

TECHNICAL SPECIFICATIONS FOR LIFT WORK

1. SCOPE OF WORK FOR LIFT:

The scope of work includes Supply, Installation, Testing, and Commissioning of 02 Nos. 17 stops Passenger Lift, Capacity 1088 kg. G+16 floors, gear less lift and 02 Nos. 17stops Passenger, Capacity 554 kg. G+16 floors, gear less lift. The lifts shall be complete with specified machine, 3VF drive, specified speed, auto rescue device, overload warning indicator, suitable door safety as specified, display in car and at all floors as per manufacturer's standard, etc. and allied civil, electrical works, scaffolding & barriers across all open entrances, shall be as per specifications in the Tender Document.

No price escalation will be permissible in any case. The tenderer shall offer the rates considering all the above

1.1 License:-

It is mandatory to obtain the licenses to install, operate and maintain the lifts from Lift Inspector (P.W.D.) Government of Maharashtra, by paying necessary government charges.

Necessary documents, letters, drawings as required by PWD authorities will be provided by MCGM. PWD fee for seeking erection permission and for license shall be borne by successful bidder. The rates quoted shall be inclusive of this.

1.2 Submission of relevant details to lift Inspector:

The successful tenderer shall submit the necessary details in prescribed format to the Lift Inspector under Chief Engineer (Electrical) PWD. The work should be undertaken only after fulfilling the above formality.

2. EVALUATION CRITERION

The lowest evaluated rates and Comprehensive Service & Maintenance Charges for five years will be considered at the time of evaluation.

GENERAL INSTRUCTIONS

The contractor shall have valid

1. Electrical contractor's license issued by P.W.D., Maharashtra Government.

License from Lift Inspector, P.W.D. / Ch. Eng. (Electrical) P.W.D. to install, operate and maintain the lifts.

2. Lift Inspector's Certification / License to Operate:- On completion of work, the contractor shall offer the lifts for testing and inspection by Lift Inspector, P.W.D., Government of Maharashtra and secure license for all the lifts and attend all formalities.

Necessary documents, letters, drawings as required by PWD authorities will be provided by MCGM. PWD fee for seeking erection permission and for license shall be borne by successful bidder.

The contractor shall carry out the work as per Technical Specifications and Schedule. However,

anything specifically not covered under the same but required to complete the work shall be in the Scope of Work for which no extra payment shall be admissible to the contractor.

The prices shall be firm. No price variation will be admitted during the contract period.

3. COMPLETION PERIOD: The work completion period including supply, installation, testing and commissioning of passenger gear less Lifts shall be as follows:

As per project schedule

4. GUARANTEE PERIOD

The lifts supplied and installed shall be under free C.S.M.C. for a period of 5 (five) year from the completion of DLP period.

5. COMPREHENSIVE SERVICING AND MAINTENANCE CONTRACT (C.S.M.C.)

The contractor shall quote rates as per specifications for the C.S.M.C. including the prevailing taxes and duties viz. GST, in the Bill of Quantities provided for a period of 5 (five) years from the date of expiry of guarantee period. The cost of CSMC shall be considered for evaluation of the bids.

During the C.S.M.C. and free maintenance period, the contractor shall replace all the defective parts, spares and consumables so as to keep the lifts in good working condition. The license to operate be got renewed from time to time in the contract period. The payment during CSMC period shall be made quarterly after rendering satisfactory service.

6. ACQUAINTANCE WITH SITE AND WORK CONDITIONS ETC.:-

The contractor shall visit the site and verify the shaft, machine room (if any), lift pit, service room conditions by the actual inspection of site etc, before submitting the tender. In case of doubts about any item or data included in the tender or otherwise, it shall be got clarified in pre-bid meeting if any. Once the tender is accepted, it shall be concluded that the contractor has verified and made himself conversant with all the details required for completing the work as per specifications, terms and conditions.

7. TECHNICAL SPECIFICATIONS

(FOR LIFT AND ELECTRICAL WORK)

The Lift shall comply 'The Bombay Lifts Rules 1958' with regards to fire norms. The Lift Machinery shall be placed directly above the lift shaft in machine room on raised platform beam with Rolled Steel joists, supplied and installed by the contractors.

7.1 : OPERATION AND WIRING

i. Operation:

Operation of lift shall conform to the following requirements:

- ii. It shall not be possible to start the lift car under normal operation unless every landing gate is in the closed position.
- iii. The landing push buttons shall be operative during the whole time when an occupied lift car is in use. The landing push buttons shall register the call but the lift remains inoperative until the person or persons, using the lift have vacated the lift car and the landing gate has been

closed. An emergency stop switch shall also be fitted on the top of the lift car for use of persons working thereon.

- iv. Momentary pressure of a car button shall send the car to the landing selected where the car shall automatically stop. After a car button is pressed, uninterrupted use of the car shall be ensured until the desired landing is reached and the car gate is opened and closed.
- v. Momentary pressure of a landing button shall bring the car to that landing unless the car is already in use.
- vi. Every precaution shall be taken to ensure quiet operation of lift doors and machinery. The installation of the lift machine and any motor generator set shall prevent most of the noise by providing rubber cushions.
- vii. The lifts in the scope of work, shall operate on simplex full collective with ON/OFF switch.
- viii. Electrical Wiring:

All electric supply lines and apparatus in connection with the lift installation shall be so constructed and shall be so installed, protected, worked and maintained that there may be no danger to persons there from.

All metal casing of metal coverings containing or protecting any electric supply or appurtenances shall be effectively earthed.

Suitable Caution Notice shall be affixed near every motor or other apparatus in which energy is used The copper armoured cables shall be fixed on wall / ceiling from Switchgear at Meter room through the lift well to switchgear at distribution position in Machine room.

- ix On carrying out complete wiring work, tenderer shall arrange to submit test report to Electric Supply authorities and get the meter connected and kept the lift ready for Testing and inspection of P.W.D. Inspector.

Please refer complete details of electrical wiring works in the respective specifications onwards.

7.2 PASSENGER LIFT

Lift Car:

Lift car shall be enclosed on all sides by means of the cage body, gates or doors and such enclosure shall be at least 2.1 meters in height.

The car interior (walls and roof) shall be made of stainless steel 304 grade and as per manufacturer's standard. Elegant & aesthetically appealing combination of honeycomb/moon rock/other etched finish or mirror finish panels shall be used for car interior. Hand rail shall be provided inside the lift car.

Car door from internal side may have mirror finish panel in combination with other selected panel finish. Suitably designed modern attractive false ceiling with appropriate nos. of energy efficient LED fittings covered with non-accessible glass to avoid contact / theft of LED lights, shall be provided. The lift car shall be fitted with at least one similar Emergency light

fitting complete with 1/2 no. of cabin type noiseless fan/s for adequate ventilation. Decision regarding approval of 'Total Car interior design' will be taken by concerned site- engineer in-charge. His decision shall be final and binding upon the lift manufacturer/ Authorized Dealer.

Minimum car area shall be specified in accordance with the requirements of the B & C Department of the Maharashtra State.

The car shall be provided with an emergency stopping device and an alarm signal, both operated by a push button switch, which shall be clearly marked. The alarm shall be clearly audible in the lift well and nearby passages, in order to obtain assistance in case of break down or failure between the floors.

The car may have stainless steel luminary flush panels and be provided with suitable/rounded corners. The material and/or finish of the car bodywork shall be durable to withstand frequent washing.

The amplitude of vibration in the car cage, shall not exceed 25 microns in running condition and 10 microns in standstill condition.

A solid roof capable of supporting 150 Kg. shall be provided. Roof of car shall be fabricated in painted/powder coated M.S. framework while false ceiling shall be made in relevant selected S.S. finish panel.

The car entrance shall be protected by a center opening sliding steel door or two speed telescopic S.S. door as the case may be. Gate/door shall be hung on a steel track by ball bearing hangers and guided on a finished heavy section grooved sill on the car platform.

The car gate/door shall be equipped with an electric motor /suitable mechanical device, which shall prevent the movement of the car unless the gate / door is properly closed.

The enclosure and door including their tracks shall withstand a thrust of 35 Kg. supplied normally at any point excepting vision panel without permanent deformation.

The car platform shall be constructed of structural steel shapes securely fastened together and designed on the basis of contact load evenly distributed. The minimum factor of safety shall be 5 for steel.

The car frame, which supports the car platform and enclosure, shall be made of structural steel and it shall be equipped with suitable guides and safety devices mounted under Neath the car platform. The flooring shall be covered with non-slippery/ anti-skid, 3mm thick metal sheets to match the car interior, in case of passenger lifts

The factor of safety of the component parts and their connections shall not be less than 5 based on the ultimate strength of the materials and the static load imposed on them.

Car operating panel (COP) shall also have 'key switch' to keep the car operation in 'ON' or 'OFF' mode, in addition to normal provision of 'Attendant Key switch' & other necessary buttons.

Display / position indicator inside the car, shall preferably be fitted above car doors or at suitable location which shall be easily viewable.

2A.2 Landing Entrances:

The entrance on the landings from the hoist way side shall be fitted with automatic, side/center opening two speed telescopic S.S. door and as per manufacturers standard with a clear opening as required at each landing complete with top and bottom tracks, etc.

All landing doors shall be made in Stainless Steel with Hairline Finish.

The landing entrances as well as the car-door, shall have peep window of fire proof toughened transparent glass or similar transparent material, of approximately 200 X 300 mm size, so that one can see inside the car from outside or vice-versa, for safety purpose OR To be provided if required as per PWD guidelines.

Every landing gate shall be fitted with electrical and mechanical interlocks, which shall comply with the appropriate requirements given below:-

- i) It shall not be possible to open the landing gate from the landing side until the lift car is within that particular landing zone. Provision shall be made for opening the gate in case of emergency by means of special key at terminal floors.
- ii) The lift cannot be started or kept in motion unless all the landing gates are closed and locked. The electrical and mechanical parts of all locking devices shall be of substantial design and construction. The removal of any inspection cover or covers shall not affect the operation of a device. All locking devices shall be fixed securely to the enclosure by suitable means.
- iii) Each landing gate should have both electrical & mechanical locking system. After closing the gate electrical contact should not be made unless and until the mechanical locking is done.

The locking device for landing gates shall be so designed that the lock contact shall not be closed until the gate is closed. Any springs used in the locking device shall be in Compression and properly supported. Contacts shall be solid type, pivoted or hinged and of sturdy construction.

- iv) The design shall be such that reasonable wear between working parts does not permit of interference with the operation of the lift by movement of the lock handles.
- v) The conduit / toughing carrying the conductors to the lock shall be securely fixed to the boxes and shall maintain electrical and mechanical continuity.
- vi) The levers operating the mechanical parts of the locking device shall be protected from interference from the landing side of the lift enclosure.
- vii) The provision to prevent the opening of any landing gate when the car is passing that zone in response to a call from another landing, shall be made for the lift.

2A.3 Electric Door Operator for Car Door and Hoist way Doors:

Contractor shall furnish and install Electric Door Operators for opening and closing the car door and the hoist way door. The equipment shall consist of a machine on the elevator car, operating the car door when the car is stopping at a landing. The car door and hoist way door shall be mechanically connected and shall move simultaneously in opening and closing.

The car door and the hoist way door shall be power opened and power closed and shall be checked in opening and closing with an oil cushioning mechanism built into the gear unit.

Each hoist way door shall be provided with an inter-lock, which shall prevent movement of the car away from the landing until the doors are locked in the closed position as per manufacturers standard and should meet relevant IS codes.

An electric contact for the car door shall be provided which shall prevent car movement away from landing unless the door is in the closed position as defined in the ISI Codes.

Necessary switches shall be provided in the elevator machine room to control the operation of the doors.

The car door and the hoist way door shall open automatically when the car stops at a landing. The closing of the car door and the hoist way door must occur before the car can be started. Doors can be stopped and reversed during their closing motion, as soon as infrared curtain beam provided on either side of door is cut/activated, the door shall automatically close after predetermined time interval.

Contractor shall furnish and install for the car and each landing sliding door, sheave type two point suspension hangers complete with tracks, Sheaves and rollers shall be of steel and shall include shielded ball bearing to retain grease lubrication. Adjustable ball bearings rollers shall be provided to take the upward thrust of the doors.

Tracks shall be of suitable steel section with smooth surface, landing gates/doors including hangers and tracks shall withstand a thrust of 35 Kgs. applied normally at any point except vision panel without causing any damages. S.S.304 grade panels used for car and landing doors shall be of 18 SWG.

7.3 Hoist Motor:

The Permanent magnet synchronous Gearless, Energy Efficient, electric hoist motor or as per manufacturer's standard to be installed in lift machine room, shall have bearing specially built for heavy duty hoisting service. The motor shall be conforming to relevant I.S. or International Standards and shall be able to withstand all the routine as well as type tests, as specified in I.S. or relevant International Standards.

It shall be also suitable for frequent reversals, high starting torque and low starting current with Class 'F' Insulation, Minimum of permissible, and operations per hour shall not be less than 120.

The motor shall be rated for 30 minutes continuous service with 115°C rise above ambient temperature. The motor noise shall not exceed 55 dB on No-Load. The motor vibration shall not exceed 0.45 m/sec on No-Load.

The motor shall be designed in such a way to withstand occasional over loading of one fourth of rated capacity.

The motor shall have a good speed regulation under different conditions of loads. The windings shall be robust in design and adequately insulated for tropical climates and mechanically strengthened with double varnishing.

The motor of lift machine shall be arranged so as to provide hand winding facilities, with suitable marking for up and down direction of travel of the lift cage.

Electric motor shall be of suitable duty, energy efficient and working on 3 ph. A.C. 50 c/s electric supply.

The motor shall be installed using heavy duty channel of suitable size & using anti vibration rubber pads to damp vibration. The thickness of the rubber pad should be minimum 25 mm. The noise level in the machine room shall not exceed 60 dB at one meter distance from Machine.

7.4 Controller:

The control panel shall have microprocessor based control with operational card file containing logic board with microprocessor chip and erasable programmable chips to monitor and take over the commands of elevator for flexibility of program, better leveling, reduced waiting time, shorter travel time and easy maintenance. This will also indicate detection of stuck hall button, over current protection, motor failure protection.

There will be a provision of segmented displays provided in the logic board, for quick identification of fault and restoration of normal operation. Control panel shall be of 14 SWG CRCA pretreated in the seven tank process & powder coated.

The control panel shall be compact, incorporate solid state, electronic circuitry for efficient & smooth operations to monitor traffic control. The material used shall be of best quality. The switches, contactors and relays shall be compact and robust in construction and smooth in operation. Controller shall have variable speed arrangement with leveling accuracy of ± 3.00 mm.

The controller shall protect lift motor, automatically apply the brake if any of the safety devices fails to operate including power supply failures at any time. In the event of an earth fault with any door open, the lift shall not work.

No operation of a spring or springs in tension or the completion of another electric circuit shall depend upon to break the circuit to stop the lift at terminal landings.

The interruption of the electrical circuit shall stop and/or shall prevent the movement of the car. Protection shall be provided in the controller to protect the lift equipment against phase reversal, low voltage, over voltage and phase failure. No control system shall be used, which depends on the completion or maintenance of an electrical circuit for the interruption of the power supply and application of the electric-mechanical brakes, when the lift cage reaches the terminal floors.

The controller shall be provided with proper ventilating arrangement so as to avoid overheating and hence malfunction/damage to the controller.

Enclosure shall be made of powder coated sheet steel with proper mounting arrangement. It should withstand vigorous atmospheric conditions.

Controller shall have provision of display to show the status of movement of lift car. Controller enclosure/body shall also have LED array lights with auto/manual switch, for maintenance in

bad light, such that it shall neither disturb door closure/opening nor create hindrance while maintenance. Controller shall be as per manufacturer's standard.

7.5 Brakes:

When metal to metal contacts are used on the controller switches, for opening the main circuits, or for stopping a lift machine, at least two independent direct current brakes shall be incorporated in the design, either one shall hold full load.

The direct current brake shall be spring applied, electrically released and designed to provide smooth stops under variable loads.

The brakes shall be unaffected by overloads or temperature and shall hold load securely and

Positively when lift stops. The brakes shall be highly wear resistant.

No single earth fault, short circuit or counter electromotive force shall prevent the brake from being applied during normal operation.

7.6 Governor:

Governor shall be placed where it cannot be struck by the lift car or counter – weight in the event of over-run. Governor for car safety gears shall be adjusted to actuate the safety gear at not less than 115 percent of rated speed and the maximum Governor tripping speed shall be not more than 140% of rated speed. No Governor shall be required to operate the safety gear at less than 45 mm. per minute.

Governor shall be marked with its tripping speed in terms of car speed in meters per minute and shall be provided with suitable casing.

The motor control and brake control circuits shall be opened before or at the time the Governor trips.

Governor ropes shall not be less than 8 mm.in dia. OR as per manufacturer's standard and shall be of traction steel and of suitable construction. The ropes shall run clear of the governor jaws during normal operation of the lift. Governor gears shall have self-lubricating bearings so as not to require frequent attention.

7.7 Emergency Safety Devices:

The lift shall be provided with one or more car safety devices, attached to the lift car frame and preferably placed beneath the car. The safety devices shall be capable of stopping and sustaining the lift car with rated load in the car.

The safety gears to be used shall be of the following types:

- a) Instantaneous type limited to speed not exceeding 60 Mtrs./min.
- b) Gradual wedge clamp (GWC) type with gradual increasing retarding force.
- c) Flexible guide clamp (FGC) type with constant retarding force.

The lift shall be equipped with an over speed governor device, which shall operate to apply the safety gear in the event of the speed of the lift car in the descending direction exceeding a predetermined limit.

The operation of the safety devices shall not cause the lift car platform to become out of level in excess of 3 cm. per meter measured in any direction.

When the safety gear comes into operation, it shall automatically open the operating circuit but it shall be possible for a responsible person to release the safety gear after a thorough inspection of the equipment and taking of any necessary precaution by reversing the direction of the motion of the machine.

The safety device shall be such that it can be released as soon as the lift car is raised.

The safety gear shall operate to stop and sustain the lift car in the event of failure of the suspension ropes or in the event of the lift exceeding a predetermined maximum speed in the descending direction.

Every safety gear shall operate positively and mechanically independent of any springs/used in its construction. Keys of good quality shall key any levers or dogs operated by shafts to such shafts.

The design of the safety gear shall provide for its application to both guides and to each side of such guides substantially equal. Any additional rope used solely for the purpose of operating the safety gear shall be laid over independent pulleys, running on independent shafts.

All bearings for drums and shafts in connection with the safety gears shall be of non-ferrous metals.

No safety gear shall depend on the completion or maintenance of an electric circuit for its operation. All safety gears shall be applied mechanically.

The gripping surfaces of the car or counter weight safety gears shall not be used to guide the lift cage or counter weight but shall run free of the guides during normal operation of the lift (A rail or ratchet shall not be held to constitute a sufficient safety for lift traveling in a vertical or substantially vertical direction).

7.8 Automatic Rescue Device (A.R.D.):

If the power fails during the normal operation of lift, ARD should immediately come in action and the lift must halt/stop/reach at nearby landing floor, smoothly with normal deceleration. The lift must reach to nearest landing floor within 60 seconds after main power failure. The automatic doors open up now for people to come out of car and the door must remain open till the main power supply comes. The lift must not operate in any manner till the main power supply is restored.

ARD should immediately come in action, even in case of occurrence of faults like phase reversal & phase imbalance, in addition to power failure.

The Automatic Rescue Device (ARD) shall be such that minimum three rescue operations should be performed. ARD shall have provision to visually indicate status of battery charge/potential etc.

At least emergency light and one fan, inside car cabin, shall remain 'ON' during ARD operation and ARD provision shall be as per manufacturer's standard.

7.8 Infrared Light Curtain

The lift doors shall be provided with a safety device in the form of infra-red light curtains. This shall prevent the lift doors from closing, in case of any obstruction. The Infrared Light Curtain should be as per manufacturer's standard. This infrared light curtain should have no effect of ambient light on its operation. Any faulty beam should be detected and fault indicators should turn on to inform the operator about the fault status.

This light curtain should be housed / embedded in a mechanical safety edge to give double protection on door detection. In case of failure of infrared light curtain, this conventional mechanical edge safety should extend protection to humans while entering the lift.

7.9 Indicators and Signaling System:

Signaling system shall be of all bell type and the lift should be provided with –

- a) Manual reset light annunciator mounted flush in the car and connected to one heavily insulated type of call buttons at all landings including all wiring, bell transformers etc. The car annunciator box shall contain a single/double row of light indicators numbered to correspond to the various landings.
- b) Luminous UP/DOWN indicators incorporated in push button face plates shall be provided at all landings.
- c) Illuminating type hall position indicator on all landing to indicate the position of the car on the hoist way.
- d) Illuminating type & audio announcement of car position indicator in the car.
- e) The signaling system shall work on main supply and during ARD operation as well. The wiring for the same shall be independent of the lift wiring.
- f) Display at all floors and in car shall be as per manufacturer's standard.
- g) Infrared safety throughout the door height is preferable.
- h) Automatic Rescue Device.
- i) Alarm bell shall be operated on D.C. battery.
- j) Firemen switch on ground floor as per fire protection rules.
- k) Over load indicator - The lift shall be equipped with a system of over passenger over load

Safety. In case the persons or load exceeds the rated capacity of elevator, it will not start at all.

The system shall be with audio and visual indication.

- l) Floor-Numbers on the Car Operating Panel & Landing Operating Panel, should also be

Present in "Braille" character/font of sufficiently large dimensions, suitable for blind people.

- m) Hot-line communication between lift car and control center shall be provided along with Necessary instruments, in case of lift breakdown.
- n) Chime / gong producing sufficiently loud audio signal along with visual light signal shall be provided at each landing when lift reaches any of the landing position, to indicate lift arrival at that landing.
- o.) The written visual indication of overload capacity at each landing in each car shall be displayed.

7.10 Ropes:

The hoist ropes shall be of traction steel of suitable size, construction and number to ensure proper and smoothest kind of hoisting service and satisfactory wearing qualities.

The ropes shall be non-spinning type having safety factor not less than twelve. The tension in a suspension rope shall be related to the operating conditions as a whole e.g. rope speed, ratio of diameter of pulley, sheave, type of rope groove and intensity of service as well as to its breaking load.

Every lift car or counterweight rope shall be in one length and free from joints. The car and counter weight ends of the suspension rope shall be fastened by spliced return loops, clipped returned loops or individual tapered Babbitt sockets. Loops shall not bear directly on their fixing, but shall be lined with proper thimble eyes or equal protection.

In all cases, the fastening shall be capable of sustaining a load not less than 80 percent of the ultimate strength of the undisturbed rope.

Means shall be provided to equalize the load on the individual suspension ropes. Tensioning devices for compensation ropes, governor ropes and the like shall be protected against damaged due to falling objects. The minimum diameter of ropes for car and counterweight shall be not less than 8 mm. A substantial handhold shall be provided at a convenient height surrounding the guard but clear of the ropes. Suitable degreasing arrangement shall be provided in the machine room.

The suspension ropes shall conform to I.S. 2365/1977/ I.S. 2366/2002 / I.S. 14665:1999-2000 Part-I to Part-5.

Alternative STM (suspension traction media) than specified conventional ropes, if approved by PWD/Lift Inspectorate, shall be accepted.

7.11 Counter Weight:

Frame type counter weights made of cast iron shall be employed. The sections being secured by rods passing through holes in all sections, having locknuts at each end, further secured by solid pins. Factor of safety of the threaded portion of the rods shall be not less than ten.

The traction shall be such that no appreciable slip shall occur under normal conditions but that slip shall be free to take place upto the landing of either the car or the counter weight.

The guide shoes of counterweight shall be fixed and adjusted so that play in the direction of the width of the counterweight does not exceed five mm.

Adjustable guide shoes on counterweight shall be so designed that their correct adjustment shall be maintained independent of the tightness of bolts or set screws through slotted holes. Rod type counterweight shall be slotted for use with the steel guides in which case separate guide shoes need not be fitted.

The counterweight shall be equal to the weight of the complete car and approximately 40% of the contact load. The operation shall be smooth and economical.

A substantial metal counterweight guard with steel frame work of required length shall be provided at the bottom of hoist way.

Alternative arrangement for holding the counterweights in steel frame, if any, as approved by PWD/Lift Inspectorate, shall be accepted.

7.12 Guides:

Car guides and counterweight guides shall be as per manufacturers standard, guides shall be continuous throughout the entire length and shall be provided with adequate iron or steel brackets or equivalent fixing.

It will be designed and spaced in such way that the guides shall not be deflected more than 5mm under normal operation. Guide brackets and shims, if any, shall be of steel and shall not be directly supported and fastened to the lift well enclosure walls unless such wall is of such construction and strengthened as to adequately withstand the thrust imposed on the guides under all conditions of the lift service.

The fastenings shall be built in the walls by means of bond blocks or expansion bolts or through bolts with metal plates of such thickness and size as to adequately distribute the load on the wall.

Guides shall be arranged to withstand the action of the safety gear when stopping a counter weight or fully loaded car. Guides shall be of such length that it shall not be possible for any of the car or counterweight shoes to run off the guides.

Regular greasing and lubrication is to be done as required. Oil shall be distributed evenly to the guide rails and the rate of feed shall be adjustable.

7.13 Buffers:

Spring type buffers shall be fitted below the lift cage. Buffers shall be placed symmetrically with respect to the center of gravity of the lift cage within a tolerance of 5 cm. and shall be so arranged that the lift cage in ordinary circumstances of the operation, cannot strike them.

Counter weight shall be fitted with buffers, similar to those specified for lift cage and arranged symmetrically below the weight.

Buffers in the pit shall be mounted on the steel channel/concrete blocks, which extend between both car and counter weight guide rails provided by the contractor.

7.14 Limit Switches:

Lift shall be provided with upper and lower normal terminal limit switches to stop the car automatically within the limit of top of car clearance and bottom run (by over travel) from any

speed attained in normal operation. Such limit switches shall not be independent of the operating device, ultimate or final limit switches and the buffers.

Normal terminal limit switches shall be fitted in the lift car or in the lift well or in the motor room and such switches shall be brought into operation by the movement of the lift car. The switch and the spring buffers shall be so arranged that the switch shall open before the buffers and engaged.

Ultimate or final limit switches shall not be mounted on the lift cage and shall be operated by the movement of the lift car in the lift well within the limits of normal travel.

Ultimate or final limit switches shall not control the same switches on the controller as those are controlled by the terminal limit switches unless two or more separate and independent switches are provided, two of which shall be closed to complete the motor and brake circuit in each direction of travel, when the ultimate or final limit switches control the same switch or switches on the controller as the operating device or the terminal limit switches, they shall be connected in the control circuit on the opposite side of the line.

Ultimate limit switches designed to open the main circuit of the motor may control the same switch or switches on the controller as those controlled by the terminal limit switches but when such ultimate limit switches are employed on direct current power supplies they shall be provided with additional contacts to control the brake circuits.

All ultimate or final limit switches shall be of enclosed type and shall be mounted properly. The movement of the lift car shall open the contact of all such switches positively and mechanically.

7.15 Connectivity to Building Management Services

The Contractor shall provide potential-free connectivity and communication ports for all elevators to Building Management System.

7.16 Data Storage and Retrieval

Data Storage and Retrieval shall be as per manufacturers standard Data from daily operations shall be stored in the control system and shall be retrievable. Data shall include all particulars of calls, mode of operation, door open/close, acceleration / deceleration, stops, status etc. The contractor shall specify in his offer the full capability of his system in this regard. It should be possible from such retrieved data to prepare an up-dated traffic analysis at any time

7.17 Fire Alarm Home Landing (Through BMS)

The contractor shall provide only potential free contacts and communication ports for fire alarm home landing through BMS.

7.18 Door Failure Operation

When an obstruction prevents a door from opening, the controller shall attempt its removal by repeated opening and closing, failing which the car shall travel to the next floor.

7.19 Nudging Door Operation

When the doors remain open for more than a predetermined period, a buzzer shall sound and the door shall close automatically.. The door sensing device shall be rendered inoperative but the Door Open button and the safety shoe shall remain operative.

7.20 Self - Diagnostic Facility

The Controller shall perform self - diagnostic tests and report the health of the system. The system shall take care of minor faults like door operation and motor overheating. A universal service tool shall be provided in each machine room to assist technicians in quick pin-pointing of mal-function.

7.21 Electrical Work:-

The electrical work shall be carried out as per manufacturer's standard. 2A 24 - The electrical work comprises of following works.

One 5A-5 pin socket with switch and one light point with switch & CFL shall be provided in lift pit and at each landing in lift shaft complete with wiring in approved manner.

A set complete with one 23/28 W CFL with protective grill with 3 meter long PVC 3 core flexible cord terminated in 3 pin Plug shall be supplied for each lift, for maintenance staff.

All the lights and outlet points shall be connected to a separate circuit independent of lift mains and control wiring.

Lift contractor shall carry out the necessary wiring in the conduit / troughing / cabling/casing N capping from the lighting D.B. in lift machine room.

7.21.1 Switch gears at Service & distribution position

- (a) 63 Amp 440 V TPN switch fuse unit (one at service and one in Machine room) – 2Nos. for each lift.
- (b) 32 Amp, 250 V, MCB (one at service and one in each Machine room for proposed lift at distribution position). – 2 Nos. for each lift.
- (c) 32 Amp DP MCB and 3 way 6 Amp SP MCB per way = 1 No each at distribution position in Machine room lighting for each lift – 1 No. for each lift

7.21.2 E.L.C.Bs.

- (a) 32/40 Amp 2 Pole E.L.C.B. Type B and complete with interconnection and wiring, M.S. enclosure = 1 No. for each lift.

63 Amp & 4 Pole E.L.C.B. Type B and complete with interconnection and wiring, M.S. enclosure = 1 No. for each lift.

7.22 M.S. Angle / Flat bar frame work

Switchgear at service (in Meter room) and at distribution position (in Machine room) shall be fixed by using

40 x 40 x 5 mm of M.S. Angle Flat bar: 40 mm x 5 mm thick. 2A.25.4 - Cable

The contractor shall provide Power supply cable and lighting cable from service point to machine room for the lift, through lift shaft, lift shaft wiring and machine room wiring with switchgears, fittings and fixtures. The copper armoured cables shall be fixed on wall / ceiling from Switchgear at Meter room through the lift well to switchgear at distribution position in Machine room of followings: –

- a) Power Cable – As per manufacturers standard
- b) Lighting Cable – 2 C x 2.5 sq.mm. Copper

7.23 Cable end terminations

Providing cable end terminations at incoming and outgoing end of copper armoured power and lighting cables-

Power Cable – As per manufacturer's standard.

2 Core x 2.5 sq.mm.2A.25.6 - Point Wiring

- a) Providing lighting wiring using copper cable of 2 core x 2.5 Sq.mm 1100 V grade with proper saddle support at 1 feet along the run of cable in lift pit and lift well for inspection and maintenance purpose. One ordinary lamp point and plug point of 5/6 Amp with S.P.Switch at lift pit and lift shaft top and midway shall be provided as per requirement.
- b) Point wiring in Casing-N-Caping with 1.5 Sq. mm copper conductor, 1100 V grade shall be provided in lift each Machine room for 1 no. of exhaust fan, the exhaust fans shall be enclosed in safety covers/wire mesh.

7.24 Fittings & Fixtures

Following fittings and fixtures shall be provided: –

- i) Ordinary lamp points at each floor in lift well and in lift pit with 18/23/28 Watt CFL as per point wiring provided at lift well, for every lift well.
- ii) One no. of bulkhead fitting outside every lift Machine room with point wiring.
- iii) One no. of Exhaust fan 380 mm sweep, 900 RPM, Single ph., 2350 CFM shall be provided for each lift Machine room as per point wiring in each lift Machine room.

7.25 Meter Leads

Providing 3 single core cu wires of 25 Sq.mm. sizes for phases and 1 single core wire of 10 Sq.mm for Neutral for 63 Amp MCCB switch & 6 sq. mm cu wire for 32 A MCB, lead through PVC flexible pipe with proper fixing arrangement.

7.26 Earthing

- a) The terminal for the earthing of the frame of the motor, the winding machine, the frame of the control panel, the cases and covers of the tappet switch and similar electric appliances, which normally carry the main voltage shall be as per IS 732-1958 Indian Electricity Rules 1956 & Electric Supply Co.'s Regulations as applicable.

The terminal for the earthing of metallic cases and covers of doors, interlocks, call and control switches, stop buttons, car switches, limit switches, junction boxes and similar electrical

fittings which normally carry only the control current shall be at least equivalent to 5mm brass screw, such terminal being one specially provided for this purpose and the earth conductor shall be at least equivalent to 7/29 in copper conductor.

The Earthing conductor shall be secured to the Earthing terminal in accordance with the recommendations made in clause 7 of IS - 732 and also in conformity with Indian Electricity Rules 1956 as applicable.

The exposed metal parts of electrical apparatus installed in a lift car shall be earthed through wire ropes or ramp supporting in car, but shall not be earthed by means of an earthing conductor in the trailing flexible

7.27 Testing:

Various tests and thorough inspection shall be carried out during manufacturing of the lift components to ensure that they comply with the standard practice. The following tests shall be carried out after lift installation and before it is put into normal service.

The lift manufacturer shall provide the necessary test weights and instruments without any extra cost

Tests to determine that earthing of all the conduit switch casings and similar metal work is continuous.

Tests to determine that the motor (including no load test), brake, control equipment and door locking devices function correctly.

Tests to determine that the lift car shall raise and lower at rated load. Test to determine that the lift car shall attain rated speed.

Tests to determine that the safety gear shall stop the lift car with rated load.

The run way test shall be carried out with all electrical apparatus operative except for the over speed contact or cut out on the governor. For the lifts operating directly from alternating current, the governor shall be tripped by hand at the maximum speed obtainable.

Testing the ARD device operation on power failure & overload audio-visual warning indicator.

7.28 STEEL MATERIALS

This specification comprises of supply, installation, testing and commissioning of steel material / structure / items required to provide for the lift, like sill support angles, fascia plates, hitch plates, steel ladder in the lift pit, M.S. trap door cover with frame, supporting beams in the lift machine room, R.S. Joist / beam / channel, M.S. chequered plate platform and other allied work in the lift shaft and lift pit.

The structural steel framework in the lift shaft for supporting the lift machine shall be provided as per manufacturer's design and suggestions.

If necessary, M.S. Grill partition for lift machinery for safety purpose shall be provided.

Complete M.S. structure shall be tested for its mechanical stability.

The cost of all steel material required for lift installation shall be inclusive in the offer.

7.29 ARCHITRAVES / FACIAS ON EACH LANDING

Each landing shall be covered with architraves / fascias to have aesthetically good appearance. Architraves / fascias shall be provided in such manner that lift car gate clearance may not reduce and no disturbance will be caused for opening of car gate The work shall be carried out as per SOR Activity R2-CS-FL-28-L

Technical Details of Passenger Gearless lift for Service Building at KEM Hospital (Gr.+ 16 floors)

I - Brief Description :-SITC OF Passenger Lift for 17 Stops 8 Passenger / 544Kg shaft size 1900 mm X 1900 mm as specified in PWD USOR

S NO	DESCREPTION	PARTICULARS
1	Approved Make	M/s. Jhonson lifts Pvt. Ltd., M/s. Otis, M/s.Kone, M/s. Escon, M/s. Eros, M/s. Schindler, M/s. Thyssen Krupp, M/s. Eskay, M/s. Trio , M/s. Omega
2	Type	Passenger Lift, gearless machine
3	Usage	General public use
4	Type of drive	AC VVVF Drive
5	Load Capacity	544 Kg
6	Passanger Capacity	8 Persons
7	Control System	Simplex full collective with attendant
8	Max. No. of stops	17
9	Travel	Ground + 16 floors
10	Max Rise	61.2 Mtr
11	Car Speed	1.0 mps
12	Power Supply	3 Ph 440 V for Elevator operation and 1 Ph 230 V for Lighting Load
13	Entrance	Front only (Standard)
14	Door	Doors with frame having clear opening of 800mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames
15	Lift Car Details	Stainless Steel (304 Grade sheet of 1.5 mm thick) body with hair line finish with fire resistance capacity as per applicable Indian / International standards.

16	Landing Gate Details	Lift car enclosure made from SS 304 grade sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc.
17	Lift Pit Depth	2.1 mtr
18	lift Shaft / Well Size	1900 x 1900 mm
19	Roping	02:01
20	CCTV surveillance system	It comprises of minimum 2.0 MP full High Definition (FHD), Internet Protocall (IP) based vandal proof Dome camera in lift car / inside lift shaft top aimed on Lift machinery. A video cable to be provided to connect CCTV Cameras.
21	Annuciator	To be provided as per manufacturer's / applicable standards
22	Protection during Power failure	To be provided as per manufacturer's / applicable standards
23	Protection against Overload	The Lift shall not move if the car is overloaded. Necessary arrangements should have been provided in the control system.

I - Brief Descreption :-SITC OF Passenger Lift for 17 Stops 16 Passenger / 1088 Kg shaft size 2000 mm X 3000 mm as specified in PWD USOR

S NO	DESCREPTION	PARTICULARS
1	Approved Make	M/s. Jhonson lifts Pvt. Ltd., M/s. Otis, M/s.Kone, M/s. Escon, M/s. Eros, M/s. Schindler, M/s. Thyssen Krupp, M/s. Eskay, M/s. Trio , M/s. Omega
2	Type	Passenger Lift, gearless machine
3	Usage	General public use
4	Type of drive	AC VVVF Drive
5	Load Capacity	1088 Kg

6	Passanger Capacity	16 Persons
7	Control System	Simplex full collective with attendant
8	Max. No. of stops	17
9	Travel	Ground + 16 floors
10	Max Rise	61.2 Mtr
11	Car Speed	1.0 mps
12	Power Supply	3 Ph 440 V for Elevator operation and 1 Ph 230 V for Lighting Load
13	Entrance	Front only (Standard)
14	Door	Doors with frame having clear opening of 900mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames
15	Lift Car Details	Stainless Steel (304 Grade sheet of 1.5 mm thick) body with hair line finish with fire resistance capacity as per applicable Indian / International standards.
16	Landing Gate Details	Lift car enclosure made from SS 304 grade sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc.
17	Lift Pit Depth	2.1 mtr
18	lift Shaft / Well Size	2000 x 3000 mm
19	Roping	02:01
20	CCTV surveillance system	It comprises of minimum 2.0 MP full High Definition (FHD), Internet Protocall (IP) based vandal proof Dome camera in lift car / inside lift shaft top aimed on Lift machinery. A video cable to be provided to connect CCTV Cameras.
21	Annuciator	To be provided as per manufacturer's / applicable standards
22	Protection during Power failure	To be provided as per manufacturer's / applicable standards

23	Protection Overload	against	The Lift shall not move if the car is overloaded. Necessary arrangements should have been provided in the control system.
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8. ASSOCIATED CIVIL WORKS

The scope of civil work consists of following works:-

i) Brick masonry wall works for & around landing doors if necessary, chipping of walls, door openings, and fascia plates architraves, making holes in the walls / slab. Minor civil work in lift pit & shaft, complete with final finishing plaster, white wash, civil work in lift pit along with white glazed tiles on the wall and flooring, grouting etc. Making lift openings as per required size for landing doors.

ii) Tenderer shall examine the maximum bending moment of the beam & structural stability of lift

Shaft / structure, Lift machine platform etc. and suggest the strengthening if required with detailed working.

iii) A Firm, stable and sturdy scaffolding shall be erected in the hoist way for carrying out the lift work.

iv) Barriers should be provided across all open entrances to avoid chance of accident.

Minor civil work which is not included in the specifications but required for commencement of lift in all respect, should be carried out by the Tenderer without any additional financial implications.

NOTE:-

The details given above are tentative, bidder are requested to visit the site and collect actual details and quote as per actual requirement at site and also submit heat load calculation along with the tender.

9.0 TECHNICAL SPECIFICATIONS FOR SITC OF LIFTS APPLICABLE STANDARDS

Unless otherwise specified elsewhere in this specification, the rating Performance and testing of equipment and accessories shall conform to the latest revisions of standards listed below. Bidder can obtain copies of Indian Standards Specifications from Bureau of Indian Standards, Manek Bhavan, Bahadur Shah Zafar Marg, New Delhi-110002 on payment of applicable charges.

Standard	Title
IS:962:1989	Code of Practice for architectural and building drawings (second revision)

IS:4591:1968	Code of escalators. Practice for installation and maintenance
IS:14665	Specification for electric traction lifts.
(Part 1):2000	Guidelines for out line dimensions of passenger, goods, service a hospital lifts.
(Part 2 / sec 1 & 2) : 2000	Code of Practice for installation, Operation and maintenance, section 1 passenger and goods lift, section 2 service lifts.
(part 3 / sec 1 & 2):2000	Safety roles, Section 1 passenger and goods lift, section 2 service lifts.
(part 4 / sec 1 & 9):2001	Components, Section 1 Lift buffers, Section 2 Lift guide rails and guide shoes, Section 3 Lift car frame, car, counterweight and suspension, Section 4 Lift safety rears and governors, Section 5 Lift retiring cam, Section 6 Lift doors and locking devices and contacts, Section 7 Lift machines and brakes, Section 8 Lift wire ropes, Section 9 Controller and operating devices.
(part 5):1999	Inspection Manual.
IS: 325	3 Phase Induction motor.
IS: 4064 (Part – II) 1978	Specific requirements for the direct switching of individual motors
IS: 4047	Switch fuse unit
IS: 9224 (Part-II)- 1979	HRC cartridge fuse links up to 650 volts.
IS: 1255	Cable laying
IS: 694 – 1977	PVC insulated electric cables for working voltage up to and including 1100 volts.
IS: 3043	Earthing
IS: 900	Installation of Motors & Starters
IS: 1231	Motor frame size
IS: 4064	Switches
Electricity Act 1910	Indian Electricity Rules
IS: 732(Part III) – 1982	Code of practice for Electrical Wiring installations

Rule 41, 51, 54 & 61	Local fire insurance association code for insurance.
IS 2365/1977/	Suspension Rope.

10. SPECIFICATIONS FOR COMPREHENSIVE ANNUAL SERVICING & MAINTENANCE CONTRACT FOR LIFTS AFTER COMPLETION OF 1 YEAR FREE GUARANTEE PERIOD

PREAMBLE:

It will be sole responsibility of the contractor to keep the Lift in safe working condition at all the time as per relevant Standards, Rules and Regulations in force. The contractor should be holder of License from the Lift inspector and permission from the appropriate authorities to service and maintain adequate number of lifts.

The contractor shall use the services of trained, appropriately skilled personnel who shall be directly employed and appointed by the contractors. They shall be qualified and experienced to keep the entire Lift and its equipment's in proper working condition. They will also take all reasonable care to maintain the equipment's properly adjusted and they will take all reasonable care to maintain the Lifts in efficient, reliable, neat, tidy and safe operational condition so as to meet all the P.W.D.'s / Lift Inspectors requirements.

The contractors shall give service and maintenance program every month in advance. The contractor shall direct their said personnel as per scheduled program given and approved by user department to the above said Lifts once in a month during working hours to examine, lubricate and adjust the equipment's of the Lifts in presence of either Municipal Engineer or concerned person of user department. They shall obtain from them, signature on the servicing/maintenance documents with Names, Designation etc. On the letter head of the contractors for each monthly servicing repair and maintenance and produce the same in every quarter along with bills.

The contractor shall check, adjust, clean and lubricate all the items mentioned below and enter into logbook duly signed, at least once a month.

- Abrasion in main Driver sheaves.
 - Wear and Tear in Main Ropes.
 - Break setting and leveling.
 - Normal operations of all gates.
 - Gate Lock inter- locking of all gates.
 - Guide shoes, gate lock ram checking.
 - Three phase safety tipping
 - Over speed governor checking Buttons, Signal checking of all floors.
- Condition of cable wiring etc.

- All contacts, circuits, relay should be checked for physical condition and their settings.
Condition of motor, driver and all major equipment with proper oiling and greasing of the same.
- Machine, thrust bearings, bushings worm shaft and wheel.
- Lift motor, motor generator, motor windings, rotating element, commutator and bearings. Controller, P.C.B. Drives, transducer, resistors, condenser, power amplifier, transformers,
- Coils, contacts, leads, tinning device, dash pots etc.
- Governor, Governor Sheave, shaft assembly, bearings, contacts and Governor jaw.
- Car and all landing gates, hoist way door, inter locks, door hangers, door contacts, and autoDoors safety shoes, deflector or secondary shoes.
- Guide rails, car & counter-weight and their guide shoes, buffer springs. Break safety system, break contact lining and components.
- Clean the lift well properly.
- Clean the cabin cage from inside and outside, the fan, the Lift pit etc. properly.
- Car and hall buttons, position indicators, hall lanterns, direction indicators, landing signals fixtures, top and bottom safety switches etc.
- Examine the ropes and their attachments, safety devices, door locks, worms and gears, all moving parts etc. and functioning of over load indication devices.

If the Lift motor is found burnt during normal use, the same shall be replaced / repaired immediately at the cost of contractor. The contractor shall replace all the spare parts free of cost immediately for normal wear and tear whenever necessary. The yearly cost of the service and maintenance shall be inclusive of the above. In case the above becomes necessary due to reasons beyond the control of the contractors, Rewinding / Replacement charges will be borne by M.C.G.M. in which case the decision of Ch. Engineer (M&E) shall be final.

The contractor shall arrange to direct the maintenance personnel to attend the Lifts immediately after receipt of break down call from the Municipal Engineer or authorized representative of the user department. The contractors shall give priority in their service, repair and manufacturing facilities to restore the equipment's to normal service. In no case, the breakdown shall be kept unattended for more than two hours.

The contractors shall attend to any number of breakdown calls between 6.00 A.M. to 10.00

P.M. on all days including Sundays and Holidays and in case of Emergency during night hours under unavoidable circumstance.

The contractor shall arrange to repair the Lift installation expeditiously without causing any inconvenience to the user department, failing which the repairs shall be got done

at risk and cost of the contractors. However, in case of any major breakdown the contractor shall consult the Engineer concerned to carry out the repairs, which shall be completed within a day.

P.V.C. flooring shall be replaced once in two years. The selection of the Lifts for above works will be made by M.C.G.M. authorities.

The contractors shall inspect the Lift with Engineer concerned along with the Inspector of Lifts of P.W.D. and see that license is renewed with all compliance of P.W.D. requirement whenever called for.

The contractors shall have to carry out the work of repairs, maintenance and replacement of parts in good workmanship manner as per standard practice & Rules & Regulations of Lift Rules enforce.

The contractor shall maintain record of all the repair, servicing and maintenance works carried out and shall submit the necessary log- cards duly signed and stamped by Municipal Engineer or authorized person of user department to the office of Executive Engineer Mechanical (Electrical Installation) Maintenance at Municipal workshop at the end of each quarter.

The contractor will furnish the program of servicing and maintenance of Lifts for the whole year with date and timing etc. immediately on receipt of work order to the user department with a copy to Executive Engineer Mechanical (Electrical Installation) Maintenance at Municipal workshop within a week. Any changes in the above scheduled program shall be informed in Advance.

The contractors shall have to carry out any other work which is not included in the above terms and conditions under the instructions from Municipal Engineer of Executive Engineer Mechanical (Electrical Installation) Maintenance at Municipal workshop / Office with due approval of rates etc. for the satisfactory working of Lifts.

Before quoting the rates the Tenderer shall inspect the Lift installations. No extra claim whatsoever will be entertained later on during the contract period.

The contractor will replace all the parts (including indication lamps switches wire, cables, emergency lights batteries etc.) whenever found necessary due to normal wear and tear at their cost. Further, though the costs of replacement of the following items are not charged extra as the replacement of the same is covered under comprehensive maintenance contract for the normal working of Lifts with usual wear and tear, the contractor shall specifically quote the rates for the following which may become necessary in unusual circumstances:-

- Replacement of Ropes
- Repairs to collapsible gates of car and landings.
- Car enclosure (removable panels) door panels, hung ceiling, light diffuser, handrails, frames, sills etc.
- Automatic Rescue Device.
- Audio Video overload warning indicator.

- Infrared Light Curtain.
- Repairs to cabin fans.
- Rewinding of motors.
- Any other items.

The above rates will be applicable when repairs and replacement becomes necessary due to accidents, leakage / seepage of water or such reasons which are beyond the control of contractor. The Engineer of contract will decide the responsibility in such cases whose decision will be final.

The complete safety of human Life and the machinery and other parts of the lifts while carrying out the service and maintenance of the Lift will be the responsibility of the contractor. Any damages caused to the municipal property will be recovered from the bills.

The contract is terminable by either party, giving one calendar months' Notice in writing to his intention to discontinue it.

In case of disputes Municipal Commissioner's decision will be final and binding to both parties.

The Tenderer/ Quotation shall specifically state there past experience in maintaining such lifts and also furnish the detailed List of Lifts maintained by them.

Attend the complaints free of cost whenever called by Corporation.

Whenever found necessary, the Contractor shall replace the spares and other parts of all the equipment's integrated to the lift operation, safety and statutory requirement free of cost.

The contractor shall check the performance of the lift after servicing by noting various operating parameters such as temperature control, load, setting etc.

The contractor shall invariably clean the premises of lift car top, lift pit and lift shaft, after carrying out the servicing work.

The contractor shall submit a preventive maintenance schedule for each lift and get it approved from the user dept.

The contractor shall submit the copies of service reports (duly signed by the user dept.) to

E.E. Mech. (E.I.) Maint. Every month.

The contractor shall have setup to receive & attend the complaints 24 hours a day. The break-down complaint shall be attended within 2 hours from intimation.

The contractor / firm has to arrange a technically qualified liasioning officer in respect of day to day servicing and maintenance of lifts, who will keep regular contact with central office of Ex. Engr. Mech.(EI) Maint. And attend to the defects informed to him immediately. He shall give feedback to MCGM after complying with the rectification / repairs.

The contractor shall arrange for annual inspection of lifts by the lift inspector, PWD Govt. Of Maharashtra during guarantee period and CSMC period. The inspection charges for the same shall be borne by contractors.

11. PENALTY TERM

Every breakdown or preventive maintenance call shall be backed by inspection report by the contractor.

Failure to attend the call shall attract penalty of Rs. 500/- for 1st incidence, which shall be doubled for subsequent failure. The maximum penalty shall be Rs. 2000/-

Due to non-availability of spares if the plants remain unrepaired for more than a week,prorate service charges for the month shall be deducted from the quarterly bill.

12. TERMS OF PAYMENT FOR ANUAL SERVICE MAINTENANCE CONTRACT

Service during the quarter period shall be billed by the contractor at the end of quarter and on receipt of bill will be paid within thirty days as per M.C.G.M. procedure.

This contract is terminable by MCGM if the services rendered are unsatisfactory.

In case of dispute the Municipal Commissioner's decision will be final and binding on both the parties.

VARIOUS SCHEDULES

SCHEDULE – I	Tender Drawing & Publications
SCHEDULE – II	Deviation from Specifications
SCHEDULE – III	Details of SITC of Lift Work carriedout
SCHEDULE – IV	Details of Key persons: SITC of Lifts.
SCHEDULE – V	Technical Data sheet for Lift.

SCHEDULE – I

TENDER DRAWINGS AND PUBLICATIONS

The Tenderer shall furnish a list of drawings, publications, copies of type test certificate and other literature illustrating the equipment's offered in his tender. The copy of each item listed shall be uploaded with the tender.

Title	Reference

Seal & Signature of Tenderer with Date

SCHEDULE – II

DEVIATION FROM SPECIFICATIONS

The Tenderer shall state briefly any deviation contained in his main offer from the specification.

If the deviations are listed in a covering letter then reference of the letter shall be made below.

Item or Clause	Deviation	Covering letter page

Seal & Signature of Tenderer with Date

SCHEDULE – III

DETAILS OF WORK CARRIED OUT: SITC of Lifts.

The Tenderer shall furnish hereunder details of work of similar type and magnitude carried out by them in the last seven years and in progress

	Brief Description of Work	Name & Address of the Client	Value of Work	In the year

Seal & Signature of Tenderer with Date

SCHEDULE – IV

DETAILS OF KEY PERSONNEL (PROPOSED FOR THE SITC of Lifts Work) TO BE FILLED IN SEPARATELY FOR EACH PERSONNEL

	Name	
	Designation	
	Qualification	
	Year of experience in similar type of work	

Seal & Signature of Tenderer with Date

SCHEDULE V

TECHNICAL DATA SHEET FOR SITC of 8 Passenger Lift-I.

Sub: Supply, Installation, Testing, and Commissioning of lifts.	
Items	Passenger Lift with gear less machine, capacity- 884 Kg. Gr+16 Floors,1.0 mps speed.
Type and Make of Lift	
Capacity of Lift	
Lift Speed (MPS)	
Type of drive for Lift	
Hoist Motor Details	
Type and Make	
HP, RPM and operating	
Voltage	
Insulation class	
Duty (Starts per hour)	

	Lift car size	
	Car Gate Opening	
	Landing Gate Opening	
	Method of Operation	
	Ropes :	
	Main suspension Ropes	
	Size	
	Construction	
	No. of ropes	
	Roping	
	Factor of safety	
	Ropes for Governor	
	Size	

	Construction	
	No. ropes	
	CCTV Cable	

Seal & Signature of Tenderer with Date.

SCHEDULE- VI

TECHNICAL DATA SHEET FOR SITC of 16 Passenger Lift-II.

Sub: Supply, Installation, Testing, and Commissioning of lifts.		
Items	Passenger cum stretcher Lift with gear less machine,1088 Kg. Gr+16 Floors,1.0 mps speed.	
Type and Make of Lift		
Capacity of Lift		
Lift Speed (MPS)		
Type of drive for Lift		
Hoist Motor Details		
Type and Make		
HP, RPM and operating		
Voltage		

	Insulation class	
	Duty (Starts per hour)	
	Lift car size	
	Car Gate Opening	
	Landing Gate Opening	
	Method of Operation	
	Ropes :	
	Main suspension Ropes	
	Size	
	Construction	
	No. of ropes	
	Roping	

	Factor of safety	
	Ropes Governor for	
	Size	
	Construction	
	No. ropes	
	CCTV Cable	