

Specifications

Specification for Traction Lift

HLL BIOTECH LIMITED, Chennai

Revision: 002

Project No.: 120310

Project: Integrated Vaccines Complex,
Chengalpattu

**Tender Specifications for Material Lift
Traction Lift**

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1 Introduction

HLL Biotech Limited (HBL), a subsidiary of HLL Lifecare Limited, (a CPSU under Ministry of Health & Family Welfare, Government of India, is implementing "an Integrated Vaccines Complex (IVC) - a project of national importance' at Chengalpattu, near Chennai. The proposed complex is a state of the art facility with cGMP compliance for manufacturing vaccines required for the immunization programme of Government of India.

HLL Biotech Limited has associated with NNE Pharmaplan India Limited, hereinafter called as "NP" has been appointed as "Engineering Consultants". NNE Pharmaplan shall design and engineer this facility, incorporating the latest GMP Standards and best practices. This facility shall be built as per the latest International trends and upon completion, shall be in compliance with Indian FDA (Schedule M), WHO/GMP regulations. One amongst the several other jobs is to supply, install and commission the equipment / systems. The scope of work involved is detailed in the subsequent paragraphs and is precise to the extent possible. However, it is expected from the supplier to consider and supply all those required for successful installation and functioning of the equipment / system.

2 Purpose of Document

This document sets out the Lift User Specification to be used for the Material lift to be designed and installed at the Admin and QAQC block.

3 General Requirements

The intention of this user specification is to set out the user's requirements and expectations; the aim is to deliver a lift installation that shall be robust, reliable.

The lift shall be used for material movement.

The lift installation shall also be designed to produce a safe working environment.

The lift manufacturer / installer shall include for taking every practical precaution to ensure quiet operation of the new equipment. Every precaution shall also be taken to prevent vibration being transmitted to the building structure from the controller and all other items of lift equipment. The lift manufacturer / Installer shall provide details of the guaranteed noise and vibration levels which will be achieved by completed installation

4 Scope of work

This specification covers the requirements of design, manufacture, assembly, testing, delivery, installation and commissioning of Electric Material lift.

The scope of work shall include but not be limited to the following.

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- a. Design, manufacture & delivery of Material lift as per specification defined elsewhere in this specification.
- b. Providing all technical details to facilitate construction of Vertical Transportation system (Lift) shafts, pits & machine rooms.
- c. Checking the civil works at site to ensure compliances with the requirements stipulated.
- d. Shifting of all materials to the required levels.
- e. Installation of Vertical Transportation system (Lift) & accessories, testing & commissioning.
- f. Obtaining statutory approvals including drawing approvals.
- g. Training clients personnel in operation & maintenance of the Vertical Transportation system (Lift)s.
- h. Routine & breakdown servicing of all Vertical Transportation system (Lift) during defects liability period.
- i. The Lift Vendor shall provide a Lift operator and an Engineer at site during commissioning and final hand over to operations as required.

5 Shaft and Pit Requirements

Internal shaft dimensions according to drawings furnished by the Engineer in charge.

Vendor to quote for pit ladder as optional item.

Surface: shaft section;

Shaft Dimensions:

Width (X)	:	3000 mm
Depth (Y)	:	2950 mm
Pit depth available	:	1600 mm
Head room height	:	2600 mm

6 Traction System

The traction system shall be designed to enable a smooth displacement with a minimum need of maintenance and minimum energy use.

The main drive system of the lift shall provide step-less acceleration/deceleration and stopping cycles.

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7 Car Operating Panel

The Car Operating panel shall incorporate but not be limited to the following features installed:

- a) Push buttons with acknowledgement of the call by illumination.
- b) Door Open / Close push button
- c) Door Open maintaining button to keep doors open while loading equipment.
- d) Alarm button

8 Landing Signal

Each lift floor landing for Material carrying lift shall have but not be limited to the following features installed:

- a) Landing call buttons shall illuminate and stay lit until lift arrival

9 Car Access Door

Sliding car and landing doors shall be guided on door tracks and sills for the full travel of the doors. The distance between the car and landing sills shall not exceed 25 mm.

10 Car door

Power operated, automatic, horizontally sliding doors. The doors shall be multi-panel of stainless steel (304) construction with matte finish.

The lift car entrance shall be provided with a door which shall extend the full height and width of the lift car opening. The top track of the door shall not obstruct the lift car entrance.

11 Landing doors

Power operated, automatic, horizontally sliding doors. The doors shall be multi-panel of stainless steel (304) construction with matte finish.

Every landing door shall be provided with an effective locking device so that it shall not normally be possible to open the door from the landing side unless the lift car door is in that particular landing zone.

It shall not be possible under normal operation to start the lift car or keep it in motion unless all landing doors are in the closed position and locked.

At each landing entrance the vendor shall provide, architraves of stainless steel of hairline finish or heavy gauge sheet steel profiled to an approved design, and shall include all packing and filling (or grouting) as necessary. All surfaces of architrave shall be formed true and gaps between sections will not be allowed. Bolts shall not be visible on the exposed surfaces of the architraves. The architrave shall extend to enclose the thickness of the enclosing front wall.

Landing door floor level shall be 3 mm higher than finished floor level to protect from water entering into the shaft. The car and landing door sills shall be manufactured from heavy section aluminum.

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12 Lift Car Lighting

Lift Car lighting shall be controlled automatically by means of a sensor controlled fitting.

13 Shaft Lighting

The minimum level of illumination shall be 50 Lux all along the lift pit.

The minimum level of illumination shall be 200 lux minimum at the traction device.

14 Alarm Systems

An emergency alarm push button together with a buzzer (or an alarm bell), shall be provided in the lift car and be connected to the building management office or the caretaker's office and the machine room. The electricity supply, installation, connection and tests for these alarm devices are included in this scope.

15 Technical Requirements

Admissible load: 1000 kg,

Number of floors: 3 (Ground floor, first floor and second floor)

Floor height: GF Landing – 0 Mts., FF Landing – 3.6 Mts, SF Landing – 7.2 Mts., TF Landing- 11.1 mts

Door type: Power operated, automatic, horizontally sliding doors, 2 panels

Door clear opening: 1.8 m

Door height: 2.1 m

Interior clear height of the car, i.e. height between the finished floor level and the underside of the false ceiling, shall be not less than: 2.40 m

Shaft Dimensions:

Width (X): 3.00 m

Depth (Y): 2.95 m

16 Finishing

Finished stainless steel (No.4 finish) false ceiling with LEDs luminaires (illumination level shall not be less than 400 lux at 1m from the lift floor level.

Car walls: SS No. 4 finish

Car door finishing: linen stainless steel

The car operation panel and inserts shall be finished in linen pattern stainless steel

Control panel on side wall of the car

Resistant floor covering rubber mats shall be supplied. The designer / installer shall be responsible for ensuring their storage and accessibility for use.

Panel guards on all the three sides.

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17 Delivery and Installation

Vendor shall be responsible for supply, safe custody, installation/erection, commissioning, and performance check and hand over to client.

Vendor will be responsible for getting all statutory approval for its regular use at his own cost. Vendor shall deliver the complete Package Unit to HLL Biotech Ltd at Chengalpattu, Near Chennai.

Vendor shall be responsible for the positioning and installation of the complete Unit, including tie in of utilities.

The responsibility for packing, transport and insurance is with the Vendor of the system.

Before packing and dispatch, the system must be well cleaned inside as well as outside and dried. For the transport, the system shall be completely empty and dry. The packing shall be rigid to protect the unit against damage.

The item number shall be prominently painted on the side of the equipment. All loose items have to be carefully fixed or packed in a separate box.

The Package unit shall be equipped with appropriate lifting lugs and provisions for transport allowing easy loading, offloading and transportation inside the building.

18 Spare part

The spare parts for commissioning and start-up are to be included in Vendor scope of supply. List of commissioning and start-up spare parts has to be included in the bid based on the selected Manufacturer's models.

19 Site Conditions

- Temperature : Maximum 41 Deg. C Minimum 12 Deg. C
- Humidity : Not more than 50% at maximum temperature.
- Rainfall : 800 – 1500mm per Annum.
- Altitude : Less than 1000 meters above MSL.

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20 Site Facilities

The contractor shall set up his office cum stores at his cost.

Employer will make available the following:

- a. 3Ph. 4 wire, Construction power at one point at Project Site.
- b. Civil works associated with the lift shaft, lift pit & lift machine room.
- c. Permanent power at one point for each lift in the lift machine room complete with power panel.
- d. Lighting and sockets in the Vertical Transportation system (Lift) shaft.
- e. Earthing as per statutory requirement.

21 Electrical Supply Specifications

- System Voltage
 - Nominal Voltage : 415 V
 - Maximum : 440 V
- Voltage Variation Limits : +/- 10%
- No of Phases : 3
- Frequency : 50c/s
- Frequency Variation Limits : + 3% or – 4%
- Neutral Earthing on LV side : Solidly earthed

22 Standards

The Vertical Transportation system (Lift) shall conform to the requirements of the latest editions of following Indian Standards.

Standard mentioned below are only guidelines. The equipment's and works shall be carried out as per the latest standards.

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S No.	DESCRIPTION	IS NOS
A	The electric wiring shall conform to	<u>IS 732 - 1989.</u>
C	Electric Traction Lifts - Part 2 Code of Practice for Installation, Operation and Maintenance – Section 1 : Passenger and Goods Lifts Section 2 : Service Lifts.	<u>IS 14665 : Part 2 : Sec 1 and 2 : 2000</u>
D	Electric Traction Lifts - Part 3 Safety Rules Section 1 : Passenger and Goods Lifts Section 2 : Service Lifts	<u>IS 14665 : Part 3 : Sec 1 and 2 : 2000</u>
E	Electric Traction Lifts - Part 4 : components – Section 1 : Lifts Buffers Section 2 : Lift Guide Rails and Guide Shoes Section 3 : Lift Car frame, Car, Counterweight and Suspension Section 4 : Lift Safety Gears and Governors	<u>IS 14665 : Part 4 : Sec 1 to 9 :2001</u>
F	Electric Traction Lifts - Specification - Part 5 : Inspection Manual	<u>IS 14665 : Part 5 : 1999</u>
G	Electromagnetic : EN 12015 and EN 12016	<u>EN12015 – for Emission</u> <u>EN12016 – for Shielding</u>

The installation shall conform to the requirements of Indian Electricity rules, stipulations of local electrical cum Vertical Transportation system (Lift) Inspectorate and recommendations of National Electric Code.

The installation shall be carried out in conformity with the stipulations of local fire authority.

23 Installation

23.1 Site Representative

The Vendor shall appoint a full time site engineer holding valid supervisory permit issued by the state government during installation, testing and commissioning.

23.2 Specific requirement

The Vertical Transportation system (Lift) shall be installed as per IS: 1860. Wiring and earthing shall be extended from machine room as per requirement. Power cable and earthing point will be made available in the machine room by Electrical contractor

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23.3 Testing of Installation

All equipment included in contractor's scope of supply shall be tested at manufacturer's works, before delivery and necessary Test certificates shall be submitted for approval of consultants.

The contractor shall carry out all performance tests after installation, in the presence of the employer, as per specification. The contractor shall bear all expenses for such tests.

The contractor shall be responsible for executing the contract as per Indian Electricity Rules, Rules and regulations of supply authorities and the rules of the local Electrical Inspectorate. Any changes / modifications pointed out by the authorities shall be carried out at no extra cost.

23.4 Taking over of Installation

The equipment & installation shall be deemed to have been taken over by the Employer, when the following are completed.

- The Employer has certified that all contractual obligations have been fulfilled by the Contractor.
- All performance tests shall be carried out in the presence of Employer and Test Certificates are furnished in requisite copies.
- The installation is approved by the lift inspectorate.
- The 'As Built' Drawings and operating and maintenance manuals are submitted.

23.5 Safety Precautions

The contractor shall ensure that all safety norms are strictly adhered to throughout the installation period.

- All electrically operated hand tools shall be of the double insulated type.
- All workmen should be provided with electrically operated tools having insulated handles.
- All workmen operating at heights of more than 3M above floor level shall use safety belts.
- Properly designed ladders or scaffolding shall be used while working at heights.
- All workmen shall be provided with rubber shoes.
- The welding sets to be used shall have proper terminal box for cable termination and earthing.
- All openings at various landings shall be temporarily guarded during installation.
- All safety procedures associated with lifting of heavy equipment, operation of electrical tools and earthing should be strictly complied with.

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23.6 Components & Accessories

The following components & accessories forming a part of the Vertical Transportation system (Lift) installation shall be supplied and installed. All the items shall conform to the BIS listed above and the specification.

1. Guide rails of steel with working surfaces machined for the car and counter weight.
2. Spring buffers located in the lift pit.
3. Steel car frame with replaceable guide shoes.
4. Lift cars fitted with all interiors, false ceiling, flooring, ventilation fan, lights, operator's panel, telephone point, floor indicator, emergency stop facility etc.
5. Motor operated sliding, centre opening car doors.
6. Motor operated sliding, centre opening landing doors.
7. Counter weight with guide shoes.
8. Safety gears.
9. Speed governors.
10. Suspension ropes.
11. Sheaves & pulleys.
12. Lift Machines.
13. Controllers & wiring materials.
14. Terminal stopping and final limit switches.
15. Levelling devices.
16. Any other accessories as specified / required for the satisfactory operation of the lifts.

24 Testing & Commissioning:

Inspection and tests shall be made by Vendor in accordance with requirement requisition document and/or any correlative standards and codes.

Testing and commissioning will be carried out by the VENDOR. The customer/purchaser and / or his / her representatives have the right to participate in testing and commissioning.

During testing and commissioning future operators/technicians shall be trained in all equipment / system functions (e.g. preparation, start-up, operation, shut down, maintenance, etc. - as far as applicable).

All testing and commissioning documents, recordings and reports shall be in English language.

The VENDOR shall notify the customer/purchaser one month in advance of the start of FAT / submit the test report carried out at factory.

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➤ **Testing:**

If in case Vendor proposes a testing procedure the same shall be approved by Client.

➤ **Inspection:**

Client reserves the right to carry out inspection & further performance at any time during fabrication before shipment. Inspection shall be done by the Client or their representative and / or their nominated inspection authority.

➤ **Factory Acceptance Test (FAT):**

Pre-requisite for shipping is client / client's representative witnessed and approved FAT and FAT record.

The FAT shall consist of the following checks:

- Check conformance to the Specifications provided and the specifications of Vendor.
- Check for completeness of equipment group.
- Check for dimensions.
- Check for materials.
- Verify the correctness of Name plate data.
- Review of the complete specified documentation package.
- Review of equipment conformance with relevant codes and guidelines.
- Equipment performance test. This shall include the routine test & the performance. The performance test shall include the power consumption, noise level, PLC simulation test, etc., under varying capacity conditions.

A prior notification shall be issued to client for witnessing the FAT (If required).

The performance test shall include the detailed performance test condition like test standard, test instrument, preparation & procedures, test method, test record template.

All Vendor's internal testing before handing of the FAT should be documented properly according to Vendor's internal procedures. Tests reports should be available before client / client representative's arrival at Vendor shop for FAT (If required).

The tests shall be carried out at vendor's expense. Utilities for operating the equipment shall be provided by Vendor.

If the test record does not meet and perform in accordance with Vendor warranty obligations Vendor will, at its expense, implement all the necessary modifications and afterwards the tests will be repeated.

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After the approval from the client / client representative's approval, the system will be prepared and shipped to the site.

The acceptance of any piece of equipment or component by client or their representative does not relieve the Vendor of any responsibility for complying with the provisions of this specification or of any guarantee.

➤ **Site Acceptance Test (SAT):**

The final acceptance tests at site will be carried out after system delivery on site and mechanical completion of the system. The purpose of the SAT is to verify that the system is supplied, installed and that it operates according to the relevant specifications. The SAT testing includes:

- Check of completion of open items from FAT
- Check of transport damages
- Check scope of supply
- Proper operation of the systems
- Site performance test
- Verification of final documentation.

As far as site performance test is concerned, the supply includes: detailed test procedure, check lists and Vendor's specialist assistance during the test according to a schedule to be agreed upon.

Vendor has to submit a proposal including site supervision and assistance during commissioning and start-up of the package unit. The procedure and schedule of the performance test and relevant acceptance criteria shall be defined / agreed upon between vendor and the client.

Vendor shall record all the results of the tests carried out and submit the report to the client for approval.

25 Approval

The supplier shall obtain the approval of drawings and installations from the lift inspectorate if applicable. Also approval shall be obtained from Fire authorities for the features provided if applicable

26 Documentation

26.1 General

All documentation for the unit shall be distinctly marked with Unique Name, Identity No. and Version No.

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As English is the project language, the documentation must be in English.

Specify list of all delivered documents, such as test protocols, drawings and specifications.

The documentation shall be delivered as four paper copies and one electronic version (CD-ROM).
The documentation shall have final “as built” status.

The documentation provided by the vendor must allow

- Training of operators
- Operation, maintenance and calibration (Complete technical documentation)
- Testing or Qualification of equipment incl. generation of related documents (DQ, IQ).

26.2 Documentation Packaging for Offer

- Dimensions for space needed for installation.
- Unit size dimensions.
- Utility consumptions
- Weights

Vendor should provide a document list of his standard documentation together with examples for review and final approval by client. The review & approval of design documents will be as per good engineering practices. Client will check installation of unit against design documents issued for construction according to good engineering practices.

Vendor shall submit before order placement the detailed supplier document index (to be approved by client), listing all drawings and documents that will be supplied and their delivery dates.

It is included in the vendor scope of work the preparation and supply of all documents (i.e. drawings, calculations, etc.) and all obligations requested by local Authorities, in order to fulfill the applicable laws & regulations. Vendor shall provide the following list of documents for the complete package:

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26.3 List of Documentation

VENDOR shall provide the following documents for the complete package unit:

Document Name		Remark
General		
	Design specification	
	List of the used material: List of spares & consumables for trouble free operation for two and five years separately from the date of commissioning.	
	Functional description	
	Guarantee/ Warrantee: <u>12 months from the date of handing over</u> Extended Guarantee/ Warrantee: 12 months from the date of expiry of guarantee. (Optional)	
Schemes for approval		
	Layouts, overview plan	
	GA Drawings	
	Electrical & Control circuit diagram and panel layout with dimensions.	
Operation / Service / Electronic Data Service		
	Operation and maintenance manuals (including parts from sub-vendors)	
	Lists of spare parts with ordering information	
	Detailed manuals for single equipment	
	Technical datasheets for single equipment (including capacities)	
	Documentation of first calibration (certificate)	
	Calibration procedure (calibration plan)	
	List of alarms including Trouble shooting	
	Scheme of program work flow.	
	Documentation of displays, tools for configuration	
	Source Code on disk. Software Installation CD.	
	Certificate of warranty	
	Maintenance contact	
	Plan of software structure (Overview of modular functions)	
	Version of installed software user levels	
	Certificate of data security	

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Document Name		Remark
Safety		
	Safety Procedures	If necessary
Training		
	Documented trainings for operators	

27 Technical Specifications for Elevators: - Material

S No	Location	Requirements	Contractors compliance
1	Type of Elevators	Traction Elevator	
2	Quantity	1 no.	
3	Capacity	1000 Kg	
4	Construction	Non Flameproof	
5	Speed	0.5 Meter per second	
6	Location	Indoor type	
7	Area Classification	Clear Area	
8	Drive control system network	AC – variable voltage variable frequency including entrance door operation.	
8a	Operation	Two Car group control operation	
8b	Stops & Openings	4 stops	
9	Total Floor height	11.1 Mtr	
10	Floor height	0, 3.6, 7.2, 11.1 m	
11	Travel (Approx.)	12 mtr	
12	Machine room location	MRL	
13	Hoist way size (clear cut out in slab)	3.0m x 2.95m	
14	Car Ceiling design type	False ceiling with CFL lighting arrangement (NFLP Commercial)	
15	Car internal size (approx)	As per design	
16	Car entrance size (approx)	1800mm wide x 2100mm	
17	Car walls & cabin doors	SS 304	
17a	Guard	Stainless steel guard along the sides of the car walls.	
18	Cabin illumination and Ventilation arrangements	Indirect lighting through milky white plastic cover. Electric blower with SS grills.	

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S No	Location	Requirements	Contractors compliance
19	Cabin flooring	SS with vandalin proof finish	
20	Cabin Operating panel	LED display for all floors Two way audio visual hands free communication	
21	Cabin position indicator	LED	
22	Cabin sills & landing sills at all floors.	Aluminium anodised to approve colour.	
23	Landing doors	Two-panel centre opening type power operated automatic doors	
24	Face plates for hall call buttons and hall positions indicators at all floors	SS finish	
25	Buffers for cabin and Counter Weight	Spring buffers	
26	Guide rails for cabin and counterweight	Machined steel "T" sections for cabin movement and formed steel "T" sections for counter weight movement	
27	Counter weight	Made of cast iron blocks enclosed in a steel frame.	
28	Guide shoes	Advanced sliding type	
29	Power supply for Traction Machine	415V 3 phase 50Hz through circuit breakers located in the machine	
30	Power supply for cabin Lighting & ventilation	240V 1 phase 50 Hz room for each elevator	
31	Operational & other safety features	<ul style="list-style-type: none"> • Fireman's emergency operation • Safety landing operation Next landing operation Hand operation • Overload safety operation with audible indicator • Manual cranking operation • Safety door edge on one leading edge of the cabin door • Door nudging safety operation • Emergency alarm bell operating on batteries installed in lift pit • Emergency cabin lighting • Hall call registered light. • Door load detector 	

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S No	Location	Requirements	Contractors compliance
32	Drive & Machine	AC variable voltage , variable frequency type –worm geared traction type Shall limit motor starting current to less than 1.8 times the nominal motor current thus reducing network current in turn. Optional: - An alternative method of motor and /or motor control which gives better performance, proven system may also be submitted by tenderer along with tender. No advantage will be given during evaluation for this optional.	
33	Safety Gear	Over speeds Governor of progressive type operating on Electro Mechanical basis.	
34	Built-in constant voltage transformer for controller or voltage stabilizer	To be provided to avoid problems / hazards due to voltage fluctuation, thereby increasing the life of electrical & electronic components for the better service of the elevator.	
35	Accurate Re-levelling, Automatic	Automatic accurate Re-levelling of car, after stopping at a floor should take place. Automatic Re-levelling should take place with door open.	
36	Car call backward	Car calls behind the direction of travel are to be accepted and registered	
37	False call cancelling	Cancelling of all car calls to be provided if there is lift movement without transfer of material at landings.	
38	Hall lanterns & gong:	Illuminated arrows to indicate the next travel direction of arriving / available car to be provided. Electronic two-tone gong that sounds when the car arrives at a landing to serve a landing call to be provided.	
39	Automatic rescue device:	To bring the car to the nearest landing in case of Power Failure and also System failure	
40	Direction and position indicator in car and landings	Direction and position indicator to be provided in car and Landings- scrolling indicator	
41	Home floor parking selection	The floor that requires maximum service can be selected for home floor parking selection. Whenever there is no call the lift will come to that selected floor and will wait. This shall be ground floor.	
42	Earthing	Earthing up to nearest earthing Pit	

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28 Exclusions

The following are excluded from the scope of lift contractor's work.

- a Builders work associated with lift well, pit, machine room and wall inserts.
- b Electrical wiring upto the lift panel for individual lifts with suitably rated MCCB as incomer and suitably rated no of MCB outgoings.

29 Attachments:

Annex No.	Title	Drawing / Document No.	Rev No.
1	Data Sheet	NPI/120310/DS/ML/01	00
2	Lift Shaft Drawing	Reference	00

30 Change Log

Date	Initials	Revision	Section	Change / Comments
2014-12-23	SMUT	001	-	Revised as per client comment
2014-01-23	SMUT	002	-	Revised as per client comment

- End of document -