

TENDER NO: 11/2023 Dated 03.07.2023

**INVITATION OF TENDERS for
SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF PASSENGER
LIFTS OF INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY
(IIIT-DELHI) CAMPUS, OKHLA PHASE-III, NEW DELHI**



INDRAPRASTHA INSTITUTE *of*
INFORMATION TECHNOLOGY **DELHI**



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Indraprastha Institute of Information Technology, New Delhi (IIIT-Delhi)

DATED: 03.07.2023

TENDER NOTICE

1. Last Date & Time of issue of tender documents 03.07.2023 ...upto 5.00 p.m.
2. Last Date & Time of receipt of tender 24.07.2023 ...upto 3.00 p.m.

CE, IIIT-Delhi, Okhla, New Delhi-110020 on behalf of Registrar, IIIT-Delhi invites sealed item rate tenders from eligible contractors for similar works.

Name of work: **Supply, Installation, Testing, Commissioning of Passenger Lifts of Indraprastha Institute of Information Technology (IIIT-Delhi) Campus, Okhla Phase-III, New Delhi.**

Estimated cost of work put to tender : **Rs. 2.5 Crores**

Time of completion : **Six Months**

Earnest Money Deposit: **Rs. 5,00,000/-** (Rupees Five Lac only) is to be submitted with tender document as earnest money. The above payment shall be made in the shape of deposit at pay order/demand draft of a scheduled bank issued in favour of IIIT Delhi Collection Account payable at New Delhi.

Works to be completed in coordination with the other agencies/ contractors. No extra for non-availability of fronts or coordination with other agencies shall be payable on account of the same

Tender documents can be downloaded from IIITD website (www.iiitd.ac.in) and submitted with nonrefundable DD of Rs. 1180/- in favour of IIIT Delhi Collection as cost of tender.

- 1) The tenders shall be placed in sealed envelopes with a name of work and due date written on the envelope and addressed to the CE, IIITD. Complete tender documents shall be submitted by the approved contractors in **two envelopes**. **1st envelope** shall contain the Power of Attorney / Board Resolution of the authorized signatory of the tenderer, company profile along with performance certificates from clients the earnest money in the shape of Demand Draft / Pay Order of a scheduled Bank requisite shape as per condition & eligibility criteria and cost of tender as stated above in case of the downloaded version.
- 2) **Bidder should be OEM of Lifts to enable synchronization control with existing Kone make lifts at various buildings/locations. The bidder should have a minimum 7 years' experience in the business of supply installation and commissioning of the Lifts to IIIT-D/Govt Depts./PSU/Reputed Pvt sector /MNCs. are to submit the experience certificates for the works and registration certificates with Govt. Depts. if any The said certificates along with the EMD be enclosed in Envelope-1.**

- 3) Experience of having successfully completed similar works during last seven years ending on the 30th June 2023. The similar works are defined as works of **Lift works**. The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum calculated from date of completion to last date of receipt of tenders.

Three similar works not less than 40% of est.cost	Rs 100 lacs each Or
Two similar works not less than 60% of est cost	Rs 150 lacs each Or
One similar work not less than 80% of est cost	Rs 200 lacs each

- 4) One completed works of any nature either part of 3) or separate one costing not less than 40% of estimated cost ie Rs 100 lacs with some Central/State/Autonomous/Central PSU/State PSU/local authority formed under any Act published in Central/State Gazette.
- 5) Memorandum of Association & Article of Association/Partnership deeds, as applicable.
- 6) The applications not supported with requisite experience certificates, GST registration certificate, TIN no. and ITCC in Envelope-1 shall not be entertained.
- 7) Solvency certificate for Rs. 100 lacs from any nationalized /scheduled bank. The applicant shall submit the solvency certificate, not older than six months prior to 30th June 2023, issued by any scheduled bank, in original.
- 8) Average Annual Turnover over SITC of Elevators works should be at least Rs 250 lacs during immediate last 3 consecutive financial years ending 31st Mar 2023.
- 9) Performance certificates must be submitted by the vendors for the works.
- 10) Company should not have been barred / blacklisted for taking up similar work in any organization- A certification to this effect on the letter head of the bidder.
- 11) Bidder shall furnish list of the supervisory persons and other technical persons he wishes to deploy in this job along with their experience details.
- 12) Letter of Authority for signing and negotiation of bid.
- 13) The 2nd envelope shall contain the financial bids including Priced Schedule of Quantities, Tender Notice, Conditions of Tender, Proforma of Schedules, Special Conditions, Additional Conditions, Specifications, Drawings, etc., all duly signed by the duly authorized signatory of the tenderers.
- 14) Any additional relevant information to be furnished by the bidder.

All these envelopes are to be put in a single envelope duly super-scribed the name of work, and addressed to CE, (IIITD) and with their address. In case the tenderer does not

fulfill the laid down eligibility criteria or fails to deposit the earnest money in prescribed form, financial bid shall not be opened.

Tenderers shall seal the tender affix their initials and put stamp on each and every page of tender document before submission. The tender of the contractor, who submits incomplete tender document or submits more than one tender for one work, shall not be considered at all.

The tender of the contractor, who submits incomplete tender document or submits more than one tender for one work, shall not be considered at all and summarily rejected.

Tenders will be received by the CE up to 3.00 P.M on **24.07.2023** and will be opened by him or his authorized representative in the office of Registrar, IIITD on the same day at 3.30 P.M.

Financial bids in respect of contractors who do not fulfill above criterion shall not be opened.

3. No Xerox / certified copies of tenders shall be accepted, if submitted these tenders shall be rejected.
4. The information contained in this Tender Notice provided to the tenderers on behalf of IIIT-Delhi is being provided to all interested tenderers on the terms and conditions set out in this Tender Notice and other related documents.

First the Technical Bids will be opened and screened. The bids shall be examined whether the EMD is in order and the bidder meets the minimum eligibility criteria specified above. Those bidders whose EMD is in order, meets the minimum eligibility criteria, has submitted all the required documents and meet the technical requirements shall be considered for opening of financial bid. Conditional tenders would not be accepted. Financial bids in respect of contractors who do not fulfill above criterion shall not be opened.

IIIT-Delhi may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information / content in this Tender Notice and / or any related document(s).

CE-IIIT-Delhi

CONDITIONS OF TENDER

1. The time allowed for carrying out the work will be **6 months** from the date of start as defined in schedule “F” or from date of handing over the site whichever is later in accordance with phasing if any indicated in the tender documents.
2. The site for the work is available.
3. During execution of works, because of some unforeseen circumstances to enable him to complete the work as per terms of the contract, shall not relieve the contractor from any liability or obligations under the contract and he shall be responsible for the acts, defaults and neglects of any sub-contractor, his agents or workmen as fully as if they were the acts, defaults or neglects of the contractor, his agents or workmen.
4. The Contractor shall be required to deposit an amount equal to 3% of the tendered value of the work as performance guarantee in the form of an irrevocable bank guarantee bond of any scheduled bank or State Bank of India in accordance with the form prescribed or in the form of fixed deposit receipt etc. within 7 days of the issue of letter of acceptance. The performance guarantee shall have the validity up to 31.01.2024.
5. Tenderers are advised to inspect and examine the site and its surrounding and satisfy themselves before submitting their tenders as to the nature of site , 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 tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed. The tenderer shall be responsible for arranging and maintaining at own cost all materials, tools and 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 tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specification of the work to be done, and of conditions and other factors having a bearing on the execution of the work.
6. The Accepting Authority, Director (IIIT-Delhi), does not bind himself to accept the lowest or any other tender and reserves to itself the authority to reject any or all of the tenders received without the assignment of any reason. All tenders in which any of the prescribed conditions is not fulfilled or for any variance of conditions including that of conditional rebate is put forth by the tenderer shall be summarily rejected.
7. Canvassing, whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.
8. The Accepting Authority, Director (IIIT-Delhi), reserves to himself the right of accepting the whole or any part of the tender without assigning any reasons thereof and the tenderer shall be bound to perform the same at the rates quoted.

9. Tender for the work shall remain open for acceptance for a period of 120 days from the date of opening of the tenders. If any tenderer withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier or makes any modification in the terms and condition of the tender which are not acceptable to the IIIT-Delhi, then IIIT-Delhi shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money absolutely as aforesaid besides black listing of the tenderer. Further the tenderer shall not be allowed to participate in re-tendering process of work and for any other tender of IIIT-Delhi forever.
10. The notice inviting tender shall form a part of the contract document. The successful tenderer/ contractor on acceptance of his tender by the accepting authority shall within fifteen days from stipulated date of start of work sign the contract consisting of:
 - a) The notice inviting tender, all the documents including additional conditions, special conditions, specifications and drawings, if any, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.
 - b) Standard CPWD Form 8 as amended up to the date of opening of tender.
11. Agreement shall be drawn with the successful tenderer on prescribed Form No. CPWD 8, which is available as a Govt. of India Publication and prescribed proforma. Tenderer shall quote his rates as per various terms and conditions of the said Form and given in this document which will form part of the contract agreement to be executed.
12. Contract is liable to be terminated by the IIIT-Delhi without payment of any compensation, if subsequent to the acceptance of tender, the contractor is blacklisted by IIIT-Delhi and / or any other department (State or Central), Govt. or their Undertakings, or enters into any arrangement / partnership with or employs any such blacklisted contractor.
13. Cost of Bidding
 - 13.1 The tenderer shall bear all costs associated with the preparation and submission of his tender, and the IIIT-Delhi will in no case be responsible and liable for those costs.
14. Clarification of Bidding Documents
 - 14.1 A tenderer, requiring any clarification of the tender documents may notify the CE, IIIT-Delhi in writing / mail at the address not later than 14 days before the Date of Submission of Tenders. The queries should reach at least 3 days in the advance of pre bid meeting. The queries will be addressed in the pre bid meeting to be held on **13th July 2023 at 12.15 AM**
E-mail: admin-project@iiitd.ac.in
 - 14.2 **Pre-bid Meeting-** The tenderer and / or their authorized representatives are invited to attend A pre-bid conference would be held on the **13th July 2023 at 12.15 AM** at the Boardroom of the Old Academic Block. IIIT-Delhi, Campus Okhla Phase-III, New Delhi-110020 to clarify issues and answer questions on any matter that may be raised.
15. Currencies of Bid and Payment
 - 15.1 The unit rates and the prices shall be quoted by the Tenderer entirely in Indian Rupees. All payments will be made in Indian Currency (Indian Rupees.) only.
16. PROTECTION OF ENVIRONMENT AND OTHER LAWS:

The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

During continuance of the contract, the contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and other central / state / local Acts / Laws / rules made there under, regulations, notifications and bye-laws of central / state / local authorities or any other law, bye-laws, regulations that may be passed or notification or any other order(s) / directive(s) having the force of law that may be issued in this respect in future by the Central / State / Local government(s) / judicial bodies / authority(ies).

17. Indemnity

The Tenderer shall indemnify and hold IIIT-Delhi harmless from:

- (a) any losses on account of injury to or death of persons (including the employees of the Tenderer and / or IIIT-Delhi and/or Third Party) damage to or loss of property (including the property of the Tenderer and / or IIIT-Delhi and/or Third Party) arising directly or indirectly out of the acts or omissions of the Tenderer, its subsidiaries, affiliates, subcontractors and suppliers or any of their respective officers, directors, employees, servants or agents in the performance of Tenderer's obligations, including any expenses and attorney's fees incurred by IIIT-Delhi for legal action to enforce the indemnification obligations of the Tenderer, except injury to or death of persons or damage to or loss of property caused solely by the proven negligence or wilful misconduct of IIITD provided that tenderer shall be responsible for any claim arising in respect of or in consequence of any accident or injury to any of Tenderer's employees;
- (b) any losses arising by reason of claims by Statutory Authority or others for any actual or asserted failure by any of Tenderer, its subsidiaries, affiliates, subcontractors and suppliers of any of their respective officers, directors, employees, servants or agents to comply with any Applicable Law or with any rules and regulations, including failure by any of Tenderer, its subsidiaries, affiliates, subcontractors and suppliers or any of their respective officers, directors, employees, servants or agents to pay taxes, duties or fees properly applicable to it or them; and
- (c) any losses arising by reason of claims by any subcontractor, supplier or other person claiming by, through, under or against Tenderer for the actual or asserted failure by Tenderer to make payment for any labour, services, equipment, materials, tools, supplies or taxes out of funds provided to Tenderer by or on behalf of IIIT-Delhi for such payment.

For and on behalf of the
REGISTRAR
Indraprastha Institute of Information Technology
New Delhi

TENDER

I / We have read, examined and understood the Tender Notice, Conditions of Tender, Proforma of Schedules, Special Conditions, Additional Conditions, Specifications, Drawings & Designs, General Conditions of Contract, 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 IIIT-Delhi 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 Clause II of the General Conditions of contract for Central PWD Works 2020 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 one hundred twenty (120) days from the due date of its opening and not to make any modifications in its terms and condition.

A sum of Rs..... (Rupees) is hereby forwarded in form of demand draft of a scheduled bank as earnest money. If I / we, fail to furnish the prescribed performance guarantee within prescribed period, I / we agree that the said Director, IIIT-Delhi, 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 to commence work as specified, I / we agree that Director, IIIT-Delhi, and / 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 relevant clauses 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 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 there from 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:

Signatures of Contractor

Address:

Postal Address:

Occupation:

LETTER OF SUBMISSION

The CE

Indraprastha Institute of Information Technology, Delhi
Okhla Phase-III (Behind Govind Puri Metro Station) New Delhi-110020.

I/We, the undersigned, have read and examined in detail, the specifications and all bidding documents and hereby declare that:

1. All the rates quoted in our proposal are in accordance with the terms and conditions as specified in the bid document. All the prices and other terms and conditions of this proposal are valid for a period of 60 calendar days from the date of opening of bid.
2. We do hereby confirm that our bid prices include all taxes/levies/GST indicated separately.
3. We hereby declare that if any tax law is altered, we shall pay the same.
4. The quoted rates are inclusive of ESI, PF and Green Tax no extra on such heads would be payable on such account.

Earnest Money

We have enclosed EMD in the form of demand draft no... .., dated.....favoring IIIT, Delhi payable at New Delhi issued / drawn on..... Bank for **Rs.5,00,000/-** (Rupees Five Lac only), as desired. Deviations

We declare that all the works shall be performed strictly in accordance with the technical specifications and other tender conditions with no deviations.

Qualifying Data

We confirm that all information/data have been submitted as required in tender document. We hereby declare that our proposal is made in good faith, without collusion for fraud and the information contained in the proposal is true and correct to the best of our knowledge and belief. I/We agree that in case any information is found to be incorrect the tender is liable to be rejected at any point of tendering process.

Bid submitted by us is properly sealed and prepared so as to prevent any subsequent alteration and replacement.

We understand that you are not bound to accept the lowest or any bid you may receive.

Thanking you,

Yours faithfully,

(Signature and seal of Tenderer with name, designation and contact no.)

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of REGISTRAR, IIIT-Delhi for a sum of

Rs. ----- (Rupees -----)

The letters and / or documents referred to below shall inter-alia form part of this contract:-‘

- NIT / CPWD Form 8
- Other clarifications / corrections / documents provided
- Additional conditions.
- Special conditions for contract for civil, electrical and plumbing works
- Schedule of Quantities
- Drawings
- General conditions of contract for CPWD Works-2020 with up to date correction slip issued by o/o DG CPWD as on date of receipt of tender.
- Decisions /Clarifications in Pre-bid conference.
- Letters written / exchanged by / with contractor (whose tender is accepted) before award of work including negotiation confirmation letter.
- CPWD specification and technical specifications for civil, electrical, plumbing works, including reference to any standards etc. such as IS codes / guidelines / specifications.
- Clarifications sought / provided by the contractor.
- Performance Guarantee/ Earnest money / Security deposit.
- Detailed agreement to be executed including inter-alia all of the above.

(Engineer-in-Charge)
For & On behalf of
REGISTRAR
IIIT, Delhi

Signature

Dated.....

Designation.....

PROFORMA OF SCHEDULES

SCHEDULE 'A'

Schedule of quantities (Enclosed) : Enclosed

SCHEDULE 'B'

Schedule of materials to be issued to the contractor : NIL

SCHEDULE 'C'

Tools and plants to be hired to the contractor : NIL

SCHEDULE 'D'

Extra schedule for specific requirements/documents for the work, if any : NIL

SCHEDULE 'E'

Schedule of component of cement, steel, other materials, labour etc. for price escalation. : NIL

CLAUSE 10 CC

Component of Cement - expressed as percent of total value of work : N / A

Component of Steel-expressed as percent of total value of work :N / A

Component of civil (except cement & steel) / electrical construction materials-expressed as percent of total value of work : N / A

Component of labour-expressed as percentage of total value of work : N / A

Component of P.O.L. - expressed as percentage of total value of work : N / A

SCHEDULE 'F'

Reference to General Conditions of contract for Central P.W.D. Works 2020 with

- I. Correction slips/ amendments / changes in clauses in the General Condition of the contract for CPWD Works 2020 issued by DG (W) CPWD upto the date of receipt of tender.
 1. Additional Conditions.
 2. Special Conditions.
 3. Guarantee Bonds.
 4. List of makes

(A) Name of work: **Supply, Installation, Testing, Commissioning of Passenger Lifts of Indraprastha Institute of Information Technology (IIIT-Delhi) Campus, Okhla Phase-III, New Delhi-I I 0020**

- Estimated cost of work : Rs. 2.50 Crores (Rupees two Crores fifty lac only)
- (i) Earnest money : Rs. 5.0 Lacs (Rupees Five Lacs only)
- (ii) Performance Guarantee : 3% of the Tendered value. -The Contractor shall be required to deposit / furnish an amount equal to 3% of the tendered value of the work as Performance Guarantee in the form of an irrevocable Bank Guarantee bond of any Scheduled Bank or SBI in accordance with the form prescribed, fixed deposit receipt of Scheduled Bank in the prescribed form with in period specified in schedule 'F' .
- (iii) Security Deposit : 2.5% of the Tendered value -2.5% of the gross amount of the running bill shall be deducted from each running bill of the contractor till such time, that the total money so deducted along with the money already previously deposited as earnest money with IIITD, amounts to 2.5% of the total tender value of the work. Bank Guarantee is not to be accepted as security deposit.
- (iv) Defect Liability period : 12 months after date of record of completion certificate accepted by the Competent Authority.
- (vi) Liquidated damages : @1.5% per month of the delay to be computed on day basis limited to maximum of 10% of the tendered value of the work for reasons attributable to the contractor

General Rules & Direction:

- (i) Officer inviting tender : Registrar (IIITD)

Definitions:

- (i) Engineer-in-Charge : CE, IIIT-Delhi
- (ii) Accepting Authority : Director, IIIT-Delhi
- (iii) Percentage on cost of materials and labour to cover all overheads and profits : 15%
- (iv) Standard Schedule of Rates :
- (vi) Department : IIIT-Delhi
- (vii) Standard CPWD Contract Form : CPWD Form 8 - 2020 with correction slips issued as on date of receipt of tender.

Clause 1

- (i) Time allowed for submission of Performance Guarantee From the date of issue of letter of acceptance : 8 days
- (ii) Maximum allowable extension beyond the period (Provided in (I) above) : 7 days

Clause 2

Authority for fixing compensation under clause2 : Director, IIT-Delhi

Clause 2A

Whether clause 2A shall applicable : Yes

Clause 5

Number of days from the date of issue of letter of acceptance for reckoning date of start : 7 days

Time allowed for execution of work : 6 months

Clause 6, 6A

Clause applicable - (6 or 6A) : Clause 6A

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 : As per schedule of payments. TDS, WCT and Labour Cess etc as applicable rates shall be recovered.

Clause 10A

List of testing equipment to be provided by the contractor at site lab : As per CPWD Works Manual

Clause 10 B (i), 10 B (ii) & 10 B (iii)

Whether Clauses 10B (i) shall be applicable : Yes,

Whether Clauses 10B (ii) shall be applicable : Yes, Interest will be charged on mobilization advance bearing simple interest @10% per annum from the date of payment to the date of recovery on the outstanding amount of the advance.

Whether Clauses 10B (iii) shall be applicable : No

Whether Clauses 10B (iv) shall be applicable : Yes

Whether Clauses 10C shall be applicable : Yes, after 30 months from Date of acceptance of tender.

Clause 10CA

Escalation : Not applicable .

Clause 10CC

Escalation : Not applicable .

Authority to decide

(i) Extension of time : Director IIIT, Delhi

(ii) Re Scheduling of milestone : Director IIIT, Delhi

Clause 11

Specification to be followed for execution of work : CPWD Specification for Electrical works – Part-III-Lift & Escalators 2003 with correction slips issued upto the date of receipt of tender and technical specification as attached.

Clause 12, 12.2, 12.3

Deviation limit beyond which clauses 12.2 & 12.3 shall apply for building work : Not applicable

Clause 16

Competent Authority for deciding reduced rates : Director, IIIT -Delhi

Clause 17

Contractor liable for Damages, defects during maintenance period : Yes, Applicable

Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site : As per CPWD Norms

Clause 36(i)

Requirement of Technical Representative(s) : As per CPWD Norms

SCHEDULE OF PAYMENTS:

1. Mobilization Advance against Bank guarantee – 10%
2. After prior approval of installation from concern authority, inspection & delivery of material at site – 70% (Including mobilization. Recovery shall be done at this stage)
3. After installation of lift – 15%
4. After testing & commissioning – 10 %
5. After submission of completion certificate from Lift Inspector- 5%

General Conditions

1. In the event of the tender being submitted by a firm, it must be signed by a person duly authorized through a power of attorney issued by all the partners and a certified copy of the power of attorney should be enclosed with the forwarding letter or separately by each member thereof, or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power of attorney authorizing him to do so and such power of attorney shall be produced with the tender and it must disclose that the firm is registered under the Indian Partnership Act, 1932, together with registration particulars. Any / every power of attorney document shall be duly registered or notarized with the notary serial number written thereon and endorsement of the notary about signature / entry of the same in the register of the notary.

In the event of the tender being submitted by a Company, it must be signed by a person duly authorized by board resolution duly passed in the meeting of the Board of Directors of the Company and a certified copy of the board resolution should be enclosed with the forwarding letter and it must disclose that the company is registered under the Companies Act, 1956 along with the CIN of the company.

Each and every signature given shall be separately witnessed. A contractor or a contractor who himself / themselves has / have tendered or who may tender for the work shall not witness the tender of another person for the same work. Failure to observe this condition would render tenders of the contractors tendering as well as witnessing the tenders liable for summary rejection.

2. The conditions for item rate tender only will be applicable as given in general conditions of contract for Central PWD Works 2020. As mentioned therein also, in the event no rate has been quoted for any items leaving space both in figure(s), word(s) and amount blank, it will be presumed that the contractor has included the cost of this / these item(s) in other item(s) and rate for such item(s) will be considered as zero and work will be required to be executed accordingly. Rates quoted as percentage below / above in the tender will be summarily rejected.
3. The quantities in the bills of quantities are only estimated quantities and are liable to change. The contract is **not a lump sum contract**; payments will be made on the quantities of work actually done and measured at the accepted rates.
4. No additions / alterations are to be made by the tenderer in the drawings, specifications, conditions or quantities and any such additions or alterations made by the tenderer will make the tender, invalid and will be summarily rejected. Conditional tenders will also be rejected.
5. The tenderer shall also bear all expenses in connection with the preparation and submission of his tender and attendance for subsequent negotiations / clarifications.
 - (i) Omission, negligence or failure on the part of the tenderer to obtain requisite and reliable information on any matter affecting his tender, the contract and the construction, completion, maintenance, (dismantling and disposal) of the work shall not relieve the tenderer from any liability in respect of the contract.
 - (ii) The tenderer whose tender is accepted shall not be entitled to make any claim for increase in the rates quoted and accepted except as per specific provision in the contract.
6. The Contractor, upon award of work, shall furnish the following details for the approval of the

Engineer in charge:

- 6.1. The names of manufacturers of specialized items.
 - 6.2. The makes and types of fittings, materials, subject to the makes and type stipulated in the specifications, which he proposes to use in the work.
 - 6.3. The details of licenses granted to him and /or to professional qualified and / or licensed technical personnel on his staff who will be engaged on the work (and submit, if called for, the licenses for inspection by the Officer in charge in consultation with Engineer in charge). Only licensed electrical agencies will be allowed to execute the works.
 - 6.4. Only approved agencies / skilled workers shall be deployed to carry out requisite specialized items of work. The decision of Engineer in Charge in this regard shall be final and binding to all the parties concerned.
 - 6.5. All electrical, plumbing, firefighting and allied works are to be coordinated and coherently carried out by the contractor to achieve the timely completion of works.
7. The tenderer must obtain for himself on his own responsibility and at his own expense all the information necessary, including risks, contingencies and other circumstances to enable him to make a proper tender and to enter into a contract with the IIIT-Delhi. He must examine the drawings, specifications, conditions and so on and must inspect the site of work, examine the nature of the ground and the subsoil (so far as is practicable) and acquaint himself with local condition, means of access to the work, storage facilities or areas for staff colony, the nature of the work, in fact all matters pertaining thereto before he submits his tender.
 8. The rates quoted in the bills of quantities unless specified otherwise shall be for all heights, depths, shapes, sizes etc. for finished complete work in-situ / item including by working overtime / holidays / gazetted holidays. 24x7 and for all taxes, octroi, excise, VAT works in addition to service tax and para 6, page 10 of General Condition of Contract.
 - 8.1. The rates shall be firm and not be subject to any variations in exchange rates, in taxes, duties etc. in railway freight and the like including labour rates etc. The rates are not subject to change/increase/escalation for a period upto 18 months from the date of acceptance.
 9. The IIITD further reserves the right to delete or reduce at any time, any section of the bills of quantities with out assigning any reasons whatsoever there for and no claim will be entertained in this regard in addition to para 8.3, page 11 of General Condition of Contract.
 10. The tenderer whose tender is accepted is bound to execute formal agreement with the IIIT-Delhi within one week of the date of intimation of award of work in accordance with the acceptance of the tender in the approved proforma, but his liability under the contract shall commence from the date of written order to commence work whether the formal agreement is drawn or not. The Contractor shall bear all expenses in connection with the execution of the said agreement including fees for stamping and registration of documents as required.
 11. It will be the sole responsibility of the contractor to procure all equipments / materials and other materials required for the work:-

13. The Security Deposit will bear no interest what so ever until the date of release.
14.
 - (a) The contractor, upon award of work, shall submit a memorandum of procedure giving the outline of his general scheme, programme and time table, in the form of a chart. The programme shall be scrutinized and approved (with modifications as necessary), which shall become the approved programme for execution. The approved programme shall be the basis for assessment of comparative progress under the relevant conditions of contract.
 - (b) Over and above, the contractor has to supply monthly programme chalked out showing important milestones to be achieved and the progress actually achieved compared with, the target of the same in the programme and shortfall, if any planned for being made up in the programme for next month.
15.
 - (a) The work in general shall conform to the CPWD Specifications with up to date correction slips issued as on date of receipt the tenders and the "Specifications for works".
 - (b) In case items not covered by the general specifications referred above, reference shall be made to the appropriate I.S. Code.
 - (c) Should there be any difference in the particular specifications of individual item of work and the description of item as given in the Schedule of quantity, the latter shall prevail, which will be as per the relevant drawing.
 - (d) In case of any work for which there is no specification in I.S. specifications or in the specifications forming part of tender documents or in case there is any variation, such work shall be carried out in all respects in accordance with the instructions to be issued by the Engineer in charge.
16. The Contractor, upon the award of contract, shall furnish all the particulars required and make the necessary applications, if any, to the local Municipal Authorities, Electrical Boards for obtaining water supply and underground sewage connections, electricity connections, transformer and obtain the same at his cost for temporary connection. .But for permanent connection, IIT-Delhi will reimburse the amount after getting proper documents. All electricity bills for the works shall be borne by the Contractor.
17. The Contractor is required to comply with all Acts of Government relating to labour, safety, environment and other Rules and Regulations made there under from time to time and to submit at the proper times all particulars and statements required to be furnished to the appropriate Authorities.
18. **Contractor to provide everything necessary:** The Contractor shall provide everything necessary for the proper execution of the Work according to the intent and meaning of the Drawings, Schedule of Quantities and Specifications taken together whether the same may or may not be particularly shown or described therein provided that the same can reasonably be inferred there from, and if the Contractor finds any discrepancy in the Drawings or between the Drawings, Schedule of Quantities and Specification he shall immediately and in writing refer the same to the Architect who shall decide which is to be followed. He shall provide for works to be executed round the clock to achieve the milestones and 24x7 and no extra shall be payable for the same.

19. **Materials and Workmanship to conform to Descriptions:** All materials and workmanship shall so far as procurable be of the respective kinds described in the Schedule of Quantities and / or Specification and in accordance with the Architect's Instructions, The Contractor shall at his own cost arrange for and / or carry out any test of any materials which the Architect may require.
20. **Removal of improper work:** The Architect / PMC / IITD shall, during the progress of the work, have the power to order the removal, from the site or works within such reasonable time or times as may be specified in the order, of any materials which in the opinion of the Architect are not in accordance with the Specification or the Instructions of the Architect, the substitution of proper materials, and the removal and proper re-execution of any works executed with materials or workmanship not in accordance with the drawings, specifications or instructions and the contractor shall forthwith carry out such order at his own cost. In case of default on the part of the contractor to carry out such order, IIT-Delhi shall have the power to employ and pay other persons to carry out the same, and all expenses consumed thereon or incidental thereto as certified by the Architect shall be borne by the Contractor, or may be deducted by IIT-Delhi from any moneys due or that may become due to the contractor.
21. The contractor shall make all necessary arrangements for water supply, electricity and any other incidentals as required for the construction, at his own cost. No extra charges shall be payable for water from outside fit for construction purposes.

22. Procedure for Settlement of Disputes

22.1 Engineer's Decision

If a dispute of any kind whatsoever arises between IIT-Delhi and the contractor in connection with, or arising out of , the contract or the execution of the works, whether during the execution of the works or after their completion and whether before or after any repudiation or other termination of the contract, including any dispute as to any opinion, instruction, determination, certificate or valuation of the engineer, the matter in dispute shall, in the first place, be referred in writing to the engineer, with a copy to all parties. Such reference shall be made within one (1) month of arising of any such dispute and state that it is made pursuant to this clause. No later than one (1) month after the day on which he received such reference the engineer shall give notice of his decision to IIT-Delhi and the contractor. Such decision shall state that it is made pursuant to the reference under this clause.

Unless the contract has already been repudiated or terminated, the contractor shall in every case, continue to proceed with the works with all due diligence and the contractor and IIT-Delhi shall give effect forthwith to any / every such decision of the engineer unless and until the same shall be revised, as hereinafter provided, in an amicable settlement or an arbitral award. If either IIT-Delhi or the contractor be dissatisfied with any decision of the engineer, or if the engineer fails to give notice of his decision on or before one (1) month after the day on which he received the reference, then either IIT-Delhi or the contractor may within a further period of one (1) month from the day on which it / they receive(s) the notice of such decision, or on the day on which the said period of notice of / for decision expired, as the case may be, give notice to the other party, with copy for information to the engineer, of its / their intention to commence arbitration. Such notice shall establish the entitlement of the party giving the same to commence arbitration, as hereinafter provided, as to such dispute and no arbitration in respect

thereof may be commenced unless such notice is given. If the engineer has given notice of his decision as to a matter in dispute to IIIT-Delhi and the contractor and no notification of intention to commence arbitration as to such dispute has been given by either IIIT-Delhi or the contractor as herein provided, the said decision shall become final and binding upon IIIT-Delhi and the contractor.

22.2. Amicable Settlement

Where notice of intention to commence arbitration as to a dispute has been given in accordance with sub-clause 22.1, arbitration of such dispute shall not be commenced unless an attempt has first been made by the parties to settle such dispute amicably. Provided that, unless the parties otherwise agree, arbitration may be commenced on or after one (1) month from the day on which notice of intention to commence arbitration of such dispute was given, whether or not any attempt at amicable settlement thereof has been made or result achieved.

22.3. Arbitration

Any dispute in respect of which:

- a) the decision, if any, of the engineer has not become final and binding pursuant to the first sub-clause above,
- b) amicable settlement has not been reached within the period stated in the second sub-clause above, shall be finally settled, unless otherwise specified in the contract, by arbitration to be held in New Delhi in English, under the provisions of the Arbitration and Conciliation Act 1996, including any statutory reenactment(s) / amendment(s) thereof and Rules made thereunder, by the arbitrator. The Director of the Institute shall appoint one person as the sole arbitrator. Either party shall be limited in the proceeding before such arbitrator to evidence or arguments put before the engineer for the purposes of obtaining the said decision pursuant to the first sub-clause herein. No such decision shall disqualify the engineer from being called as a witness and giving evidence before the arbitrator on any matter whatsoever relevant to the dispute. Arbitration proceedings shall not be commenced prior to the completion of the works, unless any major pre-requisite criticality is discerned by the arbitrator, and the obligations of IIIT-Delhi, the engineer and the contractor shall not be altered by reason of the arbitration. The works shall not be stopped on account of the said process of arbitration and the contractor shall not be relieved of his responsibilities for the completion of the work under any circumstances whatsoever.

Site visit is mandatory and all dimensions etc as available in the block/buildings must be seen prior to the tender submission. An Undertaking to this effect must be submitted. **Annexure - XX**

ADDITIONAL CONDITIONS

1. General conditions of contract for Central PWD Works 8 (with correction slips issued upto the date of receipt of tender) shall be part of the agreement.
2. The work in general shall conform to the CPWD specifications for electrical works (Part-III Lifts & escalators works) 2003 with up to date correction slips issued as on date of receipt of the tender and the "Specifications for works".
3. As built drawings for all services shall be submitted by the contractor within 30 days of completion else contractor shall be liable for paying compensation for the same as per CPWD provisions.
4. The Contractor shall have to clear the site for the work of all overlying rubbish / garbage / dumped refuse material prior to commencement of the work in case required at no extra cost. The contractor shall take approval from the Engineer / Officer in Charge in writing for collection and stacking of materials.
5. The contractor must follow CPWD Safety Code as provided in general conditions of contract for CPWD Works 2020.
6. The Contractor will be responsible for execution of the works to the satisfaction of IIIT-Delhi, in compliance to requirements of the work as per drawings ,specifications, designs and instructions of Architects / PMC, Quality Assurance agency, Vigilance / CTE accordingly.
7. Any damage done by the contractor or his workmen to any existing work during the course of execution of the work shall be made good by him at his own cost.
8. Contractor shall clear the site thoroughly of all rubbish etc. left out of his materials immediately on completion of the work and properly keep the site clean around the building to the satisfaction of the Engineer- in-Charge.
9. The preference of the codes will be IS codes. Wherever there is a reference to any IS Code, Act, Rule / Law the latest amended version of the same shall be followed.
11. Unless specifically mentioned otherwise, quoted Rates shall be deemed to include work to be carried out at all curvatures, heights, depths, inclinations and locations, and in wet/foul locations, as and when they are encountered. The rates quoted for the various works as specified in the Priced Schedule of Quantities are work Nothing extra is payable on this account.
12. All security precautions shall be taken during construction work. The site shall be fenced / barricaded with suitable material during construction period .No payment shall be made for fencing / barricading work. Fencing / barricading shall be done immediately after possession of site and shall be removed after completion of construction period
13. No space on site / otherwise for labour huts shall be provided by IIIT-Delhi.

14. For the settlement of any disputes and arbitration, only Indian Arbitration and Conciliation Act 1996 shall be applicable with any reenactments / amendments / Rules there-of / under. The Director IIIT-Delhi will appoint one person for settlement of disputes in case of need for arbitration, whose recommendations may then be accepted by the Director / Board of Governors (BOG) / Institute authorities as partial amendment to CPWD conditions for the said items.
15. In case any specific brand of material has been specified either the same brand or of approved make of same specifications shall be used. The contractor shall take approval in advance for all such materials.
17. The contractor shall prepare proper Shop/Fabrication drawings and shall seek prior approval for these from Architect / PMC / CE prior to construction of items.
18. As built drawings shall be prepared by the contractor for all services works in hard and soft copies. This shall be pre requisite before the submission of the Final bill.
19. A sample of the all finishing items/fixtures/fittings etc., would have to be got approved prior to execution in mass scale. Costs for all materials and labour for the preparation of samples, market research, etc. shall be borne by the Contractor within his quoted Rates and nothing extra shall be payable for this. The works shall not be proceeded with without approval of the sample. In case sample is rejected a fresh sample shall be prepared. Cost of such samples will not be paid extra.
20. The contractor should take utmost care to avoid any damage to the existing underground pipes, cables, telephone cables, water harvesting system, sprinkler system, etc. in place. In case of any damage, it would be the responsibility of the contractor to restore the same immediately.
23. In case of Non DSR items, though every care is taken to explain the intent of such items, however the rate quoted by tenderers for such items should cover the completeness of the item irrespective of inadequacy in explanation if any.
24. In case of delay in local body approvals holding the commencement of works, suitable extension of time and rescheduling of milestones shall be accorded without any financial implications and the contractors shall have no claim towards any extra payment on such account whatsoever.
25. In the list of recommended makes out of two / three makes mentioned only 1st make shall be quoted for and used. However due to non availability or any other technical reason, the alternative make if allowed by the Engineer in Charge it shall be subject to price adjustment as approved by IIIT-Delhi / PMC.
26. All unwired conduits shall be provide with pull wire and protected from clogging. No extra shall be payable for the same.
27. The contractor shall be responsible for coordination with other agencies deployed at site separately by the employer and provide all necessary support -water electricity scaffolding and infrastructure for smooth execution of the works on mutually agreed terms with the respective agencies. No extra shall be payable for the same.

CORRIGENDUM TO FORM 7/8 (CPWD) MUST BE READ ALONG WITH THE PAMPHLET

S.No.	FOR	READ
1	Government of India / Owner/Employer	Indraprastha Institute of Information Technology, Delhi
2	C.P.W.D. or Government or Department	Indraprastha Institute of Information Technology, Delhi
3	CPWD -7/8	CPWD 7/8
4	President / President of India	Chairman, BOG, IIIT-D
5	Chief-Engineer	Director, IIIT-D
6	Superintending Engineer	CE, IIIT-D
7	Engineer-in-charge / Divisional Engineer / Executive Engineer / Divisional Office / Engineer	CE, IIIT-D
9	Administration Head	Director IIIT-D
10	Ministry of Works & Housing	IIIT-D / Department of Training and Technical Education, Government of NCT of Delhi.
11	CPWD Code, Paragraph '90	Shall be applicable to IIIT-D works
12	CPWD Works Manual 2007 with up to date correction slips as on date of receipt of tender	Shall be applicable to IIIT-D works
13	CPWD specifications 2003 for Lift & Escalators works	Shall be applicable to IIIT-D works
14	Provision of Section 12 Sub-Section (i) of the works man compensation	Shall be applicable to IIIT-D works
15	CPWD safety Code framed from time to time	Shall be applicable to IIIT-D works
16	CPWD maternity benefits to labour	Shall be applicable to IIIT-D works
17	Model Rules of the protection of health and sanitary appointment for workers employed by CPWD	Shall be applicable to IIIT-D works
18	CPWD contractor labour Regulations	Shall be applicable to IIIT-D works

SPECIAL CONDITIONS

I. WORK TO BE EXECUTED AS PER TENDER AND STATUTORY REGULATIONS ETC.

I.1 Tender Document

This tender document, comprising of Notice Inviting Tender, General and Special Conditions of Contract, Technical Specifications, Schedule of Quantities and tender drawings shall form part of the contract Agreement after award of contract. Work under this contract shall be executed at contract rates as per conditions and specifications stipulated in this tender document excepting in respect of deviations specifically agreed to before the award of the contract and incorporated in the contract Agreement. In addition, components/materials, which may not be specifically stipulated in the tender document, but which are necessary for satisfactory installation and/or operation of any portion of the work, shall also be provided within the contract rates without any extra cost. Contractor shall carry out and complete the work in all respects to the satisfaction of Owners as per the contract Agreement and as directed by Owners/Architects and as required.

I.2 Tender Conditions, Specifications and Schedule

- Special Conditions of Contract (SCC) shall be read in conjunction with General Condition of Contract, Technical Specifications, Bill of Quantities, Tender Drawings and any other document forming part of this contract Agreement
- For any discrepancy between Technical Specifications and Schedule of Quantities, provision of Schedule of Quantities shall prevail.
- Any item shown in Schedule of Quantities and not called for in the Specifications or vice versa, shall be provided as if called for in both.
- Wherever it is mentioned that the Contractor shall perform certain work or provide certain facilities, it is understood that the Contractor shall do so at his cost.
- Where the Technical Specifications stipulate requirements in addition to those contained in the applicable Indian Standard Specifications/Codes, these additional requirements shall also be satisfied.

I.3 Departures

No deviation/departure from tender conditions shall be acceptable.

I.4 Authorities

The work shall conform to all the provisions of the relevant Government Legislation, Regulations and Bye-laws of the Central/Local Authorities and of the concerned Electricity

Supply Authority. The Contractor shall also be responsible for giving all notices required under the said Acts/Regulations/Bye-laws. Obtaining necessary approvals from all concerned authorities including the lift certificate, shall be the Elevator Supplier's /Contractor's responsibility. However the official fee etc shall be borne by the Client/Owner.

1.5 Electrical Licence

The tenderers shall be engaging a licensed Electrical Contractor possessing a valid Contractor's licence of appropriate class in the state, employing licenced supervisors and skilled workers having valid permits as per the regulations of Indian Electricity Rules and local Electrical Inspectors requirements. Copy of Contractor's Electrical licence shall be furnished along with the tender.

2. INTENT OF SPECIFICATIONS

It is not the intent of Technical Specifications to completely specify all aspects of design/construction features of equipments and all details of work to be carried out. Nevertheless the intent of the Technical Specification is to ensure that the equipments and the work shall fully comply with and conform to the relevant Bureau of Indian Standard Specifications, Codes of Practice, Indian Electricity Act, Indian Electricity Rules and other Statutory Regulations, and other standards as may be applicable and to the best available standards of engineering, design and workmanship. The equipment and work shall perform in manner acceptable to Owners who shall interpret meaning of the applicable Specifications/Codes and shall have the right to reject any equipment or work, which, in their assessment, is not complete to meet the Standard/Code.

3. SITE OF WORK

3.1 Brief description of site

Works covered in this contract is required for an Institutional campus at Okhla Phase -III. Tenderers are advised to visit the site after taking prior permission from Owners/Architects for familiarizing themselves with working conditions available at site as also with the statutory levies and their prevailing quantum payable at site. Contractors shall not be entitled to claim any extra payment on account of lack of such knowledge after award of contract.

3.2 Power Supply System

Entire work shall be suitable for use on 415 volt + 10%, -10%, 3 phase 4 wire supply system with transformer neutral grounded. The rated frequency of the supply system shall be 50 cycles per second with no tolerance.

3.3 Ambient Conditions

All equipments components and materials used in the work shall be suitable for continuous operation/use at rated output with permissible overload at the following extremes of ambient conditions likely to be encountered at site.

Temperature from minimum 0° C to maximum 47° C

Related humidity from minimum 10% RH to maximum 93% RH (Non condensing)

4. OWNER TO PROVIDE

Owner's scope of contract shall be restricted to providing the following items free of cost to the Contractor.

- Hoistway (with structural openings for doors), Pit and Machine Room.

5. SCOPE OF CONTRACT

Contractor's scope of the contract shall comprise of providing equipments, components, materials, labour, provisions in machine room and pit as required, supervisory staff with infrastructure, T&P, scaffolding, consumables, testing equipment, etc. required for completion of the work as per the contract Agreement **and** Free Comprehensive Maintenance for one years after successful completion and handing over. Contract Rates shall be deemed to be inclusive of all direct and indirect expenses required to be incurred as per this scope including but not restricted to the costs of the following. Obtaining of the Lift clearances for pre and post SITC and licenses from all required departments for installation and commissioning of the lifts shall be the responsibility of the Contractors.

5.1 Items of Work

Design, manufacture, supply, installation, testing and commissioning of Lifts as per Schedule of Quantities including minor and incidental work to ensure complete and satisfactory completion.

5.2 Statutory Levies

Rates shall be inclusive of all statutory levies as applicable as below.

- Central Sales tax without issue of C-form by Owners.
- Excise duty/custom duty.
- Work contract tax
- Octroi
- GST
- Any other levies.

5.3 Testing

Testing for the various items of equipment shall be performed at the contractor's cost and test certificate to be furnished by the contractor (for Motor, Machine Break-tests Controller & Steel wire Ropes). If required by the Engineer, the Contractor shall permit the Owner's authorized representative to be present during any of the tests. After notification to the Owner that the installation has been completed the contractor shall make under the direction and in the presence of the Engineer all such test and inspections as have been specified or as the Engineer shall consider necessary to determine whether or not the full intent of the requirements of the plans and specifications have been fulfilled. In case the work does not meet the full intent of the specifications and further tests shall be considered necessary the contractor shall bear all the expenses thereof.

5.3.1 Trial Operation

To arrange for trial operation of each lifts for a period of 4 weeks after obtaining clearance from lift inspector

5.4 Transportation, Storage, insurance etc.

- Loading, transportation and unloading.
- Protection of stored materials/installed work against damage due to dirt, sun and rain including providing tarpaulin/ PVC sheet covers as required.
- Providing security arrangements/watch and ward for stored materials and installed works to guard against pilferage/damage.
- Comprehensive insurance with Owners as beneficiaries against pilferage/damage during transportation/storage/installation valid till handing over.
- Third party insurance of adequate amount

5.5 Name plates

Providing engraved anodized aluminium or approved equivalent name plates of suitable sizes on switchboards/panels/equipments etc.

5.6 Civil works, cleaning and painting

5.6.1 Civil Works (To be included in Rates)

- All civil and electrical items required for installation and operation of Lift System in Pits, Hoistways and Machine Rooms.
- Minor civil work items required for the work like making chases in walls/ceilings, making holes and openings, providing inserts, grouting etc including making good, RCC bed blocks for machine unit and RCC buffer block and buffers in the pit and painting the civil works complete for execution of the works. Any levelling , making in plumb , cutting of project reinforcement if any, fascia plates and cutting og opening in the granite/tiles for inserting landing plate and hole plate and display as required for the operation of the lifts.,

5.6.2 Housekeeping

Housekeeping and clearing of work area during the tenure of contract.

5.6.3 Final Painting

Providing final paint coat to all exposed fabricated steel work and providing matching paint in approved manner over portions of factory painted equipment if damaged during transportation/storage/installation before handing over.

5.6.4 Site Clearance

Demobilization and clearing of all temporary works/ facilities after completion of work at site and cleaning work are before handing over.

5.7 Statutory approvals

- Obtaining Pre and Post approvals from Lift / Electrical inspector and NOC from Government of NCT of Delhi and Delhi Fire Service /MCD etc as required for satisfactory installation of the lift/elevator system and NOC/clearance to put the lift into regular use shall be the responsibility of the contractors.
- Obtaining any other statutory permission/clearance/approvals from any other concerned authority as required.

- Pay any licensing fee/submission fee/inspection fee payable to statutory authorities for obtaining above approvals. All actual fees payable in this regard will be reimbursed against supply of receipt / documentary proof in original on completion of work.

5.8 Compliance of statutory observation.

Complying with observations, if any, of Lift/Electrical Inspector and/or any other Statutory Authority after completion of work in order to obtain a categorical clearance to start beneficial use.

5.9 Manuals, drawings etc.

5.9.1 Along with the tender

Technical Parameters enclosed as Annexure-I duly filled in by the Tenderers along with technical catalogue etc. of the equipment offered.

5.9.2 Shop drawings on award of work before commencement

The Contractor shall submit, during the currency of the project, to the Project Manager Six (6) copies along with 1 soft copy of all shop drawings for his approval. Shop drawings shall be submitted generally for the following:

- a. Installation details in lift shaft
- b. Steelwork, especially RS joints / angle iron supports, brackets in machine room and any other place
- c. Machine room detail and location of equipment
- d. Manufacturer's and/or Contractor's fabrication drawings for equipment supplied by Contractor.

- A. All the shop drawings shall be prepared on computer through AutoCAD System. Within 7 days after the issue of award of the contract and initial set of working drawings, the contractor shall furnish, for the approval of the Architect/Consultant, four sets of detailed shop drawings of all equipment and materials as required by the Architect/Project Manager.

Each item of equipment/material proposed shall be a standard catalogue product of an established manufacturer strictly from the List of Approved Makes and Manufacturers listed in Volume 2.

- B. Shop drawings shall be submitted for approval sufficiently in advance of planned delivery and installation of any materials to allow Architect/Consultant ample time for scrutiny. No claims for extension of time shall be entertained because of any delay in the work due to his failure to produce shop drawings at the right time, in accordance with the approved programme.
- C. Manufacturers drawings, catalogues, pamphlets, equipment characteristics data, performance charts and other documents submitted for approval shall be in four sets. Each item in each set shall be properly labeled, indicating the specific services for which

material or equipment is to be used, giving reference to the governing section and clause number and clearly identifying in ink the items and the operating characteristics. Data of general nature shall not be accepted.

- D. Approval of shop drawings shall not be considered as a guarantee of measurements or of building dimensions. Where drawings are approved, said approval does not mean that the drawings supersede the contract requirements, nor does it in any way relieve the contractor of the responsibility or requirement to furnish material and perform work as required by the contractor.
- E. Within four weeks of approval of all the relevant shop drawings, the contractor shall submit four copies of a comprehensive variation in quantity statement, and itemized price list of recommended (by manufacturers) imported and local spare parts and tools covering all equipment and materials in this contract. The Owner's site representative shall make recommendation to Owner for acceptance of anticipated variation in contract amounts and also advise Owner to initiate action for procurement of spare parts and tools at the completion of project.

5.9.3 Training

Training of Owners personnel in operation, handling and maintenance of equipment.

5.9.4 The Contractor shall submit following documents

3 sets of operation and maintenance manual with "As built" drawings shall be submitted to the owner after completion of work.

3 sets of test results of pre-commissioning test carried out at site.

3 sets of as built GA drawings.

6. COMPLETION TIME & LIQUIDATED DAMAGES

6.1 Completion Time

- The entire work shall be completed within 6 (Six) months from the 7th day of issue of letter of intent. The Contractor shall submit a bar chart along with the tender and a detailed time schedule of completing salient activities of the contract to achieve overall completion for approval of Architects/Owners. The Contractor shall ensure supply and erection of sill angles and door frames within 1.5 months of issue of letter of intent or within one month of handing over of lift shaft whichever is earlier to enable coordinated completion of items like Architraves fascia returns in stone etc. by other agencies. If the completion of work is delayed beyond the period stipulated in the original contract agreement due to reasons considered by Owners to be beyond the control of Contractor, extension of time for the completion of the work shall be granted by the Owners without the levy of the time delay penalty. The extension of time shall however not entitles the Contractor to claim any extra payment and/or compensation on this account.

- Completion of work shall include supply, installation, testing, commissioning, and obtaining the required statutory approvals and handing over of the entire system to the satisfaction of the Owners. The work shall not be deemed to be completed till all these items including the lift inspection and approval and issue of completion certificate thereafter are completed by the Contractor to the satisfaction of the Owners.

7. FREE MAINTENANCE PERIODS

7.1 Maintenance

Quoted rates shall be deemed to be inclusive of, free comprehensive maintenance (including spares& Consumables) of all lifts for a period of one year from the accepted date of completion of the contract.

8. TAXES/DUTIES

All sales tax/excise duty, service tax GST or any other taxes or levies including octroi /transport/loading /unloading /toll on works contract payable to any authorities whatsoever shall be borne by Contractors and Employer/Consultants accepts no responsibility or liability whatsoever on any account. Component of excise duty if any and GST shall be indicated separately.

9. TAX DEDUCTION AT SOURCE

Income tax , Labour cess and Works Contract tax if any shall be deducted from your running account bills as per statutory requirements.

It is specific requirement that the Contractor/Supplier shall be registered with Government of NCT Sales Tax Authorities, PF commissioner, Labour Deptt. etc. and shall submit a certified copy of same to Owners.

10. FINAL BILL

The payment of final bill duly certified by the Employer's Engineer shall be made within 3 (three) months of receipt of bill after effecting due, recoveries and deductions.

11. WATER AND ELECTRICITY

- b) Water & electricity if supplied by the Owner will be charged as per actuals , meter to be provided by the vendor .
- c) The Contractor shall make his own arrangements for water/electricity at site for the installation and for testing and commissioning after completion of the all lifts. Nothing extra shall be payable for this.

12. GODOWN/WORKER ACCOMMODATION

The accommodation for workers shall be arranged by the Contractor. No labour hutments shall be allowed within the site premises. Storage space shall be arranged by the Owners. Contractor

shall construct the stores at his cost and he shall be responsible for watch and ward of his materials/installations.

13. CIVIL WORKS

All Civil works such as cutting holes and making good for hall buttons, indicators including laying of sill in position and providing dash fasteners for fixing Car and counter weight, rail brackets, supports etc as required to complete the work shall be borne by the Contractors at his own cost.

RCC bed blocks for machine unit and RCC buffer block in the pit shall be arranged by the contractor at his own cost

All scaffolding work required for erection/installation of lifts in the pit and the hoist way shall be arranged by the Contractor at his own cost. All structural work including plates, bolts, rag bolts, nuts, channels, angles, beams, shall also be arranged by the Contractor at his own cost.

14. VARIATION IN QUANTITIES

The Contract rate shall remain firm during the entire pendency of the contract or any extension thereof.

Rates quoted shall hold good for any increase/decrease in the quantities. Any of the items may be deleted as per directions of Owner/Architect. In respect of any additional item ordered to be executed, the rates payable shall be derived from market rates, supporting vouchers plus 15% will be added there on for Contractors profit and overhead

15. TENDER ACCEPTANCE

The Owner reserves the right to award the contract to any bidder other than the lowest without assigning any reasons what so ever.

16. SAFETY REGULATIONS

- The Contractors shall, at their own expense, arrange for safety provisions as per safety codes of Indian Standards Institution, Indian Electricity Act and such other Rules, Regulations and Laws as may be applicable, as indicated below, in respect of all labour, directly or indirectly employed in the work for performance of the Contractors' part of this agreement.
- No inflammable materials shall be stored in places other than the rooms specially constructed for this purposes in accordance with the provisions of Indian Explosives Act. If such storage is unavoidable, it should be allowed only for a short period and in addition, special precautions, such as cutting off the supply to such places at normal items, storing materials away from wiring and switch boards, giving electric supply for a temporary period with due permission of Engineer-in-charge shall be taken.
- Protective and safety equipment such as rubber gauntlets or gloves, earthing rods, line men's belt, portable artificial respiration apparatus etc. should be provided in easily identifiable locations. Where electric welding or such other nature of work is undertaken, goggles shall also be provided.

- All necessary personal safety equipment such as Helmets, Protective footwear protective goggles/eye shields, Lift Jacket, Gas masks etc. as considered adequate by the Engineer-in-charge shall be available for use of persons employed on the site and maintained in a conditions suitable for immediate use and the contractor shall take adequate steps to ensure proper use of equipment by those concerned.
- Safety means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. Adequate precautions shall be taken to prevent danger from electrical equipment.
- The Contractor shall provide all necessary fencing and lights to protect public from accidents and shall be bound to bear expenses of defense of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and costs which may be awarded in any such suit, action or proceedings to any such person or which may with the consent of the Contractor be paid to compromise any claim by any such person.
- Motor gearing, transmission, electric wiring and other dangerous parts of hoisting appliances shall be provided with efficient safe guards; hoisting appliance shall be provided with such means as will reduce to the minimum risk of accidental descend of load. Adequate precautions shall be taken to reduce to the minimum risk of any part of a suspended load becoming accidentally displaced.
- All scaffolds, ladders, First Aid Equipments/medicines and other safety devices shall be maintained in a safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near place of work. Necessary warning sign boards in Red/White paint, with proper lighting arrangements for nights are to be provided at prominent locations.
- Necessary number of caution board such as “Man on Line, Don’t switch on” should be readily available in easily identifiable locations.
- Standard first aid boxes containing materials as prescribed by the St. John Ambulance Brigade or Indian Red Cross should be provided in easily identifiable locations and should be readily available. Periodical examination of the first aid facilities and protective and safety equipment provided shall be undertaken and proper records shall be maintained for their adequacy and effectiveness.
- Charts (one in English and one in regional language) displaying methods of living artificial respiration to a recipient of electrical shock shall be prominently displayed at appropriate places.
- A chart containing the names, addresses and telephone numbers of nearest authorized medical practitioners, hospitals, Fire Brigade and also of the officers in charge shall be displayed prominently along with the First Aid Box.
- Steps to train supervisory and authorized persons of the Engineering staff in the First Aid Practices, including various methods of artificial respiration with the help of local authorities such as Fire Brigade, St. John’s Ambulance Brigade, Indian Red Cross or other recognized

institutions equipped to impart such training shall be taken, as prompt rendering of artificial respiration can save life at time of electric shock.

- No work shall be undertaken on live installations, or on installations which could be energized unless one another person is present to immediately isolate the electric supply in case of any accident and to render first aid, if necessary.

17. COMPLETION CERTIFICATE

On completion of the installation a certificate shall be furnished by the Contractor countersigned by the licensed Supervisor, under whose direct supervision the installation was carried out. This certificate shall be in the prescribed form as required by the local and statutory authority. The Contractor shall be responsible for getting the installation inspected and approved by the Electrical -Lift Inspectorate , Delhi Fire Service , Govt of NCT of DELHI and /or any other local and statutory authorities concerned and fees if any shall be borne by the contractor which will be reimbursed against submission of receipts as documentary proof.

18. WORKMANSHIP

Good workmanship is an essential prerequisite to be complied for this work. Entire work shall be carried out in the most workmanlike manner by skilled workers under competent supervision. Contractor shall be responsible for the safety of the works executed and no default on this account shall be accepted.

19. SUB-LETTING:

The Contractor shall not assign the Contract. He shall not sublet any portion of the Contract except with the prior written consent of the Employer. In case of breach of these conditions, the Employer may cause the Architects to serve a notice in writing on the Contractor rescinding the Contract whereupon the Security Deposit shall stand forfeited to the Employer, without prejudice to his other remedies against the Contractor. Any subletting of the works even with the prior consent of the Employer shall not relieve the Contractor from its obligations under the tender / contract and that the Contractor shall be liable for all the acts and omissions of the sub contractors as if done by the Contractor itself. The Contractor shall ensure that each sub contract shall contain provisions in all material respects not less stringent than the provisions of the tender / contract. The Contractor shall provide to the Employer such information concerning the sub contractors as the Employer may from time to time request.

The Contractor shall solely responsible for paying each sub contractor and any other person to whom any amount is due from the Contractor for services, work, equipment, materials and suppliers or otherwise related to or in connection with the works, and the Contractor shall take all reasonable steps and actions to ensure that such services, work, equipment, materials and supplies have been or will be received, inspected and approved and that such services will be properly performed.

In case if the responsibility of such payments is transferred to the Employer by operation of law or otherwise, the Employer shall have the right to adjust all such payments against the dues to the Contractor under the tender / contract.

20. DISCREPANCIES & ORDER OF PREFERENCES

In case of ambiguities or discrepancies following order of preferences shall hold good:

- (i) Work Order
- (ii) Schedule of Quantities
- (iii) Tender Drawings
- (iv) Technical Specifications
- (v) Special Conditions
- (vi) Conditions of Contract

21. DELAY IN COMMENCEMENT

The Contractor shall not be entitled to any compensation for any loss suffered by him on account of delays in commencing or executing the work, whatever the case of delays may be, including delays arising out of modifications to the work entrusted to him or in any sub-contract connected there with or delays in awarding Contracts for other trades of the Project or in commencement or completion of such works or in procuring Government controlled or other building materials or in obtaining water and power connections for construction purposes or for and other reasons whatsoever and the Employer shall not be liable for any claim in respect thereof. The Employer does not accept liability for any sum besides the Tender amount for the work done by the contractor, subject to such variations as are provided for herein. No claims on account of non availability of any particular site or stores shall be entertained.

22. Tenderer is bound to carry out any items of work necessary for the completion of the job

The successful Tenderer is bound to carry out any items of work necessary for the completion of the job even though such items are not included in the quantities and rates. Schedule of instructions in respect of such additional items and their quantities will be issued in writing by the Architect with the prior consent in writing of the Employer.

23. Tenderer must co-operate with the other Contractors

The successful Tenderer must co-operate with the other Contractors appointed by the Employer so that the work shall proceed smoothly with the least possible delay and to the satisfaction of the Architects/Consultants.

24. Work shall be carried out strictly in accordance with the specifications

The Contractor must bear in his mind that all the work shall be carried out strictly in accordance with the specifications made by the Architects/Consultants and also in compliance of the requirements of the Electrical -Lift Inspectorate , Delhi Fire Service Govt of NCT of DELHI or any other local or Statutory Authority and no deviation on any account will be permitted.

In case the Contractor finds any deviations in the specifications, drawings, etc. provided by the Consultant / Architect / Employer to the Contractor and the requirements of the Electrical -Lift Inspectorate , Delhi Fire Service Govt of NCT of DELHI, the Contractor shall immediately notify the Employer before proceeding with that part of the works in which any deviation has been noticed by the Contractor. In the event the Contractor fails the Employer regarding any such deviations and proceeds to carry out the works and the Employer suffers any damage or loss due to such works being carried out by the Contractor in which there any deviation from

the requirements of the Electrical -Lift Inspectorate , Delhi Fire Service Govt of NCT of DELHI the Contractor shall indemnify the Employer for any and all such losses and damages suffered.

25. Make own arrangements to obtain all materials required for the work

The successful tenderer should make his own arrangements to obtain all materials required for the work including cement and Steel.

26. EMPLOYEE'S STATE INSURANCE ACT

The Contractor shall fulfill the requirements of the Employees' State Insurance Act, 1948, applicable to all States, towards their employees and keep all the required records regarding the same for inspection by the Authorities concerned at any time. The Contractor shall indemnify the Owners against any claim of legal action arising out of the said Act due to the failure of non-compliance of the provisions of the said Act and the penalty or any other amount levied by the Authorities, shall be recoverable from the payments due to the Contractors. Proof of payment must be attached with every bill.

The Contractors shall comply with the provisions of the Apprentices' Act, 1961, and the Rules and Orders issued thereunder from time to time. Failure to do so will be a breach of the Contract and the Architects/Consultants and the Owners may in their discretion cancel the contract. The Contractor shall also be liable for any pecuniary or other liabilities arising on account of any violation by him of the provisions of the Act.

27. LABOUR ACT

The Contractor shall be responsible for the observance of all Central Rules and Regulations framed by the Central Government for Employment of Local Labour under the Contract Labour (Regulations and Abolition) Act, 1970. The owners shall be entitled to deduct all losses, damages, which it might suffer on account of non-observance of these rules by the Contractor, from the amount payable to the Contractor. **It shall be reflected in every RA bill.**

Labour cess at applicable rate presently @1% shall be recovered from the Contractors payment.

28. WARRANTY

The contractor shall warrant that all the equipments provided by the contractor shall be free from any defects and any defects found shall be immediately rectified by repairing or replacing the part found defective as may be elected by the Employer as its sole discretion. The replaced or repaired part shall have a warranty period equivalent to the original warranty period and all such repairs and replacement of any part shall be without any additional cost in the Employer. Further any warrant provided by the subcontractors shall be passed on to the Employer without any additional charge or cost whatsoever.

29. No escalation is payable by Employer on any account.

GENERAL

I. STANDARDS

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

- | | | |
|-----|--|---|
| 1. | Code of Practice for installation, operation and maintenance of electric passenger & goods lifts. | IS-14665 (Part 2) Sec-1 : 2000 |
| 2. | Code of practice for installation, operation and maintenance of electric service lift. | IS-14665 (Part 2) Sec-2 : 2000 |
| 3. | Safety Rules Section-1 Passenger and Good lifts | IS-14665 (Part 3) Sec-1 : 2000 |
| 4. | Safety Rules Section-2 – Service Lifts | IS-14665 (Part 3) Sec-2 : 2000 |
| 5. | Outline dimension for electric lifts. | IS-14665 (Part-1) : 2000 |
| 6. | Inspection Manual for Electric Lifts | IS-14665 (Part 5) : 1999 |
| 7. | Electric Traction Lifts – Components | IS-14665 (Part 4) Sec-1 to 9 :
2001 |
| 8. | Installation And Maintenance of Lifts For Handicapped Persons (Code of Practice) | IS 15330 :2003 |
| 9. | Specification for lifts cables. | IS-4289 (Par-1) : 1984
Reaffirmed 1991 |
| 10. | Specification for hot rolled and slit steel tee bars. | IS-1173-1978
Reaffirmed 1987 |
| 11. | Method of loading rating of worm gear. | IS-7443-1974
Reaffirmed 1991 |
| 12. | Code of practice for selection of standard worn and helical gear box. | IS-7403-1974
Reaffirmed 1991 |
| 13. | Isometrics screw threads. | IS-4218-(Part-II)1976
Reaffirmed 1996 |
| 14. | Degree of protection provided by enclosure for low voltage switchgear and control gear. | IS-2147-1962 |
| 15. | Classification of insulating materials for electrical machinery and apparatus in relation to their thermal stability in service. | IS-1271-1985
Reaffirmed 1990 |

16.	Code of practice for earthing.	IS-3043-1987
17.	Electrical installation Fire Safety of Building.	IS-1646-1997
18.	PVC insulated electric cable for working voltage upto and including 1100 volts.	IS-694-1990
19.	Code of practice for electrical wiring and installation	IS-732-1989
20.	PVC insulated (Heavy Duty) electric cables for working voltage upto and including 1100 volts.	IS-1554-1988 (Part-1)
21.	Flexible steel conduits	IS-3480-1966
22.	Accessories for rigid steel conduit for electrical wiring	IS-3837-1976
23.	Boxes for the enclosure of electrical accessories	IS-5133-1969 (Part I)
24.	Guide for safety procedures and practices in electrical work.	IS-5216-1982 (Part-1)
25.	Conductors for insulated electric cables and flexible cordes	IS-8130-1984
26.	Miniature Circuit Breakers	IS-8828-1996
27.	Rigid steel conduits for electrical wiring (Second revisions)	IS-9537-1981
28.	Methods of test for cables	IS-10810-1998
29.	Earth Leakage Circuit Breakers.	IS-12640-1988
30.	Moulded Case Circuit Breakers	IS-13947-1993
31.	General requirement for switchgear and control gear for voltage not exceeding 1000 volts.	IS-13947-1993
32.	1100 volt grade XLPE insulated armoured cables	IS 7098
33.	Specifications for hoistway door-locks	IS 7754-1975
34.	Rules for design, installation, testing and operation of lifts, escalators and moving parts.	IS 1735-1975

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

- The Indian Electricity Rules 1956
- The Indian Electricity Act 1910
- Bombay Lift Act 1939
- Delhi Lift Rules
- Fire safety regulations pertaining to lifts

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

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

2. ELECTRIC SUPPLY

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

3. TECHNICAL PARAMETERS

Technical parameters given in Appendix-I give requirement of passenger & Service lifts. Tenderers shall fill in their item-wise confirmation/comments in the column provided for the purpose in this annexure. Deviations, if any, from tender requirements shall be clearly brought out in this annexure, failing which it shall be presumed that the offer conforms to the tender requirements fully. Tenders in which Appendix-I is not duly filled in by the tenderers are liable to be summarily rejected.

4. BMS COMPATIBILITY

All the elevators shall be hooked on to BMS. Necessary potential free contacts to be provided in the electrical system control panels. Elevator supplier shall be required to coordinate with BMS vendor for software compatibility between BMS & elevator system.

TECHNICAL SPECIFICATIONS

MACHINE ROOM LIFTS

LIFT MACHINE AND CONTROLLER

I. GENERAL REQUIREMENTS

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

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

Lift shall have suitable NO/NC contacts for BMS COMPATIBILITY.

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

2. ELECTRIC TRACTION DRIVE SYSTEM

2.1 Traction Machine

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

2.2 Motor (Lift with machine room)

- a) Driving motor shall be of the AC Permanent magnet synchronous/asynchronous axial type designed for special duty cycles required for Elevator operation with no slip rings. It should have a high starting torque, high power factor, high efficiency and low energy consumption.
- b) The motor shall be capable of not less than 180 starts per hour without excessive temperature rise.
- c) The maximum temperature rise of the winding shall not exceed 50 0C above ambient temperature when operated under normal condition.
- d) The motor shall carry a nameplate giving full details of its ratings and characteristics.
- e) The motor used shall have Class F insulation and shall be designed for 110% of rated load.

2.3 Brake

- a) The Electro-magnetic brake with non-asbestos lining shall be spring applied and electrically released type having noiseless operation.
- b) The brake shall be capable of stopping and holding the Elevator car in its downward travel to rest with 125% of its rated load from the maximum governor tripping speed. In this condition the retardation of the Car shall not exceed that resulting from the operation of the Safety gear

or stopping on the buffer.

- c) Springs used to apply the brake shoes (two nos.) shall be in compression and adequately supported.
- d) Brake linings shall be of renewable incombustible materials and shall be secured to the brake shoes such that normal wear shall not weaken their fixings. Band brakes shall not be used.
- e) No earth fault, short circuit or residual magnetism shall prevent the brake from being applied in the event of loss of power supply to the Elevator motor and control circuit.
- f) A means of adjusting the brake plunger stroke and releasing the brake in emergency shall be provided.
- g) The Elevator machine shall be fitted with a manual emergency device capable of having the brake released by hand and requiring a constant effort to keep the brake open.
- h) The fail safe break shall incorporate an approved design of brake switch i.e. pick up, hold, discharge. Brake coil shall be wired in series & their respective switches in parallel. The operation of brake shall be thyristor controlled from solid state drive in order to effect minimum pick up time and synchronized start.

2.4. Driving Mechanism

2.4.1 Lift Machine

The lift machine shall be suitable for 415 volt 3 phase 50 Hz AC supply with a voltage variation of +10% and -10% and shall be placed directly above the hoist way on steel beams resting on machine room floor slab.

The lift machine shall have high efficiency and low power consumption and shall be designed to withstand peak currents in lift duties.

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

2.5 Driving Sheaves

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

2.6 Alignment

- a) The brake plunger, collar, sleeve, motor, sheaves and all bearings shall be mounted and assembled so that proper alignment of these parts is maintained.

- b) The assembly shall be reviewed and rectified when excessive noise is emitted during operation.

2.7 Gearless Machines

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

2.8 Anti-Vibration Supports

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

3. CONTROL SYSTEMS

3.1 Description

The Lifts shall have state of art microprocessor based AC variable voltage variable frequency (ACVVVF) drive. Single lifts shall be provided with directional collective control for one car, two cars and 5 cars (also called simplex, duplex full collective control and automatic group supervisory control). The control system shall regulate dispatching of individual cars and shall provide service to all floors as different traffic conditions arise minimizing unproductive factors. The system shall respond automatically to UP and DOWN peak, balanced or light traffic etc. Some of the technical parameters required are innumerate below.

a)	Starting current	1.2 - 1.5 times full load running current
b)	Power saving	50 - 55%
c)	Leveling accuracy	± 5 mm (passenger/service lifts)
d)	Acceptable voltage fluctuation	+10 to - 10%
e)	Rate of acceleration/deceleration (M/S ²)	0.6 - 1.5 (Adjustable at site)
f)	Maximum jerk (M/S ³)	0.7 - 1.5 (Adjustable at site)
g)	Maximum vibration in car horizontal/ vertical	20/18 dBA
h)	Maximum noise level in car during travel	45 dBA
i)	Maximum door noise level while closing and opening at a distance of 1 mtr from car door	52dBA

The controller shall be mounted on the side of the top of lift shaft, vertical, totally enclosed cubicle type with hinged doors on the front provide easy access to all components in the controller. Cubicle shall be well ventilated such that the temperature inside never exceeds the safe limits of the components at ambient room conditions.

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

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

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

3.2 Features

Control system features are detailed as below.

- **Attendant Operation**

All lifts shall be automatic as well as provided with attendant control facilities.

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

- **Automatic By-pass**

Load weighing devices located either on car top or under the car cage shall be provided for all lifts. Whenever the load exceed 60-70% of the capacity load of the lifts, the lifts shall ignore all landing calls and only respond to car calls.

- **Over load device**

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

- **Automatic self-leveling**

All lifts shall be provided with automatic self-leveling feature that shall bring the lift car level to within ± 3 mm for passenger/service elevators and ± 5 mm for freight elevators of the landing floor regardless of load or direction of travel. The automatic self leveling feature shall correct for over travel and rope stretch.

3.3 Automatic Rescue Device

The ARD shall have the following specifications.

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

- b) ARD should monitor the normal power supply in the main controller and shall activate rescue operation within 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 elevator has stopped, it automatically opens the doors and parks with door open. After the operation is completed by the ARD the elevator is automatically switched over to normal operation as soon as normal power supply resumes.
- c) In case the normal supply resumes during ARD in operation the elevator will continue to run in ARD mode until it reaches the nearest landing and the doors are fully opened. If normal power supply resumes when the elevator is at the landing, it will automatically be switched to normal power operation.
- d) All the lift safeties shall remain active during the ARD mode of operation
- e) The battery capacity should be adequate so as to operate the ARD at least seven times a day provided the duration between usage is at least 30 minute.

3.4 Provision of CCTV

Lift manufacture shall make suitable provision for installation of 1 No. ceiling mounted dome camera.

TECHNICAL SPECIFICATIONS

LIFTS

LIFT CAR, DOORS AND SAFETY DEVICES

I CAR ENCLOSURES

I.1 General Requirements

- **Frame**

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

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

- **Enclosure finishes**

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

- Alarm System : An emergency alarm buzzer, including wiring shall be provided and connected to a plainly marked push button in the car operating panel. The alarm bell shall be located in central security room. The alarm unit shall be solid-state siren type, to give a waxing and waning siren when the alarm button in the car is pressed momentarily. Built in 3 way intercom system with telephone instrument in the car, reception and security, (as directed by Owners/Architect) including wiring telephone instrument and associated EPABX shall be provided.
- Sealed Maintenance Free Nickel Cadmium Batteries capable of maintaining the following in each lift for 2 hrs after mains failure.
 - Emergency light of adequate illumination in car
 - Car Ventilation
 - Intercommunication System
 - Alarm bell
- One no. 16 amp switch socket outlet to IP 54 and a permanent weatherproof type luminaries to IP54 (with lighting switch) adequately protected shall be provided on the top of the lift car for maintenance
- One no. 16 amp switch socket outlet to IP 54 at bottom of lift car for maintenance

I.2 Operation Panel

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

- LED Illuminated touch push buttons of micro pressure type corresponding to the floors served
- Door open and door close button
- Emergency stop button with Alarm
- Two position key operated switch for 'with attendant' and 'without attendant' operation.
- Ventilation fan ON/OFF switch with auto OFF when there is no call after 120 seconds (Two Speed & concealed vents).
- Built in intercom of the hands free type as well as space for providing EPABX telephone instrument and 5 pair telephone trailing cable to communicate from car to Two Locations i.e. Operator's Room (at remote location) & Security Guard Room and vice-versa.
- Dynamic car direction display
- Car position indicator (digital)
- Audio/Visual overload warning indicator
- In order to have at least one device of communication functioning at all the times, as an alternative arrangement, it is recommended that the provision of both i.e. telephone with minimum connections-one at the operator's room and other at guard room and the emergency signal with re-chargeable batteries as source of supply be made in the lift cars.
- The device used for emergency signals should incorporate a feature that gives a immediate feed back to the car passengers that the device has worked properly and the signal has been passed on to the intended agency.
- Digital voice synthesizer (Optional) for announcing special messages with background music.

1.3 Landing fixture

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

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

The following landing fixtures shall be provided for each lift.

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

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

12 V 20 W tungsten halogen spotlights shall be supplied and installed on the underside of the hall lanterns. The spot lights on a particular floor shall be lit up to signify the arrival of the corresponding lifts. These spotlights shall be switched off after the corresponding lifts have left that particular floor. For passenger cars, the spotlights on the parking floor shall be turned off after a present period adjustable from 15 to 150 sec. Should a call from the parking floor be registered, spotlight of the assigned parking car shall be switched on again together with the opening of the landing doors to attend the call

2. **CAR AND LANDING DOORS (FULL HEIGHT GLASS DOOR WITH SS METAL FRAME)**

2.1 **General requirements**

All car doors shall extend to the full height and width of landing opening unless otherwise specified and shall be operated with variable frequency door operator. A similar imperforate door shall be provided for every landing opening in the lift hoistway enclosure. The top track of the landing and car doors shall not obstruct the entrance to the lift cars. All car and landing doors shall have a fire resistance of not less than 1 hours.

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

- a) Car door locking devices
- Every car door shall be provided with an electrical switch to prevent the lift car from being started or kept in motion unless the car door is closed. A mechanical locking device shall also be provided to prevent door opening from inside the car whilst the car is in motion.
- b) Landing door locking devices
- Every landing door shall be provided with a mechanical locking device to prevent opening of the door from the landing side in normal cases unless the lift car is in that particular landing zone.
- c) Projections and recesses
- Sliding car and landing doors shall be guided on door tracks and sills for the full travel of the doors. The distance between the cars and the landing sills shall not exceed 35 mm.
- d) Door locking devices
- All doors locking devices, door switches and associated actuating rods, levers or contracts, shall be inaccessible from the landing or the car.
- e) Protective devices
- Protective devices shall be fitted to the leading edges of both car door panels. It shall

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

f) “Door open” alarm

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

g) Emergency landing door unlocking devices and key

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

2.2 Door Hangers and Tracks

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

2.3 Lift Door Protection

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

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

2.5 CABIN FAN

A noiseless pressure fan (two speed and concealed vent) shall be provided in the lift cabin.

3. HOIST ROPES

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

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

Round strand steel wires ropes made from steel wire ropes having a tensile strength not less than 12.5 tonnes/cm² and of good flexibility shall be used for lift. Lubrications between the strands shall be achieved by providing impregnated hemp core. The lift ropes shall conform to IS 14665-(Part-4-Sec. 8):2001 and the following factor of safety shall be adhered to. The minimum diameter of rope for cars and counter weight of passenger and goods lift shall be 8mm.

Rope speed of Passenger & Passenger cum Goods Lifts (Service Lift) (m/s)	Factor of safeties
0.5 or less	8
exceeding 0.5 to 1.0	8.6
exceeding 1.0 to 2.0	10
exceeding 2.0 to 3.5	11
exceeding 3.5	12

Rope fastenings

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

Guards for Lift Ropes

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

Number & Size of Ropes

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

4. COUNTER WEIGHT

The counter weight for lift cars shall be in accordance with clause 6 of IS 14665 (Part 4-Sec-3) : 2001 and shall be designed to balance the weight of empty lift car plus approximately 50 percent of the rated load. It shall consist of cast sections firmly secured in relative movement by at least two numbers steel tie rods having lock nuts/split pins at each end and passing through each section and Housed in a rigid steel frame work. Cracked and broken sub weights shall not be accepted. Counter weight for passenger lifts should be able to accommodate approx 500 kg weight Interior finishes.In case interior finishes material exceeds this provision,then the elevator contractor shall adjust the Counter Weight accordingly,however this will be decided and intimated much before the delivery of the elevators.

Counter Weight Guards

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

5. GUIDES / Guide Rails

Car and counterweight guide shall be machined T section as per relevant Indian Standards IS-14665 of 2000 revised up to date. The guides shall be capable of withstanding forces resulting from the application of the car or counter weight safety devices The guide rails shall be minimum 16mm Tongued & Grooved type.

6. TRAILING CABLES

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

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

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

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

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

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

7. SAFETY DEVICES

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

- **Terminal slow down switches**

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

- **Over travel limit switches**

These shall be provided and installed to stop the car within the top and bottom clearance, independent of the normal car operating device. The bottom over travel limit switch shall become operative when the bottom of the car touches the buffer.

When the over travel limit switches are operative, it shall be impossible to operate the car until the car has been hand would to a position within the normal travel limits.

- **Pit Switch**

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

- **Terminal Buffers**

Suitable spring buffers mounted on RCC foundation blocks shall be provided in the pit in compliance with ANSI/ASME/CENEN-81 /JIS codes for stopping the car in case of mal-operation. Dowels for the purpose shall be left while casting the pit floor alternatively floor reinforcement could be exposed by chipping for welding additional reinforcement for Dowels. However clearance from underside of the car resting on a fully compressed buffer shall not be less than 1.20 mtr. Buffers shall be designed for a design speed + 15%. Oil buffers shall be provided for the passenger elevators for speed of more than 1.75 mps and spring buffers for lower speed.

- **Interlocking**

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

- **Over speed governor**

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

- The breaking load of ropes shall be related to the force required to operate the safety gear by the safety factor of at least 8
- The nominal rope diameter shall be at least 7 mm
- The ratio between the pitch diameter of the over speed governor pulley and the nominal rope diameter shall be at least 30

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

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

- **Alarm bells**

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

- **Emergency Stop Switches**

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

8 FIREMAN SWITCH

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

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

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

9. CONTROL OF NOISE AND VIBRATION

9.1 General

The whole of the lift assembly, including the opening and closing of the car and landing doors shall be quiet in operation and shall be free of rattling or squeaking noises. Lift doors operation shall be smooth to avoid the transmission of impact noise to the surrounding structure.

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

9.2 Car construction

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

9.3 Machinery

The gearless traction machine and compact PM motor are installed within the hoist way and the slim control panel is located on the shaft side wall. Provision shall be made for the control vibration isolation measures employed to ensure that structure borne noise resulting from the operation of the lift machinery is not audible in any occupied area.

Lift machinery noise levels under normal operating conditions shall not exceed 70 dBA at 1 m from the equipment in free field.

9.4 Arrival chimes

Noise from arrival chimes shall not exceed 60 dBA.

The above levels shall be measured at 3 m from the arrival chimes using a noise meter set to 'fast' response. Chimes with adjustable loudness shall be provided.

10. FIRE SAFETY REQUIREMENTS

General requirements of lifts shall be as follows :

- 10.1 Landing doors in lift enclosures shall have a fire resistance of not less than one hour. (As per norms)
- 10.2 Lift car door shall have a fire resistance rating of one hour. (As per norms)
- 10.3 Grounding switch (es), at ground floor level, shall be provided on all the lifts to enable the fire services to ground the lifts.
- 10.4 'DO NOT USE LIFT IN CASE OF FIRE' in luminous sheet at each floor shall also be provided at all landings

TECHNICAL SPECIFICATIONS

LIFTS

ASSOCIATED WORKS

I. ASSOCIATED ELECTRICAL WORKS

I.1 Scope

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

I.2 Cabling

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

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

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

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

I.3 Wiring

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

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

1.4 Earthing

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

2. ASSOCIATED CIVIL & STRUCTURAL ITEMS

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

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

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

TECHNICAL SPECIFICATIONS

LIFTS

MAINTENANCE SERVICES

I. SCOPE

The Contractor shall provide Free Comprehensive Maintenance service for a period on **one years** from the date of handing over of the lift to Engineer-in-Charge. After expiry of this free comprehensive maintenance period, Engineer-in-charge reserve right to enter into annual maintenance contract with the contractor as per rates finalized in the contract

The maintenance services rendered by the contractor (free maintenance for one years after handing over and as per AMC if entered into for subsequent years) shall include routine and preventive maintenance as also breakdown maintenance if and when required. Maintenance services shall be provided with 24 hour emergency call out service.

2. ROUTINE AND PREVENTIVE MAINTENANCE

Program of routine and preventive maintenance during the free (1 year) maintenance period as also during the tenure of annual maintenance contract shall comply with minimum requirements as below.

2.1 Fortnightly

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

2.2 Monthly

- To turn grease cups for speed governors and compensating pulleys
- To check and oil selectors
- To top up rail lubricators
- To clean ropes oil if necessary
- To clean PM motor and inspect controller box etc.

- To oil electric brake pins
- To oil all pins of door operation and door opening mechanisms
- To clean hoist way, beams slow down cams, outside cages, rails and counterweight rails
- To clean, oil and adjust door closer and levers
- To clean main sheave, secondary sheaves and rope sheaves on car top and counterweigh top
- To clean and repair brake wheels and shoes
- To oil compensating rope tensioning pulleys.

2.3 Every Two months

- To clean and oil door hangers, door rails, interior of hanger case. If necessary adjust acentric rollers, car door hangers, door connecting ropes and chains
- To check and repair door shoe
- To clean and oil safety fears
- To clean and oil car and counterweight guide shoes. Adjust if necessary
- To clean and oil interior of terminal limit switches and position switches. Check rubber rollers of terminal limit switches.
- To check oil clean and repair interior of door switches, gate switches. Replace worn parts if necessary
- To check and repair flexible cable
- To check and repair movement of limit switches
- To clean and oil interior of car control switches.
- To clean and check push buttons of care control panels
- To check, clean and repair the sleeve and plungers of the electromagnetic brakes.

2.4 Every three months

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

2.5 Half yearly

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

2.6 Annual

- To clean the wire connection box of every landing and car cages. Tighten all screws and check the conditions of cables at conduit inlets and outlets
- To check and tighten screws of control panels, starters panels and relay panels
- To remove the dust inside the landing indicator switches by electric blower
- To test all safety devices
- To dismantle, clean and adjust the electro magnetic brake of gearless machines
- To charge motor oil
- To check and tighten screws and foundation bolts of traction machine, secondary sheaves, exterior of lift frame, guide rail, guide rail clamps and bracket etc.
- To test the overcurrent relays
- To provide all labour, materials, tools and transport to carry out annual inspection and load test according to the requirement of the employer

All the scheduled maintenance services described above shall be properly programmed and agreed with the Engineer-in-charge in order not to affect operation of the lift systems

3. BREAK DOWN MAINTENANCE

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

In circumstance such that the Contractor fails to attend the breakdown within four normal working hours after notification of the breakdown and where remedial work is interrupted during normal working hours for purposes other than obtaining replacement parts, the employer reserves the right to order such action as may be necessary to expedite completion of remedial work which shall be at the Contractors expense without abrogation of the Contractors responsibilities.

4. GENERAL

The Contractor shall keep sufficient spare parts during the maintenance period to ensure that replacement work for defect can be carried out immediately

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

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

TECHNICAL SPECIFICATIONS

LIFTS

SAFETY ASPECTS & PROCEDURE

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

TECHNICAL SPECIFICATIONS

LIFTS

TESTING OF LIFT INSTALLATION

I.0 TESTS AT SITE:

I.1 a) Levelling Test:

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

b) Safety Gear Test:

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

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

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

c) Contract Speed:

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

d) Lift Balance:

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

wheel shall be as nearly as can be judge by the same.

e) Car and landing doors interlocks:

The lift shall not move with any door open. The car door relay contact and the retiring release cam must be tested. The working of the door operation and the safety edges and light equipment if any provided shall also be examined.

f) Controllers:

The operation of the contactors and interlocks shall be examined and it shall be ascertained whether all requirements laid down in the specifications have been met.

g) Normal Terminal Stopping Switches:

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

h) Final Terminal Stopping Switches:

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

i) Insulation Resistance:

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

j) Earthing:

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

k) Ropes:

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

l) Buffers:

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

I.2 Tests at Manufacturer's Works:

a) High Voltage Test:

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

- i) between the live parts and case of frame with all circuits completed.
- ii) between main terminals or equivalent parts with all circuits open, and
- iii) between the lift parts of independent circuits.

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

b) i) Method of Applying High Voltage:

The test shall be made with alternating voltage of any convenient frequency, preferably between 49 to 60 cycles per second. The test voltage shall be approximately sine-wave form and during the application of voltage with peak value, as would be determined by spark gap by oscillograph or by any other approved method shall not be more than 1.45 times the rms value. The rms values of the applied voltage shall be measured by means of a volt meter used with a suitably calibrated potential transformer or by means of voltmeter used in connection with a special calibrated voltmeter winding or testing transformer by any other suitable voltmeter connected to the output side of the testing transformer.

ii) Duration of High Voltage Test:

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

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

c) Buffer Test:

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

I.3 Performance Test:

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

- i) Waiting interval : (T)- This can be worked out by taking the average of several round

trip times as observed physically and then dividing it by the number of lifts in that bank.

$$\text{ii) Handling capacity } H = \frac{300 \times Q \times 100}{T \times P}$$

Where

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

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

Q = Average number of passenger carried in a car.

T = Waiting interval.

iii) Service Temperature Test :

A continuous run of one hour should be made with number of starts and stops to reproduce as nearly as practical the anticipated duty in service. (The standard duty cycle is for 90 to 180 start per hour). It is very difficult in practice to carry out this test with alternate starts at full load and no load and it is necessary therefore to simulate these cycles. A suitable test for all motors except squirrel cage motors is to run the car up from the bottom landing with contract load and stop at each floor. From the top floor a non stop run is made to the lowest floor and the upward journey with stop is then repeated. The time intervals between stops and starts at the floors should be uniform and such as to give about 180 starts in one hour. At the end of this run the temperatures of the armatures and fields of the motor and generator are recorded. The temperature rise should be within prescribed limit.

1.4 PROVISION FOR DIFFERENTLY ABLED PERSONS (DISABLED AND HANDICAPPED)

The Elevator shall be provided with following features:

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

A laminated safety glass type mirror of at least half of the size shall be installed on rear panel at appropriate position as per IS : 15330 - 2003

SPECIFICATIONS

I. GENERAL:

- I.1. Without forgoing the requirements of the conditions of Tender and the Conditions of Contract the works in general shall conform to the "CPWD Specifications 2003 published by Director General of Works CPWD, Nirman Bhawan, New Delhi and the "Specifications for works" stated in this tender. In case items are not covered by the general specifications referred above, reference shall be made to the appropriate I.S. Codes. If there is any difference in the particular specifications of individual item of work and the description of item as given in the Schedule of quantity, the later shall prevail. In case of any work for which there is no specification in I.S. specifications in the specifications forming part of tender documents or in case there is any variation, such work shall be carried out in all respects in accordance with the instructions to be issued by the Engineer-in-charge. The term Officer in Charge appearing in the specifications shall mean supervisor and be in Charge of the work or his authorized representative as the context may demand. All corrections to "CPWD Specifications 2003" or latest revisions of I.S. Code / Specification shall be deemed to apply to this contract.
- I.1.1. Materials bearing ISI certification mark certification shall be given highest preference for use in the works. Where the Contractor is required to do, perform, execute (etc.) any work or service or the like, it shall be deemed to be at his own cost. Absence of terms providing, Supplying, installing, fixing, etc. shall not even remotely entitle the Contractor to any additional payment therefore.
- I.1.2. The rates quoted and accepted in the Schedule of Quantities apply to all floors, heights, depths, leads, lifts, spans, sizes, shapes, locations, etc. unless otherwise stated in nomenclature of item.
- I.1.3. The Specifications and the Schedules may have been divided into various sub-heads for convenience only. This does not limit applicability of one to the other nor does it absolve the Contractor of his responsibility to complete any trade / item of work as reasonably inferred from one or more of such sub-heads.
- I.1.4. The Schedule of Quantities is not necessarily based on "Schedule of Rates - Delhi or any of its later / earlier versions. Hence the Schedule of Quantities shall be read and construed according to explanations given herein and intentions gathered there from. A mere parallel drawn form the said Schedule of Rates shall therefore not form a basis for a variation and, or additional payment.
- I.1.5. All work under this contract is deemed to be performed above subs soil water level. However, removal of water collected from rains and the like shall be treated as part of contractual risk / obligation.
- I.1.6. Screws, bolts, nuts, washers, hold fasts, lugs, anchors, clamps, plugs, suspenders, brackets, straps and fasteners of the like are deemed to be included in the rates of various items unless the Schedule of Quantities expressed a different intention.
- I.1.7. Resetting any displacements, making good holes / chases and such other incidental jobs are included in rates of respective items for which these are required.

2. DRAWINGS, SPECIFICATIONS, INTERPRETATIONS ETC.

In general, drawings shall indicate the dimensions, positions and type of construction, the specifications shall stipulate the qualities and the methods and performance criteria, and the schedule of quantities shall indicate the provisional quantities and the rates for each item of work. However, the above documents being complementary, what is called for by any one shall be as binding as if called for by all. In case of contradictory requirements between specifications and schedule of quantities, the requirements given in the schedule of quantities shall prevail.

Special conditions being mainly an amplification of General Conditions, they shall be read in conjunction with each other.

Work indicated on the drawings and not mentioned in the schedule of quantities or specifications or vice versa, shall be deemed as though fully set forth in each. Work not specifically detailed, called for, marked or specified, shall be the same as similar parts that are detailed, marked or specified.

Special Note

Though every care is taken while preparing this document to cover all necessary matters, specifications, general conditions, special conditions, provisions for smooth and complete execution of work, however, in case of any omission in the tender / contract document, General Conditions of Contract for CPWD works 2020 (with latest correction slips upto date of receipt of tender) will be the reference manual but not in super session to aforesaid conditions.

Annexure-I

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TECHNICAL DATA SHEET -

		R & D Block	LHC	Sports Block	Hostel H1	Hostel H2
S.No.	Elevator No.	1	2	3	4	5
1	TYPE OF ELEVATOR	Passenger	Passenger	Passenger	Passenger	Passenger
2	CONTROL	ACVVVF(with close loop)	ACVVVF(with close loop)	ACVVVF(with close loop)	ACVVVF(with close loop)	ACVVVF(with close loop)
3	OPERATION W/WO ATTENDANT	Quadruplex DX with FC control	Triplex DX with FC control	Duplex DX with FC control	Triplex DX with FC control	Triplex DX with FC control
4	CAPACITY	13 persons	13 persons	8 persons	13 persons	13 persons
a.	Weight in Kgs.	884 kg	884 kg	544 kg	884 kg	884 kg
b.	Weight of material for interior of the car	To be included	To be included	To be included	To be included	To be included
c.	No. of persons	13	13	8	13	13
5	MACHINE	Gearless	Gearless	Gearless	Gearless	Gearless
6	SPEED (MPS) rated	1.5	1	1	1.5	1.5
7	TRAVEL	G,1,2,3,4,5,6,7,	G,1,2,3,4,5	G,1,2,3	G,1,2,3,4,5,6,7,8,9,10	G,1,2,3,4,5,6,7,8,9,10
8	RISE METERS IN	30	23.5	13.7	31.5	31.5
9	OPENINGS	8	6	4	11	11
10	STOPS	8	6	4	11	11
11	CAR SIZE IN (MM) (Inside Dimensions)	Not less than IS Codes	Not less than IS Codes	Not less than IS Codes	Not less than IS Codes	Not less than IS Codes
12	AVAILABLE HOIST WAY SIZE (mm) (Inside Dimensions)	2100 mm width and 2500 mm depth	2100 mm width and 2500 mm depth	1900 mm width and 1900 mm depth	2105 mm width and 1900 mm	2105 mm width and 1900 mm
13	CAR AND HOISWAY ENTRANCE (mm)	1100 mm wide x 2000 mm deep x 2300 mm high	1100 mm wide x 2000 mm deep x 2300 mm high	1100 mm wide x 1300 mm deep x 2300 mm high	1500 mm wide x 1450 mm deep x 2300 mm high	1500 mm wide x 1450 mm deep x 2300 mm high
14	DOOR OPERATION	Automatic with ACVVVF Motor door operator with electric / infrared sensor door Detector	Automatic with ACVVVF Motor door operator with electric / infrared sensor door Detector	Automatic with ACVVVF Motor door operator with electric / infrared sensor door Detector	Automatic with ACVVVF Motor door operator with electric / infrared sensor door Detector	Automatic with ACVVVF Motor door operator with electric / infrared sensor door Detector

15	HEIGHT OF LIFT CAR	2300 mm high	2300 mm high	2300 mm high	2300 mm high	2300 mm high
16	MACHINE ROOM SIZE AND LOCATION	Machine room less	Machine room less	Machine room less	Machine room less	Machine room less
17	PIT DEPTH	1625 mm	1625 mm	1525 mm	1625 mm	1625 mm
18	NOISE LEVEL CABIN (RUNNING CAR)	55 Db	55 Db	55 Db	55 Db	55 Db
19	INTERIOR (CAR ENCLOSURE & DOOR)	Brushed stainless steel	Brushed stainless steel	Brushed stainless steel	Brushed stainless steel	Brushed stainless steel
20	LANDING DOOR	FULL HEIGHT GLASS DOOR WITH SS METAL FRAME -Fire rated toughened glass in Stainless steel frame	FULL HEIGHT GLASS DOOR WITH SS METAL FRAME -Fire rated toughened glass in Stainless steel frame	FULL HEIGHT GLASS DOOR WITH SS METAL FRAME -Fire rated toughened glass in Stainless steel frame	FULL HEIGHT GLASS DOOR WITH SS METAL FRAME -Fire rated toughened glass in Stainless steel frame	FULL HEIGHT GLASS DOOR WITH SS METAL FRAME -Fire rated toughened glass in Stainless steel frame
21	CEILING LIGHTING &	Square spot, LED Brushed stainless steel, Square Spot Light LED	Square spot, LED Brushed stainless steel, Square Spot Light LED	Square spot, LED Brushed stainless steel, Square Spot Light LED	Square spot, LED Brushed stainless steel, Square Spot Light LED	Square spot, LED Brushed stainless steel, Square Spot Light LED
22	HANDRAIL	Round Bend Handrail Silver brushed stainless steel	Round Bend Handrail Silver brushed stainless steel	Round Bend Handrail Silver brushed stainless steel	Round Bend Handrail Silver brushed stainless steel	Round Bend Handrail Silver brushed stainless steel
23	FLOORING	20-25 mm recessed to be provided for Marble / Granite Stone (By others)	20-25 mm recessed to be provided for Marble / Granite Stone (By others)	20-25 mm recessed to be provided for Marble / Granite Stone (By others)	20-25 mm recessed to be provided for Marble / Granite Stone (By others)	20-25 mm recessed to be provided for Marble / Granite Stone (By others)
24	ON ELEVATOR	Blower mounted roof with side ducts.	Blower mounted roof with side ducts.	Blower mounted roof with side ducts.	Blower mounted roof with side ducts.	Blower mounted roof with side ducts.
25	FIREMAN SWITCH	Provide for all elevators	Provide for all elevators	Provide for all elevators	Provide for all elevators	Provide for all elevators
26	MIRROR	Full height mirror on	Full height mirror on	Full height mirror on	Full height mirror on rear car panel/	Full height mirror on rear car panel/

		rear car panel/ full height panel of mirror finish is also accepted	rear car panel/ full height panel of mirror finish is also accepted	rear car panel/ full height panel of mirror finish is also accepted	full height panel of mirror finish is also accepted	full height panel of mirror finish is also accepted
27	ADDITIONAL FEATURES	Micro motion Hall Button with LED Illumination	Micro motion Hall Button with LED Illumination	Micro motion Hall Button with LED Illumination	Micro motion Hall Button with LED Illumination	Micro motion Hall Button with LED Illumination
		2 Nos. Car operating Panel with Braille marking with Micro-motion button	2 Nos. Car operating Panel with Braille marking with Micro-motion button	2 Nos. Car operating Panel with Braille marking with Micro-motion button	2 Nos. Car operating Panel with Braille marking with Micro-motion button	2 Nos. Car operating Panel with Braille marking with Micro-motion button
		Digital display in the car where it shall be act as per assignment indicator, car position & direction indicator	Digital display in the car where it shall be act as per assignment indicator, car position & direction indicator	Digital display in the car where it shall be act as per assignment indicator, car position & direction indicator	Digital display in the car where it shall be act as per assignment indicator, car position & direction indicator	Digital display in the car where it shall be act as per assignment indicator, car position & direction indicator
		Digital hall position indicators at all floors.	Digital hall position indicators at all floors.	Digital hall position indicators at all floors.	Digital hall position indicators at all floors.	Digital hall position indicators at all floors.
		Battery operated alarm bell emergency lights.	Battery operated alarm bell emergency lights.	Battery operated alarm bell emergency lights.	Battery operated alarm bell emergency lights.	Battery operated alarm bell emergency lights.
		Overload warning indicator in car.	Overload warning indicator in car.	Overload warning indicator in car.	Overload warning indicator in car.	Overload warning indicator in car.
		Telephone cabinet in car with lead in traveling cables.- 2 Way Dedicated Intercom	Telephone cabinet in car with lead in traveling cables.- 2 Way Dedicated Intercom	Telephone cabinet in car with lead in traveling cables.- 2 Way Dedicated Intercom	Telephone cabinet in car with lead in traveling cables.- 2 Way Dedicated Intercom	Telephone cabinet in car with lead in traveling cables.- 2 Way Dedicated Intercom
		Music.	Music.	Music.	Music.	Music.

	Lift announcement system	Lift announcement system	Lift announcement system	Lift announcement system	Lift announcement system
	The car operational panel with toe non-stop push button for emergencies.	The car operational panel with toe non-stop push button for emergencies.	The car operational panel with toe non-stop push button for emergencies.	The car operational panel with toe non-stop push button for emergencies.	The car operational panel with toe non-stop push button for emergencies.
	Emergency Rescue Device with audio announcer	Emergency Rescue Device with audio announcer	Emergency Rescue Device with audio announcer	Emergency Rescue Device with audio announcer	Emergency Rescue Device with audio announcer
	Nudging service	Nudging service	Nudging service	Nudging service	Nudging service
	Square Spot Light LED & Car Emergency Light	Square Spot Light LED & Car Emergency Light	Square Spot Light LED & Car Emergency Light	Square Spot Light LED & Car Emergency Light	Square Spot Light LED & Car Emergency Light
	Access Control Provision	Access Control Provision	Access Control Provision	Access Control Provision	Access Control Provision
	Interface only	Interface only	Interface only	Interface only	Interface only
	Accurate Relevelling, Automatic, Closed Door	Accurate Relevelling, Automatic, Closed Door	Accurate Relevelling, Automatic, Closed Door	Accurate Relevelling, Automatic, Closed Door	Accurate Relevelling, Automatic, Closed Door
	Standard safety and operational instruction to be screwed on the lift wall	Standard safety and operational instruction to be screwed on the lift wall	Standard safety and operational instruction to be screwed on the lift wall	Standard safety and operational instruction to be screwed on the lift wall	Standard safety and operational instruction to be screwed on the lift wall

C	PARAMETERS COMMON TO ALL LIFTS	
1.0	Machine	
1.1	Power Supply	415V/240V, 50 Hz
1.2	Acceptable voltage fluctuation	+10 to - 10%
1.3	Rate of acceleration / deceleration (m/sec ²)	0.6 - 1.5 (adjustable at site)
1.4	Jerk (m/sec ²)	0.7 - 1.5 (adjustable at site)
1.5	Vibrations in car horizontal/ vertical	20/18 MG maximum
1.6	Noise level in car	45 dBA maximum
1.7	Noise level in machine room at 1 mtr from machine	52 dBA maximum

1.8	Door noise level while closing and opening at a distance of 1 mtr from car door and 1.5 mtr from floor level	52dBA maximum
2.0	Fixtures / signals inside car	
2.1	Normal lighting	Square Spot Light LED
2.2	Emergency light and alarm bell (to security room)	With SMF battery operated with charger rated for 30 minute
2.3	Ventilation	Blower Fan(Two speed and concealed vents)
2.4	Operating buttons and indications	Stainless steel operating panel with following buttons and indications.
		Illuminated push buttons of micro pressure type corresponding to the floors served
		Door open button
		Emergency stop button
		Emergency alarm button
		Two position key operated switch for 'with attendant' and 'without attendant' operation.
		Ventilation fan ON/OFF switch with auto OFF when there is no call after 120 seconds.
		Built in intercom of the hands free type.
		Dynamic car direction display
		Digital position indicators
		Visual overload warning indicator
2.5	Music(Music Speaker)	Trailing cable
3.0	Landing signals	
3.1	Hall buttons	Self-illuminating micro-push type in hair line stainless steel facia plates
3.2	Car Position	Digital position indicators along with direction of travel (with audible signal in each elevator lobby)
3.3	Hall gong	Up/down indicator with single stroke gong/chime at all landing
4.0	Safety features	
4.1	Door safety	Infrared / Electronic detectors.
4.2	Buffer	Spring Buffer to be provided
4.3	Overload protection	<ul style="list-style-type: none"> ➤ Overload protective device ➤ Overload non starter.
4.4	Over travel protection	Terminal and final limit switches to be provided
4.5	Motor protection	Trip devices for : <ul style="list-style-type: none"> ➤ Over current ➤ Under voltage ➤ Over voltage ➤ Single phasing ➤ Earth leakage ➤ Phase reversal
4.6	Interlocking of car and hoistway doors	To be provided as per specifications.

5.0	Associated Civil and structural items	All civil and structural items of work associated with erection and operation of lifts shall be provided by the Contractor at his cost including (but not restricted to) the following.
		Temporary Scaffolding and safety barricades for erection in and around lift hoist ways
		Bearing plates
		Buffer supports
		Facia plates
		Ladder in pits
		Safety railing on top of car
		Channels, separators, stretchers etc.
6.0	Fireman's switch	To be provided at GF/ Lobby level
7.0	Free Comprehensive Maintenance Period	ONE YEAR after completion of work and handing over of the Lifts in satisfactory operating condition.

Recommended makes of the lift and other materials to be used for Installation, Testing and Commissioning of the Lift.

S.no	DESCRIPTION OF ITEM	APPROVED MAKE
1	ELEVATORS LIFT) OF OEM	a) M/s KONE Elevator India Pvt. Ltd. * b) M/s OTIS Elevator Company India Ltd. c) M/s Johnson Lifts pvt. Ltd. d) M/s Schindler India Pvt. Ltd e) M/s. Mitsubishi Elevators
2	ANY OTHER ITEM	As Approved by the E/C

* Existing lifts being of M/s KONE Elevator India Pvt. Ltd make it would be preferable to have M/s KONE Elevator India Pvt. Ltd / Authorized agencies bids for ease of repairs and maintenance , spares, and synchronization besides matching existing lifts in each core.

Annexure - XX

GENERAL INSTRUCTIONS FOR SITE VISIT

I, , aged years, son/daughter of , presently residing at and authorized by (name of tenderer) (“Tenderer”) to solemn this affidavit on behalf of the Tenderer, solemnly affirm on oath as hereunder:

The Tenderer confirms that the Tenderer has duly undertaken the visit of the proposed project site of IIITD located at Okhla Phase III, New Delhi,

The Tenderer has inspected and examined its surroundings and has satisfied itself about the site conditions and site logistics. The Tenderer confirms that it is aware of the ground conditions and nature of the site, means of access to the site and the accommodation area required for establishing the labour camp. The Tenderer agrees and confirms it shall be solely responsible for arranging and maintaining the afore- mentioned at its own cost including 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.

The Tenderer confirms and agrees that the submission of the tender implies that the requisite site visit has already been undertaken and that the Tenderer has acquainted itself with the local conditions and other factors having a bearing on the execution of the Work.

DEPONENT VERIFICATION

I, , aged years, son/daughter of , presently residing at and authorized by Tenderer verify that the information mentioned above is true and correct to the best of my knowledge and belief.

DEPONENT

SPECIAL DATA TO BE FURNISHED BY TENDERERS

SI No	Data to be filled in by tenderers	R & D Block Passenger lift	LHC Passenger lift	Sports Block Passenger lift	Hostel H1 Passenger lift	Hostel H2 Passenger lift
A	Equipment details					
	Manufacturer Name					
1	Machine type (Geared/Gearless)					
2	Reduction gear unit ratio					
3	Drive motor data					
i)	kW					
ii)	Starting current (Amp)					
iii)	F.L. Rated current (Amp)					
iv)	Max. no. of starts per hour.					
v)	Insulation class					
4	Hoist/Governor ropes (no. and size)					
5	Max. temperature tolerance during peak summer months					
6	Heat release data for machine room equipment					
B	Special features					
	Tenders to confirm Included /Not included in respect of the following	Included/Not Included				
1	Auto fan off switch					
2	Fan inside the Car					
3	Over load warning indicator					
4	Ni-Cd batteries with charging circuit.					
5	Doors safety					
6	Additional weight permitted inside the car for interiors.					
C	Performance parameters					
1	Leveling accuracy					
2	Governor tripping speed.					
3	BMS Compatibility- provisions of potential free contact for providing information for lift position, door, opening & closing etc.					

Bill of Quantity

BILL OF QUANTITY FOR LIFT WORKS					
Item No.	Description	Qty.	Unit	Rate	Amount
	Design manufacture, supply, installation, testing, commissioning and handing over in satisfactory working condition, with Machine room less lift including the cost of providing free comprehensive (Including the cost of spares, consumables etc.) free maintenance for one years DLP after handing over complete as per specifications, as required and as below.				
1.0	R & D BLOCK				
a)	Passenger Lift with 13 passengers / 884 Kgs. capacity, 1.5 mps speed, ACVVVF control, Quadraplex Operation, with 25 mm recess in floor for Granite stone finish (by Owners).	1	No.		
b)	8 stops (Ground to 7th Floor) all on same side, travel 30 mtrs Duplex / Simplex operation.				
2.0	LECTURE HALL COMPLEX				
a)	Passenger Lift with 13 passengers / 884 Kgs. capacity, 1.0 mps speed, ACVVVF control, Triplex Operation, with 25 mm recess in floor for Granite stone finish (by Owners).	1	No.		
b)	6 stops (Ground to 5th Floor) all on same side, travel 23.5 mtrs Duplex / Simplex operation.				
3.0	SPORTS BLOCK				
a)	Passenger Lift with 8 passengers / 544 Kgs. capacity, 1.0 mps speed, ACVVVF control, Duplex Operation, with 25 mm recess in floor for Granite stone finish (by Owners).	1	No.		
b)	4 stops (Ground to 3rd Floor) all on same side, travel 13.7 mtrs Duplex / Simplex operation.				
4.0	HOSTEL - (H1 & H2)				
a)	Passenger Lift with 13 passengers / 884 Kgs. capacity, 1.5 mps speed, ACVVVF control, Triplex Operation, with 25 mm recess in floor for Granite stone finish (by Owners).	2	No.		
b)	11 stops (Ground to 10th Floor) all on same side, travel 31.5 mtrs Simplex operation.				
	TOTAL				
	GST				
	TOTAL AMOUNT WITH GST				

Note: All rate to be inclusive cost of Transportation, Labour, Materials, lifting , loading, unloading , crane etc. as required for satisfactory completion of work.

In words (Rs) (_____)

SIGNATURE OF TENDERERS

Bill of Quantity (Optional Items)

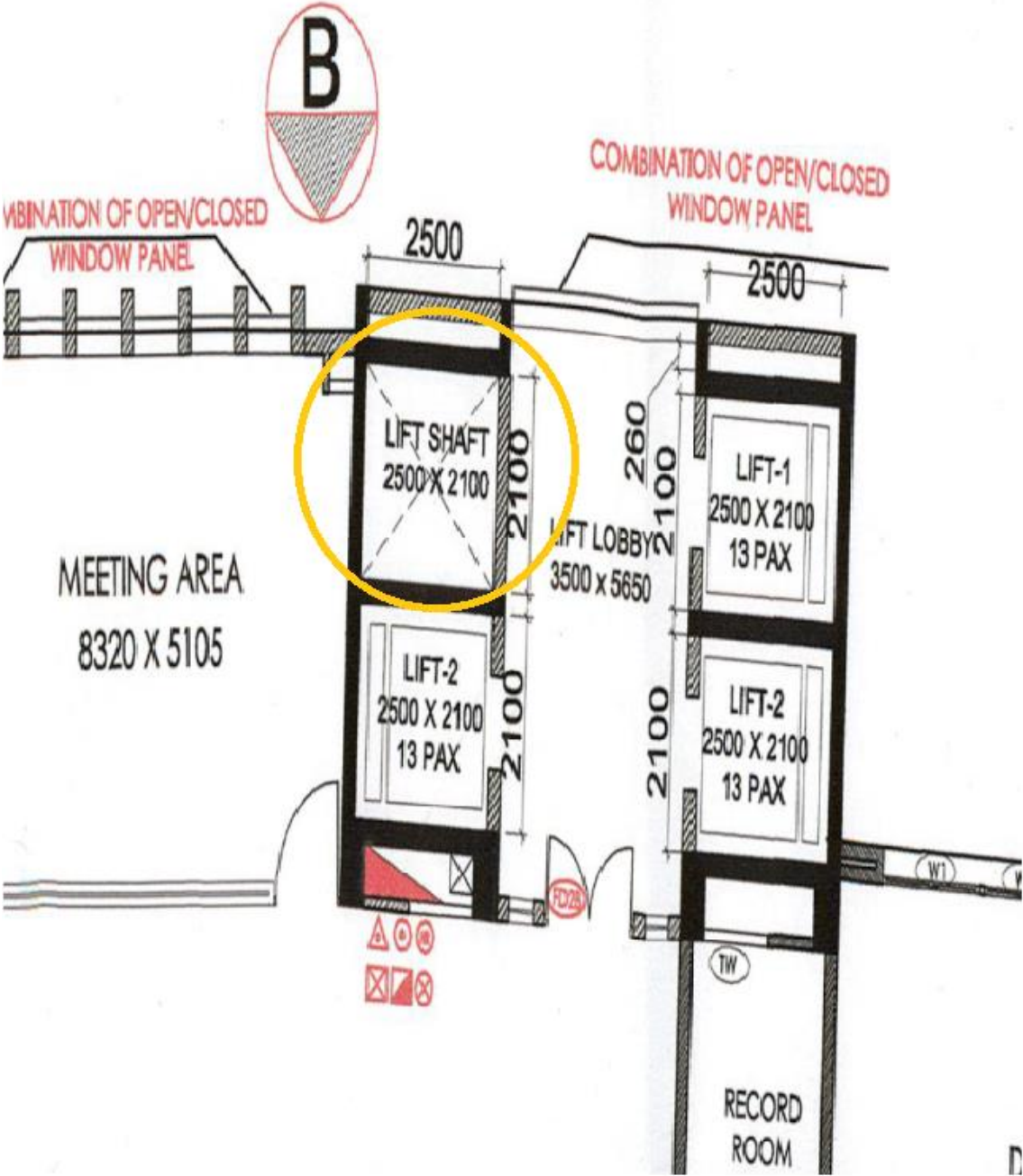
Comprehensive Annual Maintenance Contract after completion of Defects Liability Period, inclusive of Labour, Materials, Transportation, Tool & Plants, Spares, Consumables, Components etc. For all kinds of Preventive & Breakdown Maintenance. Breakdown Maintenance will be required to be carried out based on the arising on 24 hrs x 365 days basis.

Sl. No.	Comprehensive Annual Maintenance Contract of	Prices inclusive of all taxes & duties				
		I Year	II Year	III Year	IV Year	V Year
1	R & D BLOCK- I No Passenger Lift with 13 passengers / 884 Kgs. capacity, 1.5 mps speed, ACVVVF control, Quadraplex Operation, with 25 mm recess in floor for Granite stone finish (by Owners). 8 stops (Ground to 7th Floor) all on same side, travel 30 mtrs Duplex / Simplex operation.-					
2	LECTURE HALL COMPLEX-I No Passenger Lift with 13 passengers / 884 Kgs. capacity, 1.0 mps speed, ACVVVF control, Triplex Operation, with 25 mm recess in floor for Granite stone finish (by Owners). 6 stops (Ground to 5th Floor) all on same side, travel 23.5 mtrs Duplex / Simplex operation.					
3	SPORTS BLOCK-I Nos Passenger Lift with 8 passengers / 544 Kgs. capacity, 1.0 mps speed, ACVVVF control, Duplex Operation, with 25 mm recess in floor for Granite stone finish (by Owners). 4 stops (Ground to 3rd Floor) all on same side, travel 13.7 mtrs Duplex / Simplex operation.					
4	HOSTEL - (H1)- I Nos Passenger Lift with 13 passengers / 884 Kgs. capacity, 1.5 mps speed, ACVVVF control, Triplex Operation, with 25 mm recess in floor for Granite stone finish (by Owners). 11 stops (Ground to 10th Floor) all on same side, travel 31.5 mtrs Simplex operation.					
5	HOSTEL - (H2)- I Nos Passenger Lift with 13 passengers / 884 Kgs. capacity, 1.5 mps speed, ACVVVF control, Triplex Operation, with 25 mm recess in floor for Granite stone finish (by Owners). 11 stops (Ground to 10th Floor) all on same side, travel 31.5 mtrs Simplex operation.					
A	TOTAL AMOUNT					
B	GST					
C	TOTAL AMOUNT WITH GST (A+B)					
D	GRAND TOTAL (C)					

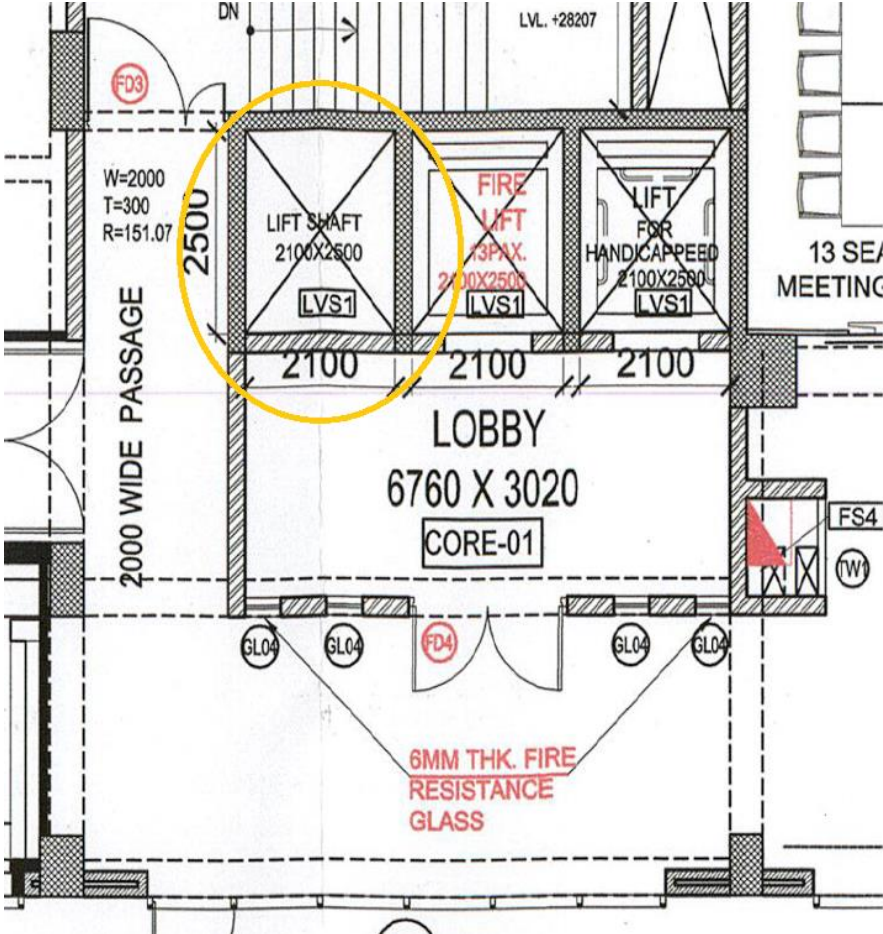
Note:-

- Above Prices will not be part of Tender Evaluation
- It will not be binding on IIITD for entering into above Comprehensive Annual Maintenance Contract
- If IIITD decides to enter into the above Comprehensive Annual Maintenance Contract, a separate Contract Agreement shall be made, which will not be part of this Contract
- Tenderers are expected to quote Reasonable Prices.

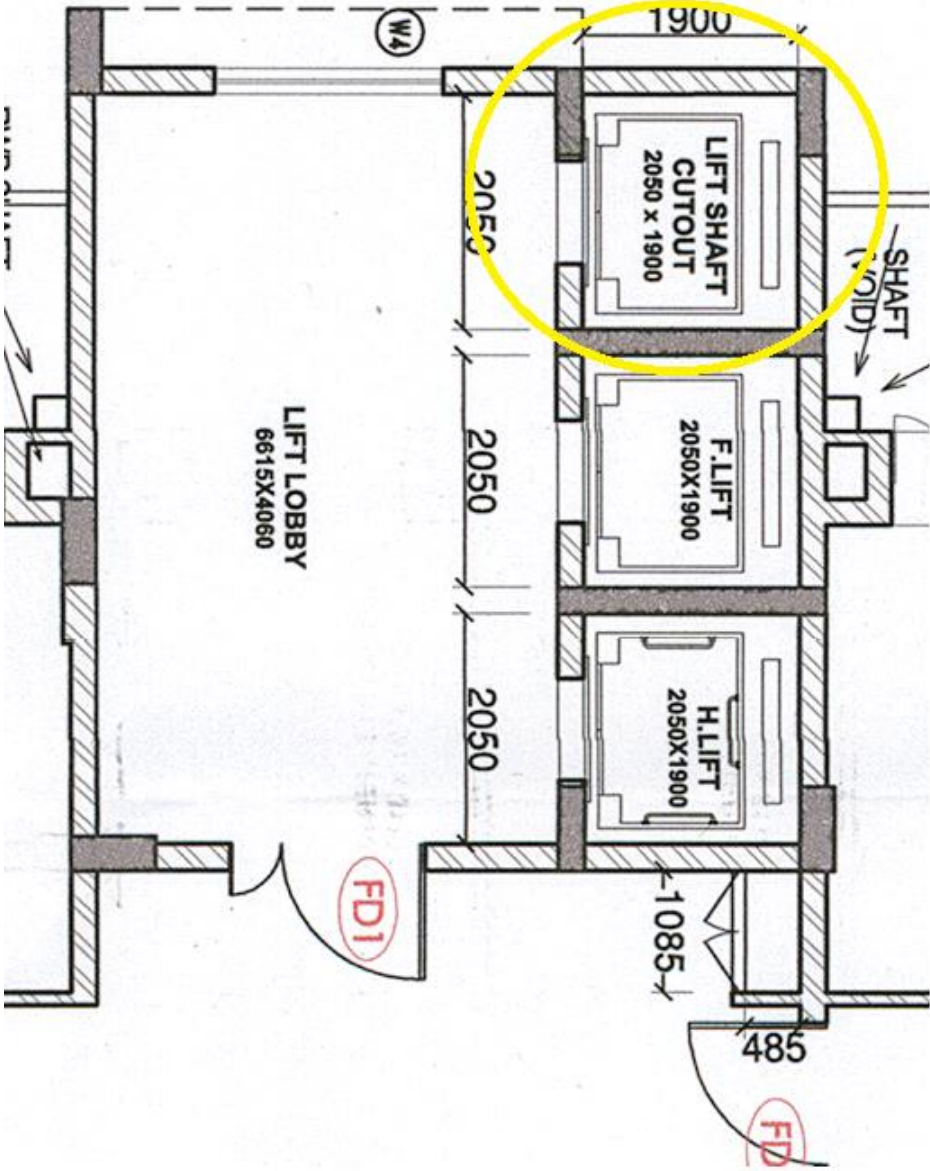
LIST OF DRAWINGS



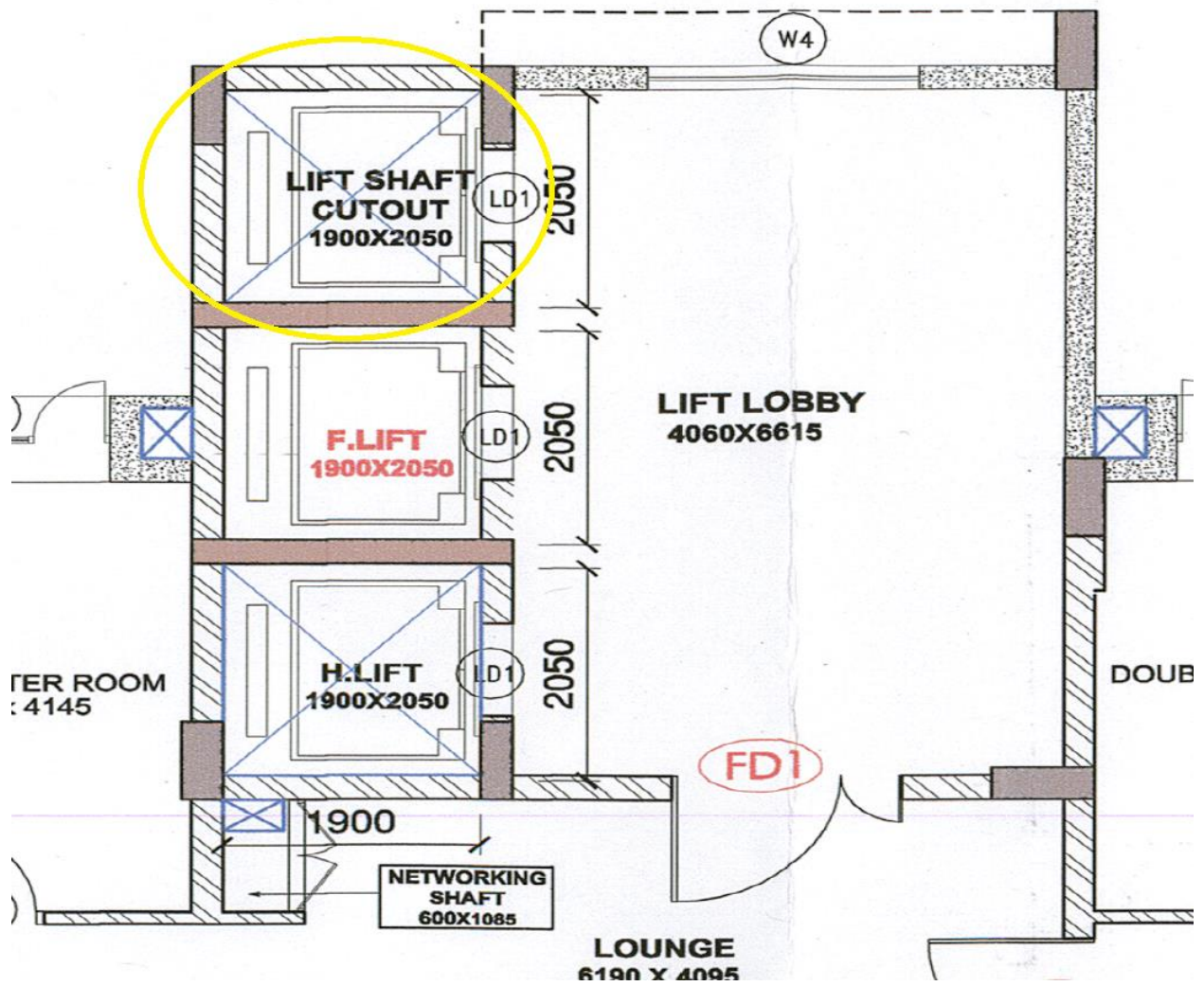
R & D BLOCK



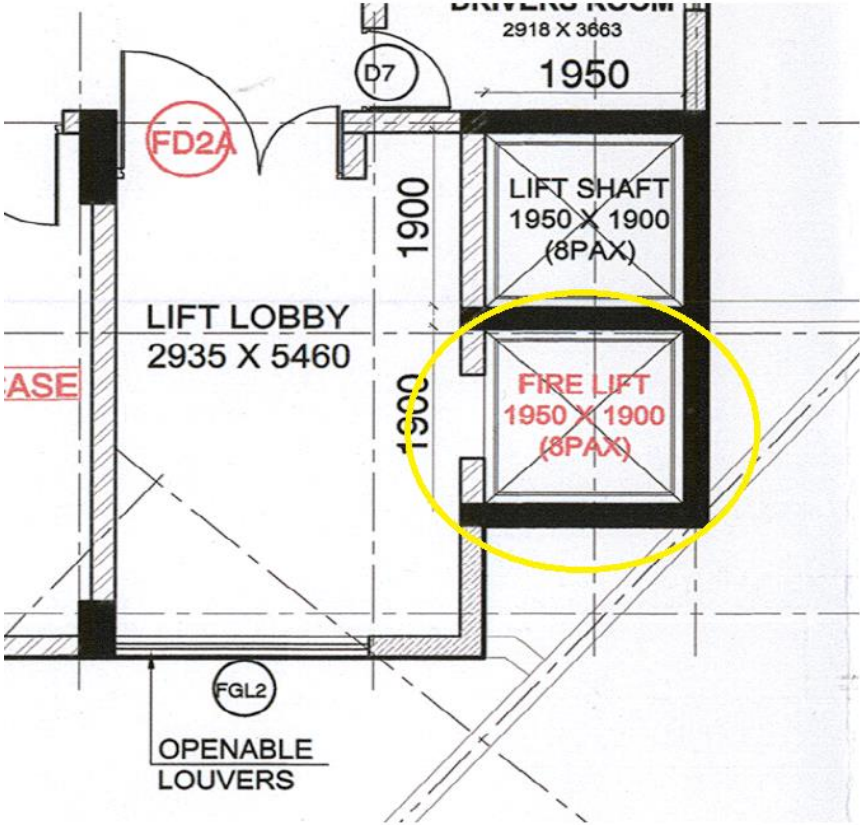
LECTURE HALL COMPLEX



HOSTEL HI



HOSTEL H2



SPORTS BLOCK