

**CLARIFICATIONS TO PRE - BID QUERIES
KOLKATA METRO RAIL CORPORATION LIMITED**

Contract-UG/EL-L & E (R) – Detailed Design, Detailed Engineering, Prototype, Manufacture, Supply, Delivery and Storage at Site, Installation, Testing And Commissioning (including integrated testing & commissioning), Training of Personnel, Demonstration of Performance of System/ Equipment & Annual Maintenance Contract of Lift & Escalator System (L & E) of Two Underground and Six Elevated Stations of Kolkata Metro East-West Line Project (Phase1)

KMRCL / CONTRACT – UG/EL-L & E (R)

Dated: 25th April 2017

Sr. No.	VOL.	SECTION	CLAUSE No. / Sub Head / BOQ Sr. No.	PAGE No.	DESCRIPTION AS PER CONTRACT	QUERY	CLARIFICATION
1	Vol 3	Part 1	7.2.2	75	Escalators shall be designed for installation and operation at an angle of inclination of 30° for concourse to platform and 30°.for ground to concourse escalators, except one escalator at Phool Bagan station ground to concourse which is of 35° angle of inclination.	Escalator required for Ground to Concourse 35deg which is not permissible as per EN115. Kindly clarify	Please refer to Addendum No 3 (S No. 2)
2	Vol 3	Part 1	7.5.5	85	Step chains shall be of the endless roller type located on both sides of the moving step. The chains shall be provided in matched lengths and be of high quality steel construction incorporating links, pins, bushes, axles and rollers with three pitches between adjacent rollers. The step rollers shall be located outside/Inside the chain links and shall be easily replaceable without dismantling the links. All chain pins shall be circlipped. Each step chain shall be provided with an automatic tension device to ensure proper tension under varying load conditions.	Clause 7.5.5 given the permission for Inside/Outside step roller, But as per technical inside and outside is defined for Step chain roller. Kindly clarify and give option for one type only.	Please refer to Addendum No 3 (S No. 1)
3	Vol 1	ITT	A3.2	ITT/2	Eligible Tenderers The Tenderer shall provide such evidence of their eligibility satisfactory to the Employer as the Employer shall reasonably request. In case of a consortium, an agreement among the partners should be formed and the same should be registered in India.	Clause A 3.2 of Volume 1 asking to register the consortium agreement in India but as per legal prospect consortium agreement cannot be register so kindly clarify.	No change in tender condition is envisaged
4	Vol 3	Part 1	7.2.2	75	Escalators shall be designed for installation and operation at an angle of inclination of 30° for concourse to platform and 30°.for ground to concourse escalators, except one escalator at Phool Bagan station ground to concourse which is of 35° angle of inclination.	Phool Bagan Station: No. of Escalators: 2 units Vertical rise: 9035 mm & 7185 mm. Angle of Inclination Asked in Tender: 35 Degree. Bidder Clarifies that As per EN115, Inclination of 35 Degree is not advisable for MRTS project. Even in commercial projects also 35 Degree inclination is recommended for the vertical Rise below 6000 mm. The combination of 35 Degree Inclination with vertical rises of 9035 mm & 7185 mm is not recommended for the safety of MRTS Passengers. To ensure long term safety of the Passengers, we request you to change the degree of inclination of the escalators to 30 Degree.	Please refer to Addendum No 3 (S No. 2)
5	Vol 3	Part 1	7.5.5	85	Step chains shall be of the endless roller type located on both sides of the moving step. The chains shall be provided in matched lengths and be of high quality steel construction incorporating links, pins, bushes, axles and rollers with three pitches between adjacent rollers. The step rollers shall be located outside/Inside the chain links and shall be easily replaceable without dismantling the links. All chain pins shall be circlipped. Each step chain shall be provided with an automatic tension device to ensure proper tension under varying load conditions.	Bidder Clarifies that Rollers inside the chain link can't be replaced without dismantling the links. This is not Technically Possible. Request you to clarify which type of Step Rollers to be provided for this Tender	Please refer to Addendum No 3 (S No. 1)
6	Vol 3	Part 1	5.3	28	Basic Design Philosophy and Requirements 5.3.1 Proven Design (xviii). Security system (a CCTV camera and cabling to be installed, in the lift shaft, shall be procured and handed over by the Communication Contractor to the Lift Contractor to be installed in the lift car at site).	CCTV camera shall be installed in the lift car only.	Yes, CCTV camera shall be installed in the lift car only. No change in tender condition is envisaged.

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7	Vol 3	Part1	6.2.6	35	<p>The gear less drive machine shall be mounted on guide rails accommodated within the elevator shaft. The power switch gear and main control equipment shall suitably located inside or near the Elevator shaft, the location of which is to be decided in coordination with the Designated Civil Contractors. No separate machine-room is proposed to be provided for machine room less Elevators.</p> <p>The function of each Elevator involves primarily for the movement of disabled and elderly persons and also of other commuters and staff. The reliability of the Elevator is therefore of paramount importance.</p> <p>Please refer to Table No 2 for Passenger Capacity of elevators, Elevator Shaft Dimensions, Pit Depth, Door Size etc. The nominal speed for the Elevators shall be 1.0 m/s in either direction.</p> <p>The Contractor shall take all necessary measures to accommodate the Elevators in the above shaft. The Contractor shall co-ordinate with the Designated Civil Contractors for all matters related to shaft size. Any minor reduction in the shaft size (depth and width) to the tune of + 250 mm and – 100 mm shall have to be accommodated in the design by the contractor by way of provision of suitable guide brackets/stainless steel channels without any additional charges. The contractor shall be responsible for any delay on this account.</p> <p>For the Elevators with "Hanging – Pit" / "Floating – Pit" the dimensions of Lift shaft shall be increased by 200 mm (either in Depth or in Width). For such cases, the Elevator contractor should provide the detailed design / requirements for such Lift shafts as per specific site conditions and Interface with designated civil contractor to ensure that the Lift shaft is constructed as per the design / requirements.</p>	<p>As per contract Table No.2 shows Escalator dimensions only. Please clarify if Table 1 is meant.</p> <p>Minimum required size for 13P lift shaft dimension is 2500mm (Width) x 1900mm (Depth) & for 21P/1600 Kg lift shaft dimension is 2900mm (Width) x 2600mm (Depth). Kindly amend Table 1</p> <p>As per IS 14665 Part 2/ sec-1 Clause 6.1 and 6.3, minus tolerance is not allowed and it is not possible to design lift with this tolerance.</p> <p>Hence 13P Lift (for Howrah Maidan station) to 2425mm (width) x 1850mm (depth) is NOT possible. Please re-consider and amend suitably.</p>	<p>Table No 1 for Lift and Table No 2 for Escalator. All dimensions mentioned in Table No 1 & Table No 2 are to be considered. Please note there will be no change in any dimensions which are mentioned in Table No 1 & Table No 2.</p> <p>No change in tender condition is envisaged.</p>
8	Vol 3	Part 1	6.2.7	35	<p>Please refer to Table No 2 for Passenger Capacity of elevators, Elevator Shaft Dimensions, Pit Depth, Door Size etc.</p> <p>The false ceiling height of the Elevator car shall not be less than 2300mm. The Elevator and door shall be configured so that it is possible to handle a person on a wheel chair.</p>	<p>Irrelevant S.No. 10 mentioned for this clarification.</p> <p>1. Car internal dimension is mentioned for 2000 kgs /26P and 13P, but not mentioned for 1600 Kgs/21P. Kindly include 21P dimensions in clause 6.2.7</p> <p>2. Please advise your requirement of 26P Lifts, and confirm the Station since Table 1 does not list 26P anywhere.</p> <p>3. However Table-1 for Elevated Stations does not mention CAR Sizes for 13P, but is mentioned for underGround Stations. We shall be following Car sizes of 1600w x 1400d for Elevated Station as per Clause 6.2.7, and 1500w x 1500 d for U/G Stations as per Table 1. Please confirm if OK.</p>	<p>Table No 1 for Lift and Table No 2 for Escalator. All dimensions mentioned in Table No 1 & Table No 2 are to be considered. Please note there will be no change in any dimensions which are mentioned in Table No 1 & Table No 2.</p> <p>Also please note that there is no 26 Passenger Elevator in the contract.</p> <p>No change in tender condition is envisaged.</p>
9	Vol 3	Part 1	6.2.6	35	<p>6.2.6 Any minor reduction in the shaft size (depth and width) to the tune of + 250 mm and – 100 mm shall have to be accommodated in the design by the contractor by way of provision of suitable guide brackets/ stainless steel channels without any additional charges</p>	<p>As per IS 14665 Part 2/ sec-1 Clause 6.1 and 6.3, tolerance in minus is not allowed and not possible to design lift with this tolerance. Please re-consider.</p>	<p>No change in tender condition is envisaged.</p>
10	Vol 3	Part 1	6.2.8	35	<p>Both the car and landing entrance clear opening width dimensions shall be as per table no 2 and the door shall be of center opening type.</p>	<p>Clear opening width for 13P and 21P required is 1100 and 1200 respectively per Table 1, but Clause 6.2.8 mentions this is to be not less than 1000mm.</p> <p>However our preferred design shall be 1000 mm clear opening width for both capacities.</p> <p>Hence please correct and amend Table 1 to show 1000x 2100 height</p>	<p>Table No 1 for Lift and Table No 2 for Escalator. All dimensions mentioned in Table No 1 & Table No 2 are to be considered. Please note there will be no change in any dimensions which are mentioned in Table No 1 & Table No 2.</p> <p>No change in tender condition is envisaged.</p>
11	Vol 3	Part I	3.1	20	<p>2.In table (Underground Stations - Schedule of Machine Room-Less Type Lifts (Complying to EN-81 Standards) Suitable For Metro Station Operation:.) for 21P Shaft dimension is mentioned as 2900mm (W) x 2600mm (D), car internal dimension mentioned as 1900 (W) x 2000 (D) x 2400 (H) and clear opening is mentioned as 1200(W) x 2100 (H)</p>	<p>1. Your car size for 1900(w) x 2000 (d) for 21P requires 3.8m2 area which is beyond EN 81 / IS 14665 standard specification Car Area which specifies MIN to Max range of 3.14 to 3.56 m2</p> <p>However satisfying these Standards, our preferred car internal dimension for 21 P will be 1800mm (W) x 1800mm (D) x 2300mm (H) and clear opening size is 1000mm (W) x 2100mm (H). Kindly re-consider and amend Car W x D and Clear opening dimensions.</p>	<p>No change in tender condition is envisaged.</p>
12	Vol 3	Part 1	6.2.10	36	<p>The approximate overhead (headroom) of 4500mm/4800 mm and pit depth of 1650mm/2100mm for each Elevator will be provided in the shaft. The Contractor shall submit in their technical packages the requirement in respect of reaction load on the walls and in the pit and other relevant shaft requirements. The Contractor is required to interface with Designated Civil Contractor in respect of the Elevator shaft requirement. The Contractor shall co-ordinate with the Designated Civil Contractors to finalize all the details.</p>	<p>As per Table 1, Pit depth for Elevated Stations is 1500mm for 13P.</p> <p>Plesae amend Table 1 to include depth as 1650 (for 13P) and 2100 (for 21P) and also corresponding Head rooms as 4500 (for 13P) and 4800mm (for 21P).</p>	<p>Pit depth will be provided as mentioned in Table No 1 of Volume 3 Part 1 .</p>
13	Vol 3	Part 1	3.1	18-20	<p>Table last Column for Elevated Stations shows Total no of Lifts as "including for property Development Space"</p>	<p>Please confirm Lift Quantities in Table 1 for Elevated Stations since BOQ in pricing Document does not reflect Property Development Space requirements for Lift Quantities at all.</p>	<p>Quantities as per BOQ only.</p>

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14	Vol 3	Part I	6.3.2	37	6.3.2 Motor (a) Driving motor shall be of the AC synchronous/asynchronous axial type designed for special duty cycles required for Elevator operation with no slip rings. It should have a high starting torque, high power factor, high efficiency and low energy consumption. The motor efficiency should be not less than 90% and the power factor should be not less than 0.9. The bearing used should be of spherical roller type to ensure longer life. The drive sheave, and deflector sheave (if required) shall be mounted in proper alignment on a common, isolated bedplate.	Motor efficiency will be more than 85%	No change in tender condition is envisaged.
15	Vol 3	Part I	6.3.2	37	(c) The maximum temperature rise of the winding shall not exceed 50°C above ambient temperature when operated under normal condition. During prototype ambient temperature has to be created as per Kolkata ambient conditions for motor test to validate the requirement.	Ambient temperature for Kolkata ambient condition cannot be generated for lift Prototype demonstrations in factory	No change in tender condition is envisaged.
16	Vol 3	Part I	6.3.2	38	(d) The motor to be tested at full load capacity and maximum temperature rise of the winding shall not exceed 50°C above ambient temperature when operated under normal condition.	Temperature rise to be suitable to class-F insulation. Class F can withstand 155°C temperature. (So the temperature rise can go upto 100°C). Hence stated 50°C is not very stringent requirement. Motor size will become bulky.	No change in tender condition is envisaged.
17	Vol 3	Part I	6.3.3	39	Encoder shall be of Direct drive, solid-state, digital type. These shall be able to update car position at each floor and automatically restore after power loss	As there is no separate clause for Encoder in other Metro contracts, we suggest this clause may be removed	No change in tender condition is envisaged.
18	Vol 3	Part I	6.8.1	42	Roller type guide shoes	A swivel type (cast iron FG300 (IS 210)) spring loaded, adjustable and slipper type guide shoes are provided instead	No change in tender condition is envisaged.
19	Vol 3	Part I	6.8.9	45	The car junction box with IP Class 55 protection, for the traveling cables and car enclosure wiring shall be installed at the car top. Car junction box with IP class 65 shall be used for elevated stations.	Car junction box IP class 55 protection will be sufficient. Please amend for Elevated Stations	No change in tender condition is envisaged.
20	Vol 3	Part I	6.8.10	46	iv. Car Doors - Scratch Resistant Stainless steel, 5WL SS 304 finish with 1 hour fire rated stainless steel of not less than 1.5 mm in thickness - For the glass door, Thickness of glass shall not be less than 10mm and with the stainless steel 304 5WL frame. The fire rating of the glass shall be minimum 1 hour.	Fire rating for car door is not required as per EN and Indian standard	No change in tender condition is envisaged.
21	Vol 3	Part I	6.9.3	49	If the car door is forced open, the Elevator shall stop and the alarm activated (even when the Elevator is out of order) until the door is fully closed. The audio-visual alarm signal shall be sent to the relevant landing as well as to SCR and CC rooms.	If the car door is forced open, then the lift stops and fault code is generated. Audio and visual signal sent to SCR by RMS.	No change in tender condition is envisaged.
22	Vol 3	Part I	6.11.3	50	(b) A red "Car Overload" indicating lamp with buzzer and announcement in Hindi, English & Bengali Language.	Car overload can be displayed in car display. No separate indicating lamp required.	No change in tender condition is envisaged.
23	Vol 3	Part I	6.11.4	51	(d) "UP/DOWN" buttons which shall cause a car to travel in the desired direction. These buttons shall be operative only during the "Attendant" operation.	UP and Down button shall not be separately provided for attendant operation. Use floor buttons for attendant operation. PI amend.	No change in tender condition is envisaged.
24	Vol 3	Part I	6.12	51	Car Position Indicator Floor numbers shall be digitally displayed using 5 "x 7" LCD. There shall also be an arrow in motion vividly and dynamically indicating car movement and direction. It shall also be capable of displaying simple message such as, floor names like Over Load, Ground level, "Concourse, Platform", " Out of service", under maintenance" etc.The surface of the display unit shall be non-glare type.	16 x72 square dot matrix display provided	No change in tender condition is envisaged.
25	Vol 3	Part I	6.12	52	A voice announcer, in English, Hindi & Bengali shall be provided to indicate operation of the doors and the floors where the elevator stops and the direction of the elevator. It shall also announce Over load, "Seismic", "Fire" ARD function when applicable. The announcement shall be 100% synchronized with the actual operation of the elevator. During PA Speaker is announcement, Lift announcement should stop automatically.	Announcement in three languages practically cannot be synchronised with the actual operation since the announcement time become longer. With two languages somewhat we can manage to synchronise	No change in tender condition is envisaged.
26	Vol 3	Part I	6.16	55	Where the gap between the car door sill and surface of the Elevator shaft wall exceed 125 mm, galvanized sheet steel fascia plates of not less than 1.5 mm thick shall be provided. These shall be fixed between the undersides of landing entrance sills and the top of the door hanger case to form a flush surface in the path of travel at the car entrance. The plates shall cover the whole width of the landing door and extend by 150 mm on each side of the door. It shall be rigid and properly reinforced. The fascia plate shall be painted in a accepted colour.	As per EN81 clause no. 11.2.1 (c) this point is not applicable if car door lock is provided	No change in tender condition is envisaged.
27	Vol 3	Part I	6.18.4	59	An automatic re-leveling device shall be provided which returns the Elevator to the floor automatically should the Elevator creep down or move up from floor level for any distance from 6 mm to 50 mm. This device shall be operative at all floors served whether the landing and car doors are opened or closed.	Re-Leveling may not be required for stations, since the total travel is very less, and the rope elasticity is also negligible.	No change in tender condition is envisaged.
28	Vol 3	Part I	6.18.7	60	As in the case of Power failure (including single phasing / unbalanced phase) elevator should operate in the EBD mode with EBD battery backup. This software for providing this feature is subject to the Employer's acceptance. The batteries status of charge/discharge shall be communicated to RMS/BMS.	Fault code for "ARD Battery Failure" is available.	No change in tender condition is envisaged.
29	Vol 3	Part I	6.19.2 & 7	61	The shaft lighting (Lux requirement as per the IS), Ventilation arrangement and pit socket outlets shall be provided by the Elevator Contractor. The Fixtures and cables will need to get approval from the Employer. 6.19.7 Not used. Shaft Lighting shall be in scope of lift contractor by maintaining the lux level as per statutory requirement and Indian standards.	Shaft lighting will be CFL type and Lux level will be as per IS	No change in tender condition is envisaged.
30	Vol 3	Part I	6.20.1	62	The RMS will be provided by the designated contractor. However, the Contractor shall provide/receive the following status monitoring points and control points to the RMS in the form of interface voltage free contacts. Fault data logging should have Date & Time stamping facility. a. Provision of elevator fault/trip signal b. Provision of elevator car alarm signal c. Provision of power available and failure status d. Provision of elevator under maintenance signal e. Receiving remote control signal for parking on/off operation	Instead of volt free contacts, MODBUS RTU / MODBUS TCP / IP is better option	No change in tender condition is envisaged.

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31	Vol 3	Part I	6.24.1	66	Oil buffers shall be provided in the Elevator pit.	Spring Buffer will be provided for 1.0m/s speed since Oil buffers are not recommended.	No change in tender condition is envisaged.
32	Vol 3	Part I	6.30.3	71	The conductor shall be of stranded conductor composed of plain annealed copper wire complying with IEC 228, Class 2.	IEC 60228/ IS 8130/ IS 1554/ IS 694 shall be considered to meet the requirements.	No change in tender condition is envisaged.
33	Vol 3	Part I	6.30.4	72	The insulation shall consist of an extruded layer of cross-linked polyethylene complying with IEC 502.	IS 7098 can be considered to meet the voltage grade of 1100 V	No change in tender condition is envisaged.
34	Vol 3	Part I	6.30.5	72	All cables shall be manufactured from fire retardant, low smoke, halogen free materials for underground lifts. The Contractor may propose to use cables manufactured from fire retardant materials only in elevated stations and above ground open areas.	All cables are FRLS ZH.	No change in tender condition is envisaged.
35	Vol 3	Part I	6.30.6	72	Fire retardant, low smoke, halogen free materials shall meet the following requirements:- (a) London Transport Executive Three Metre Cube Smoke Emission Test, using optical measuring instruments. The maximum value of absorbance AO (ON), AO (OFF) shall be 0.8 & 1.2 respectively. (b) The US National Bureau of Standard Smoke Chamber Test, used to evaluate plaque samples of materials of constant thickness. (NFPA-258 Smoke Generation of Solid Materials 1982). The maximum specific optical density shall be 170 under the non-polluted condition. (c) The flame propagating criteria of US IEEE Standard 383, with a minimum test short circuit time of five minutes, in the IEEE Standard 383 test. (d) IEC 332 Parts 1 and 3, Category B, tests on single and bunched cables under fire conditions. (e) Limiting Oxygen Index of at least 30, to ASTM D-2863. (f) A temperature index (TI) of 260°C to ASTM D-2863. (g) All insulation is to be moisture and heat resistant, with temperature ratings appropriate to the application conditions, and in no case lower than 120°C. (h) When a sample of the cable is subjected to a combustion test for the determination of the amount of halogen acid gases (other than hydrofluoric acid) as set out in IEC 754 - Part 1 the halogen acid evolved shall not exceed a maximum of 0.5%	(a) & (b) - IEC 61034 Global standard followed by all cable manufacturer (c) & (d) - IEC 60332 part 1 and 3, standard followed by all cable manufacturer Note: These applicable standards to be included by Addendum. This Error is continuing in all Metro contracts.	No change in tender condition is envisaged.
36	Vol 3	Part I	9.4	118	Interface with Integrated Station Management System (SCADA) 9.4.3 The equipment on the side of the interface receiving the information shall provide the power supply and all infrastructure support for operation/control/monitoring requirements and the sending side shall provide Ethernet or the serial data link. The physical characteristics and data transmission protocol proposed shall conform to an internationally recognized publicly available standard e.g. RS485. It will be the responsibility of the contractor to interface and co-ordinate to mutually finalize the type of interface, data transmission speed etc. with the Integrated Station Management System and Designated contractor. The interface shall have the following features: i) The Contractor shall provide isolated 'voltage – free' dry contacts, each rated at nominal 24V 1A dc, for the SCADA transfer points. Each point shall be terminated at the interface board through an individually shielded twisted-pair screen wire. The 24V dc power supply for relay contact integration and conversion to serial data link shall be provided by the ISMS / Contractor. ii) Common return wires shall not be used.	Clause 9.4.3 says "serial data link", but subclause (i) says voltage-free dry contacts. This contradiction is to be corrected and Clause amended.	No change in tender condition is envisaged.
37	Vol 3	Part I	APPE NDIX A	221	1. Interface Specification L&E Contractor and Civil as well as E&M Contractors. LE Contactor responsibilities Provide data cable for control from station control room including requirements of BMS and Integrated Station Management System contractor.	Cable upto SCR in L&E contractor scope	No change in tender condition is envisaged.
38	Vol 3	Part I	APPE NDIX A	224	Interface Specification L&E Contractor and Integrated Station Management System (ISMS) Contractors. Item No. Subject L&E responsibilities ISMS responsibilities 1. Elevator Design ; - PC based RMS software to jointly operate the functions of control & signalling for lifts in the SCR on the PC being provided by L&E contractor. Construction : - Interfacing of elevator control and operating parameters available on Ethernet / RS-485 based protocol provided by Lift contractor at ITB (To be provided by ISMS Contractor) in SCR with RMS. Design : - Provision of lifts' control and operating parameters on RS-485 based protocol at ITB in SCR. Construction : - To wire the lifts' control and operating parameters on Ethernet / RS-485 based protocol at ITB in SCR with screened wires. ITB (To be provided by ISMS Contractor) to be located in SCR. - ISMS Contractor is also responsible to interface for linking the elevator software from ITB in SCR to OCC	Signals can be provided by a open protocol by L&E contractor. ISMS contractor is to handle the Signals using his Software and Hardware is an appropriate solution. Normally BMS (ISMS) Contractor is much more capable to do this work rather than L&E contractor. At all big malls, IT buildings and Airports the BMS (Building Management System) contractor is doing this job efficiently and effortlessly. This is an Error continuing in all Metro Contracts. Practically very difficult to execute. PLEASE AMEND THE CLAUSE AND INTERFACE TABLE SUITABLY.	No change in tender condition is envisaged.