TICEL BIO PARK LTD

COMPETITIVE TECHNO COMMERCIAL TENDER

DESIGN, ENGINEERING, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF LIFT & ALLIED WORKS IN CONSTRUCTION OF TICEL BIO PARK-III

AT SF No. 66, 67, 68 & 75, Off Maruthamalai Road, Somayampalayam Village, Bharathiyar University P.O, Coimbatore - 641 046.
(G +13 UPPER FLOORS)

TECHNICAL SPECIFICATION

VOLUME - III

DUE DATE FOR SUBMISSION: ON OR BEFORE 03.04.2019 BY 3.00 PM

TO BE SUBMITTED TO: THE MANAGING DIRECTOR
M/s TICEL BIO PARK LTD
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ENGINEERING CONSULTANTS: M/s TAAMAESEK ENGINEERING CONSORTIUM
Architects & Engineers
No 5.1ST Floor, Bishop wallers Avenue West,
Off TTK Salai, Mylapore,
Chennai- 600 004
TEL : +91 44 2461 3006 / 24618050,
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TENDER SUBMITTED BY: M/s_____

Address_____

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2019

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SECTION - I: SCOPE OF WORK

1.The scope of Bid is to cover design, Engineering, manufacture, supply, install, test, commission, obtain all necessary statutory approval and maintenance of Lifts for the Period of 5 years (Including DLP) in the Building complex as per the Bid documents and Bid drawings.

The detailed scope of work under this contract to the building with No of stops as detailed in Bill of Quantities / Schedule of Items.

a. Design, Manufacture, supply, installation, testing, commissioning of lifts, handing over and free maintenance for a period of **Twelve months(DLP)**from the date of handing over.

b. All minor civil works such as pocket cutting, grouting of bolts, and making good the Surface in the lift shaft, head room and landing, fixing of sills, which are required for installing the lifts are the scope of this tenderer and rate maybe quoted inclusive of this.

c. Scaffolding and temporary lighting in the shaft as required for completion of work is the scope of this tenderer and rate maybe quoted inclusive of this.

d. Co-ordination with all the contractors like civil vendor / electrical vendor / BMS vendor / Granite and interior vendor etc. at appropriate stages in the project work is the scope of this tenderer.

e. Liaison with the concerned department/ other statutory authorities and obtaining the permission from Electricity Board/CEIG / Lift inspectorate (other statutory authorities from start to completion of work including obtaining completion certificate and any payment towards incidental expenses is the scope of this tenderer.

f. Obtaining all approvals from the authorities for installation and final commissioning. Prescribed fees if any, alone will be paid by TICEL Bio Park Ltd.

g. Clearing all the debris arising out of Contractor’s work during/ after installation.

h. Supply and fixing of structural steel work required for the installation of lift in the shafts is the scope of this tenderer.

i. Handing-over the entire system to the Owner in satisfactory working condition.

j. Providing adequate training for the lift operators to be employed by the Owner.

All Electrical works for Providing Power Supply to the lift from the outgoing control gear in the Lift Switch Board erected by the Electrical contractor is in the scope of Lift Contractor.

2. During the Defect Liability period of one year after successful commissioning of Lifts and taking over them by the Owner / Architect the Tenderer shall carry out comprehensive maintenance of Lifts at free of cost. After this Defect Liability period, the Owner will reserve the right to enter into Annual Maintenance Contract as described in the Bid document.

Material Sourcing

The makes of materials mentioned in the Bid document are indicative only and are, by and large, of Indian Origin. Any other equivalent product of International Repute will be acceptable

subject to the products satisfying the specified Technical and Operational parameters and subject to prior approval of the Owner /Architect.

3. The equipment supplied and erected shall be in accordance to updated version of IS-14665 pertaining to lift provision. Fire protection requirement as per IS and as per National Building Code shall be complied with.

4. The Tenderer shall note the following in the Lift Service particulars covered herein.

a) Capacity & Numbers,
b) Travel height, number of stops and openings
c) Type of Drive.
d) Type of Safety Gear, door safety
e) Type of Control and operation
f) Interface leads to be left for Building Management / Automation System.
g) Amenities and finishes in Lift Car.

5. The Tenderer shall furnish any other details relevant to the work and not covered in the tender with financial bearing if any explicitly.

6.As the Tender documents shall form part of the Agreement, the provisions covered therein should be noted carefully and any deviation felt necessary there from shall be highlighted at the time of Pre Tender meeting only and not after that. The minutes of the Pre Tender meeting shall be signed as a token of acceptance and shall be enclosed in the first envelope superscripted “Pre Qualification Bid”. No deviation in commercial conditions is acceptable.

7. The Tenderer shall give rates for all items given in the schedule of quantities.

8. No extra payment shall be considered either due to escalation or amendments/modifications to statutory Act / Rules issued during the contract period.

9. The Tenderer/ Contractor shall be responsible to obtain necessary License from Electrical / Lift Authority, Local Competent Electrical Authority.

10.Terminal points:

The terminal point (s) Viz. Civil work and other services shall be as follows:

Civil works:

The Lift shaft, pit shaft to the required dimensions including Plastering and Painting shall be completed by the civil agency. The Civil Contractor shall be responsible for waterproofing of the lift pit. All other civil activities for Lift Installation shall be within the scope of the Lift Contractor and shall fall within the Lift Contractor’s responsibility.

All minor civil works under Lift Contractor’s responsibility include Cutting, Chasing and making good of the same at all levels, conceal the conduits and boxes for Panels etc.The minor Civil work shall also include items connected with fixing of Sill plate / Sill slab projection, fixing of buffer springs in the lift, fixing and mounting beams, bearing plate etc.

Electrical Works:

Power supply – 3 Phases, 415 Volts 50 Hz Power supply will be provided at the Lift switchboard by the Electrical Contractor. The Power wiring from the outgoing control gear in the Lift switch Board to the Lift is under the scope of Lift Contractor. The Schematic Drawing of the Lift Switch Board is available for the verification of requirement of control gear rating by the Lift contractor.

The Lift Contractors’ scope however does not include providing M.S. Conduits in the Lifts shaft for permanent lighting purposes including wiring, fixing of holders etc. which will be done by the Electrical agency. Likewise 5/15 Amps sockets at various levels in the lift shaft will also be provided by the electrical agency.

The earthing leads / earth strips in conformity with the applicable codes shall be provided as directed near the main switch by the Electrical contractor. There shall be 2 separate and independent earth pit for each car group elevators.

INTERFACE:

The signals from the Fire mode services of the Lifts shall be integrated into the overall fire alarm system, forming part of the Building Management System. For this purpose, sufficient potential free leads shall be made available by the Lift Contractor at appropriate locations from which the Building Management system Contractor will connect the interface to BMS / BAS system.

SECTION - II

LIFTS - TECHNICAL AND PERFORMANCE CRITERIA

General Note:

The Tenderers to note that in respect to the finish of the car interior, the final specification shall be as per the Architect design to meet Owner's requirement and approval. At the time of Pre-bid meeting, the Tenderers are requested to come prepared with possible options of car interior finishes. Mirror finish / mirror polish/matt finish is to be provided as per the instruction of Architect.

PARTICULARS OF LIFT SPECIFICATION

S.No	Particulars	Building Complex	
		Passenger Lift	Service Lift
1	Lift Type	AC Gearless without Machine room Elevator	AC Gearless machine room Elevator
2	Capacity	21 Passenger / 1428 Kg Approx	2500 Kg
3	Number of Lifts	2	1
4	Speed	2.00 m/s	1.00 m/s
5	Machine & Drive	A.C Gearless synchronous Variable Voltage Variable Frequency drive system	A.C Gearless synchronous Variable Voltage Variable Frequency drive system
6	Travel	62.4 M (Approx.)	62.4 M (Approx.)
7	Servicing, no. of stops served	Ground plus 13 upper floors, servicing 14 stops and 14 Landing. Group Automatic operation with or without attendant.	Ground plus 13 upper floors and servicing14 stops and 15 Landing.With Ground floor alone having two entries, front and rear.
8	Control & Operation	Zoning for various options as per client's requirements.	Simplex, Selective, Collective, automatic operation with or without attendant (1 lift)
9	Potential free contacts	Monitoring the ON / OFF / status, Fireman Emergency operation, Attendant Mode, Lift under fire drive (position ,direction, emergency alarm, inspection drive) of all Lifts from the Building Management System shall be through potential free contacts and a separate terminal block within the lift control panel which shall be provided by the Lift Contractor including wiring. The wiring from the lift controller to BMS shall however be done by the Contractor for BMS.	Monitoring the ON / OFF / status, Fireman Emergency operation, Attendant Mode, Lift under fire drive (position ,direction, emergency alarm, inspection drive) of all Lifts from the Building Management System shall be through potential free contacts and a separate terminal block within the lift control panel which shall be provided by the Lift Contractor including wiring. The wiring from the lift controller to BMS shall however be done by the Contractor for BMS.
10	Position of Machine	Inside the Lift Shaft and the Gearless Machine is fixed on the Guide Rail	Inside the Lift Shaft and the Gearless Machine is fixed on the Guide Rail
11	Shaft Size W x D	2525mm x 2500mm	3800mm x 4150mm
12	Lift pit depth	2600mm	1800mm
13	Overhead (Head room height)	Nil	5000 mm
14	Lift Machine Room Size	No Machine room	Machine room as per the tender drawing
15	Position of Counter weight	At the side of the Car	At the side of the Car
16	Size of Lift car W x D x H (clear inside size)	Tentative size of 1800mm x 1800 mm x 2300 mm.(Tenderers are required to confirm the maximum Car Sizes that can be provided in the Shaft Sizes available, which shall be in line with BIS and will be cleared by Approving Authority.)	Tentative size of 2500mm x 3000mm x 2500mm (Tenderers are required to confirm the maximum Car Sizes that can be provided in the Shaft Sizes available, which shall be in line with BIS and will be cleared by Approving Authority.)

17	Door Size	1100mm x 2100mm.	1500mm x 2200mm
18	Car enclosure, Ceiling & Door	**1. Car cabin side walls:** Car cabin wall shall be by the combination of stainless steel plate of 1.5mm thick, over which 0.6mm etched / scratch proof stainless steel is affixed as per the architect design and bonded to form a total wall thickness of 2.1mm for all four sides. The skin plate (0.6mm thick) designed pattern shall be with the combination of etched stainless steel and scratch proof stainless steel and shall be as per Architect / Owner requirement and approval. **False ceiling with spot light:** The Stainless steel panel adopted for the side wall of car cabin shall be adopted for the false ceiling panel also. The false ceiling panel shall have provision to accommodate spot light with LED as per the Architect design. The false ceiling panel shall be suspended from the ceiling in such a way to house 2 no's of cross flow rectangular air blower over the false ceiling panel one on each side but opposite to each other. **2. Door:** The door finish shall be of heavy duty with stainless steel finish. The designed pattern for stainless steel door shall be as per the Architect / Owner requirement for all the car cabin door and landing doors in all the landings.	**1. Car cabin side walls:** Car cabin wall shall be by the combination of stainless steel base plate of 1.5mm thick, over which 0.6mm etched / scratch proof stainless steel is affixed as per the architect design and bonded to form a total wall thickness of 2.1mm. The skin plate (0.6mm thick) designed pattern shall be with the combination of etched stainless steel and scratch proof stainless steel and shall be as per Architect / Owner requirement and approval. 1. **False ceiling with spot light:** The Stainless steel panel adopted for the side wall of car cabin shall be adopted for the false ceiling panel also. The false ceiling panel shall have provision to accommodate spot light with LED as per the Architect design. The false ceiling panel shall be suspended from the ceiling in such a way to house 2 no's of cross flow rectangular air blower over the false ceiling panel one on each side but opposite to each other. 2. **Door:** The door finish shall be of heavy duty with stainless steel finish. The designed pattern for stainless steel door shall be as per the Architect / Owner requirement for all the car cabin door and landing doors in all the landing
19	No. of Entrance	1no at all floors.	2nos @ ground floor and 1no @ typical floors
20	Pressure Sensor	Pressure sensor operated doors safety system to be provided.	Pressure sensor operated doors safety system to be provided.
21	Full length infra red safety light curtain	Infra - red operated doors safety system to be provided. The Light Curtain to consist of 154 criss cross infra - red light beams passing between Car Door Entrances and one side of the Entrance the light source is sent and on the opposite side, receivers are sensing the light source. If an object cuts the light beams the receivers will sense and give door command to the door operating system. This is to sense the passenger movement without being getting in to physical contact of doors with human being or other materials like trolley, perambulator etc., which ensures the highest safety to the passenger and other items transported by Elevator. This infra – red light curtain to operate as low as from 25 mm to a height of 2mts., so the system can even detect the movement of child, pet etc., and thus ensures complete safety to users.	Infra - red operated doors safety system to be provided. The Light Curtain to consist of 154 criss cross infra - red light beams passing between Car Door Entrances and one side of the Entrance the light source is sent and on the opposite side, receivers are sensing the light source. If anobject cuts the light beams the receivers will sense and give door command to the door operating system. This is to sense the passengermovement without being getting in to physical contact of doors with human being or other materials like trolley, perambulator etc., whichensures the highest safety to the passenger and other items transported by Elevator. This infra – red light curtain to operate as low as from 25 mm to a height of 2mts., so the system can even detect the movement of child, pet etc., and thus ensures complete safety to users.

22	Fan	Minimum 2 no's of cross flow rectangular air blower, low noise / mild air flow at the air flow rate of 270 cum / hour as per the architect design	Minimum 2 no's of cross flow rectangular air blower, low noise / mild air flow at the air flow rate of 270 cum / hour as per the architect design
23	Car Light	9 no's of LED spot light, Lux level shall be minimum 150 lux to be provided for the car cabin from the false ceiling panel. The pattern of positioning of spot light shall be as per the Architect / Owner requirement.	9 no's of LED spot light, Lux level shall be minimum 150 lux to be provided for the car cabin from the false ceiling panel. The pattern of positioning of spot light shall be as per the Architect / Owner requirement.
24	Car floor finish	Floor finish within the car shall be provided by the lift contractor including providing required frame work to take the load of "200kgs of Granite and other works such as car enclosure, false ceiling etc.," the allowance within the car shall be provided to receive the finishing material, which will be of 20mm thick maximum combination of Black Granite	6mm thick Aluminum Chequered plate.
25	Car Operating Panel (As per the Architect design)	Two (2) number full size car operating panels one on either side of car shall be provided with engraved Braille white colour display buttons stainless steel finish, surface mounted for passenger lift. **Panel 1** a) Key operated switch for "attendant" – "automatic" operation. b) Luminous white round Braille Push button for each floor served c) Door open/close push buttons. d) Battery operated emergency alarm Push Button. e) Emergency alarm Push button (Alarm in ground floor) f) Push Button for non-stop operation of Lift in attendant mode. g) UP/DOWN Direction Should be in LED Display h) Over-Load warning indicator. i) On / Off Switch for Fan. j) STOP switch to be provided in Red Color	Two (2) number full size car operating panels on one side of car shall be provided with engraved Braille white colour display buttons with stainless steel finish, surface mounted for Service lift. **Panel 1** a) Key operated switch marked to indicate "attendant" – "automatic" operation. b) Luminous white Push button for each floor served c) Door open/close push buttons. d) Battery operated emergency alarm Push Button. e) Emergency alarm Push button (Alarm in ground floor) f) Push Button for non-stop operation of Lift in attendant mode. g) UP/DOWN Direction Should be in LED Display h) Over-Load warning indicator. i) On / Off Switch for Fan. LCD Display located above the car door.
		Panel 2 a) Luminous Round white colour Braille Push button for each floor served. b) Colour LCD Display located above the car door with minimum of 150mm diagonal size. c) 2 no's of the same display shall be provided over the car door outside lobby for Ground floor and First floor. d) Seven segment (45mm size) display shall be provided for all the remaining floors and basement.	**Panel 2** a) Luminous Round white colour Braille Push button for each floor served. b) Colour LCD Display located above the car door with minimum of 150mm diagonal size. c) 2 no's of the same display shall be provided over the car door outside lobby for Ground floor and First floor. d) seven segment (45mm size)shall be provided for all the remaining floors and basement.
26	Location of landing entrance on different floors	All doors on the same side (Front only)	In ground floor, two doors (front and back). In typical floors, one door on the front side.
27	2 hours fire rated Landing doors	All landing doors should be 2 hours fire rated.	All landing doors should be 2 hours fire rated.

28	Controls and Indicators at landings	a) Colour LCD POSITION display indicator in all Landing with minimum of 150mm diagonal size. Push Buttons, Two no's for intermediate landings and single push button for terminal landings with indication for UP and DOWN direction of motion.b) Digital Car position and Direction indicators at all Landings above the Entrance, with LCD display in Ground floor and in all other floors.c) A suitable box above the lift landing with LCD display in Ground floor and all other floors with illuminated sign of " Out of Service" coming up simultaneously at all floors with single Switch control.d) Visual flashing indication on all landings for pre-arrival of car	a) Colour LCD POSITION display in all Landings. Push Buttons, Two nos. for intermediate landings and single push button for terminal landingswith indication for UP and DOWN direction of motion. b) Digital Car position and Direction indicators at all Landings above the Entrance, with LCD display in Ground floor and in all other floors. c) A suitable box above the lift landing with LCD display in Ground floor and in all other floors with illuminated sign of " Out of Service"coming up simultaneously at all floors with single Switch control.d) Visual flashing indication on all landings for pre-arrival of car
29	Lift panel jamb	SS narrow jamb minimum 50 X 50mm to be provided. Granite jambs by Interior vendor.	SS narrow jamb minimum 50 X 50 mm to be provided. Granite jambs by Interior vendor.
30	Load weighing Device with bypass function.	A load-weighing device to be provided which senses the load. Facility to be provided for stain gauges for by passing registered landings call by a car loaded more than 80%.	A load-weighing device to be provided which senses the load. Facility to be provided for stain gauges for bypassing registered landings call by a car loaded more than 80%.
31	Leveling device	Leveling accuracy + 5 mm	Leveling accuracy + 5 mm
32	Machinery	A.C Gearless synchronous MOTOR driven by Variable Voltage Variable Frequency drive system.	A.C Gearless synchronous MOTOR driven by Variable Voltage Variable Frequency drive system.
33	Car Emergency Light and Alarm	Emergency Battery operated power supply (EBOPS) for light and alarm to be provided with electric power supply to the car, when the main power supply is not available for half an hour. The operation to be automatic and no need of manual intervention to be required.	Emergency Battery operated power supply (EBOPS) for light and alarm to be provided with electric power supply to the car, when the main power supply is not available for half an hour. The operation to be automatic and no need of manual intervention to be required.
34	EPABX system	Provision for press and speak intercom in COP along with Microphone & Speaker. (Hands free, Press & Speak type) It shall be connected to two other intercom units as directed by Engineer in charge. Travel wiring (6 core 1.5sqmm communication cables) shall be in the scope of Lift Supplier.	Provision for press and speak intercom in COP along with Microphone & Speaker. (Hands free, Press & Speak type, It shall be connected to two other intercom units as directed by Engineer in charge. Travel wiring (6 core 1.5sqmm communication cables) shall be in the scope of Lift Supplier.
35	Terminal buffers	Terminal buffers shall be installed as a means of stopping the car and counter weight at the extreme limits of travel and shall be spring or oil buffers. Buffers in pit shall be mounted on the steel channels or on the suitable concrete blocks.	Terminal buffers shall be installed as a means of stopping the car and counter weight at the extreme limits of travel and shall be spring or oil buffers. Buffers in pit shall be mounted on the steel channels or on the suitable concrete blocks.
36	Counter weight	Provided in steel structure as per clause-12 of IS-14665 (part-I) 2000 amended till date.	Provided in steel structure as per clause-12 of IS-14665 (part-I) 2000 amended till date.
37	Guide rails	M.S."Tee" section shall be provided for the car & counter weight. The guide for the car and counter weight shall be machined. The guide rails shall be continuous throughout the entire travel and shall withstand without any deformation the action of safety gear with a fully loaded car The guide rail anchorage at pit floor must be made without puncturing the waterproofing.	M.S."Tee" section shall be provided for the car & counter weight. The guide for the car and counterweight shall be machined. The guide rails shall be continuous throughout the entire travel and shall withstand without any deformation the action of safety gear with a fully loaded car The guide rail anchorage at pit floor must be made without puncturing the waterproofing. The expansion joints in the guide rails shall be

		The expansion joints in the guide rails shall be so designed as to avoid jerks in the lift car. Machined guide rails shall have finished surfaces, which shall be coated with corrosion preventive compound, which shall be maintained till the commissioning of the installation. Before the car is placed in operation, the preventive coating shall be removed and the guide rails thoroughly cleaned and smoothened	so designed as to avoid jerks in the lift car. Machined guide rails shall have finished surfaces, which shall be coated with corrosion preventive compound, which shall be maintained till the commissioning of the installation. Before the car is placed in operation, the preventive coating shall be removed and the guide rails thoroughly cleaned and smoothened
38	Safety gears & Over speed Governor	Progressive type Safety gear, mounted on the bottom members of Car frame or otherwise as per Manufacturer's specification and shall be operated by an Over speed Governor erected in Head room. The safety device shall stop the Car whenever excessive descending speed is attained with means to cut-off power from the motor and apply the brake prior to application of safety gear. Over speed governor shall have arrangement to detect slack, loosened or broken over speed rope.	Progressive type Safety gear, mounted on the bottom members of Car frame or otherwise as per Manufacturer's specification and shall be operated by an Over speed Governor erected in Head room. The safety device shall stop the Car whenever excessive descending speed is attained with means to cut-off power from the motor and apply the brake prior to application of safety gear. Over speed governor shall have arrangement to detect slack, loosened or broken over speed rope.
39	Ropes	Hoisting suspension ropes shall be of minimum 10mm dia steel core rope construction and tensile strength of rope shall be not less than 12.5 tons/Sq.cm. and number as per IS 2365-1977 and designed as per IS 14665 Part III:2000 amended till date. Governor ropes shall be of Steel. All Ropes shall be specially designed and manufactured for elevator application. The minimum factor of safety in rope capacity shall be 12.	Hoisting suspension ropes shall be of minimum 10mm dia steel core rope construction and tensile strength of rope shall be not less than 12.5 tons/Sq.cm and number as per IS 2365-1977 and designed as per IS 14665 Part III:2000 amended till date. Governor ropes shall be of Steel. All Ropes shall be specially designed and manufactured for elevator application. The minimum factor of safety in rope capacity shall be 12.
40	i)Phase failure relay ii)Automatic Phasereversal unit	i) Phase failure relay shall be provided to protect the machine against failure of any one phase. ii) Automatic Phase-reversal corrector unit shall be provided to correct Phase reversal.	i) Phase failure relay shall be provided to protect the machine against failure of any one phase. ii) Automatic Phase-reversal corrector unit shall be provided to correct Phase reversal.
41	Automatic rescue device	Automatic Rescue Device (ARD) to rescue the stranded lift passengers in the event of a power failure, operated on dry maintenance - free batteries of required capacity to continuously monitor the normal power supply in the main elevator controller and activate rescue operation within 60 seconds of a power failure by which the lift is brought to the nearest landing and doors remain open	Automatic Rescue Device (ARD) to rescue the stranded lift passengers in the event of a power failure, operated on dry maintenance - free batteries of required capacity to continuously monitor the normal power supply in the main elevator controller and activate rescue operation within 60 seconds of a power failure by which the lift is brought to the nearest landing and doors remain open
42	Fireman Drive	All lifts of each group to be operated exclusively as fire rescue lift. Provision for Fireman drive to be made to bring the car to the main floor immediately after the fireman switch is operated. Thereafter the car is for operation by the rescue person. All landing calls are ignored. Lift answers one car call at a time. The rescue person controls opening and closing of doors at a floor. Returns to normal when fireman switch is opened. Fireman switch drive to be	Provision for Fireman drive to be made to bring the car to the main floor immediately after the fireman switch is operated. Thereafter the car is for operation by the rescue person. All landing calls are ignored. Lift answers one car call at a time. The rescue person controls opening and closing of doors at a floor. Returns to normal when fireman switch is opened. Fireman switch drive to be provided for the lift in ground floor lobby with individual switch control.

		provided for all the lifts individually in ground floor lobby with individual switch control.	
43	Car call backward	Car calls behind the direction of travel are to be accepted and registered	Car calls behind the direction of travel are to be accepted and registered
44	Car door lock	Car door lock to be provided	Car door lock to be provided
45	False call canceling	Canceling of all car calls to be provided if there is lift movement without transfer of people at landings.	Canceling of all car calls to be provided if there is lift movement without transfer of people at landings.
46	Priority call in main landing	Priority service to a landing to be provided by a separate switch at the landing. The car arriving for the emergency service should serve the caller depending on the selected option as below:- Car should cancel existing car calls and rush for priority service. - Car should answer existing car calls before rushing for priority service. - During priority service, the car should accept more than one car call in the same direction of travel. - During priority service, the car should answer the nearest car call and return to normal service.	Priority service to a landing to be provided by a separate switch at the landing. The car arriving for the emergency service should serve the caller depending on the selected option as below: - Car should cancel existing car calls and rush for priority service. - Car should answer existing car calls before rushing for priority service. - During priority service, the car should accept more than one car call in the same direction of travel. - During priority service, the car should answer the nearest car call and return to normal service.
47	Priority call in Car	Selected by key-operated switch provided in car-elevator. It Exclusively serves the person inside the car (one call at a time), All landing calls ignored to serve this special request.	Selected by key-operated switch provided in car-elevator. It exclusively serves the person inside the car (one call at a time). All landing calls ignored to serve this special request.
48	Variable door opening time	The opening time of the car door and landing door can be varied according to the requirement	The opening time of the car door and landing door can be varied according to the requirement
49	Full collective logic	Full collective control system to be provided to facilitate the optimum function of the elevator. Here the lift will accept the car and landing calls in both directions	Full collective control system to be provided to facilitate the optimum function of the elevator. Here the lift will accept the car and landing calls in both directions
50	Zoning of Elevators	Group control lifts to be provided with Zoning option	Not applicable
51	Accurate Re-leveling, Automatic	Automatic accurate Re-leveling of car, after stopping at a floor should take place. Automatic Re-leveling should take place before door open.	Automatic accurate Re-leveling of car, after stopping at a floor should take place. Automatic Re-leveling should take place before door open.
52	Built in Voltage stabilizer	To be provided to avoid problems / hazards due to voltage fluctuation, thereby increasing the life of electrical and electronic components for the better service of the elevator.	To be provided to avoid problems /hazards due to voltage fluctuation, thereby increasing the life of electrical and electronic components for the better service of the elevator.
53	Hall lantern	Illuminated arrows to indicate the next travel direction of arriving / available car to be provided. Electronic chime that sounds when the car arrives at a landing to serve a landing call to be provided.	Illuminated arrows to indicate the next travel direction of arriving / available car to be provided. Electronic chime that sounds when the car arrives at a landing to serve a landing call to be provided.
54	Speaker for music/announcement	The lift announcement system should announce the floor numbers and some special messages in the lift itself by using a speaker. The unit should provide Music when no floor announcement or special messages are to be given. When the lift reaches any floor then this unit should give that particular floor announcement and should continue to play the music from wherever it has left.	The lift announcement system should announce the floor numbers and some special messages in the lift itself by using a speaker. The unit should provide Music when no floor announcement or special messages are to be given. When the lift reaches any floor then this unit should give that particular floor announcement and should continue to play the music from wherever it has left

55	Notices and Signage	Contractor shall provide the necessary safety notices and signage near and inside the elevators. Instructions to be provided on Photo luminescent signage.	Contractor shall provide the necessary safety notices and signage required near and inside the elevators. Instructions to be provided on Photo luminescent signage.
56	Redundancy	Redundancy & reliability for efficient functioning of Lifts of a group in case of any one or more lift(s) is / are out of operation due to maintenance or otherwise without sacrificing any features of the functioning lifts	Redundancy & reliability for efficient functioning of Lifts of a group in case of any one or more lift(s) is / are out of operation due to maintenance or otherwise without sacrificing any features of the functioning lifts
57	Fascia plate	Fascia plate for landing & Car shall be minimum 750mm length and extend upto the clear opening of +100 mm	Fascia plate for landing & Car shall be minimum 750mm length and extend upto the clear opening of +100 mm
58	Miscellaneous	All electrical wiring shall be with flame retardant low smoke, moisture proof insulation and shall be run in heavy gauge metal conduit. The trailing cable between the car and lift well shall be multi-core type designed for lift services and shall be flame retardant. Moisture proof covering cables should conform to IS 4289 – 1967 as amended upto date. All exposed metal parts shall be properly painted with good quality paint after erection and before commissioning the lift. The supply and erection of lift shall conform to the latest lift act in force and modern lift practice in all respects. All wiring and earthing, etc. shall conform to IE rules and regulations.	
59	Electric supply	Voltage-3 phase , 415 Volts (+ or –10%), Frequency = 50 Hz (+ or – 5%), combined voltage and current -10%. Built-in Voltage Stabilizer to be provided by the Lift Supplier to avoid hazards due to Voltage fluctuation.	
60	Instruction manuals & Standard operating management procedure	3 sets of operation and maintenance manuals, Standard operating management procedure and special instructions if any for care and maintenance during lift operation shall be supplied preferably before commencement of installation work and As built drawings should be submitted.	
61	Guarantee & Maintenance	The firm shall guarantee that the entire installation shall be free from material/ workmanship/ manufacturing defects for a period of twelve months from the date of handing over of completion work in complete shape after obtaining the safety certificate from the Lift Inspectorate / CEIG During this (DLP) Guarantee period the firm shall carry out routine maintenance like general cleaning, oiling, greasing adjustment and checking of all safety devices etc. as may be required in addition to attending to break down calls, The agency has to clear all the faults without any extra charge.	
62	General	All necessary scaffoldings for the erection of lift, Minor builders work, all necessary steel items such as machine beams, ladder in pit, stretchers, hitch beams, bearing plates, Fascias etc., all of which if any shall be provided by the lift supplier. All other minor bldg works like chipping of walls for accommodating the lift doors and making good the same as required shall also be done by the supplier. Hoist way wiring in MS conduit with PVC insulated Copper wires for lighting with Bulk head fitting & lamp and 5A Power socket with MS box, laminated hy-lam sheet for each floor with individual switch control as per the direction of Engineer in Charge shall be carried out by the Electrical contractor.	
63	Additional Features	1) Battery Operated Emergency Alarm to attract attention of Lift Incharge at IBMS Room. 2) Individual Fan ON/OFF Switch / Button , 3) Direction & Position Indicator in Car and Landing LED Scrolling type., 4) Home Floor Parking selection, 5) It shall be possibleto Programme the Zoning Group of any selected Lifts orany Individual Lift. 6) Group indicator panel shall be provided in the ground floor, to havedisplay of all the lift position/ levels. 7)Provision shall be made available in the controller and wherever necessary for the lifts to directly travel to ground floor on any signal from Fire Alarm Control Panel having lead to lift for required locations automatically ignoring the direction of travel and other pending commands. 8) The ARD operation announcement in the Lift Car shall be available in Tamil in addition to English.	
64	References:	All lift equipment and installation shall conform to the relevant ISI standards amended up to date. However, reference to a few IS standards is given below.	
		a) IS 14665-2000 Part III Specifications for Electrical passenger & GOODS lift.	
		b) IS 14665-2000, Part-I Outline dimension of electric lift.	
		c) IS 14665, Part-2 Sec:1 Code and practice for installation operation& maintenance of	

		electrical passenger and GOODS lift.
		d) IS 14665, Part-3,Section-1 Safety rules for passengers and GOODS lift.
		e) IS 14665, Part 4,Section-1 Lift Buffer
		f) IS 14665, Part 4, Section- 2 Lift guide rails and guide shoes.
		g) IS 14665, Part 4 Section- 3 Lift car frame, car, counter weight and suspension.
		h) IS 14665, Part 4,Section- 4 Lift safety gears and governors.
		i) IS 14665, Part 4, Section- 5 Lift retiring cam.
		i) IS 14665, Part 4, Section- 5 Lift retiring cam.
		k) IS 14665, Part 4, Section- 7 Lift machines and brakes
		l) IS 14665, Part 4,Section- 8 , IS 2365:1977 Steel wire suspension ropes
		m) IS 14665, Part 4,Section- 9, Controller and operating devices for lifts.
		n) IS 4289 : 1984 Part I Specifications for flexible cables lift. Elastomer insulated cables.
		o) IS 4289 : 1984 Part II Specifications for flexible cables lift. PVC insulated circular cables.
		P)

Note:

1. The Contractor has to arrange at their own cost including supply, fabricate and erect in position the structural steel required for support of machine, brackets for guide rails, fascia plates at all landings. etc., including Three coats of anticorrosive paint of approved make and connected Civil works such as cutting of holes, chases etc., in brick work, concrete etc., including scaffolding of walls, floors on partitions together and making good holes for fixing brackets in lift walls, grouting of all bolts, sills, brackets / control board/button boxes, limit switches etc., all in position for all lifts together.

2. Provision shall also be made available in the controller and wherever necessary for the lift(s) to directly travel to ground floor on any signal from Fire Alarm Control Panel having lead to lift for required locations, automatically, ignoring direction of travel and other pending commands as per special condition of the tender.

3. Requirements indicated in the National Building Code of India in respect of Fire Protection requirements of lifts (Latest Issue) shall be fully complied within respect of Design, Manufacturing and Erection of the Lifts.

4. Construct a mock-up complete with lift finish. Only after the approval of the same, the contractor shall proceed for erection of other lifts.

5. Full set of tools of required for maintenance of lifts shall be provided by contractor.

6. Safety Notice required shall be obtained from the statutory authority and provided inside and near Lifts.

7. The Entire electrical installation shall be done in accordance with the Indian Electricity Act 2003, Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations 2010 as amended to-date. The Electrical wiring shall strictly comply with IS:732 and latest applicable BIS and NBC code. The electrical works shall also conform to CPWD General Specification for Electrical Work Part-I (Internal) 1994 and Part-II (External) 1994 as amended up to date.

SECTION - III

SPECIAL CONDITIONS –TECHNICAL

1. All lifts shall be suitable / compatible for integration with fire alarm system signals and Building Management system. The elevator shall be capable of entering into 'Emergency Fire Mode Service ' upon receiving a signal from fire alarm system. The wiring from lift controller to Fire Alarm system shall be done by the Fire Alarm contractor.

Monitoring the ON / OFF / status (position ,direction, emergency alarm, inspection drive) of all Lifts from the Building Management System shall be through potential free contacts and a separate terminal block within the lift control panel which shall be provided by the Lift Contractor including wiring. The wiring from the lift controller to BMS shall however be done by the Contractor for BMS. All the lifts shall be designated and fitted up as 'Firemans' Lift' and perform fireman's drive.

Identification of 'Firemans' lift shall be conspicuously displayed with the words 'FIRE LIFT' in fluorescent paint on the Lift lobby at each floor level."FIRE MAN SWITCH" shall be provided in ground floor in all the lifts and use the designated "FIRE LIFT" as per local statutory regulation.

All lifts shall ignore current position of operation and travel to ground floor and stop there with doors open by an overriding command under the Emergency Fire mode system. Only the lift designated as Firemans' lift shall be in operation for the use of fire fighting personnel.

2. The doors of Lift car shall have infrared curtain (Electronic Door detector device) to retract door operation in case of intrusion if any. The door system shall also have an electronic door close limiter. All Landing doors shall be 2 Hrs Fire Rated.

3. Lift car shall have in built load measuring (weighing) device required for adjustment of starting torque to keep the car jerk free at start. Also it shall sense overload and prevent start of the car in that load condition by keeping its door open and sounding the buzzer in the car or by passing further hall calls if the car is loaded to 80% of designed capacity.

4. The techniques of Variable Voltage Variable frequency type drive shall be of to limit motor starting current to less than 2 times the nominal motor current.

5. The operation control shall have device for car landing at floor level (s) with typical Leveling accuracy of +/- 5 mm.

6. Better quality of installation shall be ensured by using special gauges during installation.

7. The Lift control system shall also have the following features in addition to those otherwise specified in the Bid.

a. By-pass load function to cancel hall calls in the intermediate floors in case lift is loaded to 80% of its capacity.

b. Redundancy & reliability for efficient functioning of Lifts of a group in case of any one or more lift(s) is / are out of operation due to maintenance or otherwise without sacrificing any features of the functioning lifts

c. Electronic chime (gong) and flashing of hall lantern to indicate arrival of a particular Lift car at landing.

d. Flexible choice of parking of lifts at different floors in a bank.

e. Cancellation of false calls using infrared light curtain in the lift car door.

8. The following are the other features to be provided:

a. **Waiting time optimization:**
The Group control shall monitor landing call waiting times, understand the traffic pattern and allocate calls dynamically between the elevators to ensure that the overall waiting time is reduced and maximum waiting time is kept within limits.

Up peak shall be detected by the group control and elevators are dispatched to the ground floor.

b. **Dynamic Call Allocation:**
The Group Control shall be capable of Dynamic Call allocation. Normally, landing calls are pre-assigned to an elevator. This is static allocation, since a changed situation like someone keeping the doors open, can prevent another lift from giving better service. The Group Control shall be capable of waiting till the last minute to take a call. This allows whichever lift is best suited to take a call at the very last minute.

c. **Sudden Peak detection:**
The Group Control shall be capable of detecting sudden requirement for lift in any floor and meet such a demand. For example, if someone is holding a group meeting at a floor, and the group meeting is over many people come out looking for the elevator. Here the Group Control can sense that a car is fully loaded and dispatch other lifts to meet the demand instantaneously.

d. **Misuse of Landing Calls:**
It is quite common that the passenger standing in a floor will press both the direction hall calls though he wants to go in one direction only. The lift will make an unnecessary stop in the other direction also, though there may not be any one standing on the floor lobby. Unnecessary stops will delay the lift service to others.

The simultaneous registering of up and down calls at the same floor is prevented by a time delay after the first registered call

e. **Door Open Time:**
The door opening time at any floor shall be capable of being set at site depending on the site conditions.

f. The lift safety mechanisms shall include the provision of Automatic Rescue Device (ARD) to rescue the stranded lift passengers in the event of a power failure, operated on dry maintenance - free batteries of required capacity to continuously monitor the normal power supply in the main elevator controller and activate rescue operation within ten seconds of a power failure by which the lift is brought to the nearest landing and doors remain open.

9. The lift safety mechanisms shall include the provision of Automatic Rescue Device (ARD) to rescue the stranded lift passengers in the event of a power failure, operated on dry maintenance - free batteries of required capacity to continuously monitor the normal power supply in the main elevator controller and activate rescue operation within ten seconds of a power failure by which the lift is brought to the nearest landing and doors remain open.

SECTION-IV

SPECIAL CONDITIONS – OTHERS

1.0 DRAWINGS & DOCUMENTS

1.1 The tender drawings are guideline for explaining the scheme. However there may be certain detail, which may require further detailing while actual execution or there may be certain detail which could have been inadvertently overlooked. Such details shall not constitute extra items. The drawings guide the contractor when he works out his workable Rates. Any item of work not indicated in the drawing but in line with the design and with the thinking shall be deemed to be part of contractual obligation and nothing extra shall be paid to the contractor for the same.

1.2 All work shall be carried out on the basis of approved shop drawings. Drawings furnished shall include, but shall not be limited to

a. Schematic diagrams.
b. Layout drawings.
c. Drawings for control panels.
d. GA drawings for lift shaft lift pit and head room

1.3 The Elevator Contractor should furnish:

a. Drawings necessary to show the general arrangement of the Elevator equipment and get the same approved from the Owner before the work begins.
b. Drawings / Sketches showing the details of controller, control panels in respect of design and metal used for its contract points should be enclosed.

2.0 DETAILED WORKING DRAWINGS

2.1 Prior to execution of the work, the contractor shall check all the drawings, specifications and shall within twenty one days report any errors, discrepancy and/or omissions discovered therein to the Owner and obtain appropriate orders on the same. Any adjustments made by the contractor without prior approval of the Owner shall be at his own risk and cost.

2.2 Shop drawing will not be constituted as an extra item and shall include, but not restricted to mechanical, electrical and structural layout and requirements of the head room, lift shafts, lift pits, lift lobbies, lift cabs, operating panels, indicator panels, safety devices,etc., contractors work can be commenced at site only once the contractors shop drawings are approved by the Owner in writing and after giving a prior notice for commencement of work.

2.3 Shafts allotted for all the traction lifts shall be taken into consideration before ordering the equipment.

2.4 Prior to submission of drawings for approval, the contractor shall be responsible for thoroughly checking all drawings to ensure that they comply with the intent and the requirements of the contract specifications.

2.5 The contractor shall secure the approval of the Owner for his detailed working drawings before proceeding with the work. For this purpose, he shall submit six sets of drawings to the Owner. Any alterations proposed by the Owner shall be incorporated in the drawings by the contractor and the corrected drawings shall be submitted once again in six sets to owner.

2.6 The approval of the drawing by the Owner shall not be considered as a complete dimensional check but will indicate that the general method of construction and detailing is satisfactory. The contractor shall be responsible for the dimensions and the design of adequate connections, supports, details, etc. and for the satisfactory construction of the work.

2.7 After installation is completed, 6 sets of "As built drawings" shall be prepared with fulldetails and submitted to the Owner along with the final bill.

3.0 METHOD STATEMENT

The successful Tenderer shall have to prepare a Method Statement for each item of work including for Quality Assurance and this shall be submitted to the Owner for approval prior to start of work.

4.0 METHOD OF MEASUREMENT

All works shall be measured net as completed or as fixed in place with no allowance (unless specified). No allowance shall be made for narrow width, easy access or difficult position. Any work executed over and above the dimensions given in the drawings or sketches provided by the Owner or without written instruction by the Owner shall be ignored and no payment shall be made for such extra work.

5.0 TRAINING

5.1 The successful contractor shall fully provide training to Owner personnel in operation and routine maintenance of the elevator plant. Such training shall be imparted during installation of the plant/system and also after commissioning.

5.2 The tenderers shall state the facilities they have for executing the work at Coimbatore, if the contract is awarded to them. Details of the set-up with particular reference to their establishment at Coimbatore should be furnished. They are also required to present a list of projects of comparable magnitude and nature which have been executed by them or are under execution with particular reference to those in and around Coimbatore. Capacity to render prompt and effective after-sales service is an important consideration. Accordingly, the tenderers shall furnish the details of any service schemes (including the fees payable) that they are in a position to offer and the facilities they have for implementing such schemes.

5.3 In particular, the tenderers shall note that the successful contractor will be required to post a competent supervisor on full-time basis once the work is taken up. Tenderers shall specifically confirm this point in their tender.

5.4 The tenderers shall quote according to the specifications as far as possible, but where deviations are unavoidable, they shall state the reasons thereof clearly and shall also(in case alternative proposals are made) back them up by furnishing all relevant technical data.

5.5. No terms and conditions stipulated by the tenderers (whether printed or otherwise) will be accepted. In the event and in case, the tenderers find deviations unavoidable, such deviations shall be with reference to specific clauses in the tender documents and brought to the notice to owner at Pre bid meeting.

6.0 Operating Instructions:

The Contractor shall furnish a neatly typed set of operating instructions securely framed and glassed. These instructions shall furnish information and guidance on operating pressures, temperatures, and quantities, etc.. Do's & Don’ts, Safety Measures &Precautions shall also be featured in the Instructions. Two more copies shall be supplied without framing. In addition the contractor shall supply suitably bound 3 copies of Operation and Maintenance Manuals. Such manuals should include wiring diagrams, manufacturers lists of spare parts with part numbers, exploded views with identification of parts etc. for facility of ordering - all in originals.

7.0 SPECIAL CONDITIONS – OTHERS

a) The manufacture, supply and installation of Lifts shall be complete in all respect in a first class workmen like manner and shall cover all work including Structural Steelwork necessary for the supporting structures for the Lift and other minor Civil works such as scaffolding etc., required for installation and materials, all complying the requirement of local body if any, and in accordance with the I.S. specifications I.S.14665 and fire protection requirement as per National Building Code of India.

b) Quality Assurance Plan (QAP) in respect of Lift shall be submitted before commencement of work for approval of the Architects.

c) The Elevators offered shall be in accordance with the safety of lifts in public buildings **CVC Report** for the guidelines for Safety **(Refer Annexure - A)**

d) Tenderer to study the drawing in terms of shaft sizes, head room sizes, lift car etc.any extra support/bracket to support the lift shaft for the required capacity of lift shall be done by the lift suppliers without any additional cost to the Owner**.**

1. **PARTICULAR:**

(a) Salient features of the Equipment provision as to manufacture; furnishing, finish etc. shall be highlighted with reference to the material input and operational supremacy.

(b) Necessary drawings showing the general arrangements of the equipment etc., shall be furnished. The drawing shall also detail out all items/components, which shall have to be provided by other agencies such as the Main Contractor for Civil and Associated works and the Electrical Contractor and member of consortium during the execution of the main work/installation.

(c) The materials and workmanship of the Lifts and its installations shall be guaranteed and the guarantee shall cover making good of any defects, not due to any ordinary wear and tear or improper use and care, which may develop within One year from the date of handing over of installations duly tested and commissioned.

(d) The Lifts installations shall be maintained for a period of 12 (Twelve) months commencing from the date, the Elevator equipments are handed over and the maintenance shall include periodical lubrication of the equipment and adjustment thereof, if any, under supervision and direction of Competent Personnel and replacement of parts that become necessary due to normal wear and tear during the guarantee period. All Operation / Maintenance shall be performed during regular hours of regular working days.

(e) The Lift service particular and General Specification/Condition appended shall be adhered to in all respect, except for specific change contemplated otherwise in the offer.

(f) The local statutory Lift Rules for Lift Control as applicable shall be complied with, No extra payment shall be considered either due to escalation or amendments modifications to local Act / Rules issued during the contract period.

(g) Tenderer / Contractor shall be responsible to obtain necessary License from the Electrical / Lift Inspectorate of Lifts before handing over of the installation(s) by taking timely action in submission of prescribed application form there for along with documents like completion drawing etc., duly making payment of required statutory fees / charges in the manner specified by the Inspectorate on behalf of the Owner and further follow up action. The expenses will be deemed to be covered by the quoted rates.

3. Insurance:-

The work shall have adequate insurance cover as specified by the Owner and the Owner shall be kept indemnified from all claims unless otherwise provided for.

4 Test at Site:-

Tests at site shall be carried out as per I.S. 14665 part 5

5. Approval of Installations and Completion Certificate:-

Approval/Completion Certificate from the Electrical Inspectorate of Local/ Government for installation and Commissioning of Lifts shall be obtained and made available to the Owner before handing over Lifts at no extra cost. Fees payable to the authorities shall however be made by the Owner.

6. Servicing:-

The servicing facilities shall be made available at Coimbatore, for maintenance of Lift(s) during DLP of 12 (Twelve) months, free of cost and thereafter under annual service contract.

7. Non Comprehensive Maintenance Service Contract:-

a) The scope of the Non Comprehensive Maintenance Service Contract entail the successful tenderer to bear the full responsibility for all kinds of maintenance such as short term, long term, routine, emergency maintenance etc. The successful tenderer shall be required to post at site adequate number of personnel for full time, round the clock maintenance. Such personal posted at site must have appropriate qualification and experience to ensure trouble free and continuous operation of the entire system. Senior officers from the successful tenderer's organization must monitor the work of the field personal periodically. Detailed documentation must be maintained of all the work undertaken at site. Adequate spares must be maintained at site to ensure that the down time is minimal. Maintenance schedule and routines must be submitted to TICEL BIO PARK LTD and any maintenance work must be undertaken after obtaining approval/permission of the owner.

b) The Non comprehensive service contract shall be for full 4 (Four) years after the guarantee (period of twelve months(Defect liability period) with effect from the date of handing over and taking over of the Lift installations after testing, commissioning etc, as covered in the contract.(Total 5 Years including DLP)

c) A lump sum offer for the entire period of Service Contract of Five years shall be made and the offer shall remain firm till the end of service contract period and no escalation on whatsoever account shall be considered.

d) Payment shall be considered in Quarterly bills for the completed period at the end of each quarter of satisfactory maintenance which decision rests with the Owner / Building Management of TICEL BIO PARK LTD.

e) Any expenditure incurred by the Owner of TICEL BIO PARK LTD. due to defective service rendered under the service contract shall be recovered from the payment of installment(s).

f) Tenderers are required to furnish full details of service facility available. They shall also furnish the details of person to be present at TICEL BIO PARK Ltd., at Coimbatore on daily basis and the service personnel would attend to any compliant by users in the performance of the Lifts.

8. The agreement for Principal contract shall be executed within 10 (ten) days of issue of the work order / letter of Award and the supplement agreement for service maintenance contract.

It is the intention of the Owners to examine at an appropriate time the possibility of appointment of a reputed and experienced Operating and Maintenance agency to take responsibility for a Non comprehensive and integrated Operations and Maintenance contract of the entire Lift including all services. The O&M agency may be appointed for a specific period of operation on the basis of competitive Bidding and shall be responsible for full-time Operation / Maintenance including posting necessary Technical and Service Personnel and to manage the entire O&M operations including day-to-day Operation, reporting and data management, preventive and regular maintenance of equipment and components, as well as non comprehensive repairs, replacement of spares (except consumables) as may be required, in an integrated manner so as to ensure a trouble free and smooth functioning of the Lifts in entirety and to ensure maximization of operative life of Plant and Machinery. For effective Operations and Maintenance of the respective works, it is necessary to submit complete "As-Built" drawings in 6 (Six)sets with full details of the installation as well as routing, distribution net-work etc with supportive detailed drawings to exhaustively describe the entire installation within one month of completion of specialized work. Such drawings and Operation Manuals shall be comprehensive and self explanatory.

SECTION – V

GENERAL / DETAILED SPECIFICATIONS

1. a) Drawings:

The work shall be proceeded with, the preparation of the general arrangement drawings based on the site/building plans handed over for the purpose and submission of the same for approval of the Architects according to the time Schedule specified. Any doubt on dimensions shall be got cleared by verifying at site/building under construction. Detailed drawings of all items/components, which are to be provided for in the construction by other agencies such as Main Contractor for Civil and associated works or Electrical Contractor shall also be furnished well ahead of the requirement.

b) Project information / data:

Design ambient for electrical equipment is 40°C.

c) Technical:

i) Variations in Power supply:

All equipments shall be capable of working efficiently under conditions of Voltage and frequency variations. The range of variation is as below:

Voltage: + 10%
Frequency: + 5%
Combined Voltage and current: - 10%

(2) Steelwork & Civil Works:

All Structural Steel fabrication, supply and delivery to site, erecting it in place, including painting, making necessary holes, chases in concrete masonry etc., aligning and grouting steel members in Cement Concrete of approved proportion including curing shall be done unless otherwise considered separately.

The Structural Steel work shall cover all items necessary for efficient and safe functioning of the lifts such as Machine beams, hoisting beams, guide rails, strut angles at every landings, rail brackets, bearing plates, hitch beams, stretchers, separators, buffer supports, cleats, bolts, etc. All guide rail brackets shall be provided with adequate supports. No claim for extra payment shall be admitted because of missing out any of these aspects while quoting for the work.

Also all Civil works necessary for the installations and commissioning of the lifts such as beams, pedestal for lift buffer springs grouting of all the pockets, holes etc., including fixing in position of indicator call bell and other boxes, grouting of sill and patching around the entrance etc., shall also be covered in the quoted price unless otherwise considered separately. Making good of cutting of walls etc and rectification of repair works shall be carried out using specifically fire retarding material of approved make. Scaffolding required for the erection of the lift(s) and hoisting of all machinery and equipment to the required heights shall also be arranged within the quoted price of Lifts.

(3) Work Co-ordination:

The Work shall be co-ordinate well in advance with Architects, Civil Contractor, and Electrical Contractor and IBMS contractor in all respect for satisfactory installation of lifts including location of lift wells, and supporting structures etc.Safe storage and protection of all equipment and accessories shall be made at no extra cost and loss or damage of the equipment or the accessories until handing over of the lift(s) shall be made good without claiming any extra. Unless otherwise provided for in the Bid /Contract specifically.

SECTION - VI

Technical specification for Emergency Battery Operated Power Supply (EBOPS)

1. Emergency Battery Operated Power Supply (EBOPS) For Passenger Lifts

1.1 The inverter of Emergency battery operated power supply shall satisfy the following electrical requirement:

AC output voltage:3 phaseS415V (+10% to -20%)

Frequency: 50 Hz ±1%

1.2 BATTERY FOR THE EMERGENCY BATTERY OPERATED POWER SUPPLY

1.2.1 The battery shall be of “sealed -Maintenance free type and conform with IS/BS.

1.2.2 The capacity of the battery is such that when fully charged it is capable of operating a fan, some of the existing lighting fixtures and all alarm bells for a period of at least 30 minutes.

2.0 Elevator monitoring:

a) The LIFT CONTRACTOR shall supply and install Interface facilities as described in SECTION VII, the IBMS contractor will wire and commission a Elevator monitoring system in IBMS Room.

b) The system shall consist of the following status & alarm indications

i) A position and direction indication for each lift car.
ii) Normal/ Maintenance indication
iii) Emergency alarm
iv) Fire alarm
v) Lift out of order.

SECTION – VII

INPUT / OUTPUT SUMMARY

Lift Contractor shall provide the following facility for monitoring system in IBMS.
The quoted rate inclusive of providing auxiliary contact as per the below list.

S.No	Description	DI	AI	DO	AO	Status	Alarm	Control	Location
1	Monitor alarm bell status of lifts								
2	Monitor Fireman's emergency operation status under fire drive								
3	Monitor operation of elevator in 'Attendant mode'								
4	Monitor lift under inspection/test drive								
5	ON/OFF Status								
6	FLOOR LEVEL Status.								

DI: Digital Input

AI: Analog Input

DO: Digital output

AO: Analog output

SECTION - VIII

TECHNICAL DATA SHEET

Tenderer to provide details for the following items with detailed specification in the bid document:

S.No	Description	Qty	Tenderer to be fill
1	Hall button details		
2	Car button details		
3	IP rating motor		
4	KW rating motor		
5	Class of insulation		
6	Variable Frequency Variable drive		
7	Other details		
7a			
7b			
7c			
7d			
7e			

Signature of the Tenderer.

SECTION- IX

LIST OF APPROVED MAKES – LIFT & ALLIED WORKS

1. JOHNSON
2. KONE
3. SCHINDLER
4. OTIS

Annexure – A

SAFETY OF LIFTS IN PUBLIC BUILDINGS CVC REPORT

A Technical Committee of professionals under the Chairmanship of Chief Technical Examiner, Central Vigilance Commission having members from CVC and other departments including Bureau of Indian Standards was constituted by the Government to go into depth regarding all the related issues of safety of lifts in public buildings who gave following recommendations for ensuring hundred percent safety of lifts in public buildings. These recommendations were circulated for information, guidance and compliance y Ministry of Urban Development & Poverty Alleviation vide A.V. series circular No.822 dt.25.10.2001.

1) While examining the possible causes of accidents in lifts, it was found that in case the lift Car stops away from the floor level, there is a possibility of wide gap left between the sill and the lower edge of the toe guard due to smaller length of toe guards provided in the lifts. In order to reduce the gap between the landing sill and lower edge of toe guard so as to prevent any accidental fall through the gap, it is recommended that the minimum length of toe guard should be 700mm for lifts with speeds of 1.5 mps and 1000mm for lifts with speeds above 1.5 mps.

2) Another potential cause of accidents could be the attempts made to open the landing door lock of lower floor in case the car stops away from floor level due to power failure. Since the car door can be opened in case of power failure so as to improve the ventilation and avoid claustrophobic situations etc. as outlined in IS 14665 (part 2/sec 1): 2000 para 10.9.1, there is a tendency among trapped passengers to make attempts to open any accessible landing door which can be opened by a electromechanical latch in the landing doors as the lock is accessible through open car doors. This attempt in panic may result in accidental fall into the lift pit. In order to ensure that the trapped passenger do not attempt opening the landing door, the electromechanical latch should be so designed that it is inaccessible or invisible to the passengers in the car.

3) Though para 8.4.3 of IS 14665 (Para 2/sec 1):2000 recommends for provision of either an emergency signal or a telephone inside the car but as a general experience, it is seen that over a period of time these devices become inoperative due to one reasons or the other. Therefore, in order to have at least one device of communication functioning at all the times, as an alternative arrangement, it is recommended that the provision of both i.e. telephone with minimum two connections one at the operator’s room and other at guardroom and the emergency signal with re-chargeable batteries as source of supply be made in the lift cars.

4) The device used for emergency signals should incorporate a feature that gives an immediate feed back to the car passengers that the device has worked property and the signal has been passed on to the intended agency.

5) The Automatic Resource Devices (ARD) meant for the purpose of bringing the lift car to the nearest landing doors, is being used selectively and is generally restricted to commercial building having heavy traffic. However, frequent power failures being the common phenomenon, it is recommended that provision of ARD should be made mandatory in all the lifts in public buildings.

6) Frequent power failure from regular sources of supply has been a major cause of concern for the equipments and machinery driven by electric power. Therefore, standby source of supply has become indispensable. Though in commercial building the standby supply is generally provided but in residential buildings, the provision of standby supply is still a lower priority. In order to avoid any accidental trapping because of power failure, in residential buildings, DG sets of suitable capacity with AMF panel should be provided as back up for the lifts.

   In order to avoid accidental closure of doors while boarding or alighting the car, normally infrared cells are provided in the doors. But it has been experienced that there is a possibility of tampering with the devices by blocking the holes etc. to keep the doors open for longer

time. To avoid this, it is recommended that a tamper proof infrared curtain covering the entire height of the door should be provided in the lift doors.

It is seen generally, that though the instruction on DO's and Don'ts , as per provision of the relevant IS, are displayed in lift cars but the same are either displayed in inconspicuous location, or are very small in size or are in one language only. To make these instructions serve the intended purpose, and not a mere compliance of relevant IS clause; it is suggested that these instructions should be displayed at a conspicuous location with larger and understandable script and should be written in Hindi, English and regional language.

The name, purpose and numbering of the push buttons / phone/ alarm should be displayed clearly and in the same sequence as indicated in the instructions shown against point (8) above, it is worthwhile to mention here that due to long and continuous use of buttons, the numbering and indications on the buttons get faded over a period of time. Necessary preventive arrangement may be made to make the same as fade-proof.

Apart from the written instructions in the lift cars as suggested against point (8) and (9) above possibility of providing recorded audio clipping in the passenger cars may be considered. The clippings may run continuously and sequentially in Hindi, English and regional language giving instructions on DO's and Don'ts for safety of the passengers.

A load plate along with overload alarm, giving the rated load and permissible maximum number of passengers should be filled in each lift car in a conspicuous position.

For the purpose of identification, the lift number should be displayed outside the landing door, inside the lift car. This numbering may be used as reference for the purpose of routine / preventive maintenance, for operating and reporting of any incidents etc.

All the electrical supply lines and apparatus in connection with the lift installation should be so constructed, installed, protected, worked and maintained that there may be no danger to persons there from. To do that, all the exposed parts should be duly insulated, equipments should be securely earthed in accordance with the recommendations made in IS: 3043 and also in conformity with the latest provisions of Indian Electricity rule.

The Head rooms and all other rooms containing lift equipment should be provided with adequate illumination. The lux level should be at least 150 lux. Provision of adequate lighting in the entire lift shaft should be made mandatory.

The provision of fireman's control / switch for the purpose of using the lift for carrying outfire control exercise as per provisions of relevant IS specifications should be made mandatory.

There have been quite a few instances, wherein the accidents do occur due to machinery failure which in turn is attributed to the human failure occurred in one or the other form like deploying of unskilled personnel or due to mishandling of the equipments etc. The reasons for such occurrences are the inherent shortcomings and aphorism in the award of the work of maintenance / operations to inexperienced and less reputed firms. The task of maintenance and operation should be entrusted to reputed and experienced agencies, who deploy only skilled persons. As far as possible the manufacturer of the lift should be considered for undertaking maintenance and operation so as to make the system more accountable.

7) There are some cases in which serious fatal accidents happened during rescue operation for taking out the trapped passengers. Such accidents occur due to improper handling of rescue operation or inadequate accessories required for rescue purpose. In order to avoid such occurrences, it is strongly recommended that personnel engaged for rescue operation should be fully equipped and trained in handling the rescue operation. It is essential to carry out the rescue exercise in accordance with the instruction contained in Para 10.10 IS-14665 (par12)/sec1):2000.

8) It is felt necessary to maintain a log book containing all the details Viz. Lift number, names and addresses of the operators / maintenance personnel, details of the agency undertaking maintenance and operation and details of Routine / Preventive maintenance of lifts etc. The logbook should be duly authenticated by a competent authority and also by a representative of residence in case the lift is installed in residential area.

9) The mock drill exercise for all the lifts should be made mandatory and should form part of Annual Maintenance Contracts. The responsibility of conducting mock-drills on regular pre-decided periodicity should lie with the agency undertaking the AMC, and the same should be duly verified by the resident's representatives.

All the suggestions brought out in the above Para should be considered in addition to and for in conjunction with the relevant IS Specifications and may not be deemed to have superseded any IS specification relevant to the lifts. In case of any clash the more stringent measure should be considered for implementation purpose.

Note:

The Origin of the Traction Machine shall be India/USA/Europe only.