

NAME OF WORK: Replacement of 8 passenger lift at Kellys TE Building, Chennai



**BHARAT SANCHAR NIGAM LIMITED**

(A Govt of India Enterprise)  
(Electrical Wing)

**O/o The Executive Engineer (E)  
BSNL Electrical Division-I**

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**E-TENDER DOCUMENT**

NAME OF WORK: Replacement of 8 passenger lift at Kellys TE Building, Chennai

**NIT No : 60/EEE/ED-I/CH/2017-18**

This tender document contains **51( fifty one)** pages only.

For E Tender Help Desk of M/s ITI Limited.Tel.No.011 49424365; or Shri. Dinesh , (Mobile: 9894191904), Shri Kirubakaran (Mobile No9962676264), Representatives of M/s ITI Limited & Mail Id : twhelpdesk680@gmail.com, bsnltwhelpdesk@gmail.com

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**INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR E-TENDERING FORMING PART OF NIT AND TO BE POSTED ON WEBSITE**

The Executive Engineer (Elect), BSNL, **Electrical Division-I, Chennai** on behalf of the CMD, Bharat Sanchar Nigam Limited, invites online Item rate bids from eligible bidders in Single bid system for the following work:

1	Name of work	"Replacement of 8 passenger lift at Kellys TE Building, Chennai"
2	Estimated cost put to tender (R s .)	Rs. 24,49,215/-
3	Earnest Money (Rs.)	Rs. 48984/-
4	Period of completion	Six months
5	Last date & time for downloading of tender document by bidder	Up to 14:55 Hrs. on 23-08- 2017
6	Last date & time for online submission of tender	Up to 15:00 Hrs. on 23-08-2017
7	Last date & time for submission of original Tender cost and EMD	Up to 15:00 Hrs. on 23-08-2017
8	Date and time for opening of tender	15:30 Hrs. on 23-08-2017
9	Tender cost (Non refundable)	Rs.500/- (+) GST 5%
10	E-tender Processing fee (Non refundable)	0.05% of estimate cost subject to the minimum of Rs.500 and Maximum of Rs. 5000 plus GST

The bidders satisfying the following conditions:

The lift manufacturer of any of the makes approved in the NIT.

OR

The dealer authorized by lift manufacturer of any of the makes approved in the NIT. The letter of authorization in original from the lift manufacturer will be produced by the dealer.

(Approved makes of Lift:-OTIS, Kone, Mitsubishi, Schindler, Johnson, Thyssenkrupp Elevator (India)

**IMPORTANT NOTE:**

1. The self-attested copies of the following documents shall be scanned and uploaded to the e-tendering website within the period of tender submission. Online bid documents submitted by intending bidders shall be opened only of those bidders, who have scanned and uploaded the following documents (and whose uploaded documents are found to be in order), otherwise the bid will not be opened and shall lead to disqualification.

- a. Tender Fee in the prescribed format
- b. EMD in the prescribed format
- c. Certificate of Financial Turnover from Chartered Accountant (Not applicable for BSNL enlisted Electrical contractors)

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- d. Documents fulfilling Eligibility criteria (Please note that in case the bidder is authorised by the manufacturer, the original authorisation letter is to be scanned and uploaded)
- e. ~~Enlistment certificate issued by BSNL, if applicable~~
- f. ~~Electrical license issued by Govt. of Tamil Nadu~~
- g. GST Registration Number Details, as applicable
- h. PAN Card
- i. EPF and ESI Registration certificate (if applicable)
- j. Undertaking to abide by EW-6 and EW-8 (Form 'A')
- k. Undertaking regarding EPF and ESI provisions (Form 'B')
- l. ~~Certificate of work experience issued by client department (Form 'C') if applicable~~
- m. Undertaking regarding No Near relative working certificate (Form 'D')

**Not uploading the above documents, (even if the documents are submitted physically) shall lead to disqualification.**

- 2. The Physical Tender Fee, EMD, the original authorisation letter by the manufacturer (wherever applicable ), (the scanned copies of which are uploaded) shall be deposited in the tender box available in the office of tender opening authority, by the bidder before 3:00 PM on the tender opening date, failing which the tender shall not be opened.

**BSNL EW-6**  
Bharat Sanchar Nigam Limited  
Electrical Wing

Electrical Division: ED-I, Chennai

Sub Division: IV, Chennai

Item rate tenders on single bid system are invited on behalf of CMD,BSNL for the work "**Replacement of 8 passenger lift at Kelly's TE Building, Chennai**" from the eligible bidders as per NIT notification. The enlistment of the bidders should be valid on the opening date of tender. In case the date of opening of tender is extended, the enlistment of bidder should be valid on the original date of opening of tender.

1. Intending bidder is eligible to submit the bid provided that he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority as per the eligibility conditions mentioned in the NIT notification page.
2. The work is estimated to cost **Rs. 24,49,215/-** This estimate, however, is given merely as a rough guide.
3. Agreement shall be drawn with the successful bidder on prescribed form as amended up to the date of opening of tender. Bidder shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
4. The time allowed for carrying out the work will be Six Months from the 10th day after the date of written order to commence the work for Part A & 72 Months from the date of clearance from lift inspector for Part B portion.
5. The site for the work is available / or the site for the works shall be made available in parts. The successful bidder shall execute the work in coordination with other agencies working in the campus.
6. The bid documents consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website [www.tenderwizard.com/BSNL](http://www.tenderwizard.com/BSNL) at free of cost. The BSNL EW-8 document can be seen from the web site [www.chennai.bsnl.co.in](http://www.chennai.bsnl.co.in) at free of cost.
7. After submission of the bid, the bidder can re-submit revised bid any number of times but before last time and date of submission of tender as notified. While submitting the revised bid, bidder can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of tender as notified.
8. The Tender Fee in the form of Demand Draft issued by the Nationalized / Scheduled bank authorized by the Reserve Bank of India, drawn in favour of BSNL, CHENNAI TELPHONES payable at CHENNAI shall be scanned & uploaded in the e-tendering website within the period of tender submission. The validity of the tender cost in the form of DD shall be **60 days** from the date of opening.
9. The Earnest money deposit (EMD) in the form of Demand Draft / FDR / BG (BG is only for Air Conditioning, Diesel Engine Alternator, Lifts, and Sub Station works wherever the amount of EMD is more than Rs.20,000)/ CDR of a nationalized / scheduled bank authorized by the Reserve Bank of India, drawn in favour of BSNL, CHENNAI TELPHONES payable at CHENNAI shall be scanned & uploaded in the e-tendering website within the period of tender submission. The validity of the EMD in the form of DD shall be **60 days** from the date of opening. If the EMD is in the form of CDR/FDR/BG, the validity shall be **180 days** from the date of opening. In case of L1 bidder, the validity of CDR/FDR/BG is to be extended up to the observation period as that of the Performance guarantee / Security deposit.

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10. The Physical **TENDER COST** and **EMD** of which the scanned copy is uploaded shall be deposited by all the bidders before 3:00 PM on the tender opening date, failing which the tender shall not be opened.
11. Interested bidder who wishes to participate in the bid shall pay the e-tender processing fee to M/s. ITI Limited through their e-gateway by credit / debit card / internet banking / RTGS / NEFT facility.
12. All the documents as specified in the tender document shall be scanned and uploaded to the e-Tendering website within the period of bid submission.
13. Online bid documents submitted by intending bidders shall be opened only of those bidders, who have deposited e-Tender Processing Fee with M/s ITI Limited and Earnest Money Deposit and other documents fulfilling eligibility criteria, scanned and uploaded are found in order.
14. The last date for online submission of bid is **23-08-2017 up to 3:00 PM** and the bid submitted shall be opened at **03:30 on PM 23-08 -2017**. If a holiday is declared on the tender opening day, the tender will be opened on the next working day.
15. The e-Tender processing fee is non-refundable.
16. **Performance Guarantee:** The bidder is required to furnish Performance guarantee for an amount equal to 5% of the contract value in the form of bank guarantee/CDR/FDR/DD (of a nationalized/ Scheduled Bank in a standard format) within two weeks from the date of issue of acceptance letter. This period can be further extended by the Engineer-in-charge up to a maximum period of two weeks on written request of Bidder. The validity period of the performance security in the form of performance bank guarantee shall be: Three Months from the date of actual completion of work, for AMC works; and One year from the date of actual completion of work for all other works. **In case the bidder fails to deposit the said performance guarantee within the stipulated period, including the extended period if any, the Earnest Money deposited by the bidder shall be forfeited automatically without any notice to the bidder and the bidder will not be allowed to participate in the re tendering for the same work.**
17. **Security Deposit:** In addition to Performance guarantee stated above, a sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum be deducted with the sum already deposited as earnest money, will amount to security deposit of 5% of the contract value of the work. **The security deposit shall be released after an observation period as follows: Three Months from the date of actual completion of work, for AMC works; and One year from the date of actual completion of work for all other works.**
18. In case any discrepancy is noticed in the documents as uploaded at the time of submission of the bid online, then the bid submitted shall become invalid and the BSNL shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further, the bidder shall not be allowed to participate in the retendering process of the work.
19. Intending bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders, the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidder shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a bidder implies that he has read this notice

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and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the BSNL and local conditions and other factors having a bearing on the execution of the work.

20. The competent authority on behalf of the CMD does not bind itself to accept the lowest or any other tender and reserves to itself the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidder shall be summarily rejected. The competent authority on behalf of CMD reserves to himself the right of accepting the whole or any part of the tender and the bidder shall be bound to perform the same at the rate quoted.
21. Canvassing whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the bidders who resort to canvassing will be liable to rejection.
22. Agreement shall be drawn with the successful bidder on prescribed form. Bidder shall quote his rates as per various terms and conditions of the said form, which will form part of the agreement.
23. The bidder should give a certificate as per the following that none of his/her relative is employed in BSNL units as per **Form 'D'**. In case of proprietorship firm, certificate will be given by the proprietor and for partnership firm certificate will be given by all the Directors of the company.
  - a. Near relatives of all BSNL employees either directly recruited or on deputation are prohibited from participation in tenders and execution of works in the different units of BSNL. The near relatives for this purpose are defined as:
    - i. Members of a Hindu Undivided family.
    - ii. They are husband and wife.
    - iii. The one is related to the other in the manner as father, mother, son(s) & son's wife(daughter-in-law), Daughter(s) & daughter's husband(son-in-law), brother(s) & brother's wife, sister(s) & sister's husband(brother -in-law).
  - b. The company or firm or any other person is not permitted to tender for works in BSNL unit in which his near relative(s) is(are) posted. The unit is defined as SSA/Circle/Chief Engineer/Chief Archt./Corporate office for non-executive employees and all SSA in a circle including circle office/Chief Eng./Chief Archt./Corporate office for executive employees (including those called as Gazetted officers at present). The bidder should give a certificate that none of his/her such near relative is working in the units as defined above where he is going to apply for tender/work, for proprietorship, partnership firms and limited company certificate shall be given by the authorized signatory of the firm. Any breach of these conditions by the company or firm or any other person, the tender/work will be cancelled and earnest money/performance guarantee will be forfeited at any stage whenever it is so noticed. BSNL will not pay any damages to the company or firm or the concerned person. The company or firm or the person will also be debarred for further participation in the concerned unit.
  - c. No employee in BSNL/ Govt. of India is allowed to work as a contractor for a period of two years of his retirement from service without the prior permission. The contract is liable to be cancelled if either the bidder or any of his employees is found at any time to be such a person who had not obtained the permission as aforesaid before submission of tender and engagement in the bidders service.

24. The tender for the work shall remain open for acceptance for a period of ninety (90) days from the date of opening of tenders. If any bidder withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the BSNL, then the BSNL shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the tenderer shall not be allowed to participate in the retendering process of the work.
25. The agency has to comply with the provisions of EPF and miscellaneous provisions Act-1952 and employees provident fund scheme-1952 as amended up to date in respect of labours/employees engaged by them for this work. Any consequence arising due to non-complying of provisions as specified above shall be the sole responsibility of the firm only. The agency shall give an undertaking to this effect as per **Form 'B'**.
26. **Extension of Validity of tender:** In case, where the letter of award of work cannot be placed within the validity period of the tender, the BSNL can request the bidder to extend the validity of their respective tenders and the Earnest Money deposit by a reasonable period. In such cases, extension of validity of Earnest Money deposit by 30 days beyond the extended validity date of tender should also be asked for. While BSNL can make the request for extension, the tenderer is free to either extend the validity or refuse the request to extend the validity.
27. Rates quoted by the contractor shall be firm and shall be valid for the currency of contract. No cost escalation shall be permitted during the currency of contract.
28. This notice inviting tender shall form a part of the contract document. The successful bidder, on acceptance of his tender by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-
  - a. The Notice Inviting Tender, all the documents including additional conditions, specifications and drawings, if any, forming part of the tender as uploaded at the time of invitation of tender, subsequent amendments issued and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
  - b. Standard BSNL EW-8 form.



### **GENERAL INSTRUCTIONS TO THE BIDDERS**

1. The intending bidder must read the terms and conditions of BSNL-EW 6 carefully. He should only submit his bid, if he considers himself eligible and he is in possession of all the documents required.
2. Information and instructions for bidders posted on website shall form part of bid document.
3. Applicants are advised to keep visiting the above mentioned website from time to time (till the deadline for bid submission) for any updates in respect of the tender documents, if any. Failure to do so shall not absolve the applicant of his liabilities to submit the applications complete in all respect including updates thereof, if any. An incomplete application may be liable for rejection.
4. Those bidders not registered on the website mentioned above, are required to get registered themselves beforehand. The intending bidder must have valid class-III digital signature to submit the bid.
5. On opening date, the bidder can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
6. Bidder can upload eligibility documents in the form of JPG format or / and PDF format. Documents uploaded in any other format, which could not be opened may result in non opening of the bids.
7. Bidder must ensure to quote rate of each item. The column meant for quoting rate in figures appears in yellow colour. In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as "0". Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as "0" (ZERO)
8. Even though any bidder may satisfy the above requirements, he would be liable to disqualification if he has:
  - a. Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the eligibility criteria document.
  - b. Record of poor performance such as abandoning work, not properly completing the contract, or financial failures / weaknesses etc.
9. If any information furnished by the bidder is found incorrect at a later stage, he shall be liable to be debarred from tendering/taking up of works in BSNL. The BSNL reserves the right to verify the particulars furnished by the applicant independently.
10. GST and any other tax applicable in respect of this contract as applicable shall be borne by the bidder himself. The bidder shall quote his rates considering all such taxes. The TDS as per the Govt. regulations will be recovered from the contractor.
11. **Tender Evaluation :**
  - (a) The evaluation and comparison of responsive bids shall be done on the basis of Net cost to BSNL on the prices offered inclusive of packing, forwarding, freight and insurance charges etc., but excluding GST. The bid with lowest net cost as elaborated above will be the L1 bidder. For financial evaluation purposes Comprehensive Maintenance charges for 5 years (excluding 1 year normal guarantee period will be taken discounting @ 12 % per year to arrive at Net Present Value as follows:  
Value of Comprehensive Maintenance charges for evaluation purpose for PART – B =  $Y3 = (0.797 \times C2) + (0.712 \times C3) + (0.636 \times C4) + (0.568 \times C5) + (0.507 \times C6)$ . The bid with lowest evaluated net cost as elaborated above will be the L1 bidder.

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(b) Vendors should furnish the correct GST Rate in the price schedule. If the Input Tax Credit is found to be not admissible at any stage subsequently owing to wrong furnishing of GST Rate, then the vendors will be liable to refund such non-admissible amount, if already paid, along with penalty if charged by the concerned authority.

12. However, pursuant to the constitution (Forty-sixth amendment) act, 1982, if any further tax or levy is imposed by statute, after the last date of receipt of tenders, and the contractors there upon necessarily and properly pays such taxes/ levies, the contractor shall be reimbursed the amount so paid, provided such payment, if any, is not in the opinion of Superintending engineer (whose decision shall be final and binding) be attributable to delay in execution of work within the control of contractor.

13. The Contractor shall, within a period of 30 days of imposition of any further tax or levy in pursuant to the constitution of (Forty sixth amendment) act 1982 give a written notice thereof to the Engineer-in-charge that the same is given pursuant to this condition, together with all necessary information relating thereto.

**14. Bye laws Indemnity against liabilities:**

a. The bidder shall comply with all by laws and regulations of the local and statutory authorities having jurisdiction over the works and shall be responsible for payment of all fees and other charges and giving and receiving all necessary notices and keep the Engineer-in-charge informed about the notices issued and received.

b. The bidder shall indemnify the department against all claims in respect of patent rights design, trademark or name of other protected rights in respect of any plant, machine, work or materials used for or in connection with the works or temporary works and from and against all claims demands, proceedings, costs, charges and expenses whatsoever in respect of or in relation thereto.

c. The bidder shall defend all actions arising from such claims and shall himself pay all royalties, License fees, damages, costs and charges of all and every sort that may be legally incurred in respect hereof shall be borne by the bidder.

d. All liabilities / penal recoveries on matters arising out of tax/levies such as incorrect deductions discrepancies in the filing of returns, revised assessments by the concerned authorities etc,. shall be borne by the bidder.

**15. Termination of contract on death of contractor :**

Without prejudice of any of the rights or remedies under this contract, if the contractor dies, the Engineer in charge on behalf of the BSNL shall have the option of terminating the contract without compensation to the contractor.

**16. Indulging of contractor in criminal /antisocial activities and cases under investigation/charge sheeted by CBI or any other government agencies etc. :**

If the CBI/Independent External Monitor (IEM) /Income tax/ Sales Tax /GST/Central Excise/Custom Departments recommend such a course - Action will be taken as per the directions of CBI or concerned department.

17. As a general notion, the terms and conditions/instructions contained in various pages of this document are addressed assuming the bidder as 'Male'. However, the same shall remain and assumed to be addressed in case of 'Female' bidder also, except for the gender centric words, which shall be 'female' centric at appropriate places.

**FORM 'A'**

**Undertaking to abide by EW 6 & EW 8**

"I.....Son of .....  
.....Resident of .....  
hereby give an undertaking that I have read the complete bid document and I am aware of all the clauses and sub clauses of BSNL EW 6 & 8 forms and I confirm that I will abide by all the terms and conditions available in original standard BSNL EW 6 & 8 forms.

(Seal of the firm)

(Signature of Bidder)

**FORM 'B'**

**Undertaking regarding EPF provisions**

"I..... Son of .....  
.....Resident of ..... hereby give an undertaking that

\* I/We have employed only ----- persons in our establishment and hence the EPF and Miscellaneous provisions Act, 1952 are not applicable to my / our establishment.

\* I/ We have registered as per the EPF and Miscellaneous provisions Act, 1952 and our registration no is ----- . We undertake to keep it valid during the currency of contract.

In case at any stage, it is found that the information given by me is false / incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me".

\* strike out whichever is not applicable

\*\*Attach a self-attested photo copy of the above said EPF registration certificate.

(Seal of the firm)

(Signature of Bidder)

**Undertaking regarding ESI provisions**

"I..... Son of .....  
.....Resident of ..... hereby give an undertaking that

\* I/We have employed only ----- persons in our establishment and hence the ESI and Miscellaneous provisions Act,1948 is not applicable to my / our establishment.

\* I/ We have registered as per the ESI and Miscellaneous provisions Act, 1948 and our registration no is ----- . We undertake to keep it valid during the currency of contract.

In case at any stage, it is found that the information given by me is false / incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me".

\* strike out whichever is not applicable

\*\* Attach a self-attested photo copy of the above said ESI registration certificate.

(Seal of the firm)

(Signature of Bidder)

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**FORM 'C'**

**Performance report of works( Specimen)**

1. Name of work
2. Agreement no.
3. Final Value of Work Done
6. Date of start
7. Actual date of completion
8. Performance: Satisfactory / Not Satisfactory

Dated:

Executive Engineer or Equivalent /above

**FORM 'D'**

**No Near relative working certificate**

I..... Son of Shri.....Resident of.....  
hereby certify that none of my relative(s) as defined in the tender document is/are employed in BSNL unit as per details given in tender document. In case at any stage, it is found that the information given by me is false/incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me.

(Seal of the firm)

(Signature of Bidder)

**ANNEXURE I**  
**MODEL FORM OF BANK GUARANTEE**  
**(For submitting EMD)**

Whereas \_\_\_\_\_ (hereinafter called "the contractor(s)") has submitted its Tender dated \_\_\_\_\_ for the work \_\_\_\_\_

KNOW ALL MEN by these presents that WE \_\_\_\_\_ OF \_\_\_\_\_ having our registered office at \_\_\_\_\_ (hereinafter called "the Bank") are bound unto \_\_\_\_\_ (hereinafter called "the BSNL") in the sum of \_\_\_\_\_ for which payment will and truly to be made of the said BSNL, the Bank binds itself, its successors and assigns by these presents.

THE CONDITIONS of the obligation are:

1. If the Contractor(s) withdraws its Tender during the period of Tender validity specified on the Tender Form: or
2. If the Contractor(s) having been notified of the acceptance of its Tender by the BSNL during the period of Tender validity.
  - (a) Fails or refuses to execute the Contract.
  - (b) Fails or refuses to furnish security Deposit in accordance with the conditions of Tender document.

We undertake to pay to the BSNL up to the above amount upon receipt of its first written demand, without the BSNL having to substantiate its demand, provided that in its demand, the BSNL will note that the amount claimed by it is due to it owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force as specified in the Tender Document up to and including Thirty (30) days after the period of the Tender validity and any demand in respect thereof should reach the Bank not later than the specified date/dates.

Signature of the Bank

Signature of the Witness  
Name of Witness  
Address of Witness

**ANNEXURE II**  
**PERFORMANCE SECURITY GUARANTEE BOND**

In consideration of the CMD, BSNL (hereinafter called 'BSNL') having agreed to exempt \_\_\_\_\_ (hereinafter called 'the said bidder(s)') from the demand under the terms and conditions of an agreement/Advance Purchase Order No \_\_\_\_\_ dated \_\_\_\_\_ made between \_\_\_\_\_ and \_\_\_\_\_ for the supply of \_\_\_\_\_ (hereinafter called "the said agreement"), of security deposit for the due fulfillment by the said bidder (s) of the terms and conditions contained in the said Agreement, on production of the bank guarantee for \_\_\_\_\_ we, (name of the bank) \_\_\_\_\_ ( hereinafter refer to as "the bank") at the request of \_\_\_\_\_ (bidder(s)) do hereby undertake to pay to the BSNL an amount not exceeding \_\_\_\_\_ against any loss or damage caused to or suffered or would be caused to or suffered by BSNL by reason of any breach by the said Bidder(s) of any of the terms or conditions contained in the said Agreement.

2. We (name of the bank) \_\_\_\_\_ do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the BSNL by reason of breach by the said bidder(s)' of any of the terms or conditions contained in the said Agreement or by reason of the bidders(s)' failure to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee where the decision of BSNL in these counts shall be final and binding on the bank. However, our liability under this guarantee shall be restricted to an amount not exceeding \_\_\_\_\_.

3. We under take to pay to the BSNL any money so demanded notwithstanding any dispute or disputes raised by the bidder(s)/supplier(s) in any suit or proceeding pending before any court or tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the bidder(s)/supplier(s) shall have no claim against us for making such payment.

4. We( name of the bank)\_\_\_\_\_ further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the BSNL under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till \_\_\_\_\_ (office/BSNL) BSNL certifies that the terms and conditions of the said Agreement have been fully or properly carried out by the said bidder(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the expiry of TWO/TWO AND HALF/THREE YEARS (as specified in P.O) from the date hereof, we shall be discharged from all liabilities under this guarantee thereafter.

5. We (name of the bank)\_\_\_\_\_ further agree with the BSNL that the BSNL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend

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time of performance by the said bidder(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the BSNL against the said Bidder(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Bidder(s) or for any forbearance, act or omission on the part of the BSNL or any indulgence by the BSNL to the said Bidder(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Bidder(s)/supplier(s).

7. We (name of the bank) \_\_\_\_\_ lastly undertake not to revoke this guarantee during its currency except with the previous consent of the BSNL in writing.

Dated the \_\_\_\_\_ day of \_\_\_\_\_

for \_\_\_\_\_ (indicate the name of bank)

NAME OF WORK: Replacement of 8 passenger lift at Kellys TE Building, Chennai

Name of Work: Replacement of 8 passenger lift at Kellys TE Building, Chennai

NAME OF THE CONTRACTOR

Schedule of Quantity

S.No.	Description of Item	Quantity	Unit	Basic price exclusive of GST	Rate in words	SGST		CGST		IGST		Total GST in Rs. (col.8+col.10+col.12)	Nett Cost to BSNL (Col.3 x Col. 5) (Part-A=X1)	Total amount inclusive GST=(col.3) x (col.5+col.13) (Part-A=X2)
						%	Rs.	%	Rs.	%	Rs.			
1	2	3	4	5	6	7	8	9	10	11	12	13	14 =(X1)	15 =(X2)
	<b>PART A (supply of Lift)</b>													

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1	<p>Supplying, Installation, Testing, Commissioning (SITC) of 8 Passenger capacity (544Kg) Passenger lift (Gearless) for G+3 floors having a contract speed of 1.0 m/sec suitable to work on 3phase, 400/440 volts AC supply comprising of equipments including Microprocessor based V3F drive, car, Controller, counter weight, self levelling devices, control devices, indicators, doors, terminal buffers, ropes, safety devices, car &amp; landing push buttons, Floor announcer including infra-red curtain, Automatic Emergency Rescue Device, all wiring connections, interconnections and miscellaneous items like supports, etc., i/c minor building works, making good the same, conducting tests, offering lift for inspection by Lift inspector, liasoning with the inspector office etc. complete as per detailed specifications enclosed as under:-</p> <p>Location of Lift: TE Kellys, Chennai</p> <p>(i) Speed : 1.00 Metre Per Second</p> <p>(ii) Floors: Ground +3 Floors</p> <p>(iii) Travel :10.50 Metres (Approx)</p> <p>(iv) Stops &amp; Opening: 4Nos (All on same side)</p>										
	<p>(v) Controller : Microprocessor based AC Variable Voltage &amp; Variable Frequency</p> <p>(vi) Automatic rescue device complete with dry maintenance free batteries as reqd</p> <p>(vii) Operation:- Microprocessor based simplex Selective collective control with/without attendant</p> <p>(viii) Power :415V,3Phase,50 HZ,4 Wires system</p> <p>(ix) Type of Doors:Car/Landing : Power door centre opening StainlessSteel in hairline finish</p> <p>(x) A hand rail not less than 600 mm long at 900 mm above floor level to be fixed adjacent to the control panel in lift car.</p> <p>(xi) Voice announcement system in the car to announce the position of the elevator in the hoist way as the car passes or stops</p>	1 No.	Each	0.00	0	0.00	0%	0.00	0%	0.00	0.00

**UNPRICED SCHEDULE**

**UNPRICED SCHEDULE**

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NAME OF WORK: Replacement of 8 passenger lift at Kellys TE Building, Chennai

	at a floor served by the elevator.													
	Total for Part A												0.00	0.00
	Net cost in words(Col.-14)	0.00												
	Total Amount in words (Col.-15)													

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**Part –B: Comprehensive AMC**

1	Description of Item	Quantity	Unit	Basic price exclusive of GST	Rate in words	SGST		CGST		IGST		Total GST in Rs. (col.7+col.9+col.11)	Nett Cost to BSNL (Col.3 xCol. 5) (Part-B=Y1)	Total amount inclusive GST = (col.3) x ( col. 5+col. 13) (Part-B=Y2)	For financial evaluation purpose only as per Note 5(a)& 5(b)below	
						%	Rs.	%	Rs.	%	Rs.				Discounting factor @12% per year based on net present value method	Evaluated price Rs. (Excluding GST) based on Net Present Value method (Col.14xcol.16)-Y3
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	Comprehensive maintenance of above lift complete with periodical inspection, preventive and breakdown maintenance, inspection of all safety devices, controls, emergency call back service, i/c ARD and its batteries, Infrared curtains etc., repair/replacement of all faulty items to run the lift smooth and trouble free with minimum downtime, etc. as per the enclosed specifications complete as reqd.															
	a) 1st Year (C1) (Covered under Guarantee) (See important note no 7 &8 below)	Covered under Guarantee														

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NAME OF WORK: Replacement of 8 passenger lift at Kellys TE Building, Chennai

b) 2nd year (C2)	12 Months	per month			0%	0.00	0%	0.00	0%	0.00	0.00	0	0	0.797	0
c) 3rd year (C3)	12 Months	per month			0%	0.00	0%	0.00	0%	0.00	0.00	0	0	0.712	0
d) 4th year (C4)	12 Months	per month	0		0%	0.00	0%	0.00	0%	0.00	0.00	0	0	0.636	0
e) 5th year (C5)	12 Months	per month	0		0%	0.00	0%	0.00	0%	0.00	0.00	0	0	0.568	0
f) 6th year (C6)	12 Months	per month	0		0%	0.00	0%	0.00	0%	0.00	0.00	0	0	0.507	0
<b>total for Part B</b>												0	0.00		Rs. 0

**Abstract of Cost**

Net cost to BSNL (excluding GST)		Total cost inclusive of GST		Evaluated value based on Net Present Value Method (NPV)	
1	Total for Part A (Col.14)=(X1)	Rs.0.00	Total for Part A (Col.15)=(X2)	Rs.0.00	Total for Part A (Col.14)=(X1) Rs.0.00
2	Total for Part-B (Col.14)=(Y1)	Rs.0.00	Total for Part-B (Col.15)=(Y2)	Rs.0.00	Total for Part-B (Col.15)=(Y3) Rs.0.00
	<b>Grand Total for above Part A &amp; Part B = D1</b>	<b>Rs.0.00</b>	<b>Grand Total for above Part A &amp; Part B =D2</b>	<b>Rs.0.00</b>	<b>Grand Total for above Part A &amp; Part B =D3 0.00</b>

**General Note:-**

1. The total value of bid evaluation excluding GST (net cost to BSNL) =D3=XI+Y3
2. Y3 shall be evaluated based on the Net Present Value (NPV) Method as per important note
3. Eligible and Compliant bidder with lowest value of "D3" above will be lowest bidder

**IMPORTANT NOTE:**

1	The firm shall be responsible to ensure that GST shown in the above columns is correct & Input Tax Credit for the amount shown above is admissible as per GST Act as amended up to date".
2	Invoice /Bill should be pre-printed as per the GST format.

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NAME OF WORK: Replacement of 8 passenger lift at Kellys TE Building, Chennai

3	The evaluation and comparison of responsive bids shall be done on the basis of Net cost to BSNL on the prices offered inclusive of packing, forwarding, freight and insurance charges etc., but excluding GST. For financial evaluation purposes Comprehensive Maintenance charges for 5 years (excluding 1 year normal guarantee period) will be taken discounting @ 12 % per year to arrive at Net Present Value as follows: Value of Comprehensive Maintenance charges(excluding GST) for evaluation purpose for PART –B = $Y_3 = (0.797 \times C_2) + (0.712 \times C_3) + (0.636 \times C_4) + (0.568 \times C_5) + (0.507 \times C_6)$
4	The rates for all items of work shall, unless clearly specified otherwise, include cost of all labour, materials and other inputs involved in the execution of the terms as specified in the scope of work.
5	No advance payments can be made. Stipulations like levy of interest if payment is not made in a specified time are also not acceptable and the payment is governed by the normal BSNL practice.
6	Separate agreements shall be framed for Part - A & Part-B The date of commencement of work for Part – B shall be reckoned after the date of clearance from lift inspector.
7	Normally Lifts are under guarantee for a period of one year after the date of commissioning. But even during the guarantee period the contractor shall be fully responsible for maintaining the services and to take whatever steps as maybe necessary including preventive and breakdown maintenance steps and servicing etc., as per the recommendations of the manufacturer. BSNL shall not pay anything extra on this account. Comprehensive Maintenance for 5 years commences after the date of expiry of guarantee period.
8	Terms and conditions of AMC shall be applicable during guarantee period including imposition of penalties except that no charges for services provided under guarantee /extended guarantee shall be payable.

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**Specification for the Passenger Lift**

1	Type of Lift	Passenger Lift
2	No. of Lifts Required	1 Nos.
3	Load	8 Passenger lift 544 Kg
4	Rated Speed	1.00metre/sec
5	Travel in Metres	10.50Metres (approx)
6	Number of floors served	Ground+3 Floors
7	a) Inside Size of lift Well	2000mm(W)x2000mm(D)
	b) Pit depth	1600mm
	c) Head Room	4700mm
8	Clear Inside size of lift Car	1300mmx1100mm
9	Dimension of Lift machine room	5300mm(L)x3800mm(B)x2800mm(H)
10	Position of the Counterweight	At the back of the car
11	Position of the Machine room	At the top of the lift shaft
12	a)Type of Control:	Microprocessor based AC Variable Voltage Variable Frequency System shall have self-health monitoring and built in service diagnostics to speed up troubleshooting and can be monitored by LED/LCD display
	b) Type of Operation	Simplex Collective selective Operation with/Without attendant
	c) Potential free contacts	Potential free contacts for each floor position and up and down movement of the lift shall be provided in the controller which can be used for the building automation system at later date.
13	Car Entrance Door	
	a) Number	1
	b) Size	800mm(W)x2000mm(H)
	c) Type of Doors	Power operated with VVVF drive technology, center opening and horizontal sliding 16G stainless steel door having sensing device to reverse the closing of door on coming into contact with any object and shall have top to bottom, tamper proof infrared curtain covering not less than 80% of the full height of the car door measured from the bottom, to prevent accidental closing of the door.
	d)Car open in front only or open	In Front Only
14	Construction, design and finish of car body work	16G stainless steel car with "hairline" finish, without cladding i/c stainless steel ceiling with concealed compact fluorescent energy efficient lamps with cool lighting to enhance the existing interior décor with pressure type fan and flooring with granamite finish
15	Type of Signal System	a) Digital floor position indicator in the car and at all landings(To be provided above the car/landing doors)
		b) Travel direction indicator in the car and at all landings(To be provided above the car/landing doors)
		c) Gongs & Visual indication on all landings for pre arrival of the car for two or more cars
		d) Over load warning Audio & Visual indicator, inside the car (lift should not start on Over load)

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		e) Battery operated alarm bell and emergency light
		f) Car operating panel with fade proof luminous buttons in car and with intercom
		g) Luminous Call buttons at all landings (Two push button for intermediate landings and one push button for terminal landings.)
		h) Fireman's switch at ground floor
16	Landing Entrance	
	a) Location of landing entrance in different floors	All doors on the same side
	b) Number	4
	c) Size	2000mm(H)x800mm(W)
	d) Type of doors	Horizontal sliding /Center opening
	e) Lift in use/Lift out of order sign	A suitable box above the lift landing with Led illuminated bilingual(in English/Hindi) sign of "LIFT OUT OF ORDER" coming up simultaneously at all floors.
17	Electric supply	a) Power :- 415V,AC,3Phase ,50 Hz,4 wire system
		a) Lighting : 230 V,AC,1Phase,50 Hz system
18	Is Neutral wire available for control circuits	Yes
19	Luminous Car operating panel	Luminous car operating panel inside the car shall consist of the following.
		a) Key operated switch marked to indicate "Attendant"- "Automatic" Operation
		b) Push button for each floor served with provision of space for future floors.
		c) Emergency Stop push button and Emergency Light
		d) Emergency Alarm push button (Battery Operated)
		e) 'Up' - 'Down' direction digital indicator
		f) Buzzer
		g) Non-stop button
		h) And all other push buttons specified in the IS code amended up to date.
20	Leveling device	As per latest IS specification amended up to date
21	Machine room machinery	The machine shall be <b>gearless</b> traction type designed for heavy duty and suitable for lift operation. Sound reducing materials preferably rubber pads shall be provided under elevator machine.
22	Battery charger, Emergency Light, Alarm Bell	One set of battery with trickle charger with necessary invertors/power pack, contactors etc. for supplying the emergency light fixtures and emergency alarm in the lift car. Dry battery power supply also as an alternative shall be offered.
23	Telephone outlet	One plug in socket in lift car with necessary cable pair in trailing cable and the terminal outlet provided in machine room

**NAME OF WORK: Replacement of 8 passenger lift at Kellys TE Building, Chennai**

24	Terminal Buffers	Terminal buffers shall be installed as a means of stopping the car and counter weight at the extreme limits of travel and shall be spring or oil buffers. Buffers in pit shall be mounted on the suitable concrete blocks.
25	Counter weight	Provided in the structural steel frame as per section 3 of IS 14665 -2000 part 4 amended till date.
26	Guide	Steel "I" section guides shall be provided for the car and counterweight. Atleast the guides for the car should be machined.
27	Safety gears	As per section 4 of IS 14665 Part IV:2000 as amended till date.
28	Overspeed governor	As per section 4 of IS 14665 Part IV: 2000 amended till date.
29	Ropes	Hoisting suspension ropes as per IS 2365/ 1977 and designed as per IS 14665 Part III: 2000 amended till date.
30	Reverse phase and phase failure relay	Reverse phase and phase failure relay shall be provided to protect the machine against phase reversal and failure of any one phase. The lift shall be equipped with automatic phase reversal unit, which allows the elevator to run in the correct direction even when the phase sequence is reversed.
31	Special Features	1) A device in the machine room to move the car manually up and down to bring it to the nearest landing in case of failure in power supply.
32	Ladder in lift pit:	A Steel/MS ladder should be provided in the pit.

## **TECHNICAL SPECIFICATIONS**

### **SECTION –I (SITC)**

#### **1.0 Scope**

This section deals with technical requirements of lift installation, its components, safety devices various type of controls and methods of operation. The selection of a particular type of control and method of operation will be guided by the requirements in individual case such as nature of building, usage, occupancy, traffic pattern etc., and has to be decided in individual cases.

#### **2.0 Drive Machinery:**

##### **2.1 Electric Supply**

Three phase, 50Hz, 415 V electric supply shall be made available. The entire lift equipment should be suitable for operation at +10% to -20%(457 V to 330V) of the rated supply voltage.

##### **2.2 Gearless machine**

The gearless machine consists 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,

##### **2.3 Nil**

##### **2.4 Sheaves:**

Sheaves and pulleys shall be of hard alloy, cast iron, SG iron or steel and free from cracks, sand holes and other defects. They shall have machined rope grooves. The traction sheave shall be grooved to produce proper traction and shall be of sufficient dimension to provide for wear in the groove. The deflector sheave shall be grooved so as to provide a smooth bed for the rope. The deflector or secondary sheave assemblies where used shall be mounted in proper alignment with the traction sheave. Such deflector sheaves shall have grooves larger than rope diameter as specified in clause 8 of IS 14665 (Part -4-Sec3):2000. The size of all the sheaves shall be in accordance with clause 8.4 of IS 14665 (Part-4-Sec 3):2000. Wherever necessary suitable protective guards may be provided.

##### **2.5 Shaft Keys**

Shafts which support sheaves, gears, coupling and other members which transmit torque shall be provided with tight fittings keys of sufficient strength and quality.

##### **2.6 Brake:**

The lift drive machinery shall be provided with an electro-magnetic brake or motor operated brake normally applied by means of springs in compression when the operating device is in off position. The brake shall be suitably curved over the brake drum or brake disc and provided with fire proof friction lining. The operation of brake shall be smooth, gradual and with minimum noise. The brake shall be designed to be of sufficient size and strength to stop and hold the car at rest with rated load. The brake should be capable of operation automatically by the various safety devices, current failure and by the normal stopping of the car. The brake shall be released electrically. It shall also be possible to release the brake manually, such releases requiring the permanent application of manual force so as to move the lift car in short stops. For this purpose suitable brake release equipment wherever necessary shall be supplied with each lift installation and the same shall be kept in safe custody to prevent misuse.

##### **2.6.1 Hand winding wheel or handle**

At times of lift stoppage due to any reasons, it shall be possible to move the lift car to the nearest landing manually. The manual operation shall be by means of a winding wheel or handle mounted on the end of the motor shaft. The up or down direction of the movement of the car should be clearly marked on the motor or at suitable location. A warning plate written in bold signal red color advising the maintenance staff to switch off the mains supply before releasing the brake and operating the wheel is to be prominently displayed.

## **2.7 Bearings:**

Bearings shall be either of the anti-friction metal sleeve type with oil reservoirs, self, lubrication oil gauges capped filler openings and drains of the ball roller or sintered type subject to oil flood lubrication or grease lubrication.

Grease lubricated bearings shall have grease gun connections and drain plugs. The bearings and lubricant reservoirs shall be dust tight and shall incorporate effective seals to prevent leakage. The outer end of the bearings shall be closed with a removable oil tight plate. Thrust bearing shall be of the ball or roller type and shall have two sets of balls or rollers arranged to minimize backlash for efficient working.

## **3.0 Type of controls:**

### **3.1 Nil**

### **3.2 Variable Voltage Variable Frequency:**

Incoming mains ac power is first rectified to dc and then inverted to provide controlled ac current to the elevator drive. Precision monitoring of motor speed and car direction, position and load enable the pulse width of the ac power supplied to the motor to be adjusted to ensure that elevator speed is maintained very accurately to an ideal profile.

VVVF control shall incorporate:-

- a) Total control at all stages of the motion cycle.
- b) A consistent fully adjustable smooth ride
- c) Better leveling accuracy under all conditions
- d) A higher power factor
- e) Lower starting currents
- f) Energy saving through reduced power consumption.
- g) A Rapid jerk free start up
- h) Steady Acceleration up to contract speed
- i) Jerk free and load independent stop with high leveling accuracy
- j) Extremely quiet running of motors

## **4.0 Installation aspects:**

4.1 Installation in machine room-Lift machine room to accommodate the drive machinery, controller, etc. shall as far as possible be located on top of the lift shaft. The layout of equipment there should be such as to allow free movement of maintenance personnel inside. Machine room shall not be used for storage purpose.

### **4.1.1 Nil**

4.1.2 Vibration, Isolation-vibration and isolation arrangement shall be provided to prevent transmission of vibration to the building and structure.

### **4.2 Nil.**

## **5.0 Guide rails**

Guide rails shall be in accordance with clause 3 of IS 14665 (Part 4-Sec 2) 2000. Only machined guide rails shall be permitted for cars for passengers' lifts. Formed sheet metal rails shall be used up to speeds of 1.75 mps for counter weight applications. In the case of goods lifts, unmachined guides rails shall be permitted for the counterweight for all speeds and for the cars only up to speed of 0.5 m /sec.

The guide rails shall be continuous throughout the entire travel and shall withstand without any deformation the action of safety gear with a fully loaded car.

Generally the guide rails shall be supported by brackets secured to the hoist way frame at each floor. The rails shall be securely fastened to the brackets or other supports by approved heavy rail clamps. All necessary guide rails packing or additional supports shall be provided to prevent guide rail deflection and stresses exceeding the prescribed limits. The stresses on the guide rail due to the horizontal forces imposed on it during loading, unloading and running calculated without impact shall not exceed 1100 kg/sq. cm based upon the class of loading and the deflection shall not exceed 5mm. The guide rail

brackets, their fastenings and supports shall be capable of resisting the horizontal forces mentioned above, with the total deflection at the point of support not in excess of 3 mm.

Guide rails shall extend from pit floor to the underside of concrete slabs or grating at top of the lift well. They shall be erected in plumb and parallel with a maximum deviation of 3mm. All shimming required shall be of metal securely held in place. Joining plates shall be so located as not to interfere with supporting clamps and brackets. The bolts shall be used with spring lock washers. The guide rail anchorage at pit floor must be made without puncturing the water proofing. The expansion joints in the guide rails shall be so designed as to avoid jerks in the lift car. Machined guide rails shall have finished surfaces which shall be coated with corrosion preventive compound which shall be maintained till the commissioning of the installation. Before the car is placed in operation, the preventive coating shall be removed and the guide rails thoroughly cleaned and smoothened.

## **6.0 Lift Car**

### **6.1 Car Frame**

The car frame shall be in accordance with clause-4 of IS 14665 (Part 4-Sec 3): 2001 made of sheet steel of rigid construction to withstand without permanent deformation the operation of safety gear. The car shall be so mounted on the frame that vibration and noise transmitted to the passengers inside is minimized.

### **6.2 Car platform**

6.2.1. The car platform shall be of framed construction and designed on the basis of rated load evenly distributed. The dimensions shall conform to IS: 14665 (part 1) 2000 unless otherwise specified. The flooring shall be smooth and of anti-skid surface.

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

### **6.3 Car body**

The car shall be enclosed on all sides by a metallic enclosure. The enclosure including the door shall withstand without deformation a thrust of 35 kg applied normally at any point and per IS 14665 (part 4/Sec 3)-2001. Ventilation opening if specified shall be as per IS 14665 (Part 4/Sec 3)-2001.

6.3.1 Nil

6.3.2. Lift car door shall have a fire resistance rating of one hour.

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

### **6.4 Car roof**

The roof of the car shall be solid type capable of supporting weight of at least 140 kg and as per IS 14665 (Part – 4-Sec 3)-2001

### **6.5 Car Thresholds**

Car entrance shall be provided with metal thresholds having a grooved surface. Thresholds for lifts having horizontally sliding car doors or gates shall have machined or extruded guide grooves.

### **6.6 Toe Guard Aprons**

The toe guard apron of gauge not less than 1.6mm sheet steel may be provided extending at least 15mm beyond entrance jambs at each side. The guards shall have a straight vertical face extending below the level of the finished car floor and not less than the depth of the leveling zone plus 7.5 mm. The bottom of guard shall extend 700mm for lifts up to speed of 1.5 mps & 1000 mm for lifts above speed of 1.5 mps below vertical face and beveled at 15° angle from the vertical. It shall be seamed to car platform construction and be reinforced and braced.

### **6.7 Clearance**

The clearance between the top of the car and the soffit of the lift shaft roof, bottom of the car and the pit floor, the buffers etc., and the clearance between the car and the lift well, between the car and the landing sill, between two lift cars in the same shaft etc, shall be provided as per IS 14665 (Part 1,2&4) and relevant lift rules mentioned in Appendix-1 of CPWD general specification for Electrical works (Part-III: Lifts and Escalators) 2003

## 6.8 Car Apron, landing Thresholds and Sills

An apron shall be fitted to the car platform such that no dangerous gap exist at any time when the landing door is opening. Thresholds and sill plates shall be provided at the landings also. The distance between landing sill and the sill on car platform shall not be more than 30mm.

## 6.9 Inter-communication system

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

6.9.2. The device used for emergency signals should incorporate a feature that gives immediate feedback to the car passengers that the device has worked properly and the signal has been passed on to the intended agency. This shall be achieved by pressing of button from control room which shall give audio signal to the passenger in the car.

6.9.3. Provision of group indicator panel in the control room shall be made to indicate working of lifts.

### 6.9.4 Emergency Power Supply for lift car

This shall include suitable secondary battery with trickle/boost charge arrangement and invertors power pack with necessary contactors for supplying the light fixtures in the lift car. The same battery shall also feed the alarm bell and communication equipment.

## 6.10 Rating and Instructions

Inside the lift car, the lift supplier shall also provide a stainless steel metallic plate indicating the rated load and detailed instructions for the passengers. This shall be mounted at a suitable place.

## 6.11 Lift Car Interior Finish

The side, rear and facial panel shall be of scratch free stainless steel sheet (**Hairline Finish**). The flooring shall be with Granamite finish. The False ceiling in the lift car shall be crafted from stainless steel with CFL/LED lamps and fan diffuser (S) in different colour.

### 6.11.1. Operating Panel inside the car

The car operating panel shall be of stainless steel, flush mounted and duly finished to match the car interior décor and shall contain all the devices as may be specified depending upon the type of operation required. All the switches shall be of fade proof and the devices shall be of suitable quality. Each device and its operating position shall be legible, fade proof and marked. In addition to the car operating panel, a separate LED type illuminated panel shall be provided on the top or the door way for indication of floor position and direction of travel simultaneously.

## 7.0 Car and landing entrances

The car and landing doors shall be of flush type stainless steel only for power operation. The flush type may further be of center opening .Power operated car and landing doors shall be so designed as not to injure any person during their closure by means of provision of a safety pressure switch which shall cause the doors to reopen on the slightest pressure. In case of power operated doors, it shall be possible on power failure to open them from the car side. All the openings for passenger lifts shall be 2000 mm clear in height. The door opening and closing shall be accomplished smoothly and quickly without undue noise, vibration and shock and their movements shall be cushioned and checked at both limits.

## 7.1 Car doors

- 7.1.1 The car door shall be hung from the top M.S. fabricated track and means shall be provided to prevent the door from jumping off the track. The doors shall be provided with two point suspension sheave type hangers suitable for the type of door operation specified. The hangers shall be securely fastened on bearings mounted on a malleable iron or steel bracket. Arrangement shall be provided for vertical and lateral adjustment of car doors. The sheaves shall move on a M.S. fabricated track so shaped as to permit free movement of sheaves with regard to vertical adjustment of sheave bracket or housing.

The car door shall be centre opening horizontal sliding stainless steel scratch proof

**(Hairline finish)**

- 7.1.2. A potential cause of accidents could be the attempts made to open the landing door lock of lower floor in case the car stops away from floor level due to power failure. Since the car door can be opened in case of power failure so as to improve the ventilation and avoid claustrophobic situations etc. as outlined in IS 14665 (part 2/sec 1) : 2000 para 10.9.1, there is a tendency among trapped passengers to make attempts to open any accessible landing door which can be opened by an electromechanical latch in the landing doors as the lock is accessible through open car doors. This attempt in panic may result in accidental fall into the lift pit. In order to ensure that the trapped passenger do not attempt opening the landing door, the electromechanical latch should be so designed that it is inaccessible or invisible to the passengers in the car.
- 7.1.3 In order to avoid accidental closure of doors while boarding or alighting the car, a tamper proof infrared curtain covering not less than 80% of the full height of the car door measured from the bottom, shall be provided.
- 7.1.4 VVVF (V3F) technology shall be used for the car door drive motor control and the car door & operation shall be smooth, jerk free and energy efficient.

**7.2 Nil**

**7.3 Landing doors**

Each landing door shall be complete with locks, headers, sills, frames, rims, hanger supports with cover plates, fascia plates, etc. The finished work shall be strong, rigid and neat in appearance. Plain surfaces shall be smooth and free from warp or buckle. Molded surfaces shall be clean out, straight and true. Fastenings shall be concealed from the face side of the material. Steel Sills shall be provided with a suitable nosing of approximately 25mm depth on the shaft side.

The opening for the landing gates or doors shall not be wider than that of the lift car. In the case of bi-parting type steel doors, the locking of the two leafs locking of the doors should be positive.

**7.4 Car landings**

- 7.4.1 All the lift car landings shall be well lit to an illumination level of 150 lux and shall be free from obstructions. The control for landing lights and the sign lights shall be tamper proof. Wherever standby power supply is available, these lights shall be connected to standby circuits also.
- 7.4.2. For the purpose of identification, the lift number should be displayed outside the landing door, inside the car and in the machine room. This numbering may be used as reference for the purpose of routine/preventive maintenance, for operating from machine rooms and reporting of any incidents etc.
- 7.4.3 Instructions  
Details instructions as specified for guidance of passengers shall be prominently displayed inside the car by contractor and outside the car at all landings by the department
- 7.4.4. It is seen generally, that though the instruction on DO's and Don'ts as per provision of the relevant IS are displayed in lift cars but the same are either displayed in inconspicuous location, or are very small in size or are in one language only. To make these instructions serve the intended purpose, and not a mere compliance of relevant IS clause; that these instructions should displayed at a conspicuous location with larger and understandable script and should be written in Hindi, English and regional language (where official regional language is notified)

**8.0 Leveling**

All lift (s) shall be incorporated with suitable floor leveling device. In case of lifts with automatic power operated doors and with A.C. VVVF controller a separate level device for automatic leveling with leveling accuracy of  $\pm 5\text{mm}$  shall be incorporated.

**9.0 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 per cent of the rated load. It shall consist of cast sections firmly secured in relative movement by at least two number 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.

**9.1 Counter Weight Guards**

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

**10.0 Guide shoes**

Two number of guide shoes at the top and two numbers at the bottom shall be provided on the lift car and counter-weight.

**10.1 Type of shoes**

**10.1.1 For passenger lifts**

- (a) For speed up to 1.5 mps sliding guide shoes shall be used. Sliding guide shoes for car shall be always flexible and for counterweight solid guide shoes can be used upto 1.0 mps.
- (b) For speeds more than 1.5 mps roller guide shoes shall be used for car and counter weight.

**10.2 Flexible type/solid type sliding guide shoes**

The car shall be provided with solid or spring loaded swiveling guide shoes with renewable liners, where the lift car speeds are upto and including 1 MPS. The cars with speeds beyond 1 MPS shall be provided with spring loaded guide shoes with renewable liners or the guide shoes shall be of roller type.

**10.3 Roller type guide shoes**

Each roller type shoe shall be of an approved type consisting of rollers assembled on a substantial metal base and mounted as to provide continuous contact of all rollers with the corresponding guide rail surfaces under all conditions of load and operation. The rollers shall run on the three finished guide rail surfaces and shall operate quietly.

**10.3.1. Mounting of guide shoes**

Guide shoes shall be provided with adjustable mountings & shall be rigidly secured in accurate alignment at the top and bottom on each side of the car sling and counter weight frame construction. When oil buffer attached to the bottom of counter weight are used, additional guide shoe shall be provided on each side of the buffer frame. The design of guide shoes and car safety device shall be coordinated so as to ensure the provision and installation of equipment with clearance specified in clause 5.7 of this Chapter.

**11.0 Lift Ropes – IS 14665 (part 4/Sec)-2001**

Round strand steel wire ropes made from steel wire ropes having a tensile strength not less than  $12.5 \text{ tonnes / cm}^2$  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 speed of passenger & goods lifts (m/s)	Factor of safeties
0.5 or less	8
exceeding 0.5 to 1.0	8.6



exceeding 1.0 to 2.0	10
exceeding 2.0 to 3.5	11
exceeding 3.5	12

**11.1 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.

**11.2 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.

**11.3 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 of ropes from the rope manufacturers issued by competent authority.

**12.0 Safety Equipment:**

Every lift installation shall necessarily be provided with the following safety features.

12.1 The safety gear shall be provided in accordance with IS 14665 (Part-4-Sec.4):2001 each type of car safety shall be actuated by a speed governor.

12.2 Governor-the car safety shall be operated by speed governor located overhead and driven by governor rope suitably connected to the car and mounted on its own pulleys. The rope shall be maintained in tension by means of weighted or spring loaded tension sheaves located in the pit. Governor shall be provided for lifts with a travel of more than 5.5 meters. The governor rope shall be not less than 6mm in dia and shall be made of steel or phosphor bronze. These shall be in accordance with IS 14665 (part4/sec-4): 2001. Governor for car safety gears shall be adjusted to actuate the safety gear at the following speeds:-

(a) For rated speeds up to 1m/s maximum governor tripping speed shall be either 140 percent of rated speed or 0.88 m/s, whichever is higher. For rated speed above 1m/s maximum governor tripping speed shall be 115 per cent of the rated speed plus 0.25 m/s.

(b) Minimum governor tripping speed shall be 115 percent of the rated speed.

12.2.1 The governor shall be of "V" groove wheel design and only wheel is stopped to actuate the car safety upon a pre-determined over speed downward without damaging the rope.

12.3 The governor, rope and sheaves shall be so located so as to minimize danger of accidental injury to the equipment.

12.3.1. The governor sheave and tension sheave shall be according to clause 2.4 and the sheave bearing shall be according to clause 2.7 of this Chapter.

12.3.2. The requirements for field tests on car safety and governor and for drop tests to sliding type car safeties shall be as specified in section –IV of CPWD general specification for Electrical works (Part-III: Lifts and Escalators); and relevant IS standards.

**12.4 Terminal limit switches**

**12.4.1 Terminal switches**

These shall stop the car automatically at terminal floors within the top and bottom permissible over travel. They shall act independently of the operating devices, the ultimate limits switches and the buffers. They shall be in accordance with clause 8 of IS:14665 (part 3-Sec 1): 2000.

12.4.2. Terminal stopping devices located in shaft or in the car and operated by cams shall be fitted with rollers having a rubber or other approved composition to provide silent operation when actuated by the cam. When the lift car cross head is 60cm from the nearest obstruction above it, no projection on the car shall strike any part of the overhead structure.

12.4.3 Lifts with speeds over 1.25 meters/second have the normal terminal stopping device located on the car or on the guide rails or in the machine room.

### **12.5 Ultimate terminal Switches**

These shall be provided in accordance with the statutory requirements and standing practices. When provided these shall arrange to stop the car automatically within top and bottom clearances independently of the normal terminal switches but with the buffers operative. These shall be in accordance with clause 8 of IS: 14665 (Part 3/Sec1): 2000.

### **12.6 Buffers-(IS 14665(Part 4/Sec1)-2001)**

Buffers shall be oil resistant rubber pad type for speeds up to 0.25 mps and spring / oil type for speeds up to 1.5 mps and only oil type for speeds higher than 1.5 mps.

Buffers shall be suitable for installation in the space available. Buffer anchorage at pit floors shall be installed avoiding puncturing of water proofing.

Oil buffers of the car and counter weight shall be of the spring return type or of gravity type. The partial compression of spring return oil buffers when the car is in level with termination landing will not be acceptable. All buffers shall be tested at manufacturer's works and a copy of the test report shall be submitted.

When the lift car rests on fully compressed buffers there shall be at least 60 cms clearance between the lowest point in its car frame and any obstruction in the pit exclusive of buffers and their supports. Similarly when the lift car cross head is 60 cm from the nearest obstruction above it, no projection on the car shall strike any part of the overhead structure.

The contractor must indicate the name of buffer manufacturers, buffer stroke & certified maximum loads.

### **12.7 Door Locks**

Electro-mechanical door lock shall be provided for all the landing doors and they shall be such that the doors cannot open unless the car is at rest at the particular landing. It shall not be possible to move the car unless all the landing doors and the car door are closed and locked. This requirement: however does not apply when the lift car is provided with automatic leveling devices and in such cases, it shall be permitted to move the car with both the doors open in the leveling zone for the purpose of leveling.

All the locks and contacts shall conform to IS: 14665(Part 1/Sec 6)-2001 shall be positive and pass the prescribed endurance and reliability test form a recognized testing laboratory. They shall be so located as to be inaccessible to un-authorized personnel. The electromechanical latch should be so designed that it is inaccessible or invisible to the passengers in the car.

### **12.8 Other safeties**

Besides these safety devices mentioned above, motor operated electro-mechanical brake Clause 1.6) counter-weight guards (Clause 8.1) alarm bell, emergency door lock release operating key and associated safety and other safety requirements shall also be included.

12.8.1 The lock and key provided for landing door emergency manual de-locking shall be of tamper proof design to prevent unauthorized opening of the landing door.

### **13.0 Lift operations**

#### **13.1 Automatic-cum-attendant operation**

13.1.1 Nil

13.1.2 Simplex Selective Collective Operation with/without attendant

Automatic operation by means of one button in a car for each landing level served and by up and down buttons at the landings, wherein all stops registered by momentary actuation of the car made as defined under non-selective Automatic operation but wherein the stops registered by the momentary actuation of the landing pushbuttons are made in the order in which the landings are reached in each direction of travel (irrespective of the sequence in which the buttons have been actuated).With this type of operation, all 'up' landing calls are answered when the car is travelling in up direction and all 'down' landing calls are answered when car is travelling in the

down direction, except in the case of the uppermost or lower most calls which are answered as soon as they are reached in-respective of the direction of travel of the car.

13.1.3 Nil.

#### **14.0 Controlling Equipment**

The movement of the car shall be electrically controlled by means of a controller located in the machine room.

#### **14.1 Control circuits**

The control circuit shall be designed to the type of lift specified for safety operation. It shall not be possible to start the car unless all the car and landing doors are fully closed and landing doors locked. The circuit shall have an independent fuse protection for fault and over loads and be arranged so that earth fault or an open circuit shall not create unsafe condition. The circuit shall be so arranged that for the stoppage of the car at specified landing or for actuation of a contactor by emergency switches or operation of safety gears the system shall not depend upon the completion or maintenance of an electrical circuit to cut off power supply and apply the brakes. This requirement is not applicable to dynamic braking and speed control devices.

#### **14.2 Terminal Boards**

All wiring for external control circuits shall be brought to a terminal board with means of identification of each wire. Metallic/plastic identification tags shall invariably be provided. All connections of wires to terminal boards shall be adequately clamped or screwed.

#### **14.3 Auxiliary Switches**

##### **14.3.1 Emergency stop switches:**

On top of the lift car an emergency stop switch shall be provided for use by maintenance personnel. Stop switch shall be provided in the machine room. Operation of these switches/buttons shall cancel all the registered calls and landing calls for that particular lift.

##### **14.3.2 Maintenance switch on top of the car.**

For purpose of inspection and maintenance, maintenance switch shall be provided on top of the car. The control circuitry shall be so arranged that in the event of the operation of this switch:

- a) The car speed shall be less than the rated speed not exceeding 0.85 meters / sec.
- b) The car movement shall be possible only on the application of the continuous pressure on a buttons. It shall be so mounted to prevent any inadvertent operation.

##### **14.3.3 Fireman Switch:**

Fireman switch with glass to break for access shall be provided at ground or main floor for all the lifts. The operation of this switch shall isolate/or cancel all calls to all the lifts and the lifts will stop at the next nearest landing if traveling upward. The doors will not open at this landing and the lifts will start traveling to ground floor. If these were already traveling down, they will go straight to ground floor director without stopping enroute.

##### **14.3.4 Inspection facility:**

An Inspector's change over switch and set of test buttons shall be provided in the controller. Operation of the Inspector's change over switch shall make both the car and landing buttons inoperative and permit the lift to be worked in either direction from machine room for test purposes by pressing corresponding test buttons in the controller. It shall not however interfere with the emergency stop switches inside the car or on the top of the car.

##### **14.3.5 Safety line indicators:**

If specified visual telltale lights may be provided to monitor the conditions of faults in the safety line of the lift for easier fault finding. These indicators will remain lit when safety circuits are normal.

One indicator shall be provided for each safety on the controller. If any indicators fail to light up as the lift proceeds in its sequence of operation, there shall be visual indication of the safety line open circuit and also its location for easier fault finding.

#### **14.4 Control Wiring**

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#### **14.4.1 Wiring in machine room:**

Power wiring between the controller and main board controller to various landings shall be done in heavy gauge conduit or metal duct & shall conform to I.E. Rules and CPWD Specification for electrical works. Following general principles shall be followed in wiring:

- (a) (i) Control cables carrying DC and power cable carrying AC shall not be run in the same conduit or metal duct and they shall be laid as per I.E. rules.  
(ii) Metal duct with removable inspection cover shall be preferred.  
(iii) In case of control cables also the harness shall be separate as far as feasible for separate functions and laid separately in suitably dimensioned metal duct or in a separate conduit such as the signaling, locking, lamp indication and safeties. Control cables for different voltages in the lift installation works should be laid as per I.E. Rules.
- (b) At least 5 percent with a minimum of 5 unconnected spare wires shall be available out of all the lines to be provided in the wiring harness from the midway junction box to the machines room.
- (c) There shall be a master isolating switch Fuse associated with the controller heavy duty load break quick make quick break type TP & N preferably interlocked with controller cabinet door. Isolator handle shall have provision for external locking in off position. All relays shall be suitable for lift service and shall incorporate adequate contact wipe for reliable operation. Relays shall operate satisfactorily between 80 percent to 110 percent of their voltage. Main motor contactors shall be suitable for A.C. duty. Tenderer shall be required to furnish full details of make, type, applicable standard, voltage and current rating, duty class, type and routine tests done etc., on contactors and relays. Copies of type test certificates another test certificates shall also be furnished by the successful tenderer. All cables shall be with copper conductors and flame retardant or PVC insulated of appropriate size. The cables feeding motor and in heavy current flow paths shall be so selected that the size matches the protecting fuses and will not result in more than 2 percent voltage drop from the main board to the terminals of motor. Control cables shall not be less than 0.5 sq. mm or equivalent if stranded; where installation of heavy gauge conduits present difficulties, short lengths of flexible conduits will be permitted but effective electrical continuity and earth bonding shall be ensured. Ferrules shall be slipped at the ends of all cables as per standard control wiring practice. All terminal blocks shall be suitably marked.

#### **14.4.2 Trailing Cables:**

A single trailing cable for lighting control and signal circuit is permitted, if all the conductors of this trailing cable 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.

Trailing cables shall run from a junction box on the top of the car to a junction box located in the shaft near midpoint 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 counter weight, 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 per cent of the total capacity subject to a minimum of 5 wires shall be available unutilized in the trailing cable everywhere suitably distributed between various functions.

#### **14.4.3 Earthing:**

Metal framed and all metal work of the lift controller frame etc. shall be earthed with double earth leads taken to the earth bar. Looping shall be permitted if such routing is feasible all other individual metallic frame work of components etc., shall be loop earthed.

#### **14.5 Miscellaneous**

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Principle of segregation function wise shall be accepted as far as possible in the general arrangement of components. All terminal blocks shall be of 650 V grade.

#### **14.6 Controller casing:**

The controller unit comprising of the main circuit breaker adjustable overload and phase reversal and phase failure protection all the circuit elements transformer, rectifier for D.C. control supply, inverter [power pack, terminal blocks etc., shall be enclosed in an insect proof, sheet steel floor or wall mounted cabinet with hinged doors at front or at both front and rear. Proper warning boards and danger plates shall be provided on both sides of the controller casing. Sheet steel used for controller cabinet shall not be less than 18 gauge and shall be properly braced where necessary. Suitably gland plate shall be provided for cable entry. The battery for the charger unit shall be suitably placed in the machine room. All sheet steel work shall be painted with two coats of synthetic enamel paint of suitable shade both inside and outside over two coats of zinc primer.

#### **15.0 Lift Rope Compensation**

The lift rope compensation for lift travel shall be provided for lift travels beyond 40m in all cases.

#### **16.0 Automatic Rescue Devices (ARD)**

- 16.1 ARD should move the elevator to the nearest landing in case of power failure during normal operation of elevator.
- 16.2 ARD should monitor the normal power supply in the main controller and shall activate rescue operation within 10 seconds of normal power supply failure. It should bring the lift to the nearest floor at a slower speed than normal run. While proceeding to the nearest floor the lift will detect the zone and stop. After the lift has stopped, it shall automatically open the doors and park with doors open. After the operation is completed by the ARD, the elevator shall automatically switch over to the normal operation as soon as the normal power supply resumes.
- 16.3 In case the normal supply resumes during ARD in operation the elevator shall 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 shall automatically be switched to normal power operation.
- 16.4 All the lift safeties shall remain active during the ARD mode of operation.
- 16.5 The battery capacity should be adequate so as to operate the ARD at least seven times a day provided the duration between usages is at least 30 minutes.
- 16.6 The battery used for ARD operation shall be of maintenance free type.
- 16.7 All the safety devices like door locks etc shall be totally checked by the ARD controller before running the lift. ARD shall not work, if any of the safety systems has failed.
- 16.8 The ARD shall be well integrated into the lift system and shall ensure safety
- 16.9 The ARD shall be fully automatic and instant operation, requiring no human intervention.
- 16.10 The battery bank catering to the ARD shall be so designed such that the total number of cells shall not exceed 6 nos.

#### **17.0 Over load Protection**

- 17.01 Over load of the elevator shall be sensed by improvised sensing devices such as strain gauge, load cell and shall be precise and accurate. The lift car and landing door shall not close on over load condition and shall remain open till the over load cease to exist. Audio visual alarm for over load shall be provided inside the car.

#### **18.0 Phase sequence Reversal protection & Automatic phase reversal unit.**

- 18.01 The lift shall be provided with phase sequence reversal protection and shall also be equipped with the automatic phase reversal unit, which allows the elevator to run in the correct direction even when the phase sequence is reversed.

## **SPECIAL CONDITIONS OF CONTRACT**

### **1.0 GENERAL**

1.1 This specification covers manufacture, testing as may be necessary before dispatch, delivery at site, all preparatory work, assembly and installation, commissioning putting into operation of lifts & Escalators.

**In case there is a conflict between the special conditions of contract and any other clause/provisions contained elsewhere in the NIT the provision herein (Special condition of contract) shall prevail.**

### **1.2 LOCATIONS**

The Lifts will be installed at Telephone Exchange **bldg, Kellys, Chennai -10.**

1.3 The work shall be executed as per **CPWD General Specifications for Lift works Part-III (Lift and Escalators-2003) as per relevant IS and as per directions of Engineer-in-Charge.** These special conditions are to be read in conjunction with above and in case of variations; specifications given in the special conditions shall apply. However, nothing extra shall be paid on account of these special conditions as the same are to be read along with schedule of quantities for the work.

1.4 The tenderer should in his own interest visit the site and familiarize himself with the site conditions before tendering.

1.5 No T & P shall be issued by the department and nothing extra shall be paid on account of this.

### **2.0 Terms of Payment**

The following percentage of contract rates for the various items included in the contract shall be payable against the stage of work shown herein.

1. 80% after initial inspection and delivery at site in good condition on pro-rata basis.
2. 10% after completion of installation in all respect.
3. 5% of approved contract value after successful initial acceptance testing
4. 5% of the approved contract value shall be released after clearance by lift inspector, commissioning and handing over

### **3.0 RATES:**

3.1 The rates quoted by the tenderer, shall be firm and inclusive of GST applicable as and all charge for packing forwarding insurance, freight at delivery, installation, testing and commissioning etc. at site i/c temporary constructional storage, risks, over head charges general liabilities/ obligations and clearance from local authorities. *However the fee for these inspections shall be borne by the department.*

3.2 The contractor has to carry out routine & preventive maintenance for 12 months from the date of handing over for which nothing extra shall be paid.

#### **4.0 COMPLETENESS OF TENDER:**

All sundry equipments, fittings, unit assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections, and all other items which are useful and necessary for efficient assembly and installation of equipment and components for the work shall be deemed to have been included in the tender irrespective of the fact whether such items are specifically mentioned in the tender documents or not.

**5.0** For item/ equipment requiring initial inspection at manufacturer's works, the contractor will intimate the date of testing of equipments at the manufacturer's works before dispatch. The department also reserves the right to inspect the fabrication job at factory and the successful tenderer has to make the arrangement for the same. The successful tenderer shall give sufficient advance notice regarding the dates proposed for such tests/ inspection to the department's representative (s) to facilitate his presence during testing/ fabrication. The Engineer-In-Charge at his discretion may witness such testing/ fabrication. The cost of the Engineer's visit to the factory will be borne by the department. Also equipment may be inspected at the Manufacturer's premises, before dispatch to the site by the contractor.

#### **6.0 STORAGE AND CUSTODY OF MATERIALS:**

The lift machine room may be used for storage of sundry materials and erection equipment if available or else the agency has to make own arrangement. No separate storage accommodation shall be provided by the department. Watch and ward of the stores and their safe custody shall be responsibility of the contractor till the final taking over of the installation by the department.

#### **7.0 CARE OF THE BUILDING:**

Care shall be taken by the contractor while handling and installing the various equipments and components of the work to avoid damage to the building. He shall be responsible for repairing all damages and restoring the same of their original finish at his cost. He shall also remove at his cost all unwanted and waste materials arising out of the installation from the site of work.

#### **8.0 COMPLETION PERIOD**

The completion period shall be 6 months for the part A. Part A shall be deemed to be complete on clearance by the lift inspector. The completion time for Part B shall be 72 months including 12 months guarantee period, after the completion of Part A.

#### **9.0 PERFORMANCE GUARANTEE**

9.1 The tenderer shall guarantee among other thing, the following

- a) Quality, strength and performance of the materials used.
- b) Safe mechanical and electrical stress on all parts under all specified conditions of operation.
- c) Satisfactory maintenance during the maintenance period.

#### **10. GUARANTEE& DEFECT LIABILITY**

Terms and conditions of Comprehensive Maintenance Contract shall be applicable during guarantee period except that no charges for services provided under guarantee /extended guarantee shall be payable.

The guarantee shall be valid for 12 months after clearance by the lift inspector. The contractor shall guarantee that all equipment i/c switchgears shall be free from any defect material or bad workmanship and also the same shall work satisfactorily with performance and efficiencies not less than the guaranteed values.

#### **11.0 POWER SUPPLY**

Electric services connection of 415 V, 3 Phase, 4 Wire, 50 Hz, A.C. supply shall be provided by the department for installation purpose free of charge.

#### **12.0 WATER SUPPLY**

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Water supply shall be made available by the department at one point.

### **13.0 DATE MANUAL AND DRAWINGS TO BE FURNISHED BY THE TENDERERS:**

13.1 With tender:- The tenderer shall furnish along with the tender, detailed technical literature pamphlets and performance data for appraisal and evaluation of the offer.

#### **13.2 After award of work:-**

- a. All general arrangement and erection drawing.
- b. Details of foundation for equipment, load data, location, etc., of various assembled equipment as may be needed generally by other agencies for purpose of their work. Data will include breaking load on guides, reaction of buffers on lift pits, reaction on support points in machine room, hoist way, etc.
- c. Complete assembly drawings for every major assembly, groups of units with dimensions where necessary.
- d. Detailed drawings and specifications of wearing parts and parts subject to breakage.
- e. Layout drawings of all services including detailed drawings where necessary for maintenance purposes.
- f. Control wiring diagram and general installation wiring diagrams / installation diagram.
- g. Detailed circuit diagram and physical arrangement/ location diagram of various electrical components in the machine room and at the landing etc. together with necessary key for identification.
- h. Sequence operation note explaining the sequence of operation of control circuits and components when an operating button is pressed.
- i. Loading details, dead and live loads to enable civil engineering design.
- j. List of components (like relays, switches, cams, timers, contactors, etc.) giving their type designation / function in the scheme, i.e. Operated by which circuit or relay, operates which circuit or relay etc.
- k. Adjustments, operation and maintenance instruction with descriptive literature wherever applicable.
- l. Schedule of supply of bought out items including specification applicable and address of the agencies from whom items are bought out by the successful tenderer for assembly.

14.0 The successful tenderer should furnish will in advance three copies of detailed instruction and manuals of manufacturers for all items of equipments regarding installation, adjustments operation and maintenance i/c preventative maintenance & trouble shooting together with all relevant data sheets, spare parts catalogue and workshop procedure for repairs, assembly and adjustments etc. all in triplicate.

### **15.0 EXTENT OF WORK**

15.1 The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and such tests and adjustments and commissioning as may be required by the department. The terms complete installation shall not only mean major items of the plant and equipments covered by specifications but all incidental sundry components necessary for complete execution and satisfactory performance of installation with all layout charts whether or not those have been mentioned in details in the tender document in connection with this contract.

15.2 Minor building works necessary for installation of equipments, foundation, making of opening in walls or in floors and restoring to their original conditions, finish and necessary grouting etc. as reqd.

15.3 Maintenance (Routine and Preventive) for one year from date of completion and handing over.

### **16.0 INSPECTION AND TESTING:**

16.1 Copies of all documents of routine and type test certificates of the equipments carried out at the manufactures premises shall be furnished to the Engineer-In-Charge and consignee.

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16.2 After completion of the work in all respect, the contractor shall offer the installation for testing and operation.

16.3 Manufacturers test certificates for lift motor, ropes and gate pass shall be produced by the firms at the time of supply.

### **17.0 VALIDITY**

Tenders shall be valid for acceptance for a period of 90 days from the date of opening of price bid.

### **18.0 COMPLIANCE WITH REGULATIONS AND INDIAN STANDARDS**

18.1 All works shall be carried out in accordance with relevant regulation, both statutory and those specified by the Indian Standards related to the works covered by this specification. In particular the equipments and installation will comply with the following:

- i) Factories Act.
- ii) Indian Electricity Rules.
- iii) I.S. & B.S. Standards as applicable.
- iv) Workmen's compensation Act.
- v) Statutory norms prescribed by local bodies like CEA, NDMC, etc.

18.2 Nothing in this specification shall be construed to relieve the successful tenderer of his responsibility for the design, manufacture and installation of the equipment with all responsibility in accordance with currently applicable statutory regulations and safety codes.

18.3 Successful tenderer shall arrange to compliance with statutory provisions of safety regulations and departmental requirements of safety codes in respect of labour employed on the work by the tenderer. Failure to provide such safety requirement would make the tenderer liable for penalty of Rs. 50/- for each default. In addition, the department will be at liberty to make arrangement for the safety requirement at the cost of tenderer and recover the cost thereof from him.

### **19.0 INDEMNITY**

The successful tenderer shall at all times indemnify the department, consequent on this work contract. The successful tenderer shall be liable, in accordance with the Indian Law and Regulations for any accident occurring due to any cause and the department shall not be responsible for any loss incurred or claims arising there from during the period of erection, construction and putting into operation and comprehensive maintenance of the equipments and ancillary equipment under the supervision of the successful tenderer in so far so the latter is responsible. The successful tenderer shall also provide all insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the successful tenderer due to the above.

### **20.0 ERECTION TOOLS**

No tools and tackles either for unloading or for shifting the equipments for erection purpose would be made available by the department. The successful tenderer shall make his own arrangement for all these facilities.

### **21.0 COORDINATION WITH OTHER AGENCIES**

The successful tender shall co-ordinate with BSNL Engineer so that normal services are not blocked, and also to make the execution of this works contract smooth. No remuneration should be claimed from the department for such technical/ schedule cooperation. If any unreasonable hindrance is caused and any completed portion of the work has to be dismantled and re-done for want of cooperation and coordination by the successful tenderer during the course of work, such expenditure incurred will be recovered from the successful tenderer, if the restoration work to the original condition or specification of the dismantled portion of the work was not undertaken by the successful tenderer himself.

## **22.0 MOBILIZATION ADVANCE**

No mobilization advance shall be paid for this work.

## **23.0 INSURANCE AND STORAGE**

All consignments are to be duly insured upto the destination from warehouse to warehouse at the cost of the supplier. The insurance covers shall be valid till date equipments is handed over duly installed, tested and commissioned.

## **24.0 VERIFICATIONS OF CORRECTNESS OF EQUIPMENT AT DESTINATION**

The contractor shall have to produce all the relevant records to certify that the genuine equipments from the manufacturers has been supplied and created.

## **25.0 PAINTING**

This shall include cost of painting of entire exposed iron work complete in the installation. All equipments works shall be painted at the works before dispatch to the site.

## **26.0 TRAINING**

The tenderer shall also fully train Department's operating and maintenance staff in the operation, repairs and maintenance procedures during the installation and maintenance period. If necessary, the tenderer shall associate an Engineer of the purchaser of Diploma or Degree standard in the Training programme for their own personnel.

## **28.0 INTERPRETING SPECIFICATIONS**

In interpreting the technical specifications, the following order of decreasing importance shall be followed in case of contradictions:-

- a) Schedule of quantities
- b) Technical specifications
- c) Drawing (if any) d) General specifications
- e) Relevant IS or other international code in case IS code is not available.

## **29.0 CHANGES IN SPECIFICATIONS**

The BSNL reserves the right to make changes in respect of specifications of work if in its opinion same is found necessary. However such alterations shall be made after mutual discussions and agreement between the BSNL and the contractor. Any price implications in this regard shall be mutually discussed and agreed up on in terms of clause 12 of BSNL EW-8. The BSNL as matter of principle will not permit modifications by the contractor in design./specifications of any document /material. However the same can be agreed upon by the BSNL under exceptional circumstances where

a) The same is necessitated due to non-availability of material/components of certain specifications/make.

Or

b) Such alterations constitute an improvement in the opinion of BSNL. Prior approval is necessary before undertaking any alteration/modification in the specifications of the equipment.

c) Prior written approval of the Department shall be obtained before execution of alterations /modifications.

## **30.0 VARIATION IN QUANTITIES**

Variation in quantities in respect of unit rated items will be governed by unit rates in the agreement. This applies to all variations ordered during the currency of the main contract regardless of the quantity of variations for any item of work not covered by the Schedule of work clause 12 of BSNL EW-8 shall apply.

## **31.0 SUFFICIENCY OF TENDER**

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The contractor shall be deemed to have satisfied himself before entering into the contract as the correctness and sufficiency of his offer for the work and of the rates and prices quoted in the schedule of works and items/quantities or in bills of quantities for the contract period. These rates and prices shall except as otherwise provided, cover all his obligations under the contract and all matters and things necessary for proper completion of works.

### **32.0 CURRENCY OF CONTRACT:**

Rates quoted by the contractor shall be firm and shall be valid for the currency of contract. No cost escalation shall be permitted during the currency of contract.

The Clause 10CC of BSNL EW- 8 form is not applicable.

The tenderer shall stipulate no additional conditions.

### **33.0 PROGRAMME FOR EXECUTION**

The firm shall supply detailed programme to Engineer-in-Charge for execution of contract within fifteen days of award of work. The programme shall contain details about submission of drawing, supply of materials, tentative dates for installation and commissioning.

### **34.0 PACKING, FORWARDING, STORAGE AT SITE.**

Before dispatch to the site, the equipment /components/materials shall be properly packed so as to afford protection against transit damages and damage against storage in open areas either at transporters premises or at work site. Special care shall be taken in respect of sensitive items. When storage in open areas is inevitable, proper waterproof covering shall be provided to protect damages on account of rainwater etc. However, damaged items should be replaced as per the directions of the Engineer –in-charge.

### **35.0 WORKS TO BE DONE BY THE TENDERER**

In addition to the manufacture, supply, installation, testing and commissioning of the lift including all auxiliary equipment, following works will be deemed to be included within the scope of the work to be done by the tenderer:

i. All minor builder's work necessary for installation of equipment such as making of openings in walls/floors, either PCC or RCC or brick masonry, etc. and restoring them to original condition and finish. The scope of minor builder's work includes all grouting of foundations concrete pads to be formed as base for supporting of RS joists, etc. grouting and anchoring of all boards, clamps, supports, foundation bolts, fixing of RS joists, etc., whether in the machine room or in the hoist way or in the pit.

ii. Supply of necessary RS joists or angle iron support, brackets, etc. for installation of the lift either in the machine room or other places as may be necessary including their installation in position.

iii. All electrical works except bringing in main connection and earth connection to the machine room terminated on suitable switch fuse unit/ board. All electrical works including interconnection from this switch board and loop earthing from the earth bar to be provided in the machine room shall be the successful tenderer's responsibility.

iv. Necessary watch and ward of the stores (if required) of successful tenderer till the installation is handed over.

v. All scaffolding as may be necessary in the hoist way during erection work

vi. Temporary barricades to be provided in the opening in each landing during execution of work to prevent accident.

vii. Supply and installation of landing fascia plates, car apron plates, sill support angles (where necessary), clamps, foundation bolts, supports, etc. as are necessary in connection with the installation of lift.

viii. Steel /MS ladder to be provided for access to lift pit as required under regulation.

### **36.0 PRELIMINARY EVALUATION**

The Dept may waive any minor infirmity or non-conformity or irregularity in a bid, which doesn't constitute a material deviation, provided such waiver, doesn't prejudice or affect the relative ranking of any bidder.

### **37.0 DATE OF ACCEPTANCE**

The date of successful completion of the prescribed tests at site after installation and handing over of the lift to the department after approval by the local statutory body/inspection authority that the lift is fit for service shall be taken as the date of acceptance. The warranty/free maintenance period shall commence from this date.

### **38.0 COMPLETION PERIOD**

The supply and installation shall be completed in all respects and handed over to the department with in stipulated time of completion mentioned in tender.

### **39.0 INSPECTION OF SITE & CONTRACT DOCUMENTS**

For the purpose of inspection of site and relevant documents the contractor is required to contact EE (E) concerned who shall give reasonable facilities for inspection of the same. The contractor shall inspect and examine the site and its surroundings and shall satisfy himself commencement of work as to the form and nature of the site, the quantities and nature of work, materials necessary for completion of the works, means of access to the site, the accommodation he may require and in general shall himself obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect his work. No extra charges consequent on any misunderstanding or otherwise shall be allowed.

Variation in quantities in respect of unit rated items will be governed by unit rates in the agreement. This applies to all variations ordered during the currency of the main contract regardless of the quantity of variations. For any item of work not covered by the schedule of work, Clause 12 of PWD 8 shall apply.

### **40.0 COMPENSATION FOR DELAY**

If the contractor fails to maintain the required progress or complete the work and clear the site on or before the contract or extended date of completion, he has to pay the compensation for delay which is limited to 0.5% per week of work order value for the first 10 weeks and 0.7% per week for the next 10 weeks and thereafter subject to a maximum of 12% of the work order value for the location where the work is delayed and the form is found responsible for the same. Flow chart of the procurement process/ contract shall be supplied by the contractor and approved by Executive Engineer concerned

### **41.0 PROGRAMME FOR EXECUTION**

The firm shall supply detailed programme to Engineer in charge for execution of contract within fifteen days of award of work. The programme shall contain details about submission of drawing, supply of materials, and tentative dates for installation, testing, commissioning and offering for inspection by lift inspectorate.

### **42.0 WORK INVOLVED**

The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and such tests and adjustment and commissioning as may be required to give a satisfactory working installation, to the satisfaction of the Engineer-in-charge. The term complete installation shall mean not only major items of the plant and equipments covered by the specification but also all incidental sundry components necessary for complete execution and satisfactory performance of installation with all labour charges whether or not those have been mentioned in detail in the tender document in connection with this contract.

**43.0 EXCLUSIONS**

The following shall be the only work, which are to be excluded from the scope of the contract.

- a) Machine room and hoist way construction including major dismantling of any of the existing building work
- b) Architraves at the landing
- c) Major masonry work if any to be done at the landings.

**44.0 WORKMANSHIP**

All manufactures shall conform to first class workmanship and shall comply with the best commercial standards for ruggedness of construction. The lift shall be shop assembled for checking. All equipment shall be provided with safe and convenient access for lubrication of all movable rotary parts and sufficient lubrication points shall be provided wherever necessary.

**45.0 INSPECTION& LICENSING**

The contractor shall make arrangements to get the lift inspected by the Lift inspector of lift inspectorate, Govt. of Tamilnadu and for issue of license to work the lift as per the provisions of the Tamilnadu lift act amended up to date. Nothing extra will be paid for the same. Fees for the first statutory inspection of the lift installation if any, will be payable by the department.

If the equipment is rejected in the first statutory inspection by the inspector and if a second payment becomes necessary that will be the responsibility of the successful tenderer. Before the lift installation is handed over, it is an essential condition that the lift installation is inspected by statutory authority, if any and got passed where the compliance is mandatory. Before subjecting the installation to statutory inspection, all test regarding safeties shall be performed to the satisfaction of the Engineer – in – Charge

**46.0 ACCEPTANCETEST**

Lifts should be tested according section IV of CPWD general specification for Electrical works (Part-III: Lifts and Escalators) 2003

**47.0 INSTRUCTIONS TO BE DISPLAYED IN TAMIL/HINDI/ ENGLISH IN THE LIFT CAR AND LIFT LANDINGS PASSENGER LIFT**

S.N o.	Inside the Car	S.N o	Outside the Car
1	Lift Number.....	1	Lift Number.....
2	Capacity ... passenger (..... Kg).	2	Capacity ... passenger (..... Kg).
3	No Smoking	3	Please stand in „Q“.
4	Operator push buttons/ switches correctly	4	Smoking not permitted inside the Car.
5	Do not lean against lift door.	5	Passenger’s travel at their own risk.
6	Watch before stepping door	6	Please keep the lift neat and clean
7	Do not panic in the event of break down. Press alarm button and follow instruction of authorized staff.	7	Does not force open the landing doors.
		8	Watch before you step into and out of the lift car.
		9	Heavy articles / luggage not allowed.
		10	Avoid use of lift during fire.
		11	Complaints if any may be sent to.....
		12	Hours of operation

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**GENERAL CONDITIONS FOR COMPREHENSIVE MAINTANENCE**  
**Passenger Lift**

**Part – I Scope of Maintenance**

- a. **The scope of maintenance in this contract is carrying out comprehensive maintenance of passenger lifts and its associated items, being supplied against this contract, including on holidays. The contractor shall be responsible for providing all materials and labour required for maintenance, and nothing extra shall be payable. The contractor should quote accordingly.**
- b. Faulty items shall be repaired, and if repair not possible, they shall be replaced with items authorized by original manufacturer of lift. The decision of Executive engineer (E) in charge shall be final and binding in this respect.
- c. Servicing of the lift shall be done once in a month.
- d. The firm's representative shall sign the lift log book maintained by the BSNL.
- e. All servicing shall be done with the knowledge of the Engineer – in – Charge. Any materials replacement shall also be carried out with the prior knowledge of the Engineer-in-charge.
- f. Break down calls should normally be responded to within a reasonable period. If any breakdown call remains unattended for a period exceeding 24 hours, prorated recovery shall be made from the AMC charges payable to the firms for the No. of days the lift remain unattended.
- g. Components of the lift shall be checked as per the detailed lift maintenance schedule for monthly operation etc.
- h. Annual safety test shall be carried out once in a year.
- i. Ensure smooth working of lifts, keeping installation clean and performing preventive maintenance and attending to emergency breakdown. **It shall be the responsibility of the contractor to ensure that under no circumstances safety and wellbeing of the passenger is endangered.**

After the end of the AMC period, the contractor shall handover the installation to the department in the same condition as it was at the commencement of the AMC period, except for normal wear and tear

- j. All Tools and Plants required for carrying out various tasks relevant to maintenance have to be arranged at his own cost.
- k. The workers engaged by firm should maintain proper discipline and good behaviour with occupants.
- l. The firm shall remove such workers from the site whose behaviour improper, Executive Engineer's decision shall be final
- m. Any damage to the installation (s)/building during the maintenance period due to the carelessness on the part of maintenance staff shall be the responsibility of firm & be replaced / rectified without any extra cost.
- n. Any accident of damage during maintenance/operation will be the responsibility of the agency &BSNL will not entertain any claim, compensation, penalty etc. on this account or on account of non observation of any other requirement of law relevant to this work.
- o. Agency has to observe all the labour rules & regulations in force.
- p. Dismantled materials shall be returned to the BSNL except those items for which the replacement is supplied by the agency.
- q. The BSNL reserves the right to carry out any work at the risk and cost of the agency, if the agency fails to perform any duty as per the contract.
- r. The rates quoted must be full & final, [inclusive of all charges, making good the damages etc.]
- s. The contractor shall not sublet the work or part thereof. However, services of specialised agencies for specific work can be obtained.
- t. The BSNL reserves the right to terminate the contract by giving show cause notice of one month duration at any time during the currency of the contract.
- u. The contractor has to keep all the electro-mechanical equipments& site neat and clean to avoid any accident and or fire hazards.
- v. Firm should have round the contact telephone number. In case of Emergency contractor and authorized engineer supervisor shall be available at site on short notice from engineer – in - charge and make efforts to make the situation normal at the earliest.
- w. The staff engaged by the firm shall bear I-Card on duty.

## **Part II: Maintenance Schedule to be followed**

- As indicated in the maintenance schedule.
- Main log book in the form required by maintenance – in – charge.
- Record of time when any break down occurs in a unit and when it is rectified is to be maintained.
- The system should be kept in clean and healthy conditions.

## **Part III: Materials**

All the materials required for required for running the lift in healthy condition i.e car enclosure, door closers (in case of flush doors) gear unit, gear box oil, (Which replaceable once in a year regularly), main suspension ropes, OSG Rope, V3F units, ARD system including batteries, doors, frames and sills, indicators, landing and car push button switched, dry cells, alarm bell buzzer, all bolts and nuts, lift main Motor, door motor, break and brake magnet coils, Retiring cam unit, controller parts comprising contactors, Thermal overload Relays, Gate Lock units, Limit Switches, Wires Trailing Cables, acceleration switches, all safety devices etc.

## **MAINTENANCE SCHEDULE – PASSENGER LIFTS**

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**TASKS**

**Monthly**

1. Ensure all units are in working order
2. Checking control accessories
3. Check & car & landing buttons
4. Check indication display of car and landing
5. Check safety points
6. Check the leveling
7. Check gear oil level & lubrication of main motor and car door motor bearings
8. Check selection apparatus
9. Check brake drum, brake shoe, brake spring
10. Lubricating pulley, ropes, governor,
11. Check car gate and landing gate shoes
12. Check leakage of oil
13. Check emergency light and hooters
14. Check car telephone and readiness of emergency operations
15. Cleaning of door guide shoe and grooves of sill
16. Cleaning of machine room
17. Check motor current, V3F drive
18. Check guide rails, Shoes etc

**CHECK FOR**

1. Abnormal noise
2. Abnormal heating of any component
3. Vibrations
4. Any Breakage/Leakage

**LIST OF INDIAN STANDARDS**

<b>1</b>	Electric Traction Lifts (Part-1) line for outline dimension of Passenger, Goods, Service and Hospital Lifts.	IS : 14665 (Part-1)-2000
<b>2</b>	Electric Traction Lifts Code of practice for Installation operation and maintenance. Sec 1 : passenger and goods Lift Sec 2 : Service Lift	IS : 14665 (Part-2/Sec 1&2)-2000
<b>3</b>	Electric Traction Lifts Part-3 Safety Rules Sec 1 : passenger and goods Lift Sec 2 : Service Lift	IS : 14665 (Part-3/Sec 1&2)-2000
<b>4</b>	Electric Traction Lifts Part-4 Components.	IS : 14665 (Part-4/Sec 1to 9)-2001
<b>5</b>	Electric Traction Lifts Part-5 Inspection Manual	IS : 14665 (Part-5)-1999
<b>6</b>	Code of Practice for installation, operation and maintenance of escalators.	IS 4591:1968 (Reaffirmed 1996)
<b>7</b>	Code of Practice for installation and maintenance of hydraulic lift	IS : 14671-1999
<b>8</b>	Specification for hoist way door locks	IS : 7754-1975
<b>9</b>	Rules for the design , installation testing and operation of lifts, escalators and moving parts	IS 1735-1975

I.S.277 Galvanized steel sheets.

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- I.S.325 Three Phase Induction Motors
- I.S.655 Metal Air Ducts
- I.S.732 Code of Practice for Electrical Wiring and fittings for Buildings.
- I.S.900 Code of Practice for Installation and Maintenance of Induction Motors.
- I.S.996 Single Phase small AC and Universal Motors.
- I.S.2516 AC Circuit Breakers.
- I.S.1822 Motor Starters of Voltage not exceeding 1000 volts.
- I.S.2208 HRC Cartridge Fuse – Links upto 650 volts.
- I.S.4047 Heavy Duty air break switches and composite units of air break switches and fuses for voltage not exceeding 1000 volts.
- I.S.7403 Code of Practice for Selection of Standard Worm and Helical GearBoxes.

**IMPORTANT NOTE**

All references to I.S. appearing in this specification may be read as Bureau of Indian Standards, Latest amended versions.

**LIST OF SAFETY STANDARDS**

- I.S.3210 Code for Safety procedures and practices in Electrical works.
- I.S.3696 Safety for Scaffolds and Ladders.

LIST OF APPROVED MAKES- BSNL ELECTRICAL WING

S. No.	Item	Makes
1	Lift	OTIS, Kone, Mitsubishi , Schindler,Johnson
2	Battery (Lead Acid / Mntc. Free)	Amara Raja / AMCO / Farukawa / Hitachi / Exide/ Prestolite / Standard
3	MCCB(Ics=Icu)	L&T/ Schneider Electric / Siemens
4	SDF units	L&T/ Schneider Electric / Siemens/ HPL/Havells
5	Power Contactors	L&T/ Schneider Electric / Siemens/ Lakshmi(LECS)
6	Change Over Switch	HPL / Havells / H-H Elcon
7	Power Capacitors (MPP/APP)	L&T/EPCOS(Siemens)/ABB/Crompton/ Schneider Electric/Neptune Ducati
8	Digital/ KWHr meter	Schneider Electric/ AE/ Digitron / IMP/ Meco / Rishabh / Universal/HPL/L&T/ABB
9	Rubber Matting	ISI mark
10	MCB/ Isolator /ELCB/RCCB/ Distribution Board	Crompton / Havells / Indokopp / MDS Legrand/ L&T / Schneider Electric/ Siemens / Standard/ C&S/ABB/HPL

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11	MS/ PVC Conduit	ISI mark
12	Cable Tray	MEM/Bharti/Ratan/Slotco/Profab
13	HT/LT Cables	ISI mark
14	PVC insulated copper conductor wire	ISI mark
15	Motors	ABB/ Bharat Bijlee / Crompton Greaves / Schneider Electric / HBB / KEC / Siemens/Jyoti Ltd
16	Fresh Air Fans	GE / Khaitan/Almonard/Crompton
17	Starter	ABB / BCH / Schneider Electric / L&T / Siemens /
18	Single Phase Preventer	L&T / Minilec / Siemens / Zerotrip
19	GI/MS Pipe	ATC / ATL / BST / GSI / ITC / ITS / IIA / JST / Jindal /TTA / Tata/Zenith
20	Controls	FLICA / Honeywell / Indfoss / Penn-Danfoss / Ranco / Ranutrol / Sporland
21	GI Sheet	HSU Jindal / National / Nippon Denro / Sail / Tata
22	Fire Extinguisher	ISI mark

- a. Any other approved makes as approved till the date of opening of tender shall be included in the approved make.

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<u>PROFORMA OF SCHEDULES</u> (Operative Schedules to be supplied separately to each intending tenderer)	
<u>SCHEDULE 'A'</u> Schedule of quantities :	Attached
<u>SCHEDULE 'B'</u> Schedule of materials to be issued to the bidder:	Nil
<u>SCHEDULE 'C'</u> Tools and plants to be hired to the bidder:	Nil
<u>SCHEDULE 'D'</u> Extra schedule for specific requirements/documents for the work, if any:	Nil
<u>SCHEDULE 'E'</u> Schedule of components of Materials, Labour etc. for escalation:	Nil
<u>SCHEDULE 'F'</u> Reference to General Conditions of contract :	
Name of work:	As per NIT notification page No 3

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Estimated cost of work:	
Earnest money:	
Security Deposit and performance Guarantee	
General Rules & Directions: Officer inviting tender:	Executive Engineer (E) Electrical Division-I Chennai
Definitions:	
2(v) Engineer-in-Charge	Executive Engineer (E) Electrical Division-I Chennai
2(vi) Accepting Authority	Executive Engineer (E) Electrical Division-I Chennai
2(x) Percentage on cost of materials and labour to cover all over heads and profits	10% (TEN)
CLAUSE 5	
Time allowed for execution	<b>Six months</b>
Authority to give fair and reasonable extension of time for completion of work:	SE(E),EC-II,Chennai
Competent Authority for deciding reduced rates:	SE(E),EC-II,Chennai
Clause 25	
Competent authority for conciliation:	SE (E) not in-charge of the work.

## **BSNL EW-8**

### **Bharat Sanchar Nigam Limited Electrical Wing**

Electrical Division: I, Chennai

Sub Division: III, Chennai

1. 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 Rates and other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.
2. I/We hereby tender for the execution of the work specified for BSNL within the time specified, schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions and other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.
3. I/We agree to keep the tender open for ninety (90) days from the due date of submission thereof and not to make any modifications in its terms and conditions.
4. If I/We, fail to commence the work specified, I/We agree that the said BSNL shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely and the same may at the option of the competent authority on

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behalf of BSNL be recovered without prejudice to any other right or remedy available in law out of the deposit in so far as the same may 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.

5. Should this tender be accepted, I/We agree to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered up to maximum of percentage mentioned in clause 12.3 of the tender form and those in excess of that limit at rates to be determined in accordance with provisions contained in clause 12.2.
6. I/we agree to furnish to BSNL, Deposit at Call receipt/FDR/ Bank guarantee of a Nationalized/ Scheduled Bank for an amount equal to 5% of the of the contract value in a standard format within two weeks from the date of issue of award letter. I/We agree to keep the performance bank guarantee valid as per the BSNL terms and conditions.
7. 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 to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety or interest of BSNL.

<p>Signature of Witness (required in the case of bidder's thumb impression is given by the bidder in place of signature) Occupation of Witness :</p>	<p>(Signature of bidder ) (Name &amp; Postal address)</p> <p style="text-align: center;">Seal of Bidder</p> <p>Date:</p>
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**Acceptance of Tender**

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**NAME OF WORK: Replacement of 8 passenger lift at Kellys TE Building, Chennai**

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of BSNL for a sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ )

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

a)

b)

For & on behalf of BSNL

Dated

Signature :  
Designation :