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Name of Work: *Supplying, installation, testing & commissioning of 8 passenger elevator at Western Lab Extension building IIT Kanpur.*

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NIT amounting to Rs. 10,53,571/- (Rupees Ten Lacs Fifty Three Thousand Five Hundred Seventy One Only) is approved.

**Executive Engineer
I.W.D. Electrical
I.I.T., Kanpur**

**Superintending Engineer
Central Office, I.W.D.
I.I.T., Kanpur**

PART-A



भारतीय प्रौद्योगिकी संस्थान कानपुर
संस्थान निर्माण विभाग, केंद्रीय कार्यालय

ई-निविदा सूचना सं०- सं०नि०वि०/के०का०/2018/498

दिनांक: 10th August 2018

अधीक्षण अभियंता, संस्थान निर्माण विभाग, संस्थान के संचालक मंडल की ओर से (1.निविदा सं०:

17/विद्युत/2018. आई० आई० टी० कानपुर के छात्रावासों में दैनिक विद्युत रखरखाव के कार्य। अनुमानित लागत:

₹34,52,832/- धरोहर राशि: ₹ 69,057/- कार्य पूर्ण करने की अवधि: 12 माह, 2.निविदा सं०: 46/लिफ्ट/2018.

कार्य का नाम: आई०आई० टी० कानपुर के वेस्टर्न लैब एक्सटेंशन बिल्डिंग में 8 पैसंजर लिफ्ट की आपूर्ति एवं

स्थापन के कार्य। अनुमानित लागत: ₹ 10,53,571/- धरोहर राशि: ₹21,071/- कार्य पूर्ण करने की अवधि: 06

माह, कार्य हेतु योग्य विद्युत ठेकेदारों से (निविदा क्र० 1) एवं योग्य लिफ्ट निर्माताओं और उनके अधिकृत विक्रेताओं से

(निविदा क्र० 2), ऑनलाइन मद दर निविदाएं आमंत्रित की जाती हैं। निविदा सूचना www.tenderhome.com,

<https://eprocure.gov.in/cppp/latestactivebidders> तथा www.iitk.ac.in/iwd/tenderhall.htm वेबसाइट पर

उपलब्ध है तथा ऑनलाइन निविदाएं www.tenderwizard.com/IIT वेबसाइट द्वारा ही डाली जा सकेंगी। ऑनलाइन

निविदाएं 27.08.2018 को 15:30 बजे तक प्राप्त की जाएगी। यदि इस निविदा सूचना के सम्बन्ध में कोई

शुद्धिपत्र जारी किया जायेगा, वो केवल उपरोक्त वेबसाइटों पर ही उपलब्ध होगा।

कृपया निम्न में प्रकाशित करें।

दैनिक जागरण (हिंदी):- कानपुर एवं लखनऊ संस्करण।

अधीक्षण अभियंता

10/08/18

09/08/18

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

The Superintending Engineer, IWD, I.I.T., Kanpur on behalf of Board of Governors of IIT Kanpur invites online Item rate tender from approved and eligible* contractors for the following work(s):

| S. No.02 | 46 /Lift/2018 | Name of work and location | Estimated cost put to tender | Earnest Money | Period of Completion | Last date & time of submission of tender | Period during which EMD, Cost of Tender Document, e-Tender Processing Fee and other Documents shall be submitted | Time & date of opening of tender |
|----------|---------------|--|------------------------------|---------------|----------------------|--|--|----------------------------------|
| | NIT No. | <i>Supplying, installation, testing & commissioning of 8 passenger elevator at Western Lab Extension building IIT Kanpur</i> | Rs. 10,53,571/- | Rs. 21,071/- | 06 Months | Upto 3:30 PM on 27.08.2018 | After last date and time of submission of tender and upto 3:30 PM on 31.08.2018 | At 3:30 PM on 05.09.2018 |

The Lift manufacturer's or authorized dealers of lift the contractors should be valid on the last date of submission of tenders.

1. The lift manufacturer's or authorized dealers of lift (**Make: OTIS / KONE / SCHINDLER/MITSUBISHI/JOHNSON LIFTS PVT.LTD.**).
2. Having satisfactorily completed 3 (three) similar works of value 40% or two similar works of value 50% or one similar work of value 80% of estimated cost during last seven years in the registered department are eligible to participate.
3. Having GST, ESI & EPF registration No. of government authorities.
4. Having similar nature of works mean "**Installation of passenger/ good lifts in buildings multistoried buildings**".
5. Details of average annual financial turn over on lift works should be at least 100% of the estimated cost during the last three consecutive financial year.
6. Having a bank solvency certificate not less of 40% of estimated cost.

In case the last date of submission of tender is extended, the registered of contractor should be valid on the original date of submission of tenders.

1. The intending tenderer must read the terms and conditions of CPWD-6 for e-Tendering carefully. He should only submit his tender if he considers himself eligible and he is in possession of all the documents required.
2. Information and Instructions for tenderer posted on website shall form part of tender document.
3. The tender document 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.iitk.ac.in/iwd/tenderhall.htm and www.tenderhome.com free of cost and shall be submitted on line on website www.tenderwizard.com/IIT.
4. The bids can only be submitted after filling all the details in new drop down menu of e tendering portal such as demand draft or pay order or bankers cheque or deposited call receipt or fixed deposited receipt and bank guarantee of any scheduled bank (bankers name, amount, number and date) towards cost of bid documents and EMD in favour of the Director IIT Kanpur and processing fee in favour of ITI Ltd, New Delhi and other documents as required.
5. The intending tenderer has to fill all the details such as Banker's name, Demand Draft/Fixed Deposit Receipt /Pay Order/ Banker's Cheque/Bank Guarantee number, amount and date.

The amount of EMD can be paid by multiple Demand Draft / Pay Order / Banker's Cheque / Deposit at call receipt / Fixed Deposit Receipts along with multiple Bank Guarantee of any Scheduled Bank if EMD is also acceptable in the form of Bank Guarantee.

6. Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online bidding process as per details available on the website.
7. The intending tenderer must have valid class-III digital signature to submit the tender.
8. On opening date, the contractor can login and see the tender opening process. After opening of tenders he will receive the competitor tender sheets.
9. Contractor can upload documents in the form of JPG format and PDF format.
10. Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures 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 tenderer, rate of such item shall be treated as "0" (ZERO).

List of Documents to be scanned and uploaded within the period of tender submission:

- Required Experience - Completion certificates with Bill of quantity of similar works.
The works certificates submitted by the bidder clearly indicate that:
- Similar work executed shall be mean **Installation of passenger / good lift in multistoried building.**
- The completion certificate cost of the lift work.
- Actual date of completion of the lift work.
- Copy of EPF & ESI No.
- Copy of GST Registration No.
- Details of turn over the during the last three years.
- E.M.D. and Bank drafts of tender cost & processing fee.

CPWD-6 FORM e-Tendering

The Superintending Engineer, IWD, I.I.T., Kanpur on behalf of Board of Governors of IIT Kanpur invites online item rate tenders from approved and eligible* contractors for the works of: *Supplying, installation, testing & commissioning of 8 passenger elevator at Western Lab Extension building IIT Kanpur.*

- 1.1 The work is estimated to cost **Rs. 10,53,571/-** This estimate, however, is given merely as a rough guide.
- 1.2 The authority competent to approve NIT for the combined cost and belonging to the major discipline will consolidate NITs for calling the tenders. He will also nominate Division which will deal with all matters relating to the invitation of tenders.

2 Criteria of eligibility

1. The lift manufacturer's or authorized dealers of lift (Make: OTIS / KONE / SCHINDLER/MITSUBISHI/JOHNSON LIFTS PVT.LTD.)
2. Having satisfactorily completed 3 (three) similar works of value 40% or two similar works of value 50% or one similar work of value 80% of estimated cost during last seven years in the registered department are eligible to participate.
3. Having GST, ESI & EPF registration No. of government authorities.
4. Having similar nature of works mean "**Installation of lift passenger / good lift in multistoried buildings**".
5. Details of average annual financial turn over on lift should be at least 100 % of the estimated cost during the last three consecutive financial year.
6. Having a bank solvency certificate not less of 40% of estimated cost.
3. Agreement shall be drawn with the successful tenderers on prescribed Form No. CPWD 7 (or other Standard Form as mentioned) which is available as a Govt. of India Publication and also available on website www.iitk.ac.in Tenderers 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 **06 Months** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the tender documents.
5. The site for the work is available.*
6. The bid document 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.iitk.ac.in/iwd/tenderhall.htm and www.tenderhome.com free of cost and shall be submitted on line on website or www.tenderwizard.com/IIT.

Other necessary documents also can be seen in the office of the Superintending Engineer, IWD, IIT, Kanpur between hours of 10:00 AM to 5:00 PM from **13.08.2018 to 27.08.2018** every day except on Saturdays, Sundays and Public Holidays in free of cost.

7. After submission of the tender the contractor can re-submit revised tender any number of times but before last time and date of submission of tender as notified.
8. While submitting the revised tender, contractor 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.
9. Earnest Money can be paid in the form of Treasury Challan or Demand Draft or Pay order or Banker`s Cheque or Deposit at Call Receipt or Fixed Deposit Receipt (drawn in favour of Director, IIT, Kanpur along with Bank Guarantee of any Scheduled Bank wherever applicable.

A part of earnest money is acceptable in the form of bank guarantee also. In such case, 50% of earnest money or Rs. 20 lac, whichever is less, will have to be deposited in shape prescribed above, and balance in shape of Bank Guarantee of any scheduled bank.

- (i) **Cost of Tender Document** – **Rs. 590/-** drawn in favour of the Director IIT, Kanpur through e-payment.
- (ii) **e-Tender Processing Fee** – **Rs. 1,243/-** drawn in favour of **"ITI Limited"** payable at Delhi through e-payment.

Treasury Challan or Demand Draft or Pay Order or Banker`s Cheque or Deposit at Call Receipt or FDR or Bank Guarantee against EMD, Cost of Tender Document and cost of tender processing fee shall be placed in single sealed envelope superscripted as "Earnest Money, Cost of Tender Document and cost of tender processing fees with name of work and due date of opening of the tender also mentioned thereon.

Copy of Registration Order and certificate of work experience wherever applicable and other documents if required and specified in this bid document shall be scanned and uploaded to the e-Tendering website within the period of tender submission and certified copy of each shall be deposited in a separate envelope marked as "Other Documents"

Both the envelopes shall be placed in another envelope with due mention of Name of work, date & time of opening of tenders and to be submitted in the office of Superintending Engineer after last date & time of submission of tender and up to 03:30 PM **on 27.08.2018.**

Online tender documents submitted by intending tenderers shall be opened only of those tenderers, whose Earnest Money Deposit, Cost of Tender Document and e- Tender Processing Fee and other documents placed in the envelope are found in order.

The tender submitted shall be opened at 03:30 PM on **05.09.2018.**

10. The tender submitted shall become invalid and cost of tender & e-Tender processing fee shall not be refunded if:
 - (i) The tenderers is found ineligible.
 - (ii) The tenderers does not upload all the documents as stipulated in the tender document.
 - (iii) If any discrepancy is noticed between the documents as uploaded at the time of submission of tender and hard copies as submitted physically in the office of tender opening authority.

11. The contractor whose tender is accepted will be required to furnish performance guarantee of 5% (Five Percent) of the tendered amount within the period specified in Schedule F. This guarantee shall be Deposit at Call receipt of any scheduled bank / Banker's cheque of any scheduled bank / Demand Draft of any scheduled bank / Pay order of any Scheduled Bank of any scheduled bank or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. **In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F', including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor.**
12. Intending Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature of the ground and sub-soil (so far as is practicable), 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 tenderers 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 tenderers 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 tenderers implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work and local conditions and other factors having a bearing on the execution of the work.
13. The competent authority on behalf of the Board of Governors, IIT, Kanpur 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 tenderers shall be summarily rejected.
14. Canvassing whether directly or indirectly, in connection with tenderers is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable for rejection.
15. The competent authority on behalf of Board of Governors, IIT, Kanpur reserves to himself the right of accepting the whole or any part of the tender and the tenderers shall be bound to perform the same at the rate quoted.
16. The contractor shall not be permitted to tender for works in the IIT Kanpur responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the IIT Kanpur. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
17. No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of

the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the tender or engagement in the contractor's service.

18. The tender for the works shall remain open for acceptance for a period of **ninety (90) days** from the date of opening of tenders if any tenderer 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 department, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the tenderers shall not be allowed to participate in the retendering process of the work.
19. This Notice Inviting Tender shall form a part of the contract document. The successful tenderers/contractor, 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 and the rates quoted online at the time of submission of tender and acceptance thereof together with any correspondence leading thereto.
 - b) Standard C.P.W.D. Form 7 or other Standard C.P.W.D. Form as applicable.

20.1.1 The tender document will include following three components:

Part A:-

CPWD-6, CPWD-7 including schedule A to F for the major component of the work, Standard General Conditions of Contract for CPWD 2010 as amended/modified up to **27.08.2018**.

Part B:-

General/specific conditions, specifications and schedule of quantities applicable to major component of the work.

Part C:-

Schedule A to F for minor component of the work. (SE/EE in charge of major component shall also be competent authority under clause 2 and clause 5 as mentioned in schedule A to F for major components), General/specific conditions, specifications and schedule of quantities applicable to minor component(s) of the work.

20.1.2 Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of works. The Earnest Money will become part of the security deposit of the major components of work.

21. In case any discrepancy is noticed between the documents as uploaded at the time submission of bid on line and hard copies as submitted physically in then office of the superintending engineer, then the bid submitted shall become invalid and the institute shall, without prejudiced to any other right or remedy, be at the liberty to forfeit 50% of said EMD as affosaid. Further the bidder shall not be

allowed to re-tendering process of the work

22. EPF & ESI paid to contractor worker shall be reimbursed actual basis.

Superintending Engineer
For & on behalf of the Board of Governors, IIT, Kanpur

ITEM RATE TENDER AND CONTRACT FOR WORK**(A) Tender for the work****of:**

Supplying, installation, testing & commissioning of 8 passenger elevator at Western Lab Extension building IIT Kanpur.

TENDER

I/We have read and examined the Notice Inviting tender, schedule, A,B,C,D,E&F. Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, clauses of contract, Special conditions, Schedule of Rate & other documents and rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for the Board of Governors, IIT, Kanpur within the time specified in Schedule 'F', viz., schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respects in accordance with, such conditions so far as applicable.

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

A sum of Rs. **21,071/-** is hereby forwarded in Cash/Receipt Treasury Challan/Deposit at call Receipt of a Scheduled Bank/Fixed deposit receipt of scheduled bank/demand draft of a scheduled bank/bank guarantee issued by scheduled bank as earnest money. If I/we, fail to furnish the prescribed performance guarantee or fail to commence the work within prescribed period I/we agree that the said Board of Governors, IIT, Kanpur or his successors in office shall without prejudice to any other right or remedy be at liberty to forfeit the said earnest money absolutely. Further, if I/we fail of commence work as specified, I/we agree that Board of Governors, IIT, Kanpur or his successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit 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 the percentage mentioned in Schedule 'F' and those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

Further, I/We agree that in case of forfeiture of earnest money or both Earnest Money & Performance Guarantee as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/ have not been got executed through another contractor on back to back basis. Further that, if such

a violation comes to the notice of Department, then I/we shall be debarred for tendering in IIT, Kanpur in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

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

Dated _____ ** _____

Witness: **
Address: **
Occupation: **

**
Signature of contractor
Postal Address **

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the Board of Governors, IIT, Kanpur for a sum of Rs. _____ (Rupees _____)

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

- a) _____
- b) _____
- c) _____

For & on behalf of the Board of
Governors, IIT, Kanpur

Dated _____

Signature _____
Designation _____

Operative schedules shall be supplied separately to each intending tenderer)

SCHEDULE 'A'

Schedule of Quantities :

SCHEDULE 'B'

Schedule of materials to be issued to the contractor:

| S. No. | Description of item | Quantity | Rates in figures & words at which the material will be charged to the contractor | Place of issue |
|---------------|---------------------|----------|--|----------------|
| <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> |
| -----NIL----- | | | | |
| | | | | |

SCHEDULE 'C'

Schedule of Tools and Plants to be hired to the contractor

| S. No. | Description | Hire charges per day | Place of issue |
|---------------|-------------|----------------------|----------------|
| <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> |
| -----NIL----- | | | |
| | | | |

SCHEDULE 'D'

Extra schedule for specific requirements/document for the work, if any: ***As attached in tender form.***

SCHEDULE 'E'

Schedule of component of other Materials, Labour, POL etc. for price escalation : **N.A.**

SCHEDULE 'F'

Reference to General Conditions of contract.

| | | | |
|------------------------------------|--|------------------------|--|
| <i>Name of Work:</i> | <i>Supplying, installation, testing & commissioning of 8 passenger elevator at Western Lab Extension building IIT Kanpur.</i> | | |
| Estimated cost of the work: | Lift Items of Work | Rs. 10,53,571/- | |
| Earnest money | Rs. 21,071/- | | |
| Performance Guarantee | 5% of the tendered value of the work | | |
| Security Deposit | 5% of the tendered value of the work | | |

General rules and direction :

Definitions:

| | | | |
|----------------------------|--|------------------------|---|
| 2(v) | Engineer-in-Charge | | |
| | For Electrical /lift items of work | | Executive Engineer, Institute Works Department IIT, Kanpur |
| 2(vi) | Accepting Authority | | Superintending Engineer, Institute Works Department IIT, Kanpur |
| 2(vii) | Percentage on cost of materials and labour to cover all overheads and profits | 15% | |
| 2(viii) | Standard Schedule of Rates: | | |
| | lift Items of Work: | | D.S.R. 2016 with up to date correction slips |
| 2(ix) | Department: | | Central Public Works Department |
| 2(x) | Standard CPWD contract Form: | | GCC 2014, CPWD form-7 as modified & corrected up to 27.08.2018 (Whether correction vide latest circulars are incorporated or not in this document). |
| Clause 1 | i) Time allowed for submission of Performance Guarantee from the date of issue of letter of acceptance | 15 Days | |
| | ii) Maximum allowable extension beyond the period as provided in i) above | 7 Days | |
| Clause 2 | Authority for fixing Compensation under Clause 2 | | Superintending Engineer, Institute Works Department IIT, Kanpur. Or successor thereof |
| Clause 2 A | Whether Clause 2A shall be applicable | No | |
| Clause 5 | i) Number of days from the date of issue of letter of acceptance for reckoning date of start | 22 Days | |
| | ii) Time allowed for execution of work | 06 (Six) Months | |
| Authority to decide | Extension of time | | Superintending Engineer, Institute Works Department IIT, Kanpur |
| Clause 6/ 6A | | | Only clause 6 applicable. |
| Clause 7 | Gross work to be done together with net payment/Adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment | | Not applicable |
| Clause 10A | Material to be provided by the contractor. | | Applicable |

| | | |
|-------------------------------|--|---|
| Clause 10B (ii), (iii) | Whether clause 10-B (ii) and 10-B (iii) shall be applicable. | Not Applicable |
| Clause 10 C | Component of labour expressed as percentage of value of work | --- |
| Clause 10 CA | Materials covered under this clause. Nearest material(other than cement, reinforcement bars and structural steel) for which All India Whole sale price Index is to be followed. | Base price of all the materials covered under clause 10 CA |
| | 1. Cement (PPC) | Nil |
| | 2. Steel | Nil |
| Clause 10 CC | Increase/Decrease in Price of materials/wages | Not Applicable |
| Clause 11 | Specification to be followed for execution of work: | |
| For electrical works | CPWD specifications 2013 internal and 1994 external electrical works | |
| For Civil items of work | CPWD Specifications 2009 Vol. 1 and Vol. 2 with up to date correction slips.(Hereinafter called CPWD specifications also) | |
| Clause 12 | | |
| 12.2 & 12.3 | Deviation limit beyond which clause 12.2 & 12.3 shall apply for building work | --- |
| 12.5 | Deviation limit beyond which clause 12.2 & 12.3 shall apply for foundation work | 50% |
| Clause 16 | Competent Authority for Deciding reduced rates: | |
| | For lift/ electrical/civil items of work | Superintending Engineer, Institute Works Department IIT, Kanpur |
| Clause 18 | List of mandatory machinery, tools & plants to be deployed by the contractor at site. | Ladders, drill machine, crimping tools, chase cutting tools , cable jointing tools, blower |
| Clause 36 (i) | | Requirement of technical Representative(s) |

For supervision of civil as well as electrical items of work, technical representatives of the respective disciplines will be required to be deployed.

**Clause
42**

- i) a) Schedule/ statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates 2016 printed by CPWD **D.S.R. 2016(with up to date correction slips)**
- ii) **Variations permissible on theoretical quantities**
- a) Cement for works with estimated cost put to tender not more than Rs. 5 lakhs. **3% plus/minus**
For works with estimated cost put to Tender is more than Rs. 5 lakhs **2% plus/minus**
- b) Bitumen all works **2.5% plus only & nil on minus side.**
- c) Steel reinforcement and structural steel Sections for diameter, section and category. **2% plus/minus.**
- d) All other materials **Nil**

RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION

| SI No | Description of items | Rates in figures and words at which recovery shall be made from the contractor | |
|-------|--------------------------------|--|---|
| | | Excess beyond permissible variation | Less use beyond the permissible variation |
| 1. | Cement (PPC) | N. A | NIL |
| 2. | Steel reinforcement (TMT Bars) | | NIL |

SALIENT/MANDATORY REQUIREMENTS FOR THE TENDER

Name of Work: *Supplying, installation, testing & commissioning of 8 passenger elevator at Western Lab Extension building IIT Kanpur.*

- 1 The tenderer is advised to read and examine the tender documents for the work and the set of drawings available with Engineer-in-charge. He should inspect and examine the site and its surroundings by himself before submitting his tender.
- 2 Separate schedule of quantity is included in this tender for lift and electrical items of work. If the tenderer wants to offer any unconditional rebates on their rates, the same should also be offered in the respective components of civil and electrical schedule separately. The contractor shall quote the percentage rates in figures and words accurately so that there is no discrepancy in rates written in figures and words.
- 3 Time allowed for the execution of work is **06 (Six) months.**
- 4 The contractor(s) shall submit a detailed program of execution in accordance with the master programme/milestone within ten days from the date of issue of award letter.
- 5 Contractor has to arrange and install field laboratory during the currency of work and nothing extra will be paid on this account.
- 6 Quality of the project is of utmost importance. This shall be adhered to in accordance with the provisions of CPWD specifications and guidelines given in the relevant paras.
- 7 Contractor has to deploy required Plant and machinery on the project. In case the contractor fails to deploy the plant and machinery whenever required and as per the direction of the Engineer-in-charge, he (Engineer-in-charge) shall be at a liberty to get the same deployed at the risk and cost of the contractor.
- 8 The contractor shall comply with the provisions of the Apprentices Act 1961, and the rules and orders issued there under from time to time. If he fails to do so, his failure will be a breach of the contract and the Superintending Engineer/Executive Engineer may in his discretion, without prejudice to any other right or remedy available in law, cancel the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the said Act.
- 9 Temporary Electric connection shall be issued as per request and the water charges shall be recovered as per rule.

PART-B

QUALITY ASSURANCE OF THE WORK

1. The contractor shall ensure quality control measures on different aspects of construction including materials, workmanship and correct construction methodologies to be adopted. He shall have to submit quality assurance programme within two weeks of the award of work. The quality assurance programme should include method statement for various items of work to be executed along with check lists to enforce quality control.
2. The contractor shall get the source of all other materials, not specified else where in the document, approved from the Engineer-in-Charge. The contractor shall stick to the approved source unless it is absolutely unavoidable. Any change shall be done with the prior approval of the Engineer-in-Charge for which tests etc. shall be done by the contractor at his own cost. Similarly, the contractor shall submit brand/ make of various materials not specified in the agreement, to be used for the approval of the Engineer-in-Charge along with samples and once approved, he shall stick to it.

3. Other Laboratories :

1. The contractor shall arrange carrying out of all tests required under the agreement through the laboratory as approved by the Engineer-in-Charge and shall bear all charges in connection therewith including fee for testing. The said cost of tests shall be borne by the contractor/department in the manner indicated below.
 - i) By the contractor, if the results show that the test does not conform to relevant CPWD Specifications / BIS code or specification mentioned else where in the documents
 - ii) By the department, if the results conforms to relevant CPWD Specifications / BIS code or specification mentioned else where in the documents.
2. If the tests, which were to be conducted in the site laboratory are conducted in other laboratories for what ever the reasons, the cost of such tests shall be borne by the contractor.

C) Sampling of Materials :

1. Sample of building materials fittings and other articles required for execution of work shall be got approved from the Engineer-in-Charge. Articles manufactured by companies of repute and approved by the Engineer-in-Charge shall only be used. Articles bearing BIS certification mark shall be used in case the above are not available, the quality of samples brought by the contractor shall be judged by standards laid down in the relevant BIS specifications. All materials and articles brought by the contractor to the site for use shall conform to the samples approved by the Engineer-in-Charge which shall be preserved till the completion of the work.
2. The contractor shall ensure quality construction in a planned and time bound manner. Any sub-standard material/work beyond set out tolerance limit shall be summarily rejected by the Engineer-in-Charge.
3. BIS marked materials except otherwise specified shall be subjected to quality test at the discretion of the Engineer-in-Charge besides testing of other materials as per the specifications described for the item/materials. Wherever BIS marked materials are brought to the site of work, the contractor shall if required, by the Engineer-in-Charge furnish manufacturers test certificate or test certificate from approved testing laboratory to establish that the material

produced by the contractor for incorporation in the work satisfies the provisions of BIS codes relevant to the material and/or the work done.

4. The contractor shall procure all the materials at least in advance so that there is sufficient time to testing and approving of the materials and clearance of the same before use in work.
5. All materials brought by the contractor for use in the work shall be got checked from the Engineer-in-Charge or his authorised representative of the work on receipt of the same at site before use.
6. The contractor shall be fully responsible for the safe custody of the materials issued to him even if the materials are in double lock and key system.

ADDITIONAL TERMS AND CONDITIONS

- 1 Unless otherwise provided in the Schedule of Quantities/Specifications, the rates tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the work and nothing extra shall be payable to him on account of the same. Extra payment for centering/shuttering, if required to be done for heights greater than 3.5 m shall however be admissible at the rates arrived at in accordance with clause 12 of the agreement, if not already specified.
- 2 Other agencies doing works related with this project may also simultaneously execute their works and the contractor shall afford necessary facilities for the same. The contractor shall leave such necessary holes, openings etc. for laying/burying in the work, pipes cables, conduits, clamps, boxes and hooks for fan clamps etc. as may be required for the other agencies. Nothing extra over the Agreement rates shall be paid for doing these.
- 3 Some restrictions may be imposed by the security staff etc. on the working and for movement of labour, materials etc. The contractor shall be bound to follow all such restrictions/instructions and nothing extra shall be payable on account of the same.
- 5.1 The contractor shall fully comply with all legal orders and directions of the Public or local authorities or municipality and abide by their rules and regulations and pay all fees and charges for which he may be liable in this regard. Nothing extra shall be paid/reimbursed for the same.
- 5.2 The building work shall be carried out in the manner complying in all respects with the requirements of the relevant bylaws and regulations of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer-in-charge and nothing extra shall be paid on this account.
- 6 If as per local Municipal regulations, huts for labour are not to be erected at the site of work, the contractor shall be required to provide such accommodation at a place as is acceptable to the local body and nothing extra shall be paid on this account.
- 7 The structural and architectural drawings shall at all times be properly co-related before executing any work. However, in case of any discrepancy in the item given in the schedule of quantities appended with the tender and Architectural drawings relating to the relevant item, the former shall prevail unless otherwise given in writing by the Engineer-in-charge.
- 8.1 For the purpose of recording measurements and preparing running account bills, the abbreviated nomenclature indicated in the publications Abbreviated Nomenclature of Items of DSR 2016 shall be accepted. The abbreviated nomenclature shall be taken to cover all the materials and operations as per the complete nomenclature of the relevant items in the agreement and relevant specifications.
- 8.2 In case of items for which abbreviated nomenclature is not available in the aforesaid publication and also in case of extra and substituted items for which abbreviated nomenclature are not provided for in the agreement, full nomenclature of item shall be reproduced in the measurement books and bill forms for running account bills.
- 8.3 For the final bill, however, full nomenclature of all the items shall be adopted in preparing abstract in the measurement books and in the bill forms.

- 9 The contractor shall take instructions from the Engineer-in-charge for stacking of materials. No excavated earth or building materials etc. shall be stacked/collected in areas where other buildings, roads, services, compound walls etc. are to be constructed.
- 10 Any trenching and digging for laying sewer lines/water lines/cables etc. shall be commenced by the contractor only when all men, machinery's and materials have been arranged and closing of the trench(s) thereafter shall be ensured within the least possible time.
- 11 It shall be ensured by the contractor that no electric live wire is left exposed or unattended to avoid any accidents in this regard.
- 12 In case the supply of timber/steel frames/shutters for doors, windows etc. is made by some other agency, the contractor shall make necessary arrangements for their safe custody on the direction of the Engineer-in-charge till the same are fixed in position by him & nothing extra shall be paid on this account.
- 13 The contractor shall maintain in perfect condition, all portions executed till completion of the entire work allotted to him. Where however phased delivery of work is contemplated these provisions shall apply separately to each phase.
- 14 The entire royalty at the prevalent rates shall have to be paid by the contractor on all the boulders, metals, shingle sand etc. collected by him for execution of the work, directly to the Revenue authority or authorized agents of the State Government concerned or the Central Government, as the case may be.
- 15.1 The contractor shall bear all incidental charges for cartage, storage and safe custody of materials issued by the departments and shall construct suitable godowns, yards at the site of work for storing all materials as to be safe against damage by sun, rain, dampness, fire, theft etc. at his own cost and also employ necessary watch and ward establishment for the purpose, at his own cost. Materials to be charged directly to work and stipulated for issue free of cost shall also be issued to the contractor as soon as those are received at site or at the stipulated place of issue. The provision of this para shall apply equally and fully to those as well.
- 15.2 All materials obtained from the Institute Works Department store or otherwise on receipt shall be got checked by the Engineer-in-charge of the work or his representations before use.
- 15.3 Registers for the materials to be issued by the department shall be maintained as required by the Engineer-in-charge and these shall be signed by the contractor or his authorized agent and representative of Engineer-in-charge on each day of transactions.

Special condition for Safety at the Work Site

The contractor will identify one of the supervisors for taking care of implementation of Safety systems.

The Contractor should follow the following General Guidelines governing the safety rules as laid down under:

1. Smoking is strictly prohibited at workplace.
2. Nobody is allowed to work without wearing safety helmet. Chinstrap of safety helmet shall be always on. Drivers, helpers and operators are no exception.
3. No one is allowed to work at or more than three meters height without wearing safety belt and anchoring the lanyard of safety belt to firm support preferably at shoulder level.
4. No one is allowed to work without adequate foot protection.
5. Usage of eye protection equipment shall be ensured when workmen are engaged for grinding, chipping, welding and gas-cutting. For other jobs as and when site safety co-coordinator insists eye protection has to be provided.
6. All safety appliances like Safety shoes, Safety gloves, Safety helmet, Safety belt, Safety goggles etc. shall be arranged before starting the job.
7. All excavated pits shall be barricaded & barricading to be maintained till the backfilling is done. Safe approach to be ensured into every excavation.
8. Adequate illumination at workplace shall be ensured before starting the job at night.
9. All the dangerous moving parts of the portable / fixed machinery being used shall be adequately guarded.
10. Ladders being used at site shall be adequately secured at bottom and top. Ladders shall not be used as work platforms.
11. Material shall not be thrown from the height. If required, the area shall be barricaded and one person shall be posted outside the barricading for preventing the tre-passers from entering the area.
12. Other than electricians no one is allowed to carry out electrical connections, repairs on electrical equipment or other jobs related thereto.
13. All electrical connections shall be made using 3 or 5 core cables, having a earth wire.

14. Inserting of bare wires for tapping the power from electrical sockets is completely prohibited.
15. A tools and tackles inspection register must be maintained and updated regularly.
16. Debris, scrap and other materials to be cleared from time to time from the workplace and at the time of closing of work everyday.
17. All the unsafe conditions, unsafe acts identified by contractors, reported by site supervisors and / or safety personnel to be corrected on priority basis.
18. No children shall be allowed to enter the workplace.
19. All the lifting tools and tackles shall be stored properly when not in use.
20. Clamps shall be used on Return cables to ensure proper earthing for welding works.
21. Return cables shall be used for earthing.
22. All the pressure gauges used in gas cutting apparatus shall be in good working condition.
23. Proper eye washing facilities shall be made in areas where chemicals are handled.
24. Connectors and hose clamps are used for making welding hose connections.
25. All underground cables for supplying construction power shall be routed using conduit pipes.
26. Spill trays shall be used to contain the oil spills while transferring / storing them.
27. Tapping of power by cutting electric cables in between must be avoided. Proper junction boxes must be used.

(Rajeev Garg)
Superintending Engineer

SPECIAL TERMS & CONDITIONS

1. In the Contract (as hereinafter defined) the following definitions words and expressions shall have the meaning hereby assigned to them except where the context otherwise required.
 - i) Institute shall mean the Indian Institute of Technology (IIT), Kanpur
 - ii) The President shall mean the Board of Governor, IIT Kanpur.
 - iii) The Engineers In-charge, who shall administer the work jointly, shall mean the Executive Engineer/Assistant Engineer (Electrical) for electrical and Air-conditioning works.
 - iv) Government or Govt. of India shall mean the Indian Institute of Technology represented by its Director.
 - v) The term Director General of Works shall mean the Chairman, Building & Works Committee of the Institute.
 - vi) Accepting authority shall mean the Director, IIT Kanpur or his authorized representative.
 - vii) Superintending Engineer shall mean the Superintending Engineer of the Institute, who as overall In-charge and head of the Institute Works Department, shall direct the contract.
 - viii) Site Engineers shall mean the Assistant Engineer & Jr. Engineer (Electrical) for Electrical & Air-conditioning works, appointed by the Institute Works Department.

2. Duties & Powers :

i) Site Engineers :

The duties of the Site Engineer(s) are to watch and supervise the works and the workmanship employed in connection with the works, and to test and examine any materials to be used. He shall have no authority to relieve the contractor of any of his duties or obligations under the contract nor, except as expressly provided here under, to order any work involving delay or any extra payment by the Institute, nor to make any variation in the works.

The Engineer-in-charge, from time to time in writing, delegate to the Site Engineer (s) any of the powers and authorities vested in them. Any written instruction or written approval given by the Site Engineer (s) to the contractor within the terms of such delegation (but not otherwise) shall bind the contractor and the Institute as though it had been given by the Engineer-in-charge / Architect provided always as follows :

- a) Failure of the Site Engineer (s) to disapprove any work or materials shall not prejudice the power of the Engineer In-charge / Architect to subsequently

disapprove such work or materials and to order the pulling down, removal or breaking up thereof.

b) If the contractor is dissatisfied by reason of any decision of the Site Engineer (s), he shall be entitled to refer the matter to the Engineer-in-charge / Architect, who shall thereupon confirm reverse or vary such decision.

3. The scope of contract comprises the construction, completion and maintenance of the works for (12) months after the completion and the provision of all labour, materials, construction of plant equipment and transpiration, temporary works and everything, whether of temporary or permanent nature required in and for such construction, completion and maintenance so far as the necessity for providing the same is specified in or reasonably be inferred from the contract. The contractors shall make his own arrangements for the store storage of materials, accommodation for his staff etc. and no claim for the temporary accommodation from the contractor shall be entertained.

The contractor shall carry out and complete the said work in every respect in accordance with this contract and as per the directions and to the satisfaction of the Engineer-in-charge/Architect. Issue of further drawings and /or written instructions, detailed directions and explanations which are hereinafter collectively referred to as instructions of the engineer-in-charge/ Architect's in regards to:-

- a. The variation or modification of the design, quality or quantity of works or the addition or omission or substitution of any work.
- b. Any discrepancy in the drawings or between the schedule of quantities and /or drawings and/or specifications.
- c. The removal from the site of any materials brought thereon by the contractor and the substitution of any other material thereof.
- d. The dismissal from the works of any persons employed thereupon.
- e. The opening up for inspection of any work covered up.
- f. The amending /making good of any defects.

The contractor shall forthwith comply with and duly execute any instructions of work comprised in such engineers-in-charge instructions, provided always that the verbal instructions and explanations given to the contractor or his representative upon the works shall, if involving a variation , be confirmed in writing by the contractor within seven days and is not dissented in writing within a further seven days by the Engineer-In-Charge/Architect, such shall be deemed to be instructions of the Engineer-In-charge/Architect within the scope of the contract.

4. **Contract Document:**

- 4.1 The several documents, forming the contract, are to be taken as mutually explanatory of one another and in case of ambiguities or discrepancies the same shall be explained and adjusted by the Engineer-In-Charge who shall thereupon issue to the contractor its interpretation directing in what manner the work is to be carried out. In case the contractor feels aggrieved by the interpretation of the Institute then the matter shall be referred to the Superintending Engineer and his decision shall be final, conclusive and bind on both parties.
- 4.2 The drawings etc. shall remain in the custody of the Institute. Two complete sets of drawings, specification and bill of quantities shall be furnished by the Engineer-In-Charge to the contractor in such time which must not delay the progress of the construction and the Institute shall furnish copies of any additional drawings, which in their opinion may be necessary for the execution of any part of the work. One complete set shall be kept on the work site and the Engineer-In-Charge and his representatives shall be, at all reasonable times, have access to the same. The contractor shall study the drawings thoroughly before the commencement of work. In case of any discrepancy, the contractor shall seek clarification before proceeding with the works. Figured dimensions are in all case to be accepted in preference to the scaled sizes. Large scale details shall taken preference over small scale one.

The contractor shall give adequate notice in writing to the Engineer-in-charge of any further drawings or specification that may be required for the execution of the works or otherwise under the contract.

The Engineer-in-charge shall have full powers and authority to supply the contractor from time to time during the progress of the work such drawings and instructions as shall be necessary for proper execution and the contractor shall carry out and be bound by the same.

- 4.3 The successful tenderer shall be required to enter into an agreement with the Institute. The Bill of Quantities & rates filled by the successful tenderer in, the General Condition of the Contract for CPWD works 2010, CPWD specifications for Civil, Electrical & Air-conditioning works, the special conditions, additional specifications, negotiation letter and the award letter etc. shall form part of the agreement to be signed by the successful tenderer. The cost of stamp paper and stamp duty, required for the agreement, shall be borne by the contractor.

5. **Contract Agreement:**

The contractor shall, when called upon to do so, enter into and execute a contract agreement in the form annexed as annexure 'A' with such modifications as may be necessary. The contract agreement, inclusive of its enclosures, shall remain in the custody of the Superintending Engineer, Institute Works Department, IIT Kanpur and the made available him as and when required contractor shall however be supplied, an attested copy there free of cost.

6. All tenders are required to deposit earnest money in the form of FDR/CDR in the only duly endorsed in favour of Director, IIT Kanpur. Earnest money should be enclosed in a separate sealed envelope and tender documents should be enclosed in a another envelope superscribed “ **EARNEST MONEY- NAME OF WORK** “ **ITEM RATE-TENDER-NAME OF WORK**” on the top of envelope. At the time of opening of tender earnest money envelope will be opened first and in case earnest money is not found in the requisite form or amount envelope containing item rate tender of the party concerned shall be opened and will be summarily rejected and documents submitted will be confiscated by the Institute.
8. Canvassing in connection with tenders is prohibited and the tenders, submitted by the tenderers who resort to canvassing, are liable for rejection.
9. Tenderers shall have to sign the attached declaration (Appendix B) and if the declaration is not found to represent a true statement of facts the contract is liable to be cancelled, earnest money forfeited and the contractor shall have no claim on the Institute.
10. Tenderers are not allow to make additions and alterations in the tender document. Any additions and alternations, if incorporated in the tender, shall be at the tender’s risk since the modified tender is liable for rejection.
11. Conditional tenders violative of the spirit and the scope or the terms & conditions of the tender, are liable to be rejected without assigning any reasons. Tenders with any form of rebate shall be rejected summarily.
12. Water and electricity required for electrical & air-conditioning works shall be supplied free of charge.
13. Stamps duty on the security money shall also be the born by contractor as per prevailing notification of U.P Govt.
14. Income tax shall be deducted as per prevalent law.
15. **Conditions for Electrical and Air-conditioning Works:-**
 - 15.1 All chase cuttings in the wall, for recessed conduits & boxes and drilling the holes shall be done with power operated machines only. No chase shall be allowed to be cut manually with the use of hammer & chisel.
 - 15.2 All cuttings in cement plaster and brick shall be made good by using cement mortar 1:3 (1 part cement, 3 part coarse sand)

15.3 The cut surfaces shall be repaired by an experienced mason only so as to match the repaired plaster with the original.

15.4 All such repaired surfaces shall be cured for 3 to 4 days to keep the surfaces wet, using water spray machine (hand/motor operated) and avoid unnecessary flooding of the area.

16. Payment shall be regulated as under

- a.) 90% of the tendered rate on receipt of materials at site.
- b.) 10% after successful completion of the work.

However advance upto a maximum of 50% of the tendered amount shall be made against relevant bank guarantee the advance payment shall be adjusted after receiving of material at site.

17. Drawings/Data required prior to commencement of electrical/air-conditioning works:-

17.1 The following drawings shall be provided by the Architect/Engineer-In-Charge of the work:-

- 1. Conduit layout for lights, fans, socket outlets, telephone outlets, network & fire alarm system and sub mains showing size of conduits, no. of wires and size of wires in each run, location and size of accessories like junction boxes, ceiling boxes for hooks, draw boxes and switch boxed etc.
- 2. Cable routing drawings showing details of size, type and no. of cables and mode of installation.
- 3. Ducting /chilled water pipe line/drain pipe etc., drawing showing details of size, type and mode of installation.

17.2 Following drawings shall be furnished by the contractor for the approval of the Engineer-In-charge.

- a. G.A and schematic drawings of MV switchgear/distribution /Plant/AHU/FCU/Fire Alarm panel showing material and size of sheet steel/bus bars / inter connections and make and ratings of switchgear i/c details of protection, metering, indicating and inter lock etc.
- b. Ducting /chilled water pipe line/drain pipe etc., drawing showing details of size, type and mode of installation.

18. Completion drawings:

On completion of works and before issuance of completion certificate, the contractor submit completion drawings in the form of three complete set of originals (reproducible) .

- i) As built GA and schematic drawings of MV panels, distributions boards, fire alarm panels, Plant, AHU & FCU etc. showing material and size of sheet steel/bus bars/ connections and make and rating of switchgear i/c details of protection, meter indicating and interlocks etc.
- ii) Technical literature, test certificates and operation and maintenance manuals required.

19. **Works Inspection and Testing of Equipment:**

Prior to dispatch of equipment the Institute reserves the right to inspect the same at the manufacturer's works and the contractor shall provide and secure every reasonable access and facility at the manufacturers works for inspection, for witness of all acceptance and routine tests as per relevant Indian Standards. Contractor shall give a reasonable notice of about 15 days for the purpose of test, and witness of all major equipments.

- a.) Pre-commissioning test: All routine tests shall be carried out on the electrical & air-conditioning equipment. Protective & measuring devices should be checked for calibration of Plant AHU & FCU's should be checked for air quantities. All grills/diffusers should be checked for balanced air quantities.

20. **Rates:** The work shall be treated as on works contract basis and the rates tendered shall be for complete item of work and all charges for items contingent to the work, such as packing, forwarding, insurance, freight and delivery at site for the materials to be supplied by the contractor, watch and ward of all materials at the site, labour related expenses as per relevant labour laws, testing of materials/ samples etc excluding Goods and Service Tax (GST).

21. **Taxes & Duties:**

- 21.1 Being an indivisible works contract, no other tax is payable other than GST. The GST shall be as applicable to IIT Kanpur as per Government rules.

- 21.3 The EPF & ESI contribution paid to the contract workers shall be reimbursed on actual basis.

22. The earnest money of the unsuccessful tenderers shall be refunded on written request, within 1(one) month of the award of work. The earnest money of the successful tenderer shall however be adjusted towards the security deposit.

23. The tender document & drawings in respect of the work can be seen in the office of Executive Engineer.

24. The tender document contains _____ pages. No page of the tender document shall be removed, mutilated, detached or cancelled.

25. Rates for finished works shall be given for each items separately, both in words & figures. In the event of non compliance the tender shall be deemed incomplete and liable for rejection.

26. All entries by the tenderer should be made in one ink and one hand writing only. Tenders should be filled in legible hand writing and should not contain erasures,

corrections and overwriting as far as possible. However if it becomes necessary, each correction etc. should be properly attested under dated signature.

27. The work shall be executed on the basis of the following CPWD specifications:

i) *Electrical Works* :

- *General specifications for Electrical Works Part-1 (Internal) 2013 with up to date corrections.*
- *General specifications for electrical works (external) 1994 with upto date corrections.*
- *General specifications for electrical works Part-VII (DG set) 2013 with upto date corrections.*
- *General specifications for electrical works Part-IV Sub-station- 2013 with upto date corrections.*
- *General specifications of HVAC works 2004 with upto date corrections.*

28. For the purpose of clause 12 of the General conditions of contract the following schedule of rates shall be applicable.

i) Electrical Works: Based upon prevailing market rates.

29. The special conditions listed above shall take precedence over all above provisions of the contract. The General Condition of contract for CPWD works shall be generally followed including the clause 21 i.e. work shall not be sublet.

30. The contractor shall have to execute the work in such place and condition where other agencies will also be engaged for other works such as site grading, filling and leveling, interiors, landscape, and electrical and mechanical engineering works, etc. No claim shall be entertained due to work being executed in the above circumstances.

31. No contractor, to whom the provisions of the BOCW Act apply, shall be allowed to commence work on the campus unless he has produced the 'Registration Certificate' issued by the office of Dy. CLC (Central).

32. The contractor shall engage only such workers who are registered as beneficiaries with U.P. BOCW Welfare Board and in case of engagement of new workers, he shall ensure the submission of applications for registration of such workmen within appropriate time.

33. A certificate for administrative convenience shall be obtained from the contractor covered under BOCW Act whether he has engaged 10 or more workmen while working in the Institute and only thereafter, Cess @1% from the bills raised by him shall be deducted at source for all running works. Cess, so deducted shall be deposited with the BOCW Welfare Board.

34. As per clause 36 (I) of GCC : It should be noted that license wire man shall only be allowed for the wiring work.

SPECIAL CONDITION OF WORK

1.1 General

Work under this contract shall be executed as given in the specifications and at site whether specially shown or not. The Contractor shall carry out and complete the work under this contract in every respect in conformity with the contracts documents and with the directions of and to the specification of the Owners.

The specification is intended to cover the Design, *Supplying, testing & commissioning of 8 passenger elevator at Office Block Outreach Centre NOIDA IIT Kanpur.* (suitable for PH/disabled person) is not the intent to specify completely constructional features of the equipment and details of the work to be carried out but nevertheless the intent of the specification is to ensure that the equipment and the work shall conform in all respects to the relevant Bureau of Indian Standards Specifications, codes of practice, Acts and other Statutory Regulations as may be applicable and to high standards of engineering design and workmanship. The equipment and work shall perform in continuous operation in a manner acceptable to the Owners who will interpret the meaning of the specifications and the drawings and shall have the right to reject or accept any equipment or work which in their assessment is not complete to meet the requirement of this specification and/or applicable codes and standards.

1.1.2 Special Conditions of contract shall be read in conjunction with the general conditions of the contract, specifications of work, drawings and any other document forming part of this contract. For any discrepancies between the General Conditions and these Special Conditions, the provisions of Special Conditions shall prevail.

1.13 Wherever it is mentioned in the Specifications that the Contractor shall perform certain work or provide certain facilities, it is understood that the Contractor shall do so at his cost.

1.1.4 The materials, design and workmanship shall satisfy the relevant Indian Standard, the job Specifications contained herein and codes referred to where the job specifications stipulated requirements in addition to those contained in the Standard Codes and Specifications, these additional requirements shall also be satisfied.

1.1.5 The Contractor must get acquainted with the proposed site for the works and study specifications and conditions carefully before tendering. The work shall be executed as per programme approved by the Owners. If part of site is not available for any reason or there is some unavoidable delay in supply or materials stipulated by the Owners, the programme of construction shall be modified accordingly and the Contractor shall have no claim for any extras or compensation on this account.

1.2.0 Scope Of Work

The scope of work under this specification shall include the design, manufacture, works testing, supply, storage, erection, site testing, commissioning, putting into operation, final testing and trials of the passenger elevators as per technical parameters attached with this document.

The scope work shall also include all civil works associated with erection of the equipment and making good and painting the civil works as required.

The Contractor shall include for the supply of entire materials in accordance with this specification and the whole of the work and fixing necessary for the complete installation as set down in his specification and with the accompanying schedules. All apparatus, appliances, materials or labour which may be necessary for satisfactory installation and operation of the system in accordance with the intent or purpose of the specifications shall be considered to be in scope of work of the contract and shall be furnished without extra charges, as if fully described and called for in the specifications and/or shown in plans.

1.3.0 **Specification**

The following BIS and Codes of Practise with upto date amendments will apply to the equipment and the work covered by the scope of this contract.

IS-1860-1980: Code of practise for installation & maintenance of electric Freight & Good Lifts.

IS-3534-1976: Outline dimensions of electric Lifts.

IS-4666-1986: Specification for Electric Freight and Good Lifts

IS-6383-1971: Specification of Electric Service Lifts.

IS-732-1963 :Codes of Practice for electric wiring installations (system voltage not exceeding 650 volts)

In addition the relevant clauses of the Indian Electricity Rules 1956 as amended upto date and the Indian Electricity Act 1910 shall apply. The Contractor must also take into account local and State regulations as in vogue in UP for the design and installation of Lifts.

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

1.4.0 **Site Conditions**

All equipment shall be suitable for satisfactory and continuous operation under the following site conditions:

Maximum 45°C 90% RH

Maximum 2°C 90% RH

1.5.0 **Authorities**

The work shall conform to all provisions of the relevant Government Legislation, Regulations and by-laws of the Central/Local Authorities and of any Companies to whose system the installation is proposed to be connected. The Contractor

shall give all notices required under the said Acts, Regulations and/or by-laws. The Contractor shall be liable for any omissions and commissions in this regard.

1.6.0 Specifications and Schedules

The Specifications and Schedule of Quantities shall be considered as part of this contract and any work or materials shown in Schedule and not called for in the Specifications or vice versa, shall be executed as if specially called for in both. The drawings indicate the extent and general arrangement of the equipment, landings, hoistways etc. and area essentially diagrammatic.

The work shall be installed as indicated on the drawings. However any minor changes found essential to co-ordinate the installation of this work with other trades shall be made without any additional cost to the Owner. The data given herein is as exact as could be secured, but its complete accuracy is not guaranteed. Exact locations, distances and levels will be governed by the site conditions.

1.7.0 Departure from Specifications

Should the Contractor wish to depart from the provisions in these specifications such departure shall be listed in a separate Schedule with full particulars and reasons for the same. Unless this is done the tender shall be deemed to comply in every respect with these specifications. The Contractor should submit complete and detailed technical specification clearly describing the equipment to be supplied and its capability alongwith the bid.

1.8.0 All similar parts and/or equipment shall be interchangeable with one another.

1.9.0 Material Testing

The Owners shall have full powers to require the materials of work to be tested by an independent agency at the Contractor's expense in order to prove their soundness and adequacy.

1.10.0 Drawings

1.10.1 Drawings required prior to commencement of work

The Contractor shall within four weeks after award of the work submit the following drawings in quadruplicate for approval by the Owners and the local authorities.

- Layout drawings showing general arrangement of elevators
- Schematic wiring diagrams
- Maintenance check charts and lubricating charts

These drawings shall incorporate detailed layouts of machines, motors, controllers, guide rails, counter weights, pulleys etc. Details of cut-outs, pockets,

foundations etc. shall also be furnished. The Engineer In-charge of the work / Consultants shall within 15 days of the submission of drawings convey comments/approval on receipt of these drawings. The Contractor shall incorporate any modifications, if found necessary by the Architect and six prints of such modified drawings shall be furnished to the Consultant within 15 days of receipt of comments/approval by the Contractor. No modifications shall be made in drawings after the same have been approved by the Architect without their prior consent. The manufacturer shall commence work only after such approval is obtained. The Contractor shall be responsible for cost of all alteration of the works due to discrepancies or omissions in the drawings or other particulars supplied by him, whether such drawings have been approved by the Consultant or not.

1.10.2 Works to be done by the contractor.

In addition to the manufacturer, supply, installation, testing and commissioning of the lift including all auxiliary equipment, following works shall be deemed to be included within the scope of the work to be done by the contractor.

- All minor building work necessary for installation of equipment such as making of opening in wall/ floors, either of RCC or brick masonry etc., and restoring them to original condition and finish. The scope of minor building work includes all grouting of foundation concrete pads to be formed or made as base for supporting R.S. joists etc., grouting and anchoring of all boards clamps, supports, foundation bolts, installation in position of R.S. joists in the machine room, lift well or in the pit, such work shall exclude cutting of marble work and construction of partition wall wherever involved.
- Supply of necessary R.S. joists or angle iron support brackets etc., for installation of the lift, either in the machine room or at other places as may be necessary including their installation in position.
- 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 inter-connection from this switch / board and loop earthing from the earth bar to be provided in the machine room shall be done by the successful contractor.
- Responsibility to ensure safety of lift materials against pilferage and damage till the installation is handed over to the consignee.
- All scaffolding as may be necessary in the lift well during erection work and subsequently removed.
- Temporary barricades with caution boards at each landing to prevent accident during execution of work.
- Supply and installation of landing fascia plates made of steel, car apron plates, sill support angles with necessary clamps, foundation bolts support etc., as are necessary in connection with the installation of the lift.
- Steel ladder to be provided for access to lift pit wherever required under regulations.

1.10.3 Coordination with other agencies

The successful contractor shall coordinate lift installation work with other contractor / agencies engaged in construction of building if any and exchange

freely all technical information so as to make the execution of works contract smooth.

1.10.4 Completeness of tender

All fittings, equipments, units, assemblies and accessories, hardware, foundation bolts, terminal lugs for electrical connections, cable glands, junction box and items which are useful and necessary for efficient assembly in operation and installation shall be complete in all details whether such details have been mentioned in the specification or not.

1.10.5 Information to be supplied by contractor after award of work.

Within a period of 4 weeks from the date of receipt of letter of acceptance the contractor shall provided the department his programme bar chart for submission of preliminary drawing, manufacturing of equipment, installation, testing, commissioning and handling over. This should be correlated with the building completion programme. The contractor shall be required to submit in triplicate the following drawings and information within the above 4 weeks period for approval of the department before commencing the work.

- a). All general arrangement drawing:
- b). Details of foundations for equipments, load data location etc. of various assembled equipment as may be needed generally by other agencies for purpose of their work. The data will include breaking load on guides, reaction of buffers on lift pits, reaction on support point in machine room, lift well etc.
- c). Complete layout dimensions for every unit/ group of units with dimensions required for erection purposes.
- d). Any other drawing/ information not specifically mentioned above but deemed to be necessary for the job by the contractor.
- e). List of items to be carried out by the department in accordance with the tender accepted.

1.10.6 Commencement of work.

As soon as the preliminary drawings are approved, the contractor should commence work. The contractor shall also send seven sets of final drawings to the department who shall return one copy.

1.10.7 Completion Drawings

After the completion of the work and before issuance of the virtual completion certificate the Contractor shall provide four sets of completion drawings for the elevator installed alongwith ink tracings on cloth of all drawings. The various equipment and parts shall be suitably numbered for identification and ordering of spare parts.

1.10.8 Structural

The Owner shall provide all structural steel for the hoisting beams in the machine room only. All other structural steel shall be provided by the Contractor. These include Minor builders work, MS Steel Angles, fascia plates and MS beams for fixing machine in the machine room.

1.10.9 Scaffolding

Scaffolding, minor builders work including providing dash fasteners for fixing rails, brackets etc. shall be the responsibility of Contractor.

1.10.10 Steel

Contractor shall include in his scope of work all steel requirements for machine beams, bearing plates, buffer supports, channels as required. All steel items not including but required for the installation work shall be part of the tender document.

1.10.11 Completion Certificate

On completion of the installation a certificate shall be furnished by the Contractor countersigned by the licence Supervisor under whose direct supervision the installation was carried out. This certificate shall be in the prescribed form as required by the local supply authority. The Contractor shall be responsible for getting the installation inspected and approved by the local authorities concerned.

1.10.12 Statutory Approvals

The Contractor shall submit the required applications, drawings, etc to the Corporation, lift Inspector, Electrical Inspectors, Factory Inspectors and/or any other statutory authorities and obtain the approval, licences and/or sanctions. The final completion certificate shall be obtained by the Contractor from all statutory authorities to enable the Owners to commission the equipment or its utilisation. The Contractor shall be responsible for all fees etc to be paid to the various authorities in this respect. The work shall not be deemed to have been completed until the above approval certificates, etc have been obtained by the Contractor.

1.10.13 Spares

Contractors shall submit list of recommended spares for 2 years operation listing items with individual prices.

1.10.14 Documentation

The Contractor shall provide six sets of operation & maintenance manuals with instructions for routine and periodic maintenance.

1.10.15 Taxes & Duties

The Contractor shall include in his offer all taxes central/state/local and duties such as excise duty, custom duty, sales or purchase tax, octroi etc as may be

applicable. The Excise duty is currently applicable at the rate of 14.42 percent and is included in the quoted price of the Contractor. Any variation in this rate during the pendency of this Contract shall be to Owner's account.

1.10.16 Import Licence

Should any import licence be required for import of components, Contractor shall stipulate the same listing clearly the components to be imported, CIF value of licence required, country of origin etc.

1.10.17 Levelling

The Elevators shall be leveled by the suppliers and the required leveling accuracy maintained with 20mm thick flooring in the car to be provided by the Owners. The weight of flooring that can be accommodated in the car with guaranteed leveling as required shall be intimated in the tender.

Special Condition for Comprehensive & Maintenance

Provision of maintenance service by the contractor

The contractor shall perform the maintenance services as agreed to in the contract and in these general terms and conditions. In performing the said services, the contractor shall take all reasonable steps to maintain the equipment in proper operating condition. The contractor shall use trained and appropriately supervised personnel to perform the maintenance services shall be conducted during the normal working hours, shall send at regular intervals and as frequently as the company thinks necessary, having regards to the age, the nature and condition of the elevator (but not less than----- times per annum), a technician to systematically inspect, adjust and lubricant the parts of the elevator to the extent necessary to maintain the elevator in satisfactory working order. If not separately agreed, any work conducted outside the normal working hours is not included in the price and shall be invoiced separately. The contractor will supply all lubricants (made as per standards of the contractor). Necessary for this purpose.

Upon notification by the costumer of a breakdown or failure in the elevator, the contractor shall send as soon as may reasonably be possible the during the contractors normal working hours a technician to carry out necessary repairs in order to restore the elevator to satisfactory working condition.

The contractor will carry out according to its standards customary annual safety test to examine all safety devices the contractor will not be required to make any other tests. The contractor will neither be required to install new attachments' nor to make replacements with parts of a defective design to the elevator whether or not recommended or directed by Insurance companies or by governmental or non governmental authorities.

In performing the services, the contractor will replace (identical or equivalent item) or rectify at its option any components of the elevator rendered defective due to normal wear and tear and arising out of ordinary and reasonable use of the elevator except for such items and conditions which are excluded hereunder as particular and general exclusions. The parts which are replaced shall become the contractor's property.

The contractor reserves the right to keep the control cubicle locked.

The equipment under contract will remain out of commissioning while the maintenance process is being carried out. No one will be allowed to use the equipment during this period.

TECHINICAL SPECIFICATION FOR ELEVATORS

1. Electric Supply

The available system of electric supply is 415 volts between phases and 230 volts between neutral & phase and neutral – 3 phase 4 wire AC 50 Hz system suitable for operation at $\pm 10\%$ of rated supply voltage. In addition for illumination and control power required for elevators and equipment shall be indicated in the tender. Power shall be provided at one point n each Machine Room at a point to be indicated by the Contractor. All subsequent electrical systems shall be the responsibility of the Contractor.

1.2 Technical Particulars

The technical particulars of the Elevators are detailed in the enclosed schedule. The schedule indicates the capacity, travel, speed, number of openings, machine room and hoist way sizes etc. Should any further information required by the Contractor the same can be obtained from the offices of the Consultants.

1.3 Driving Mechanism

1.3.1 Elevator Machine

The Elevator machine shall be suitable for 415 volts 3 phase 50 Hz AC supply with a voltage variation of $\pm 10\%$ and shall be placed directly above the hoist way upon the machine room floor slab and steel beam furnished in place by the Contractor.

The machine shall have a high efficiency and low power consumption and shall be designed to withstand the peak currents in lift duties. Anti vibration rubber pads of adequate thickness shall be used below the machine to reduce the noise and vibrations.

The elevator machine shall be worm gearless reduction type and shall consist of a motor, electromechanical brake worm gear, sheave shaft and sheave all completely mounted on a common bed plate. The worm shall be provided with ball bearings to take the end thrust and roller bearings shall be provided for the sheave shaft to ensure alignment and long bearing life. The hard alloy cast iron or steel sheave shall have rope grooves to ensure proper traction and minimum rope wear. Adequate means of lubrication shall be provided for all bearings and worm gear.

Means for manual operation of the lift car shall be made by providing winding wheel suitably marked to indicate the direction of the movement to enable the lift car to be brought to the nearest landing. There shall be a warning display for switching off electrical supply before the manual operations.

1.3.2 Brake

The electromagnetic brake shall be spring applied and electrically released. It shall come into action after the lift has come to a complete halt to hold the car in position. The brake shall operate automatically with the safety devices and release the brake manually such release requiring the action of manual force to move the lift in short stops.

1.3.3 AC Motor

The AC self lubricating motor shall be suitable for elevator use with high starting torque and low starting current. Thermostats shall be embedded in the stator winding to indicate the temperature rise in the motor. The AC motor shall have class F insulation and suitable for 210 starts per hour with a maximum temperature rise of 50°C over the ambient.

1.4 Controls

The Elevators control shall be AC variable voltage variable frequency (A.C.V.V.V.F). The system shall control the starting, stopping direction of motion, running of the lift motor and application of the brake and/or safety devices in the event of power failure or any other emergency. It shall be so designed as to ensure a smooth and constant acceleration and retardation under all opening conditions.

The controller shall be wall/floor mounted, vertical totally enclosed cubicle type with hinged doors on the front and the rear to provide easy access to all components in the controller. The cubicle shall be well ventilated such that the temperature inside never exceeds the safe limits of the components at ambient room conditions in the machine room.

The controller shall operate within the supply voltage variation of plus 10% to minus 20% of the nominal voltage.

- a) Over current
- b) Under voltage
- c) Over voltage
- d) Single phasing
- e) Phase reversal

The controller shall be designed to cut off the power supply, apply the brake and bring the car to a rest in the event of any of the above failures occurring.

The Contractor must state clearly the forms of protection provide for each equipment.

If any devices of the electro mechanical type are used the same shall be equipped with arc chutes to prolong the life of contacts. Contractors must stipulate the type of devices used and the material of the contacts.

Contractors must support such offers with complete details of experience, number of lifts installed and operational in India, collaboration for equipment design and manufacture etc.

1.5 **Hoist Ropes**

Round standard steel wire ropes as per Indian standards shall be used for Lift suspension. The number and size of the hoist way ropes shall be so selected to ensure proper factor of safety minimum 10 and adequate traction for the elevator. The governor ropes shall also be wire ropes.

The Hoist way landing door shall be provided with an interlock such that:

- a) It shall not be possible for the car to be started or kept in motion until all the landing doors and the car door are locked in the closed position.
- b) It shall not be possible to open the landing door from the landing unless the Lift car is within the particular landing zone.
- c) The car doors & Hoist way landing doors open automatically as the car is stopping at a landing. The closing of the car and landing door must occur before the car is set in motion.

1.6 **Car Platform**

The car platform shall be of framed construction and designed on the basis of rated load.

1.7 **Car Enclosure**

The elevator car enclosure shall be as per parameters enclosed in the schedule of quantities. The ceiling shall have an arrangement for a cabin fan mounted on the roof of the car. Indirect fluorescent lighting shall be provided to evenly illuminate the car. The car enclosure shall pre-laminated particle board 12 mm thick to wall and ceiling in desired shade and grooves covered with teakwood beading of desired shape with floor 5mm thick steel chequered plate.

Car Design:

Car walls finish stainless steel, front and doors in stainless steel, mirror on rear car panel, Dimpled anti skid vinyl flooring

Car operating Panel:

Stylish brushed SS finish car operating panel, visual call confirmation, dot matrix display, car position indicator

Landing doors:

fully automatic landing doors in powder coated finish

1.8 **Car Door**

The car entrance for the elevators shall be protected by Steel collapsible gate duly painted and providing car and landing doors with horizontal biparting as per IS14665

1.9 **Hoist way Landing Doors**

For the hoist way doors at each landing, two mild steel painted panels centre opening horizontal sliding doors shall be provided to give a clear opening as indicated in the technical parameters. These shall be duly painted to the shade approved by the institute and suit to the site condition.

1.10 **Car and Hoist way Operations**

The car and hoist way doors shall be mechanically connected such that both move simultaneously for opening and closing. The hoist way landing door shall be provided with and interlock such that.

It shall not be possible for the car to be started or kept in motion until all the landing doors and the card door are locked in the closed position.

It shall not be possible to open the landing door from the landing unless the lift car is within the particular landing zone.

The car doors and hoist way landing doors open automatically as the car is stopping at a landing. The closing of the car and landing door must occur before the car is set in motion.

2. **Door Hangers and Tracks**

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

2.1 **Cabin Fan**

A noiseless cabin fan shall be include for all elevators.

2.2 **Emergency Light**

An emergency light unit using sealed maintenance free battery power pack and flourescent lamp to operate automatically in case of power failure shall be provided in each elevator car.

2.3 **Alarm Bell**

An emergency alarm bell including wiring shall be provided and connected to plainly marked push button in the car operating panel. The alarm shall be provided in the Ground floor lobby if required, The Owner may at his own cost extend the alarm bell to the security/control room.

The alarm unit shall be solid state siren type operated by 2 nos. 9 volts dry batteries to give a waxing and warning siren when the alarm button in the car is pressed momentarily.

2.4 **Operation Buttons**

The following operation buttons shall be provided

2.5 **In Each Lift Car**

Stainless steel return panels of suitable thickness shall be provided on each side of the door with the following flush mounted controls on one side:-

- a) Illuminated type push buttons corresponding to the floors served. Floor nos. on push buttons shall be numbered from 1 to onward.
- b) Door open button
- c) Emergency stop button
- d) Emergency call button connected to a bell for an emergency signal
- e) Two position key operated switch for 'with attendant' and 'without attendant' operation
- f) Ventilation fan ON/OFF switch
- g) Built in intercom of the pick and speak type
- h) UP/DOWN direction display

2.6 **At Landing**

Illuminated type 'UP' and 'DOWN' push buttons at each intermediate landings and single illuminated type push buttons at terminal floors. The push buttons shall illuminated when the same is pressed to indicate that the call has been registered. The button shall remain illuminated until the call is answered.

One set of calling buttons shall be provided for a bank of two elevators

2.7 **Indications**

2.7.1 **In Each Car**

The following indications shall be provided in the cars:

- a) Digital car position indicator provided above door to indicate the landing at which the car is stopped or passing.
- b) Illuminate "UP" and "DOWN" arrows on the position indicator above door to indicate direction of travel.

2.17.2 **At all landings**

Combined hall position indicator and hall lanterns is not part of the offer. This feature is generally a standard part of the equipment for Duplex Lifts i.e. two Lifts in the same control.

2.17.3 **Safety Devices**

The following safety devices shall be provided:

2.17.4 **Self Leveling**

The Lift shall be provided with a +/- 5mm self leveling accuracy feature of the two way automatic type. The self leveling device should automatically correct for under run, over run and rope stretch.

2.17.5 Terminal & Final Limits

Terminal limit switches shall be provided to slow down and stop the car automatically at the terminal landings and final limit switches shall be furnished to automatically cut off the power and apply the brake should the car travel beyond the terminal landings.

2.17.6 Terminal Buffers

Suitable spring buffers shall be used from existing Lift.

2.17.7 Interlocking

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

2.17.8 Car Safety and Governor

The car safety shall be provided to stop the car whenever excessive descending speed is attained. The safety will be operated by a centrifugal governor located at the top of the hoistway and connected to the governor through a continuous steel rope. Suitable means shall be supplied to cut off power from the motor and apply the break on application of the safety.

2.17.8 Fireman Switch

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

3. Gearless machine:

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

4. 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 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 colour advising the maintenance staff to switch off the mains supply before releasing the break and operating the wheel is to be prominently displayed.

5. Inter- communication system:

Recommends for provision of either an emergency 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 rechargeable batteries as source of supply shall be made in the lift cars.

The device used for emergency signals should incorporate a feature that gives immediate feed-back 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 passengers in the car.

6. Emergency Power Supply for lift car:

This shall include suitable secondary battery with trickle/boost charge arrangement and inverter 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.

7. Car landings:

All the lift car landing 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 stand by power supply is available, these lights shall be connected to standby circuits also.

8. Instructions:

Detailed 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. The Braille signage will be posted by the department outside lift lobby at all landings for the lift meant for barrier free requirements as per Appendix VII.

9. Levelling:

All lift (s) shall be incorporated with suitable floor leveling devices. 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.

10. Counter Weight Guards:

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

11. Guide shoes:

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

12. Type of shoes:

For passenger lifts and bed-cum-passenger lifts

- i. For speed upto 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.
- ii. For speeds more than 1.5 mps roller guide shoes shall be used for car and Counter weight.

13. 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 & shackle nut split pin.

14. Guards for lift ropes:

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

15. 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 from the rope manufacturers issued by competent authority.

16. Safety Equipments:

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

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

17. Governor:

The car safety shall be operated by speed governor located overhead and driven by governor rope suitable 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 phosphorbronze. These shall be in accordance

with IS 14665 (part 4/sec-4):2001. Governor for car safety gears shall be adjusted to actuate the safety gear at the following speeds: -

- i. For rated speeds upto 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.
 - ii. Minimum governor tripping speed shall be 115 per cent of the rated speed.
18. 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.
 19. The governor, rope and sheave shall be so located so as to minimize danger of accidental injury to the equipment.
 20. 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.
 21. 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 this specifications.
 22. Buffers –
Buffers shall be oil resistant rubber pad type for speeds upto 0.25 mps and spring/oil type for speeds upto 1.5 mps and only oil type for speeds higher than 1.5 mps.

Buffers shall be suitable for installation in the space available. Buffers 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 of gravity type.

The partial compression of spring return oil buffers when the car is in level with terminal 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 60cm from the nearest obstruction above it, no projection on the car shall strike any part of overhead structure.

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

23. 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.

24. Automatic- cum-attendant operation:

i. Single automatic Push Button with/ without attendant – The operating devices for this operation shall incorporate in the car control panel, car buttons corresponding to the various landings served and single landing button at each landing, all electrically connected to controller governing floor selection, direction of travel, acceleration, retardation etc.

This system shall be so arranged that when the car is not in use, on pressing a landing call button the car shall start automatically provided all the doors are closed. During the movement of the car and also when car tops at floor landing, other landing call buttons are in-operative for a predetermined time. The pressing of a car button shall automatically start the car and sent it to the desired landing. In all the cases, the starting of the car is contingent on the establishment of landing door and car inter-lock circuits. To indicate the availability, or ‘in use’ light shall be place in the landing call button panel. When light shall be ‘OFF’ the passenger shall be able to call the car. In case of manual operated door if the lift is standing at any landing with doors open (when not in use), the pressing of the landing call button shall ring a bell, fitted at the top of car to attract the attention of the people soliciting their help for closing the lift door if any one of the them happens to be near the lift incase of power operated doors, the landing and car doors shall be arranged to open automatically when the car is parked at landing after all the calls are served and the lift is parked at any landing. The doors can remain open or alternatively if desired, the car shall be arranged to close after a pre-determined time unless closing is prevented or interpreted by the car doors re-opening device or the door open button.

The lift shall be suitable for dual operation with or without attendant by the provision of key operated transfer switch indicating ‘attendant’ and ‘automatic’ positions. During ‘attendant’ operations the landing call shall be disconnected from the control system and shall be connected to an annunciator in the lift car. The attendant shall then operate the car to answer the registered calls. This operation is recommended for single speed control lift for low rising building having a single lift installation.

25. Simplex Selective-Collective operation with/ without attendant:

Automatic operation by means of one button in the car for each landing level served and by up and down buttons at the landings, wherein all stops registered by the momentary actuation of the car made defined under non-selective Automatic Operation but where in the stops registered by the momentary actuation of the landing buttons are made in the order in which the landing 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 traveling in the up direction and all ‘down’ landing calls are answered when the car is traveling in the down direction, except in the case of the uppermost or lowermost calls which are answered as soon as they are reached in-respective if the direction of travel of the car.

26. Duplex Collective Selective Operation with/ without attendant:

The control system for this operation shall be similar to the one described under simplex selective-collective operation except that in this system there shall be tow lift car adjacent wells. It shall be arranged to co-ordinate both cars for efficient service and prevent them from answering the same calls by the provision of only one set of landing call button fixtures. It shall automatically assign each call to the car that will be in the best position to answer promptly. The system shall be so arranged that when the cars are idle, normally one car will be parked

at the lower main landing with its doors closed or open and the other car shall be free car parked with the doors closed or open to the landing where it answered its last call, and shall be the one to attend to the nearest call.

Each car shall always respond to calls registered by its own car call buttons. When either car is parked out of service for any reasons the other car shall function as single car (simplex) selective collective. Besides the control system shall also arranged for independent service from inside the car.

A by-pass button (non-stop button) shall also be provided inside the car to enable the attendant to by-pass any landing if the car is full or if otherwise so required.

The two lifts shall be arranged with or without attendant operation and shall function as described using single car selective-collective operation. When the transfer switch is in the attendant position the operation of the cars shall be identical with that described for automatic operations except that:

- i. Closing of doors and starting of cars shall be initiated by the car buttons only.
- ii. Buzzers and directional lights in the car are operative, and
- iii. Landing by-pass shall be effective.

The pressing of an up or down landing call shall illuminate appropriate direction indicator in the car panel, which is to answer that call and if the doors are open shall also sound buzzers as a signal to the attendant. If both cars are parked at the lower landing the above signals shall be given to the car which has been at the floor for longest time.

27. Automatic selection of traffic programme:

The group supervisory control continuously examines traffic conditions in the building and automatically puts into operation the programme which can best cope with the demand at any particular time. This is fully automatic and requires no supervision or attendant. To suit the traffic demand in the building, suitable traffic programmes can be selected for inclusion in this control.

28. Controlling Equipment:

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

29. 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.

30. 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.

31. Auxiliary Switches:

i. 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.

ii. 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 button. It shall be so mounted to prevent any inadvertent operation.

iii. 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 direct without stopping enroute.

iv. 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.

v. Safety line indicators:

If specified visual tell tale 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.

32. Control Wiring:

i. 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 1956 and CPWD Specifications 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 IE. 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 machine 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 and other 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.

33. 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 counterweight, shaft walls or other equipment.

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

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

5 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.

34. Earthing:

Metal frames 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.

35. Lift Rope Compensation:

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

36. Automatic Rescue Devices (ARD):

The automatic rescue devices (ARD) meant for the purpose of bringing the lift car to the nearest landing doors. Are being used selectively and is generally restricted to commercial buildings having heavy traffic. However, frequent power failures being the common phenomenon, the provision of ARD shall be made in all the lifts in public buildings. The ARD shall have the following specifications:

- i. ARD should move the elevator to the nearest landing in case of power failure during normal operation of elevator.
- ii. 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 elevator to the nearest floor at a slower speed than the normal run. While proceeding to the nearest floor the elevator will detect the zone and stop. After the operation is completed by the ARD the elevator is automatically switched over to normal operation as soon as normal power supply resumes.
- iii. In case the normal supply resumes during ARD in operation the elevator will continue to run in ARD mode until it reaches the nearest landing and the doors are fully opened. If normal power supply resumes when the elevator is at the landing. It will automatically be switched to normal power operation.
- iv. All the lift safeties shall remain active during the ARD mode of operation.
- v. The battery capacity should be adequate so as to operate the ARD at least seven times a day provided the duration between usages are at least 30 minutes.

LIST OF APPROVED MAKES

| SL.NO. | DETAILS OF EQUIPMENT AND MATERIALS | MANUFACTURER'S NAME |
|--------|------------------------------------|---|
| 1. | ELEVATORS | OTIS / KONE / SCHINDLER/MITSUBISHI/JOHNSON LIFTS PVT.LTD. |