

**The Oriental Insurance Company Ltd.  
A-25/27,Asaf Ali Road,,  
New Delhi -110002**

## **Tender Documents**

**NAME OF WORK : Supply, Installation, Testing ,  
Commissioning And Maintenance  
of Lift**

**AT**

**# Company owned Residential Building at Plot No 30 ,  
Block- B , Pocket 10 , Sector 13 , Dwarka**

**Lead Consultants:**

Vastu Mandal  
Architects & Interior Designers  
F-328, Lado Sarai,  
New Delhi-110030  
Ph 41665455 Fax 41665455  
E-Mail - vastumandal@gmail.com

## **PART –I**

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# TECHNICAL BID

## APPENDIX SHOWING IMPORTANT SCHEDULES

### DESCRIPTION OF WORKS

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1. Quotation Based on	Item Rate Tender.
2. Total tender amount	Rs 12,75,000/- (Rs Twelve Lacs & Seventy Five Thousand)
3. Date of commencement	Within 10 days of letter of award from the Client
4. Period of completion	60 Days (For Entire supply, installation work, testing and commissioning)
5. Liquidated Damages	Rs 2000/- per day to the maximum of 10% of contract Value
6. Period of final measurement	Within one months after completion.
7. Value of interim certificate	90% of awarded value after supply of all material and successful installation and balance 10% after warranty period of 12 months
8 Payments During AMC	Four Quarterly installments every year on the having successful performance report on quarterly basis of the contract value
9. Earnest money	Rs 25,500/-
10 .Retention amount	10% of the value of work done. ( Security Deposit ) Earnest money shall be adjusted towards Security Deposit on completion of work. Security Deposit can be released against Bank Guarantee upto 10% of cost of works
11.Tax deduction at source	As per prevailing rates from each bill.
12.Warranty period	12 months from date of handing over.

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**The Oriental Insurance Company Ltd.**  
**A-25/27,Asaf Ali Road,,**  
**New Delhi -110002**

**SECTION - I INVITATION TO TENDERERS**

- 1.1 Sealed tenders in two bid system (Technical & Financial) are invited from established experienced contractors / Manufacturer/ Dealers / Distributors/Suppliers, having sound financial position, by the Chief Manager (Estate), The Oriental Insurance Company Ltd. A-25/27, Asaf Ali Road, New Delhi - 110 002.

<b>S.No.</b>	<b>Name of Work</b>	<b>Estimated Value of Work (Rs.)</b>	<b>Time of Completion</b>
1.	<b>Supply,Installation, Testing , Commissioning and Maintenance of Lift</b>	12.75 LACS	60 days

**The installation shall be done at following Location**

- a. The Oriental Insurance Co. Ltd owned Residential Building at plot No 30 , Block- B , Pocket 10 , Sector 13 , Dwarka
- 2 The tender document containing terms and conditions including Technical and Financial Bid etc. can be obtained from our office **The Oriental Insurance Company Ltd, at A-25/27,**

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**Head Office, Asaf Ali Road, New Delhi-110002** during office hours (10.00 AM to 3.00 PM) from Monday to Friday between the dates given below

3	<b>Sale of tender (Date )</b>	<b>06.07.2016 to 27.07.2016</b>
4	<b>Date of pre bid conference</b>	<b>13.07.2016 at 10.30 AM</b>
5	<b>Date of publish of clarifications</b>	<b>20.07.2016 at website</b>
6	<b>Date of Submission</b>	<b>28.07.2016 upto 3.30 pm</b>
7	<b>Cost of tender</b>	<b>Rs 2875/- ( Non refundable )</b>

The tender documents can also be downloaded from our website [www.orientalinsurance.org.in](http://www.orientalinsurance.org.in) If downloaded from website then the contractor has to attach a demand draft for Rs 2875/ ( Rs Two Thousand Eight Hundred Seventy Five Only ) from a Scheduled Bank shall be paid in favour of **“The Oriental Insurance Co. Ltd.” payable at New Delhi** as cost of Tender documents along with EMD failing which tender will be rejected

**Pre-bid conference:** There shall be a pre-bid conference at Chief Manager ( Estate ) office at The Oriental Insurance Company Ltd, A -25/27, Asaf Ali Road , New Delhi-110002 per the schedule, to obtain clarification if any from the client. The points, if any, emerged out from the discussion shall be published in our website and the same shall form part of the tender and subsequently the agreement. Only those contractors will be allowed to attend the pre-bid conference who have purchased the Tender Document .Those who have downloaded the tender documents shall submit the DD for Rs 2875/ ( Rs Two Thousand Eight Hundred Seventy Five Only ) from a Scheduled Bank shall be paid in favour of **“The Oriental Insurance Co. Ltd.” payable at New Delhi ,in the office of Chief Manager ( Estate )** prior to attending the pre bid meet.

### **7.1 Eligibility Criteria**

Tenders are invited into two bid system i.e. **“Technical bid”** and **“Financial bid”** for **Supply,Installation, Testing , Commissioning and Maintenance of Lift at OIC ltd Residential Building at plot No 30 , Block- B , Pocket 10 , Sector 13 , Dwarka as per the specifications given in the Annexure – B** . The intending contractors should submit the following details in the technical bid duly contained in closed sealed **Envelope no. 1 superscribed as “Technical bid”**:

- For the tenders downloaded from website Rs 2875 /- in the form of Demand Draft** from a Scheduled Bank shall be paid in favour of **“The Oriental Insurance Co. Ltd” Payable At New Delhi.**
- Demand Draft from a Scheduled Bank in support of having paid the **earnest money of Rs 25,500/-** in favour of **“The Oriental Insurance Co. Ltd “ Payable At New Delhi.**
- Copy of Permanent account number (PAN)
- Copy of registration with Work Contract Tax department

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- e. **Annual Report (Balance sheet and Profit and Loss Account of last 3 Years** ending March 31 of previous financial year .The average annual turnover shall be at least 30% of total estimated cost .
- f. The tenderers must satisfy themselves that they have adequate experience of **Supply, Installation, Testing , Commissioning and Maintenance of Lift** within the stipulated time schedule. They should produce documentary proof of satisfactory completion of at least two jobs of similar nature, costing not less than Rs 6.37 lacs, each or three similar jobs of Rs 5.1 lacs each, or one job of similar nature costing not less than Rs 10.2 lacs, for Government, Semi-Government, Private/Public Sector organization in last seven years from the date of advertisement with complete details, name, address & phone nos. of clients etc.
- g. Details of projects in hand with name of clients, addresses & phone nos.
- h. Bid proposal form as per page ... duly filled up and details enclosed

i. **GUARANTEE**

Tender should indicate the period for which the said goods / articles /items would continue to conform to the specifications and offer guarantee as per prevailing scheme of company whose .

Replacement of Defective works or materials:

The tender shall also guarantee, among other things, the following:

1. Quality and strength of materials used.
2. Safe electrical and mechanical stresses on all parts of the equipment / instrument /item under all specified conditions of operations.
- 3 Onsite satisfactory operation for a period of not less than one year from date of handing over.
4. Tenderer is required to confirm availability of spares for at least a minimum period of Ten years from date of completion

f. **TERMS and CONDITIONS**

1. Tenderers must submit their offer as per the format given. Deviations if any may be brought out clearly / specifically in the given format
2. Tenderer must also fill the specification compliance format supplied to them offered against each item and sub item At any stage they should not say that the analysis is not possible because order was not placed for a particular item

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3. Tenderer must also fill the specification compliance format supplied to them by indicating YES or NO about the availability of that feature in the model(s) offered against each item and sub item

**g. DECLARATION**

Tendered should furnish a clear declaration as follows:

- a) "I/We declare that I am/ we are Contractors /Manufacturer/ Dealers /Supplier Distributor of the Items of ..... ( Name/s of Make) for which quotation is offered and I am/we are authorized to supply and install the Lift at The OIC Ltd Premises **at plot No 30 , Block- B , Pocket 10 , Sector 13 , Dwarka**

**The bidder shall furnish an Authorization letter from the OEM specific to this tender clearly mentioning tender title for which authorization is being provided.**

- 7.2 The "Financial bid" shall be contained in a closed sealed **envelope no. 2 superscribed as "financial bid"**. The financial bid shall contain **Section-VII (Schedule of Items)** duly filled in by the intending tenders. This shall form the part of the agreement.
- 7.3 Both the sealed envelopes of "Technical bid" and "financial bid" should be kept in **envelope no. 3** sealed and subscribed with the name of work on the top of envelope shall be deposited in the office of the Chief Manager (Estate), The Oriental Insurance Company Ltd. A-25/27, Asaf Ali Road, New Delhi-110002, on or before **28.07.2016 upto 15:30** hrs. The tender received in any manner other than prescribed above shall be summarily rejected. The company will not accept any responsibility for the tender lost in transit.
- 7.4 At first instance technical bid shall be opened on **28.07.2016, 16:00** hrs. The technical bid will then be evaluated on the basis of documents/information furnished as also if necessary, after physical examination of the tender office/workshop & projects successfully executed by them. The criteria followed by the company will be at its sole discretion and will not be open to question. The contractors who shall qualify in the technical bid will only be eligible for the opening of their financial bid.
- 7.5 Date of commencement of the work shall be reckoned from the 10th day of award of work.
- 7.6 The work as detailed in this tender shall be executed and completed in all respects in accordance with the Tender documents, which includes instructions to tenders, General conditions of contract, special conditions of contract, schedule of Quantities, list of approved materials and Drawings to complete satisfaction of the Architects and the Employer.

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7.7 Rates must be quoted for complete work at site inclusive of all costs, taxes and charges etc. All taxes and duties including Sales Tax on work contract. ESI charges etc. as applicable at New Delhi/NCR on the date of receipt of tender, Central & State Sales Tax, Service Tax ,Octroi, Royalties etc. on works and materials required for use in the execution of this project shall be entirely borne and payable by the Contractor and the Employer will not entertain any claim what so ever in this respect.

7.8 The tender for the works shall remain open for acceptance for a period of 90 days from the date of opening of tenders. If any tender withdraws his tender before said period or makes any modifications in terms & conditions of the tender which are not acceptable by the company, then the company, shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money as aforesaid.

7.9 The Earnest Money will be refunded without any interest to all the unsuccessful tender after the award of the work subject to the relevant provisions in the tender documents. Any false information furnished by the contractor shall lead to the forfeiture of the earnest money.

**7.10 PERFORMANCE CUM WARRANTY GUARANTEE BOND**

The successful bidder shall furnish a Bank guarantee equal to 10% of cost of the work executed valid for 12 months or 10% Security Deposit shall be deducted from the bill for the guarantee period after testing, commissioning and handing over all equipments.

This agreement is not transferable and will continue in force for the period specified earlier unless terminated by the customer by giving one month notice in writing.

7.11 Total Security Deposited during execution of work shall comprise of deduction from interim & final bill @ 10% of the gross value of each bill. or Performance Bank Guarantee @ 10% of the cost for a period of 12 months as warranty from the date of completion and handing over

**PERIOD of AMC**

Comprehensive Five years from successfully completion of one year warranty period with a provision to extend it further period of two years (one year at a time) on mutually acceptable terms and conditions. The comprehensive AMC includes all spare parts, quarterly maintenance, visit charges etc

The competent authority on behalf of the Chief Manager (Estate), The Oriental Insurance Company Ltd. A-25/27, Asaf Ali Road, New Delhi-110002 reserves to himself the right of accepting the whole or part of the tender and the tender shall be bound to perform the same at the rate quoted.

7.12 Canvassing whether directly or indirectly in connection with the tender is strictly prohibited and the tenders submitted by the contractors who resort to canvassing in any form would be liable to rejection.

7.13 The tendering firms, in case the tender is a partnership firm, shall submit the tender signed by the partners. In the event of absence of any partner, it must be signed on his behalf by a person holding power of attorney which shall be attached along with the tender and it must also disclose that the contractor is duly registered under the Indian partnership Act or not.

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3.13 The tender shall unconditionally accept terms & conditions of the company. Conditional offer shall be summarily rejected.

**CHIEF MANAGER (Estate)**

**OF THE ORIENTAL INSURANCE CO. LTD.**

**Asaf Ali Road, New Delhi-110002**

**STANDARD TENDER OFFER**

***THE ORIENTAL INSURANCE CO. LTD., ASAF ALI ROAD, NEW DELHI***

Item Rate Tender & Contract for  
**SUPPLY, INSTALLATION, TESTING, COMMISSIONING AND MAINTANENCE  
OF LIFT at PLOT NO 30, BLOCK-B, POCKET 10 , SECTOR 13 DWARKA**

To be submitted by ..... between ..... hrs. to ..... hrs.

Issued to: .....

Signature of the person issuing the documents: .....

Designation: .....

Date of Issue: .....

**TENDER**

I/We have read and examined the notice inviting tender, Schedule, specifications applicable, Drawings & Designs, General rules and Directions, Conditions of Contract, clauses of contract, Special conditions, Schedule of Quantities & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for The Oriental Insurance Company Ltd., Asaf Ali Road, New Delhi within the time specified in schedule, viz., schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in General Rules and Directions and the Conditions of contract and with such materials as are provided for, by, and in respects in accordance with, such conditions so far as applicable.

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We agree to keep the tender open for ninety days (90 days) from the due date of submission thereof and not to make any modifications in its terms and conditions.

I/We hereby declare that I/we shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived therefrom to any person other than a person to whom I/we am/are authorised to communicate the same or use the information in any manner prejudicial to the safety of The Oriental Insurance Company Ltd..

I/We agree that should I/we fail to commence the work specified in the above memorandum, an amount equal to the amount of the earnest money mentioned in the form of invitation of tender shall be absolutely forfeited to The Oriental Insurance Company Ltd., Asaf Ali Road, New Delhi and the same at the option of the competent authority on behalf of the CHIEF MANAGER (Estate), The Oriental Insurance Company Ltd., Asaf Ali Road, New Delhi be recovered without prejudice to any other right or remedy available in law out of the deposit in so far as the same extend in terms of the said bond and in the event of deficiency out of any other money due to me/us under this contract or otherwise.

Dated.....

**Sign. of Contractor**

Postal Address

**Witness:**

Address:

Occupation:

**ACCEPTANCE**

The above tender (as mentioned by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the, The Oriental Insurance Company Ltd., Asaf Ali Road, New Delhi for a sum of Rs. .... (Rupees .....

.....)

The letters referred to below shall form part of this contract Agreement:

- a)
- b)
- c)

for & on behalf of the,  
The Oriental Insurance Company Ltd.,  
Asaf Ali Road, New Delhi.

Dated ..... Signature / Designation.....

**SECTION-II: INSTRUCTION TO TENDERERS**

**2.1 The tender shall examine carefully all the tender documents consisting of:  
TECHNICAL BID**

Section - I	Invitation to Tenderers
Section - II	Instructions to Tenderers
Section - III	General Conditions of Contract
Section - IV	Special Conditions of Contract
Section V	Bid proposal Form
Section V I	Technical Specifications

Annexure - A

Annexure – B

Annexure – C

**FINANCIAL BID (separately given)**

Section - VII Schedule of Quantities

**These shall form part of the agreement.**

- 2.2 Time is the essence of the contract and the tender are required to complete the work in all respects within the stipulated time of completion and hand over the same, complete in all respects to the satisfaction of the Client/ Architects.
- 2.3 The tender should contain not only the rates but also the value of each item of work entered in the prescribed column of the Bill of Items .The rates quoted by the tender should be expressed accurately both in words and figures so that there is not discrepancy. All corrections in the tender shall be duly attested by initials of the tender. Corrections if not attested, entail rejection of tender. The rates quoted by the tender in item rate tender will be the basis (and not the amounts in case of discrepancies) in finalising the tender.

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- 2.4 It shall be clearly understood that the rates quoted in the tender are to be for complete work at site as per instructions to tender, conditions of contract, special conditions of contract specifications, addenda referred to therein and also for all such works as are necessary for the proper completion of the contract. The rates shall be firm and shall not be subject to cost escalation on account of labour and material and labour conditions or any other reason whatsoever.
- 2.5 The tender shall use only the form issued with this tender to fill up the rates.
- 2.6 Every page of the tender shall be signed on the bottom of left hand side and any tender not so completed is liable to be treated as defective and liable to be rejected.
- 2.7 The successful tender will be notified about the acceptance of his tender by the employer and he will execute agreement within 10 (ten) days thereof, failing which his tender would be liable to rejection with forfeiture of the Earnest Money and the employer would be at Liberty to award it to another tender.
- 2.8 The contract will be governed by the Indian Contract Act, Indian Sale of goods Act and all other relevant laws. All payments due to the contractor under the contract will be made in Indian Rupees Currency.
- 2.9 The rates quoted shall be for complete work at site and should be inclusive of incidentals expenses necessary for carrying out the work. The rates shall be inclusive of Sales Tax as applicable at New Delhi for or any other tax or duty levied by any Government or Public bodies. The rates shall be firm and shall not be subject to cost escalation of labour and material and exchange variations, labour conditions or any other conditions whatsoever.
- 2.10 The employer does not bind itself to accept the lowest or any tender or to assign any reason thereof and also reserves the right of accepting the whole or part of the tender. The part acceptance will not violate the terms and conditions of the contract and will execute the work at the specified rates without any extra charges or compensation.
- 2.11 Tax deductions will be made as per the prevailing rates from the contractors on account bills.

## SECTION III - GENERAL CONDITIONS OF THE CONTRACT

### 3.1.0 DIRECTIONS REGARDING PROCEDURES

In construing these conditions, specifications and Contract Agreement, the following words shall have the meaning here in assigned to them except where the subject or context otherwise requires:

- (a) "Employer/Client" Shall mean The Oriental Insurance Co. Ltd having its Office at A-25/27, Oriental House, Asaf Ali Road ,New delhi-1 and shall include its authorized representative/s, assign/s and successor/s
- (b) "Contractor/Builder" "Contractor" means the person or persons, firm and company whether incorporated or not, employed as Contractor or manufacturer or dealer or distributor or wholesaler or supplier by the Client for undertaking the work and shall include their representatives, successors, legal heirs and permitted assigns.
- (c) "Architect" Shall mean the said whose registered office is situated at Ms Vastu Mandal, Architects and Interior Designers, F-328 Lado Sarai, New Delhi-110030
- (and shall include his authorised representative) or in the event of his death or termination of his services by the Employer in his sole and unqualified discretion, such other person/persons as shall be provided always that no person subsequently appointed to be Architect under this contract shall be entitled to disregard or over rule any previous decision or direction given or expressed by the Architect specified here in unless otherwise approved by the Employer.
- (d) "Project Manager" Shall mean the accredited representative of the client and shall be over all in-charge of the work. He shall administer the contract as per contract Agreement conditions.

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(e) "Contract"

Means the documents forming the tender and acceptance thereof and the formal agreement executed between the competent authority on behalf of The Oriental Insurance Company Ltd., Asaf Ali Road, New Delhi and the Contractor, together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Oriental Insurance Co. Ltd. and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.

In the contract, the following expressions shall, unless the context otherwise requires have the meanings, hereby respectively assigned to them:

(i) The expression **works** or **work** shall, unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional.

(ii) The **site** shall mean the land/or other places on, into or through which work is to be executed under the contract or any adjacent land, path or street through which work is to be executed under the contract or any adjacent land, path or street which be allotted or used for the purpose of carrying out the contract. The site of works will be at following addresses :

The Oriental Insurance Co. Ltd **owned Residential Building at plot No 30 , Block- B , Pocket 10 , Sector 13 , Dwarka**

(iii) **Schedule(s)** referred to in these conditions shall mean the relevant schedule(s).

(iv) **Tendered Value** means the value of the entire work as stipulated in the letter of award of work.

### 3.1.1 General

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The work shall be carried out strictly in accordance with the specifications of materials and workmanship given hereunder. In case of any discrepancy, the following order of preference shall be followed:

### **3.1.2 Architects Status and Decisions**

(a) Status:

The Architects shall have general supervision and direction of the work. He has authority on behalf of the Employer to stop the work whenever such stoppage be necessary to ensure the proper execution of the work. The architect shall be the interpreter of the conditions of contract and the judge of its performance subject to the approval of the Project Manager.

(b) Decisions:

The Architect shall, within a reasonable time, make decisions on all claims of the contractor and on all other matter relating to the execution & progress of the work or the interpretation of the contract documents. The decisions, opinion direction of the Architect with respect to all or any of the following matters shall be referred to the Project Manager and decision so taken shall be final & binding to the contractor.

- i) The quality or quantity of works or the additions/alterations or omissions or substitutions of any work.
- ii) Any discrepancy in specifications.
- iii) The removal and / or re-execution of any work by the contractor.
- iv) The dismissal from the work of any persons employed therein.
- v) The opening up for inspection of any work covered up.
- vi) The amending the making good of any defects under defects liability period.
- vii) Approval of materials and workmanship.
- viii) The contractor to provide everything necessary for the proper execution of the work.

(c) The authorities so conferred in the architect vide various clause above shall be subject to review of the Project Manager at any time whenever desired his decision shall binding under the contract.

(d) The employer shall be at liberty to take over the project at any time get the work executed directly under the supervision of Project Manager. The power vested in the Architect under this tender shall automatically be vested in the Project Manager thereafter.

(e) In the event of any dispute under this contract or between the Architect & the contractor, the speedier decision will be final in the matter. In case the contractor refer the matter to the Project Manager for speedier decision.

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(f) Dismissal:

The contractor shall on the report of the architects immediately dismiss from the works within 24 hours any person employed thereof by him, who, in the opinion of Architects be incompetent or misconducts himself and such person shall not be re-employed on the works without the permission of the Architects.

### **3.2.1 Extent of Contract**

The contractor shall supply at his own cost all material implements, ladders, cordage, tackle, scaffolding and temporary works required for the proper execution of the work whether original, altered or substituted and whether included in the specifications or other documents forming part of the contract or referred to in these conditions or not and which be necessary for the purpose of satisfying of conditions he is entitled to be satisfied which he is entitled to require together with carriage therefore to and from the work. The contractor shall also supply survey instruments and other materials necessary for the purpose of setting out works, and counting weighing and assisting to the measurement or examinations at the site any time and from time to time of the work material, falling his so doing the same be provided by the engineer-in-charge at the expense of the contractor and the expenses be deducted from any money due to the contractor under the contract from his security deposit or the proceeds of sale thereof. The contractor shall also provide a sufficient portion of fencing and lights required to protect the public from accident, and shall be bound to bear the expenses of defense brought by any person for injury sustained owing to neglect of the above precautions and to pay any damage and costs which be awarded in any such suit, action or proceedings to any such person or which with the consent of the contractor be paid to compromise any claim by any such person. In no case, the employer shall be as a party to any such claim/claims and the contractor shall indemnify the employer against any claim for any person on this account.

### **3.2.2 Sufficiency of Tender**

The contractor shall be deemed to have satisfied himself before tendering to the correctness and sufficiency of his tender for the work and of his prices for the work and of his prices stated in the schedule, which shall, except in so far as it is otherwise provided in the contract, cover all his obligations under the contract and all matters and things necessary for the proper completion and maintenance of the work.

### **3.2.3 Assignment or Sub Letting of Contract**

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The contractor shall not assign the contract or any part thereof or any benefit or interest therein or there under or any claim arising out of the contract to any other party without the prior written consent of the employer.

### **3.2.4 Power to make Alterations**

Architect shall have power to make any alterations or additions to the stipulated specifications, drawings, designs, and in striations that may appear to him to be necessary or, advisable during the progress of the work and the contractor shall have no claim for compensation on account of such alterations or additions. The contractor shall be bound to carry out the work in accordance with any instructions which be given to him in writing signed by the Architect and such alterations shall not invalidate the contract and any additional work which the contractor be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respects on which he agreed to do the main work and at the same rates as are specified in the tender for the main work. The time for the completion of the work shall be extended in the proportion that the additional work bears to the original contract work and the certificate of the Architect/Project Manager shall be conclusive as to such proportions.

### **3.3.0 WORKS SUBJECT TO APPROVAL OF ARCHITECT**

All works to be executed under the contract shall be subject to approval of the architect who shall be entitled to direct at what point or points and in what manner they are to be commenced and from time to time carried on.

### **3.4.0 DIRECTION FOR EXECUTION OF WORK**

#### **3.4.1 Setting outs**

The contractor shall be responsible for the true and proper setting out of the works in relation to the original points, lines and levels of reference given by the architect in writing and for correctness subject as above mentioned of all the positions, levels dimensions and alignments of all parts of the work and for the provision of all necessary instruments, appliances and labour in connection therewith. If at any time during the progress of the work any error shall appear or arises in any part of the work, the contractor on being required to do so by the Project Manager shall at once inform the architect or their representatives. The checking of the work by the architect/representative shall not in any way relieve the contractor from his responsibilities of carrying out the work as per the best practices.

#### **3.4.2 Work to be to the satisfaction of the Architect**

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The contractor shall execute, complete and guarantee the work in accordance with the contract to the satisfaction of the architect and shall comply with the here to their instructions & directions concerning the work.

### **3.4.3 Engagement of Labour**

The contractor shall employ labour in sufficient numbers either directly or through subcontractors, where such sub letting is permitted to maintain the required rate of specified in the contract and to the satisfaction of the architect. The contractor shall not employ in connection with the works any person who has not completed his fifteen years of age.

The contractor shall comply with the provisions of the payment of Wages Act, 1936; Minimum Wages Act, 1948; Act, 1947; Maternity Benefit Act, 1961 and Mines Act, 1938, Labour Contract (Regulations & Abolishing) Act or Rules, or any modifications thereof or any other law relating thereto and rules made there under time to time.

The contractor shall indemnify the employer against any payment to be made under and for observance of the Regulation aforesaid without prejudice to his right to claim indemnify from his sub-contractors.

The contractor shall provide and maintain at his own expenses all rights, guards, fencing and watching when and where necessary or required by the Resident Engineer for the protection of the works or for the safety and convenience of those employed on works or the public.

### **3.4.4 Disruption of Progress**

The contractor shall give written notice to the Architect whenever planning or progress of the works is likely to be delayed or disrupted unless any further drawings or order, including a direction, instruction or approval is issued by the Architect within a reasonable time. The notice shall include details of the drawing or order required and by when if is required and of any delay or disruption likely to be suffered if it is late.

If, by reason of any failure or inability of the Architect to issue within a time reasonable in all the circumstances any drawings or order requested by the contractor and the work suffers delay then the architects shall take such delay into account in determining any extension of time to which the contractor is entitled under provisions of contract hereof, however no other compensation will be admissible on this account.

### **3.4.5 Rectification of Defects**

if, it shall appear to the Architect or his representative in-charge of the works that any work any has been executed with unsound, imperfect or un-skillful workmanship or material or any inferior description, the contractor shall, on demand, in writing from the Architect specifying

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Signature and Stamp of Bidder

the work material or articles complained of shall rectify or remove and reconstruction work so specified in part, as the case require.

#### **3.4.6 Inspection of work**

All work under or in course of execution or executed in pursuance of the contract shall at all times be open to inspection and supervision of the Architect or his representative and the contractor shall at all times with reasonable notice or the intention of the Architect or his representatives to visit work shall have been given to the contractor, either himself be present to receive orders and instructions, or have responsible agent duly accredited in writing present for that purpose. Orders to the contractor's agent shall be given to the contractor himself.

#### **3.4.7 Preparation of Implementation Programme Schedule**

As and when sufficient planning information is available, the contractor in consultation with the Architect shall prepare a programme schedule of the activities. Contractor should prepare bar-charts & articles path method analysis of the light of the tendered quantities and their rates respectively. Under no circumstances shall this schedule be prepared later than one week of finalisation of contract. Throughout the work, all programmes, schedules and charts shall be revised wherever any significant change occurs. The contractor shall also submit weekly progress chart to the Architect.

#### **3.4.8 Site Order Book**

The contractor shall maintain a Site Order Book at the site of the works wherein the instructions of the Architect/Project Manager or their representatives shall be reasoned. The site order book shall be the property of the employer and the instructions recorded therein shall be deemed to have the same force and effect as if they had been given to the contractor himself. The contractor or his representative on the site must sign the book in taken of his having persuade the orders given therein.

#### **3.4.9 Hindrance Register**

A Hindrance Register shall be maintained at the site of work wherein the contractor shall notify the items affected and the execution of work, the date on which the delay was cleared. These entries shall be initiated by the Project Manager/Architect as well.

#### **3.4.10 Suspension of Work**

The contractor shall on the written order of Project Manager on written recommendation of the architect suspend the progress of the work or any part thereof for such time or time and in such a manner as the Project Manager consider necessary and shall during such suspension properly protect and secure the work as considered necessary in the opinion of the Project Manager or their representative-in-charge of the work. No compensation shall be payable to the contractor on what so ever account for the suspension of work.

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### **3.4.11 Extension of time for completion**

If the contractor shall desire an extension of the time for completion of the work, on his having been unavoidably hindered in its execution or on any other ground, he shall apply in writing to the architect within three days of the date of starting of the hindrance on account of which he desires such extension as aforesaid. The architect in consultation with employer shall, if, in his opinion, will authorise, such extension of time, if any, as in his opinion be necessary or proper extension granted shall be without prejudice to the right of the Employer to recover compensation for delay as per **provisions of Para 3.4.12**

### **3.4.12 Liquidated Damages for Delay**

The times and date stipulated in the contract for the completion of the work or any part or stage thereof shall be deemed to be the essence of the contract.

The work shall, throughout the stipulated period of the contract, be carried out with all diligence. If the contractor fails to complete the work within the time prescribed or within the extended time under the contract, he shall pay to the Employer on demand amount without prejudice to other rights and remedies the Employer have against the contractor, a sum of Rs. 2000/- per day as liquidated damages for such fault, if the work remain unfinished after the stipulated date of completion provided that the total liquidated damages payable shall not exceed 10% of the accepted contract price. The Employer, without prejudice to any other method of recovery, deduct the amount of such damages from any money due or which become due to the contractor. The recovery or deduction of such damages shall not relieve the contractor from any obligations and liabilities under the contract.

### **3.4.16 Defects Liability Period**

The contractor shall be responsible to make good and remedy at his own expense within such period as be stipulated by the employer any defect which develop or be noticed before the expiry of 12 (twelve) months from the date of completion and intimation of which has been sent to the contractor within seven days of the expiry of the said period.

If the contractor or his work people, or servants shall break, deface, injure, or destroy any part of a building, or interiors, then the contractor has to rectify the same part at his own expenses to the satisfaction of the Architect.

### **3.4.17 Approval of Materials**

The contractor would bring samples of necessary materials per the directions & would get them approved prior to execution of work.

## **3.5.0 SECURITY DEPOSIT**

### **3.5.1 Rate of Security Deposit**

The employer will, at the time of making any payment to the contractor for work done or supply made under the contract deduct 10% of Gross value of each interim bill or take

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Performance Bank Guarantee from contractor @ 10% of the cost for a period of 12 months as warranty from the date of completion and handing over

All compensations or other sums of money payable by the contractor to the employer in terms of this contract be deducted from, or paid by, the sale of a sufficient part of his security deposit, or from any sums which become due to the contractor by the employer on any account whatsoever, and in the event of his security deposit being reduced by reason of any such deduction or sale as aforesaid, the contractor shall within ten days. Thereafter make good in demand draft, endorsed in favour of the employer as aforesaid any sum or sums which have been deducted from, or raised by sale of his security deposit or any part thereof.

### **3.5.2 Forfeiture of Security Deposit**

The above said security deposit shall be liable to forfeiture wholly or in part at the sole discretion of the Employer if the contractor fails to carry out the work or perform or observe any of the conditions of the contract.

### **3.5.3 Interest on the Security Deposit**

No interest would be payable by the employer to the contractor on the security held in deposit.

### **3.5.4 Responsibilities for the Structural Adequacy**

The contractor shall comply with the provisions of the contract and with due cares and diligence, execute and maintain the work and provide all labour, including supervision of all works, structural plans and other things whether of temporary or permanent nature required for such execution and maintenance in so far as the necessary for providing these, is specified or is reasonably inferred from the contract. The contractor shall take full responsibilities for the adequacy, suitability and safety at site of all the works.

## **3.6.0 MEASUREMENT AND PAYMENTS**

- 3.6.1** All bills supported with measurement details shall be submitted by the contractor fortnightly to the Architect for all works executed in the previous period and the Architect/Project Manager or his representative shall verify the requisite measurement for the purpose of having the same verified for the claim as far as admissible, if possible before the expiry of 15 days from the presentation of the bill.

All measurements to be taken in duplicate and all bills shall be submitted in triplicate along with a contractor's copy of each.

### **3.6.2 Final Bill**

Final bill supported with consolidated measurement of the full work executed shall be submitted by the contractor within 1 month of completion of work.

When the final bill has been verified and corrected, the architect will give seven days notice to the contractor to countersign the bill in token of acceptance, the contractor shall countersign the bill within the above seven days or intimate in writing his intention to dispute. If the

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contractor fail to take appropriate action as above within the period prescribed, the bill finalised by the architect or his representative shall be final and binding on the contractor and the contractor shall have no right to dispute the same.

### **3.6.3 Claim for Interest**

No claim for interest will be entertained by the Employer with respect to any moneys or balances which be in its hands owing to a dispute between itself and the contractor or with respect of any delay on the part of the employer in making interim or final payments or otherwise.

### **3.6.4 Rates for extra Additional, Altered or Substituted work**

The rates for additional, altered or substituted work shall be worked out in accordance with the following provisions in their respective order.

- i) If the rates for similar additional, altered or substituted work and directly available in the contract for the work, the contractor is bound to carry out the work at the same rates as are available in the contract for the work.
- ii) If the rates for additional, altered or substituted work are not directly available in the contract for the work the rates will be derived from the rates for a similar class of work as are specified in the contract for the work.
- iii) If the rates for the altered, additional or substituted work cannot be determined in the manner specified in sub-clause (i) to (ii) above, then the contractor shall within three days of the date of receipt of order to carry out the work, inform the Architect of the rate which it is intended to charge for such works supported by analysis of the rate or rates claimed. Rates finalized and approved by the Architect on the basis of these details will be final and binding. However, the architect by notice in writing will be at liberty to cancel his order to execute such work and arrange to carry it out in such a manner as he deem advisable, but under no circumstances shall the contractor suspend the work once ordered in writing on the plea of non-settlement of rate.

### **3.6.5 Reimbursement of Variation in Price**

Prices and rates quoted by the bidders shall be considered as firm for the complete work and entire duration of the contract. No claim for extra payment due to any rise in rates of raw material and labour or due to whatsoever reasons shall be considered, not even for extended period of completion.

### **3.7.0 GUARANTEES**

#### **3.7.0 Period of Guarantee for Complete work**

The period of Guarantee for the works shall be **twelve** month starting from the date of issue of the virtual completion certificate ( including hardware and software ). After completion of defect liability period warranty certificates of all equipments etc will be handed over to the owner

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### **3.7.1 Remedy on Contractor's failure to carry out the work required**

If the contractor shall fail to do any such work as aforesaid required by the architect the employer shall be entitled to carry out such work which the contractor should have carried out, at the contractor's own cost. The employer shall be entitled to recover from the contractor the cost thereof or deduct the same from any money due or that become due to the contractor.

### **3.7.2 Certificate of completion of works**

On completion of the work, the contractor shall be furnished with a certificate, but not such certificate be given nor shall the work be considered to complete until the contractor shall have removed from the area of the premises (to be distinctly marked by the Architect/Project Manager in the site plan which, the work shall be executed) all scaffolding, surplus materials and rubbish and clean the dirt from all wood work, doors, windows, walls, floors or other parts of any building, in or upon which the work is to be executed, or of which he have had in possession for the purpose of the execution hereof. If the contractor shall fail to comply with the requirements of the clause as to the removal of scaffolding, surplus materials and rubbish and cleaning off dirt on or before the date fixed for the completion of the work, the architect at the expense of the contractor remove such scaffolding, surplus materials, and the contractor shall forthwith pay the amount of all expense so incurred, and shall have no claim in respect of any such scaffolding or surplus materials aforesaid, except for any sum actually realized by the sale thereof.

### **3.7.3 Contract Valid during Guarantee Period**

This contract shall remain valid and in force until the expiry of Guarantee period of one year from the date of issue of virtual completion certificate and thereafter AMC for a period of five years from successfully completion of one year warranty period with a provision to extend it further on mutually acceptable terms and conditions

### **3.8.0 CONTRACT DURING AMC PERIOD**

#### **a) Period of AMC**

Five years from successfully completion of one year warranty period with a provision to extend it further on mutually acceptable terms and conditions. The maintenance services rendered by the contractor shall include routine and preventive maintenance as also breakdown maintenance if and when required including renewal of Licence within their quoted rates. Maintenance services shall be provided with 24 hour emergency call out service with a response of 2 hrs.

#### **b) Terms of Payment**

Payment shall be made in four quarterly instalments every year on the having successful performance report on quarterly basis of the AMC value at the end of each quarter. Successful tenderer shall deposit the security deposit equal to 10% of total value of contract for one year, in

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full at the commencement of the contract else if, so desired the same shall be deducted from the 1<sup>st</sup> instalment. The security shall be released after successful completion of contract period

c) **AMC Conditions**

**ROUTINE AND PREVENTIVE MAINTENANCE**

Program of routine and preventive maintenance during the free maintenance period as also during the tenure of annual maintenance contract shall comply with minimum requirements as below.

**i) Fortnightly**

- To check all bearing oils, oil rings, oil chains, etc. All machines should be carefully checked and repaired for abnormal temperature rise.
- To check and repair all relays and contacts as wells as their movements and repair as necessary
- To clean traction machines, relays panels, control panel, starter panels, selectors, governors, car top, car gates, sills and pits
- To check brake action and adjust if necessary
- To check and repair movement of door switches, gate switches and emergency stop switches
- To check and repair indicator lamps and indicator
- To check and repair annunciator lights, buzzer and car lights
- To check and adjust leveling differences, brake slippage, acceleration, deceleration and riding comfort.
- To check and repair movements of car control buttons, switches and the like. •  
To check and repair operation of weighting devices.

**ii) Monthly**

- To turn grease cups for speed governors and compensating pulleys
- To check and oil selectors
- To top up rail lubricators
- To clean ropes oil if necessary
- To clean PM motor and inspect controller box etc.
- To oil electric brake pins
- To oil all pins of door operation and door opening mechanisms
- To clean hoist way, beams slow down cams, outside cages, rails and counterweight rails
- To clean, oil and adjust door closer and levers
- To clean main sheave, secondary sheaves and rope sheaves on car top and counterweigh top
- To clean and repair brake wheels and shoes
- To oil compensating rope tensioning pulleys.
- ARD Operation of Lift

**iii) Every Two months**

- To clean and oil door hangers, door rails, interior of hanger case. If necessary adjust acentric rollers, car door hangers, door connecting ropes and chains
- To check and repair door shoe
- To clean and oil safety fears
- To clean and oil car and counterweight guide shoes. Adjust if necessary
- To clean and oil interior of terminal limit switches and position switches. Check rubber rollers of terminal limit switches.

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- To check oil clean and repair interior of door switches, gate switches. Replace worn parts if necessary
- To check and repair flexible cable
- To check and repair movement of limit switches
- To clean and oil interior of car control switches.
- To clean and check push buttons of care control panels
- To check, clean and repair the sleeve and plungers of the electromagnetic brakes.
- ARD Operation of Lift

#### **iv) Every three months**

- To check and repair the operation of terminal limit switches and final limit switches. • To check and repair the governor switches.
- To clean the brush holders and commutators of the door motors.
- To check and repair the traction ropes for broken wire, wear elongation and even tension. Adjust if necessary.
- To remove the dust inside the traction machines and controls panels using electric blower
- To clean and repair the indicator lamps
- To check the voltage of rectifiers and thyristors
- ARD Operation of Lift

#### **v) Half yearly**

- To check and repair the operation of safety gears
- To check oil for oil buffers
- To check and clean the hall buttons and contacts
- To check and repair the compensating chains or ropes
- To check and oil the bearing of door motors
- ARD Operation of Lift
- To grease the secondary sheaves, car top sheaves and counterweights.
- To check the wear of guide shoes of cars and counterweights

#### **vii) Annual**

- To clean the wire connection box of every landing and car cages. Tighten all screws and check the conditions of cables at conduit inlets and outlets
- To check and tighten screws of control panels, starters panels and relay panels
- To remove the dust inside the landing indicator switches by electric blower
- To test all safety devices
- To dismantle, clean and adjust the electro magnetic brake of gearless machines
- To charge motor oil
- To check and tighten screws and foundation bolts of traction machine, secondary sheaves, exterior of lift frame, guide rail, guide rail clamps and bracket etc.
- To test the over current relays
- To provide all labour, materials, tools and transport to carry out annual inspection and load test according to the requirement of the employer All the scheduled maintenance services described above shall be properly programmed and agreed with the Engineer-in-charge in order not to affect operation of the lift systems

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## **BREAK DOWN MAINTENANCE**

The break-down/failure complaints of system shall be attended/rectified promptly within down time of less than one day.

The Contractor shall also undertake to provide a comprehensive breakdown service whereby qualified technicians shall attend to each breakdown as soon as practicable after a breakdown is reported and carry out immediate remedial work at a reasonable speed according to the nature of the breakdown. Any faulty equipment or components shall be quickly replaced.

If the breakdown is not attended to or replaced by a service unit within 24 hours of the receipt of the complaint irrespective of the fact that a complaint is made on Holiday/Sunday, a penalty of Rs.1000/- per day or part thereof shall be levied and recovered from firm's bill by way of penalty

## **GENERAL**

The Contractor shall keep sufficient spare parts during the maintenance period to ensure that replacement work for defect can be carried out immediately within rates quoted towards Annual Maintenance Contract.

A competent engineer shall be provided to investigate the fundamental cause of a fault temporary quick fix solution will not be accepted.

The employer shall at his discretion, take action to recover all losses incurred rising from the failure of the contract to perform the duties either wholly or in part as detailed in this section.

- I. The term "Maintenance" shall include replacement/repair of any or all the parts and visit charge during the currency of the contract at the exclusive risk, responsibility and the cost of the contractor. .
- II. The contractor shall be required to maintain a register detailing complaints where in each complaint received and action taken thereon along with timing will be recorded by his mechanic. The complaint register will be produced on Monday or the first working day of every week for inspection/further directions as the case may be. The copy of the same should be submitted along with AMC quarterly payment.
- III. Any person visiting the premises for attending any complaint or to carryout certain inspection, must possess proper identification card so as to facilitate for any identification.
- iv . The contractor shall have a telephone and mobile in his office/repair depot and at his residence for receiving complaints round the clock.

The above scope is minimum requirement & contractor shall do also all other maintenance activities as per recommendations of manufacturer of lift.

- Vi However, The Oriental Insurance Company Ltd reserves the right to abandon or terminate the contract at any time, if successful tender's work and maintenance services are not found satisfactory.

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### **3.9.0 RESCINDING/TERMINATE CONTRACT**

#### **3.9.1 Rescinding Contract**

In any case in which under any clause or clauses of this contract the contractor has rendered himself liable to pay compensation amounting to the whole of his security deposit in hand of employer (whether paid in one sum or deduced by installments) the architect on behalf of the employer shall have power to adopt any of the following course, as deemed best suited to the interests of employer.

- (a) To rescind the contract (of which rescission notice in writing to the contractor under hand of the architect shall be conclusive evidence), and in which case the security deposit of the contractor shall stand forfeited and be absolutely at the disposal of the employer.
- (b) To employ a contractor paid by the employer and to supply materials to carry out the work, or any part of the work, debiting the contractor with the cost of the labour and the price of the materials (of the amount of which cost and price certificate of architect shall be final and conclusive against the contractor) and crediting him with the value of the work done, in all respects in the same manner and at the same rates as if it has been carried out by the contractor under the terms of the contract. The certificate of the architect as to the value of the work done shall be final and conclusive against the contractor.
- (c) To measure up the work of the contractor, and to take such part of the work of the contractor as shall be unexecuted out of his hands, and to give it to another contractor to complete in which case any expenses which be incurred in excess of the sum which would have been paid to the original contractor if the whole work has been executed by him (of the amount of which excess certificate in writing of the architect shall be final and conclusive) shall be borne and paid by the original contractor and be deducted from any money due to him by employer under the contract or otherwise, or from his security deposit or the proceeds of sale thereof, or a sufficient part thereof.
- (d) In the event of any of the above courses being adopted by the architect, the contractor will have no claim to compensation to any loss sustained by him by reason of his having purchased any materials, or entered into any engagements made any advances on account of execution of the work or performance of the contract. And in case of the provisions aforesaid, the contractor shall not be entitled to be paid for any work actually performed under this contract unless and until the architect shall have certified in writing the performance of such work and the value payable in respect and he shall only be entitled to be paid the value so certified.

#### **3.9.2 Termination of the Contract**

If at any time after the commencement of the work the employer for any reason whatsoever does not require the whole or part thereof as specified in the tender to be carried out, Architect/ Project Manager shall give notice in writing of the fact to the contractor who shall have no claim to any payment or

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compensation whatsoever on account of any profit or advantage, which would have derived from the execution of the work in full, but which he did not derive in consequences the full amount of the work not having been carried out, neither shall he have any claim nor compensation by reason of any alterations having been made in the original specification, or the designs and instruction on which shall involve any containment of the work originally contemplated.

### **3.9.3 Jurisdiction**

The contractor and its operation shall be governed by the law of India for the time being in force, irrespective of the place of delivery of materials the place of execution of work or place of payment under this contract shall be deemed to have been entered into at New Delhi.

### **3.9.4 Bye Laws of Local Authorities**

The contractor shall conform to the provisions of any Government Acts which relate to works and to the regulations and bye laws of any local authorities. The contractor shall give all such notices required by the said Act or Laws, etc., and pay all fees payable to such authorities and allow for these contingencies in his tendered rates including fees for encroachment, stacking charges, costs of restorations, etc., and all other fees payable to the local authorities. The contractor shall keep the employer indemnified against all penalties and liabilities for every hand of breach of any such Act, Rules, Regulations or Bye-laws.

Contractor shall comply with all laws and statutory regulations dealing with the employment of labour such as:

- a. The payment of wages Act, 1936
- b. The Minimum Wages Act, 1938
- c. The Workmen Compensation Act, 1923
- d. The Contract Labour (Regulations & Abolishing) Act.
- e. The employer's liabilities Act, 1938
- f. Industrial Dispute Act, 1938
- g. Maternity Benefit Act, 1961
- h. The Employees State Insurance Act, 1948

Safety code, labour welfare Act or rules or any modification thereof any other laws and regulations framed by the Competent Legislative Authorities from time to time.

## **SECTION IV – SPECIAL CONDITIONS OF THE CONTRACT**

The service contract shall be governed by the following special conditions of contract:

### **4.1.0 Insurance for Works**

The contractor at the time of signing the contract or before commencing the execution of work, without limiting his obligations and responsibilities shall insure the works at his own cost and keep them insured until the virtual completion of the contract against all risks and acts of God including Fire, Theft, Riots, War, Floods etc. with a Nationalized Insurance company in the joint names of the employer and the contractor (the name of the former being placed first in the policy) for the full amount of the contract. Such policy shall cover the property of the employer and fees for assessing the claim and in connection with its services generally therein and shall not cover any property of the Contractor or of any sub contractor or employee. Such insurance shall be for a minimum value of Rs. 1.0 lakhs (Rupees One Lakh only).

The contractor shall deposit the policy and receipt for the premiums with the employer within seven (7) days, from the date of signing of the contract/commencement of the execution of the work or unless otherwise instructed by the employer. In default of the contractor insuring as provided above, the employer on his behalf so insure and deduct the premiums paid from any moneys due on which become due to the contractor. The contractor shall as soon any claim under the policy is settled on the work reinstated by the Insurance office should elect to do so, proceed with all due diligence with, the completion of the works in the same manner as through the misfortune/accident had not occurred and in all respects under the same conditions of the contract. The contractor in case of rebuilding or reimbursement after accident shall be entitled to such extension of time for completion, as the employer deems fit.

### **4.1.1 Insurance in respect of damage to persons and property**

a. The contractor shall be responsible for all injury to persons, animals or things and for all structural and decorative damage to property which arise from the operation or neglect of himself or of any approved sub-contractor's or employees, whether such injury or damage arise from carelessness, accident or any other cause whatsoever in any way connected with the carrying out of this contract. The clause shall be held to include any damage to buildings, whether immediately adjacent or otherwise, and any damage to roads, streets, foot paths, bridges and works forming the subject of this contract by frost or other inclemency of the weather. The contractor shall indemnify the employer and hold him harmless damage to persons or property as aforesaid and also respect of any claims made in respect of injury or damage under any Acts of Government or otherwise and also in respect of any award of compensation of damages consequent upon such claims.

b. The contractor shall reinstate all damages of every sort mentioned in this clause, so as to deliver up the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.

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c. The contractor shall indemnify the employer against all claims which be made against the employer by any member of the public or other third party in respect of works in consequence thereof and shall at his own expense arrange to effect and maintain, until the virtual completion of the contract, with any Nationalized Insurance company in the joint name of the employer and the contractor against such risks and deposit such policy or policies with the employer from time to time during the currency of this contract. The contractor shall similarly indemnify the employer against all claims which be made upon the employer whether under the Workman's Compensation Act or any other statute in force during the currency of this contract or at common law in respect of any employee of the contractor or any sub-contractor and shall at his own expenses effect and maintain with an approved office a policy of Insurance in the joint names of the employer and the contractor against such risks and deposit such policy or policies with the employer from time to time during the currency of the contract. The contractor shall be responsible for anything which be excluded from the insurance policies above referred to and also for all other damages to any property arising out of and incidental to the negligent or defective carrying out of this contract. He shall also indemnify the employer in respect of any costs, charges or expenses arising out of any claim or proceedings and also in respect of any award of or compensation of damages arising there from.

d. The employer shall be at liberty and is empowered to deduct the amount of any damages, compensation costs, charges and expenses arising or occurring from or in respect of any such claim or damage from any sum or sums due to or become due to the contractor including the security deposit.

e. If the contractor fails to comply with the terms of these conditions, the employer insure the works and any other item/article associated with or arising from same and any risk arising as a consequence of this contract and deduct the amount of the premiums paid from any moneys that be or become payable to the contractor or at the option, not release running payment to the contractor until the contractor shall have complied with the terms of this condition.

f. Such insurance whether effected by the employer or the contractor will not limit or bar the liability and obligation of the contractor to deliver the works to the employer completed in all respects according to the contract. In case of loss or damage due to any of the aforesaid clause, the moneys payable under any such insurance shall be received and retained by the employer until the works are finally completed and such moneys shall then be credited to the contractor in final settlement of accounts after setting off any money payable to the employer or recoverable by the employer.

g. No incomplete works shall be accepted and nothing shall be paid to the contractor. However the part rates be allowed to the contractor for the executed works which shall be treated as advance and the same be recovered if the works left incomplete.



## SECTION V : BID PROPOSAL FORM

For Supply, Insallation , Testing, Commission and Maintenance of Lift atThe Company  
owned Residential Building at Plot No No 30 , Block- B , Pocket 10 , Sector 13 , Dwarka

Sl.No	Tender for the Item(s)	
01	Name and full address of the firm / Company/ Organization (Attach Proof of Legal status & ownership)	
02	Registered Office with full address	
03	Income Tax Permanent Account No. (PAN) (Attach Proof)	
04	Sale Tax (Commercial Tax) Registration No. (Attach Proof)	
05	Whether Propriety firm / Public Limited Company / Private Ltd Company / Partnership firm or any other entity (give details)	
06	If single proprietor, then give Name and address of the proprietor's liabilities	
07	If partnership firm, Name and address of the partners and their respective liabilities in carrying this tender and discharge of subsequent.	
08	In case of a company, details of Director, Managing Director, etc and their shareholding and their respective liabilities in carrying this tender and discharge of subsequent	
09	Details of service network in Delhi / details of engineers and persons to be entrusted with the responsibility of maintenance/ service be attached along with their technical qualification and experience.	

## **SECTION VI : TECHNICAL SPECIFICATIONS**

### **TECHNICAL SPECIFICATIONS**

#### **LIFT**

STANDARDS The following Indian Standard Specifications and Codes of Practice, currently applicable and updated as of date irrespective of dates given below, shall apply to the equipments and the work covered by this contract. In addition the relevant clauses of the Indian Electricity Act 1910 and Indian Electricity Rules 1956 as amended upto date shall also apply. Wherever appropriate Indian Standards are not available, relevant British and/or IEC Standards shall be applicable.

1. Code of Practice for installation, operation and IS-14665 (Part 2) Sec-1 : maintenance of electric passenger & goods lifts. 2000
2. Code of practice for installation, operation and IS-14665 (Part 2) Sec-2 : 2000 maintenance of electric service lift.
3. Safety Rules Section-1 Passenger and Good lifts IS-14665 (Part 3) Sec-1 : 2000
4. Safety Rules Section-2 - Service Lifts IS-14665 (Part 3) Sec-2 : 2000
5. Outline dimension for electric lifts. IS-14665 (Part-1) : 2000 6.  
Inspection Manual for Electric Lifts IS-14665 (Part 5) : 1999
7. Electric Traction Lifts - Components IS-14665 (Part 4) Sec-1 to 9 : 2001
8. Installation And Maintenance of Lifts For Handicapped IS 15330 :2003 Persons (Code of Practice)
9. Specification for lifts cables. IS-4289 (Par-1) : 1984 Reaffirmed 1991
10. Specification for hot rolled and slit steel tee bars. IS-1173-1978 Reaffirmed 1987
11. Method of loading rating of worm gear. IS-7443-1974 Reaffirmed 1991
12. Code of practice for selection of standard worn and IS-7403-1974 helical gear box. Reaffirmed 1991
13. Isometrics screw threads. IS-4218-(Part-II)1976 Reaffirmed 1996
14. Degree of protection provided by enclosure for low IS-2147-1962 voltage switchgear and control gear.
15. Classification of insulating materials for electrical IS-1271-1985 machinery and apparatus in relation to their thermal Reaffirmed 1990 stability in service.
16. Code of practice for earthing. IS-3043-1987
17. Electrical installation Fire Safety of Building. IS-1646-1997
18. PVC insulated electric cable for working voltage upto IS-694-1990 and including 1100 volts.
19. Code of practice for electrical wiring and installation IS-732-1989
20. PVC insulated (Heavy Duty) electric cables for IS-1554-1988 (Part-1) working voltage upto and including 1100 volts.
21. Flexible steel conduits IS-3480-1966
22. Accessories for rigid steel conduit for electrical wiring IS-3837-1976

23. Boxes for the enclosure of electrical accessories IS-5133-1969 (Part 1) Guide for safety procedures and practices in electrical IS-5216-1982 (Part-1) work.

25. Conductors for insulated electric cables and flexible IS-8130-1984 cordes

26. Miniature Circuit Breakers IS-8828-1996

27. Rigid steel conduits for electrical wiring (Second IS-9537-1981 revisions) Methods of test for cables IS-10810-1998

29. Earth Leakage Circuit Breakers. IS-12640-1988 30.

Moulded Case Circuit Breakers IS-13947-1993

31. General requirement for switchgear and control gear IS-13947-1993 for voltage not exceeding 1000 volts.

32. 1100 volt grade XLPE insulated armoured cables IS 7098

33. Specifications for hoistway door-locks IS 7754-1975

34. Rules for design, installation, testing and operation of IS 1735-1975 lifts, escalators and moving parts.

In addition the relevant clauses of the following, as amended upto date shall apply.

. The Indian Electricity Rules 1956

. The Indian Electricity Act 1910

. Bombay Lift Act 1939

. Delhi Lift Rules

. Fire safety regulations pertaining to lifts

The tenderers shall also take into account local and State regulations as in vogue for the design and installation of lifts.

Wherever appropriate Indian Standards are not available, relevant British and/or IEC Standards shall be applicable. BIS certified equipment shall be used as a part of the Contract.

## **2. ELECTRIC SUPPLY**

The available system of electric supply is 415 volts +10% -10%, -3 phase 4 wire AC 50 Hz system and 240 volts between phase and neutral. Any equipment /component operating at other than the above mentioned power supply shall be provided with necessary transformers/voltage stabilizers. The amount of power required for lifts shall be indicated in the tender. Power shall be provided at one point to be indicated by the tenderer. All subsequent electrical systems shall be deemed to be included in the scope of this contract.

## **3. TECHNICAL PARAMETERS**

Tenderers shall fill in their itemwise confirmation/comments in the column provided for the purpose in this annexure. Deviations, if any, from tender requirements shall be clearly brought out in this annexure, failing which it shall be presumed that the offer conforms to the tender requirements fully. Tenders in which Appendix-I is not duly filled in by the tenderers are liable to be summarily rejected.

## **TECHNICAL SPECIFICATIONS**

### **GENERAL REQUIREMENTS**

The Elevators shall include all elements confirming to specifications or as amended herein. Elevators covered by these specifications shall be provided, installed, tested, commissioned, certified and approved as per statutory requirements of Lift Inspectorate.

Each Elevator shall have its own driving machine. The method of drive shall be Electric Traction with Gear less motor having VVVF Control.

The design of the Elevators shall take into consideration fire prevention, elimination of dust and dirt traps, and easy accessibility for cleaning and routine maintenance.

#### **1. ELECTRIC TRACTION DRIVE SYSTEM**

2.1 Traction Machine The construction of all Elevator machines shall conform with IS-14665

##### 2.2 Brake

- a) The Electro-magnetic brake with non-asbestos lining shall be spring applied and electrically released type having noiseless operation.
- b) The brake shall be capable of stopping and holding the Elevator car in its downward travel to rest with 125% of its rated load from the maximum governor tripping speed. In this condition the retardation of the Car shall not exceed that resulting from the operation of the Safety gear or stopping on the buffer.
- c) Springs used to apply the brake shoes (two nos.) shall be in compression and adequately supported.
- d) Brake linings shall be of renewable incombustible materials and shall be secured to the brake shoes such that normal wear shall not weaken their fixings. Band brakes shall not be used.
- e) No earth fault, short circuit or residual magnetism shall prevent the brake from being applied in the event of loss of power supply to the Elevator motor and control circuit.
- f) A means of adjusting the brake plunger stroke and releasing the brake in emergency shall be provided.
- g) The Elevator machine shall be fitted with a manual emergency device capable of having the brake released by hand and requiring a constant effort to keep the brake open.
- h) The fail safe break shall incorporate an approved design of brake switch i.e. pick up, hold, discharge. Brake coil shall be wired in series & their respective switches in parallel. The operation of brake shall be thyristor controlled from solid state drive in order to effect minimum pick up time and synchronized start.

#### **2.1. Driving Mechanism**

##### **2.1.1 Lift Machine**

The lift machine shall be suitable for 415 volt 3 phase 50 Hz AC supply with a voltage variation of +10% and -10%

The lift machine shall have high efficiency and low power consumption and shall be designed to withstand peak currents in lift duties. Means for manual operation of the lift car shall be made by providing winding wheel suitably marked to indicate the direction of the movement to enable the lift car

to be brought to the nearest landing. There shall be a warning display for switching off electrical supply before the manual operations.

## 2.2 Driving Sheaves

- a) The sheaves shall be manufactured in steel or SG iron and fitted with sealed for life lubricated bearings.
- b) The sheaves shall have machined rope grooves that can be reworked for future wear.
- c) Adequate provision shall be made to prevent any suspension ropes leaving groove due to rope slack or introduction of foreign objects.

## 2.3 Alignment

- a) The brake plunger, collar, sleeve, motor, sheaves and all bearings shall be mounted and assembled so that proper alignment of these parts is maintained.
- b) The assembly shall be reviewed and rectified when excessive noise is emitted during operation.

## 2.4 Gearless Machines

The gearless machine shall consist of a motor traction sheave and brake drum or brake disc completely aligned on a single shaft. Gearless machine shall be AC gearless with VVVF drive.

2.7 Anti-Vibration Supports The whole traction machine shall be mounted on appropriate anti-vibration supports to minimize noise and vibration.

## 3. CONTROL SYSTEMS

3.1 Description The Lifts shall have state of art microprocessor based AC variable voltage variable frequency (ACVVVF) drive. Single lifts shall be provided with directional collective control for one car, two cars and 5 cars (also called simplex, collective control). Some of the technical parameters required are innumerate below.

a) Starting current

1.2 -1.5 times full load running current

b) Power saving

c) Leveling accuracy

50 -55% ± 3 mm (passenger/service lifts) & + 5mm(Freight lift)

d) Acceptable voltage fluctuation –

+10to -10%

d) Rate of acceleration/deceleration (M/S<sup>2</sup>)

0.6 -1.5 (Adjustable at site)

f) Maximum jerk (M/S<sup>3</sup>) 0.7 -1.5 (Adjustable at site)

g) Maximum vibration in car horizontal/ vertical

20/18 MG

h) Maximum noise level in car during travel 45dBA

i) Maximum door noise level while closing and opening at a distance of 1 mtr from car door 52d BA  
The controller shall be mounted on the side of the top of lift shaft, vertical, totally enclosed cubicle type with hinged doors on the front provide easy access to all components in the controller. Cubicle shall be well ventilated such that the temperature inside never exceeds the safe limits of the components at ambient room conditions.

The controller shall operate within the supply voltage variation of plus 10% to minus 10% of the nominal voltage.

The Controller shall be include protection against the following abnormalities and shall cut off the power supply, apply the brake and bring the car to a rest in the event of any of the abnormalities occurring.

- a) Over current
- b) Under voltage
- c) Overvoltage
- d) Single phasing
- e) Phase reversal
- f) Earth leakage

3.2 Features Control system features are detailed as below.

- Attendant Operation Lifts shall be provided with attendant control facilities.

A key switch for change of operation mode shall be provided in a lockable recess panel on the car operation panel. After gaining control on the lift, the attendant can direct the car to stop at any storey. The attendant can also by pass the landing calls (but not cancel them) or reverse the direction of traveling.

- Automatic By-pass Load weighing devices located either on car top or under the car cage shall be provided for lift.
- Over load device

A load weighing devices shall operate when the load in the car exceeds the rated capacity. The operation of the device shall activate buzzer sound and flashing 'overload' signals. At the same time the car doors shall be prevented from closing. When the excess load has been removed form the car, the buzzer alarm shall be muted automatically and the car shall function normally. The sensitivity shall be 30 kg for Passenger lifts and 5% of the contract load for service lifts.

- Automatic self-leveling : Lift shall be provided with automatic self-leveling feature that shall bring the lift car level to within  $\pm 3$  mm for passenger/service elevators and + 5mm for freight elevators of the landing floor regardless of load or direction of travel. The automatic self leveling feature shall correct for over travel and rope stretch.
- Possible future requirement of access control and BMS integration of the controller.

## **TECHNICAL SPECIFICATIONS**

### **LIFT,CAR ,CAR DOORS AND SAFETY DEVICES**

#### **1 CAR ENCLOSURES**

##### **1.1 General Requirements**

- **Frame**

Lift car body shall be carried in a steel car frame assembly which shall have sufficient mechanical strength to resist the forces applied by the safety gear or impact of the car on the buffers. The deflection of the steel members carrying the platform shall not exceed 1/1000 of their span under static conditions when the rated load is evenly distributed on the platform

At least four renewable guide shoes or shoes with renewable linings or sets of guides rollers shall be provided two at the top and two at the top and two at the bottom of the car frame assembly.

- Enclosure finishes The car enclosure, doors etc. shall be as per Annexure-I enclosed. The following are to be provided.

**Alarm System** : An emergency alarm buzzer, including wiring shall be provided and connected to a plainly marked push button in the car operating panel. The alarm bell shall be located in central security room. The alarm unit shall be solid- state siren type, to give a waxing and waning siren when the alarm button in the car is pressed momentarily. Built in 3 way intercom system with telephone instrument in the car, reception and security, (as directed by Bank/Architect) including wiring telephone instrument and associated EPABX shall be provided.

Sealed Maintenance Free Nickel Cadmium Batteries capable of maintaining the following in lift for 2 hrs after mains failure. -Emergency light of adequate illumination in car -Car Ventilation -Intercommunication System

-Alarm bell

. One no. 16 amp switch socket outlet to IP 54 and a permanent weatherproof type luminaries to IP54 (with lighting switch ) adequately protected shall be provided on the top of the lift car for maintenance

. One no. 16 amp switch socket outlet to IP 54 at bottom of lift car for maintenance

##### **1.2 Operation Panel**

A full length car operating panel incorporating following control/indications shall be provided in lift on the return panel

- LCD Illuminated touch push buttons of micro pressure type corresponding to the floors served at Ground floor and Inside Car. For Other floors LED Illuminated touch push buttons of micro pressure type to be provided.

- Door open and door close button

- Emergency stop button with Alarm

- Two position key operated switch for 'with attendant' and 'without attendant'

operation.

- Ventilation fan ON/OFF switch with auto OFF when there is no call after 120 seconds (Two Speed & concealed vents).

- Built in intercom of the hands free type as well as space for providing EPABX telephone instrument

and 5 pair telephone trailing cable to communicate from car to Two Locations i.e. Operator's Room (at remote location) & Security Guard Room and vice-versa.

- Dynamic car direction display • Car position indicator (digital)
- Audio/Visual overload warning indicator
- 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 connections-one at the operator's room and other at guard room and the emergency signal with re-chargeable batteries as source of supply be made in the lift car.
- The device used for emergency signals should incorporate a feature that gives a immediate feed back to the car passengers that the device has worked properly and the signal has been passed on to the intended agency.
- Digital voice synthesizer for announcing special messages with background music.

### **1.3 Landing fixture**

The landing fixtures shall be recess mounted on a base junction box in the wall by the side or on top of landing doors as required.

Each landing fixtures shall consist of micro touch type landing call buttons with illuminated call acknowledge signal and illuminated digital type car position indicators on separate stainless steel face panels with hairline finish. Alternatives as available with bidders shall be indicated in tender for owners approval.

The following landing fixtures shall be provided for lift.

- a) Lowest floor • Up call button
  - Digital car position indicators
  - Travel direction indicators
  - "In use" indicator to signify the lift door is opened for delivery at a certain landing
- b) All floors other than lowest and top most floor
  - Button up and down call buttons
  - Travel direction indicators
  - Digital car position indicators with Gong (Optional)
  - "In use" indicators to signify the lift door is opened for delivery at a certain landing •

Manual by pass key switch for lift landings.

- c) The top most floor
  - Down call button
  - Travel direction indicators
  - Digital car position indicators with Gong
  - "In use" indicators to signify the lift door is opened for delivery at a certain landing
  - Manual by pass key switch for lift landings.



## **2. CAR AND LANDING DOORS**

### **2.1 General requirements**

All car doors shall extend to the full height and width of landing opening unless otherwise specified and shall be operated with variable frequency door operator. A similar imperforate door shall be provided for every landing opening in the lift hoistway enclosure. The top track of the landing and car doors shall not obstruct the entrance to the lift cars. All car and landing doors shall have a fire resistance of not less than 2 hours.

In addition, all the car and landing doors shall meet the following general requirements.

#### a) Car door locking devices

Every car door shall be provided with an electrical switch to prevent the lift car from being started or kept in motion unless the car door is closed. A mechanical locking device shall also be provided to prevent door opening from inside the car whilst the car is in motion.

b) Landing door locking devices Every landing door shall be provided with a mechanical locking device to prevent opening of the door from the landing side in normal cases unless the lift car is in that particular landing zone.

#### c) Projections and recesses

Sliding car and landing doors shall be guided on door tracks and sills for the full travel of the doors. The distance between the cars and the landing sills shall not exceed 35 mm.

d) Door locking devices All doors locking devices, door switches and associated actuating rods, levers or contracts, shall be inaccessible from the landing or the car.

#### e) Protective devices

Protective devices shall be fitted to the leading edges of both car door panels. It shall automatically initiate reopening of the door in the event of a passenger being struck (or about to be struck) by the door in crossing the entrance during the closing movement. The obstruction of either leading edge when closing shall actuate the protective device to function.

#### f) "Door open" alarm

"Door open" alarm shall be provided in the car to initiate alarm and a continuous buzzer if a car or landing door has been mechanically kept open for a present period. The period shall be adjustable from 0-10 minute.

#### g) Emergency landing door unlocking devices and key

- Every landing door shall be provided with an emergency landing door unlocking device. When operated by an authorized person with the aid of a key to fit the unlocking triangle, the landing door shall be unlocked irrespective of the position of the lift car for rescue purpose. When there is no "unlocking" action, the key shall only be able to stay in the locked position.
- In the case of coupled car and landing doors, the landing doors shall be automatically closed by means of weight or springs when the car is outside the unlocking zone.

### **2.2 Door Hangers and Tracks**

The car and the landing doors shall be provided with two point suspension sheave type hangers complete with tracks. Sheaves and rollers shall be steel with moulded nylon collar and shall include shielded ball bearings. Tracks shall be of suitable steel section with smooth surface. The landing doors shall be complete with headers, sills, frames etc. as required.

## **2.3 Lift Door Protection**

Multiple-Infra red door protection and mechanical shoes shall be provided for all lift to control door movement which shall cover the entire door opening effectively.

2.4 Protective Hand Rail in the Car (Optional as this will depend on interior design)

## **2.5 CABIN FAN**

A noiseless pressure fan shall be provided in the lift cabin.

## **3. HOIST ROPES**

Hoist way material shall be non-flammable **(02 hrs fire rated)** except travelling cables which shall be flame resistant.

Lift Ropes - IS 14665 (Part 4 / Sec 8)-2001

Round strand steel wires ropes made from steel wire ropes having a tensile strength not less than 12.5 tonnes/cm<sup>2</sup> and of good flexibility shall be used for lift. Lubrications between the strands shall be achieved by providing impregnated hemp core. The lift ropes shall conform to IS 14665-(Part-4-Sec. 8):2001 and the following factor of safety shall be adhered to. The minimum diameter of rope for cars and counter weight of passenger and goods lift shall be 8mm.

### **Rope fastenings**

The ends of lift ropes shall be properly secured to the car and counter weight hitch plates as the case may be with adjustable rope shackles having individual tapers babbitt sockets, or any other suitable arrangement. Each lift rope shackle shall be fitted with a suitable shackle spring, seat washer, shackle nut & lock & shackle nut split pin.

### **Guards for Lift Ropes**

Where lift ropes run round a sheave or sheaves on the car and/ or counterweight of geared/ gearless machine suitable guards shall be provided to prevent injury to maintenance personnel.

### **Number & Size of Ropes**

The contractor must indicate the number and size of lift ropes and governor ropes proposed to be used, their origin, type, ultimate strength and factor of safety. The contractor should furnish certificate or ropes from the rope manufacturers issued by competent authority.

## **4. COUNTER WEIGHT**

The counter weight for lift cars shall be in accordance with clause 6 of IS 14665 (Part 4-Sec-3) : 2001 and shall be designed to balance the weight of empty lift car plus approximately 50 percent of the rated load. It shall consist of cast sections firmly secured in relative movement by at least two numbers steel tie rods having lock nuts/split pins at each end and passing through each section and Housed in a rigid steel frame work. Cracked and broken sub weights shall not be accepted. Counter weight for passenger lifts should be able to accommodate suitable weight Interior finishes. In case interior finishes material exceeds this provision, then the elevator contractor shall adjust the Counter Weight accordingly, however this will be decided and intimated much before the delivery of the elevators.

### **Counter Weight Guards**

Guards of wire metal / mesh shall be provided in the lift pit to a suitable height above the pit floor to eliminate the possibility of injuries to the maintenance personnel.

## **5. GUIDES / Guide Rails**

Car and counterweight guide shall be machined T section as per relevant Indian Standards IS-14665 of 2000 revised up to date. The guides shall be capable of withstanding forces resulting from the

application of the car or counter weight safety devices The guide rails shall be minimum 16mm Tongued & Grooved type.

## **6. TRAILING CABLES**

A single trailing cable for lighting control and signal circuit is permitted, if all the conductors of this trailing cables are insulated for maximum voltage running through any one conductor of this cable. The lengths of the cables shall be adequate to prevent any strain due to movement of the car. All cables shall be properly tagged by metallic / plastic tags for identification. Cable jacket should be suitable for immersion in water, salt water & oil etc.

Trailing cables shall run from a junction box on the top of the car to a junction box located in the shaft bear mid point of travel and from these junction boxes conductors shall be run to the various locations.

Trailing cables exceeding 30 meters in length shall run so that the strain on individual cable conductors will be reduced to a minimum and the cables are free from contact with the car counterweight, shaft walls or other equipment.

Trailing cables exceeding 30 meters in length shall have steel supporting fillers and shall be suspended directly by them without rubbing over other supports.

Cables less than 30 meters in length shall have no - metallic fillers and shall be suspended by looping cables around supports of porcelain spools type or equivalent.

5 percent of the total capacity subject to a minimum of 5 wires shall be available unutilised in the trailing cable everywhere suitable distributed between various functions.

## **7. SAFETY DEVICES**

Safety devices shall be capable of operating only in the downward direction and stopping fully loaded car, at the tripping speed of the over speed governor, even if the suspension devices break, by gripping the guides, and holding the car there. Governor sleeve in elevator pit shall be enclosed in a wire cage to a height of 2.40 mtr. All safety devices statutorily required by Lift Inspector, including but not restricted to the following shall be provided.

### **• Terminal slow down switches**

These shall be provided and installed to slow down the lift car when approaching the top and bottom landings. The slow down switches shall act independently from the normal car operating device.

### **• Over travel limit switches**

These shall be provided and installed to stop the car within the top and bottom clearance, independent of the normal car operating device. The bottom over travel limit switch shall become operative when the bottom of the car touches the buffer. When the over travel limit switches are operative, it shall be impossible to operate the car until the car has been hand would to a position within the normal travel limits.

### **• Pit Switch**

An emergency stop switch shall be located in the pit which when operated shall stop the car regardless of the position of hoist way.

### **• Terminal Buffers**

Suitable spring buffers mounted on RCC foundation blocks shall be provided in the pit in compliance with ANSI/ASME/CENEN-81 /JIS codes for stopping the car in case of mal-operation. Dowels for the purpose shall be left while casting the pit floor alternatively floor reinforcement could be exposed by chipping for welding additional reinforcement for Dowels. However clearance from underside of the car resting on a fully compressed buffer shall not be less than 1.20 mtr. Buffers shall be designed for a

design speed + 15%. Oil buffers shall be provided for the passenger elevators for speed of more than 1.75 mps and spring buffers for lower speed.

- **Interlocking**

Adequate interlocking is to be provided so that the car shall not move if the landing doors are even partially open and also the lift is overloaded.

- **Over speed governor**

Over speed governor shall be of centrifugal type and shall operate the safety gear at a speed at least equal to 115% of the rate speed and less than the over speed governors shall be driven by flexible wire ropes with the following requirements.

- The breaking load of ropes shall be related to the force required to operate the safety gear by the safety factor of at least 8

- The nominal rope diameter shall be at least 7 mm

- The ratio between the pitch diameter of the over speed governor pulley and the nominal rope diameter shall be at least 30

The over speed governors shall be sealed after setting the tripping speed.

The breaking or slackening of the governor rope shall cause the motor to stop by an electric safety device.

- **Alarm bells**

A Concealed 200 mm diameter alarm bell shall be installed in the main security area. The alarm bell shall sound when the alarm bell button in the car operating panel is pressed. The bell shall mute when the pressure on the alarm bell button is released.

- **Emergency Stop Switches**

An emergency stop for use by maintenance personal shall be provided in each lift car.

## **8 FIREMAN SWITCH**

Each Lift shall have a Fireman switch with glass front for access by the Firemen. The operation of this switch shall cancel all calls to this lift and shall stop at the next nearest landing if traveling upwards. The doors shall not open at this landing and the lift shall return to the ground floor. In case the lift is traveling downwards when the fireman's switch is operated it shall go straight to the ground floor bypassing all calls enroute. The emergency stop button inside the car shall be rendered inoperative.

The fireman's switch shall be located adjacent to the lift opening at the terminal floor and shall be at a height of approximately 2 m above the floor level. For easy identification of firemens lift which confirm to the local authorities requirements, a red and white diagonal striped backing shall be provided behind the glass of the firemen's switch.

A permanent notice of prominent size indicating the floors served shall be provided and displayed adjacent to the firemen's lift at the terminal floor. The notice shall be made of laminated plastic sheet or other approved materials with red letters on white background. Details of the notice shall be submitted to the Engineer-in-Charge of Bank for approval prior to fabrication.

## **9. CONTROL OF NOISE AND VIBRATION**

### **9.1 General**

The whole of the lift assembly, including the opening and closing of the car and landing doors shall be quiet in operation and shall be free of rattling or squeaking noises. Lift doors operation shall be smooth

to avoid the transmission of impact noise to the surrounding structure.

Noise level resulting from the operation of the lifts, including direct sound transmission, breakout noise and re-radiation of structure borne noise, shall not exceed the specified noise criteria of the adjacent spaces. Vibration resulting from operation of lifts of escalators shall not be perceptible in any occupied areas.

## **9.2 Car construction**

All elements of the lift car construction shall be sufficiently rigid to avoid generation of noise by panel excitation as a result of movement. The total noise level in a moving lift car shall not exceed 45 dBA with the ventilation system operating.

## **9.3 Machinery**

The gearless traction machine and compact PM motor are installed within the hoist way and the slim control panel is located on the shaft side wall. Provision shall be made for the control vibration isolation measures employed to ensure that structure borne noise resulting from the operation of the lift machinery is not audible in any occupied area. Lift machinery noise levels under normal operating conditions shall not exceed 70 dBA at 1 m from the equipment in free field.

## **9.4 Arrival chimes**

Noise from arrival chimes shall not exceed 60 dBA. The above levels shall be measured at 3 m from the arrival chimes using a noise meter set to 'fast' response. Chimes with adjustable loudness shall be provided.

## **10. FIRE SAFETY REQUIREMENTS**

General requirements of lifts shall be as follows :

10.1 Landing doors in lift enclosures shall have a fire resistance of not less than two hour.

10.2 Lift car door shall have a fire resistance rating of two hour.

10.3 Grounding switch (es), at ground floor level, shall be provided on all the lifts to enable the fire services to ground the lifts.

### **Automatic Rescue Device (ARD) :**

The Automatic Rescue Devices (ARD) meant for the purpose of bringing the lift car to the nearest landing doors. The ARD shall have the following specifications:

a) ARD should move the elevator to the nearest landing in case of power failure during normal operation of elevator.

b) ARD should monitor the normal power supply in the main controller and shall activate rescue operation within the time period as per manufacturer's standard subject to approval of lift /safety Inspector. It should bring the elevator to the nearest floor at a slower speed than the normal run. While proceeding to the nearest floor the elevator will detect the zone and stop. After the elevator has stopped, it automatically opens the doors and parks with door open. After the operation is completed by the ARD the elevator is automatically switched over to normal operation as soon as normal power supply resumes.

c) In case the normal supply resumes during ARD in operation the elevator will continue to run in ARD mode until it reaches the nearest landing and the doors are fully opened. If normal power supply resumes when the elevator is at the landing, it will automatically be switched to normal power operation..

d) All the lift safeties shall remain active during the ARD mode of operation.

e) The battery capacity should be adequate so as to operate the ARD at least seven times a day provided in duration between usage is at least 30 minutes.

## **TECHNICAL SPECIFICATIONS**

### **LIFT & ASSOCIATED WORKS**

#### **1. ASSOCIATED ELECTRICAL WORKS**

##### **1.1 Scope**

Based on power requirements of lifts furnished by the lift contractor, power supply for the lifts machines, terminating in a Switchboard located at a desired location

##### **1.1 Scope**

Based on power requirements of lifts furnished by the lift contractor, power supply for the lifts machines, terminating in a Switchboard located at a desired location, shall be provided by Engineer-in-charge (Bank). The earth bar provided on this Switchboards shall be connected to the building earthing system also by Engineer-in-charge. All cabling / wiring/loop earthing beyond this Switchboard for interconnection with the lift controllers / motors/ indicators / push buttons / safety devices etc. shall be provided by the lift contractor and its cost shall be deemed to be included in the quoted rates.

##### **1.2 Cabling**

Cabling between switchboard and the controller /lift motor shall be with XLPE insulated HR PVC sheathed 1100 volt grade aluminium conductor armoured cables conforming to IS 7098 or PVC insulated, PVC sheathed, 1100 volt grade al conductor armoured cables conforming to IS 1554. Cables shall be terminated in glands fitted with armour clamps the gland body shall be provide with an internal conical sating to receive the armour clamping cone and clamping nuts which shall secure the armour wires. A PVC shroud shall be fitted to cover the gland body and exposed armour wires

Trailing cables for the lifts shall be EPR insulated stranded copper conductor flexible cables conforming to IS 9968

Control cabling shall be with multi core stranded copper conductor PVC insulated and sheathed 1100 volt grade cables conforming to IS 8130. Minimum size of the cable shall be 2.5 sq mm.

Where cables pass through walls or floor slabs, pieces of GI sleeves shall be provided for cast into the wall / floor and cable shall be drawn therein. Annular space around the cable in the sleeve shall be sealed with fire proof sealant.

##### **1.3 Wiring**

All wiring shall be carried out with FRLS PVC insulated 1100 volt grade stranded copper conductor wires conforming to IS 694 drawn in MS rigid / flexible conduiting system and / or MS raceways. Minimum 2.5 sq mm size wires shall be used. Wires shall be cut only at terminations. Intermediate jointing shall not be permitted. Drawing, cutting and terminating of the wires shall comply with the relevant Indian standard specifications and shall be carried out in the most workman like manner as per standard practice. All normal care like cutting the insulation with a pencil edge, taking care not to cut the strands and proper tightening of terminal connector screws to avoid loose connection or breaking of conductors etc. shall be taken.

Heavy gauge black enameled screw type ISI embossed MS conduits with superior quality accessories approved by Engineer-in-Charge shall be used in the work. Conduits could either be recessed in floors / walls or fixed on surface with saddles and clamps. Final connections to vibrating the equipment shall be made with metal flexible conduits. Entire work shall be carried out in work man like manner as per standard practice

##### **1.4 Earthing**

Metal enclosures of all electrical equipment and devices including frames of motors, controllers,

switchgear, conduits and raceways etc. shall be properly earthed so as to form an equi-potential zone. Loop earthing of vibrating equipment shall be done with flexible copper earthing braid or flexible cables. The lift motor frame shall be connected to the building earthing system termination at the switchboard by duplicate loop earthing conductors of appropriate size.

## **2. ASSOCIATED CIVIL & STRUCTURAL ITEMS**

All civil and structural items of work associated with erection and operation of lifts shall be provided by the Contractor at his cost including (but not restricted to) the following.

- . Hook for lifting lift equipments in the top of shaft.
- . Temporary scaffoldings and safety barricades during lift installation in and around lift Lift wells
- . Sill angels
- . Bearing plates . Buffer supports
- . Checqured plates
- . Fascia plates
- . Ladders in pits (MS)
- . Safety railing on car top
- . Separator /stretcher beams if required .
- . Dowels for terminal buffers in pit floor during casting.

The Contractor shall ensure erection and fixing of steel work in such a manner that no RCC wall or any other structural member is damaged.



## **TECHNICAL SPECIFICATIONS**

### **LIFTS & SAFETY ASPECTS & PROCEDURE**

1. Since lift installation consists of a number of electrical and mechanical components having linear/ rotary motions, utmost caution should be exercised while working and all safety precautions shall be rigorously followed.
2. Only authorized persons shall be allowed to work on lift installations and officer empowered for such authorization shall keep proper recorded thereof during the test, inspection and maintenance except where necessary.
3. If during erection any safety or protection devices is inoperative, special care must be taken to avoid accidents on this account.
4. Supply at main incoming iron clad switch or circuit breaker shall be switched off before examining any part of the equipment. Whether during periodical inspection, or while carrying out any work on the equipments (including using the winding handle at times of mains failures) unless power is particularly required for particular operation or tests on the lifts. The breaker located in OFF position.
5. The landing and car buttons shall be keep out of circuit by switching on the 'Maintenance Switch' located on the top of the lift car during maintenance operators. Whenever maintenance switch is not proved emergency stop switch inside car and or attendant control switch should be used.
6. Before carrying out any repair work it shall be ensured that none of the electromechanical door locks are short circuited either from the controller or at the landings
7. As a general precaution, facia plate between the door headers and the corresponding upper landing sill on each floor must be provided.



## **TECHNICAL SPECIFICATIONS**

### **PROVISION FOR THE DISABLED AND HANDICAPPED**

All the Passenger Elevator shall be provided with following features:

- a) Elevator control buttons at locations and height specified in IS 15330 -2003
- b) Hall call buttons at locations and height specified in IS 15330 -2003
- c) Hand rails shall be provided on the side walls of the Elevator at height & locations specified in IS:15330 -2003. An international symbol of access of the disabled shall be permanently and conspicuously displayed at each and every Elevator landing next to the Elevator entrance (to be provided by signage contractor). Braille notations indicating the floor levels shall be incorporated next to each button at the handicap COP and handicap hall call buttons.
- d) A digital voice system for announcing the car position, opening/closing of doors, direction of travel and messages shall be provided as per IS:15330 -2003
- e) A laminated safety glass type mirror of at least half of the size shall be installed on rear panel at appropriate position as per IS : 15330 -2003

#### 3.0 Provisions for use of lift by Handicapped persons in Passenger Elevators

3.1 Hand rail A hand rail not less than 600 mm long at 900 mm above floor level shall be fixed adjacent to the control panel.

3.2 Car operating panel Inscription in Braille also to be provided. Level to be lower than the normal so as to be accessible by a person sitting on wheel chair

3.3 Hall buttons Inscription in Braille also to be provided. Level to be lower than the normal so as to be accessible by a person sitting on wheel chair

3.4 Car position indicator The interior of the cage shall be provided with a device that audibly indicate the floor, the cage has reached and indicate that the door of the cage for entrance / exit is either open or close.

3.5 Hall lantern To be provided along with an audible chime.

3.6 Any other feature The time of an automatically closing door should be minimum 5 second and closing speed should not exceed 0.25 m/sec.

#### 4.0 Landing signals

4.1 Hall buttons Self illuminating micro-push type in hair line stainless steel facia plates

4.2 Car Position Digital position indicators along with direction of travel (with audible signal in each elevator lobby)

4.3 Hall gong Up/down indicator with single stroke gong/chime at all landing

#### 5.0 Safety features

5.1 Door safety Multiple infra red device to cover the total height and width of the door and with protective leading edge device to operate in case of failure of infra red protection.

5.2 Buffer Spring Buffer to be provided 5.3

Overload protection .

Overload protective device .

Overload non starter.

5.4 Over travel protection Terminal and final limit switches to be provided

5.5 Motor protection Trip devices for :

. Over current

. Under voltage

. Over voltage

. Single phasing . Earth

leakage . Phase reversal

5.6 Interlocking of car and hoistway doors To be provided as per specifications.

5.7 Automatic Rescue Device (ARD) To be provided

6.0 Associated Civil and structural items All civil and structural items of work associated with erection and operation of lifts shall be provided by the Contractor at his cost including (but not restricted to ) the following.

Temporary Scaffolding and safety barricades for erection in and around lift hoist ways

Bearing plates Buffer supports

Facia plates

Ladder in pits

Safety railing on top of car

Channels, separators, stretchers etc.

7.0 Fireman's switch To be provided at GF/ Lobby level

**8.0 Free Comprehensive Maintenance Period One Year completion of work and handing over of the Lifts in satisfactory operating condition.**

## **LIFTS**

### **TESTING OF LIFT INSTALLATION**

#### **1.0 TESTS AT SITE:**

##### **1.1 a) Levelling Test:**

Accuracy of the floor levelling shall be tested with the lift empty, fully loaded. The lift shall be run to each floor while travelling both in upward and downward directions and the actual distance of car floor above/ below landing floor shall be measured. In each case there shall not be any appreciable difference in these measurements for levelling at the floors when the car is empty and when it is fully loaded. The tolerances for levelling shall be as + 5mm accuracy.

##### **b) Safety Gear Test:**

Instantaneous safety gear controlled by a governor, should be tested with contract load and a contract speed, governor being operated by hand. Two tests should be made, however, with wedge clamps or flexible clamp safeties, one with contract load in the car and the other with 68 kg (equivalent to one person) in the car. The stopping distance obtained should be compared with specified figures and the guides, car platform, and safety gear should be carefully examined afterwards for signs of permanent distortion.

Counterweight safety gear should be tripped by the counterweight governor and the stopping distance noted. In this case, however the governor tripping speed should exceed that of the car safety governor but by not more than 10 percent.

During the safety gear test, car speed (from the governor or the main sheave) should be determined at the instant or tripping speed with that stated in I.S. The governor jaws and rope should be examined for any undue wear.

##### **c) Contract Speed:**

This should be measured with contract load in the car, with half load with no load, and should not vary from the contract speed by more than 10 percent. The convenient method is by counting the number of revolutions, made by the sheave or drum in a known time. Chalk mark on the sheave or drum and a stop switch will facilitate timing but care must be exercised to ensure that no acceleration or retardation periods are included. If the roping is 2 to 1 the sheave speed is twice the car speed. Alternatively, the speed can be measured by a tachometer applied directly to shaft immediately below the sheave.

##### **d) Lift Balance:**

After the above test, some of the weight shall be removed until the remaining weights represent the figures specified by the tenderer. With this condition car at half way travel the effort required to move the lift car in either direction with the help of winding wheel shall be as nearly as can be judge by the same.

##### **e) Car and landing doors interlocks:**

The lift shall not move with any door open. The car door relay contact and the retiring release cam

must be tested. The working of the door operation and the safety edges and light equipment if any provided shall also be examined.

The operation of the contactors and interlocks shall be examined and it shall be ascertained whether

all requirements laid down in the specifications have been met.

**g) Normal Terminal Stopping Switches:**

This shall be tested by letting the car run to each terminal landing in turn, first with no load and then with contract load and by taking measurements, top and bottom over travels can be ascertained.

**h) Final Terminal Stopping Switches:**

The normal terminal stopping switches shall be disconnected for this test. It shall be ensured that these switches operate before the buffers are engaged.

**i) Insulation Resistance:**

This shall be measured (after removing the electronic PCB's and their connection) between power and control lines and earth and shall not be less than 5 mega-ohms when measured with D.C. voltage of 500 volts. The test shall be carried out with contactors so connected together as to ensure that all parts of every circuit are simultaneously tested.

**j) Earthing:**

All conduits, switches, casing and similar metal work shall have earthing continuity.

**k) Ropes:**

The size, number construction and fastenings of the ropes should be carefully examined and recorded.

**l) Buffers:**

The car should be run on to its buffers at contract speed and with contract load in the car to test whether there is any permanent distortion of the car or buffers. The counterweight buffers should be tested similarly.

**1.2 Tests at Manufacturer's Works:**

**a) High Voltage Test:**

The dielectric or electric apparatus (excluding motors, generators and instruments which are tested in accordance with the appropriate Indian Standards wherever they exist) shall be capable of withstanding a test voltage of ten times the working voltage with a maximum of 2000 Volts when applied.

i) between the live parts and case of frame with all circuits completed.

ii) between main terminals or equivalent parts with all circuits open, and iii)

between the lift parts of independent circuits.

Note : Owing to the impracticability of applying tests (ii), (iii) mentioned above on controllers and similar apparatus after controller wiring has been completed, these tests may be made at convenient stages of manufacturer.

**b) i) Method of Applying High Voltage:**

The test shall be made with alternating voltage of any convenient frequency, preferably between 49 to 60 cycles per second. The test voltage shall be approximately sine-wave form and during the application of voltage with peak value, as would be determined by spark gap by occillograph or by any other approved method shall not be more than 1.45 times the rms value.

The rms values of the applied voltage shall be measured by means of a volt meter used with a suitably calibrated potential transformer or by means of voltmeter used in connection with a special

calibrated voltmeter winding or testing transformer by any other suitable voltmeter connected to the output side of the testing transformer.

**ii) Duration of High Voltage Test:**

The test shall be commenced at a voltage of about one third of the test voltage which shall be increased to the full test voltage as rapidly as is consistent with the value being indicated by the measuring instrument. The full test voltage shall be maintained for one minute. At the end of this period, the test voltage shall be rapidly diminished to one third of its full value before switching off.

The oil buffers are examined after the above tests have been made to determine if there has been any oil leakage or distortion and to ensure that the buffers return to their normal positions.

**c) Buffer Test:**

A copy of the test report shall be intimated after testing at works.

**1.3 Performance Test:**

This test is meant for passenger lifts and is conducted to watch the performance of lift installation in terms of passenger handling capacity and waiting interval as obtained at site vis-a-vis design, data and conducted as below :

i) Waiting interval : (T)-This can be worked out by taking the average of several round trip times as observed physically and then dividing it by the number of lifts in that bank.

ii) Handling capacity  $H = 300 \times Q \times 100 \text{ TxP}$

Where

H = Handling capacity as the percentage of the peak population handled during 5 minutes.

P = Total population to be handled during peak morning/ evening period. (It is related to the area for which particular bank of lifts serves).

Q = Average number of passenger carried in a car. T = Waiting interval.

) Service Temperature Test :

A continuous run of one hour should be made with number of starts and stops to reproduce as nearly as practical the anticipated duty in service. (The standard duty cycle is for 90 to 180 start per hour). It is very difficult in practice to carry out this test with alternate starts at full load and no load and it is necessary therefore to simulate these cycles. A suitable test for all motors except squirrel cage motors is to run the car up from the bottom landing with contract load and stop at each floor. From the top floor a non stop run is made to the lowest floor and the upward journey with stop is then repeated.

The time intervals between stops and starts at the floors should be uniform and such as to give about 180 starts in one hour. At the end of this run the temperatures of the armatures and fields of the motor and generator are recorded. The temperature rise should, be within prescribed limit.

**Note: Arrangement for testing of Lift installation shall be under scope of contractor and no additional cost shall be charged by him towards testing.**

## ANNEXURE - A

### **Scope of work:**

**Supply, Insallation , Testing, Commission and Maintenance of Lift at The Company owned Residential Building at Plot No No 30 , Block- B , Pocket 10 , Sector 13 , Dwarka**

### **Minimum Configuration required:**

Please refer Appendix - B

### **Reports**

### **Technical Terms and Conditions**

- Vendor has to complete the installation within 60 days from the date of work order.
- Vendor should provide the one year onsite warranty
- Vendor is requested to visit the site and understand the requirement before implementation

**ANNEXURE-B**

**TENDER FOR LIFT**

**TECHNICAL PARAMETERS ( Minimum Configuration**

Note:-

Tenderers to give item wise confirmation/comment against each parameter. Deviations if any shall be clearly brought out in this performa. Tender's shall fill in the performa and enclose it along with the tender.

<b>S. No.</b>	<b>Items</b>	<b>Requirement as per tender</b>	<b>Item wise confirmation YES/NO /COMMENTS</b>
<b>A</b>	<b>PASSENGER LIFT</b>	Gearless	
	General		
1.1	Number of Lifts	1(One)	
1.2	Capacity	6-7 passenger/ 408-476 kg Lift	
1.3	Speed	1.0 to 1.25 MPS	
1.4	Number of Landings	5	
1.5	Number of openings	5 on the same side	
1.6	Travel	15000 mm approx	
	Machine, Hoistway and Pit		
1.7	Machine room location	Machine Room Less	
1.8	Machine Details	Gearless	
	Control	AC D3 MR/Microprocessor Based	
	Operation	Full Collective Operation	
1.09	Hoist Dimensions	As per site.	
1.10	Head Room available above last landing	4100mm (approx)	
1.11	Pit Depth	1400mm	
	<b>Car</b>		
1.12	Car Enclosure	SS Honey Comb Finish or Equivalent approved	
1.13	Car Ceiling	SS Honey Comb Finish or Equivalent approved	
1.14	Car Floor	granite flooring ( base price Rs 5000/-sft Blue pearl or equivalent approved	
1.15	Car and landing doors	Automatic power operated Center Opening 750mm- 800mm W X 2000 m Stainless Steel (Inside car min. 2100 mm H	

		(Minimum)) as per site requirement.	
1.16	Car Size	To be furnished by tenderer (shall not be less as specified in ISI)	
1.17	Car Operating Panel	Stainless Steel hairline/mirror finish Car Operating Panel inside at both of car.(1 COP)	
1.18	Car Interior Load	Counter weight should be able to accommodate approx 50 kg weight for interior finish.	
<b>B</b>	<b>PARAMETERS FOR LIFTS</b>		
1	Machine	GEARLESS	
1.1	Power Supply	415V/240V, 50Hz	
1.2	Acceptable Voltage Fluctuation	± 10 %	
1.3	Rate of acceleration deceleration (m/sec)	0.6-1.5 (adjustable at site)	
1.4	Jerk (m/sec)	0.7-1.5 (adjustable at site)	
1.5	Vibration in car horizontal/vertical	20/18 MG maximum	
1.6	Noise level in car during travel	45 dBA maximum	
1.7	Door Noise level while closing and opening at a distance of 1 mtr from car door	52 dBA maximum.	
1.8			
2.0	<b>Fixtures/signals inside car</b>		
2.1	Normal Lighting	CFL Recessed Type	
2.2	Emergency light and alarm bell (security room)	With SMF battery operated with charger rated for 30 minutes	
2.3	Ventilation	Blower Fan (Two Speed and concealed vents)	
2.4	Operating Buttons & Indications	Stainless steel operating panel with following buttons and indications.	
		Illuminated push buttons of micro pressure type corresponding to the floors with Braille encryption.	
		Door Open & Door Close button with arrow indicators	
		Emergency Stop Button	
		Emergency alarm Button	
		Two position key operated switch for with attendant and	



		(Minimum)) as per site requirement.	
1.16	Car Size	To be furnished by tenderer (shall not be less as specified in ISI)	
1.17	Car Operating Panel	Stainless Steel hairline/mirror finish Car Operating Panel inside at both of car.(1 COP)	
1.18	Car Interior Load	Counter weight should be able to accommodate approx 50 kg weight for interior finish.	
B	<b>PARAMETERS FOR LIFTS</b>		
1	Machine	GEARLESS	
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1.4	Jerk (m/sec)	0.7-1.5 (adjustable at site)	
1.5	Vibration in car horizontal/vertical	20/18 MG maximum	
1.6	Noise level in car during travel	45 dBA maximum	
1.7	Door Noise level while closing and opening at a distance of 1 mtr from car door	52 dBA maximum.	
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		Illuminated push buttons of micro pressure type corresponding to the floors with Braille encryption.	
		Door Open & Door Close button with arrow indicators	
		Emergency Stop Button	
		Emergency alarm Button	
		Two position key operated switch for with attendant and	

		without attendant operation.	
		Ventilation fan ON/OFF switch with auto OFF when there is no cal after 120 seconds.	
		Built in 3 way intercom system with telephone instrument in the car, machine room and reception/security (as directed by Engineer in-charge) including wiring telephone instrument and EPABX.	
		Dynamic Car direction display.	
		Digital Position Indicators.	
		Audio/Visual Overload Warning indicator.	
2.5	Display Inside Car	LCD Display in side car	
2.6	Voice Synthesizer	To be provided.	
2.7	Is neutral wire available for control circuits	Yes	
2.8	Music (Music Speaker)	Trailing Cable	
3	Provisions for use of lift by handicapped persons in passenger elevators		
3.1	Hand Rail	A hand rail not less than 600 mm long at 900 mm above floor level shall be fixed adjacent to the control panel	
3.2	Car Operating Panel	Inscription in Braille also to be provided. Level to be lower than normal so as to be accessible by a person sitting on wheel chair	
3.3	Hall Buttons	Inscription in Braille also to be provided; normal so as to be accessible by a person sitting on a wheel chair.	
3.4	Car Position Indicator	The interior of the cage shall be provided with a device that audibly indicate the floor	
3.5	Hall Lantern	To be provided along with audible chime	
3.6	Any other feature	The time of an automatically closing door should be minimum 5 second and closing speed should not exceed 0.25 m/sec	
4.0	<b>Landing Signals</b>		
4.1	Hall Buttons	Self Illuminating micro-push	

		type in hair line stainless steel fascia plates.	
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4.2	Car Position	Digital Position indicators along with direction of travel (with audible signal in each elevator with signal in each elevator lobby)	
5.0	Safety Features		
5.1	Door Safety	Multiple infra red device to cover the total height and width of the door and with protective leading edge device to operate in case of failure of infra red protection.	
5.2	Buffer	Spring Buffer to be provided.	
5.3	Overload protection	Overload Protective Device Overload Non Starter	
5.4	Overtravel Protection	Trip Devices for : Over Current, Under voltage, Over Voltage, Single phasing, Earth Leakage, phase reversal	
5.6	Interlocking of car & hoistway doors	To be provided as per specifications.	
5.7	<b>Automatic Rescue Device(ARD)</b>	To be provided	
6.0	Other Features	Micro processors Based Selective Collective Controller, with/without attended switch Full Length Infra red Safety Light Curtain Battery Operated Emergency Alarm & Light.	

**ANNEXURE-C**

**Equipment Details**  
SPECIAL DATA TO BE FINISHED BY BIDDERS

SI No.	Data to be filled in by the tenderer	Passenger Lift
<b>A</b>	<b>Equipment Details</b>	
1	Machine type	
2	Reduction gear unit ratio	
3	Drive Motor data	
i)	KW	
ii)	Starting Current (Amp)	
iii)	F.L. Rated Current (Amp)	
iv)	Max. no. of starts per hour	
v)	Insulation Class	
4	Hoist/Governor ropes (no. and size)	
5	Max. temperature tolerance during peak summer months	
<b>B</b>	<b>Special Features</b>	
	Tenders to confirm included/Not included in respect of the following	Included/Not Included
1	Auto fan off switch	
2	Fan inside the car	
3	Over Load warning indicator	
4	Ni-Cd batteries with charging circuit	
5	Doors Safety	
6	Additional weight permitted inside the car for interiors	
<b>C</b>	<b>Performance Parameters</b>	
1	Levelling accuracy	
2	Governor Tripping Speed	

Note :

1. Bidders to quote strictly as per the BOQ enclosed herewith in tender document
2. Complete tender document with all technical details only filled in the format provided in the tender shall be returned with just as annexure as terms / conditions if any required.
3. Failure to comply with above shall lead to disqualification of bidders.