



Office of the Director

INDIRA GANDHI INSTITUTE OF MEDICAL SCIENCES,

SHEIKHPURA, PATNA - 800 014 (Bihar, India)

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(E-Tender Notice No.: IGIMS/EC/EW/06/2026-27)

Memo No.-EC/EW/E800/198/26/146

Date :14/08/2026

E-Tender Notification

Indira Gandhi Institute of Medical Sciences, Patna invites percentage rates for Scheduled items & rates for Non-Scheduled items in two bid system from reputed agency/manufacturer or their authorized dealer for the “Supply, installation, testing and commissioning of 15 Passenger/1020 kg (Stretcher & Passengers) Lift/elevator for G+2 New Modular OT Complex building beside mortuary area, at IGIMS, Patna-14”.

Sl no.	Name of the Work	Estimated Cost (₹)	Tender Processing Fee(₹)	Cost of BOQ (₹)	Earnest Money Deposit (₹)	Period of Completion
1.	Supply, installation, testing and commissioning of 15 Passenger/1020 kg (Stretcher & Passengers) Lift/elevator for G+2 New Modular OT Complex building beside mortuary area, at IGIMS, Patna-14	₹35,24,170.00	As generated per www.eproc2.bihar.gov.in	₹5,000.00	₹70,484.00	120 days
Date for obtaining BOQ (Only on www.eproc2.bihar.gov.in)			22 / 08 /2026			
Date & time of Pre-bid meeting for any Queries			04 / 09 /2026 up to 3.00 PM in Conference Hall, IGIMS, Patna (Any query can be also sent on bme@igims.org)			
Reply of Pre-bid Queries (Only on www.eproc2.bihar.gov.in and www.igims.org)			Till 08 / 09 /2026 up to 3.00 PM			
Last date & time for uploading of complete tender documents (on www.eproc2.bihar.gov.in)			21/09/2026 up to 3.00 PM			
Last Date and time for Submission of complete tender documents Hard Copy at Director's office IGIMS Through Registered/Speed Post or Courier			22./09/2026 up to 3.00 PM			
Date & Place of Opening of tender (Technical bid Only on www.eproc2.bihar.gov.in)			23/09/2026 up to 3.00 PM in Conference Hall, IGIMS, Patna			
Date & Place of Opening of tender (Price bid Only on www.eproc2.bihar.gov.in)			Date of opening of Price bid of Technically viable tender shall be intimated only through www.eproc2.bihar.gov.in and on Institute web site www.igims.org			

Bidding Document containing details terms and conditions can be seen and downloaded from institute Website: www.igims.org and www.eproc2.bihar.gov.in The undersigned reserves the right to accept/reject any or all tenders without assigning any reason. Prospective bidders are advised to regularly visit www.igims.org and www.eproc2.bihar.gov.in for Corrigendum/ amendments etc., if any. It will be notified on these portals only and no separate advertisement will be made.

Sd/-

Director,
I.G.I.M.S. – Patna

Particulars in Brief:

1. Authority to sanction the tender: Director, IGIMS, Sheikhpura, Patna-[800014](#).
2. Any Contractor registered under, CPWD, BCD, Energy Department, Railway, autonomous bodies, PSUs or in any government Organization in which similar nature of works are carried.
3. **Tender shall be carried out only through e-tender procedure at the website (www.eproc2.bihar.gov.in). For any information regarding e-tender procedure, bidder may contact at Help Desk eProc2.0 Help Desk Address: mjunction services limited RJ Complex, 2nd Floor, Canara Bank Campus, Khajpura, Ashiana Road, P.S. Shastri Nagar, Patna 800 014, Bihar and may contact also on Toll Free Number: [1800 572 6571](tel:18005726571), Email Id: cproc2support@bihar.gov.in.**
4. Bidders desiring to participate in the tender shall have to get registered with e-procurement portal. Necessary registration forms are available at the website. Bidders will get user id and password by registration. Bidder shall have to obtain DSC (Digital Signature Certificates) also. Bidders shall be able to participate in tender using user id, password, DSC and internet.
5. Bidders shall have to obtain (download) tender papers and submit (upload) their bids at the website www.eproc2.bihar.gov.in.
6. Prescribed forms filled up at specified places and necessary documents must (in hard copy) be submitted in office of the Director, IGIMS, Patna on or before the stipulated time by Regd./Speed Post/Courier. Information regarding tender opening or any corrigendum regarding tender shall be available at the website only. In case of non submission of tender documents in hard copy as per eligibility criteria and technical bid sheet the bidder will be non responsive.
7. The cost of tender document is non-refundable and **Earnest money to the tender may be submitted through bank guarantee /internet payment Gateway/ Internet Banking. All EMD should be pledged to Director IGIMS, Patna, as per provisions of EPROC2 of BELTRON. (Related site www.eproc2.bihar.gov.in) Any query regarding this may be clarified with To Free No. [18005726571](tel:18005726571) or E-mail ID coroc2suood@bihar.gov.in. All Original document Acknowledgement Of amount deposit towards value of Quantity Bill and original copy of BG (Bank Guarantee) to be deposited as EMD or receipt of amount deposited in online mode (Whichever is applicable) it is Mandatory to submit to the Accounts Section, Indira Gandhi Institute of Medical Sciences, Patna-14 before the scheduled, date and time of opening of technical bid. Otherwise tender will not be valid.**
8. The Bid validity period of 120 days from the date of submission of tender/bid.
9. Tender/quotation processing fee (Non Refundable as per NIT- is mandatory to be paid through online mode i.e. Internet payment gateway (credit/debit card, net banking, NEFT/RTGS).
10. Bids along with necessary on line payment must be submitted through e-procurement portal www.eproc2.bihar.gov.in before the date & time specified in the N.I.T. The department does not take any responsibility for the delay/non submission of tender/ quotation non reconciliation of online payment caused due to non availability of internet connection, network traffic /holidays or any other reason.
11. Regarding any information of the proposed work, bidder should contact the Superintending Engineer, IGIMS, Patna on any working day, before submission of bid.
12. The undersigned has right to extend or cancel the Bids without declaring any reason.

INSTRUCTION TO BIDDER

1. Bidders has to submit hard copy of tender in sealed envelopes containing all related documents (hard copy) of Technical bid super scribed as "Technical Bid" and Price bid super scribed as "Price Bid" in two separate envelopes, both containing in third envelope super scribed as "Bids for (E-Tender Notice No: IGIMS/EC/EW/...../2026-27). This must reach to the office of the undersigned through Registered post/ Speed post/Courier Services only on or before the last submission day and time of tender as mentioned in tender Notice. IGIMS takes no responsibility for the delay or loss in transit of any document related to this Tender.
2. IGIMS reserves the right to accept or reject any application without assigning any reason or incurring any liability whatsoever.
3. Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tender on his own cost, to acquaint themselves from the Building, Lift duct and Lift Room, the form and nature of the site, the means of access to the site, the volume of work involved, 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 work tender. The

bidder shall be deemed to have full knowledge of the site, nature of work etc, whether he inspects it or not. Any misunderstanding or otherwise over the scope of works on the part of bidder shall not be entertained after award of work.

4. The work to be awarded by this tender shall be treated as indivisible works contract and bidder shall have legal entity.
5. IGIMS reserves the right to inspect the works intimated to have been completed by the applicant and reject any prospective application without assigning any reason.
6. The tender for the works shall remain open for acceptance for a period of 120 days from the date of opening of tenders.

7. **Completion period**

The completion period (120 days) indicated in the tender documents for " Supply, installation, testing and commissioning of 15 Passenger/1020 kg (Stretcher & Passengers) Lift/elevator for G+2 New Modular OT Complex building beside mortuary area, at IGIMS, Patna-14 is as per terms of NIT.

8. All the items covered in the BOQ, shall be under defect liability period (DLP) of one years from the date of completion of work. The service support has to be provided at IGIMS, Patna-14. The repairing / rectification, if any of the items under DLP must be done at site only within 4 hours.
9. The bidder should submit along with the technical bid, the detailed plan for providing SITC at site. Prompt and efficient service must be free within the DLP period.
10. The bidders must have name, signature, date & seal should appear on each page of the tender Document which is required to be submitted with technical bid in the form of hard copy.
11. The bidder shall be responsible for the inspection of elevators at manufacturer's site, delivery of the spare/material/ equipment to site and shall include in his bid all the necessary arrangements for transport, loading and off-loading (including cranes, lifting tackles, wire rope, winches, slings, etc.). All the necessary arrangement for civil and electrical work along with material for installation, testing and commissioning to complete the work will be contractor's/bidder's responsibility. IGIMS will not accept any claims for additional costs in this regard.
12. If the contractor or his workmen or employees shall break, deface, injure, or destroy any part of a building, road kerb, fence, enclosure, water pipes, cables, drains, electric or telephone posts, wires, etc. The contractor shall make the same good at his own expenses. IGIMS may cause the same to be made good by other workmen and deduct the expenses of which IGIMS decision is final.

13. **Safety**

The successful bidder shall follow the Safety Code and Model Rules for the Protection of health and sanitary arrangement for Workers.

14. The quality and make of all the materials to be utilized by the successful bidder must be get approved by the Superintending Engineer before utilizing it.
15. The successful bidder has to submit weekly progress report of the work to the Superintending Engineer while execution of the work.

16. **Eligibility Criteria:**

a. Manufacturer or their authorized dealer/agencies should be having all the necessary documents including GST, PAN, Registration, experience etc. He must enclose the Self attested photocopies with notarized copy of these documents. Dealer/agencies have to submit authorization letter on behalf of OEM of Lift/Elevator.

b. Notarized copy of Valid Electrical License in the name of the bidder, issued from the competent government licensing authority.

17. This NIT will be integral part of the contract document. The successful bidder/contractor, on acceptance of his tender by the Accepting Authority will sign the contract agreement.
18. The contractor shall submit the program for execution of work, get it approved from the Superintending Engineer and strictly adhere the same for the timely completion of the project work before start of the work.
19. The rate for all items of work shall include the cost of all labour, materials and all other inputs involved in the execution of the complete work and nothing extra on any account will be paid to the agency other than his quoted rates.
20. While installing or commissioning of any spares/parts the contractor or his authorized representative should always be available at the site of work to take instructions from department officers and ensure proper execution of work.
21. The contractor shall maintain in good condition all work executed till the completion of entire work allotted to the contractor. No payment will be made to the contractor for damages caused by rains, floods or any other natural calamity, whatsoever during the

execution of the work. The contractor shall be fully responsible for any damage to the Owners property and to the work for which the payment has been advanced to him under the contract during the execution of the works.

22. The malba /garbage, removed from the site shall be disposed off by the contractor at any suitable place as directed by the Superintending Engineer of the Institute.
23. Material must be properly packed against any damage and insured up to the destination. The material should be directly dispatched to the installation site at IGIMS, Patna-14.
24. All the expenses involved in inspection of elevator's at manufacturer's factory by the IGIMS officials, delivering, unloading etc. the equipment/spares /tools etc., at our site, shall be borne by the Bidder. All aspects of safe delivery shall be the exclusive responsibility of the Bidder. IGIMS will have the right to reject the component/equipment supplied, if it does not comply with the specifications at any point of installation, inspection and testing, EMD is liable to be forfeited and bid is liable to be rejected, if the bidder withdraws or amends Impairs or derogates from the tender in any respect within the validity period of tender.
25. Along with standered deduction, 1% labour cess will be deducted of the completed work as per prevailing Bihar state government rules.
26. IGIMS, Patna shall have the sole right to assess the performance of the tendered equipment(s) /components, primary/intermediate and or final, and reject the same without assigning any reason / explanation to the bidder if the performance is found to be unsatisfactory. The decision of IGIMS will be final and binding on the contractor.
27. Price basis should be FOR IGIMS Patna only. The quoted price will be considered firm and no price escalation will be permitted.

28. **SECURITY DEPOSIT**

- a. The amount of Security Money shall be 10% (Ten Percent) of the work order Value- and deduction/deposit shall be made in following manner.
 - b. On acceptance of tender, it will be obligatory to deposit Initial Security money @ 5% of the amount of the approved tender. (EMD money deposited at the time of tender will be adjusted in this 5% security money). Balance money after adjusting EMD money in the Five Percent of the agreed value, which has to be deposited by the contractor through D. D/NEFT/RTGS/BCG payable in Director IGIMS Patna and remain with IGIMS till expiry of DLP. Balance 5% (Five Percent) Security Money will be deducted from each running account bill of work done under work order/agreement.
29. Security deposit shall be refunded after expiry of DLP i.e. 12 months after the date of completion of work order for SITC work after satisfactory performance provided there are no defects in work and removed all surplus material, rubbish, scrap from site. The Security deposit shall be totally non-Interest in case of Demand Draft, if furnished, shall also not entail any liability towards bank interest, money or bank charges etc. on IGIMS.

30. **Payment**

Final Payment will be released after satisfactory completion of the complete work i.e. successful supply, installation, Testing and commissioning of the entire project along with the clearance from Electrical Inspector, any other statutory bodies, authorised vendors from chief Inspector of factories and after successful load trial of the installation and acceptance by the IGIMS as per agreement through Measurement book, All the payment shall be made on actual measurement basis.

The successful bidder, on signing an indenture in the form to be specified by the Superintending Engineer, shall be entitled to be paid, during the execution of work, up to 70% of the estimated value towards the supply of any materials, which, in the opinion of the Superintending Engineer, are non-perishable and which have been procured and adequately stored against damage, but which have not been incorporated in the works at the time of making advance. This secured advance shall be subject to the following:

Such materials have been delivered to site, and are properly stored and protected against damage or deterioration to the satisfaction of the Superintending Engineer. The Contractor shall store the bulk material in measurable stacks,

Ownership of such materials shall be deemed to vest in the Employer for which the Contractor has submitted an Indemnity Bond in an acceptable format:

The quantities of materials are not excessive and shall be used within a reasonable time as determined by Superintending Engineer.

31. **Compensation for Delayed Services**

Supply, installation, testing and commissioning of 15 Passenger/1020 kg (Stretcher & Passengers) Lift/elevator for G+2 New Modular OT Complex building beside mortuary area, at IGIMS, Patna-14 within given time period. Otherwise, Penalty @ 2% per month will be deducted and maximum up to 10%, thereafter Work Order stand Cancelled.

32. The contractor/bidder shall clear the site thoroughly of all scaffolding materials, rubbish and scrap etc, left out of his work and dress the site around the building to the satisfaction of the Engineer In-charge before the work is considered as complete.
33. The quoted rate shall be complete in all respects including the cost of all materials, labour, tools & plants, machinery etc. IGIMS shall not be supplying any material, labour, plant etc.
34. The contractor has to ensure co-ordination with Institute authorities to maintain the smooth functioning of his works. This may require working rescheduling the normal working hours, working in restricted period etc. Nothing extra shall be payable on this account. Stacking of materials and excavated earth including its disposal shall be done as per the direction of Superintending Engineer. Double handling of materials or excavated earth if required shall have to be done by the contractor at his own cost.
35. In the case of any tender where unit rate of any item appear unrealistic, such tender will be considered as unbalanced and in case the bidder is unable to provide satisfactory explanation such a tender is liable to be disqualified and rejected.
36. On account of security consideration, some restrictions may be imposed by the security staff on the working and movement of men and materials etc. The contractor shall be bound to follow all such restrictions and instructions and he shall organize his work accordingly. No claim on this account, whatsoever, shall be payable.
37. The contractor shall be responsible for completing the work and for satisfying all terms and conditions of the Contract without any extra payment over agreed rates unless otherwise specified. The contractor shall quote his rates for various items of work accordingly and no claim whatsoever shall be entertained for any incidental or extra work involved in the execution of the work as per nomenclature of the item and the specifications indicated in the tender documents.

38. **Technical Bid shall contain:**

Non-Refundable cost of B.O.Q as per NIT.

Refundable Earnest Money Deposit (EMD) as per NIT.

- (a) Notarize copy of Permanent Account Number.
- (b) Notarize copy of valid GST Certificate with updated challan.
- (c) Notarized copy of P.F and E.S.I. registration Certificate with updated challan.
- (d) Notarize copy of Character certificate issued from Govt. department
- (e) Notarize copy of details of technical personnel available with contractor with educational certificates.
- (f) Notarized copy of Annual Turnover certificate issued from the registered Chartered Accountant for last three financial Years.
- (g) Design and Drawing of the lift/elevators to be done with the Technical bid. Bids without these details may be rejected.
- (h) Bar Chart clearly mentioned about scheduled to be followed to complete this work in time.
- (i) Notarize copy of experience certificate/s of similar nature and magnitude of work carried by the Contractor in Last 5 Years in any Government Organization i.e. for SITC of lift/elevators.
- (j) Notarize copy of Valid Electrical Contractor License in the name of the bidder, issued from the competent government licensing authority, of Bihar..
- (k) Notarize copy of List of Tools, Plant and Machinery Immediately available with the bidder for use on the respective work for which prospective bidder is submitting the tender.
- (l) The Bidder should submit affidavit on Rs.1000.00 non-judicial stamp declaring that participating agency/bidder has not been blacklisted, debarred, declared non-performer or expelled by Union Govt/State Govt / PSU's during the last 5 years, and in case any ambiguity is noticed in the documents submitted at any stage, we shall be entirely responsible and liable for any action as deemed fit under the law" shall be submitted by the Firm/Agency with Technical bid. The absence of Certificate, the Bid is liable to be rejected

Note: The interested agency is advised to visit the site at IGIMS, Patna before quoting their rate, so that to understood the scope of work at site. Specifications/ features of Elevators, Technical Bid Format and Financial Bid Format are annexed at annexure-1,2 & 3 respectively. Price bid not to be submitted in Hard copy.

39. **Special terms and conditions**

- a) FRLS wiring shall be used everywhere inside/outside all panels/equipment/building.
- b) Copper material (strip, plate, etc.) shall have conductivity greater than 95% in all applications.

- c) Each Earth conductor (for earthing) shall not left bare it will be through ISI mark PVC pipes to avoid corrosion & mechanical injuries.
- d) Failure on the part of the client to inspect or to reject after inspection any work, which later proves to be defective, shall not relieve the Contractor from warranties, commitments and obligations, which he undertakes under this contract. The Contractor is solely responsible for the accuracy, quality and completeness of his work and supply.
- e) The Contractor shall include and provide for securely protecting and packing the equipment in accordance with the best established practices so as to protect the contents from damage during transit, storage, exposure to heat, moisture or rain. Notwithstanding the above, the Contractor shall be entirely responsible for loss, damage or deterioration to the materials occasioned by faulty, defective or insecure packing.
- f) If required obtaining approvals from Electrical Inspector, Local Electricity Supply Authority and all other statutory authorities for the complete scope of work is contractor's responsibility. It is not the intent to specify completely here in all aspects of design constructional and constructional features of equipment and details of the work to be carried out nevertheless, the equipment and work shall confirm in all respects to high standards of engineering, design and workmanship and shall be capable of performing and continuous commercial operation in a manner acceptable to the owner who are interpret the meaning of the specifications and drawing and shall have right to reject or accept any work or material which in his assessment is not complete to meetings requirement of these specifications and or applicable codes and standards mentioned elsewhere in these specifications.
- g) All sundry fittings, accessories, hardware items, foundation bolts, termination lugs for electrical connections as required, and all other sundry items is included in the quoted price.
- h) The Contractor shall arrange inspection and testing of elevators at manufacturer's premises by the IGIMS officials. Notice for such inspection for testing shall be given to the Superintending Engineer by the Contractor at least fifteen (15) days in advance,
- i) Notwithstanding approval of tests or equipment by the Superintending Engineer, the contractor shall be required to perform site tests and prove the correctness and performance of equipment/machinery and materials supplied and installed by the contractor as per the contract specifications and conditions. Engineer-in-Charge shall reserve the right to reject any equipment/machinery/material should it, on tests after erection, be found not to comply with contract specifications. Engineer-in-Charge shall have full power to order the material or work to be tested by an independent agency at the electrical Contractor's expense in order to prove soundness & adequacy.
- j) All quantities indicated in BOQ are tentative which may vary as per site conditions. Contractor has to verify quantities before procuring the material.
- k) All materials and equipment shall be brand new. On arrival of the materials at site they shall be re- inspected and tested by the Superintending Engineer and his representative shall at all reasonable time have free access to the site of assembly. They shall have full powers to examine the materials and workmanship of the equipment at the contractor works or at any other place from where the material or equipment is obtained. The contractor shall give every facility to the engineer-in-charge and his representatives and necessary help for inspection, examination & testing of the materials. Original test certificates of the manufacturer's shall be submitted by the Contractor for all major equipment before they are accepted by the Engineer-in-charge. Acceptance of any material or equipment shall no way relieve the contractor of his responsibility for meeting the requirements of the contract.
- l) Electrical work done under this contract shall be executed by licensed men under the supervision of licensed electrical supervisor as per the Indian Electricity act.
- m) Contractor shall obtain the approval of all civil and electrical work to be done under this contract from the appropriate competent authority before the installation and commissioning if required as per rules.
- n) All tools and tackles required for handling of equipment and materials at site of works as well as for their assembly, erection, commissioning and also necessary test instruments shall be the responsibility of the contractor.
- o) The Contractor shall provide comprehensive warranty for parts as well as labour for a period of 12 months from the date of successful installation & commissioning of the equipment at Purchaser's site at no extra charges against any manufacturing defect/faulty workmanship. In case any defect arises during warranty period, the Contractor should replace/rectify the same at its own cost at site/works.

Scope and description of Work:

- 1) At the time of handing over the SITC work, Agency must get inspect the elevator from authorized vendors from Chief Inspector of factories/ Electrical Inspector and regular inspection at the interval of six months must be done whose certificate must be installed inside the Elevator. The inspection fees in this regard shall be borne by the contractor in DLP.
- 2) Lift Pit filling is of required depth and as mentioned in drawing of respective OEM from the finished Floor Level.
- 3) Water Proofing inside the Pit is to be done.
- 4) Lift shaft should be completely plastered as per General Arrangement Drawing (GAD) of the respective OEM.
- 5) Lift shaft white washing, Putty, weather Coat paint to be done.
- 6) Bulkhead fitting with 3-pin socket and on-off switch should be provided.
- 7) Single Phase power supply-one for shaft lighting and one for lift car (fan, light) should be available.
- 8) Machine room should be completely plastered and white washed, Putty, weather Cont Paint.
- 9) Machine room flooring should be finished with Granite and a lockable door, opening outside.
- 10) Granite works outside wall of landing doors at each floor, inside lift car, lift room and as per Instruction of Engineer In-charge.
- 11) Trap door according to OEM drawing to be considered in the machine room.
- 12) Rope holes must be made according to drawing of OEM.
- 13) Require Wirings, Switch-sockets, MCBs, DB, TPN, Cable, Its Laying, Clamping, LED Lights, Fans, Exhaust Fans, earthings, copper strips, end termination of cables, electrical Panels in the lift room and 50 sq.mm Al. Cable from nearest point and as required and as per Instruction of Engineer In-charge.
- 14) Demolishing RCC work, Brick Work, Plaster etc.
- 15) Providing and Laying cement concrete, Brick flat soling joints, steel work, centring, Ms Grill, Brick work, plaster, cement based putty, exterior weather coat paint, Granite fitting, enamel painting etc, as required and as per Instruction of Engineer In-charge.
- 16) Windows (Cross ventilation) with Glass Louvers to be provided.
- 17) Load Hook to be provided in the machine room.
- 18) Providing Electrical panels with adequate capacity of cable in the lift machine room by nearest sub-station or distribution panel. Three Phase power supply should be provided by the contractor in the machine room.
- 19) Power supply for the inverter to be provided in the machine room.
- 20) Exhaust fan to be provided in the machine room.
- 21) Double earthing in the lift shaft with bus bar in the machine room to be provided.
- 22) Machine room access staircase with handrail to be made of minimum of one meter width.
- 23) Fire rated Pit wall of minimum up to 2 hours, Lift car and landing doors at each floors for minimum of 1 Hour.
- 24) During the DLP, Contractor shall maintain and keep the Elevators working at least 350 days of a Year.
- 25) The agency shall be responsible for the maintenance towards routine servicing providing technician for attending any number of breakdown calls during the DLP, fault rectification onsite as well as off-site as and when required.
- 26) On receipt of a break down intimation, a qualified and competent team would attend immediately and fault should be rectified immediately on priority basis and maximum, by 04 hrs after logging the complain through telephone, email or by any medium so as to ensure that Elevators are functioning satisfactorily.

- 27) The agency is advised to inspect the site before quoting the rate to understand the scope of work at site. If anything missed out in above mentioned scope, agency must quote their rate including it after visiting the site.

28) Testing of Elevator at Manufacturer's premises

(a) High Voltage Test:

The dielectric or electrical 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 any live 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 manufacture.

(b) (i) Method of applying High Voltages

The test shall be made with alternating voltage of any convenient frequency, preferably between 49 and 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 r.m.s. 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 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.

iii) Buffer test:

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

29) Testing of Lift during Installation at IGIMS Premises:

(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.

(b) Safety Gear tests:

Instantaneous safety gear controlled by a governor, should be tested with contract load and a contract speed, the governor being operated by hand. Two tests should be made, however, with wedge clamp 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 the specified figures and the guides, car platform and safety gear should be carefully examined afterwards for signs of permanent distortion.

(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 sheeve or drum in a known time. Chalk mark on the sheeve 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 sheeve speed is twice the car speed. Alternatively, the speed can be measured by a tachometer applied directly to shaft immediately below the sheeve.

(d) Lift Balance:

After the above tests, some of the weight shall be removed until the remaining weights represent the figures specified by the IGIMS. 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 judged 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 workings of the door operation and the safety edges and light equipment if any provided shall also be examined.

30) Performance Tests:

This test is conducted to watch the performance of the lift installation in terms of passenger handling capacity and waiting interval as obtained at site vis-à-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 this lifts in that bank.
- (ii) Handling capacity $H = (300 \times Q \times 100) / (T \times P)$

Where

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

P= Total population to be handled during peak morning 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.

31) 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 anticipate 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 150 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 not exceed 55 deg Celsius or 75 deg Celsius for class A or B insulation respectively.

32) Approved Make list of Elevators: - Kone/TKE/OTIS/Johnson/Schindler.

33) Annexure-1 : Specifications and features of elevators

Annexure-2: Technical bid format

Annexure-3: Financial bid format

**Sd/-
Director,
I.G.I.M.S. – Patna.**