placed on any floor coverings which are normally present *(Note: not required if floor coverings are not normally present)*	*√/X/NA	*Yes/No	
c) Remaining in stable contact with the floor throughout the measurement process	*√/X/NA	*Yes/No	
d) Documentary evidence or calculation proof provided to demonstrate that the feet of the instrumentation exerts a pressure on the floor of not less than 60 kPa	*√/X/NA	*Yes/No	
e) Transducers for vibration measurements placed on the car floor within 100 mm radius of the centre of the floor in three orthogonal axes corresponding to vertical, front-to-back and side-to-side	*√/X/NA	*Yes/No	
f) Precision grade sound transducer of frequency weighting A and time weighting "fast" used	*√/X/NA	*Yes/No	

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3.4. Functional Performance Tests (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.16 Lift ride quality: (Cont'd)			
3.4.16.2 Measuring Instrumentation: (Cont'd)			
g) Transducer for sound measurements located 1.5 m ± 0.1 m above the same region of the floor, aligned along front-to-back axis, and aimed directly at the front car door	*√/X/NA	*Yes/No	
h) The instrumentation design minimizing, in all three axes, any mechanical decoupling from the car floor which could allow attenuation or amplification associated with mechanical resonance to invalidate any measurements	*√/X/NA	*Yes/No	
3.4.16.3 Measuring Staff:			
a) No more than two persons present in the car during the measurement process	*√/X/NA	*Yes/No	
b) Staff standing in locations that do not significantly unbalance the lift if there are two persons present in the car	*√/X/NA	*Yes/No	
c) Each person remaining still and quiet during the measurement process	*√/X/NA	*Yes/No	
d) No person placing their feet within 150 mm of the vibration measuring transducers and no person(s) shall stand within 300 mm of the sound measuring transducer	*√/X/NA	*Yes/No	
e) No person standing between the sound measuring transducer and the car doors	*√/X/NA	*Yes/No	
3.4.16.4 Measuring Procedures:			
a) The lift ride quality measurements including the following boundaries:- ● at least 0.5 s before commencement of door close operation at the departure terminal floor; ● full travel of the lift from terminal to terminal; and ● at least 0.5 s after completion of door open operation or cessation of lift motion at the arrival terminal floor, whichever occurs last	*√/X/NA	*Yes/No	
b) At least one complete UP run and DOWN run measured	*√/X/NA	*Yes/No	

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3.4. Functional Performance Tests (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.16 Lift ride quality: (Cont'd)			
3.4.16.5 Recording Format:			
a) Three categories of data reported: general information, ride quality results and performance characteristics	*√/X/NA	*Yes/No	
b) General information of measurement including:- ● date and time of the measurement; ● instrument identification number and the date of last calibration; ● name(s) and affiliation of the persons present during measurement; ● status of any equipment as defined in Section 3.4.16.2; ● building type; ● lift number; ● departure and arrival terminal floor designations; ● direction of travel; and ● distance of travel	*√/X/NA	*Yes/No	
c) Lift ride quality results in ISO weighting including:- ● maximum and average A-weighted sound pressure levels (LAeq) during lift travel; ● maximum peak-to-peak and A95 (typical) peak-to-peak front-to-back and side-to-side axes vibration levels during lift travel; ● maximum peak-to-peak vertical axis vibration levels during jerk zones of lift travel; and ● maximum peak-to-peak and A95 (typical) peak-to-peak vertical axis vibration levels during non-jerk zones of lift travel	*√/X/NA	*Yes/No	
d) Lift ride quality performance characteristics including:- ● maximum and V95(typical) velocity; ● maximum and A95(typical) acceleration and deceleration; and ● maximum jerk	*√/X/NA	*Yes/No	

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3.4. Functional Performance Tests (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.16 Lift ride quality: (Cont'd)			
3.4.16.6 Acceptance Criteria:			
a) Lateral and vertical vibrations *Acceptable standards:- [ISO weighting?]* ***Maximum peak-to-peak vibration*** / ***Lift speed < 6 m/s*** / ***Lift speed 6 to 8 m/s*** *Lateral (m/s^2)* / *0.25* / *0.375* *Vertical (m/s^2)* / *0.25* / *0.375*	Lateral: m/s^2 Vertical: m/s^2	*Yes/No	GS B5.2
b) Noise level *Acceptable level:-* ***Without car fan or air conditioning in operation*** / ***All lift speeds*** *Average A-weighted sound pressure level, L_{Aeq} (dB(A))* / *55*	dBA	*Yes/No	GS B5.3
c) Acceleration and deceleration *Acceptable rates:-* ***Maximum*** / ***All lift speeds*** *Acceleration and deceleration (m/s^2)* / *1*	Acceleration : m/s^2 Deceleration : m/s^2	*Yes/No	GS B5.4
d) Jerk level *Acceptable level:-* ***Maximum*** / ***All lift speeds*** *Jerk (m/s^3)* / *4*	m/s^3	*Yes/No	GS B5.5

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

3.5. Commissioning and Statutory Inspections

Check	**Items tested /checked by LE Contractor** (Note 1)	**Items witnessed by PBSE/PBSI**	**Remarks**
3.5.1 Certificate of Test and Examination	*√/X/NA	*Yes/No	Annex A, Annex B or Annex D

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

3.6 Comments (if any)

Note 1: In the result column,

√	means	(operating satisfactorily and complied with specified requirement).
X		(operating unsatisfactorily or did not comply with requirement. Please give detail),
NA		(not applicable)

Symbols :

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

Abbreviation :

GS	General Specification for Lift, Escalator and Passenger Conveyor Installation in Government Buildings of the Hong Kong Special Administrative Region issued by the Architectural Services Department (2012 Ed) (Incorporating Corrigendum No. GSLE01-2012)
COP(D)	Code of Practice on the Design and Construction of Lifts and Escalators issued by the Electrical and Mechanical Services Department (2010 Edition)
COP(LEW)	Code of Practice for Lift Works and Escalator Works issued by the Electrical and Mechanical Services Department (2010 Ed)
BFA	Design Manual: Barrier Free Access 2008 issued by Buildings Department

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

Witnessed by _____ Signature(s) _____
(Name(s) of *PBSE/PBSI)

Checked/Certified by

_____
LE Contractor's T&C Engineer
Name in Full : _____
Registered Lift Engineer No: _____
Date: _____

Company Chop : _____

Testing and Commissioning Certificate on Escalator/Passenger Conveyor Installation

Part 1 : Details of Project

1.1 Project title (with location) :

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

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

1.4 *Contractor/Sub-contractor :

1.5 Make and Model No. of Escalator/Passenger Conveyor :

1.6 PBSE :

1.7 PBSI :

Part 2 : Declaration

2.1 I certify that the *Escalator/Passenger Conveyor Installation as specified in the *Contract/Sub-contract/Quotation at the above location has been inspected, tested and commissioned in accordance with this Testing and Commissioning (T&C) Procedure (Note 1) *and/or any other procedures agreed between the PBSE and the LE Contractor. The results are satisfactory in the aspects as mentioned in Part 3 of this Certificate, except as indicated in the COMMENTS item(s).

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

Name of LE Contractor's Representative: _____	Signature: _____
Designation / Post of LE Contractor's Representative: _____	Date signed: _____
Name and Stamp of LE Contractor: _____	Telephone No.: _____

Note:

1. "T&C Procedure" refers to the Testing &Commissioning Procedure for Lift, Escalator and Passenger Conveyor Installation.
2. The LE Contractor's Representative signing this Certificate must be a person or representative authorized by the LE Contractor.

* Delete as applicable

Part 3 : Items Inspected and Tested

3.1. General (Description of Installation)

	Particulars	Remarks
***Escalator/Passenger Conveyor Number**		
Manufacturer		
Model		
Environment	***indoor/weather-proof**	
Capacity	**person/hr**	
Rated Speed and Angle of Inclination (for escalator) *For rated speed* — *Angle of inclination* *≤ 0.75 m/s* — *≤ 30°* *≤ 0.50 m/s* — *≤ 35°*	**m/s** **°**	GS D10.4
Rated Speed (for passenger conveyor) *shall not exceed 0.75 m/s and the rated speed increased to 0.90m/s maximum provided that:* *(i) the width of the pallets or the belts not exceed 1100 mm;* *(ii) at the landings, the pallets or the belt move horizontally for a length of at least 1600 mm before entering the combs.*	**m/s**	GS D10.4
Vertical Rise	**m**	
Machinery location	***inside truss/*outside truss/ other_____**	
Motor Rating *(GS specified variable voltage and variable frequency (VVVF) control and soft starting)*	**kW**	GS D10.3
Step Tread and Riser *(GS specified die-cast aluminum)*	***die-cast aluminum/ other_____**	GS D1.2
Comb *(GS specified wear resistant aluminum alloy with anti-slip pattern)*	***wear resistant aluminum alloy with antislip pattern/other___**	GS D5.1

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

3.1 General (Description of Installation - Cont'd)

	Particulars	Remarks
Tracks *(GS specified steel or aluminum die castings for curved sections and steel or aluminum extrusions for straight sections)*	***steel/aluminum / others_____**	GS D3.1 GS D3.2
Landing Plate *(GS specified stainless steel or wear resistant aluminum alloy)*	***stainless steel/wear resistance aluminum alloy**	GS D4.1
Balustrade Skirting *(GS specified of not less than 2 mm stainless steel. Embossed, perforated or roughly textured materials shall not be used)*	***hairline stainless steel/ other_____**	GS D6.1(a)
Internal and External Paneling *(GS specified smooth hairline finishes stainless steel, with thickness of not less than 1.5 mm thick. For glass balustrade, the glass shall be of a laminated or splinter-free one layer safety glass (tempered glass type) with thickness at least 6 mm)*	***hairline stainless steel/ laminated or tempered glass/ other_____**	GS D6.1(c)
Balustrade Decking	***stainless steel/aluminum polish & anodized in natural colour/other_____**	GS D6.1(d)
Handrail *(GS specified multi-layered canvas with exposed surface covered with smooth black abrasion resistant rubber vulcanized into an endless loop)*	***multi-layered canvas with exposed surface covered with smooth abrasive resistant rubber/other_____**	GS D7.1
Truss *(shall be designed to support the deadweight of the escalator plus a passenger weight of 5000 N/m^2)*	***steel/other _____**	GS D8.1
Tactile Warning Strips (provision of tactile warning strips at the top and bottom ends of an escalator or at both ends of a passenger conveyor)	***Yes/No**	GS D4.3
Audio Indicator for Disabled (provision of audio indicator for giving clear and consistent signal for going up / down or moving forward indication at both ends to assist users with visual impairment)	***Yes/No**	GS D18.3

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

3.2. Tests/Inspections to be carried out before installation

	Items submitted by LE Contractor	Remarks
3.2.1 Factory Tests and Off-site Tests		
a) *Steps/pallets (escalator)	**Type Test Certificate**	
b) *Belts (passenger conveyor)	**Type Test Certificate**	
c) Handrail (public service escalator)	**Type Test Certificate**	
d) Truss – Static Stress	**Manufacturer's Confirmation**	
e) Step Chains – Breakage Resistance	**Manufacturer's Confirmation**	
f) Driving Motor	**Manufacturer's Confirmation**	
g) Electro-mechanical brake	**Manufacturer's Confirmation**	
h) Broken step/pallet chain device	**Manufacturer's Confirmation**	
i) Broken drive chain device	**Manufacturer's Confirmation**	
j) Broken step/pallet device	**Manufacturer's Confirmation**	
k) Broken handrail device	**Manufacturer's Confirmation**	
l) Non-reversal device	**Manufacturer's Confirmation**	
m) Comb obstruction device	**Manufacturer's Confirmation**	
n) Skirting switches	**Manufacturer's Confirmation**	
o) Handrail entry device	**Manufacturer's Confirmation**	
p) Phase protection relay	**Manufacturer's Confirmation**	
q) Overspeed governor	**Manufacturer's Confirmation**	
r) Motor protection relay	**Manufacturer's Confirmation**	

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

		Items submitted by LE Contractor	Remarks
s)	**Compliance of the Locally Applied paints and primers with the Air Pollution Control (VOC) Regulations, Cap 311**	**Manufacturer's Confirmation**	GS B3.3
t)	**Service-on-demand control and associated components for outdoor escalator/passenger conveyor shall be of weatherproof construction.**	**Manufacturer's Confirmation**	
u)	**The service-on-demand control design shall be 'fail-safe' such that in case of the failure of the service-on-demand control or any of its detection devices and sensors, the escalator/passenger conveyor shall continue to operate normally without stopping.**	**Manufacturer's Confirmation**	

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.2 Site Inspections for Delivery of Equipment				
a)	**Access provided.**	*√/X/NA	*Yes/No	
b)	**Barrier (shall be easy for delivery of equipment.)**	*√/X/NA	*Yes/No	
c)	**Lighting (adequate intensity of illumination)**	*√/X/NA	*Yes/No	
d)	**Storage of Equipment (sufficient space provided with adequate security measure.)**	*√/X/NA	*Yes/No	

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check	Make	Model No.	Country of Origin	Approval document provided	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.3 Inspection of Materials/Equipment delivered to site (Refer to Standard Form SR.054)							
a) Truss				*√/X/NA	*√/X/NA	*Yes/No	
b) Driving Motor				*√/X/NA	*√/X/NA	*Yes/No	
c) Reduction Gear				*√/X/NA	*√/X/NA	*Yes/No	
d) Step Chain				*√/X/NA	*√/X/NA	*Yes/No	
e) Steps				*√/X/NA	*√/X/NA	*Yes/No	
f) Braking System Assembly				*√/X/NA	*√/X/NA	*Yes/No	
g) Combplate				*√/X/NA	*√/X/NA	*Yes/No	
h) Handrail				*√/X/NA	*√/X/NA	*Yes/No	
i) Digital multi-function metering devices				*√/X/NA	*√/X/NA	*Yes/No	
j) Others				*√/X/NA	*√/X/NA	*Yes/No	

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.4 Escalator Pit Installation			
a) Dimensions (shall be in-lined with installation drawings.)	*√/X/NA	*Yes/No	
b) Finishes (shall be in-lined with installation drawings.)	*√/X/NA	*Yes/No	
c) Adequacy and accuracy of builder's work provision	*√/X/NA	*Yes/No	
3.2.5 Provisions for Barrier Free Access (by others)			
a) Tactile warning strips are required at the top and bottom ends of an escalator or at both ends of a passenger conveyor.	*√/X/NA	*Yes/No	
b) Where there is an accessible lift providing alternative access route for persons with a disability, a sign posted at the entry of the escalator for indicating the alternative access route shall be provided.	*√/X/NA	*Yes/No	
3.2.6 Other tests/inspections for setting to work, safety and quality tests etc. required before commencing installation works			

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

3.3. Tests/Inspections to be carried out during installation

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.3.1	**Driving Machinery, Braking, Indicators & Energy Audit Equipment:**			
a)	Lubrication *(Moving parts shall be effectively lubricated. Drip pans shall be provided for the entire length of the escalator to contain any waste and lubricants within the truss. Where necessary, the oil tight drip shall be removable to give access to both the machinery space and the return station for maintenance.)*	*√/X/NA	*Yes/No	GS D9.1 GS D9.2
b)	Driving machine *(Each escalator/passenger conveyor shall be independently driven by at least one machine of its own.)*	*√/X/NA	*Yes/No	GS D10.1
c)	Reduction Gear *(shall be (A) worm gear, (B) planetary gear or (C) other approved type)*	*A/B/C _____	*Yes/No	GS D10.2
d)	Motor *(shall be (A) AC squirrel cage or (B) other approved type. Variable voltage and variable frequency (VVVF) control and soft starting shall be employed.)*	*A/B _____	*Yes/No	GS D10.3
e)	Bearing *(shall be fitted with grease lubricated ball bearings.)*	*√/X/NA	*Yes/No	GS D10.5
f)	Electro-mechanical Brake *(shall be mechanically applied and electrically held off)*	*√/X/NA	*Yes/No	GS D11.1
g)	Auxiliary Brake *(Auxiliary brake is required and shall act on the non-friction part of the driving system, if* *(i) the coupling of the operational brake and the driving wheels of the steps, pellets or the belt is not accomplished by shafts, gear wheels, multiplex chains, two or more single chains; or* *(ii) the rise exceeds 6 m;* *(iii) the operation brake is not an electro-mechanical brake;* (iv) *they are "Public Service Escalators"*	*√/X/NA	*Yes/No	GS D11.2
h)	Audio indicator *For providing clear and consistent signal for going up / down or moving forward indication at both ends. Adequate warning and guarding alongside and at each end of the escalators and passenger conveyors.*	*√/X/NA	*Yes/No	GS D18.3
i)	Energy Audit *Digital multi-function metering devices installed*	*√/X/NA	*Yes/No	GS B4.2

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

3.4. Functional Performance Tests

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.1	***Steps/Pallets:**			
a)	Width *(shall be 1000 mm unless otherwise specified)*	mm	*Yes/No	GS D1.1
b)	Depth *(shall be ≧ 400 mm)*	mm	*Yes/No	GS D1.5
c)	Rise *(shall be ≦ 240 mm)*	mm	*Yes/No	GS D1.5
d)	Clear height above step *(shall be ≧ 2300 mm at all points)*	mm	*Yes/No	GS D1.6
e)	25 mm width yellow lines *(For escalator, yellow lines shall be marked on both sides and front of the leading /trailing edges of the steps with durable and wear resistant materials to show demarcation between comb and cleat. For passenger conveyor, yellow lines shall be marked on both sides of the pallets only)*	*√/X/NA	*Yes/No	GS D1.1
f)	Flat steps for escalator *(shall have at least a length of two complete steps i.e. 800mm at either end of the escalator traveling horizontally from the comb line)*	*√/X/NA	*Yes/No	GS D1.7
g)	Rollers *(each step/pallet shall be supported on four roller or synthetic material tyred ball bearing rollers, grease sealed for life)*	*√/X/NA	*Yes/No	GS D1.3
h)	Step/Pallet Chain and Tracks *(shall be made of high tensile steel links with hardened and ground pins)*	*√/X/NA	*Yes/No	GS D1.4 GS D2.1 GS D2.2 GS D2.3

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

3.4. Functional Performance Tests (Cont'd)

	Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.2	**Combs:**			
a)	Comb Teeth section *(shall be adjustable horizontally and vertically. Section forming the comb teeth shall be readily removable in case of emergency. Are the combplates and terminal guides adjusted properly ?)*	*√/X/NA	*Yes/No	GS D5.1 GS D5.2
b)	Comb Teeth *(shall mesh with and set into the slots of the tread surface of the steps. For escalator, the points of such teeth are always below the upper surface of such tread surface.)*	*√/X/NA	*Yes/No	GS D5.1 GS D5.2
3.4.3	**Balustrades:**			
a)	Landing gap *(the gap between the balustrade exterior paneling and the wall or obstacle shall $\leqq$ 100 mm)*	mm	*Yes/No	GS D4.2
b)	Interior profile angle of inclination *(shall be at least 25 ^{o} to horizontal)*	^{o}	*Yes/No	GS D6.1(b)
c)	Extended newel *(The newel including the handrails shall project beyond the root of the comb teeth by at least 600 mm in the longitudinal direction.)*	mm	*Yes/No	GS D6.1(e)
d)	Dress guards *(shall be brush brittle type made of nylon filaments and be provided along the full length of the lower part of skirting panels)*	*√/X/NA	*Yes/No	GS D6.2
e)	Guard for adjacent building obstacles and criss-cross escalators *(Vertical obstruction guard shall be provided and placed above the balustrade decking)*	*√/X/NA	*Yes/No	GS D6.4
f)	Additional requirement for escalator with the horizontal distance between the balustrade interior panelling greater than the distance between handrail (slim type escalator) *The horizontal distance (measured right angles to the direction of travel) between the balustrade interior panelling lower points shall always be equal to or less than the horizontal distance measured at points higher up.* *The maximum distance between the balustrade interior panelling at any point shall be smaller than the distance between handrails. This requirement can be disregarded for escalators with handrails centralized with balustrade interior panelling.*		*Yes/No	GS D6.5

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

3.4. Functional Performance Tests (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.4	**Handrails:**			
a)	Handrail surface *(shall be smooth and without undulation)*	*√/X/NA	*Yes/No	
b)	Safety guard *(shall be provided at entry and exit of newel)*	*√/X/NA	*Yes/No	GS D7.3
c)	Width *(shall be between 70 mm to 100 mm)*	mm	*Yes/No	GS D7.5
d)	Horizontal clearance *(Clearance between the outer edge of the handrail and walls, adjacent criss-cross escalators or other obstacles shall not be less than 80 mm and shall be maintained to a height of at least 2100 mm above the steps/pallets or belt.)*	mm	*Yes/No	GS D7.6
e)	Vertical clearance *(Clearance between the handrail and step nose, pallet surface or belt surface shall not be less than 900 mm and not exceed 1100 mm.)*	mm	*Yes/No	GS D7.6
f)	Speed of handrail compared with speed of escalator steps shall not be more than 2%	% / *synchronous	*Yes/No	GS D7.2

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

3.4. Functional Performance Tests (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.5 Brakes:			
a) Electro-mechanical Brake *(shall be mechanically applied and electrically held off)* *(Has the brake been examined and found to be mechanically applied and electrically held off of sufficient capacity to efficiently bring the escalator/passenger conveyor to rest with uniform deceleration when travelling at full contract speed in either direction)*	*√/X/NA	*Yes/No	GS D11.1
b) Auxiliary Brake *(Has the brake been examined and found to be in order?)* *(Auxiliary brake is required and shall act on the non-friction part of the driving system, if* *(i) the coupling of the operational brake and the driving wheels of the steps, pellets or the belt is not accomplished by shafts, gear wheels, multiplex chains, two or more single chains; or* *(ii) the rise exceeds 6 m;* *(iii) the operation brake is not an electro-mechanical brake;* *(iv) they are "Public Service Escalators"*	*√/X/NA	*Yes/No	GS D11.2
c) Has the brake been tested at *unloaded / *full load *Up *down condition, and the stopping distances for *unloaded / *full load *Upward *Downward moving escalators within the range: *For rated speed* — *Stopping distance between* *0.50 m/s* — *min. 0.20 m & max 1.00 m* *0.65 m/s* — *min, 0.30 m & max 1.30 m* *0.75 m/s* — *min. 0.35 m & max 1.50 m)*	*√/X/NA mm	*Yes/No	GS D11.4
d) Has the brake been tested at *unloaded / *full load condition, and the stopping distances for unloaded and loaded passenger conveyors within the range: *For rated speed* — *Stopping distance between* *0.50 m/s* — *min. 0.20 m & max 1.00 m* *0.65 m/s* — *min, 0.30 m & max 1.30 m* *0.75 m/s* — *min. 0.35 m & max 1.50 m* *0.90 m/s* — *min. 0.40 m & max 1.70 m*	*√/X/NA mm	*Yes/No	GS D11.4

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

3.4. Functional Performance Tests (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.6 Driving Machinery			
a) Time to reach upper/lower landing *(from the time one step completely leaving the comb to the time that step beginning to enter the comb of the destination landing)*	sec	*Yes/No	
b) Total Harmonic Distortion (THD) *(Shall not exceed the following:* *Circuit Fundamental Current of Motor Drive Max THD %* *80A ≦ I < 400A 22.5* *40 A ≦ I < 80A 35* *I < 40 A 35 - for electrical supply direct from building's feeder circuit* *40 – for electrical supply NOT direct from building's feeder circuit* *Measured when the escalator/passenger conveyor is operating with no-load at rated speed. Harmonic filter(s) shall be provided if the THD measured exceed the above values.)*	_____% at _____A motor current *With/ Without Harmonic Filter	*Yes/No	GS B4.1
c) Total Power Factor (pf) *(The Total Power Factor of motor drive measured at the isolator connecting the escalator / passenger conveyor equipment to the power source shall not less than 0.85 when the motor drive is operating under its brake load condition with rated speed in upward direction. Manufacturer's documentation are required to be submitted as proof.)*	pf = _____	*Yes/No	GS B4.3
d) Driving motor current test *Voltage at time of test:* *Rated power:* *Running current at no load condition:* *Running current at *full load / * downward / * upward condition:*	_____V _____kW _____A _____A *√/X	*Yes/No	
e) Insulation resistance to earth *Power System:* *Safety Circuit:*	_____MΩ _____MΩ	*Yes/No *Yes/No	
f) Earthing *Is all metalwork enclosing conductors bonded to earth?* *Is the maximum continuity resistance to earth less than 0.5 Ω ?*	_____MΩ	*Yes/No *Yes/No	

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

3.4. Functional Performance Tests (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.7	**Footlights and Step Lights:**			
a)	Footlights *(shall be provided on either side of the interior of the skirting at both landings. Energy efficient fluorescent luminaries shall be used.)*	*√/X/NA	*Yes/No	GS D12.1
b)	Step/Pallet Lights under landings *(shall be green in colour and provided underneath landings. Energy efficient fluorescent luminaries shall be used.)*	*√/X/NA	*Yes/No	GS D12.2
3.4.8	**Safety Device:**			
a)	Emergency stopping devices shall be placed in conspicuous positions at or near to landing. *(For escalators with rise above 12 m, and for passenger conveyors with a length more than 40 m, additional emergency stopping devices shall be installed).*	*√/X/NA	*Yes/No	GS D14.1(a)
b)	Broken step/pallet chain device provided.	*√/X/NA	*Yes/No	GS D14.1(b)
c)	Broken drive chain device provided.	*√/X/NA	*Yes/No	GS D14.1(c)
d)	Broken step/pallet device provided.	*√/X/NA	*Yes/No	GS D14.1(d)
e)	Broken handrail device provided.	*√/X/NA	*Yes/No	GS D14.1(e)
f)	Non-reversal device provided.	*√/X/NA	*Yes/No	GS D14.1(f)
g)	Comb obstruction device provided.	*√/X/NA	*Yes/No	GS D14.1(g)
h)	Skirting switches provided.	*√/X/NA	*Yes/No	GS D14.1(h)
i)	Handrail entry device provided.	*√/X/NA	*Yes/No	GS D14.1(i)
j)	Phase protection relay provided.	*√/X/NA	*Yes/No	GS D14.1(j)
k)	Speed governor provided.	*√/X/NA	*Yes/No	GS D14.1(k)
l)	Motor overload relay provided.	*√/X/NA	*Yes/No	GS D14.1(l)

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

3.4. Functional Performance Tests (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.9 Control Station:			
a) Control stations *(shall be provided at both upper and lower landing newel and be positioned as to enable any person operating any switches to have a full view of escalator/passenger conveyor)*	*√/X/NA	*Yes/No	GS D15.1(a)
b) Control Switches *(shall be provided with clearly engraved markings both in English and Chinese)*	*√/X/NA	*Yes/No	GS D15.1(c)
c) Emergency stop switch *(shall be push button type with a red button and be protected against accidental operation.)*	*√/X/NA	*Yes/No	GS D15.1(b)
d) Up and down directional starting switch *(shall be of key operated spring off type)*	*√/X/NA	*Yes/No	GS D15.1(b)
e) Provision for future Energy Audit *(Multi-functional metering devices (A) or permanent provisions for connection of such devices (B) shall be provided at each electricity supply feeder and the measurements shall include electrical load of the motor drive, auxiliary loads, voltages, currents, total power factor, energy consumption, power and maximum demand.)*	*√/X/NA *(A)/(B)	*Yes/No	GS B4.2
3.4.10 Controller:			
a) Location *(shall be located in the truss at the upper landing for escalator and in the truss at landing for passenger conveyor, and provision shall be made for easy access for maintenance.)*	*√/X/NA	*Yes/No	GS D16.2
b) Metal Cabinet *(the controller shall be fitted inside a 1.2 mm thick stainless steel dust proof cabinet.)*	*√/X/NA	*Yes/No	GS D16.3
3.4.11 Alarm buzzer/bell:			
a) Alarm buzzer/bell *(shall be sounded when any emergency safety device operates and be of 2-tone pattern distinguishable from fire alarm).*	*√/X/NA	*Yes/No	GS D18.1 GS D18.2

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

3.4. Functional Performance Tests (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.12 Services on Demand Escalator / Passenger Conveyor Control:				
Has the service on demand escalator / passenger conveyor where fitted, been checked for correct operation?		*√/X/NA	*Yes/No	GS B4.7
3.4.13 Machinery Space:				
a)	Has the emergency stop switch where fitted, been checked for correct operation?	*√/X/NA	*Yes/No	GS D17.3
b)	Has the alarm buzzer/bell where fitted, been checked for correct operation?	*√/X/NA	*Yes/No	GS D18.1 GS D18.2
3.4.14 Maintenance Facilities and Notices:				
a)	Machinery Space Lighting (By Electrical Contractor) *(permanent light shall be provided in the machinery space which can be switched without passing over or reaching over any part of the machinery)*	*√/X/NA	*Yes/No	GS D17.1
b)	13 amp. 3 pin switched socket (By Electrical Contractor) *(shall be fitted adjacent to the light switch)*	*√/X/NA	*Yes/No	GS D17.2
c)	Emergency stop switch *(shall be of the "push-to-stop, pull-to-run" type and having the switching positions marked unambiguously and permanently marked "STOP")*	*√/X/NA	*Yes/No	GS D17.3
d)	Notice on the access door *(a notice of durable materials with inscription, "Machinery space – danger, access prohibited to unauthorized person" shall be on each access door to machinery space.)*	*√/X/NA	*Yes/No	GS D17.4
e)	Marking *(Notice indicating the name of the manufacturer and the manufacturer's serial number shall be provided at least at one landing.)*	*√/X/NA	*Yes/No	GS D17.5
f)	Notice for Automatic Start *(for escalator/passenger conveyor starting automatically, a clearly visible and audible signals shall be provided indicating to the user whether the escalator/passenger conveyor is available for use, and its direction travel.)*	*√/X/NA	*Yes/No	GS D17.6
g)	The following notices shall be given in the form of pictographs. The minimum size of the pictographs shall be 80 x 80 mm and defined in Appendix 4: (i) Small children must be held firmly (ii) Dogs must be carried (iii) Stand facing the direction of travel; keep feet away from sides; (iv) Hold the handrail (v) Transportation of bulky and heavy loads not permitted	*√/X/NA	*Yes/No	GS D17.7

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

3.4. Functional Performance Tests (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.15	***Weather-proof Escalator:**			
a)	Protection against weather (By Building Contractor) *(a canopy or similar structure to be provided.)*	*√/X/NA	*Yes/No	GS D19.1
b)	Treatment of truss for protection against water *(shall be hot dipped galvanized or epoxy paint coating designed for marine application)*	*hot-dipped galvanised/ epoxy paint/ other____	*Yes/No	GS D19.2(a)
c)	Lubrication *(Automatic oiler shall be provided for chain lubrication. Device for separation of oil and water shall be provided if the lubricating system is of re-circulating type.)*	*√/X/NA	*Yes/No	GS D19.3
d)	Drainage *(Effective drainage facility shall be provided.)*	*√/X/NA	*Yes/No	GS D19.6
e)	Submersible pump and control device to be provided.	*√/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 shall be provided.	*√/X/NA	*Yes/No	GS D19.6
3.4.16	**Miscellaneous Items:**			
a)	Clear signals or indications for going up/down (e.g. consistent clear sounds or signals, #if specified in the Particular Specification).	*√/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	GS B4.7
d)	Has the service on demand escalator / passenger conveyor control provided.	*√/X/NA	*Yes/No	GS B4.7

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

3.4. Functional Performance Tests (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.16	**Miscellaneous Items: (Cont'd)**			
e)	Special notice for the above if remote/automatic start stop facilities provided.	*√/X/NA	*Yes/No	
f)	On/Off control linked with fire detection system provided.	*√/X/NA	*Yes/No	
g)	The sides and undersides of escalator to be enclosed by F.R.P. materials.	*√/X/NA	*Yes/No	GS D6.3
h)	Vent provided for machine space of escalator.	*√/X/NA	*Yes/No	

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

3.5. Commissioning and Statutory Inspections

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.5.1 Half Hour Run:			
The ***escalator /*** passenger conveyor is to run unladen, 15 minutes in the ***up /*** forward direction followed by 15 minutes in the *down/*backward direction:	_____ Observation	_____ Observation	
3.5.2 Other tests, inspections and examination as required in the relevant annexes			

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

3.6. Comments (if any)

Note 1: In the result column,

√	means	(operating satisfactorily and complied with specified requirement).
X		(operating unsatisfactorily or did not comply with requirement. Please give detail),
NA		(not applicable)

Symbols :

*	Delete as appropriate
#	Barrier Free Access Requirement

Abbreviation :

GS	General Specification for Lift, Escalator and Passenger Conveyor Installation in Government Buildings of the Hong Kong Special Administrative Region issued by the Architectural Services Department (2012 Ed) (Incorporating Corrigendum No. GSLE01-2012)
COP(D)	Code of Practice on the Design and Construction of Lifts and Escalators issued by the Electrical and Mechanical Services Department (2010 Edition)
COP(LEW)	Code of Practice for Lift Works and Escalator Works issued by the Electrical and Mechanical Services Department (2010 Ed)
BFA	Design Manual: Barrier Free Access 2008 issued by Buildings Department

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

Witnessed by _____ Signature(s) _____
(Name(s) of *PBSE/PBSI)

Checked/Certified by

_____
LE Contractor's T&C Engineer
Name in Full : _____
Registered Lift Engineer No: _____
Date: _____

Company Chop :_____

Testing and Commissioning Certificate on Powered Vertical Lifting Platform Installation

Part 1 : Details of Project

1.1 Project title (with location) :

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

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

1.4 *Contractor/Sub-contractor :

1.5 Make and Model No. of Powered Vertical Lifting Platform :

1.6 PBSE :

1.7 PBSI :

Part 2 : Declaration

2.1 I certify that the Powered Vertical Lifting Platform Installation as specified in the *Contract/Sub-contract/Quotation at the above location has been inspected, tested and commissioned in accordance with this Testing and Commissioning (T&C) Procedure (Note 1) *and/or any other procedures agreed between the PBSE and the LE Contractor. The results are satisfactory in the aspects as mentioned in Part 3 of this Certificate, except as indicated in the COMMENTS items.

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

Name of LE Contractor's Representative: _____	Signature: _____
Designation / Post of LE Contractor's Representative: _____	Date signed: _____
Name and Stamp of LE Contractor: _____	Telephone No.: _____

Note:

1. "T&C Procedure" refers to the Testing &Commissioning Procedure for Lift, Escalator and Passenger Conveyor Installation.
2. The LE Contractor's Representative signing this Certificate must be a person or representative authorized by the LE Contractor.

* Delete as applicable

Part 3 : Items Inspected and Tested

3.1 General (Description of Installation)

	Particulars	Remarks
***Powered Vertical Lifting Platform Number**		
Manufacturer		
Model		
Environment	***indoor/weather-proof**	
Platform Loading Capacity *shall not less than 250 kg/m^2 of the clear floor area and not exceed 500 kg*	**kg/m^2**	GS E1.3(a)
Rated Speed *shall be at least 0.08 m/s and not exceed 0.15 m/s*	**m/s**	GS E1.3(b)
Platform Size *shall be at least 1100 mm x 1400 mm and not exceed 2 m^2*	**m^2**	GS E1.3(c)
Door/Gate Width *shall be at least 900 mm*	**mm**	GS E1.3(d)
Vertical Rise *shall not exceed 4000 mm*	**m**	GS E1.3(e)
Lift Pit/Ramp *If pit is not available, ramps shall be fitted on the platform access edges incorporating a step greater than 15 mm high. The ramp shall have an inclination and shall not greater than 1:12 on a vertical rise above 100 mm. A step up to 15 mm high is permissible at the leading edge of any ramp.*	***pit/*ramp** **mm**	GS E2.5
Operation Type	***attendant-operated/*self-operated/ other_____**	GS E1.3(f)

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

3.1 General (Description of Installation - Cont'd)

	Particulars	Remarks
Liftwell Enclosure Panel *(GS specified grade 316 mirror stainless steel / hairline stainless steel / baked powder coated steel/ baked powder coated steel frame with transparent panels / plastic blind panel or material having equivalent functions or performance as approved by the Architect)*	***Grade 316 stainless steel/ hairline stainless steel/ baked powder coated steel/ baked powder coated steel frame with transparent panels/ plastic blind panel others_____**	GS E2.2
Platform *(GS specified sufficient mechanical strength for the designed purpose and shall have slip resistant surfaces)*		GS E3.1 GS E7.1(e)
Door/Gate *(GS specified grade 316 mirror stainless steel / hairline stainless steel / baked powder coated steel/aluminum or material having equivalent functions or performance as approved by the Architect)*	***Grade 316 stainless steel/ hairline stainless steel/ baked powder coated steel/ aluminum/ others_____**	GS E4.2

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

3.2 Tests/Inspections to be carried out before installation

	Items submitted by LE Contractor	Remarks
3.2.1 Factory Tests and Off-site Tests		
a) *Drive System (Electro-hydraulic type)	**Manufacturer's Certificate**	
b) *Drive System (Jack type)	**Manufacturer's Certificate**	
c) *Drive System (Rack and Pinion type)	**Manufacturer's Certificate**	
d) *Drive System (Leadscrew and Nut type)	**Manufacturer's Certificate**	
e) *Drive System (Chain Suspension type)	**Manufacturer's Certificate**	
f) *Drive System (Scissor type)	**Manufacturer's Certificate**	
g) Guides System	**Manufacturer's Certificate**	
h) Door/Gate lock with mechanical and electrical interlocks	**Type Test Certificate**	
i) Hydraulic Control Valve Unit comprising with shut-off valve, non-return valve, pressure relief valve, down direction valve, up direction valve, in-built directional flow / rupture valve, one-way restrictor, filters, pressure gauge, reservoir and manual lowering operated valve.	**Manufacturer's Certificate**	
j) Safety Gear	**Manufacturer's Certificate**	
k) Control System *(shall be designed to be fail-safe. Control station completed with an on/off key switch shall be positioned at each lift entrance for easy operation by the attendant.)*	**Manufacturer's Certificate**	
l) Supervisory Control Panel	**Manufacturer's Certificate**	
m) Compliance with locally applied paints and primers with the Air Pollution Control (VOC) Regulations, Cap. 311	**Manufacturer's Certificate**	GS B3.3

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.2 Site Inspections for Delivery of Equipment			
a) Access provided.	*√/X/NA	*Yes/No	
b) Barrier *(shall be easy for delivery of equipment.)*	*√/X/NA	*Yes/No	
c) Lighting *(adequate intensity of illumination)*	*√/X/NA	*Yes/No	
d) Storage of Equipment *(sufficient space provided with adequate security measure.)*	*√/X/NA	*Yes/No	

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check	Make	Model No.	Country of Origin	Approval document provided	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.3 Inspection of Materials/Equipment delivered to site							
a) Drive System				*√/X/NA	*√/X/NA	*Yes/No	
b) Guides System				*√/X/NA	*√/X/NA	*Yes/No	
c) Door/Gate Lock				*√/X/NA	*√/X/NA	*Yes/No	
d) Hydraulic Control Valve Unit				*√/X/NA	*√/X/NA	*Yes/No	
e) Handrail				*√/X/NA	*√/X/NA	*Yes/No	
f) Digital multi-function metering devices				*√/X/NA	*√/X/NA	*Yes/No	
g) Others				*√/X/NA	*√/X/NA	*Yes/No	

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.4 Lift Well by Building Contractor			
a) Dimensions (shall be in-lined with installation drawings.)	*√/X/NA	*Yes/No	GS E2.1
b) Finishes (shall be in-lined with installation drawings.)	*√/X/NA	*Yes/No	GS E2.1
c) Adequacy and accuracy of builder's work provision	*√/X/NA	*Yes/No	GS E2.1
3.2.5 Lifting Platform Pit/Ramp Installation by Building Contractor			
a) Dimensions (shall be in-lined with installation drawings.)	*√/X/NA	*Yes/No	GS E2.5
b) Finishes (shall be in-lined with installation drawings.)	*√/X/NA	*Yes/No	GS E2.5
c) Adequacy and accuracy of builder's work provision	*√/X/NA	*Yes/No	GS E2.5
3.2.6 Opening to open air for ventilation provided by Building Contractor			
a) Dimensions (shall be in-lined with installation drawings.)	*√/X/NA	*Yes/No	GS E1.3(j)
b) Finishes (shall be in-lined with installation drawings.)	*√/X/NA	*Yes/No	GS E1.3(j)
c) Adequacy and accuracy of builder's work provision	*√/X/NA	*Yes/No	GS E1.3(j)

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.7 Electrical Services provided by Electrical Contractor			
a) Lockable fused isolator with proper labeling shall be provided adjacent to the lift machine compartment	*√/X/NA	*Yes/No	GS B2.2
b) RCD protection device shall be provided for the main supply of the lift machine compartment	*√/X/NA	*Yes/No	
c) Earth bonding for metallic parts shall be provided	*√/X/NA	*Yes/No	GS B2.4
d) Separately fused permanent lighting supply independent of the powered vertical lifting platform installation shall be illuminated to at least 50 lux at above the landings and lift well	*√/X/NA	*Yes/No	GS E2.3
e) Emergency lighting of at least 1 W lamp fed by an automatically rechargeable battery supply which shall be capable of operating the emergency light for at least 2 hours in case of an interruption upon failure of the normal power supply	*√/X/NA	*Yes/No	GS E2.3 & E3.3
f) 13A socket of emergency power supply adjacent to the call bell panel	*√/X/NA	*Yes/No	GS E8.1
g) Cable containment facilities from the lift well at the landing of designated point of entry to the position of the supervisory control panel and call bell system	*√/X/NA	*Yes/No	GS B2.2 GS E8.1 GS E8.2
h) Where the maximum vertical travel of the Powered Vertical Lifting Platform Installation exceeds 1980 mm, an intercom system and CCTV system shall be provided and the cable containment facilities from the lift well at the landing of designated point of entry to the position of the call bell panel integrated with intercom system and CCTV.	*√/X/NA	*Yes/No	GS B2.2 GS E8.3 GS E8.4
3.2.8 Fire Services provided by Fire Service Contractor			
Fire signal dry contact at a point near to the Powered Vertical Lifting Platform Installation control panel	*√/X/NA	*Yes/No	GS E9.2
3.2.9 Other tests/inspections for setting to work, safety and quality tests etc. required before commencing installation works			

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

3.3. Tests/Inspections to be carried out during installation

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.3.1 Drive System			
a) *Electro-hydraulic Type	*√/X/NA	*Yes/No	GS E5.2
b) *Jack Type	*√/X/NA	*Yes/No	GS E5.2 (a)
c) *Rack and Pinion Type	*√/X/NA	*Yes/No	GS E5.2 (b)
d) *Leadscrew and Nut Type	*√/X/NA	*Yes/No	GS E5.2 ©
e) *Chain Suspension Type	*√/X/NA	*Yes/No	GS E5.2 (d)
f) *Scissor Type	*√/X/NA	*Yes/No	GS E5.2 (e)
3.3.2 Guides System	*√/X/NA	*Yes/No	GS E5.1
3.3.3 Landing Door/Gate:			
a) Height of landing Door/Gate *(The platform with travel less than 1980 mm shall be protected by a gate of at least 1100 mm in height at landing entrance, and if the travel is more than 1980 mm, the platform shall be protected by a door of at least 2000 mm in height at landing entrance.)*	mm	*Yes/No	GS E4.2
3.3.4 Energy Audit Equipment - Digital multi-function metering devices installed	*√/X/NA	*Yes/No	GS B4.2
Other tests/inspections for setting to work, safety and quality tests etc. required before energisation			
	*√/X/NA	*Yes/No	
	*√/X/NA	*Yes/No	

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

3.4. Functional Performance Test

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.1 Liftwell Enclosure Lighting:			
Emergency Lighting *(shall be provided at the liftwell of at least 1 W lamp fed by an automatically rechargeable battery supply which shall be capable of operating the emergency light for at least 2 hours in case of an interruption of the normal power supply.)*	*√/X/NA	*Yes/No	GS E2.3
3.4.2 Platform:			
a) Handrail *(shall be an 'easy grip bar' handrail of cross-sectional dimensions between 30and 45mm extending up to 150 mm away from corners. The handrail shall be installed with its top at 900 ±25mm as measured from the floor and with the clearance between gripping part and the side panel maintained at not less than 35mm.)*	*√/X/NA	*Yes/No	GS E3.2 GS E7.1(h)
b) Emergency Lighting *(shall be provided at the platform of at least 1 W lamp fed by an automatically rechargeable battery supply which shall be capable of operating the emergency light for at least 2 hours in case of an interruption of the normal power supply.)*	*√/X/NA	*Yes/No	GS E3.3
c) Rated load Indication of the rated load in persons and kilograms shown at a prominent position next to platform control station	*√/X/NA	*Yes/No	GS E6.4

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

3.4. Functional Performance Test (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.3 Door / Gate:			
Landing Door/Gate shall be *i) self-closing but can be stable in open position;* *ii) do not open into lift well;* *iii) require a force to open them which is not more than 40 N at the handle*	*√/X/NA	*Yes/No	GS E4.2(a) to (c)
Landing Door/Gate with vision panel *i) Provided with a vision panel when the door/gate is made of transparent material and is over 1100 mm in height, the bottom edge of the vision panel shall be located between 300 mm and 900 mm above the floor level of the landing;* *ii) The vision panel shall be made of an approved material or glass of a laminated type/tempered type and with minimum thickness of 6 mm and a width of at least 60 mm;* *iii) The size and shape of the vision panel shall be such that it will not permit the passage of a sphere having a diameter of 100 mm, have a minimum glazed area per landing door of 0.015 m^2 with a minimum of 0.01 m^2 per vision panel of a width;* *iv) If they are of glass, visual markings between 1400 mm and 1600 mm above floor shall be provided.*	*√/X/NA	*Yes/No	GS E4.2 GS E4.2(d) GS E4.2(e) GS E4.2(f) GS E4.2(g)
Door/Gate Lock with mechanical and electrical interlocks shall be of the Electrical and Mechanical Department approved type. Interlocking features shall perform the following requirements: *i) Entrance door/gate lock shall be closed properly before the vertical lifting platform installation starts to move;* *ii) It shall not be possible in normal operation to unlock/open a landing door unless the powered vertical lifting platform is in unlocking zone of that door. The unlocking zone shall not extend more than 50 mm above and below the landing level; and* iii) *An unlocking key or other special service tool shall be required for opening the doors/gates in case of emergency.*	*√/X/NA *√/X/NA	*Yes/No *Yes/No	GS E4.3 GS E4.3 (a) GS E7.1(g) GS E4.3(b) GS E4.3 ©

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

3.4. Functional Performance Test (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
***3.4.4 Driving Machine (Jack Type):**			
Cylinder and Ram Drive *(Has the cylinder and ram drive functioned properly ?)* *Check the operating pressure of the Powered Vertical Lifting Platform*	*√/X/NA KPa / Bar	*Yes/No	GS E5.2 (a)
***3.4.5 Driving Machine (Rack and Pinion Type):**			
Rack and Pinion Drive *(Has the rack and pinion drive functioned properly ?)* *Check the operating pressure of the Powered Vertical Lifting Platform*	*√/X/NA KPa / Bar	*Yes/No	GS E5.2 (b)
***3.4.6 Driving Machine (Leadscrew and Nut Type):**			
Leadscrew and Nut Drive *(Has the leadscrew and nut drive functioned properly ?)* *Check the operating pressure of the Powered Vertical Lifting Platform*	*√/X/NA KPa / Bar	*Yes/No	GS E5.2 (c)
***3.4.7 Driving Machine (Chain Suspension Type):**			
Chain Suspension Drive *(Has the chain suspension drive functioned properly ?)*	*√/X/NA	*Yes/No	GS E5.2 (d)
***3.4.8 Driving Machine (Scissor Type – for Powered Lifting Platform travel does not exceed 1100 mm):**			
Scissor Drive *(Has the scissor drive functioned properly ?)*	*√/X/NA	*Yes/No	GS E5.2 (e)

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

3.4. Functional Performance Test (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
***3.4.9 Driving Machine (Electro-hydraulic drive):**			
Electro-hydraulic Drive *(Has the pump unit comprising a pump, drive motor, gear box, guides, electro-mechanical brake with spokeless wheel for emergency manual operation, overspeed governor, safety gear, controller, main power switch and other accessories functioned properly ?)* *i. Check the running current of the Powered Vertical Lifting Platform;* *ii. Check the operating pressure of the Powered Vertical Lifting Platform*	*√/X/NA A KPa / Bar	*Yes/No	GS E5.2
Single Acting Cylinder *(Has the cylinder been examined and found to be in order?)*	*√/X/NA	*Yes/No	GS E5.2
Guides System *(Has the guides system been examined and found to be in order?)*	*√/X/NA	*Yes/No	GS E5.1
3.4.10 Hydraulic Control Device:			
Hydraulic Control Device comprising with shut-off valve. non-return valve, pressure relief valve, down direction valve, rupture valve, one-way restrictor valve, filters, pressure gauge, reservoir and manual lowering operated valve *(Has the hydraulic control device been examined and found to be in order?)*	*√/X/NA	*Yes/No	GS E5.3(a) GS E5.3(b) GS E5.3(c) GS E5.3(d) GS E5.3(e) GS E5.3(f) GS E5.3(g) GS E5.3(h) GS E5.3(i) GS E5.3(j0) GS E7.1(b) GS E7.1(c) GS E7.1(d)

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

3.4. Functional Performance Test (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.11	**Control System:**			
a)	Has the control system designed to be fail-safe and functioned properly?	*√/X/NA	*Yes/No	GS E6.1
b)	Has the 'operating key' for attendant-operated type/'common key' for self-operated type for the key-operated switch operated properly?	*√/X/NA	*Yes/No	GS E6.1
c)	Has control buttons located at a height not less than 900 mm and not more than 1200 mm above platform or finished floor level. All control buttons shall be have a minimum dimension of 20 mm. Braille and tactile markings shall placed either on or to the left of the control buttons. Such markings shall be in 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	GS E6.1
3.4.12	**Landing Control Station (adjacent to each lift entrance):**			
a)	Has the constant pressure control button functioned properly ?	*√/X/NA	*Yes/No	GS E6.2(a)
b)	Has the key-operated switch functioned properly?	*√/X/NA	*Yes/No	GS E6.2(b)
c)	Has the call bell button at landings functioned properly?	*√/X/NA	*Yes/No	GS E6.2(c)
d)	Has the signal indicator at landings functioned properly?	*√/X/NA	*Yes/No	
3.4.13	**Platform Control Station (on the platform carriage):**			
a)	Has the 24V DC constant pressure operated control button for UP and DOWN directions functioned properly?	*√/X/NA	*Yes/No	GS E6.3(a)
b)	Has the key-operated switch functioned properly?	*√/X/NA	*Yes/No	GS E6.3(b)
c)	Has the emergency stop button of the 'push-to-stop', 'pull-to-run' functioned properly?	*√/X/NA	*Yes/No	GS E6.3(c)
d)	Has the call bell button on platform functioned properly?	*√/X/NA	*Yes/No	GS E6.3(d)

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

3.4. Functional Performance Test (Cont'd)

Check		Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.14	**Safety Device:**			
a)	Has the mechanical blocking device with an electric switch where fitted, been checked for correct operation?	*√/X/NA	*Yes/No	GS E7.1(a)
b)	Has the pressure relief valves where fitted, been checked for correct operation?	*√/X/NA	*Yes/No	GS E5.3(c) GS E7.1(b)
c)	Has the rupture valve where fitted, been checked for correct operation?	*√/X/NA	*Yes/No	GS E5.3(e) GS E7.1(c)
d)	Has the one-way restrictor valve where fitted, been checked for correct operation?	*√/X/NA	*Yes/No	GS E5.3(f)
e)	Has the manual (emergency) operating valve where fitted, been checked for correct operation?	*√/X/NA	*Yes/No	GS E5.3(j) GS E7.1(d)
f)	Has the positively operated safety switches where fitted, been checked for correct operation?	*√/X/NA	*Yes/No	GS E7.1(f)

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

3.4. Functional Performance Test (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.15 Call Bell System: *(shall comprising emergency alarm push button together with a buzzer and a yellow indicator for acknowledgement shall be provided at the platform carriage and at each lift entrance and call bell panel shall be located at the management office/caretaker's room next to the Vertical Lifting Platform Installation monitoring panel unless otherwise specified on the Drawing and/or in the Particular Specification.)*			
Call Bell Panel *(shall be made of stainless steel and include a call bell, on/off key switch, green 'power healthy' indicator, red 'call location' indicator, re-set button, lamp test button)* *Has the call bell system been examined and found to be in order?* *Wiring diagram shall be provided and located inside the call bell panel.*	*√/X/NA	*Yes/No	GS E8.1
3.4.16 Supervisory Control Panel:			
Control Panel *shall include at least, but not exclusive, the following basic facilities:* *(i) 'In service / Out of service' LED lights;* (ii) *On/ Off key switch;* (iii) *System fault alarm buzzer / bell and LED indication lights;* (iv) *Mute button for alarm buzzer / bell and alarm reset button;* (v) *Power on indicator;* (vi) *Lamp test button.*	*√/X/NA	*Yes/No	GS E8.2
Has the supervisory control panel been examined and found to be in order?	*√/X/NA	*Yes/No	GS E8.2

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

3.4. Functional Performance Test (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.17 Intercom System** *(where the maximum vertical travel of the Powered Vertical Lifting Platform Installation exceeds 1980 mm, an intercom shall be provided.):**			
Call Bell Panel integrated with Intercom system *Intercom system shall comprise a 2-way speaker in the Vertical Lifting Platform station and the call bell panel integrated with intercom system located at the management office/caretaker's room unless otherwise specified on the Drawing and/or in the Particular Specification. The integrated call bell panel shall the following facilities:* *(i) a 2-way speaker to allow communication between lift cars and the call bell panel;* *(ii) a switch of spring return type to allow simultaneous communication between the call bell panel and all lift cars;* (iii) *selective switches of spring return type to allow communication between the call bell panel and each lift car, one at a time.*	*√/X/NA	*Yes/No	GS E8.3
Has the intercom system been examined and found to be in order?	*√/X/NA	*Yes/No	GS E8.3
3.4.18 Closed Circuit Television System** *(where the maximum vertical travel of the Powered Vertical Lifting Platform Installation exceeds 1980 mm, a closed circuit television (CCTV) system shall be provided.):**			
Has the closed circuit television system been examined and found to be in order?	*√/X/NA	*Yes/No	GS E8.4 GS C20.6
3.4.19 Battery Powered Operation:			
Battery *Has the battery been examined and found to be in order?*	*√/X/NA	*Yes/No	GS E9.1
3.4.20 Notice and Marking of Powered Vertical Lifting Platform:			
a) Conspicuous instruction plates and direction labels	*√/X/NA	*Yes/No	GS E6.4
b) User guide and operation manual	*√/X/NA	*Yes/No	GS E6.5
3.4.21 Fire Emergency Service:			
Has the fire emergency service been examined and found to be in order?	*√/X/NA	*Yes/No	GS E9.2

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

3.4. Functional Performance Test (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
***3.4.22 Weather-proof Powered Vertical Lifting Platform:**			
a) Protection against weather (By Building Contractor) *(a canopy or similar structure to be provided.)*	*√/X/NA	*Yes/No	GS E10.1
b) Treatment of structural steel work for protection against water *(shall be hot dipped galvanized or epoxy paint coating designed for marine application)*	*hot-dipped galvanised/ epoxy paint/ other____	*Yes/No	GS E10.2(a)
c) Driving Machine *(shall have a degree of protection of at least IP 54. Water-tight cover shall be provided at all bearings. All bearings installed on the driving mechanism shall be of sealed type.)*	*√/X/NA	*Yes/No	GS E10.3
d) Electrical wiring and accessories *(all exposed wiring terminals, junction boxes, switches, etc. shall have a degree of protection of at least IP 54.)*	*√/X/NA	*Yes/No	GS E10.4
e) Drainage (By Building Contractor) *(Effective drainage facility shall be provided.)*	*√/X/NA	*Yes/No	GS E10.5

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

3.5. Commissioning and Statutory Inspections

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.5.1 Half Hour Run:			
The vertical lifting platform is to run unladen in the up direction followed by the down direction at least half hour period:	_____ Observation	_____ Observation	
3.5.2 Other tests, inspections and examination as required in the relevant annexes			

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

3.6. Comments (if any)

Note 1: In the result column,

√	means	(operating satisfactorily and complied with specified requirement).
X		(operating unsatisfactorily or did not comply with requirement. Please give detail),
NA		(not applicable)

Symbols :

*	Delete as appropriate
#	Barrier Free Access Requirement

Abbreviation :

GS	General Specification for Lift, Escalator and Passenger Conveyor Installation in Government Buildings of the Hong Kong Special Administrative Region issued by the Architectural Services Department (2012 Ed) (Incorporating Corrigendum No. GSLE01-2012)
COP(D)	Code of Practice on the Design and Construction of Lifts and Escalators issued by the Electrical and Mechanical Services Department (2010 Edition)
COP(LEW)	Code of Practice for Lift Works and Escalator Works issued by the Electrical and Mechanical Services Department (2010 Ed)
BFA	Design Manual: Barrier Free Access 2008 issued by Buildings Department

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

Witnessed by _____ Signature(s) _____
(Name(s) of *PBSE/PBSI)

Checked/Certified by

_____
LE Contractor's T&C Engineer
Name in Full : _____
Registered Lift Engineer No: _____
Date: _____

Company Chop : _____

Testing and Commissioning Certificate on Stairlift Installation

Part 1 : Details of Project

1.1 Project title (with location) :

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

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

1.4 *Contractor/Sub-contractor :

1.5 Make and Model No. of Stairlift Installation :

1.6 PBSE :

1.7 PBSI :

Part 2 : Declaration

2.1 I certify that the Stairlift Installation as specified in the *Contract/Sub-contract/Quotation at the above location has been inspected, tested and commissioned in accordance with this Testing and Commissioning (T&C) Procedure (Note 1) *and/or any other procedures agreed between the PBSE and the LE Contractor. The results are satisfactory in the aspects as mentioned in Part 3 of this Certificate, except as indicated in the COMMENTS item(s).

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

Name of LE Contractor's Representative: _____	Signature: _____
Designation / Post of LE Contractor's Representative: _____	Date signed: _____
Name and Stamp of LE Contractor: _____	Telephone No.: _____

Note:

1. "T&C Procedure" refers to the Testing &Commissioning Procedure for Lift, Escalator and Passenger Conveyor Installation.
2. The LE Contractor's Representative signing this Certificate must be a person or representative authorized by the LE Contractor.

* Delete as applicable

Part 3 : Items Inspected and Tested

3.1. General Information (Description of Installation)

	Particulars	Remarks
Stairlift Number		
Manufacturer/Brand Name		
Model Name and Number		
Type	***indoor/*weather-proof**	
Operation Mode	***attendant/*self-operated**	
Drive Mechanism *Suspension/Rack and Pinion/Chain and Chainwheel/Screw and Nut*		
Supply Voltage	**_____ V, _____ phase**	
Motor Rating	**kW**	
Current Rating	**A**	
Rated Load in kg *shall not be less than 225 kg*	**kg**	
Rated Load in persons *shall not be more than 2 persons*	**person(s)**	
Rated Speed *shall not exceed 0.15 m/s during straight running, and 0.05m/s along curved rail*	**m/s**	
Platform Dimensions *shall not be less than 760mm in depth and 1,220mm in length*	**_____ mm x _____ mm**	
Travel Distance of Flight	**m**	
Vertical Rise	**m**	
Machinery Location	**at *upper/*lower landing / *other _____**	
Number of Landings Served		

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

3.1. General Information (Description of Installation) (Cont'd)

	Particulars	Remarks
Locations of Intermediate/Terminal Landings		
Terminal Landing Location	**at *upper/*lower landing / *other _____**	
Stairlift Parking Location	**at *upper/*lower landing / *other _____**	
Operation Call Station Mounting Method	***Flush/*Surface mounted**	
Operation Call Station Location	**at *upper/*lower landing / *other _____**	
Method of Installation	***Wall/*Floor/*Stair Rail mounted / *other_____**	

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

3.2. Tests/Inspections to be carried out before installation

	Items submitted by LE Contractor	Remarks
3.2.1 Factory Tests and Off-site Tests		
a) Electric Motor Drive	**Manufacturer's Certificate**	
b) *Suspension Rope	**Manufacturer's Certificate**	
c) *Suspension Chain	**Manufacturer's Certificate**	
d) *Rack and Pinion Gear	**Manufacturer's Certificate**	
e) *Screw and Nut Gear	**Manufacturer's Certificate**	
f) Electro-mechanical Brake System	**Manufacturer's Certificate**	
g) Thermal Overload Device	**Manufacturer's Certificate**	
h) *Anit-free fall Device	**Manufacturer's Certificate**	
i) Key-operated Switch	**Manufacturer's Certificate**	
j) Guide Rails	**Manufacturer's Certificate**	
k) Structural Steel	**Manufacturer's Certificate**	
l) Anchor Bolts	**Manufacturer's Certificate**	
m) Painting/Coating Finishing Treatment	**Manufacturer's Certificate**	
n) Battery	**Manufacturer's Certificate**	
o) Compliance of the locally applied paints and primers with the Air Pollution Control (VOC) Regulations, Cap. 311	**Manufacturer's Certificate**	GS B3.3
p) *Other Safety Device (to specify)	**Manufacturer's Certificate**	

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.2 Site Inspections for Delivery of Equipment			
a) Access provided.	*√/X/NA	*Yes/No	
b) Barrier (shall be easy for delivery of equipment.)	*√/X/NA	*Yes/No	
c) Lighting (adequate intensity of illumination)	*√/X/NA	*Yes/No	
d) Storage of Equipment (sufficient space provided with adequate security and protection measure.)	*√/X/NA	*Yes/No	

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check	Make	Model No.	Country of Origin	Approval document provided	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.3 Inspection of Materials/Equipment delivered to site (Refer to Standard Form SR.054)							
a) Stairlift					*√/X/NA	*Yes/No	
b) Guide Rails					*√/X/NA	*Yes/No	
c) Structural Steel					*√/X/NA	*Yes/No	
d) Anchor Bolts					*√/X/NA	*Yes/No	
e) Control Panel					*√/X/NA	*Yes/No	
f) *External Driving System Panel					*√/X/NA	*Yes/No	
g) *Detachable Hand-held Attendant Control Pendant					*√/X/NA	*Yes/No	
h) Digital multi-function metering devices					*√/X/NA	*Yes/No	

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.4 Structural members of building for mounting of Stairlift Installation provided by Building Contractor			
a) Dimensions (shall be according to installation drawings)	*√/X/NA	*Yes/No	
b) Finishes (shall be according to installation drawings)	*√/X/NA	*Yes/No	
c) Adequacy and accuracy of builder's work provision	*√/X/NA	*Yes/No	
3.2.5 *Stairway railing for mounting of Stairlift Installation provided by Building Contractor			
a) Dimensions (shall be according to installation drawings)	*√/X/NA	*Yes/No	
b) Finishes (shall be according to installation drawings)	*√/X/NA	*Yes/No	
c) Adequacy and accuracy of builder's work provision	*√/X/NA	*Yes/No	
3.2.6 Stairway finishing dimensions provided by Building Contractor			
a) Adequate width (shall be according to installation drawings)	*√/X/NA	*Yes/No	
b) Clear width of 500mm between unfolded stairlift and stair wall for self-operated Stairlift Installation	*√/X/NA	*Yes/No	
c) Clear height above platform shall not be less than 2m along the whole journey if no height limit facilities provided	*√/X/NA	*Yes/No	
d) Clear height above the seat shall not be less than 1.1m along the whole journey*	*√/X/NA	*Yes/No	

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

3.2. Tests/Inspections to be carried out before installation (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.2.7 Electrical Services provided by Electrical Contractor			
a) Lockable fused isolator with proper labeling shall be provided adjacent to the Stairlift Installation	*√/X/NA	*Yes/No	GS B2.2
b) RCD protection device shall be provided for the main supply of the Stairlift Installation	*√/X/NA	*Yes/No	
c) Earth bonding for all metallic parts shall be provided	*√/X/NA	*Yes/No	GS B2.4
3.2.8 Fire Services provided by Fire Service Contractor			
Fire service signal dry contact at a point near to the control panel of Stairlift Installation	*√/X/NA	*Yes/No	GS F3.1
3.2.9 Other tests/inspections for setting to work, safety and quality tests etc. required before commencing installation works			
Please specify	*√/X/NA	*Yes/No	

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

3.3. Tests/Inspections to be carried out during installation

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.3.1 General:			
a) Guide rails shall be securely and directly fixed onto the *structural wall/*stairway and with supports on *floor/*stairs	*√/X/NA	*Yes/No	GS F1.8
b) Platform carriage shall be securely installed on the guide rails	*√/X/NA	*Yes/No	
c) Operation call stations shall be installed at landing according to installation drawings	*√/X/NA	*Yes/No	GS F2
d) Final limit switches shall be installed at the uppermost and the lowest landings	*√/X/NA	*Yes/No	GS F1.4
e) Installation and construction of the final limit switch shall be designed to withstand adverse domestic cleaning activities	*√/X/NA	*Yes/No	GS F1.4
f) Clearance between stairlift platform edges and stairs shall be adequate but not excessive	*√/X/NA	*Yes/No	
g) Clearance between platform bottom surface and floors of landings shall be adequate but not excessive	*√/X/NA	*Yes/No	
h) Two foldable barrier arms in length of full width of the platform shall be provided at platform carriage along the platform access edges	*√/X/NA	*Yes/No	GS F1.4
i) Position of the lowered barrier arms shall be at height between 800 mm and 1,100 mm above the platform	*√/X/NA	*Yes/No	GS F1.4
j) Platform carriage shall be provided with easy grapping handrails	*√/X/NA	*Yes/No	GS F1.1
k) Stairlift platform shall be finished with non-slip platform deck and ramp surfaces	*√/X/NA	*Yes/No	GS F1.1
l) Kick plates of minimum 150 mm in height shall be provided along non-access side(s) of the platform	*√/X/NA	*Yes/No	GS F1.1
m) Automatically foldable ramps of minimum 150 mm high shall be provided along access edges of the platform	*√/X/NA	*Yes/No	GS F1.1
n) A removable lockout cover shall be provided for the folded platform	*√/X/NA	*Yes/No	GS F1.1

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

3.3. Tests/Inspections to be carried out during installation (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.3.2 Drive Mechanism:			
a) Drive system shall include drive motor, gear box, electro-mechanical brake with spokeless wheel for emergency manual operation, overspeed governor, safety gear (except screw and nut driven type), controller, main power switch.	*√/X/NA	*Yes/No	GS F1.3
b) All accessories of the drive system shall be contained within a lockable cabinet made of stainless steel or other approved durable materials	*√/X/NA	*Yes/No	GS F1.3
c) Drive system shall be equipped with built-in thermal overload and short circuit protections	*√/X/NA	*Yes/No	GS F1.3
d) Power supply to the drive system shall be automatically cut off unless all live conductors and contacts are protected or inaccessible	*√/X/NA	*Yes/No	GS F1.3
3.3.3 Operation Control:			
a) Control panel shall be completed with a power on/off switch on the panel door for easy operation	*√/X/NA	*Yes/No	
b) Operation call stations shall be completed with a key-operated switch to activate/deactivate the control system	*√/X/NA	*Yes/No	GS F1.2
c) Platform carriage shall be completed with a key-operated switch to activate/deactivate the control system	*√/X/NA	*Yes/No	GS F1.4
d) Three hand-held attendant control unit with flexible cord shall be provided	*√/X/NA	*Yes/No	GS F2.2
e) Emergency stop buttons shall be provided at platform carriage, attendant control unit and operation call stations	*√/X/NA	*Yes/No	GS F2.2 & F2.3
f) Operation call stations shall be located safely away from the flight path	*√/X/NA	*Yes/No	GS F2.1
g) Control circuit voltage shall not exceed 50V	*√/X/NA	*Yes/No	GS F1.10
h) All accessible wiring and electrical parts without using any tools shall be at a potential of not exceeding 24V	*√/X/NA	*Yes/No	GS F1.10
i) Wiring shall be completed with numbered ferrules in a neat and systematic manner	*√/X/NA	*Yes/No	GS F1.10
j) Digital multi-function metering devices installed	*√/X/NA	*Yes/No	GS B4.2

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

3.3. Tests/Inspections to be carried out during installation (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.3.4 Battery Powered Operation:			
a) Battery shall be of sealed, high rate maintenance free nickel-metal hydride type or an approved type of better function and performance	*√/X/NA	*Yes/No	GS B2.8
b) Batteries and automatic charger shall be securely fitted in compact cabinet provided with ventilation	*√/X/NA	*Yes/No	GS F3.2
c) Batteries shall not emit fumes during normal operation or charging	*√/X/NA	*Yes/No	GS F3.2
3.3.5 *Outdoor/Weather-proof Type Stairlift Installation:			
a) Treatment of structural steel work for protection against water shall be hot dipped galvanized or factory applied epoxy paint coating designed for marine application	*hot-dipped galvanised/ epoxy paint/ other____	*Yes/No	GS F4.1
b) Driving motor shall have a degree of protection of at least IP 54. Water-tight cover shall be provided	*√/X/NA	*Yes/No	GS F4.1
c) Bearings shall be of sealed type	*√/X/NA	*Yes/No	GS F4.1
d) All exposed wiring terminals, junction boxes, switches, etc. shall have a degree of protection of at least IP 54	*√/X/NA	*Yes/No	GS F4.1
e) Moving parts shall be constructed of stainless steel, heavily electroplated nickel or chromium or other approved corrosion resistant materials	*√/X/NA	*Yes/No	GS F4.1
3.3.6 Welding:			
a) Inspection of welding carried out on the Site	*√/X/NA	*Yes/No	GS F4.3

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

3.4. Functional Performance Test

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.1 General:			
a) Smooth start and stop of the Stairlift Installation shall be provided during when it enters to or departs from landing zone	*√/X/NA	*Yes/No	GS F1.1
b) Smooth travel of Stairlift Installation shall be provided during straight run and along curved section of the rail	*√/X/NA	*Yes/No	GS F1.3
c) Functioning of all constant pressure operated travel control switches at operation call stations, control panel of platform carriage and attendant control unit	*√/X/NA	*Yes/No	GS F1.9
d) Functioning of travel control indication lamps	*√/X/NA	*Yes/No	GS F1.9
e) Emergency stop buttons shall be "push-to-stop, pull-to-run" type	*√/X/NA	*Yes/No	GS F1.4
f) Functioning of final limit switches at the uppermost and the lowest landings	*√/X/NA	*Yes/No	GS F1.4
g) Functioning of the audio-visual bystander alert device	*√/X/NA	*Yes/No	GS F1.4
h) Functioning of security lock to prevent unauthorized unfolding and accidentally unfolding of the platform	*√/X/NA	*Yes/No	GS F1.4
3.4.2 Drive System:			
a) Functioning of thermal overload and short circuit protections	*√/X/NA	*Yes/No	GS F1.3
b) Functioning of electro-mechanical brake	*√/X/NA	*Yes/No	GS F1.3
c) Functioning of manual release of electro-mechanical brake	*√/X/NA	*Yes/No	GS F1.4
d) Functioning of fault control interlock to prevent the platform carriage from traveling when there is a fault	*√/X/NA	*Yes/No	GS F1.4

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

3.4. Functional Performance Test (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.3 Platform Carriage:			
a) Folding and unfolding of the platform shall be electrically operated	*√/X/NA	*Yes/No	GS F1.2
b) Functioning of manual operation of folding and unfolding of the platform in case of malfunction or power failure	*√/X/NA	*Yes/No	GS F1.2
c) Ramps along platform access edges shall be raised and lowered electrically	*√/X/NA	*Yes/No	GS F1.2
d) Folded up ramps to prevent accidental rolling off the carried wheelchair	*√/X/NA	*Yes/No	GS F1.2
e) Functioning of electrical and mechanical interlock of the ramps with the drive system to allow movement of the platform only when the ramps are folded up	*√/X/NA	*Yes/No	GS F1.2
f) Functioning of sequential operation of the ramps when the platform is traveling from one landing to another landing	*√/X/NA	*Yes/No	GS F1.4
g) Bi-directional pressure sensitive sensors shall be fitted to the ramps to stop the movement of the platform whether the platform is folded or unfolded	*√/X/NA	*Yes/No	GS F1.4
h) Stairlift Installation shall stop within 25mm of travel after activation of the pressure sensors	*√/X/NA	*Yes/No	GS F1.4
i) Pressure sensitive surfaces in full size shall be fitted under the platform and the platform carriage	*√/X/NA	*Yes/No	GS F1.4
j) Stairlift Installation shall stop within 25mm of travel after activation of the pressure surfaces	*√/X/NA	*Yes/No	GS F1.4
k) Two foldable barrier arms shall be mechanically locked down in lowered position whenever the unfolded Stairlift Installation is not at landing	*√/X/NA	*Yes/No	GS F1.4
l) Two foldable barrier arms shall be raised up only at landing	*√/X/NA	*Yes/No	GS F1.4
m) Functioning of emergency stop button on platform carriage	*√/X/NA	*Yes/No	GS F2
n) Functioning of the key-operated switch on platform carriage to allow operation of travel control	*√/X/NA	*Yes/No	GS F1.4

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

3.4. Functional Performance Test (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.4 Operation Control (General):			
a) Functioning of indication lamps on operation call stations for power on	*√/X/NA	*Yes/No	GS F2.1
b) Functioning of indication lamps on operation call stations for activation of operation call station	*√/X/NA	*Yes/No	GS F2.1
c) Functioning of indication lamps on operation call stations for fault signal	*√/X/NA	*Yes/No	GS F2.1
d) Functioning of indication lamps on operation call stations for position of platform carriage*	*√/X/NA	*Yes/No	GS F2.1
e) Functioning of constant pressure operated control switches on operation call stations for folding and unfolding of platform	*√/X/NA	*Yes/No	GS F2.1
f) Functioning of constant pressure operated control switches on operation call stations for calling and sending of platform carriage*	*√/X/NA	*Yes/No	GS F2.1
g) Functioning of emergency stop button on operation call stations and platform carriage	*√/X/NA	*Yes/No	GS F2.2 & F2.3
3.4.5 *Operation Control (Attendant-operated):			
a) Functioning of hand-held attendant control unit	*√/X/NA	*Yes/No	GS F2.2
b) Functioning of emergency stop button on attendant control unit	*√/X/NA	*Yes/No	GS F2.2
c) Provision of stainless steel labels to instruct the attendant how to use operation call station and attendant control unit	*√/X/NA	*Yes/No	GS F2.2

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

3.4. Functional Performance Test (Cont'd)

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.4.6 *Operation Control (Self-operated):			
a) Operation call stations shall be located at a height between 900 mm and 1,200 mm above finished floor level	*√/X/NA	*Yes/No	GS F2.3
b) Functioning of indication lamp on control panel of platform carriage for power on	*√/X/NA	*Yes/No	GS F2.1
c) Functioning of indication lamp on control panel of platform carriage for activation of operation call station	*√/X/NA	*Yes/No	GS F2.1
d) Functioning of indication lamp on control panel of platform carriage for fault signal	*√/X/NA	*Yes/No	GS F2.1
e) Functioning of constant pressure operated control switches on control panel of platform carriage	*√/X/NA	*Yes/No	GS F2.1
f) Functioning of emergency alarm push button together with a buzzer and an indication lamp on control panel of platform carriage	*√/X/NA	*Yes/No	GS F2.1
g) Functioning of the EMSD approved common key system	*√/X/NA	*Yes/No	GS F2.3
h) Provision of stainless steel labels to instruct the user how to use operation call station and control panel on the platform carriage	*√/X/NA	*Yes/No	GS F2.3
3.4.7 Fire Emergency Service:			
a) Functioning of power isolation of Stairlift Installation in parked position	*√/X/NA	*Yes/No	GS F3.1
b) Functioning of full operation of Stairlift Installation located between landings	*√/X/NA	*Yes/No	GS F3.1
c) Functioning of automatic switch over between normal and battery supply	*√/X/NA	*Yes/No	GS F3.1
3.4.8 Battery Powered Operation:			
a) Completion of 5 upward and 5 downward continuous journey under full load without charging	*√/X/NA	*Yes/No	GS F3.2
b) *Battery charging shall carry out at each end of guide rail	*√/X/NA	*Yes/No	GS F3.2
c) *Indication of out of charging position	*√/X/NA	*Yes/No	GS F3.2

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

Note: * - delete if not applicable

3.5. Commissioning and Statutory Inspections

Check	Items tested /checked by LE Contractor (Note 1)	Items witnessed by PBSE/PBSI	Remarks
3.5.1 Half Hour Run:			
a) The Stairlift Installation is to run unladen in the up direction followed by the down direction at least half hour period	_____ Observation	_____ Observation	
3.5.2 Other tests, inspections and examination as required in the relevant annexes			

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

3.6. Comments (if any)

Note 1: In the result column,

√	means	(operating satisfactorily and complied with specified requirement).
X		(operating unsatisfactorily or did not comply with requirement. Please give detail),
NA		(not applicable)

Symbols :

*	Delete as appropriate
#	Barrier Free Access Requirement

Abbreviation :

GS	General Specification for Lift, Escalator and Passenger Conveyor Installation in Government Buildings of the Hong Kong Special Administrative Region issued by the Architectural Services Department (2012 Ed) (Incorporating Corrigendum No. GSLE01-2012)
COP(D)	Code of Practice on the Design and Construction of Lifts and Escalators issued by the Electrical and Mechanical Services Department (2010 Edition)
COP(LEW)	Code of Practice for Lift Works and Escalator Works issued by the Electrical and Mechanical Services Department (2010 Ed)
BFA	Design Manual: Barrier Free Access 2008 issued by Buildings Department

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

Witnessed by _____ Signature(s) _____
(Name(s) of *PBSE/PBSI)

Checked/Certified by

_____
LE Contractor's T&C Engineer
Name in Full : _____
Registered Lift Engineer No: _____
Date: _____

Company Chop :_____

Annex A Test and Examination Report for Electric Passenger Lifts/Freight Lifts/Vehicle Lifts

TEST AND EXAMINATION REPORT FOR ELECTRIC PASSENGER LIFTS*/FREIGHT LIFTS*/ VEHICLE LIFTS*

1. Description of Installation
   Location_____
   Manufacturer_____
   Plant No._____
   Lift Identification No._____
   Length of Travel_____m
   Levels Served_____
   Rated Load_____kg_____Person
   Rated Speed_____m/s
   Power Supply at Time of Test____Volt_____Phase_____Hz
   Levelling tolerance ±_____mm
   Number of Starts_____/hr
   Car Floor Area_____m^2
   Machine Room Location: above lift well*/below lift well*/at side*/others
   _____
   Is this a fireman's lift? Yes ☐ No ☐
   Is this lift for persons with a disability? Yes ☐ No ☐
   The model no. and manufacturer of the controller
   _____

2. Static Examination - Mechanical

   2.1 Suspension
   (a) Suspension Ropes
   Certificate 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 5.11.1 of the Design Code, Part 1? Yes ☐ No ☐
   Model No.,
   _____
   Certificate No. & Date of Issue _____

   2.3 Energy Dissipation Buffers N.A.*/Fitted*
   (a) Have the buffers been certified in accordance with 6.2.1of the Design Code, Part 1? Yes ☐ No ☐
   (b) Model No.,
   _____
   Certificate 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 6.2.1 of the Design Code, Part 1? N.A. ☐ Yes ☐ No ☐
   (b) Model No.,
   _____
   Certificate No. & Date of Issue _____
   (c) Do the buffers comply with 6.2.2 of the Design Code, 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%(vehicle lifts/industrial truck loaded freight lifts)? Yes ☐ No ☐

   2.6 Overspeed Governor
   (a) Has the governor been certified in accordance with 5.12.1 of the Design Code, Part 1? Yes ☐ No ☐
   (b) Model No.,
   _____
   Certificate No. & Date of Issue
   _____
   (c) Is the data plate in accordance with 11.6 of the Design Code, Part 1? Yes ☐ No ☐
   (d) Does the governor rope conform to 5.12.6 of the Design Code, Part 1? Yes ☐ No ☐
   (e) Is the governor rope slack switch working properly? Yes ☐ No ☐

   2.7 Landing Door Locking Device
   Has the landing door locking device been certified in accordance with 3.7.3.1 of the Design Code, Part 1? Yes ☐ No ☐
   Model No.,
   _____
   Certificate No. & Date of Issue _____

   2.8 Ascending Car Overspeed Protection Means
   Has the ascending car overspeed protection means been certified in accordance

*Delete whichever not applicable

with 5.13.11 of the Design Code, Part 1? N.A. ☐ Yes ☐ No ☐

(a) Overspeed Governor

(i) Is the Overspeed Governor using the one as mentioned in item 2.6 ? Yes ☐ No ☐

(If 'Yes,skip the following and go to item 2.8 (b).)

(ii) Has the governor been certified in accordance with 5.12.1 of the Design Code, Part 1? Yes ☐ No ☐

(iii) Model No.,

_____

Certificate No. & Date of Issue _____

(iv) Is the data plate in accordance with 11.6 of the Design Code, Part 1? Yes ☐ No ☐

(v) Does the governor rope conform to 5.12.6 of the Design Code, Part 1? Yes ☐ No ☐

(vi) Is the governor rope slack switch working properly? Yes ☐ No ☐

(b) Speed Reducing Element

(i) Type: Car Safety Gear (acting upwards) ☐ Brake on Sheave ☐ Counterweight Safety Gear (acting downwards) ☐ Rope Gripper ☐ Others_____

(ii) Model No.,

_____

Certificate No. & Date of Issue _____

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 0.5 Ω? Yes ☐ No ☐

(b) Is the car connected to controller earthing terminal by a separate conductor≥0.75mm^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 Reversal and Phase Failure Devices

Do the phase reversal and phase failure devices 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 10.3.1.3 of the Design Code, Part 1?Yes ☐ No ☐

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

*Delete whichever not applicable

(c) With the car resting on its fully compressed buffers, is there a sufficient space to accommodate a rectangular block as specified in 1.5.3(a) of the Design Code, 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 construction & operation of the door re-opening device comply with 3.5.2.2 & 4.6.2.2*/ 3.5.2.3 & 4.6.2.3* of the Design Code, Part 1? N.A. ☐ Yes ☐ No ☐

(f) Do the car doors fulfil the requirements of 4.10 of the Design Code, Part 1? Yes ☐ No ☐

5. Measurements of the Electrical System

(a) Particulars of Lift Motor (as stated on 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 on data plate)
Maker_____
Serial No._____
Power Rating_____kVA
Voltage_____V
Current Rating_____A Speed_____rpm
Frequency _____Hz
(Note: Speed and frequency not applicable for convertor)

(c) Current and Speed Tests (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

(d) Overcurrent protection devices

	Lift Motor	MG Set Drive Motor	Convertor
Type			
Settings			

6. Overspeed Governor Tests

6.1 Car Governor
Governor Type_____ Serial No._____

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

*Delete whichever not applicable

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

_____

7. Car Safety Gear Tests
Note: 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%* of the rated load uniformly distributed in the lift car? N.A.☐ Yes ☐ No ☐
State the speed _____m/s

(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 stopping distance in the test? _____m

(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 ☐

8. Counterweight Safety Gear Tests
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. Ascending Car Overspeed Protection Means Tests
9.1. Overspeed Governor Tests

(a) Car Governor
Governor Type_____ Serial No._____

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

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

(b) Counterweight Governor (if fitted)
Governor Type_____ Serial No._____

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

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

9.2. Speed Reducing Element Tests

(a) Car Safety Gear (if fitted)
The test should be conducted with the car ascending and the brake open.

(i) Does the safety gear operate correctly when engaging at preset speed with the car empty? Yes ☐ No ☐
State the measured speed _____m/s

*Delete whichever not applicable

(ii) What was the stopping distance in the test? _____m

(iii) What was the deceleration in the test? _____m/s^2

(b) Counterweight Safety Gear (if fitted)
The test should be conducted with the car ascending and the brake open.

(i) Does the safety gear operate correctly when engaging at preset speed with the car empty? Yes ☐ No ☐
State the measured speed _____m/s

(ii) What was the stopping distance in the test? _____m

(ii) What was the deceleration in the test? _____m/s^2

(c) Rope Gripper (if fitted)
The test should be conducted with the car ascending and the brake open.

(i) Does the rope gripper operate correctly when engaging at preset speed with the car empty? Yes ☐ No ☐
State the measured speed _____m/s

(ii) What was the stopping distance in the test? _____m

(iii) What was the deceleration in the test? _____m/s^2

(d) Brake on Sheave (if fitted)
The test should be conducted with the car ascending.

(i) Does the brake on sheave operate correctly when engaging at preset speed with the car empty? Yes ☐ No ☐
State the measured speed _____m/s

(ii) What was the stopping distance in the test? _____m

(iii) What was the deceleration in the test? _____m/s^2

10. 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 ☐

11. 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 ☐

12. Emergency Stopping Distance
What was the stopping distance of the car travelling in down direction at rated speed and carrying 125% of the rated load under emergency stopping conditions? _____m

13. Duty Cycle Test
Does the lift operate satisfactorily for a period of at least 0.5 hour 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 ☐

14. General (Lift Work)
(a) Is the maximum load indicated in the car and does it comply with 11.2.1 of the Design Code, Part 1? Yes ☐ No ☐
(b) Does the fireman's 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

*Delete whichever not applicable

accordance with 8.5 of the Design Code, Part 1? Yes ☐ No ☐

(e) Does the emergency lighting of the car comply with 4.16.3 of the Design Code, Part 1? Yes ☐ No ☐

(f) What are the emergency alarm devices?

	Mangt office	M/C room	Lift car	Main lobby/Pit
Alarm bell*	☐	☐	☐	☐
Intercom*	☐	☐	☐	
Indication light*	☐	☐		
Indication light for acknowledgement & the notice*			☐	

(g) Does the overload device operate satisfactorily? Yes ☐ No ☐

15. 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 1.7(b) of the Design Code, 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 3.15.3 and 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 Design Code, Part 1 and COP on Building Works for Lifts and Escalators? Yes ☐ No ☐
If no, state details_____

(g) Are the hoistway emergency doors (if fitted), in compliance with 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 ☐

(i) Are CCTV camera provided in lift car and CCTV monitors provided in management office*and machine room*? N.A.☐ Yes ☐ No ☐

16. Declaration

I certify that on _____the equipment was thoroughly examined and found to be free from obvious defects, and to comply with Part 1 of the Design Code, COP for Lift Works and Escalator Works 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

*Delete whichever not applicable

Annex B Test and Examination Report for Hydraulic Passenger Lifts/Freight Lifts/Vehicle Lifts

TEST AND EXAMINATION REPORT FOR HYDRAULIC PASSENGER LIFTS*/FREIGHT LIFTS*/ 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 ±___mm
Number of Starts_____/hr
Car Floor Area_____m^2
Machine Room Location:above lift well*/below lift well*/at side*/Others

_____

Is this a fireman's lift? Yes ☐ No ☐
Is this lift for persons with a disability? Yes ☐ No ☐

Devices 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/systems 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 8.1.3 of the Design Code, Part 2? N.A. ☐ Yes ☐ No ☐

2.2 Suspension

(a) Suspension Ropes

(i) Certificate No. & Date of Issue_____
(ii) Number_____ Nominal Diameter_____mm

(b) Type of Anchorage: 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 5.10.1.5 of the Design Code, Part 2? Yes ☐ No ☐
Model No.,

_____

Certificate 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) Model No.,

_____

Certificate No. & Date of Issue _____
(c) Is the buffer switch functioning properly? Yes ☐ No ☐

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 6.2.3 of the Design Code, 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) Model No.,

_____

*Delete whichever not applicable

Certificate No. & Date of Issue _____

(c) Is the data plate in accordance with 11.6 of the Design Code, Part 2? Yes ☐ No ☐

(d) Does the governor rope conform to 5.12.6 of the Design Code, Part 2? Yes ☐ No ☐

(e) Is the governor slack rope switch working properly? Yes ☐ No ☐

2.8 Landing Door Locking Device

Has the landing door locking device been certified in accordance with 3.7.3.1 of the Design Code, Part 2? Yes ☐ No ☐

Model No.,

_____

Certificate No. & Date of Issue _____

3. Static Examination - Electrical

3.1 Insulation Resistance to Earth

(a) Pump Motor_____MΩ

(b) Power System _____MΩ

(c) Safety Circuits_____MΩ

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≥0.75mm^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 and Phase Reversal Devices

Do the phase failure and phase reversal devices 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 6.3 of the Design Code, 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 ☐

(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 10.3.1.3 of the Design Code, 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 block as specified in 1.5.2(a) of the Design Code, Part 2 with at least 0.5m between the bottom of the pit and the lowest point of

*Delete whichever not applicable

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 construction & operation of the door re-opening device comply with 3.5.2.2 & 4.6.2.2*/ 3.5.2.3 & 4.6.2.3* of the Design Code, Part 2?
N.A. ☐ Yes ☐ No ☐

(f) Do the car doors fulfil the requirements of 4.10 of the Design Code, 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 at the 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 ☐

(c) Particulars of the pump motor (as stated on data plate)
Maker _____Drive System_____
Serial No._____ Speed_____r/min 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
Rated Load Up	bar	m/s	V	A

Note 1 - The pressure readings should be taken between the check valve, 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 is 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 0.3m/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. Overspeed Governor/Safety Rope/Suspension Gear Tests

(a) Governor N.A.*/Fitted*
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*_____
_____

OR

(b) Safety Rope
If the safety gear*/clamping device* is tripped by a safety rope, does,
the triggering mechanism operate satisfactorily?
N.A. ☐ Yes ☐ No ☐

(c) Suspension Gear

*Delete whichever not applicable

If the safety gear*/clamping device* is tripped by the failure of suspension gear, does the triggering mechanism operate satisfactorily? N.A. ☐ Yes ☐ No ☐

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 ☐

State the speed: _____m/s

OR

(b) Instantaneous Type
Does the safety gear operate correctly if engaged at rated speed with the rated load uniformly distributed in the lift car? Yes ☐ No ☐

(c) What was the stopping distance in the test? _____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
N.A.*/Fitted*

(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%*/150%* of the rated load uniformly distributed in the car? Yes ☐ No ☐

9. Buffer Tests

(a) For Car Buffers

i) 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 ☐

ii) 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 rated 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 10.3.1.4 of the Design Code, Part 2? Yes ☐ No ☐

11. Duty Cycle Test
Does the lift operate satisfactorily 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 ☐

12. General (Lift Work)

(a) Is the maximum load indicated in the car and does it comply with 11.2.1 of the Design Code, Part 2? Yes ☐ No ☐

(b) Does the fireman's 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 8.9 of the Design code, Part 2? Yes ☐ No ☐

(e) Does the emergency lighting of the car comply with 4.16.3 of the Design Code, Part 2? Yes ☐ No ☐

(f) What are the emergency alarm devices?

	Mangt office	M/C room	Lift car	Main lobby/Pit
Alarm bell*	☐	☐	☐	☐
Intercom*	☐	☐	☐	
Indication light*	☐	☐		
Indication light for acknowledgement & the notice*			☐	

(g) Does the overload device operate satisfactorily? Yes ☐ No ☐

*Delete whichever not applicable

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 1.7(b) of the Design Code, 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 3.15.3 and 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 Design Code, Part 2 and COP on Building Works for Lifts and Escalators? Yes ☐ No ☐
If no, state details_____

(g) Are the hoistway emergency doors (if fitted), in compliance with 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 ☐

(i) Are CCTV camera provided in lift car and CCTV monitors provided in management office *and machine room*? 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 Part 2 of the Design Code, COP for Lift Works and Escalator Works 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

*Delete whichever not applicable

Annex C Test and Examination Report for Escalators/ Passenger Conveyors

TEST AND EXAMINATION REPORT 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_____Persons/Hour
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? N.A. ☐ 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
(b) Does the auxiliary brake operate properly? N.A. ☐ Yes ☐ No ☐
(c) 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
☐ Overloads in each phase
☐ Others_____

	Running Current(A)	
	Up	Down
No Load		

Separate supply for machine compartment/power socket?Yes ☐ No ☐

5. Clearance

(a) Is the clearance between consecutive steps not exceeding 6mm? 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
Power System:_____MΩ Safety Circuit:_____MΩ

7. Earthing

(a) Is all metalwork enclosing conductors bonded to earth? Yes ☐ No ☐

*Delete whichever not applicable

(b) Is the maximum continuity resistance to earth less than 0.5Ω? 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 ☐

Observations: _____

_____

_____

_____

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 ☐

10. General (Other Works)

(1) Have the following items been properly provided?

(a) Notices/pictographs for passengers		Yes ☐	No ☐
(b) Guards at adjacent building obstacles and criss-cross escalators	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 1.2.1.1 of the Design Code, Part 4? Yes ☐ No ☐

(3) Does the clear height above step*/belt* comply with 1.2.2 of COP on the Design Code, Part 4? Yes ☐ No ☐

11. Exemptions (if any).

_____

_____

_____

*Delete whichever not applicable

12. Declaration

I certify that on_____the equipment was thoroughly examined and found to be free from obvious defects, and to comply with Part 4 of the Design Code, COP for Lift Works and Escalator Works 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 Escalator Registered Escalator Engineer	Signature of Registered Engineer
_____	_____
Name of Registered Escalator Contractor	Date

Remarks: COP means Code of Practice

*Delete whichever not applicable

Annex D Test and Examination Report for Electric Service Lifts

TEST AND EXAMINATION REPORT FOR ELECTRIC SERVICE LIFTS

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_____m^2
   Car internal height_____m

2. Examinations and Tests
   2.1 Suspension
   (a) Suspension Ropes
   (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 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 100%*/125%* of the rated load uniformly distributed in the lift car?
   N.A. ☐ Yes ☐ No ☐
   State the speed: _____m/s
   (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) The stopping distance is _____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 engaged 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
   (a) Car N.A.*/Fitted*
   (i) Governor
   Type_____ Serial No._____

	Tripping Speed (m/s)	
Device	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._____

	Tripping Speed (m/s)	
Device	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?

*Delete whichever not applicable

Yes ☐ No ☐

2.5 Brake

Is the brake capable of stopping the machine when the lift is travelling at its rated speed with 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 to Earth and Earthing

(a) Lift Motor_____MΩ

(b) Safety Circuit_____MΩ

(c) Is the maximum continuity resistance to earth less than 0.5 Ω? 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 ☐

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 10.1 and 10.3.1 of the Design Code, 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

*Delete whichever not applicable

5. Declaration

I certify that on _____ the equipment was thoroughly examined and found to be free from obvious defects, and to comply with Part 3 of the Design Code, COP for Lift Works and Escalator Works 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

*Delete whichever not applicable

Testing and Commissioning Progress Chart "Lift Installation"

Contract No. :			
Contract Title :			
Name of *Contractor / sub-contractor :			
Contract Period :	/ /20 to / /20	* Revised/Actual Completion Date :	/ / 20

Testing and Commissioning Progress Chart for Lift Installation (Rev.)[(1)]

	Activities	Reference to Approved T&C Procedure	Dates (2)																Remark
			S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
1.	Testing/checking of Landing Fixtures- including door, architrave, control and indicating devices	Section 3.1 to 3.3																	
	G/F																		
	1/F																		
	2/F																		
	3/F																		
	4/F																		
	/F																		
	/F																		
	Submission of Record of Test																		
2.	Testing/checking of lift cars internal fittings – including car panel, floor, lighting, ventilation and control station	Section 3.1 to 3.3																	
	Submission of Record of Test																		

Prepared by: (Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Check by: (*PBSE/*PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Testing and Commissioning Progress Chart "Lift Installation"

Testing and Commissioning Progress Chart for Lift Installation (Rev.)[1]

	Activities	Reference to Approved T&C Procedure	Dates (2)																Remark
			S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
3.	Testing/checking Installation within machine room - including governor, controller and lift machine/motor	Section 3.1 to 3.3																	
	Submission of Record of Test																		
4.	Testing/checking Installation within lift shaft - including guide rail, drainage facilities, counter weight and buffer	Section 3.1 to 3.3																	
	Submission of Record of Test																		
5.	Testing/checking hydraulic portion of work (for hydraulic lift installation only) -	Section 3.1 to 3.3																	
	Submission of Record of Test																		
6.	Testing/checking of motor drive system	Section 3.1 to 3.3																	
	Submission of Record of Test																		
7.	Testing/checking of electrical system	Section 3.1 to 3.3																	
	Submission of Record of Test																		
8.	Testing/checking of control/safety system	Section 3.1 to 3.3																	
	Submission of Record of Test																		

Prepared by: (Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Check by: (*PBSE/*PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Testing and Commissioning Progress Chart "Lift Installation"

	Testing and Commissioning Progress Chart for Lift Installation (Rev.)[1]																		
		Dates (2)																	Remark
	Activities	Reference to Approved T&C Procedure	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
9.	Operation and Performance Test	Section 3.4																	
	Submission of Record of Test																		
10	Submission of T&C Certificate	Section 3.4																	

Notes

* Delete as appropriate

(1) Insert revision no.

(2) Insert additional columns as necessary

S - scheduled % completion

A – actual % completion

Prepared by: (Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Check by: (*PBSE/*PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Testing and commissioning progress chart "Escalator/Passenger Conveyor Installation"

Contract No. :			
Contract Title :			
Name of *Contractor / sub-contractor :			
Contract Period :	/ /20 to / /20	* Revised/Actual Completion Date :	/ / 20

Testing and Commissioning Progress Chart for Escalator Installation (Rev.)[1]

			Dates [2]																Remark
	Activities	Reference to Approved T&C Procedure	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
1.	Testing/checking of steps and step chains	Section 3.1-3.3																	
	Submission of Record of Test																		
2.	Testing/checking of hand rails	Section 3.1-3.3																	
	Submission of Record of Test																		
3.	Testing/checking of driving machineryt	Section 3.1-3.3																	
	Submission of Record of Test																		
4.	Testing/checking of motor drive system	Section 3.1-3.3																	
	Submission of Record of Test																		
5	Testing/checking of electrical system	Section 3.1-3.3																	
	Submission of Record of Test																		

Prepared by: (Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Check by: (*PBSE/*PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Testing and commissioning progress chart " Escalator/Passenger Conveyor Installation "

	Testing and Commissioning Progress Chart for Escalator Installation (Rev.)[1]																		
	Dates [2]																		Remark
	Activities	Reference to Approved T&C Procedure	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
6	Testing/checking of control/safety system	Section 3.1-3.3																	
	Submission of Record of Test																		
7.	Operation and Performance Test	Section 3.4																	
	Submission of Record of Test																		
8	Submission of T&C Certificate	Section 3.4																	

Notes

* Delete as appropriate

(1) Insert revision no.

(2) Insert additional columns as necessary

S - scheduled % completion

A – actual % completion

Prepared by: (Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Check by: (*PBSE/*PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Testing and commissioning progress chart "Power Vertical Lifting Platform Installation"

Contract No. :			
Contract Title :			
Name of *Contractor / sub-contractor :			
Contract Period :	/ /20 to / /20	* Revised/Actual Completion Date :	/ / 20

Testing and Commissioning Progress Chart for Escalator Installation (Rev.)[1]

	Activities	Reference to Approved T&C Procedure	Dates [2]																Remark
			S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
1.	Testing/checking of platform	Section 3.1-3.3																	
	Submission of Record of Test																		
2.	Testing/checking of doors/gates	Section 3.1-3.3																	
	Submission of Record of Test																		
3.	Testing/checking of guide system	Section 3.1-3.3																	
	Submission of Record of Test																		
4.	Testing/checking of motor drive system	Section 3.1-3.3																	
	Submission of Record of Test																		
5	Testing/checking of electrical system	Section 3.1-3.3																	
	Submission of Record of Test																		

Prepared by: (Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Check by: (*PBSE/*PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Testing and commissioning progress chart " Power Vertical Lifting Platform Installation "

	Testing and Commissioning Progress Chart for Escalator Installation (Rev.)[1]																		
	Dates [2]																		Remark
	Activities	Reference to Approved T&C Procedure	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
6	Testing/checking of control/safety system	Section 3.1-3.3																	
	Submission of Record of Test																		
7.	Operation and Performance Test	Section 3.4																	
	Submission of Record of Test																		
8	Submission of T&C Certificate	Section 3.4																	

Notes
* Delete as appropriate
(1) Insert revision no.
(2) Insert additional columns as necessary
S - scheduled % completion
A – actual % completion

Prepared by: (Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Check by: (*PBSE/*PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Testing and commissioning progress chart "Stairlift Installation"

Contract No. :			
Contract Title :			
Name of *Contractor / sub-contractor :			
Contract Period :	/ /20 to / /20	* Revised/Actual Completion Date :	/ / 20

	Testing and Commissioning Progress Chart for Escalator Installation (Rev.)[1]																		
		Dates [2]																	Remark
	Activities	Reference to Approved T&C Procedure	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
1.	Testing/checking of stairlift platform	Section 3.1-3.3																	
	Submission of Record of Test																		
2.	Testing/checking of doors/gates	Section 3.1-3.3																	
	Submission of Record of Test																		
3.	Testing/checking of guide system	Section 3.1-3.3																	
	Submission of Record of Test																		
4.	Testing/checking of motor drive system	Section 3.1-3.3																	
	Submission of Record of Test																		
5	Testing/checking of electrical system	Section 3.1-3.3																	
	Submission of Record of Test																		

Prepared by: (Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Check by: (*PBSE/*PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

Testing and commissioning progress chart " Stairlift Installation "

	Testing and Commissioning Progress Chart for Escalator Installation (Rev.)[1]																		
	Dates [2]																		Remark
	Activities	Reference to Approved T&C Procedure	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
6	Testing/checking of control/safety system	Section 3.1-3.3																	
	Submission of Record of Test																		
7.	Operation and Performance Test	Section 3.4																	
	Submission of Record of Test																		
8	Submission of T&C Certificate	Section 3.4																	

Notes

* Delete as appropriate

(1) Insert revision no.

(2) Insert additional columns as necessary

S - scheduled % completion

A – actual % completion

Prepared by: (Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Check by: (*PBSE/*PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

List of Calibrated Instrument Necessary for the T & C works

Type	Model	Serial No. of Instrument	Date of Calibration

Note: * Delete if not applicable

Tested / Checked by _____ Signature _____

(Name of Contractor's Representative) Date _____

Witnessed by _____ Signature(s) _____

(Name(s) of *PBSE/*PBSI) Date