

# **TENDER DOCUMENT**

*FOR*

**SUPPLY INSTALLATION TESTING AND COMMISSIONING OF 4 No:s  
ELEVATOR SYSTEM FOR KERALA UNIVERSITY FOR HEALTH SCIENCE  
TRISSUR.**

**PART-III  
PRICE BID**

**TENDER NO. HLL / ID / 13 / 20(B)**

**March 2013**

**HLL LIFECARE LIMITED.  
INFRASTRUCTURE DEVELOPMENT DIVISION**

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## **1. COMMERCIAL CONDITIONS**

- 1.1 The tendered rate shall inter alia be deemed to include for the provision of all materials , process, operation and special requirements detailed in the particular specification irrespective of whether these are mentioned in the description of equipment schedule and Bill of quantities or not. It is an express condition of the contract that the tendered rates for various items in the Bill of Quantities shall be deemed to include for the full, entire and final condition of the contractor respective items of the works in accordance with the provision of the contract.
- 1.2 The tendered rate shall include for all taxes, duties, etc. as applicable and shall be quoted on the works contract basis for Supply Installation Testing and Commissioning of 4 Nos of Elevator system for Kerala university for Health Science Trissur.
- 1.3 The tendered rate shall remain firm and free from variation due to rise in the cost of materials/equipment labour or any other reasons whatsoever during the contract period and valid extension.
- 1.4 The quantum of excise duty included in the tendered price, the rate at which they were assumed etc. shall be indicated in the tender.

## **2. UNIT RATES**

- 2.1 Only approved work will be measured on completion and priced as per rates quoted against the respective items.

## **3. BRIEF DESCRIPTION OF PRICING**

- 3.1 The tenderer shall furnish duly certified breakup of material and labour separately for each item of work. The same shall be attached separately along with the price bid.

## **4. PRO-RATA VALUE**

The detailed break up of prices for various items of equipments and materials of the full system should be provided by successful tenderers within fifteen days from the date of letter of intent to facilitate the Employer for assessment and verification and to certify payment.

## **5. INCOME TAX**

Any payment to the contractor as per contract, will be made after deducting income tax as per the rules and regulations.

## **6. SALES TAX AND EXCISE DUTY**

The tenderer shall clearly indicate sales tax, Excise and works contract tax and other duties as applicable in his offer for carrying out this work.

## **7. SUBMISSION OF BILL**

- 7.1 The contractor shall from time to time prepare and submit interim bills of the work executed and on completion of the contract, he shall prepare and submit the final bill. The measurements sheets in support of the interim and final bills shall be prepared by the contractor on the basis of measurements taken by him jointly with the project engineer and the said measurement sheets shall be submitted by him with the relevant bill.

## **8. EXTRA ITEMS**

The contractor is bound to carry out any items of work necessary for the completion of the job even though such items may not have been included in the schedule of probable quantities or rates, such items being necessary or essential for completing the job. Variation order in respect of such additional items and their quantities will be issued in writing by the Employer.

All shavings, cuttings and other rubbish as it accumulates from time to time during the progress of work and on completion including that of the sub-contractors and special tradesman and all materials condemned by the project engineer shall be cleared and removed from the site by the contractor without any extra charge.

All measuring steel taps, scaffolding, ladders instruments and tools that may be required for taking measurements shall be supplied by the contractor.

## **9. OVER TIME WORK**

If the contractor is required to work night or on holidays in order to maintain the time schedule he shall take prior approval from the Employer. He should also provide and maintain at his own cost sufficient lights as may be necessary to enable the work to proceed satisfactorily during the night.

- 9.2 The contractor shall give full facilities to all other contractors working on site. He shall also arrange his programme of work so as not hinder the progress of other trades. The decision of the Employers on any point of dispute between the various parties shall be final and binding.

- 9.3 It is specifically pointed out that the contractor shall not be entitled to any compensation whatsoever on account of delay in procurement or supply of controlled materials and the rates quoted in the contract are fixed till the completion of the contract.
- 9.4 The contractor shall co-operate with other agencies appointed by the Employer for the work to proceed smoothly with the least possible delay and to the satisfaction.
- 9.5 The owners shall provide a source for power supply at one convenient point at site. The contractor shall at his own cost install a separate meter at the said source and lay additional cables from the said source also at his own cost. For the electricity consumed by the contractor he shall pay the owner the actual cost at the rate charged by the local authority for power for constructional purposes. The contractor shall also obtain the necessary permit for utilizing power for constructional purposes.

## **10. TERMS OF PAYMENT**

- 10.1 For equipments delivered and sorted at the site for the installation, the payment will be made by the HLL in accordance of this contract.
- 10.2 The rate of payment for the contract value under this contract shall be regulated and detailed below:
- a. 80% of the contract value on pro-rata basis against open delivery of material at site and stored as directed by the HLL and after initial inspection.
  - b. 10% of the contract value on satisfactory installation of the complete system.
  - c. 5% of the contract value will be paid after testing, commissioning trial run & handing over to HLL.
  - d. The balance 5% after the expiry of guarantee/defect liability period. However the final payment after Defect Liability Period can be released against submission of Bank Guarantee for equivalent amount.

## **11. SPECIAL CONDITIONS**

### **11.1 EXECUTION WORK**

- 11.1.1 The whole of the work as described in the contract (including bills of materials, specification and all drawings pertaining thereto) and as advised by the Owners/Employers from time is to be carried out and completed in all parts to the entire satisfaction of the Owners/Employers. Any minor details of construction which are

obviously and fairly intended, or which may not have been definitely referred to in this contract, but which are usual construction practice and essential to the work, shall be included in this contract.

## **11.2 MAINTENANCE & TRAINING FOR PERSONNEL**

- 11.2.1 The contractor shall without any extra cost carry out for a period of 12 months after the installation is taken over by the owners, all routine and special maintenance and attend to any difficulties and defects that may arise in the operation of the Lifts.
- 11.2.2 The contractor shall associate with the Employers' staff during erection and the maintenance period, in the maintenance/operation of the Lifts.
- 11.2.3 If required, by the Employers, the contractor shall also train members of the Employers' staff at their works/service station without any extra charge.

## **11.3 CERTIFICATE OF COMPLETION**

- 11.3.1 The contractor shall intimate to HLL in writing as and when the works are completed and put into beneficial use in order to enable HLL to check certify to the Employer to take over the plants.
- 11.3.2 The work shall not be considered as completed and put into beneficial use until HLL have certified in writing that the same has been completed and put into beneficial use.
- 11.3.3 The defects liability period of one year shall commence from date of such completion or any specific date mentioned therein.

## **11.4 OPERATIONAL AND MAINTENANCE MANUALS**

- 11.4.1 The contractor shall also furnish the prints of all up-dated handing over along with required set of operating/maintenance manuals/instructions.

## **11.5 STATUTORY APPROVALS**

All statutory approvals pertaining to the elevator installations including electrical inspector/lift inspector approvals shall be in the scope of the supplier.

## TESTING OF LIFT INSTALLATION

The contractor after the installation of the lifts has to conduct the following test and furnish the readings to ascertain the performance of the lifts.

1. Levelling Test :
2. Safety Gear Test :
3. Contract Speed Test :
4. Lift Balance :
5. Car and Landing Interlock Test :
6. Controllers Test :
7. Normal Terminal Stopping Switches :
8. Final Terminal Stopping Switches:
9. Insulation Resistance Test :
10. Ropes :
11. Buffer Test :
12. Earthing :
13. Performance Test :

## TECHNICAL SPECIFICATIONS FOR ELEVATORS

- 1.1 This section deals with technical requirement of Electric Traction Type & Passenger Elevator with Machine Room gearless type, its components, and safety devices. All features shall be of latest International standards such as EN81, European standards, American standards or IS 14665 (part -1 to 5) and amended up to date. The technical specifications given below are for general guidance only and standard specifications of manufactures are acceptable subject to the condition that these specifications meet the technical / functional requirement specified below.**

**The contractor shall be responsible to check and ensure dimensions of hoist way, before tendering that requirements of statutory laws and local codes of Electrical / elevator inspector are met with and the equipment offered are suitable for the space available.**

**1.2 POWER SUPPLY**

**HLL shall provide 415 V $\pm$ 10%, 3 phases, 50 Hz AC power supply for the elevator at suitable location in top landing. Elevator shall be suitable for operation on 415 V $\pm$ 10%, 3 phases, 50 Hz AC power supply. Wiring shaft lighting and required electrical panel shall be carried out by the elevator contractor which shall be included in his quoted rates and nothing extra shall be paid on this account. All power required for erection, testing and handing over the elevator shall be in the scope of the contractor.**

**1.3 CODES & STANDARDS**

**1.3.1 Work carried out shall in general be in conformity with following:**

- (i) CPWD specification for electrical work.**
- (ii) IS 14665 (part -1 to 5) and amended up to date or international specifications which ever is superior shall be applicable and in accordance with regulations of local codes which govern the requirements of the elevator.**
- (iii) In addition, Indian Electricity Rules 1956 and Indian Electricity Act 1910 and the rules issued there under with amendments issued from time to time shall also apply.**
- (iv) All the codes and standards mean the latest publication. Unless specified otherwise, the installation shall generally follow the Indian Standard code of practice/the relevant British Standard code of Practice.**

**1.3.2 All designs, materials, manufacturing techniques and workmanship shall be in accordance with accepted National or international standards/ practices for this type of equipment.**

**1.3.3 The tenderer shall also state, where applicable, the National or other International Standard (s) to which the whole or any specific part, of the equipment or system complies. In addition, any other information/ description, the tenderers may wish to provide, the features/ performance figures specified/indicated shall be with supporting documents/calculations.**

**1.4 TECHNICAL REQUIREMENT**

Sl.No.	Items	Technical requirement
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1	Type of Elevator	Passenger Lift
2	Capacity	884Kgs (minimum), 13 Persons (minimum)
3	Speed	1.00 Mtr/sec
4	Serving Floors	GF to 7 <sup>th</sup> Floor
5	Travel in meters	28.8 M
6	Stops & Opening	8 stops & 8 Openings.
7	Hoist Way available	Refer drawings attached to this tender document
8	Machine	With Machine Room, Gearless traction machine with electro-magnetic brake placed above the hoist way.
9	Control system	Micro-processor based control with variable voltage variable frequency technology.
10	Operation	Simplex for first 2 lifts; Duplex drive for other 2 lifts full collective.
11	Car Enclosure	Mirror finish stainless steel panel on all the four sides & Ceiling for all lifts. .
12	Flooring	Granite flooring
13	Number of Entrance	Entrance at front side on all the serving floors (All stops – opening on the same side). (Refer drawings attached to this document)
14	Car & Hoist way Entrance (landing) Doors.	Automatic center opening automatic stainless steel door, min 900mm wide for all lifts.
15	Safety Feature	(i) All safety feature required as per IS / International Standards. (ii) Additional features. a) Reverse phase relay on controller. b) Single Phasing power supply protection.
		c) Overload warning indicator on car (visual and audio) d) Fireman's switch e) Battery operated alarm bell & emergency light with battery and charger. f) Infra red rays sensing device along the edge of the car door for full height.
16	Signals	a) LED Hall buttons/ landing call registered indicator at all landings. b) Digital car position indicator in car and at all landings. c) Up/ Down pre-announcing indicator at all landings d) Integral car operating panel with aesthetic luminous switches, emergency stop

		switch, key switch for auto/ attendant mode.
		e) Annunciator in car
17	Fixtures (In car)	a) Mirror finish stainless steel ceiling.
		b) Concealed decorative luminaries with CFL lamps complete with housing, reflector and accessories.
		c) Axial pressure fan suitable design to suit the ceiling.
18	Inter com (In car)	Suitable to hook to EPABX system.
19	Automatic rescue device.	Solid state battery operated device to automatically rescue passengers trapped in the elevator car in between floors in the event of power failure.
20	Manual Rescue Device	Manual rescue device shall also be provided so as to bring the elevator car to the nearest floor in the event of failure of battery operated automatic rescue device.

## 1.5 CONTROLLER

**1.5.1 The control system shall be of microprocessor controller type, incorporating variable voltage variable frequency drive for elevators of 1.0 m/s speed. It shall be suitable for site programmability and shall have field test mechanism for quick fault diagnosis. The elevator motor shall be fed through this controller for smooth & silent operation of elevator.**

## 1.6 ELEVATOR HOISTING MACHINE

**1.6.1 Manufacturer's standard design/constructional features are acceptable. The elevator hoisting machine shall be compact, energy efficient and proven design. The hoisting machinery shall be gearless type with 3 Phase AC motor. The drive shall be of variable voltage variable frequency type.**

## 1.7 MOTOR

**1.7.1 The elevator hoisting motor shall be as per manufacturer's selection. Motor shall be dynamically balanced and shall have high starting torque and low starting current, suitable for elevator duty and equipped with required protection. Motor shall be part of drive unit.**

## 1.8 INSTALLATION OF ELEVATOR HOISTING MACHINE

**1.8.1 The required arrangement for installation of elevator hoisting machine shall be provided by the contractor.**

## 1.9 GUIDE

- 1.9.1**      **Machined steel guides shall be provided for the car and counterweight. The guide rails shall have tongued and grooved joints, sliding clips shall be used for fastening the guides to allow building settlement without distorting the guide. The flanges shall be mechanical for the fish plate mounting so that rail alignments at joints almost remain constant. To keep down the noises level and to reduce wear and tear of sections, only Nylon ribs shall be used in the guide shoes. However, initially cast iron ribs shall be provided for smoothening of guide rails which shall later be replaced free of cost by Nylon ribs.**
- 1.10**      **DRIVING MACHINE BRAKE**
- 1.10.1**      **Electric elevator machine shall be equipped with brakes which shall be applied automatically by means of springs in compression only or by gravity when the operating device is in the 'off' position or in the event of power failure. The brake shall be designed to have a capacity sufficient to hold the car at rest with 125% of its rated load.**
- 1.11**      **ROPES / FLAT BELTS**
- 1.11.1**      **The elevator shall be provided with round stranded steel wire ropes or flat belts having tensile strength not less than 12.5 tone/ cm<sup>2</sup>. Lubricants between the strands shall be achieved by providing impregnated hemp core. The rope shall conform to IS –2365 – 1963 amended up to date.**
- 1.12**      **LEVELING**
- 1.12.1**      **Leveling with floors should be exact virtually independent of passenger load. This is to be achieved by self adaptive load compensation.**
- 1.13**      **SELECTOR**
- Selector shall be as per OEM, however selector shall be microprocessor based.**
- 1.14**      **CAR DETAILS**
- 1.14.1**      **CAR FRAME**
- The car frame shall be made of structural steel of rigid construction to withstand without permanent deformation the operation of safety gear. The car shall be so mounted on the frame that vibration and noise transmitted to the passengers inside is minimized.**
- 1.15**      **CAR PLATFORM**
- 1.15.1**      **The car platform shall be of framed construction and designed on the basis of rated load evenly distributed. The dimensions shall conform to IS – 3534 – 1968 amended up to date unless otherwise specified. The flooring shall be finished with antiskid wooden material (sample shall be got approved).**
- 1.16**      **CAR BODY**
- 1.16.1**      **The side walls of the car shall be as per SOQ.**

1.17 CAR ROOF

- 1.17.1 The roof of the car shall be solid type with extra supporting arrangement capable of taking load of maintenance team (at least 140 Kg weight) and also have a fan and light fittings.

1.18 CAR DOOR

- 1.18.1 The car entrance doors shall be as per SOQ. Doors shall be automatic centre opening horizontal sliding and power operated type.

1.19 HOIST WAY (LANDING) DOORS

- 1.19.1 Doors shall be as per SOQ. It shall be fitted with a locking device which shall comply with clause 21 of IS -3-4666-1980 amended up to date.

1.20 CAR DOOR & HOIST WAY DOOR OPERATORS

- 1.20.1 (i) Each hoist way door shall be provided with an interlock which shall prevent movement of the car away from the landing unless the door is in the closed position as defined in the IS codes.
- (ii) Door system should have the following features:
- (a) Reliable robust construction, linear drive door gear with electronically controlled closing and opening for trouble free operation under adverse duty conditions.
  - (b) Door system interface compatible with modern micro-contactor control system for optimum performance.
  - (c) Proven door safety devices for maximum safety of users.

1.21 SAFETY GEARS & GOVERNORS

- (a) Elevator shall be provided with car safety devices attached to the elevator car-frame and placed beneath the car. The safety device shall be capable of stopping and sustaining the elevator car with full rated load.
- (b) The elevator shall be provided with over speed monitoring & tripping safety device and its operation shall be independent of power.
- (c) The car safety is provided to stop the car whenever excessive descending speed is attained. The safety shall be operated by a centrifugal speed governor located at the top of hoist way and connected to the governor through a continuous steel rope. The governor shall be provided with ropes in proper tension. Even after ropes stretch, suitable means shall be applied to cut off power from motor and apply the brakes on applications of the safety.
- (d) Temper proof infrared rays sensing device shall be provided through out the height of door or upto 1.8m above sill as per OEM to ensure the door reopens till the obstruction exits in case obstruction comes while the door is closing.

1.22 COUNTER BALANCE

- 1.22.1 A suitable guided structural steel frame with appropriate filler weights shall be furnished to promote smooth and economical operation.**

**1.23 TERMINAL SWITCHES**

- 1.23.1 Elevator shall be provided with proximity switches arranged to stop the car automatically within the limits of top car clearance and bottom run by over travel from any speed attained in normal operation. Such switches shall Act independently of the operating device, the ultimate or final limit switches and the buffers.**

**Proximity switches may be fitted in the elevator car or in the elevator well or in the machine room and such switches shall be brought in to operation by the movement of elevator car.**

**An automatic safety switch shall be provided to stop the machine should the chain, rope or other similar device mechanically connecting the stopping device to the car, fail.**

**1.24 ULTIMATE OR FINAL SWITCHES**

- 1.24.1 Elevator shall be provided with ultimate or final switches arranged to stop the car automatically within the top and bottom clearance independently of the normal operating device and the terminal switches.**

**Final switches shall act to prevent movement of the elevator car under power in both directions of travel and shall after operating remains open until the elevator car has been moved by a hand winding to a position within the limits of normal travel.**

**All ultimate or final switches shall be of enclosed type and shall be securely mounted. The contacts of all switches shall be opened positively and mechanically by the movement of elevator car.**

**1.25 TERMINAL BUFFERS**

- 1.25.1 Heavy-duty spring Buffers/polyerethene rubber pads as per OEM to adhere the latest safety parameters shall be installed as a means of stopping the car and counter weight at the extreme limits of travel. Buffers in the pit shall be mounted on steel channels, which shall extend between both the car and counter weight guide rails. Oil buffer as per OEM standard is acceptable.**

**1.26 ELECTRICAL INSTALLATION REQUIREMENTS**

- 1.26.1 IS: 4666 – 1980 amended up to date state the requirement for main switches and wiring with reference to relevant regulations and read in conjunction with clause-3.1 (i).**

**1.27 ELECTRICAL WIRING AND WIRING FOR SIGNALS**

- 1.27.1 Complete electric wiring shall be done in copper cable/ wires by the elevator supplier as per clause 7.1.2 of IS: 1860-1980 amended up to date and read in conjunction with clause-3.1 (i).**

**The wiring for signals, landing call buttons & indicators shall use serial communication technique to reduce the number of wires and read in conjunction with clause-3.1 (i)**

**1.28 TRAVELLING CABLE**

**1.28.1 Flat traveling cable shall be 16/20 core to give better running performance.**

**1.29 OVER LOAD WARNING**

**1.29.1 Over load warning feature with audiovisual indication shall be provided (Visual indication shall show “Over Loaded” and a buzzer shall also operate). Car shall not move until the overload condition is removed.**

**1.29.2 A load plate giving the rated load and permissible maximum number of passengers should be fitted in each lift car in a conspicuous position.**

**1.30 INTERCOM SYSTEM**

**1.30.1 Intercom suitable to hook to EPABX shall be provided inside the car for making emergency calls.**

**1.31 EMERGENCY RESCUE DEVICE:**

**1.31.1 AUTOMATIC EMERGENCY RESCUE DEVICE:**

**Elevator system shall have automatic battery operated emergency rescue device to automatically rescue passengers trapped in the elevator car in between floors in the event of power failure having following features:**

**Automatic operation and immediate actions in the event of mains failure capable to move the elevator to the nearest landing, opens the doors automatically. Shall have sealed maintenance free battery back up of suitable size with automatic charging unit and auto change over unit on mains failure. Message indicator in the elevator car.**

**1.32 MANUAL EMERGENCY RESCUE DEVICE**

**1.32.1 Manual emergency rescue device shall be provided to rescue the passengers trapped in the elevator car in the event of failure of battery operated automatic emergency rescue device. The elevator car stopped in between floors due to power failure shall be brought to the nearest landing by releasing the break by means of pulling the mechanical lever provided in the last landing. The standard constructional feature of OEM for this manual emergency rescue device is acceptable.**

**1.33 OPERATION**

**1.33.1 The elevator shall be operated in simplex mode (with/ without attendant) and generally the elevator shall be in automatic mode. However a two position key-operated switch marked to indicate “ATT” (Attended Operation) and “AUTO” (Automatic Mode) shall be provided. When the switch is in the position of “ATT” mode, the elevator shall be in attendant mode. It will connect the hall button pushes to the annunciate, provided in the car, to register the**

**calls. In automatic mode, momentary pressure of the car button/ landing button will send/ bring the car to this landing and car will automatically stop.**

**1.34 LIST OF APPROVED MAKES**

<b>ELEVATORS</b>	<b>OTIS / KONE / /SCHINDLER /MITSUBISHI</b>
<b>MCCB</b>	<b>L&amp;T/SIEMENS/SCHNIDER/GE</b>
<b>MCB/RCCB</b>	<b>LEGRAND/L&amp;T/ SIEMENS/ SCHNIDER</b>
<b>DB</b>	<b>LEGRAND/L&amp;T/ SIEMENS/ SCHNIDER</b>
<b>LT CABLE</b>	<b>GLOSTER/HAVELS/POLYCAB/TORRENT</b>

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## **BILL OF QUANTITIES**

### **ABSTRACT**

<b>SL. NO</b>	<b>ITEM</b>	<b>AMOUNT (Rs.)</b>
<b>1</b>	<b>Elevator</b>	



SITC OF ELEVATORS ADMINISTRATIVE BUILDING OF KERALA UNIVERSITY OF HEALTH SCIENCE, THRISSUR					
SPECIFICATION AND SCHEDULE OF QUANTITIES					
	<u>SITC OF ELEVATOR</u>	Unit	Qty	Rate in words and figures	Amount
1	Supply, installation, testing & commissioning of electric traction type elevator of following capacity and type suitable for operation on 415 V, 3 phase, 50 Hz AC supply, having AC variable voltage and variable frequency type traction control, machine room less type, speed of 1.00 Mtr/sec, electromagnetic brake system, simple operations, operating control panel with luminous buttons, overload warning indicator, battery operated alarm bell, LED type emergency light, intercom suitable for hook up to EPABX, infrared ray sensing door protection for full height, reverse phase relay on controller, fireman's switch at ground floor, Scrolling LED on SS Plate car positions indicator in car and digital micro motion with dotted LED on SS plate on all floors at all floor landings with Up/DOWN direction, all signal fixtures in stainless stell faceplates, light fixtures, ventilation fan, etc complete with all accessories including automatic rescue device in the event of power failure etc., complete with necessary scaffolding, electrical panel, logic control panel, shaft lighting & additional MS channel supports of suitable size if required for modification of the shaft to meet the elevator shaft requirement and for the erection of the elevators as required.				

1	The traction motor placed above the hoistway in the Machine Room and elevator shall be of gearless type with travel height of 28.8.mtrs. (suitable for lift well size 3070mm (D)X 2400m(W)) complete as per technical specification, <b>simplex full collective operation</b> with/without attendant. Car/Hoistway Entrance, protected by stainless steel hairline doors and clear centre opening min 900mm x 2100mm height. <b>13 passengers (Minimum) capacity (minimum 884 Kgs)</b> elevator, 8 stops & 8 openings car size of 1500mm wide x1400mm deep x 2300mm Height inside dimensions and entrance at front side on all the serving floors, provided with mirror finish stainless steel panel on all four side, & ceiling, stainless steel hand rail on three sides complete as per specifications.	No	2		
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<b>TOTAL FOR SITC OF ELEVATORS</b>		<b>-</b>			

