



**GUWAHATI METROPOLITAN DEVELOPMENT AUTHORITY (GMDA),
GUWAHATI, ASSAM,
INDIA**

TENDER NO: GMDA/GEN/07/2007/Pt-XVII/86 Dtd. 22/01/2019

FOR

MANUFACTURE, DELIVERY, INSTALLATION & COMMISSIONING

OF

TWO NOS. ELEVATORS ON TURNKEY BASIS

FOR

**PASSENGER ROPEWAY TERMINAL STATION AT SOUTH BANK
GUWAHATI METROPOLITAN DEVELOPMENT AUTHORITY (GMDA),
GUWAHATI, ASSAM,
INDIA**

Jan., 2019

Issued to:

M/s. _____

SECTION - I
INVITATION FOR TENDERS

INVITATION FOR TENDERS

- 1.0 Two Bids system are invited by the Chief Executive Officer, Guwahati Metropolitan Development Authority (GMDA), Guwahati, Assam, India from eligible manufacture/authorized dealers meeting the qualification criteria stated in the Bid documents for design, manufacture, supply, delivery, installation and commissioning of the equipment indicated below on turnkey basis as per the detailed specifications of the bid.

Tender No.	Brief Item description & Qty Reqd.	Completion Period	EMD/ Bid Security (INR)	Estimated cost (INR)	Cost of Tender Doc. (INR)
No. GMDA/GEN/07/2007/Pt-XVII/86	Installation of Lifts (2 nos.) one for 10 and other for 8 person capacity	4 months from the date of issue of LOA	95,722.20	47,86,110.00	500.00

2.0 **Brief Scope of Work**

The Scope includes supply and commissioning of lifts as per List of the technical specifications in Section 5 of the tender document along with their technical parameters.

- 3.0 **Availability of Site:** The site for the work is available.

- 4.0 Tender documents can be downloaded from GMDA's website <https://gmda.assam.gov.in> The tender document fee Rs. 500.00 (Rupees Five Hundred) only is to be deposited only in the form of Bank Draft / Bankers cheque in favour of CEO, GMDA payable at Guwahati or may be collected on all working days from 25/01/2019 to 7/02/2019 on payment of Rs. 500.00 (Rupees five hundred) only in cash at GMDA's Cash Counter from 10.00 AM to 2.30 PM only.

- 5.0 The bids submitted by the bidders who do not meet the qualification requirements as required or whose bids (both technical and price) are not valid. Earnest Money of the tenders containing restricted validity of Bids is liable to be forfeited. The bids not accompanied by earnest Money deposit shall be rejected.

- 6.0 Issue/download of Tender documents to/by the bidder will not automatically mean that the bidder is qualified for the Award of the contract. The bidders will be required to further fulfill the Qualification Criteria given in the Tender Document before being considered eligible for the Award of Contract. No Condition/Deviation which is either additional or in modification of the tender conditions shall be included in the bid submitted by the bidder. If the bid contains any such conditions or deviations from the tender conditions, the bid will be rejected.

- 7.0 Bids duly completed in all respects along with the requisite amount of Earnest Money Deposit shall be received up to the date receipt as given above. These will be opened on the same date in the presence of the bidders or their authorized representatives, who choose to be present in the office of CEO, GMDA. Original copy of the following documents must be submitted on or before the Technical Bid opening: i) Cost of Bid ii) Bid Security or EMD.

- 8.0 In case of any discrepancies, the provisions of this tender notice shall take precedence over all other bidding documents.
- 9.0 GMDA does not bind itself to accept lowest or any other bid and reserves the right to reject lowest or any other bid or all the bids and accept any bid either in the whole or in part or split up the work between more than one bidder without assigning any reason whatsoever. The bidder shall be bound to execute the same at the quoted rates.
- 10.0 Any revisions, clarifications, corrigenda, addenda, time extensions etc. to this tender will be posted on www.gmda.assam.gov.in websites only. Bidders should regularly visit the website to keep themselves updated.
- 11.0 In case the date of opening of the bid as mentioned above is declared to be a holiday, the bids shall be received and opened on the next working day at the same time and venue.

Sd/-
Chief Executive Officer
Guwahati Metropolitan Dev. Authority
Bhangagarh, Guwahati

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SECTION - II
INSTRUCTIONS TO TENDERER

A. INTRODUCTION

1.0 GENERAL INSTRUCTIONS

- 1.1 GMDA (hereinafter referred as **Purchaser**), invites tenders/bids) from reputed and reliable manufacturers or through its Authorised agents for manufacture, supply, delivery, erection, testing and commissioning of Plant and equipment as per the specification enclosed at **Section –V** of the bid document, on turnkey basis.
- 1.2 All information in the offer must be in English. Offer in a language other than English must be accompanied by its authenticated translation in English, failure to comply with this may render the offer liable to be rejected. In the event of any discrepancy between the offer in a language other than English and its English translation, the English translation will prevail.
- 1.3 All correspondence should be made only with the **CEO, GMDA, Guwahati, Assam** in substantial issues, whether having financial implications or not, are involved. In case these instructions are not followed, it may be likely that no action may be taken.

2.0 Eligibility Criteria:

- 2.1 Bidder should be a reputed manufacturer based in India having service centre office in Guwahati and engaged specially and professionally in the business of Elevator/Lifts profession(s).
- 2.2 Bidder should be registered with GST and other statutory Department as required. Copy of certificate must be enclosed with bid.
- 2.3 The applicant should be original manufacturer of product (Make allowed: KONE/OTIS/Schindler/Thyssenkruup). Copy of manufacturer certificate must be enclosed.
- 2.4 The bidder should have minimum turnover of Rs. 1.00 Crores per annum for undertaking similar type of work in any of the last 03 years.

3.0 COST OF BIDDING

- 3.1 The tenderer shall bear all costs associated with the preparation and submission of his bid, and Purchaser will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

4.0 SITE VISIT / LOCAL CONDITIONS

- 4.1 The tenderer is advised to visit and examine the Site of works and its surroundings and obtain for himself on his own responsibility and cost, all information that may be necessary for preparing the bid and entering into a contract execution.
- 4.2 It will be imperative on each tenderer to fully acquaint himself of all the local conditions and factors which would have any effect on the performance of the contract and cost of the stores. In his own interest, the foreign tenderer should familiarise himself with the Income Tax Act 1961, the Companies Act 1956, the Customs Act 1962 and related Laws in force in India. The Purchaser shall not entertain any request for clarifications from the tenderer regarding such local conditions. No request for the change of price, or time schedule of delivery of stores shall be entertained after the offer is accepted by the Purchaser.

B. THE BIDDING DOCUMENTS

5.0 CONTENT OF BIDDING DOCUMENTS

5.1 The Scope of work, bidding procedures and contract terms are stipulated in the Bidding Documents and shall include along with its enclosed Proforma & Annexure:-

- i. Invitation for Tenders
- ii. Instructions to Tenderer
- iii. Conditions of Contract
- iv. Proforma
- v. Bid form and Price Schedules
- vi. Technical Specifications, Annexures & Drawings

4.2 The Tenderer should examine all instructions, terms and specifications in the Bidding documents. Failure to furnish all information required by the Bidding Documents or submission of a bid not substantially responsive to the Bidding Documents in every respect will be at the Tenderer's risk and may result in rejection of his bid.

5.0 CLARIFICATION OF BIDDING DOCUMENTS

5.1 A prospective Tenderer requiring any clarification of the Bidding Documents may contact by writing or fax to the Purchaser no later than 07 days prior to dead line for submission of bids.

6.0 AMENDEMENT TO BIDDING DOCUMENTS

6.1 At any time prior to the last date for submission of bids, the Purchaser may for any reason modify the bidding documents by an amendment. The amendment in the form of an addendum/corrigendum will be posted at GMDA website (www.gmda.assam.gov.in) only. Tenderers are requested to visit the website frequently for any update on the subject tender prior to submission of their offer.

6.2 In order to afford prospective Tenderers reasonable time in which to take the amendment into account in preparing their tenders, the Purchaser may at his discretion extend the last date for the submission of tender.

C. PREPARATION OF BIDS

- 7.0 **QUALIFICATION CRITERIA TO BE SATISFIED**
The Qualification Criteria to be satisfied as per clause no. 2 and to be submitted as given at **Annexure I** enclosed.
- 7.1
- 7.2 **In this Tender Joint Venture is not allowed.**
- 8.0 **DOCUMENTS FOR SUBMISSION**
- 8.1 All offers shall be either type-written or written neatly in indelible ink.
- 8.2 Any individual(s) signing the tender documents should be the Authorized representative of the bidding firm and should sign and stamp on each page.
- 8.3 Following documents will be submitted along with the Bid:
- i) Bid covering letter
 - ii) Original Tender document (either purchased or downloaded from website with amendments/ corrigendum etc.,) duly signed and stamped on each page by the Authorized representative of the bidding firm.
 - iii) Bid document cost as per Instruction for Tenders, in case of bid document downloaded from web site.
 - i) Earnest Money Deposit/ Bid secu
 - v) Authorization letter from manufacturer, in case of Agents being the bidding firm as per proforma 2.
 - vi) Reference list of Purchasers of similar equipment given in Technical Specification
 - vii) Technical information as sought in Technical specification
 - viii) Time schedule as per technical specification
 - ix) All proformas and statements duly filled in.
 - x) Other documents as requested in the Bid.
 - xi) Bid Form and Price Schedule.
- 9.1 **EARNEST MONEY DEPOSIT (EMD) / BID SECURITY**
- 9.1 Earnest Money/Bid Security for amount as stipulated in the “Instruction to Tenderer” shall accompany each tender. The Earnest Money/Bid security shall be in the following form a Bank Draft in favour of CEO, GMDA, Guwahati, INDIA, from a Nationalised/scheduled Indian Bank.
- 9.2 The Earnest Money/Bid Security shall remain deposited with the Purchaser for the period of **180 days** from the date of opening of Tenders. If the validity of the offer is extended, the Earnest Money Deposit/Bid Security duly extended shall also be furnished, failing which the offer after the expiry of the aforesaid period shall not be considered by the Purchaser.
- 9.3 If the Tenderer withdraws, amends, make modification / alteration in his bid for any reason during its validity, the Earnest money/bid security shall be forfeited. Failure to submit bid security would lead to rejection of offer.
- 9.4 The small scale industries units recognized by NSIC (National Small Industries Corporation Limited, India) are exempted from depositing the Earnest Money subject to submission of necessary proof. Exemption of

NSIC units is however subject to its validity, monetary limit shown in the certificate and they are being registered for the item/items tendered for.

9.5 No interest will be payable by the Purchaser on the Bid Security/ EMD submitted by the Tenderer.

9.6 The EMD of unsuccessful Tenderers shall be returned by the Purchaser, after evaluation of the Financial Bids, the Earnest Money of unsuccessful tenderers will be returned immediately after finalization of contract.

9.7 The EMD of successful Tenderer will be returned after the Contract Performance Guarantee is furnished as per the contract. In event of contract being awarded to NSIC registered firm seeking exemption from submission of Performance Guarantee Bond, they should submit necessary proof for items and monetary limit of their registration with NSIC.

9.8 Any tender not accompanied by Earnest Money deposit in one of the approved forms is liable to be summarily rejected.

10.0 CURRENCY

10.1 The prices should be stated only in Indian Rupees only.

10.2 The prices quoted shall be firm and not subject to any variation.

11.0 PRICE BASIS

11.1 Tenderer shall quote his prices on the basis of CIP destination price at South Bank , Lower Terminal station Building , Guwahati, Assam , INDIA. They shall furnish break up of prices as per bid form/ price schedule. They shall also quote charges for making the foundation, subsequent installation, commissioning for the machine at site. In addition, a complete break-up showing the ex-factory price, packing charges, forwarding charges, freight and insurance charges and other charges, if any, shall also be given.

11.2 The prices quoted shall be firm and not subject to any variation. In the case of CIP delivery, freight, insurance charges included must also be firm and no variation will be allowed on his account after the opening of tenders.

11.3 The tenderers should quote their lowest possible prices. Quotations should be made only for quantity specified in the tender.

11.4 GST will be reimbursed in actuals based on documentary proof.

11.5 Each Bidder shall submit only one Bid either as an individual or as a Proprietor in a Proprietary firm or as a Partner in a Partnership firm or as a Director of a limited Company/Corporation. Any Bidder, who has submitted a Bid for a work, shall not be a witness for any other Bidder for the same work. Failure to observe the above stipulations would render all such Tenders submitted as a Bidder and / or as a witness, liable to summary rejection.

11.6 The Contractor shall be fully responsible for all matters arising out of the Performance of the Contract and shall, at his own expense, comply with all laws/ acts/ enactments/ orders/ regulations/ obligations whatsoever of the Government of India, State Government, Local Body and any Statutory Authority.

11.7 In case the bidder does not quote his rate for any item(s), it will be presumed that the bidder has included the cost of that/those item(s) in the rates of other items and the rate for such item(s) shall be considered

as Zero and the tender will be evaluated by the Employer accordingly and the work executed by the successful bidder accordingly.

12.0 VALIDITY OF OFFER

12.1 The offer shall be kept valid for acceptance for a minimum period of **one hundred and eighty (180)**, Calendar days from the date set for opening of tenders.

13.0 FORMAT AND SIGNING OF BIDS

13.1 Each page of the original /downloaded tender documents shall be duly signed and stamped by Tenderers' authorized representative and returned.

13.2 All changes/ alterations/ corrections in the tender shall be signed in full by the Tenderers' authorized representative signing the bid with date. **NO ERASING AND/OR OVER WRITING IS PERMISSIBLE.**

13.3 The Tenderer should avoid ambiguity in his offer e.g., if his offer is to his standard sizes/lengths/dimensions, he should specifically state them in details without any ambiguity. Brief descriptions such as "standard lengths" etc. should be avoided in the offer.

D. SUBMISSION OF BIDS

14.0 BID SUBMISSION

14.1 All Amendments/Revisions to the tender document issued by Purchaser subsequently (in GMDA's website), if any, must be signed and submitted along with the tender. The tender submitted by the Tenderer shall take into account all such amendments/revisions.

14.2 Bids shall be submitted in sealed SINGLE ENVELOPE containing documents specified in 8.3, above.

14.2.1 The envelope shall super scribed "TENDER NO., OPENING DATE AND TIME, BIDDERS NAME AND ADDRESS.

14.2.2 Completely sealed bid shall be addressed to
**The Chief Executive officer,
Metropolitan Development Authority (GMDA), Bhangagarh,
Guwahati, Assam - 781005, India.**

14.3 DEADLINE FOR SUBMISSION OF BIDS

14.3.1 Bids must be received by the Purchaser at the address mentioned above, within the date and time of bid submission indicated in the Section-I: Invitation for Tenders.

14.3.2 Any bid received after the deadline for submission of bids, will be rejected and returned unopened.

14.3.3 E-mail or facsimile bids will be summarily rejected.

15.0 MODIFICATION AND WITHDRAWAL OF BIDS

15.1 The Tenderer may modify or withdraw its bid after the bid's submission, provided that written notice of the modification or withdrawal is received prior to the deadline prescribed for submission of bids. A withdrawal notice may also be sent by fax but followed by a signed confirmation copy by post marked not later than the deadlines for submission of bids.

15.2 No bid may be modified subsequent to the deadline for submission of bids.

- 15.3 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Tenderer. Withdrawal of a bid during this interval shall result in forfeiture of its Earnest Money Deposit/ Bid Security.

16.0 OPENING OF BIDS BY PURCHASER

- 16.1 Purchaser will open the Bids, in the presence of Tenderers' representatives who choose to attend, at the place, date and time specified in the Section-I: Invitation for Tenders. The Tenderers' representatives who are present shall sign a register evidencing their attendance.
- 16.2 The Tenderers' names, bid modifications or withdrawals, bid prices, discounts, and the presence or absence of requisite bid security and such other details as the Purchaser, at its discretion, may consider appropriate, will be announced at the opening.
- 16.3 All tenderers or their representatives must bring with them an authority letter on the letterhead of the tenderer or their Indian agent (as the case may be) duly signed by competent authority to attend the tender opening. Failing to which they will not be allowed to attend the opening of the tenders.

E. EVALUATION AND COMPARISON OF BIDS

17.0 PRELIMINARY EXAMINATION

- 17.1 The Purchaser will examine the bids to determine whether they are complete in all respects, documents have been properly signed and submitted and bids are generally in order.
- 17.2 The Purchaser may waive any minor informality, non-conformity, or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or effect the relative ranking of any Tenderer.
- 17.3 Prior to the detailed evaluation, the Purchaser will determine the substantial responsiveness of each bid to the bidding documents. The Purchaser's determination of bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- 17.4 If a bid is not substantially responsive it will be rejected by the Purchaser and may not subsequently be made responsive by the Tenderer by corrections of non-conformity.

18.0 CORRECTION OF ERRORS

- 18.1 Tenders will be checked and corrected for any arithmetical errors in computation and summation as follows:
- 18.1.1 Where there is a discrepancy between amounts in figures and in words, the amount in words will govern;
- 18.1.2 Where there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price will prevail for calculation.
- 18.1.3 If a Tenderer does not accept the correction of errors as outlined above, his tender will be rejected.

19.0 EVALUATION OF THE OFFERS

- 19.1 The tenders received will be evaluated by the Purchaser to ascertain the lowest acceptable tender in the interest of the Purchaser, as specified in the specifications and tender documents. Evaluation criteria not mentioned herein but mentioned specifically in the technical specifications will be taken into consideration during evaluation of offers.
- 19.2 The offers should indicate clearly the rates of GST, as leviable on particular item.
- 19.3 Criterion for evaluation of offers/deciding inter-se-position of offers:-In case of multi items or in case of single/multi items with multi consignees, the inter-se-position of the offer received shall be decided based on the total value as a whole exclusive of GST. GST to be quoted separately.
- 19.4 The comparison shall be between total cost and all other charges of the equipments offered at destinations covering complete scope of services.
- 19.5 The **COMMERCIAL EVALUATION** will take into consideration the following:
- i) Cost of basic equipment
 - ii) Cost of accessories according to tender specification
 - iii) Cost of erection, installation and commissioning and proving out
 - iv) Cost of training; and other factors like
 - v) Packing & forwarding, Freight Insurance, etc. Any other items of spares considered essential by the tenderers for two years of normal maintenance, to cover the complete range of mechanical, hydraulic and electrical equipment. To be quoted alongwith the list.
 - vi) Applicable GST. GST to be quoted separately.
- 19.6 **OPTIONAL ITEMS – Not for commercial evaluation –** to be quoted separately
- i) Tenderers are required to quote for a comprehensive Annual Maintenance Contract for 5 years after expiry of the warranty of the equipment supplied against this specification, which will be inclusive of all spares, material, labour costs as per the AMC contract – attached as Annexure to the Technical specification. The GST as applicable should be indicated separately. All consumables except fuel/diesel, lubricating oil, coolant or electricity charges shall form part of the scope of comprehensive AMC.
- 20.0 CLARIFICATION OF BIDS**
- 20.1 During evaluation of the Bids, Purchaser may at his discretion ask the Tenderer for clarification of his bid. The request for clarification and response shall be in writing and no change in price or substance of the bid shall be sought, or permitted.
- 21.0 ACCEPTANCE OF TENDER AND SIGNING OF CONTRACT**
- 21.1 The Purchaser may accept a tender for a part or whole of the quantity offered, reject any tender without assigning any reason and may not accept the lowest tender or any tender.
- 21.2 Acceptance of tender will be communicated by Fax, Express Letter for formal acceptance of tender (LOA). In case where acceptance is indicated by Fax or Express Letter, the formal acceptance of tender will be forwarded to the Contractor as soon as possible, but the Fax, or Express Letter should be deemed to commencement of the contract.

21.3 Within twenty one (15) days of receipt of Acceptance advice (LOA), the successful Tenderer shall submit the contract performance guarantee in accordance contract.

21.4 On submission of Performance Guarantee, the successful Tenderer shall be issued with detailed work order.

22.0 EFFECT AND VALIDITY OF OFFER

22.1 The submission of any offer connected with these specifications and documents shall constitute an agreement that the Tenderer shall have no cause of action or claim, against the Purchaser for rejection of his offer. The Purchaser shall always be at liberty to reject or accept any offer or offers at his sole discretion and any such action will not be called into question and the Tenderer shall have no claim in that regard against the Purchaser.

22.2 Offers shall be deemed to be under consideration immediately after they are opened and until such time the official intimation of award is made by the Purchaser to the Tenderer. While the offers are under consideration, Tenderers and/or their representatives or other interested parties are advised to refrain from contacting the Purchaser by any means. If necessary, the Purchaser will obtain clarifications on the offers by requesting for such information from any or all the Tenderers, either in writing or through personal contact, as may be considered necessary. Tenderers will not be permitted to change the substance of their offers after the offers have been opened.

23.0 GENERAL

23.1 The Tenderers must ensure that the conditions laid down for submission of offers detailed in the preceding paras, are completely and correctly fulfilled. Tenders, which are not complete in all respects as stipulated above, may be summarily rejected.

23.2 The Tenderer shall also submit "Statement of Deviations" from Tender Conditions and Technical Specification as per **Proforma - 3 & 4** along with the offer.

24.0 CHECK LIST

24.1 A check list has been included as **Proforma 1** in the bid document. This has been designed to help the Tenderers in submitting their offer in completeness. An incomplete offer is liable to be rejected. The Tenderers must fill this Check List and submit along with their offer in their own interest.

SECTION - III

CONDITIONS OF CONTRACT

CONDITIONS OF CONTRACT

1.0 DEFINITIONS

- 1.1 “**Purchaser**” means GMDA, Guwahati, Assam having its Registered Office at Guwahati Metropolitan Development Authority (GMDA), Bhangagarh, Guwahati, Assam, India and shall include their legal representatives, successors and permitted assignees for and on behalf of GMDA.
- 1.2 '**Consultant**' shall mean RITES Limited (A Govt. of India Enterprise) having its registered office a Scope Minar, Core No 1, Laxmi Nagae, Delhi-92 and Corporate office at RITES Bhawan, Plot No.- 1, Sector – 29, Gurgaon – 122001, Haryana appointed by Guwahati Metropolitan Development Authority, Guwahati (**GMDA**), for the work. Consultant shall act through its Group General Manager/General Manager/Additional General Manager for and on behalf of GMDA.
- 1.3 '**Contractor/Supplier**' shall mean the Tenderer/ Tenderer whose bid has been accepted by the Purchaser for the supply of stores/Plant & Equipment (PE) and award of work is placed and shall include his legal representatives, successors and permitted assigns unless excluded by the terms of the contract.
- 1.4 '**Contract**' means Contract entered into between the **Purchaser** & the **Contractor/Supplier** through Letter of Award, together with the contract documents referred to therein, they shall include Letter of Award, Bid Invitation, Instructions to Tenderers, Conditions of Contract, Technical Specification, and the other conditions specified in the Advance Acceptance & Letter of Award (LOA) and a formal agreement, if executed.

2.0 SCOPE OF WORK

2.1 SUPPLY

- 2.2 The Plant and Equipment (PE) to be supplied shall be new and as per specifications given in Section –V. PE offered must be of proven design and capacity.

2.3 INSTALLATION AND COMMISSIONING

- 2.3.1 The Tenderer shall also install and commission the elevator at place of delivery as per Delivery Schedule including schedule for, erection and commissioning. All facilities required for the above such as, road mobile cranes, lifting tools & tackles, welding or cutting machine, first fill of all lubricants/oils and consumables etc shall be arrange by the contractor.
- 2.3.2 GMDA shall provide the site required for erection.
Also required electricity, shall be provided by GMDA free of cost, to the extent feasible. Clear covered space for storage of material required for Working will be provided by GMDA.
- 2.3.3 GAD drawings along with other civil works (if any) and related diagrams, electrical and mechanical, electrical load and circuit diagrams required should be submitted as specified in the Technical Specification Section V.

3.0 DELIVERY

- 3.1 The Contractor shall deliver at the place detailed in the contract, the quantities of the stores detailed therein and the stores shall be delivered or dispatched not later than the dates specified in the contract. The delivery will not be deemed to be complete until and unless the stores are

inspected and accepted by the Inspecting Officer as provided in the contract.

3.2 Notwithstanding any inspection and approval by the Inspecting Officer on the Contractor's premises, property in the stores shall not pass on to the Purchaser until the stores have been received, inspected and accepted by the consignee.

3.3 In the case of indigenous supplies, the Purchaser shall not be liable to render assistance to the Contractor in securing or to arrange for or provide transport to the Contractor, notwithstanding that transport of the stores, is controlled by or under the orders of the Government.

3.4 **NOTIFICATION OF DELIVERY**

3.4.1 Notification of delivery or dispatch in regard to each and every installment shall be made to the Purchaser, immediately on dispatch or delivery.

3.5 **EXTENSION OF TIME FOR DELIVERY**

3.5.1 If the Contractor fails to deliver the stores or any installment thereof within the period fixed for such delivery in the contract or as extended or at any time repudiates the contract before the expiry of such period, the Purchaser may without prejudice to his other rights to recover from the Contractor as agreed liquidated damages as per the contract.

3.5.2 If such failure have arisen from any cause which the Purchaser may admit as reasonable ground for extension of time, the Purchaser shall allow such additional time as he considers to be justified by the circumstances of the case, and shall forgo the whole or such part, as he may consider reasonable, of his claim for such loss or damage as aforesaid. Any failure or delay on the part of Sub-Contractor, though their employment may have been sanctioned shall not be admitted as a reasonable ground for any extension of time or for exempting the Contractor from liability for any such loss or damage as aforesaid.

3.6 **CONSEQUENCE OF REJECTION**

3.6.1 If on the stores being rejected by the Inspecting Officer or Consignee at the destination, the Contractor fails to make satisfactory supplies within the stipulated period of delivery, the Purchaser shall be at liberty to : —

- (i) require the Contractor to replace the rejected stores forthwith but in any event not later than a period of 21 days from the date of rejection and the Contractor shall bear all cost of such replacement including freight, if any, on such replacing and replaced stores but without being entitled to any extra payment on that or any other account; or
- (ii) purchase or authorize the purchase of quantity of the stores rejected or others of a similar description (when stores exactly complying with particulars are not in the opinion of the Purchaser, which shall be final, readily available) without notice to the Contractor at his risk and cost and without affecting the Contractor's liability as regards the supply of any further installments due under the contract; or
- (iii) cancel the contract and purchase or authorise the purchase of the stores or others of a similar description (when stores exactly complying with particulars are not, in the opinion of the Purchaser,

which shall be final, readily available) at the risk and cost of the Contractor. In the event of action being taken under sub-clause (ii) above or under this sub-clause, the provisions of the contract will apply as far as applicable.

- (iv) where under the contract the price payable is fixed CIP destination(s), the Contractor shall, if the stores are rejected at destination by the consignee, be liable, in addition to his other liabilities, including refund of price recoverable in respect of the stores so rejected, to reimburse to the Purchaser the freight and all other expenses incurred by the Purchaser in this regard.

4.0 PAYMENT TERMS

4.1 Payment of equipment shall be made as per the payment terms given below subject to recoveries, if any, by way of Liquidated Damages, TDS and any other taxes, as per the Government of India guidelines.

- (a) 80% of ex works price of the supplies plus GST on 80% of supply cost, will be made on issue of Inspection Certificate and receipt of stores at destination in complete and good condition (issue of Joint Inspection Note)
- (b) Balance 20% of ex. works price of the supplies plus GST on 20% of supply cost will be made after issue of Commissioning Certificate jointly signed by Contractor and client GMDA, and on furnishing of 24 months Warranty Guarantee Bond.
- (c) The payments shall be made by Cheque only.
- (d) All payments under this clause shall be made on pro-rata basis commensuration with no. of equipments supplied/ commissioned/ proved out, respectively.

5.0 INSURANCE

5.1 Insurance shall be arranged by the Tenderer and the Purchaser shall not arrange for any transit insurance and the supplier will be responsible till the entire stores contracted for arrive in good condition in destination. The tenderer to insure the goods and may arrange for it himself and pay insurance charges. Insurance charges should be indicated by the tenderers separately in their offer and same shall be paid on the submission of documentary evidence by the tenderers. The consignee will advise the tenderer within 45 (forty five) days of the arrival of goods for any damage/ deficiency and it shall be responsibility of the tenderer to lodge the necessary claim on the carrier and or insurer and pursue the same. The tenderer shall, however at his own cost replace/rectify the goods lost/damaged to the entire satisfaction of the consignee within 30 days (or mutually agreed between the supplier and the Purchaser) from the date of receipt of intimation from the consignee, without waiting for the settlement of the claim.

6.0 PACKING & MARKING**6.1 PACKING**

- 6.1.1 Contractor shall pack at his own cost the equipment sufficiently and properly for transit by rail/road/air/ sea as provided in the contract so as to ensure their being free from loss or damage on arrival at their destination. He shall decide the packing for the equipment by taking into account the fact that the equipment will have to undergo arduous transportation before reaching the destination and will have to be stored and handled in tropical climatic conditions (including monsoons) before being put to actual use. It is, therefore, imperative that packing for every item is decided by taking into consideration, inter-alia, the above vital factors, so as to eliminate damage/deterioration of items in transit/transshipment/handling or during storage.
- 6.1.2 Each package shall contain a packing note specifying the name & address of the Contractor, the number and date of the Letter of Award (LOA), mark as indicated in LOA and the description of the stores and the quantity contained therein.
- 6.1.3 The packing advices should bring out the weight, dimensions and size of each bundle/ package. Where it is not possible to give weight of the bundles/packages, the Contractor must indicate the volume of the bundles/packages, the details of contents of each bundle/package, number of bundles/packages and total weight of the items supplied.

6.2 MARKING

- 6.2.1 The following particulars should be stenciled with indelible paint on all the materials/packages or as mentioned in the contract :
- (i) LOA/Contract No.
 - (ii) Item Description
 - (iii) Abbreviated Owner/Purchaser marks.
 - (iv) Box/Package No
 - (v) Gross/Net weight in Kgs
 - (vi) Dimensions (L x W x H) in Cms

7.0 TRANSPORTATION

- 7.1 Where the Contractor is required under the Contract to transport the equipment to a specified place of destination defined as the Consignee, transport to such place of destination in the Purchaser's place, including insurance and storage, as shall be specified in the Contract, shall be arranged by the Contractor, and the related cost shall be included in the Contract price.

8.0 IMPORT

- 8.1 The foreign exchange needed for the import of the components and import license where necessary, should be arranged by the Tenderer themselves.
- 8.2 The successful tenderer will have to apply to the proper Government Authority for grant of requisite import licenses/foreign exchange for such items as require and the Purchaser will only render assistance, where necessary. However, Purchaser will have no responsibility whatsoever in this regard.

9.0 PERFORMANCE GUARANTEE (PG BOND)

- 9.1 After Letter of Acceptance (LOA) is issued by the Purchaser, the Contractor shall furnish a Performance Guarantee Bond in the proforma-6 attached from a Nationalised/scheduled Indian Bank within 15 days from the issue of the Letter of Acceptance by the Contractor for an amount equivalent to 5% of the value of the contract.
- 9.2 The small scale industries units recognized by NSIC (National Small Industries Corporation Limited, India) are not exempted from submission of Performance Guarantee.
- 9.3 Bond. Hence, they are required to necessarily submit Performance Guarantee Bond in case their offers are accepted and called upon to do so.
- 9.4 Non submission of above performance guarantee within stipulated time should lead to forfeiture of Bid Security/ EMD.
- 9.5 The purchaser shall be entitled and it shall be lawful on his part to forfeit the amount of the Performance Guarantee Bond in whole or in part in the event of any default, failure or neglect on the part of the Contractor in the fulfillment or performance in all respects of the contract under reference or any other contract with the Purchaser or any part thereof to the satisfaction of the Purchaser and the Purchaser shall also be entitled to deduct from the amount of the PG Bond any loss or damage which the purchaser may suffer or be put by reason of or due to any act or the default, recoverable by the Purchaser from the Contractor in of the contract under reference or any other contract and in either of the events aforesaid to call upon the contractor to maintain the amount of PG Bond at its original limit by furnishing fresh Bank Guarantee of additional amount, provided further that the Purchaser shall be entitled to recover any such claim from any sum then due or which at any time thereafter may become due to the contractor under this or any other Contracts with the Purchaser.
- 9.6 The PG Bond shall remain in force and effect during the period that would be taken for satisfactory performance and fulfillment in all respects of the contract, i.e. till satisfactory commissioning and proving of the equipment and consignee's work, provided that before the expiry of the date of validity of the P.G. Bond, the contractor on being called upon by the Purchaser from time to time, shall obtain from the Guarantor Bank, extension of time for validity thereof for a period of six months on each occasion. The extension(s) aforesaid, executed on non-judicial stamp paper of appropriate value must reach the Purchaser at least thirty (30) days before the expiry of P.G. Bond on each occasion.
- 9.7 As and when the amendment is issued to the contract, the contractor shall within fifteen says of receipt of such amendment furnish to the Purchaser an amendment to the PG Bond rendering the same valid for the contract as amended and up to twelve months beyond the extended date of delivery or commissioning.
- 9.8 The PG Bond or any amendment thereto shall be executed on a stamped paper of requisite money value in accordance with law. All expenses to be borne by the Contractor.

9.9 The PG bond shall be released on issue of Proving out test certificate by Consignee without any interest.

10.0 **INSPECTION**

10.1 Purchaser reserves its right for pre-shipment / pre-dispatch inspection which may be carried out at manufacturer's / supplier's work by authorized representative of RITES/ Purchaser to ensure that the material/ equipment, being supplied conform to the contractual specifications. Traveling, lodging and boarding expense of Purchaser's representative(s) shall be borne by the Purchaser, but necessary facilities to carry out tests/ witness inspection shall be provided by the manufacturer/Supplier free of cost.

10.2 Manufacturer/ supplier shall give in writing, at least four week's notice to Purchaser on readiness of the equipment for inspection and request for nomination of inspection agency to enable it to depute its authorized representative to witness the inspection of the material/ equipment. The examination of stores will be made as soon as practicable after the same have been submitted for inspection, and the result of the examination will be notified to the Contractor.

10.3 In case equipment fails or is found defective during inspection, as well as in those cases where equipment is not ready for inspection at the appointed time and dates, total cost of re-inspection including travel, lodging and boarding of the inspection officials shall be to manufacturer's / supplier's account.

10.4 In cases where the Inspecting Authority specified in the contract requires on behalf of the Purchaser that inspection of the raw materials to be used and/or stage inspection during the manufacturing process of the component/stores etc. is also to be done, notice in writing shall be sent by the Contractor to the Inspecting Officer to visit his premises/works to test the raw materials and/ or conduct necessary inspection during the manufacturing process of the component/stores etc. as deemed essential.

10.5 **POWERS OF INSPECTING OFFICER**

The Inspecting Officer shall have the power: —

- (i) before any stores or part thereof are submitted for inspection to certify that they cannot be in accordance with the contract owing to the adoption of any unsatisfactory method of manufacture ;
- (ii) to reject any stores submitted as not being in accordance with the particulars ;
- (iii) to reject the whole of the installment tendered for inspection, if after inspection of such portion thereof as he may in his discretion think fit, he is satisfied that the same is unsatisfactory;
- (iv) to mark the rejected stores with a rejection mark, so that they may be easily identified if resubmitted for inspection.

The Inspecting Officer's decision as regards the rejection shall be final and binding on the Contractor.

10.6 **INSPECTION CERTIFICATES**

10.6.1 On the stores being found acceptable by the Inspecting Officer, he shall furnish the Contractor with necessary copies of the Inspection certificates duly completed for being attached to the Contractor's bill in support thereof.

10.6.2 Certification of Inspection and approval

- (i) No Stores will be considered ready for delivery until the Purchaser or the Inspecting Officer nominated by him shall have certified in writing that they have been inspected and approved by him.
- (ii) It shall be the responsibility of the contractor to ensure that only such goods as have been duly inspected and approved by the Inspecting Authority, are delivered.

11.0 **WARRANTY**

11.1 Contractor shall provide complete warranty against any design, manufacturing defects, and such other defects for a period of 24 months from the date of proving out of the machine at the ultimate destination. Any approval of acceptance by purchaser of the Stores or of the material incorporated here in shall not in any way limits the contractor's liability. To this effect, the contractor shall provide a Warranty Guarantee Bond from a Nationalized Indian bank or Scheduled Bank established in India and acceptable to GMDA as per Proforma 7 enclosed for an amount equivalent to 10% of the contract value.

11.2 All the defects during the warranty period shall be removed by the Contractor at his own cost within reasonable period of time as agreed with Client representative.

11.3 All replacement and repairs the Purchaser shall call upon the Contractor to deliver or perform under this warranty shall be delivered and performed by the Contractor within 15 days, promptly and satisfactorily. The warranty period shall be extended by the number of days the machine remains under breakdown during the warranty period, the warranty period of such part(s) replaced and/or repairs and parts immediately connected there to shall also be extended for a period of 24 months from the date of such replacement and/or repair.

11.4 The warranty herein contained shall not apply to any material which shall have been repaired or altered by the Purchaser, or on his behalf in any way without the consent of the Contractor, so as to effect the strength, performance or reliability or to any defects to any part due to misuse, negligence or accident. The decision of the Purchaser in regard to Contractor's liability and the amount, if any, payable under this warranty shall be conclusive and final.

12.0 **AFTER SALES SERVICE AND SUPPORT**

12.1 Tenderer should indicate clearly "after sales service and support" network available in India indicating the facilities available.

12.2 Offer for such equipment which do not have repair and maintenance base/ authorized agent for repairs within India are likely to be rejected.

13.0 SPARE PARTS

13.1 The Tenderer shall guarantee the availability of spare parts/ components at the same price and terms and conditions as indicated in the bid for at least two years from the date of commissioning.

13.2 The Tenderer shall further guarantee availability of all spare parts for a period of at least 10 years from the date of purchase order.

14.0 INDEMNITIES

14.1 The supplier shall indemnify and keep the Purchaser indemnified against all actions, proceedings claims, damages, costs and expenses arising from the incorporation in or use of work of any such articles, processes or supplies made under this agreement. Supplier shall at all times indemnify the Purchaser against all claims which may be made in respect of Stores for infringement or any right protected by patent, registration of design or trade mark and shall take all risk accidents or damages which may cause a failure or the supply of the whatever cause arising and the entire responsibility for the sufficiency of all the means used by the supplier for the fulfillment of the contracts provided always that in the event of any claim in respect of alleged break of letter patent, registered design or trade marks being made against the Purchaser the Purchaser shall notify the supplier of the same and the Supplier should at his own expenses settle and dispute or conduct any litigation that arise there from and the Purchaser will stand absolved of all responsibilities in that connections.

15.0 LIQUIDATED DAMAGES

15.1 In case of the Tenderer fails to deliver the material / equipment under this contract within the agreed delivery schedules, save force majeure conditions or delays attributable to Purchaser/Owner or any extension thereof authorized by the Purchaser and/or fails to fulfill their obligations under this contract, the Tenderer shall be liable to pay liquidated damages and not by way of penalty, a sum equal to ½ (half) percent per week of delay in supply of complete equipment subject to maximum of 10 (Ten) percent of the contract value. The compensation shall be payable by the Tenderer without prejudice to the rights and remedies available to the Purchaser in respect of any fault/ default by the Tenderer. This will be applicable both in indigenous and foreign contracts.

16.0 ACCEPTANCE OF STORES DESPATCHED AFTER THE EXPIRY OF DELIVERY PERIOD

16.1 In cases where only a portion of the stores ordered is tendered for inspection at the fag end of the delivery period and also in cases where inspection is not completed in respect of the portion of the stores tendered for inspection during the delivery period because of the reason that adequate notice for inspection in accordance with contract was not given by the Contractor, the Purchaser reserves the right to cancel the order for the balance quantity, at the risk and expense of the Contractor without any further reference to him. If the stores tendered for inspection during or at the fag end of the delivery period are not found acceptable after carrying out the inspection, Purchaser is entitled to cancel the contract in respect of the same at the risk and expense of the Contractor. If, however, the stores tendered for inspection are found acceptable, the

Purchaser may grant an extension of the delivery period subject to the following conditions :—

- (a) The Purchaser has the right to recover from the Contractor the liquidated damages on the stores, which the Contractor has failed to deliver within the period fixed for delivery.
- (b) The Purchaser retaining the right to recover from the Contractor any extra expenditure which might have been incurred by the Purchaser on account of additional bank charges payable for extension amendment of the Letter of Credit, the increase in Customs duty and Freight charges directly relatable to the delay in shipping of the stores etc.
- (c) That no increase in price on account of any statutory increase in or fresh imposition of Customs Duty, Excise Duty, Sales Tax, Freight Charges or on any account of any other tax or duty leviable in respect of the stores specified in the contract, which takes place after the date of delivery period stipulated in the said Acceptance of Tender, shall be admissible on such of the said stores as are delivered after said date.
- (d) That notwithstanding any stipulation in the contract for increase in price on any other ground, no such increase which takes place after the delivery date stipulated in the contract shall be admissible on such of the said stores as are delivered after the said date.
- (e) But nevertheless the Purchaser shall be entitled to the benefit of any decrease in price on account of reduction in or remission of Customs Duty, Excise Duty, Sales Tax or on account of any other ground which takes place after the expiry of the delivery date stipulated in the contract. The Contractor shall allow the said benefit in his bills or in the absence thereof shall certify that no decrease in price on account of any of these factors has taken place.

16.2 The Contractor shall not despatch the stores till such time an extension in terms of contract is granted by the Purchaser and accepted by the Contractor. If the stores are despatched by the Contractor before an extension letter as aforesaid is issued by the Purchaser and the same are accepted by the consignee, the acceptance of the stores shall be deemed to be subject to the conditions (a) to (e) mentioned above.

16.3 In case where the entire quantity has not been tendered for inspection within the delivery period stipulated in the contract and the Purchaser chooses to grant an extension of the delivery period the same would be subject to conditions (a) to (e) mentioned in clause above.

17.0 CUSTOMS DRAWBACK

Deleted.

18.0 TERMINATION

18.1 TERMINATION FOR DEFAULT:

18.1.1 Purchaser may, without prejudice for breach of contract, 10 days after written notice of default set to Supplier, terminate this contract in whole

or in parts;

- (a) If he fails to deliver full or part consignment within the time period specified in the contract or any extension thereof granted by Purchaser;
- (b) If he fails to perform, any other obligations under the contract; or
- (c) If he, in either of the above circumstances, does not rectify his failure within a period of 30 days or longer period as specified by Purchaser after receipt of the default notice from Purchaser

18.1.2 In the event purchaser terminates the contract in whole or in part, pursuant to above, purchaser may procure, upon such terms and in such manner as it deemed appropriate, equipment/ plant similar to those undelivered, and Supplier shall be liable to purchaser for any excess costs for such similar equipment/plant.

18.2 **TERMINATION FOR INSOLVENCY**

18.2.1 Purchaser may at any time terminate the contract by giving written notice to Supplier without any compensation, if supplier becomes bankrupt or otherwise insolvent, provided that such termination will not prejudice or affect any right to action or remedy which has accrued or will be accrued thereafter to the Purchaser.

19.0 **PENALTY FOR DELAY IN COMMISSIONING**

19.1 The successful Tenderer or his agent shall make foundation, install and commission the machine/ equipment within the stipulated time as shown in the tender / contract. This time will be applicable from the date of intimation from Purchaser in respect of readiness for installation of the machine. This being turnkey supply contract, bidder shall complete foundation well before receipt of the machine for which encumbrance free site is available. The time schedule includes the time for installation in cases where installation is also to be undertaken by the Supplier.

19.2 The time allowed for installation and commissioning of the machine by the successful Tenderer or his agent shall be deemed to be the essence of the contract. In case of delay in commissioning of the machine on the part of the successful Tenderer, the Purchaser shall be entitled to recover liquidated damages and the successful Tenderer shall be liable to pay liquidated damage at the rate of ½% (half percent) per week of the total contract value. Provided always that the entire liquidated damages to be paid under the provision of this clause shall not exceed 10 % (ten percent) of the total contract value. After expiry of 5 months period from the date of default i.e. from the date of call for commissioning, Purchaser will be at liberty to invoke the Performance guarantee bond submitted by the supplier.

19.3 Continuance of commissioning work after expiry of stipulated time will also not absolve the penalty as stated above.

19.4 The decision of the Purchaser, whether the delay in commissioning has taken place on account of reasons attributed to the successful Tenderer shall be final.

20.0 **ARBITRATION/ SETTLEMENT OF DISPUTES**

20.1 **MUTUAL SETTLEMENT OF DISPUTES**

20.1.1 Except where otherwise provided for in the contract, all questions and dispute relating to any matter directly or indirectly connected with this agreement shall in the first place be resolved through mutual discussions, negotiations, deliberations and consultation between both the parties.

20.2 **CONCILIATIONS**

20.2.1 If the efforts to resolve all or any of the disputes through mutual settlement fail, such dispute shall be referred to the sole conciliator to be appointed by Chief Executive Officer, GMDA.

20.2.2 The conciliator shall make the settlement agreement after the parties reach agreement and shall give an authenticated copy thereof to each parties.

20.2.3 The settlement agreement shall be final and binding on the parties. The settlement agreement shall have the same status and effect of an arbitration award.

20.3 **ARBITRATION**

20.3.1 If the efforts to resolve all or any of the disputes through conciliation fails, such disputes shall be referred to the sole arbitrator to be appointed by, Chief Executive Officer, GMDA.

20.4 **GENERAL**

20.4.1 Subject to aforesaid conditions the provisions of the **Arbitration and Conciliation Act 1996** or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the conciliation and arbitration proceedings under this clause.

20.5 **LAWS GOVERNING THE CONTRACT**

20.5.1 This contract shall be governed by the Laws of India for the time being in force.

20.5.2 Irrespective of the place of delivery and the place of payment under the contract, the contract shall be deemed to have been made at the place in India from where the acceptance of tender has been issued.

20.5.3 Jurisdiction of Courts.—The Courts of the place from where the acceptance of tender has been issued i.e Guwahati shall alone have jurisdiction to decide any dispute arising out of or in respect of the contract.

21.0 **FORCE MAJEURE**

21.1 If at any time, during the continuance of this contract, the performance in whole or in part by either party of any obligation under this contract shall be prevented or delayed by reason of any war, hostility, acts of public enemy, epidemics, civil commotion, sabotage, fires, floods, explosions, quarantine restrictions, strikes, lockouts or act of God (hereinafter referred to “event”) provided notice of the happening of any such event is given by one party to the other within 21 days from the

date of occurrence thereof, neither party shall by reason of such event, be entitled to terminate this contract nor shall either party have any claim for damages against the other in respect of such non- performance or delay in performance, and deliveries under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, and the decision of the Purchaser as to whether the deliveries have been so resumed or not, shall be final and conclusive, PROVIDED FURTHER that if the performance in whole or part or any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 60 days, either party may at its option terminate the contract provided also that the purchaser shall be at liberty to take over from the contractor at a price to be fixed by the Purchaser, which shall be final, all unused, undamaged and acceptable materials, bought out components and stores in course of manufacture in the possession of the contractor at the time of such termination or such portion thereof as the purchaser may deem fit excepting such materials, bought out components and stores as the contractor may with the concurrence of the purchaser elect to retain.

22.0 **REMOVAL OF REJECTED STORES**

22.1 On rejection of any stores submitted for inspection at a place other than the premises of the Contractor, such stores shall be removed by the Contractor at his own cost subject as herein after stipulated, within 21 days of the date of intimation of such rejection.

22.2 All rejected stores shall in any event and circumstances remain and always be at the risk of the Contractor immediately on such rejection. If such stores are not removed by the Contractor within the period aforementioned, the Inspector/Inspecting Agency may remove the rejected stores and either return the same to the Contractor at his risk and cost by such mode of transport as the Purchaser or Inspector may decide, or dispose of such stores at the Contractor's risk and on his account and retain such portion of the proceeds, if any, from such disposal as may be necessary to recover any expense incurred in connection with such disposals (or any price refundable as a consequence of such rejection). The Purchaser shall, in addition, be entitled to recover from the Contractor handling and storage charges on the rejected stores after the expiry of the time-limit.

23.0 **QUANTITY VARIATION**

23.1 The Purchaser reserves the right to increase or decrease the quantity upto 50% of the quantity offered by the successful tenderers at the rates & other terms and conditions offered by them. The tenderers are bound to accept the increase or decrease in the quantity under this clause at the time of placement of contract or during the currency of the contract. While operating this clause the quantity shall be rounded off to the nearest whole number. However, if the tendered quantity is 1 No, Purchaser reserves the right to increase the quantity under this clause to 2 Nos.

24.0 **SECURITY**

24.1 The contractor shall take all reasonable steps to ensure that all persons employed in any work in connection with the contract, have full

knowledge of the Official Secrets Act add any regulations frames there under.

24.2 Any information obtained in the course of execution of the contract by the Contractor, his servants, agents or any person so employed, as to any matter whatsoever, which would or might be directly or indirectly, of use to any enemy of India, must be treated secret and shall not any time be communicated to any person.

24.3 Any breach of the aforesaid condition shall entitle the Purchaser to cancel the contract and to purchase or authorize the purchase of the stores at the risk and cost of the contractor in accordance with the contract. In the event of such cancellation, the stores or parts manufactured in the execution of the contract shall be taken by the Purchaser at such a price as he considers fair and reasonable and the decision of the Purchaser as to such price shall be final and binding on the contractor.

CHECK LIST

Note: The check list may be duly filled in and submitted with the offer.

S No	Document	Yes	No
1	Have you purchased the original Tender/Bid Documents		
2	If downloaded from web site, enclosed the cost of tender document as per the Bid document)		
3	Have you submitted an Earnest Money Deposit (EMD)/ Copy of NSIC registration and details		
4	Have you submitted current and valid Letter of Authority from manufacturer (in case of authorized agents)		
5	Have you submitted Performance Statement as per the proforma along with the certificate		
6	Have you submitted Statement of deviation from Tender Conditions (Instructions to Tenderer, Conditions of the contract) as per the proforma		
7	Have you submitted Statement of deviation from Tender Technical Specification as per the proforma		
8	All the pages of Tender Documents have been signed by the authorized person under seal of the firm and submitted		
9	Have you quoted in complete CIP destination price as including the cost of Concomitant/Standard accessories in the price bid format of the machine/equipment		
10	Have you quoted for all the Optional items		
11	Have quoted for AMC charges		
12	Have you quoted the rates in both words and figures		
13	Have you indicated detailed delivery schedule		
14	Have you kept your offer valid for 180 days		

Signature and Seal of the Tenderer

Proforma – 2

(On letter head of the Manufacturer and should be signed by the Competent Authority)

PROFRORMA FOR LETTER OF AUTHORIZATION FROM THE MANUFACTURERS

Ref. No:.....

Date.....

To,
Chief Executive Officer
Guwahati Metropolitan development Authority,
Guwahati, Assam
India.

Dear Sir,

Sub: Tender No.....

We,, an established manufacturer of having factory at..... and office at We authorise M/s

(name and address of agents) to sell our products and can participate in above mentioned tender directly in accordance with their Terms of Business. We shall provide strong technical support to our authorize agent as well as to the final user.

No firm or individual other than M/s..... are authorized to represent us in regard to the business against this specific tender.

Yours faithfully

Signature
(Name)
For & on behalf of M/s.....(Manufacturer)

**COMMERCIAL DETAILS
(Indigenous tenderers)**

Tender No..... Due date ate of
opening.....

- (i) Name of the firm
- (ii) Address of firm with Telephone No(s), Fax No(s)
- (iii) Is the firm a small scale unit registered with NSIC ?
If so, a copy of the registration certificate should be enclosed.
- (iv) Name and address of the Banker.
- (v) A copy of PAN / TAN
- (vi) Details of After sale & Service of the equipment offered

Signature
(Name/Designation)

Proforma - 4

(Refer Clause 24.2, Instructions to Tenderer)

**PROFORMA FOR STATEMENT OF DEVIATIONS
FROM
TENDER CONDITIONS**

We M/s, hereby certify that there are only following deviations from the requirements of the Instructions to Tenderer, Conditions of the Contract in our offer No..... dated..... against GMDA Tender No..... for _____

Ref. Clause No.	Deviation	Remarks (justification if any)

We certify that there are no other deviations.

(Signature and Seal)
of the Tenderer

NOTE: If there is no deviation, then the statement indicating “NO DEVIATION” should be submitted with the tender.

Proforma - 5

(Refer Clause 24.2 of Instructions to Tenderer)

PROFORMA FOR STATEMENT OF DEVIATIONS

FROM

TECHNICAL SPECIFICATIONS

GMDA Tender No..... Due on

We, M/s, hereby certify that the following deviations are there from the tender requirements of the Technical Specifications.

Clause No.	Deviation	Remarks (justification if any)

(Signature and Seal)
of the Tenderer

NOTE: If there is no deviation, then the statement indicating “NO DEVIATION” should be submitted with the tender.

(Refer Clause 10.0 of Conditions of Contract)

**PROFORMA OF BANK GUARANTEE BOND TOWARDS CONTRACT
PERFORMANCE GUARANTEE
(FOR 10% OF CONTRACT VALUE)**

Bank Guarantee No _____
Date _____

To,

(Name of Purchaser)

Against contract vide Letter of Acceptance No _____ dated _____ covering supply of _____ (hereinafter called the said 'contract') entered into betweenGuwahati Metropolitan Development Authority (GMDA), Assam, INDIA and _____ (hereinafter called the 'Contractor'), this is to certify that at the request of the Contractor we, _____ Bank Ltd., are holding in trust in favour of theGuwahati Metropolitan Development authority(GMDA) an amount of _____(write the sum here in figures as well as words) to indemnify and keep indemnified theGuwahati Metropolitan Development authority(GMDA) against any loss or damage that may be caused or likely to be caused to or suffered by theGuwahati Metropolitan Development authority(GMDA) by reason of any breach by the contractor of any of the terms and conditions of the said contract and/or the performance thereof.

We agree that the decision of theGuwahati Metropolitan Development authority(GMDA), whether any breach of any of the terms and conditions of the said contract and/or in the performance thereof has been committed by the contractor and the amount of loss or damage that has been caused or suffered byGuwahati Metropolitan Development authority(GMDA), shall be final and binding on us and the amount of the said loss or damage shall be paid by us forth with on demand and without demur to theGuwahati Metropolitan Development authority(GMDA).

We _____ Bank., further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for satisfactory performance and fulfillment in all respects of the said contract by the contractor i.e. till _____(viz. contract completion period) hereinafter called the 'said date' and that if any claim accrues or arises against us, _____ Bank., by virtue of this guarantee before the said date, the same shall be enforceable against us, _____ Bank., notwithstanding the fact that the same is enforced within six months after the said date. Payment under this letter of guarantee shall be made promptly upon our receipt of notice to that effect from theGuwahati Metropolitan Development Authority (GMDA).

It is fully understood that this guarantee is effective from the date of the said contract and that we, _____ Bank, undertake not to revoke this guarantee during its currency without the consent in writing of theGuwahati Metropolitan Development Authority (GMDA).

We, _____ Bank, further agree that theGuwahati Metropolitan Development authority(GMDA) shall have the fullest liberty, without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said contract or to extend time of performance by the contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by theGuwahati Metropolitan Development authority(GMDA) (against the said Contractor and to forbear or enforce any of the terms and conditions relating to the said contract and we, _____ Bank Ltd., shall not be released from our liability under this guarantee by reason of any such variation or extension being granted to the said Contractor or for any forbearance and or omission on the part of theGuwahati Metropolitan Development authority(GMDA) or any indulgence byGuwahati Metropolitan Development authority(GMDA) to the said Contractor or by any other matter or thing what-so-ever, which, under the law relating to sureties, would, but for this provision have the effect of so releasing us from our liability under this guarantee.

We _____ Bank., further agree that the guarantee herein contained shall not be affected by any change in the constitution of the said Contractor.

Date _____

Signature _____

Place _____

Name _____

(Designation)

Witness _____

(Bank's Common Seal with bank address).

Proforma – 7

(Refer clause-12.0 of Conditions of Contract)

**PROFORMA OF BANK GUARANTEE BOND FOR 10 (TEN) % CONTRACT VALUE
TOWARDS WARRANTY GUARANTEE**

Bank Guarantee No _____

Date _____

To,

(Name of Purchaser)

Sub: Guarantee No _____ for value _____ (Amount) Covering
Machine(s) Serial No _____ supplied to _____ (Consignee)

Ref: Contract (LOA) No _____ dated _____ placed on M/s _____

WHEREAS M/s _____ one of our constituents, (hereinafter called the
“Seller”) have agreed to sell to you _____ Nos. of _____ (give
description of machine/equipment) as per Contract (LOA) No _____
dated _____ (hereinafter called the “the said contract”).

AND WHEREAS according to the terms of said contract, it has been stipulated that
payment of 10 (ten) % of the contract value of the stores would be made, provided
that the Sellers furnish to the Purchaser a Bank Guarantee from a
recognized/schedule bank, acceptable to the Purchaser for 10% of the contract
value of the said contract, valid for a period covering in full the Guarantee Period as
per the warranty clause of the said conditions of the contract, being the conditions
attached to and forming part of the said contract.

AND WHEREAS the Sellers have approached us to give the said Bank Guarantee
on their behalf in your favour for an amount representing 10% of the value of the
said contract which you have agreed to accept.

That in consideration of the promise and at the request of the said Sellers, we
herby irrevocably undertake and guarantee to pay to theGuwahati
Metropolitan Development authority(GMDA) or at such other place as may be
determined by you forthwith on demand and without any demur, any sum upto a
maximum amount of _____ (*value in words* _____) representing
10% of the contract value of the stores delivered under the said contract in case the
sellers make default in paying the said sum or make any default in the
performance, observance or discharge of the guarantee contained in the said
contract.

We agree that the decision of theGuwahati Metropolitan Development
authority(GMDA) whether any default has occurred or has been committed by the
Sellers in the performance, observance or discharge of the guarantee aforesaid
shall be conclusive and binding on us.

.....Guwahati Metropolitan Development authority(GMDA) shall be at liberty,
from time to time, to grant or allow extension of time or give other indulgence to the

said Sellers or to modify the terms and conditions of the contract with the said Sellers without affecting or impairing this guarantee or our liability hereunder.

This bank guarantee comes into force when the balance 10% of the value of the stores, delivered under the said contract, has been paid and will remain in full force and effect upto _____ i.e., for _____ months counted from the date of commissioning and providing of the equipment at Consignee, and, shall continue to be enforceable for further six months i.e. upto _____ (date), hereinafter called the said date.

That no claim under this guarantee shall be entertained by us unless the same has been preferred by theGuwahati Metropolitan Development Authority (GMDA) within the said date.

Date _____
Signature _____
Place _____
Name _____

(Designation)

Witness _____

(Bank's Common Seal with bank address)

Pre-Qualification Proforma

Name of Work				
Tender No.				
Name of the Bidder:				
Details of EMD paid by (i)Banker's Cheque/ Pay Order/ Demand Draft				

Similar Work Experience

S. No.	Name of Work	Name of Client	Actual Date of Start	Actual Date of Completion	Actual Completion Cost	Completion Certificates Placed at:	Remarks
1							
2							
3							
4							

Similar Works:

Similar Work experience shall mean the supply, design, delivery, installation and commissioning of lifts of min. 8 passenger capacities for work value min. Rs 15 lakhs.

Other documents to be submitted along with Tender documents:

S.N	Particulars	Document Placed at:	Remarks
1	Declaration by the bidder as per Proforma-3		
2	Self Attested Copy of Partnership Deed/ Memorandum and Articles of Association of the firm.		
3	Written Power of Attorney of the signatory of the Tender on behalf of the tenderer.		
4	Turnover in last 3 years		
5	List of similar works satisfying qualification criterion completed during the last 5 years.		
6	Self-attested copy of Corrigendum /Minutes of Pre-Bid Meeting, if any.		
7	Manufacturer Certificate		

SECTION – V

TECHNICAL SPECIFICATION

TECHNICAL SPECIFICATION FOR PASSENGER LIFT

1. FOREWORD

There is a requirement of 10 passengers lift (1nos.) and 8 passengers lift (1no.) at South Bank Terminal station at Guwahati for transporting of passengers travelling from Ropeway system. Lift shall facilitate the vertical transportation of Ropeway passengers between ground and operating floor at Ropeway stations.

2. SCOPE

- 2.1. The specification seeks to define the objectives, guidelines and requirements for design, manufacture, supply, installation, testing and commissioning, preparation of maintenance/ operations manual and imparting training to maintenance/ operations personnel in respect of heavy duty elevators.
- 2.2. Elevators are required to be machine room-less & gear-less and the same shall be suitable for Ropeway stations.
- 2.3. Elevators shall be heavy duty type and capable of operating safely and smoothly at a rate of 180 motor starts per hour or above for a period of not less than 15 hours per day, seven day a week.
- 2.4. The Contractor shall be fully responsible for obtaining relevant safety certificate or license or any other authorization required from statutory authorities as a pre-requisite for taking up the work of commissioning and regular operation of Machine-room less & Gear-less Elevators. The firm shall also obtain the relevant safety certificate from statutory authority in respect of individual elevators. Fee, if any, for obtaining such license/ certificate shall be borne by the contractor. The aforesaid provision shall be applicable to contractual warranty period and (if applicable) AMC period also.
- 2.5. The Contractor shall submit to the GMDA, relevant safety and clearance certificates as obtained from the statutory authorities.
- 2.6. The Contractor shall be responsible to supply and install any signage/graphics required for fulfilment of relevant statutory authority's norms, whether or not specifically mentioned in the spec.
- 2.8. Contractor's scope of work

Contractor's scope shall include but not be limited to the following:

- (i) Design, supply, installation, testing and commissioning of Machine-room less and Gear-less Elevators in stations/ buildings for vertical transportation of passengers (including the differently abled and elderly);
Lift Make: KONE/OTIS/Schindler/Thyssenkrupp only shall be allowed.
- (ii) Supply and fixing of guide rails and related items
- (iii) The elevator shall be supplied in accordance with specific requirements of the site, as furnished by the GMDA (please refer Annex-1).
- (iv) Minor civil works (limited to minor items such as chipping, repair or touchup in the shaft for carrying out the elevator installation)
- (v) The contractor shall provide all wiring and apparatus, suitable for the specified electrical supply and the same shall be approved during design stage.
- (vi) Transportation of material and equipments to site, for installation;
- (vii) Scaffolding works and barrier fencing at the landings (only to the extent required for installation of Elevators);
- (viii) Enclosures and supporting brackets for housing and fixing of equipment;
- (ix) Shaft lighting and electrical sockets;

- (x) All equipment, fixtures and materials reasonably required for interface with other Contractors;
- (xi) Training; and
- (xii) Documentation

NOTE: The following items shall also form a part of contractor's scope if specifically asked for in the tender:

- (a) Special tools, testing and diagnostic equipment and measuring instruments.
- (b) Maintenance for specified period.

2.9. GMDAs' scope of work

- i) Making the availability of handing over the elevator shaft is handed over to the contractor to commence installation.
- ii) Availability of power supply.

3. APPLICABLE STANDARDS

IS 14665	Specification for passengers lifts
BS EN-81-1	Safety Rules for the construction and installation of lifts - Part 1: Electrical Lifts
ASME A17.1b-2009	American National Standard for Safety Code for Elevators and Escalators
IEC 60364	Standard on Electrical installation for building
IS 15330	Installation and maintenance of Lifts for handicapped persons - Code of practice
IS 15785	Installation and maintenance of lift without conventional machine rooms - Code of practice
IS 8216	Guide for inspection of lift wire ropes
IS 14665: Part 1	Electric Traction Lifts - Part 1: Guidelines for outline dimensions of passenger, goods, service and hospital lifts
IS 14665: Part 2: Sec 1 and 2	Electric Traction Lifts - Part 2: Code of practice for installation, Operation and maintenance: Section 1: Passenger and goods lifts; Section 2: Service Lifts
IS 14665: Part 3: Sec 1 and 2	Electric Traction Lifts - Part 3: Safety rules: Section 1: Passenger and goods lifts; Section 2: Service Lifts
IS 14665: Part 4: Sec 1-9	Electric Traction Lifts - Part 4: Components
IS 14665: Part 5	Electric Traction Lifts – Specification Part 5: Inspection manual
IEC 60034: Part - 1	Rotating electrical machines – Rating and performance
IEC 60034: Part - 2-1	Rotating electrical machines – Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)
BS EN 12385-5	Steel wire ropes. Safety. Stranded ropes for lifts
BS EN 61000-6-3	Electromagnetic compatibility (EMC) - Generic standards - Emission standard for residential, commercial and light-industrial environments

BS EN 61000-6-1	Electromagnetic compatibility (EMC) -Generic standards - Immunity for residential, commercial and light- industrial environments
BS EN 12015	Electromagnetic compatibility – Product family standard for Lifts, escalators and passengers conveyors -Emission.
BS EN 12016	Electromagnetic compatibility – Product family standard for Lifts, escalators and passenger conveyors -Immunity.
ISO 7465	Passenger Lifts and service lifts. Guide rails for car & counterweight - T type
BS EN ISO 1461	Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods
BS 5655: Part 10	Lifts and service lifts - Specification for the testing and examination of Lifts and service lifts
EN 81 - 71	Safety rules for the construction and installation of lifts — Particular applications to passenger lifts and goods passenger lifts — Vandal resistant lifts
IEC 60227 - 6	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 6: Lift cables and cables for flexible connections

NOTE: The elevator shall generally conform to this specification however for parameters and performance criteria not explicitly covered in this specification should be governed by standards mentioned above. In case of conflict between standards the preference should be given in the order of IS, EN, ASME.

1. OPERATING CONDITIONS (SERVICE CONDITIONS)

The equipment shall be sturdy and suitable for the following service conditions to be normally met in service:

Ambient Temperature	-5°C to +50°C
Humidity	Relative humidity: 40% to 95%
Altitude	Max 55 meters above sea level
Atmosphere	Extremely dusty and desert weather and desert terrain in certain areas. The dust content in air may be as high as 1.6mg/m ³ . During dry weather, the atmosphere is likely to be full of dirt and dust. The rainfall can be fairly heavy.
Coastal area	The equipment shall be designed to work in corrosive atmosphere. Stations in coastal areas have continued exposure to salt laden air.

2. GENERAL REQUIREMENTS

5.1 The construction of all Elevators shall conform to latest editions of IS-14665, IS 15785, IS-15330, and EN 81-1.

- 5.2 Elevator shall have its own driving machine. The method of drive shall be Electric Traction with gearless motor having a provision of VVVF Control; regenerative drive (if applicable) shall be provided, if specifically asked for by the purchaser (please refer item 8, Annexure - 1). In absence of any mention to the contrary in the tender, it will be deemed that regeneration feature is not required. The system, including all sub-systems and equipments shall be of proven design.
- 5.3 The design of the Elevators shall be such that no major repair shall be necessary for a period of 20 years from the date of issue of Certificate of Taking Over. This of course is based on the assumption that prescribed inspections are carried out periodically and routine maintenance as well as cleaning is carried out. The term 'Major repair' shall mean replacement of car frame, car enclosure, car and landing doors, Elevator shaft wiring (except travelling cables), guide rails, drive machine, and driving sheave; parts attached to these components, which are subjected to normal wear and tear, are excluded.
- 5.4 The design of Elevators shall take into consideration fire prevention, elimination of dust and dirt traps, and easy accessibility for cleaning and routine maintenance.
- 5.5 The gearless drive machine shall be mounted on guide rails accommodated within the Elevator shaft. The power switchgear and main control equipment can be located suitably inside or near the Elevator shaft. Location of the same is to be decided in coordination with the GMDA and GMDA appointed civil contractor. No separate machine-room will be provided for machine room-less and Gear-less Elevators.
- 5.6 Elevator Speed:**
- 5.6.1 For transfers of passenger, the nominal speed for elevators in either direction shall be 1.0 m/s.
- 5.6.2 In respect of applications other than transfers between floors, unless otherwise specified in the tender, the nominal speed for Elevators in either direction shall be: 1.0 m/s for up to 6 stops.
- 5.7 Standard Elevator car and shaft dimensions for 10 & 8 persons capacity Elevators respectively have been specified in Cl. 10. Although the standard shaft and pit sizes prescribed in Cl. 10 are expected to be compatible with Elevators of any make. The Contractor shall be responsible to accommodate the Elevator within the shaft sizes agreed to with the GMDA. The Contractor shall co-ordinate with the GMDA and GMDA appointed civil contractor for all matters related to minor variations in shaft size (depth and width) as specified in Clause 10. These variations shall be accommodated in the design by the contractor by way of provision of suitable guide brackets/fabricated steel channels without any additional charges. The contractor shall be responsible for any delay on this account.
- 5.8 Elevator Shaft size, Car size and clear opening width and height of both the car and landing entrance shall not be less than those specified in Clause 10.
- 5.9 On award of contract, the contractor shall at the earliest physically check the site and verify the approximate travel and all other relevant information through co-ordination with the GMDA and GMDA appointed civil contractors.
- 5.10 The Contractor is required to interface with the GMDA as well as with GMDA appointed civil Contractor in respect of the Elevator shaft requirements.
- 5.11 The running clearance of each Elevator between the Elevator car threshold and landing door sill shall not be less than 15mm but not more than 30mm.

5.12 Suitable provisions shall be made in hardware/software so that there should not be loss of any data due to power failure or any type of power disturbance, etc. This shall be reviewed and finalized at design stage.

3. SYSTEM DETAILS

The elevator shall comprise of all parts and accessories, which are necessary for its efficient operation, whether specifically mentioned or not. The key parts and accessories along with their functions and features are listed as follows:

6.1 Traction Drive System

6.1.1 Motor

6.1.1.1 Driving motor shall be of AC permanent magnet synchronous type (with no slip rings) designed for special duty cycles required for Elevator operation. It should have a high starting torque, high power factor, high efficiency and low energy consumption. The efficiency of driving motor shall not be less than 85%. The motor should conform to IEC 60034: Part 1 & 2.

6.1.1.2 The motor shall be capable of not less than 180 starts per hour without excessive temperature rise.

6.1.1.3 The maximum temperature rise of the winding shall not exceed 50⁰C above ambient temperature when operated under normal condition.

6.1.1.4 Provision shall be made to enable the speed to be checked at main Control cubicle. The device for speed checking itself has been included in the scope through Cl. 6.28 (e).

6.1.1.5 The motor shall carry a nameplate giving full details of its ratings and characteristics.

6.1.1.6 The motor used shall have Class 'F' insulation with IP-21 protection and shall be designed for 110% of rated load.

6.1.1.7 The motor shall be designed to conform to S4 - 40% CDF (cyclic duration factor). Duty cycles are defined as per IEC duty cycles for non-peak and peak period of operation.

3.1.2 Brake

3.1.2.1 The Electro-magnetic brake shall be of the spring applied and electrically released type.

3.1.2.2 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 rated 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.

3.1.2.3 Springs used to apply the brake shoes (two nos.) shall be in compression and adequately supported. Powder coating or other alternative Anti-corrosion measures to be ensured.

3.1.2.4 Brake linings shall be of renewable, incombustible, non-asbestos materials and shall be secured to the brake shoes so that normal wear shall not weaken their fixings. Band brakes shall not be used.

3.1.2.5 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.

3.1.2.6 A means of adjusting the brake plunger stroke shall be provided.

3.1.2.7 The Elevator machine shall be fitted with emergency device capable of facilitating the brake to be released by hand or by electrical switch. In case of manual emergency device it shall require a constant effort to keep the brake open. The emergency device shall be handle/switch operated and be provided in MAP (Maintenance Access Panel). The handle should be robust and able to bear human intervention. This aspect shall be evaluated during detailed design stage. It is desirable that a mechanical independent of electrical system) arrangement may be provided for rescuing the trapped passengers. The rescue operation shall be possible even when the total load of the car with passengers become equal to the mass of the counterweight.

3.1.3 Driving Sheaves

3.1.3.1 The sheaves shall be manufactured in steel or SG iron or alloyed cast iron and free from cracks, sand holes and other defects with truly machined surface in order to ensure perfect alignment of all bearings and thereby also reduce noise generation. The sheaves shall be fitted with sealed for life lubricated bearings.

3.1.3.2 The sheaves shall have machined rope/belt grooves that can be reworked for future wear.

3.1.3.3 Adequate provision shall be made to prevent any suspension ropes leaving the groove due to rope/belt slack or introduction of foreign objects.

3.1.3.4 The deflector or secondary sheave assembly, where used, shall be mounted in proper alignment with the traction sheaves.

3.1.4 Alignment

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

3.1.4.2 The assembly shall be reviewed and rectified when excessive noise is emitted during operation.

6.1.5 Anti-Vibration Supports

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

6.1.6 Hoisting Rope/ Belt

6.1.6.1 At least three (3) steel wire ropes/belt especially manufactured for Elevator use shall be employed for suspension of Elevator car and counterweight. The main suspension ropes/ belt shall be in accordance with latest versions of EN 81-1, IS: 14665 (part-4, Sec.3) and the strength, construction and diameter of rope for the car and counterweight shall conform to latest version/ amendments of IS: 14665 (Part 4/Sec. 8)/IS-2365 or EN-12385-5. A plate giving the number, size and ultimate tensile strength of the rope used shall be permanently fixed to the crosshead.

6.1.6.2 Steel /coated steel belt of adequate size and number is to be provided and capacity / strength thereof will be verified at design/ testing stage. The coated steel belt shall be provided with continuously operating monitoring system as per IS 15785.

6.1.6.3 The factor of safety based on maximum static load for car and counterweight ropes/ belt shall be at least 12.

6.1.6.4 The ropes/belt shall be attached to dead-end hitch assemblies, fitting to supporting beams, car frames, counterweights by means of suitable termination. A locking device or

anti-twist rope device shall be fitted to the roping system. Alternately, approved arrangement for wedge type rope fastening may be used.

6.1.6.3 Compensation ropes/belt or any other arrangement shall be provided if necessary to achieve the leveling required and smooth starting.

6.1.6.4 Each rope/belt shall be fitted with a suitable shackle, spring, seat washer, shackle nut & lock and shackle nut split pin.

6.2 Counterweight

6.2.1 The counterweights shall be in accordance with IS 14665 (Part 4, Sec 3) and EN 81-1. The counterweights (filler weights) shall be made of cast iron, wrought iron or steel and shall be appropriately secured. They shall be of uniform density and physical dimensions.

6.2.2 Counterweights shall be guarded by means of a rigid, galvanized steel sheet screen extending from a position 300mm above the pit floor to a position at least 2.0 m above the pit floor.

6.2.3 The counterweight shall be balanced to 40 to 50 % ($\pm 3\%$) of the rated load.

6.2.4 Guide shoes shall have non-metallic renewable linings and be provided at the top and bottom of the counterweight. Guide shoes shall be adjustable type. A self-lubricating system (container with oil) shall be provided on top guide shoes.

6.3 Clearances and Run-by for Car and Counterweight

6.3.1 The top clearance of the car and counterweight shall be as stated in IS Standards.

6.3.2 The bottom run by of car and counterweight shall be as per relevant IS Standards.

6.3.3 When the car rests on its fully compressed buffer, there shall be a vertical clearance of at least 600 mm between the pit floor and the lowest structural or mechanical part, equipment or device installed beneath the car platform except:

- i) Guide shoes, safety-jaw assemblies and platform aprons, guards or other equipment located within 300mm, measured horizontally from the sides of the car platform.
- ii) Compensating sheaves

However, when the car rests on its fully compressed buffer, there shall be a vertical clearance of not less than 50mm between any part of the car and any obstruction of device mounted on the pit.

6.3.4 The clearance between the car/counterweight and the hoist-way enclosure shall be at least 20 mm except on the side for loading and unloading.

6.3.5 The clearance between the car and the counterweight shall be at least 40 mm. The clearance between the counterweight and the counterweight screen shall be at least 20 mm.

6.4 Guides and Fixings

6.4.1 Planed steel tees shall be provided as guides for the Elevator car and counterweight, as appropriate, erected plumb and fixed securely to the Elevator shaft by steel brackets. The bracket shall be solidly fixed with the RCC beam/RCC slab. The guide rails shall be

connected by steel fish plates. Details of guides and associated items shall be scrutinized and finalized at detailed design stage.

- 6.4.2 The rail contact surfaces of the connecting rail plates and back of the guide rail ends shall be accurately machined and fitted at site to form smooth joints.
- 6.4.3 The strength of the guides, their attachments and joints shall comply IS 14665 part 4.
- 6.4.4 The stem sections of all guides shall be tongued and grooved to provide matched joints. The guides and their fixings shall be able to withstand the forces imposed by a fully loaded car travelling at tripping speed of the governor, due to the application of the safety gear, without permanent deformation or bending due to the uneven loading of the car. The guide rail brackets shall be designed for 20 years life.
- 6.4.5 Guide rail brackets shall be of steel and bolted securely to the building or structure steelworks. The brackets shall be designed and located such that the rail will not deflect more than 5 mm under normal and Safety Gear operation. There shall be a minimum of two brackets per piece of guide rail and the distance between brackets shall not be more than half the length of each piece of guide rail. The bracket should be fixed to RCC beams/RCC slab using chemical bolts of Hiliti make or other EOTA approved brand of fasteners manufactured as per ETGA document no. 001TR029 with cold forming process. This particular requirement is to be ensured during interface with designated civil contractor. It is the sole responsibility of the Elevator Contractor to check the strength of the shaft wall and get it certified from the GMDA appointed civil Contractor.
- 6.4.6 The fixing of guide rails to their brackets and to the building structure shall permit compensation, either automatically or by simple adjustment, due to normal settling of the building or shrinkage of concrete.
- 6.5 **Buffer**
- 6.5.1 Buffers shall be installed as a means of stopping the car and counterweight at the extreme limits of travel.
- 6.5.2 Buffers shall be of spring type and the same shall comply IS: 14665 (part- 4, Sec. 1). If any manufacturer offers PU (polyurethane) type buffer same may be accepted by consignee after evaluating the supporting documents submitted by the manufacturer about the performance of PU buffers.
- 6.5.3 Buffers in the pit shall be mounted on steel frame, which shall extend between both the car and counterweight guide rails.
- 6.6 **Governor**
- 6.6.1 The speed governor shall be in accordance with IS: 14665 (part-4, Sec.4) and shall be adjustable to actuate the safety gears, located overhead and driven by governor rope suitably connected to the car and mounted on its own pulleys
- 6.6.2 Tripping speed of the over speed governor shall be chosen between: 115% to 140% in respect of 1m/sec; or 115% to 132% in respect of 1.5m/sec. The tripping of the over-speed governor for the safety gear shall occur when the car speed exceeds the rated speed downwards.
- 6.6.3 A mechanically operated safety switch shall be provided to disconnect the power supply to the motor when the governor is activated.
- 6.7.4 The governor shall be of “V” groove wheel design.

- 6.7.5 The governor rope shall be of steel and shall comply IS: 14665.
- 6.7.6 The rope shall be maintained in tension by means of weighted or spring loaded tension sheaves located in the pit.
- 6.8 **Diverting pulleys**
- 6.8.1 All diverting pulleys necessary for suspension of car/counterweight or diverting the suspension rope/belt to counterweight shall be of cast iron, grooved for wire ropes complete with shaft, bearings. They shall incorporate devices to prevent:
- (i) The suspension ropes, when slack, leaving the grooves.
 - (ii) The entry/ ingress of objects between rope and grooves.
- 6.8.2 The diverter assembly, where used, shall be mounted in proper alignment with the traction sheaves.
- 6.9 **Car and Car Frame**
- 6.9.1 **Guide Shoes**
- 6.9.1.1 Adjustable guide shoes shall be provided and properly fitted at the top and bottom on each side of the car frame and the counterweight frame. The guide shoes shall be slipper type.
- 6.9.1.2 An oil container for automatic lubrication of the guide rails shall be provided. The material of the oil container shall preferably be metallic.
- 6.9.1.3 Slipper type guide shoes shall be of milled cast iron or steel frame type or sheet metal with non-metallic renewable liners, of low coefficient of friction and good wear resistance, which require minimal lubrication. A drip tray fabricated from galvanized steel sheet shall be provided to avoid lubricating oil spillage.
- 6.9.2 **Car Frame**
- 6.9.2.1 A suitable car frame fabricated from cold rolled (up to 4mm thickness) and hot rolled sheet (above 4 mm thickness)/ formed steel hot dipped galvanized / Spray Galvanized, bolted and / or welded together to form a rigid structure shall be provided.
- 6.9.2.2 The deflection of the members carrying the platform shall not exceed 1/1000th of their span under static conditions with the rated load uniformly distributed over the platform.
- 6.9.2.3 It shall be able to withstand the operation of the safety gear or any condition of loading without permanent deformation and shall not transfer the load to the enclosure.
- 6.9.2.4 The safety factor of the frame shall not be less than five (5).
- 6.9.2.5 A data plate shall be attached to the cross head members of the car frame giving the following information:
- (a) Rated load of the Elevator,
 - (b) Speed of the Elevator,
 - (c) Year of Commissioning.
- A Do's and Don'ts instruction plate shall be provided after getting approval at the design stage. There should be two different plates one outside and one inside the car. These plates should be very friendly and simple.
- 6.9.3 **Car Enclosure**

- 6.9.3.1 Car enclosure shall be of Scratch Resistant Stainless steel of not less than 1.5 mm in thickness and securely fastened to the car platform and so supported that it cannot be loosened or become displaced in ordinary service or on the application of safety gear or on buffer engagement.
- 6.9.3.2 Final finishes of the walls, ceiling and floor shall be finalized during design stage.
- 6.9.3.3 No wood or other combustible materials shall be used for any part of the Elevator car including car door and emergency trap door.
- 6.9.3.4 The enclosure shall be designed and supported such that when subjected to a pressure of 335N applied horizontally at any point over an area of 5 cm² on the walls from the inside of the cars toward the outside, there shall be no permanent deformation and deflection shall not be more than 10mm.
- 6.9.3.5 The enclosure shall be insulated to prevent the transmission of noise and vibration from the car frame.
- 6.9.3.6 A toe guard shall be provided for the car doors conforming to Paragraph 8.4 of EN81 Part 1. The toe guard for elevators shall be made of galvanized sheet steel of not less than 1.5mm thick and painted and shall be adequately braced at the back. The depth of the toe guard shall be sufficient to prevent any object from being trapped between the underside of the car platform and the landing during re-leveling operation (with a minimum of 700 mm).
- 6.9.3.7 Emergency contact number plate shall be provided with front transparent acrylic sheet with flush screw arrangement such that the contact numbers could be changed. The location and design shall be finalized during design stage.
- 6.9.3.8 Safety instructions for elevator users shall be provided inside the car in international signage pattern. The instruction plate shall provide guidance to the passengers on how to act at the time of Elevator breakdown/ entrapment and rescue operation. The location and design shall be finalized during design stage.
- 6.9.4 **Car Platform**
- 6.9.4.1 The car platform shall be constructed from cold rolled steel (spray galvanized). The floor finish shall be made of 6 mm thick Aluminium chequered plate which shall be fixed to platform top sheet with pilfer proof screws. If single sheet is not used, it can be in two pieces fixed with pilfer-proof screws. The platform shall be designed on the basis of the rated load evenly distributed with a minimum safety factor of five (5). Design calculations shall be submitted by the contractor at the design stage.
- 6.9.4.2 The car platform shall be insulated to prevent the transmission of noise and vibration from the car frame to the platform.
- 6.9.5 **Car roof**
- 6.9.5.1 The portion of the car roof visible from inside the car shall be made of Stainless Steel finish. False ceiling shall not be provided. Light fittings and fan shall be provided on car roof and suitably protected against theft.
- 6.9.5.2 The car roof shall be suitably constructed and reinforced to permit the maintenance and inspection of the Elevator shaft equipment by maintenance personnel standing on the car roof. It shall be capable of supporting a vertical force of 2000N at any portion without causing permanent damage. Permanent, hinged and foldable safety balustrades or any other suitable arrangement forming an integral part of car top maintenance platform shall be provided. The design shall be subject to the review during detailed design stage.

The roof of the car shall be provided with a trap door of size 450mm x 450mm for 10/8 passengers elevator to enable rescue of passengers in case the lift get struck up and ARD does not work. Care shall be taken that the opening of the trap door is not obstructed by any other equipments installed on the roof.

6.9.5.3 Perforated mesh construction of the roof or wooden platform(s) on the car roof shall not be acceptable.

6.9.5.4 The car roof shall be fitted with guard rails set as at a height and of suitable dimensions and strength to protect maintenance personnel.

6.9.5.5 The car junction box shall be with IP 54 protection. The travelling cables and the car enclosure wiring shall be installed at the car top.

6.9.6 Ventilation

6.9.6.1 Each Elevator car shall be adequately ventilated to a minimum standard of 20 air changes per hour. The fans shall be located above the suspended ceiling or recessed in the car ceiling, as appropriate, to achieve cross-flow ventilation. Details of ventilation system shall be finalized at design stage.

6.9.6.2 The noise level of Fan used for ventilation shall be within the limits as stipulated in Cl. 10.

6.9.6.3 Fan shall automatically start on registering the command. The car ventilation fan shall be switched off within a period which shall be adjustable from 5 to 15 minutes after the last registered call is answered. However, fan Switch shall be provided to disable auto-starting of the Fan when not desired.

6.9.7 Car Interior and Elevator Finishes

6.9.7.1 Unless otherwise specified elsewhere in this specification, the following finishes for the Elevator shall be complied with:

I. Landing Finishes:	
i. Landing Plate, Indicators, MAP, etc.	Scratch Resistant Stainless Steel
ii. Landing Doors	Scratch Resistant Stainless steel with fire rating as per IS 14665 part-I
II. Car Finishes:	
i. Car Transom Panels	Scratch Resistant Stainless steel
ii. Car Wall:	
a) Front Panels	Scratch Resistant Stainless steel
b) Side Panels (incl. COP)	Scratch Resistant Stainless steel
c) Back Panels	Scratch Resistant Stainless steel
iii. Car Doors	Scratch Resistant Stainless steel
iv. Car Floor finish	6 mm thick Aluminium Chequered plate
v. Car Ceiling	Scratch Resistant Stainless steel panels with sufficient LED down lights
vi. Car Kick-Plates and skirting	Scratch Resistant Stainless steel

vii. Hand/grip rail	Hairline Finish Stainless steel of straight through type and supported from min. 3 locations.
viii. Buffer rail	Thermoplastic Elastomeric or suitable material enclosed in Scratch resistant stainless steel frame with minimum height of 100mm x (width of the car minus 100mm) long shall be suitably fixed to take the impact of wheel chair foot rest
III. Hall Button and Display Faceplate:	
Scratch Resistant Stainless Steel	

6.9.7.2 The contractor shall further note that:

- (i) Wherever scratch resistant stainless steel has been asked finish shall be honey comb or mono rock.
- (ii) Joints in all surfaces shall be coordinated. All fixings are to be of the hidden/ pilfer proof type (cover strips at joints are not acceptable).
- (iii) All stainless steel materials specified for car finishes shall be of grade SS 304 or equivalent.
- (iv) Key details in respect of car interiors, doors, interfaces with civil structure and finishes have been spelt out in the spec. Minor details, if any, shall be finalized at the design stage.

6.9.8 Illumination of Cars and Lighting Fixtures

6.9.8.1 LED light fittings shall be provided to achieve a minimum illumination level of 150 lux at the floor of Elevator car. Although not a mandatory requirement for design approval, the contractor is encouraged to make use of the guidance being provided for quality of LED luminaire. L70 life of LED used shall be more than 50,000 hours at soldering point temperature of 85 deg C and at luminaire operating current. The life time projection should be based on LM-80 test data and corresponding TM21 projection method for the corresponding driving currents at which the LEDs are driven. Further, the temperature of the heat sink used in the luminaire shall not be greater than 20°C above ambient temperature even after 6 hours of continuous operation. Further, soldering point temperature of the LEDs used in the luminaire should be demonstrated through a test.

6.9.8.2 The number of fittings should be two or more.

6.9.8.3 In case indirect lighting is used, it shall be got approved during design stage.

6.9 Emergency Lighting

For emergency lighting, a subset of lighting fixtures for normal lighting, shall be backed up by a UPS. With emergency lighting, the minimum luminous intensity measured at floor level and on the car operating panel shall be 100 lux.

6.10 Elevator Doors

6.10.1 Car and Landing Doors

6.10.1.1 General requirements of doors

- (i) Each Elevator shall be provided with horizontal sliding doors complete with door frames, arranged in centre opening with two panels. The doors shall be heavy

duty and shall be designed for minimum of 180 door opening/closing operations in one hour.

- (ii) Depending on the site, the elevator car can have single or two sets of car doors. The purchaser is required to furnish this information (please refer item 7 of Annexure-1). In absence of any mention to the contrary in the tender, it will be deemed that only one set of car doors are required. Unless otherwise specified, the car and landing door panels shall be imperforate and fabricated from stainless steel (grade 304) of at least 1.5mm thick. In case of non-sandwich door construction, the back of door panels shall be treated with an anti-drumming compound/tape/sheet covering minimum 30% of the panel area which is non-combustible and shall not emit toxic fume when affected by fire. This shall be got approved during design stage.
- (iii) The doors shall be able to withstand a thrust of 345 N over 5 sq. cm.
- (iv) The car doors shall be provided with an electric contact arranged to prevent the normal operation of the Elevator unless the gate is in closed position. The car gate shall be arranged to give the minimum clear opening width as specified.

6.10.1.2 Door Frames

Door frames shall be of at least 1.5 mm thick stainless steel in Scratch resistant finish and shall comprise head and jamb sections of the same material. The door frames shall be suitably braced and reinforced. The frames shall be provided with adjustable wall anchors or comparable devices to permit bonding of these anchors or devices into the walls after the frames are in place. All frames shall be securely fastened to sills and hanger supports, and shall be returned to the hoist way side to present a neat appearance.

6.10.1.3 Door Sills

- (i) Door sills shall be slotted. All door sills (visible portion) shall be of stainless steel with non-slip wearing surfaces and the sill shall be capable of withstanding a load of 400kg.
- (ii) The sills shall be supported on steel anchor plates securely fastened to the landing door sill supports. The costs for providing all the necessary steel support for the door sills shall be deemed to have been included in the Contract.
- (iii) Toe guards similar to those provided to the car door sill shall be provided beneath each landing door sill complying to EN-81-1.

6.10.1.4 Door Hangers and Rollers

- (i) Both car and landing doors shall be fitted with sheaves type door hangers. The sheaves wheels shall be tyred with a sound attenuating material and shall rotate on grease packed precision ball bearing. The up thrust of the door shall be taken by a roller mounted underside to the hanger track.
- (ii) The roller shall be mounted on an eccentric stud to provide for adjustment. Alternately, any other approved device for door adjustment may be used. The hanger tracks shall be either of formed cold rolled steel or of cold drawn steel of heavy section with surfaces shaped to conform to the tread of the hanger sheaves and rollers. Suitable means shall be used to transmit motion from one door panel to the other.

6.10.1.5 Supports and Covers

- (i) Structural steel angles, if provided, shall be furnished and of sufficient size to accommodate the door closing equipment. The angles shall be continuous and securely bolted to the sills and the building structure.
- (ii) Hanger cover plates shall be made of galvanized steel, for Elevators with landing as well as car door made of stainless steel. These covers shall be removable, and so arranged as to ensure hanger accessibility from within the Elevator car for maintenance purposes.

6.10.1.6 Self Closing

Gravity or spring actuated self-closing device shall be fitted to the landing doors so as to automatically re-close the doors when manually opened by means of the emergency unlocking device. The gravity weight shall move freely and quietly within its enclosure fixed at each end of the door sill and be protected from falling into the Elevator shaft due to any reason. This device shall not be accessible to public.

6.10.1.7 Locking Device

- (i) Each landing door shall be provided with an accepted locking and interlocking device to prevent the operation of the Elevator unless all landing doors are closed and locked.
- (ii) It shall not be possible to open the landing door from the landing side without a landing door key.
- (iii) The locking device shall have at least IP 20 protection.
- (iv) The electric contacts of the door locking device shall open positively independent of gravity.
- (v) Each landing door panel shall be provided with its own locking device.
- (vi) Provision shall be made for opening of all landing door locks by means of a landing door key by an authorized person irrespective of the position of the Elevator car.

6.10.1.8 Fascia

Fascia shall be provided as per EN 81-1. Where the gap between the car door sill and surface of the Elevator shaft wall exceed 125 mm, galvanized sheet steel fascia plates of not less than 1.5 mm thick shall be provided. These shall be fixed between the undersides of landing entrance sills and the top of the door hanger case to form a flush surface in the path of travel at the car entrance. The plates shall cover the whole width of the landing door and extend by 150 mm on each side of the door. It shall be rigid and properly reinforced.

6.10.1.9 Door Profile

To avoid the trapping of fingers in between Car frame and Car door, profile shall be provided and the gap after provision of profile, if any, shall not be more than 5mm.

6.10.2 Door Operators

6.10.2.1 The door operator for each Elevator shall consist of a motor, operating mechanism, linkages and switches to give adjustable or variable speed door operation and shall be adjusted to ensure smooth, fast opening and closing. The average door speed shall be between 150 - 250 mm/sec. The car and landing doors shall operate simultaneously and quietly while the Elevator car is leveling.

6.10.2.2 Stainless steel cover of not less than 1.5mm thick shall be provided for the car and landing door headers to prevent the accumulation of dust in door locking devices, door tracks and mechanism.

- 6.10.2.3 In “Without Attendant” mode, if no command is registered or due to abnormality of Elevator safety circuit, after the expiry of a preset time interval of 10-30 seconds (adjustable), the door shall re-open once for 30 seconds (adjustable so as to enable the passengers to exit) and close.
- 6.10.2.4 In “With Attendant” operation, the car and landing doors shall open automatically but the closing of doors will be subject to the pressure on “Door Close” button. During the closing motion it shall be possible to reverse quickly and open the doors by pressing of the “Door Open” button.
- 6.10.2.5 The door lock shall prevent the car doors from being opened by the door operator or by force when the car is moving or is not stopped within the unlocking zone of a landing.
- 6.10.2.6 Electric interlocks shall be provided to ensure that Elevator will not operate, if the car door is not closed and locked.
- 6.10.2.7 If the car door is forced open, the Elevator shall stop and the alarm activated (even when the Elevator is out of order) until the door is fully closed. The audio visual alarm signal shall be sent to the designated landing as well as to any Control Room, if provided.

6.10.3 Door Safety Devices

6.10.3.1 Electrically Operated Proximity Detection Device

- (i) Electrically operated proximity detector/ infrared curtain devices(s) shall be installed on the leading edge of the car doors. The device(s) shall create two dimensional zone of protection. Two dimensional detection shall be for a height of at least 1800 mm of the door. The zone of detection shall move forward as the doors close and the presence of a person, if within this zone, shall activate the detector to stop the closing movement of the doors and re-open them before hitting the person. The device shall have provision to switch off two dimensional detection.
- (ii) After a preset time interval (which is programmable) the doors shall start to close again in the absence of further interruption.
- (iii) A passenger entering or leaving the car shall not cause the doors to stop and re-open unless the door’s edge reaches a certain predetermined proximity to the passenger.
- (iv) The contractor shall consider the ambient condition before deciding the sensitivity of the device. This device should not be so sensitive to sunlight as would result in mal operation.
- (v) If the doors are prevented from closing by the pressing of hall and/or car buttons or a person in their path for an adjustable pre-set time, the safety devices, except the mechanical door safety edge, shall be rendered inoperative to cause door reversals. The doors shall proceed to close at a reduced speed and a buzzer located on the car shall sound before and during the closing.

6.10.3.2 Photo Cells

Two Photo cells shall be provided for each car door for preventing door closing when a passenger is entering or leaving the car. This should act as a backup protection to 2D-infrared curtain.

6.11 Controllers

- 6.11.1 The Elevator’s motion, travel-direction, speed, stopping, etc. shall be controlled by a compact and reliable microprocessor-based controller that is specifically designed

for safe Elevator operation. Up gradation of software shall be possible at the installation site itself.

- 6.11.2 Controllers shall be of proven design and would ensure continuous-operation of the Elevator over its service life.
- 6.11.3 All high voltage (110V or above) contact points shall be protected from accidental contact in a situation where controller doors are open.
- 6.11.4 Elevator controllers shall be housed in IP54 protected, 1.5mm thick powder coated cabinet with hinged door, lockable with a dedicated key.
- 6.11.5 The MAP panel cover shall be of stainless steel SS 304 grade.

6.12 **VVVF Drive**

- 6.12.1 The Elevator shall comprise of a VVVF drive (variable speed control drive), functionally integrated with the Elevator controller to control the driving motor. On installation, this shall ensure the Elevator's movement and speed control.
- 6.12.2 The VVVF drive shall also result in smooth acceleration/ de-acceleration during the motor starting/ stopping for reducing/limiting the starting current and the frictional wear and tear of the brake liner.
- 6.12.3 The VVVF drive shall result in better and comfortable ride quality -with jerk-free starts and stops.

6.15 **Car Operating Panel**

- 6.15.1 Car operating panels (COP) and car call buttons shall be ergonomically designed and of robust construction and shall be got approved at the design stage. The car operating panel shall be integrated and flush mounted, on one of the side panels. All buttons on the panel shall be of robust design and construction and flush with the panel. All buttons shall be vandal resistant as per EN 81-71 with designations and Braille marked on it.
- 6.15.2 The face plate of Car operating panel shall be made of stainless steel grade 304. Each car operating panel shall contain, but not limited to the following:
 - (i) Flush Mounted COP on the side Panel.
 - (ii) An alarm button in yellow color with bell shaped symbol, when pressed, shall activate the alarm hooters provided at the designated floor and register the alarm condition through the Elevator Status Display Panel at Station Control Room (SCR), if ESDP is provided.
 - (iii) An Orange / red "Car Overload" indication with announcement in English and Hindi or only in English, as decided by the GMDA, shall be provided.
 - (iv) Two vertical rows (where appropriate) of car call buttons for floor designations bearing numerals/ alphabets with integrated Braille code for visually impaired. For 3 stop Elevators, the button marking should be up or down arrow.
 - (v) A "Door-Open" button which, when pressed, shall cause the closing door to reopen or when continuously pressed shall keep the door open.
 - (vi) A "Door-Close" button which, when pressed, shall cause the door to close to shorten the door open time.
 - (vii) An intercom button (self-illuminating feedback type), when pressed, shall allow direct communication with the personnel in the Station Control Room (SCR), and main control cubicle.

- (viii) A capacity plate engraved / etched onto the car operating panel shall indicate the rated load in kilograms and the maximum number of passengers to be carried. The size and design of the lettering shall be submitted at design approval stage.
- (ix) An "ON/OFF" switch whereby the ventilation fan can be switched on and off.
- (x) Each button shall be of micro-push (of less than 2 mm stroke) suitable for heavy duty and vandal proof type. The response light shall be either orange or red when illuminated.

6.15.3 A key operated switch shall be provided on the car operating panel at a suitable location to facilitate Elevator operation as follows:

- (i) One or more switches whereby the following modes of operation can be effected as desired:
 - (a) With Attendant
 - (b) Without Attendant
 - (c) Operation by Firemen in accordance with IS 14665 and statutory requirements.
- (ii) "UP/DOWN" buttons which shall cause a car to travel in the desired direction. These buttons shall be operative only during the "Attendant" operation.

6.15.4 A switch should be provided in accordance with IS 14665-1 part 2 for operation by fireman.

6.16 Car Position Indicator

6.16.1 The car position indicators shall be provided inside the car and also on each landing in the Hall-way. These indicators shall not be part of COP inside the car or Call buttons (in the Hall way). The location of the indicators shall be above the door.

6.16.2 The faceplate of the car position indicator shall be made of stainless steel grade 304. The Stainless steel plate should be minimum 2 mm thick and its mounting arrangement should have two sunken screws. This plate should be pilfer-proof. Floor numbers shall be digitally displayed using minimum 5x7 square dot matrix LED. There shall also be an arrow in motion vividly and dynamically indicating car movement and direction. It shall also be capable of displaying/ scrolling (at least 8 characters) simple message such as:
 floor names e.g. 'Concourse'/ 'Platform'/ 'Foot Over bridge'; 'Out of service'; 'Under Maintenance'; 'Firemen'; etc. which may be decided based on mutual agreement between the GMDA and the contractor. The surface of the display unit shall be non-glare type.

6.17 Elevator Inter-Communication System

6.17.1 All stations shall be equipped with handsets except those slave stations installed inside the Elevator cars, which shall be of the hands free type.

6.17.3 The handsets/ intercoms shall be supplied from a UPS power supply so that the intercom's working remains unaffected in event of failure of mains power supply.

6.18 Certificate Holder

A framed and glazed panel made of stainless steel of minimum 2mm thickness, suitable to display the Elevator certificate shall be provided above the car operating panel. This shall be got approved at design stage.

6.19 Hallway Equipment

6.19.1 Hall Call Buttons

One (1) set of hall call buttons shall be provided for each Elevator at every floor served. The set of buttons shall be installed on the wall adjacent to each Elevator landing. The faceplate shall be made of stainless steel grade 304 with hairline finish. The Stainless steel plate for mounting the indicators and landing call buttons should be minimum 2 mm thick and its mounting arrangement should have two Sunken Screws. This plate should be pilfer-proof. All buttons shall be vandal resistant as per EN 81-1 with designations and Braille marked on it. The hall call buttons shall be micro-push type and suitable for heavy duty. The response light of the call buttons shall be orange or red, when illuminated. When an Elevator arrives at the hall, the illumination shall cease.

6.19.2 Hall Position Indicator

6.19.2.1 The faceplate of the car position indicator shall be made of scratch-resistant stainless steel grade 304. The Stainless steel plate should be minimum 2 mm thick and its mounting arrangement should have two Sunken screws. This plate should be pilfer proof. Floor numbers shall be digitally displayed using minimum 5x7 square dot matrix LED. There shall also be an arrow in motion vividly and dynamically indicating car movement and direction.

6.19.2.2 One set of Hall lanterns shall be provided for Elevator at every floor served. The set of lanterns shall be installed on the wall adjacent to or on top of each Elevator landing. Prior to the car's arrival, the hall lantern shall begin flashing and the chime shall sound twice.

6.19.3 Pilfer proof Design

The Elevator equipment (i.e. Indicators, landing call plate, MCB, etc.), if any at Ground level, should be pilfer proof.

6.20 Elevator Functions

The Elevator shall incorporate the following functions:

- (i) Door Nudging Feature:
If the Elevator doors are kept open longer than the pre-determined time, an override alarm shall sound to alert the passenger that the doors must close so that system performance is not adversely affected.
- (ii) Next Landing:
The car shall automatically proceed to the nearest floor with a functioning landing door if the car doors fail to open at the designated floor.
- (iii) Door Reversal Device:
When an object is caught in or interferes with the opening or closing of the doors, the doors shall reverse direction on detection.
- (iv) Safety Door Edge:
When a passenger comes in contact with the door safety edge when the doors are closing, the doors shall re-open.
- (v) Overload Holding Stop:
When the car load exceeds the pre-determined weight, it shall set off an overload buzzer with the announcement of overloading as also the illumination of a visual "Overload" signal inside the car. Further, the Elevator shall not operate and the doors shall remain open. The load cell /strain gauge mounted on the car frame shall be used as load weighing device. The devices to be used for sensing the overload in the car should be most reliable and complete technical details thereof should be furnished during design approval.
- (vi) Electronic Door Safety:
When passengers are boarding or exiting the car as the doors are closing, the doors shall re-open before touching the passengers.
- (vii) Homing Service:

This function shall automatically home the respective Elevators to the pre-assigned floors. After transporting passengers to the assigned floor, the Elevator shall automatically home to its pre-assigned floor.

(viii) Up/Down Selective Collective Automatic Operation:

The Elevator shall respond to all registered hall calls and car calls automatically. It shall respond to all registered hall calls and car calls in the direction of service. When no call is registered then after a pre-set adjustable period, the Elevator car shall come to designated floor and open the door for 30 seconds (adjustable time) and then park the car there with closed door.

6.21 Electrical Requirements

6.21.1 Elevator shall be provided with a main control cubicle to accommodate all electrical switchgear. A caution notice with the wording "Danger-415V/240V A.C. Do Not Remove Cover Unless Incoming Supply is Switched Off" shall be affixed to the cover/door.

6.21.2 The Elevators shall be designed to operate on a 415V $\pm 10\%$ AC, 3 phase, 4 wire, 240V $\pm 10\%$ 50Hz AC single phase power supply. Main switch/MCB Box with ELCB, etc. should be in lockable enclosure and in scope of Elevator contractor. MCB box shall be IP-54. All ELCB's, MCBs & Switches should be of reputed makes. The lighting requirement shall be at least 100 lux throughout the shaft and 200 lux near machine & controller. Socket outlets of 15A capacity shall be provided by the Elevator Contractor inside the shaft, at every floor.

6.21.3 Hoist-way and car top safety switches shall be rated to IP 54 (minimum). All switchgear and other auxiliary apparatus shall be of accepted design and labelled for identification.

6.21.4 The control wiring shall be laid out neatly and clearly in cable sleeves and all terminals and cables shall be labelled or marked for identification.

6.21.5 All casing, covers, trucking and armouring shall be thoroughly and efficiently earthed and adequate protection shall be provided to prevent fuses and circuit breakers from arcing to earth or between phases.

6.21.6 Metallic trunking and metallic conduits shall be provided for cables put on the walls of shaft and car top. The ends of the trunking/conduits shall be sealed to prevent ingress.

6.21.7 Maintenance Access Panel (MAP) should preferably be located at top floor level. All controller enclosure shall be pilfer proof and have ingress protection rating as specified in Clause 10 of the spec.

6.21.8 The design of contactors and relay contacts shall be such that the break and make contacts shall not be closed at the same time at any position of the armature. The operating conditions shall be as follows:

- (a) If, one of the break contacts (i.e. normally closed) is closed, all the make contacts are open.
- (b) If, one of the make contacts (i.e. normally open) is closed, all the break contacts are open.

6.21.9 In the control and safety circuits, the mean value of operating voltage (in case of direct current) or the r.m.s. value (in case of alternating current), between conductors or between conductor and earth shall not exceed 250V.

- 6.21.10 In event of failure of normal electric supply, the supply to alarm bell system, intercom system, emergency car lighting and 50% ventilation fans shall be automatically switched to a UPS with battery backup. The battery shall be of sealed maintenance free type with total capacity sufficient to maintain the operation of above equipment for at least 2 hours. The rating of UPS and battery shall be scrutinized and finalized during design approval.
- 6.21.11 The insulation of all wiring including those within the controller shall be of flame retardant, low smoke halogen free (FRLSZH) type for underground stations only and FRLS for over ground stations and service buildings, complying with the special cable requirement of this Specification.
- 6.21.12 All field wiring shall be multi-strand copper conductor type. No joints shall be permitted in any cables or wires in any location.
- 6.21.13 All wires shall be run in galvanized conduit or steel trunking. All conduit outlets shall be bushed with insulating bushes of accepted pattern. All wiring connections to switches shall be provided in such a way to suit the device. All conduits shall be provided with IP54 glands.
- 6.21.14 The arrangements of terminals at either end of flexible trailing cables shall be identical and the terminal blocks marked to identify the cables connected to them. The cable boxes and wiring for the car light and the alarm bell shall be entirely independent of the Elevator control wiring. Flexible trailing cables shall be securely clamped at each end so that the weight is not supported by any fixing of the various cores. The outer sheath of these cables shall be of waterproof and flame retardant material. A total of 10 or 10% of the total number of wires used (whichever is more) and 2 spare shielded cables shall be provided per Elevator. The outer sheath of these cables shall be of flame resistant material which shall not emit toxic fume when affected by fire i.e. Fire retardant Low Smoke Halogen Free (FRLSZH) type cables and conductors for underground stations and FRLS type cables and conductors for overground stations and service buildings shall be used.
- 6.21.15 The compatibility of MCB and ELCB used for Elevators shall be verified with the requirement of the Elevators. The MCB & ELCB are in the Elevator Contractor's scope. However, termination of main incoming cable on the MCB/ ELCB, provided by the Elevator Contractor, shall be the responsibility of purchaser.
- 6.22 Provision for LED Based Elevator Status Display Panel
- 6.22.1 Each colour LED should be circular in shape with a diameter of 28.5 mm and text should be in black colour English Words with Arial Font of size 20.
- 6.22.2 Audible Buzzer with 80 dB(A) to 85 dB(A) noise should operate whenever the LED indications "Under Fault" or "Alarm Button Pressed" turn ON. The audible buzzer shall turn OFF with the pressing of "Alarm Accept Button" but the visual indication shall persist until the fault is cleared.
- 6.23 Special Emergency Operations for Elevators**
The Elevator operation system shall be designed to provide the following emergency operations. The Elevator Contractor shall provide the Interface terminal boards (ITBs) with terminals for terminating the fire and power failure signals to be provided by the GMDAs. The Elevator Contractor shall provide the cabling up to the ITB.
- 6.23.1 Emergency Operation of Elevators in the Event of Power Failure:

In event of power failure or power interruption or single phasing (or any problem in the power supply system which affects the normal operation of the Elevators), the Automatic Rescue Device (ARD) shall act and complete its operation. After power supply resumes elevator should automatically return to its normal mode operation.

6.23.2 Emergency Operation of Elevators in the Event of Fire

In the event of fire when any fire detection device is activated, all Elevators shall automatically be brought to the designated floor (to be designated during design approval stage) and be parked there with the doors open for 15-20 seconds and thereafter the doors would close. All Elevators shall be automatically rendered inoperative after they have been brought to the designated floor. The essential buttons such as "Door Open", intercom and alarm bell, etc. on the car operating panels shall remain functional and illuminated. Normal operation of the Elevators shall be manually reset by the operation of a reset key switch.

6.23.3 Emergency Operation of Elevators in the Event of Power Failure and Fire.

In the event of power failure and fire, the operation of the Elevators shall be in accordance with the "Emergency Operation of Elevators in the Event of fire" and in such event, DG set power supply/ other alternate source (if any) shall be fed to the elevator. If such a power supply is non-existent or non-functional, then the Automatic Rescue Device shall act and rescue the passengers inside the elevator.

6.23.4 Automatic Rescue Device

6.23.4.1 Features

- a. A battery back-up based device shall be provided to bring the Elevators to one of the nearest landings in the event of power failure. The rescue device shall be able to move the Elevators with any load from no load to full load at reduced speed to one of the nearest landings and shall open the doors upon reaching the landing. Thereafter, the Elevator doors shall remain closed until resumption of power supply, at which point the Elevators shall automatically reset to normal.
- b. The direction of travel shall depend upon the load in the Elevator.
- c. During this operation, all safety features of the Elevator shall remain operational. In case of Power failure (including single phasing / unbalanced phase) elevator should operate with the Automatic Rescue Device (ARD) and Electronic Rescue Tool (ERT) mode immediately. The software for providing this feature is subject to the Employer's acceptance.
- d. The capacity of the battery when fully charged shall be capable of operating the Elevator at rated load for a minimum of 3 rescue trips without further charging. To ensure this, the same battery should be capable to perform the test for 6 trips without intermediate charging at the time of commissioning. The battery shall be housed in a cabinet/ rack with a corrosion proof finish. For low battery identification, a buzzer shall be provided.
- e. The device shall immediately stop the Elevator and prevent further movement, if there is a short circuit or open circuit in the inverter output.

6.23.4.2 The device shall not modify the Elevator design and all its original safety features. The device shall be an additional accessory to the Elevator and shall not in any way affect the performance of the Elevator.

6.23.4.3 The charger for ARD's UPS shall be adequately sized to charge its batteries. Maintenance free batteries conforming to the relevant Indian or international standard shall be provided. There shall be no tripping of UPS during the working of Rescue Device.

6.24 Elevator Monitoring and Fault diagnostic system

- 6.24.1 An Elevator monitoring and fault diagnostic system shall be provided for each Elevator by the Elevator Contractor. This system shall provide an auxiliary output port on the controller for plugging the laptop and downloading historical data. For downloading of such data, suitable interface output ports shall be provided. Suitable software shall be provided for downloading of data; such data shall be analyzed and presented by GMDAs through MS Office, a software commonly available on office PCs.
- 6.24.2 The microprocessor based diagnostic system shall have self-checking feature and provision for indicating/ displaying common Faults (that may occur during the Elevator's operation) by a fault-code or fault's brief description on an on-board and easily-visible LED/ LCD based display-unit. This would enable the maintenance personnel to pinpoint specific fault(s) and rectify them quite-quickly, thus ensuring minimum downtime of the Elevator. The diagnostic system shall store the last 100 faults with date and time stamp. The type and number of faults stored is subject to approval at design stage.
- 6.24.3 Facility for interfacing through suitable ports, viz RS-232/ RS-485/USB/ Ethernet, etc. shall be provided.

6.25 Pit Facilities

- 6.25.1 Buffers shall be provided in the Elevator pit.
- 6.25.2 A safety switch to prevent the car from moving when the governor rope tension weight is out of position, shall be provided.
- 6.25.3 Fixed cat ladders shall be provided between the bottom landing and the pit floor by the Contractor.
- 6.25.4 Two stop switches, one at bottom landing level in the shaft and the other in the pit shall be provided, which when in the "STOP" position shall prevent any movement of the Elevator car including movement during inspection/ test operation, until both the switches are set to "RUN" position. Further details in respect of the switches are as follows:
- (i) The switch shall have a mushroom head (red). It shall be locked off when pushed and reset manually.
 - (ii) First stop switch shall be accessible from the lower landing on opening of the landing door and the second switch from the pit floor.
 - (iii) A stainless steel faceplate of not less than 2mm in thickness, indelibly marked "Pit Stop Switch" in both English, Hindi and local vernacular language characters and with legends to show the "STOP" and "RUN" positions shall be provided and fixed immediately adjacent to the switch.
 - (iv) The knob of these switches or plate shall have fluorescent glow.
- 6.25.5 The Contractor shall liaise with the GMDA to ensure that the latter (GMDA) makes a provision for proper drainage and pumping from the Elevator pit as per clause no. 2.9.2. For elevator pits on GMDA platforms, this may call for provision of pump, etc. by the GMDA. In case of buildings or other applications, the need for such drainage will be assessed by the contractor and GMDA; based on such assessment, GMDA shall make the necessary provisions.

6.26 Corrosion Protection

- 6.26.1 The Contractor shall take into consideration, the corrosive effect of the atmosphere in the Elevator design.

- 6.26.1 All steel components (5mm thick & above) shall be hot dipped galvanized in accordance with BS EN ISO 1461, with minimum thickness of 85 µm.
- 6.26.2 All parts constructed in sheet steel (less than 5mm) shall be either galvanized by the hot dipped process or fabricated from hot dipped galvanized sheet steel or spray galvanized and epoxy painted.
- 6.26.3 All mechanical and cast iron assemblies shall be cleaned and painted. The running surfaces of car guides shall be treated with an accepted rust preventive compound.
- 6.26.4 In general, hardware, fastenings, screws and shims shall be hot-dipped galvanized. However, visible screws and fastenings shall generally be of stainless steel. Epoxy painting/spray galvanized paint will be permitted only for onsite damage repairs.
- 6.26.5 Wherever corrosion protection on ferrous components has been damaged in handling, it shall be rectified by a top coat of epoxy paint or spray galvanized paint.
- 6.26.6 The contractor shall provide all parts, hardware fastenings, screws, components, assemblies and shims conforming to latest Indian Standards.

6.27 Provision for the Differently Abled

All Elevators shall be provided with following features:

- (a) Elevator control buttons at locations and height specified in IS15330.
- (b) Hall-call buttons at locations and height specified in IS 15330.
- (c) Hand rails shall be provided on the side walls of the Elevator at height & locations specified in IS: 15330. An international symbol of access for the differently abled shall be permanently and conspicuously displayed at each and every Elevator landing next to the Elevator entrance. Braille notations indicating the floor levels shall be integrated in 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.
- (e) A laminated framed toughened glass safety mirror shall be installed on rear panel of elevators above the handrail. To facilitate easy reversal/ exit of person on wheel chair from the elevator without the need of rotating the wheel chair in the elevator

6.28 Accessories

Each Elevator shall be provided with the following accessories:

- (a) Two sets each of all necessary keys for the landing door, operating panel, etc..
- (b) One 500V insulation resistance testing meggar.
- (c) One multimeter having facility to measure: AC and DC currents and voltages, power factor and resistance.
- (d) Galvanisation thickness meter.
- (e) Device for checking the speed of elevator.
- (f) Noise measuring instrument.

6.29 Earthing Arrangement

All of the elevator's equipments, structures and other metallic parts shall be effectively grounded by the contractor to the incoming earthing conductor to be provided by GMDAs. The earthing arrangements will be as per the standard practice conforming to IS-14665 and IS: 3043.

6.30 Special Cable Requirements

6.30.1 All cables and wiring for Ropeway stations and service buildings shall be fire retardant. No bare Conductor shall be used in any Elevator as it may cause electrocution danger to the personnel. All cables except those within the enclosed controller and travelling cables shall comply the following requirements:

- (i) Power and control cables shall be rated for 1100V and 600V grade respectively.
- (ii) The conductor shall be of stranded conductor composed of plain annealed copper wire complying with IEC 228, Class 2.
- (iii) The insulation shall consist of an extruded layer of cross-linked polyethylene complying with IEC 502.
- (iv) Fire retardant, low smoke, halogen free materials shall meet the following requirements:
 - (a) The value of smoke generated shall meet the requirements of the relevant clauses of BS 7846, when a sample of the complete cable is tested in accordance with IEC 61034-1 and 2 (3 m Cube Test). The light transmission values shall be minimum of 60%.
 - (b) The maximum specific optical density shall be 170 under the non-polluted condition as per ASTM E662.
 - (c) IEC 332 Parts 1 and 3, Category B, tests on single and bunched cables under fire conditions.
 - (d) Limiting Oxygen Index of at least 30, to ASTM D 2863.
 - (e) A temperature index (TI) of 260°C to ASTM D 2863.
 - (f) All insulation is to be moisture and heat resistant, with temperature ratings appropriate to the application conditions, and in no case lower than 90°C.
 - (g) When a sample of the cable is subjected to a combustion test for the determination of the amount of halogen acid gases (other than hydrofluoric acid) as set out in IEC 754 -Part 1, the halogen acid evolved shall not exceed a maximum of 0.5%.

Fire retardant materials shall meet the requirements of item (c), (d), (e) and (f) only. The amount of halogen acid gases evolved as per IEC 754 - Part 1 shall not exceed 20% for these cables.

6.30.2 The above requirements shall be met without compromising the mechanical and electrical properties of cables both during and after installation to meet the other requirements of this Specification.

6.30.3 Though not mandatory, manufacturers are encouraged to provide anti-termite and pest-resistant cables.

6.30.4 Travelling cables shall comply IEC 60227 Part-6.

6.31 Noise Generation

6.31.1 The whole of the Elevator 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. Elevator door operation shall be smooth to avoid the transmission of impact noise to the surrounding structure.

6.31.2 Noise levels resulting from the operation of the Elevator, including direct sound transmission, breakout noise and re-radiation of structure borne noise shall not exceed 55dB(A) (fast response) at 1.5m from the Elevator shaft and 1.5m above the floor.

6.31.3 Machinery noise level under normal operating conditions shall not exceed 70 dB (A) at 1m from the equipment in free field.

6.31.4 The total noise level in a moving Elevator car shall not exceed 55dB at 1 m away from the fan with ventilation fan in operation.

6.32 Riding Comfort

Apart from noise (whose permissible value is mentioned in clause 6.31), lateral quaking, acceleration, jerk and vertical vibration are the other parameters based on which 'Ride Comfort' and its quality is measured. These parameters are defined below (definition as per ISO 18 738):

- i. Lateral Quaking: A sideways acceleration/ deceleration measured in gal.
- ii. Acceleration/deceleration: A rate of acceleration/ deceleration measured on the z-axis velocity and expressed in metres per second squared (m/s²).
- iii. Jerk: The rate of change of z-axis acceleration/ deceleration, attribute to lift motion control and expressed in metres per second cubed (m/sec³).

The contractor by performing suitable tests as per ISO 18738 shall ensure that following permissible values of above parameters shall be achieved for satisfactory ride comfort quality:

<u>Parameter</u>	<u>Unit</u>	<u>Permissible Value</u>
Acceleration / De-acceleration (adjustable)	m/sec ²	: 0.5
Maximum Jerk	m/s ³	: 2.0
Maximum Vertical Vibration	Gal	: 20 (Pk to Pk) (1 to 100 Hz)
Maximum Lateral Quaking	Gal	: 12 (Pk to Pk) (1 to 12 Hz)

7. INTERFACES

7.2 The Contractor shall co-ordinate with the GMDAs and/ or GMDA appointed civil contractor with regard to the following specific issues:

- (a) Space requirements, including tolerances to be complied by civil engineering works.
- (b) Fixing requirements
- (c) Loads induced on the building, by the elevator
- (d) Interface with architectural finishes
- (e) Location for power supply termination point
- (f) Information on embedded parts, box-outs, etc. so as to enable GMDA's civil contractors to provide the necessary works.
- (g) Hanging pits (if any), including the shaft dimensions
- (h) Equipment access route
- (i) Scaffolding, lifting, etc. to be carried out by the elevator contractor (only to the extent required for elevator installation)
- (j) Ventilation requirement
- (k) Integration with GMDA's fire protection system (if any)
- (l) Provision of drainage with suitable pump and sump at the pit

8. SOFTWARE SUPPORT

8.1 The Contractor shall submit all software support to the GMDAs for review at least 2 weeks prior to their installation.

9. SAFETY DEVICES/FEATURES

In addition to the elevator safety devices/ features mentioned elsewhere in this spec., the following shall also be provided.

9.1 Anti-man-trap Features

The Elevator shall have the following software features to avoid Man-trap situation:

- (a) The doors shall open and close once after power up. This feature shall allow the passenger inside the car to exit by opening the door once after every power up.
- (b) The doors shall open and close once after completion of correction drive. When there is power failure during the running of the Elevator and the power resumes immediately (before rescue operation) the controller shall drive the car to the next landing and open the door.
- (c) The doors shall open and close once after completion of sync. drive. When the system memory is lost on the position and when the power up is initiated the controller shall drive the car to bottom terminal landing and open the door.
- (d) The doors shall open and close if the Elevator is idle for 30 seconds. This feature shall allow the passenger to exit if he is not making a car call or the car operating buttons do not function.
- (e) The Elevator doors shall open automatically if the Elevator is at a floor level and the safety chain is broken. This feature shall allow the passenger inside the car to exit safely.

9.2 Water sensors shall be provided in the Elevator pits. The requirement of water sump in the Elevator pits shall be co-ordinated with the GMDA.

9.3 An inspection control panel shall be fitted on the top of the Elevator car for maintenance purpose. The design of the inspection control panel shall comply with the following requirements and prevent the Elevator car from being operated accidentally:

- (a) It shall not be possible to control the Elevator car from any other position after the NORMAL/TEST change-over switch has been set to the TEST position. When in the TEST position, the UP and DOWN continuous pressure push buttons within this panel shall become operative.
- (b) An ON/OFF switch shall be provided which shall render the Elevator inoperative in any mode, when the switch is kept in the "OFF" position.
- (c) The Elevator car shall only move when all safety devices are in the safe position.
- (d) The Elevator car shall move in either direction only on continuous pressure of the appropriate direction button at a car speed not exceeding 0.25m/s.
- (e) The control panel shall incorporate an adequately protected permanently located light fixture with a separate switch and a min. 5A switch socket outlet.
- (f) A door operator ON/OFF switch shall be provided. The door operator shall only be operative when the switch is at the "ON" position.
- (g) A terminal stop limit switch shall be provided to stop the car from traveling in an upward direction. When this switch is activated, it shall not stop the car from operating in the down direction.
- (h) All switches and buttons on the inspection control station shall be clearly engraved / marked with their functions. All buttons and switches shall be

shrouded against accidental operation, with the exception of the emergency stop button.

- 9.4 The Elevator shall be provided with a floor-levelling device, which shall automatically bring the Elevator car to stop within ± 5 mm of the level of the floor for which a stop has been initiated regardless of the load or direction of travel. In case of Emergency Rescue mode, the car should stop within ± 10 mm of the level of floor.
- 9.5 An automatic re-leveling device shall be provided which returns the Elevator to the floor automatically should the Elevator creep down or move up from floor level due to rope/belt stretch for any distance more than 15 mm. This device shall be operative at all floors served, whether the landing and car doors are opened or closed.
- 9.6 Each Elevator car shall be provided with Progressive type safety gear mounted on the lower member of the car frame structure. This safety gear shall be capable of operating only in the downward direction and capable of stopping the car with full load at the tripping speed of the over speed governor, by gripping the guides and holding the car stationary. The motor circuit shall be opened by a switch on the safety gear before, or at the same time the safety gear is applied. It shall be possible to release the safety gear by raising the Elevator car without the use of any special tools.
- 9.7 A mechanical device and electrical device shall be provided to prevent the car movement resulting from maintenance/ inspection that can be dangerous to persons carrying out maintenance/ inspection works from inside the car or car roof.
- 9.8 A phase protection device and 3 phase as well as single phase earth leakage protection device shall be provided in the main control cubicle of each Elevator to prevent the Elevator car from moving in the event that there is a phase failure, or the phase of the power supply being reversed due to any reason whatsoever. These devices, when activated, shall cause a visual indicator to illuminate on the main control cubicle, until the fault has been rectified.
- 9.9 As in the case of Power failure (including single phasing / unbalanced phase) Elevator should operate in the Emergency Rescue mode.
- 9.10 A safety switch to prevent the car from moving when the governor rope tension weight is out of position shall be provided.
- 9.11 Terminal and Limit switches shall be provided as per IS 14665 (Part 3/ Sec 1).

10. PERFORMANCE /TECHNICAL REQUIREMENTS

The requirements for the Elevators have been summarized in the Table given below:

Sl. No.	ITEM DESCRIPTION	For 10 Persons	For 8 Persons
A	Make	KONE/OTIS/Schindler/T hyssenkrupp	KONE/OTIS/Schindler/ Thyssenkrupp
B	DESIGN CRITERIA & PERFORMANCE		
1.	Rated Load, Q	680 kg	544 Kg
2.	Rated Speed (see Cl. 5.7)	1.0 m/s;	1.0 m/s;
3.	Standard Car Size (Width x Depth)	As per IS 14665-1	As per IS 14665-1)

4.	Car Height	2200 mm (min.)	2200 mm (min.)
5.	Levelling Accuracy (Typical)	± 5 mm for normal operation;	± 5 mm for normal operation;
6.	Re-levelling Accuracy (Typical)	± 15 mm	± 15 mm
7.	Max. Sill Load (Car and Landing)	Aluminium/ Stainless steel with slots	Aluminium/ Stainless steel with slots
8.	Motor Insulation Class	F	F
9.	Designed Number of Operations/Year	200,000	200,000
10.	Designed Lifetime of Hoisting Function	20 Years @ 2,00,000 starts per year	20 Years @ 2,00,000 starts per year
11.	Designed Lifetime of Ropes/Belts (Min.)	8 years @ 2,00,000 starts/year	8 years @ 2,00,000 starts/year
12.	Safety Factor of Suspension Ropes/ belts (Min.)	FOS>>12	FOS>>12
C	All Operating Push Buttons	As per EN 81-1	As per EN 81-1
13.	RIDE COMFORT		
14.	Acceleration/Deceleration Rate	0.5 m/s ²	0.5 m/s ²
15.	Max. Jerk	1.8 m/s ³	1.8 m/s ³
16.	Max. Vertical Vibration In Car	35.5 GAL	35.5 GAL
17.	Max. Lateral Quaking	25 Gal	25 Gal
D	Noise In Car (with Fan in operation)	Compiled	Compiled
18.	SHAFT EQUIPMENTS		
19.	Tentative size and weight of Car Guide Rails	Should be design for life of 20 years	Should be design for life of 20 years
20.	Tentative size and weight of Counterweight Guide Rails	Should be design for life of 20 years	Should be design for life of 20 years
	Car Buffer (6.6.2)	Spring	spring
21.	Counterweight Buffer	Spring	spring
22.	Car Sling	Fabricated from sheet	Fabricated from Sheet steel.
23.	Counterweight frame	Fabricated from sheet steel Cold Rolled steel up to 4mm and Hot	Fabricated from Sheet steel. Cold Rolled Steel upto 4mm

24.	Over speed Governor with test groove -Type	Centrifugally operated	Centrifugally operated
25.	Car Safety Gear	Progressive type	Progressive type
26.	Counterweight Safety Gear	Progressive type where ever applicable (floating pit situation)	Progressive type where ever applicable (floating pit situation)
27.	Over Speed Governor tension weight switch	Required	Required
28.	Water Sensor In Pit	Not required	Not required
29.	Elevator shaft width and depth tolerance	+75 mm - 0 mm	+75 mm - 0 mm
30.	Verticality Tolerance/ plumbness of Elevator Shaft	50 mm	50 mm
E	CARS		
31.	Guide shoes	Sliding with replaceable Liners	Sliding with replaceable Liners
32.	Car panel thickness	1.5mm thick	1.5mm thick
33.	Car Fan	Suitable ventilation arrangement should be made as per IS 14665-1	Suitable ventilation arrangement should be made as per IS 14665-1
34.	Car Junction box Protection	IP 54	IP 54
35.	Car Handrail	Single hand rail at the rear side	Single hand rail at the rear side
36.	Buffer Rail	Standard	Standard
37.	Mirror (cl. 6.27- e)	Required	Required
F	DOORS		
38.	Car Doors; clear opening	Centre opening power	Centre Opening
39.	Landing Doors Locking	Both door panels mechanically locked individually	Both door panels mechanically locked individually
40.	Protection class for Car and Landing doors locking device	IP20	IP20
41.	Steel Door thickness	Stainless steel Hairline finish 1 mm	Stainless steel Hairline finish 1 mm
42.	Fire rating of landing door	As per IS 14665-1	As per IS 14665-1
43.	Car door lock	Electrical lock Required	Electrical lock Required

44.	Door Safety Devices	2 Photo cells in car front wall.	2 Photo cells in car front wall.
45.	Machine		
46.	Machine	AC Permanent Magnet	AC Permanent Magnet
47.	Motor-Insulation Class / Type of Enclosure	Class F / IP21	Class F / IP21
G	ELEVATOR MAJOR COMPONENTS FINISH		
48.	Car panel	Stainless steel Scratch Resistant	Stainless steel Scratch Resistant
49.	Car entrance panel	Stainless steel Scratch Resistant	Stainless steel Scratch Resistant
50.	Car operating panel	Stainless steel Scratch Resistant	Stainless steel Scratch Resistant
51.	Car ceiling	Stainless steel Scratch Resistant	Stainless steel Scratch Resistant
52.	Handrail	Stainless steel Hairline Finish	Stainless steel Hairline Finish
53.	Car flooring	Min 6 mm thick Aluminium chequered Plate-Confirmed	Min 6 mm thick Aluminium chequered plate-Confirmed
54.	Landing entrance frame	Stainless steel Scratch Resistant	Stainless steel Scratch Resistant
55.	Doors-Car & Landing	Stainless steel Scratch Resistant	Stainless steel Scratch Resistant
56.	Guide Bracket Assembly	Should be designed for 20 years life	Should be designed for 20 years life
57.	Car/ Counterweight guide rail	Machined surfaces - Rust protective Film.	Machined surfaces - Rust protective Film.
58.	Counterweight Guard	GI	GI
59.	Counter weight frame	Normal painting will be done	Normal painting will be done
60.	Filler Weight	Red oxide painting	Red oxide painting.
61.	Sling	Normal painting will be done.	Normal painting will be done.

62.	Floor Assembly	Normal painting	Normal painting
63.	Roof Assembly	Normal painting	Normal painting
H	ELECTRICAL BUILDING INTERFACE		
64.	Main Supply Voltage	415 VAC, 3 -phase ±10%	415 VAC, 3 -phase ±10%
65.	Main Switch Rating	32 Amp.	32 Amp
66.	Shaft Lighting	Standard	Standard
67.	Signalization Voltage	12 to 30 VDC	12 to 30 VDC
I	CIVIL BUILDING INTERFACE		
68.	Head Room (Minimum)	As per IS 14665 (Part 1)	As per IS 14665 (Part 1)
69.	Available Well Size for Elevators	1875 mm W X 1850 mm D	1625 mm W X 1850 mm D
J	CONTROL SYSTEMS		
70.	Control Type	Full Collective	Full Collective
71.	Controller	Microprocessor based with Serial Communication. Controller in shaft and user interface in landing	Microprocessor based withSerial Communication. Controller in shaft and user interface in landing
72.	Drive System	VVVF Drive with feedback control (closed loop)	VVVF Drive with feedback control (closed loop)
73.	Power Factor	0.9 and above	0.9 and above
74.	Auto Fan & Light Cut-Off	Automatically cuts off fan &	Automatically cuts off fan
K	CODES AND NORMS		
75.	Safety Codes	EN81-1; IS:15785; IS:15530 ; IS:14665, BS EN 50126	EN81-1; IS:15785; IS:15530 ; IS:14665; BS EN 50126
76.	Electromagnetic Compatibility, EMC	EN12015 (emission) and EN12016 (immunity)	EN12015 (emission) and EN12016 immunity)

77.	Electrical Protection	Min. IP20 for Panels/Boxes above Top Terminal Landing, Panels/Boxes mounted on Car and shaft equipments and Maintenance Access Panel in Landing	Min. IP20 for Panels/Boxes above Top terminal Landing, Panels/Boxes mounted on Car and shaft equipments and Maintenance Access Panel in Landing.
L	PERIPHERAL FUNCTIONS		
78.	Communication System	3 station intercom - Hands-free in Car (with feed-back), Handset in Main Control Panel and SCR	3 station intercom - Hands-free in Car (with feed-back), Handset in Main Control Panel and SCR
79.	Alarm	In each landing activated by Alarm button in Car	In each landing activated by Alarm button in Car
80.	Attendant Function	Operated with Key switch	Operated with Key switch
81.	EAS (Elevator announcement system)	English	English
82.	Load Weighing Device (Overload)	Audio: English; or English and Hindi; Visual: English only	Audio: English; or English and Hindi; Visual: English only
83.	Full Load Bypass (For Elevators serving more than 2 stops)	Compiled	Compiled
84.	Automatic Rescue Device	Required. When the Elevator stops in between due to power supply failure or due to single phasing, battery operated device drives the Elevator to the landing and opens the door.	Required. When the Elevator stops in between due to power supply failure or due to single phasing, battery operated device drives the Elevator to the landing and opens the door.
85.	Anti Man-trap features	As in Cl. 10.1	As in Cl. 10.1
M	SIGNALISATION		
86.	Car Indicator	Segmented	Segmented
87.	Landing Indicator	Segmented	Segmented

11. SUBMITTALS

11.1 Submittals

11.2.1 The bidder must submit following documents along with the offer:

A. Preliminary design details

- (i) Preliminary technical details.
- (ii) Technical details in ref. to Cl. 10.0 for each type of Elevator offered. Details are to be furnished as per following proforma:

S. No.	Technical Details required as given in table of Cl. 10.0 in specs	Offered parameter
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- (iii) Codes & standards complied

11.2.2 The contractor (successful bidder) will be required to submit the following:

A. Elevator layout/General Arrangement Drawing/Shop drawings giving:

- (i) Plan, elevation and sectional views of Elevator & its major components, key dimensions, rail bracket spacing, entrance details
- (ii) Clearances, car & counterweight run by & top clearance
- (iii) Clearance inside hoist way and pit dimensions
- (iv) Locations and sizes of access doors, hoistway entrances and frames
- (v) Wiring layouts for Elevator
- (vi) Refuge space on top of car and pit
- (viii) Controller and drive space layout
- (ix) Information on space requirements
- (x) Civil & electrical interface details

11.2.3 The contractor (successful bidder) will also be required to submit the following to the GMDA at installation and commissioning stage:

- (i) Construction and Installation Plan including site safety plan;
- (ii) Operation and Maintenance Manuals (one soft and one hard copy per station);
- (iii) Records and drawings of equipment installed;
- (iv) Site test report of equipment;
- (v) As built drawings including interface drawings; and
- (vi) Other documentation as required, by the GMDAs.

12. TESTING & INSPECTION

The routine and acceptance inspection & testing protocol shall be as per the requirements laid down in EN-81, IS-14665.

12.1 Elevator Routine Testing

12.2.1 Routine testing entails tests and inspections that are conducted at the works of Elevator manufacturer and/or the works of its key sub-suppliers, as per the relevant standards. These tests are required to be carried out on each elevator as well as its sub-systems.

12.2.3 The GMDA representative/ inspection agency/ testing authority would have the right at its discretion, to witness routine test(s) of Elevator's key sub-assemblies during the Elevator's manufacturing and/or accept the test results/ reports of respective manufacturer's/supplier's in-house quality control (test reports should be furnished for systems and sub-systems that are to actually form a part of the Elevator to be supplied to IR), as sufficient evidence that the routine tests have been carried out.

- 12.2.4 At least 3 weeks' notice shall be given to the GMDA representative/ inspection agency/ testing authority to be present for the routine testing and inspection.
- 12.3 **Elevator installation and Final Acceptance Testing**
After installation, on-site acceptance tests shall be carried out on the Elevator in the presence of GMDA's representative/ inspection agency/ testing authority as per the procedures laid down in Annexure-I. After satisfactory completion of inspection/ testing, the GMDA representative/ inspection agency/ testing authority will authorize the commissioning of the Elevator for public use by issuing an "Elevator installation final acceptance certificate".
- 13. ACCESSIBILITY**
- 13.1 The Elevator design shall allow easy and safe accessibility to authorized persons for inspection, maintenance, repairs and cleaning.
- 13.2 Maintenance Access Panel (MAP) shall be lockable to avoid access to unauthorized persons.
- 14. MOVEMENT OF MATERIALS**
Completely assembled Elevator or its sub-assemblies (which cannot be handled manually), shall be:
- (a) Equipped with fittings for being lifted/ moved by a lifting device, or
 - (b) Designed in a way, to allow the attachment of above type fittings, e.g. threaded holes, or
 - (c) Designed/ shaped in a way, to allow easy attachment to the lifting device or transportation means.
- 15. LABELLING & MARKING**
- 15.1 All equipment and apparatus, inside or outside the switchboard, including instruments, meters and relays shall be labelled or marked adequately.
- 15.2 In addition, warning labels shall be fitted at all points, where the removal of covers/ panels may expose live equipment, operating above 50V between circuits or to earth and shall bear the inscription 'Danger- Live Parts' in red color that is clearly visible from a viewable distance.
- 16. INSTALLATION & COMMISSIONING**
- 16.1 All works at the installation site shall be carried out in accordance with the standard acceptable methods and practices of installation of elevators and electrical equipment.
- 16.2 The Elevator Contractor shall be responsible for the timely and proper setting out of the Works which shall include verifying the positions, levels, dimensions and alignment of elevator pits, supports, shaft, walls and floor openings, etc. Any error in the civil construction in so far as they relate to the Works shall be immediately brought to the attention of the "Engineer" and the Designated Contractor to allow prompt rectification by the Designated Contractor so as to avoid delays to the Works. The Elevator Contractor shall not be entitled to claim for any additional costs incurred by him arising out of such errors in the civil construction, if such additional costs could reasonably have been avoided had the Elevator Contractor carried out timely and proper setting out of the Works.
- 16.3 Once the elevator shaft is handed over to the contractor to commence installation, they shall be responsible for providing fencing and barricades to protect his working areas during the installation period for the safety of his workers and other personnel working in the station until the taking over of the lift by GMDAs.

- 16.4 The Elevator Contractor shall be responsible for the installation of all guide rail brackets, separator, sill supports, hanger brackets including drilling and all related materials. The Elevator contractor shall verify and satisfy themselves in respect to the loading capability of the shaft wall holding the bracket etc. If the Elevator Contractor feels that load test is necessary/ required, then he can arrange the same in co-ordination with civil contractor.
- 16.5 All equipment, sub-assemblies, structures, etc. shall be installed as per the respective sub-contractor's installation instructions.
- 16.6 Special care shall be taken for leveling/ plumbing, which shall be done meticulously before any equipment, sub-assembly or structure is fixed finally in position.
- 16.7 Adequate care shall also be taken during installation of the complete Elevator to avoid damage to any equipment, sub-assembly or building structure.
- 16.8 GMDAs will be responsible for the civil engineering works required for installation and commissioning of elevator at the designated locations. The Contractor will provide a terminal board near elevator and GMDAs will provide electrical wiring and earthing upto this terminal board. GMDAs will provide site assembly area with proper power connection as per the extant rules. For more details on GMDAs' scope of work, please see Cl. 2.9.
- 17. ON-SITE SUPPORT TO CONTRACTOR**
- 17.1 The purchaser/ user GMDAs would extend facilities on free-of-charge basis, to the Contractor for storing: the product; and installation, testing and commissioning equipment/ tools/ accessories, etc., at a suitable location, as close as possible to the installation site.
- 17.2 This shall include providing a separate lockable/ secure material-storage cum site office with electrical supply, light and fan fittings, etc.
- 18. MAINTENANCE**
- 18.1 The Contractor shall provide free-of-charge maintenance service (and all the works specified) including required spares, for the specified warranty period.
- 18.2 During the warranty period, the above maintenance service shall include all preventive, scheduled and corrective maintenance and additionally, all service-request calls made by the purchaser/ user GMDAs. For this, the Contractor would be required to provide a comprehensive maintenance and service plan, for review and acceptance by the purchaser or his authorized representative.
- 18.3 The maintenance work-system shall ensure safety of the personnel and equipment.
- 18.4 Annual Maintenance Contract (AMC)**
- 18.4.1 The bidder is required to quote separately for a comprehensive annual maintenance contract (AMC) for the Elevator supplied against the specification, which will be inclusive of all spares, material and labour costs along with work schedule if required to do so as per special condition of the tender documents.
- 18.4.2 The contractor shall be responsible to keep the Elevator along with all connected ancillary equipments/apparatus/ machines, as have been stated under the scope of work and specification, in perfect working condition, on any day during the tenure of the contract (excepting the period of programmed shut down). In case, any Elevator is out of order, for failure/ breakdown of the Elevator or of any other related/ancillary equipments/apparatus/machines, the Elevator shall be attended immediately, within a period of 24 hours of being informed.

- 18.4.3 The consignees should communicate their option to enter into AMC reasonably in advance. The AMC agreement should be signed in time so that the elevators do not remain without maintenance cover after the expiry of warranty.

19. TRAINING

The Contractor shall package all training instructions/demonstrations for correct operation and maintenance of the Elevator into a three working days self-contained training program.

20. OPERATION & MAINTENANCE MANUAL

- 20.1 The Contractor shall provide operations and maintenance manuals, for the use by the supervisory, operating and technical staff of the purchaser.
- 20.2 Each manual shall be divided into indexed sections explaining the subject matter in logical steps.
- 20.3 The operations manual shall contain the principle and operational details of the complete system under the normal and emergency conditions.
- 20.4 Details of the common faults that might occur in the complete system &/or any of its key components/sub-assemblies and their rectification shall also be included.
- 20.5 The maintenance manual shall contain the maintenance and servicing instructions for the complete system along with explanatory notes and drawings as necessary.
- 20.6 The periodic maintenance schedule recommended by the Contractor for the satisfactory performance of the system shall also be included.
- 20.7 It is recommended that the operation and maintenance manuals be shipped along with the Elevator shipment. In any case, Operation and Maintenance manuals are to be supplied to GMDAs well before final testing/ commissioning of Elevators.

S. No.	Elevator's Parameter/ Feature To Be Inspected/ Tested	Scope of Test
1.	Tests shall be carried out on Elevator in accordance with the relevant provisions of BS 5655 Part shall include the following:	
i.	Starting current, running current and supply voltage	Readings shall be taken at the rated speed of each Elevator in both directions of operation under no load, balanced load and full load conditions.
ii.	1000 V AC testing	Both power and control wiring of the controller shall be tested between lines connected together and earth at 1000V 50Hz for 1 min. The control wiring shall be separately tested between poles and earth. Immediately following each test, a 1000 V dc insulation tester shall show an insulation resistance of not less than 3 M ohms. All field wiring shall withstand a 1000 V megger test on site and each conductor shall show an insulation resistance to earth of not less than 3 M
iii.	Over-speed governor	(a) Shall be tested to ensure that it will activate when the speed exceeds the limits prescribed in the spec. (b) Functional tests on the safety gear with no load at rated speed by manually tripping the governor.
iv.	Test on the car and landing doors system	(a) Checking of the condition of the landing and car door for smooth operation, (b) Functional tests on the door closing time, door speed, re-opening, safety edge, proximity detection landing and car door contacts of the door lock.
v.	All the landing call buttons, indicators and all function provided in key-switch operated cabinet mounted below the car operating panels	Functional tests
vi.	Emergency call buttons	Functional tests
vii.	Final limit switches, terminal slow down and terminal over travel limit switches	Functional tests

	Following safety switches and devices: (a) Overload device. (b) Phase protection device. (c) Floor leveling accuracy and re-leveling at different loads. (d) Over current protection device. (e) Counterweight safety (if applicable)	Functional tests
ix.	UPS unit	-- Functional tests -- 2 hour duration test
x.	Car top maintenance panel	Functional tests
xi.	Intercom system	Functional tests
xii.	Buffer	Compress buffer test
	Clearance	Running clearance tests
xiv.	Elevator management, monitoring and fault diagnostic system	Functioning test
xv.	Noise/ sound level	Noise level of the complete Elevator, individual machinery and inside car with fan operation
xvi.	Automatic Rescue Device/ Battery backup device	-- 6 time operation without intermediate charging to be done
xvii.	Track machine, motor brake and control equipment.	Complete function tests. Temperature readings of Elevator controller and equipment shall be taken every fifteen minutes for at least 2 hours or the duration of test whichever is longer
xviii.	Floor levelling accuracy and re-leveling at different loads	Functional test
xix.	Emergency Power and Fire operation	In the vent of power failure and/ or fire, the elevator should operate in a manner as laid down in the spec.
xx.	Functional tests of all features and functions not included in the above but required as per this specs and EN 81-1.	
2.	Nine Hour Run	Each Elevator shall run continuously with the rated load for 9 hours and shall travel up and down with intermediate stops such that the number of max. starts is as per the specification. Modalities for the same may be worked out between the contractor and the purchaser.

SECTION -V
PRICE BID FORM & PRICE SCHEDULE

BID FORM AND PRICE SCHEDULE

(On letter head of the Manufacturer and should be signed by the Competent Authority)

To,
Chief Executive Officer
Guwahati Metropolitan development authority (GMDA),
Bhangagarh,
Guwahati- 781005,
India.

Ref: Tender No Due date of opening

1.0 We.....hereby certify that we are established manufacturer / authorised agents of M/s with factory at where the production methods, quality control and testing of the parts and materials manufactured or used by us are open to inspection by the representative of Guwahati Metropolitan Development Authority (GMDA).

We hereby offer to supply and deliver (within the delivery period), commission, put into service and prove out as per price schedule given.

2.0 It is hereby certified that we have understood the Instructions to Tenderers, Conditions of the Contract attached to the tender and have thoroughly examined the technical specifications and are fully aware of the nature of stores required and our offer is to supply stores strictly in accordance with the requirements and to the terms of the tender. We also agree to solely abide by all the tender conditions if the contract is awarded to us.

3.0 We hereby offer to supply the stores detailed above or as you may specify in the Letter of Award of the Contract at the price quoted and agree to hold this offer open for acceptance for a **period of 180 days** from date of opening of the tender.

4.0 Earnest Money for an amount equal to Rs..... is enclosed in form of Bankers Cheque / Demand Draft bearing No..... or issued by in favour ofGuwahati Metropolitan Development Authority (GMDA). Payable at Guwahati, INDIA

5.0 We possess the necessary industrial license from the Government of India for manufacturing/ marketing of the item offered (Details enclosed)

OR

No industrial licence is required for manufacturing/ marketing of the item offered.

6.0 We are authorised agent of the manufacturer/principals M/s, whose item we have offered. Letter of current and valid authority is enclosed as per **Proforma – 2**.

7.0 We further agree to pass on such additional duties become available in future in respect to all the inputs used in the manufacture of the final product on the date of supply under the MODVAT scheme by way of reduction of prices and advise the purchaser accordingly.

Date:

Signature and Seal of the Tenderer

Note:

1. The offer must be submitted as per the above format. The prices should be both in figures and words
2. In case of Turn Key basis contracts the desired rates should also be quoted.
3. No alterations or erasures in the offer are permitted. Any correction made in the offer must be initialed by the tenderer.

PRICE SCHEDULE

(All prices to be quoted only in Indian Rupees)

1	Item No	
2	Description	
3	Specification/ Model No.	
4	Unit	Nos.
5	Quantity	2 (Two) no.
		(Figures both in figures and words)
6.1	Ex-works price	
(A)	EX WORKS PRICE OF BASIC EQUIPMENT WITH ACCESSORIES <i>(Pl Refer note 2.)</i>	
(B)	TOTAL EX-WORKS PRICE OF EQUIPMENT PLUS ACCESSORIES	
(C)	Packing & forwarding charges	
6.2	Freight charges to destination	
6.3	Insurance Charges	
6.4	Recommended Spares for 2 years period as per Technical Specification (Section IV) Unit price and qty. to be furnished separately	
6.5	Other Charges if any (should be specified clearly)	
6.6	CIP Destination Price (Total of 6.1 to 6.5)	
6.7	Discount if any	
6.8	Net CIP Price after discount (6.6-6.7)	
6.9	GST on net CIP Price after discount	
6.10	Total Cost+ GST	
7.0	All-inclusive guide rails and other minor civil work (All inclusive of material, tools, labour and supervision)	If applicable
8.0	Installation & Commissioning Charges	
9.0	Training Charges	
10.0	All-inclusive guide rails and other minor civil work, Installation & commissioning, training charges (7.0 + 8.0 + 9.0)	
11.0	GST as applicable on foundation making, installation & commissioning and Training charges (_____ % on _____)	
12.0	Total Cost for +GST	
13.0	Total cost of supply, erection & commissioning, Training (Total 6.10+ 12.0)	

At 6.1, the ex. works/ e-warehouse price should include all charges of finished goods.

Note:

1 Please indicate **"No Applicable"** whichever is not applicable.

2. *Ex-works cost of basic equipment must include the cost of any Maintenance tools and supplied along with the equipment (List to be enclosed).*
3. *Tenderer should note that discount quoted by them other than in specified column/space will not be taken into consideration for comparison/ evaluation purpose.*

Cl. 12.0	Post warranty AMC for a period of 5 years inclusive of all spares, material and labour costs. All consumables except Diesel/ fuel, lubricating oils or coolant shall form a part of the scope of comprehensive AMC (If applicable). – Charges/ year (AMC charges will not considered for tender evaluation)	
	GST as applicable on AMC charges should be indicated separately	
	Total cost of AMC	

- A. COST OF PACKING, FORWARDING, FREIGHT, INSURANCE, TURNKEY (IN CASE OF TURNKEY CONTRACTS), TRAINING AND INSTALLATION & COMMISSIONING SHOULD BE INDICATED SPECIFICALLY. IN CASE THE SAME IS INCLUSIVE IN THE BASIC COST OF MACHINE OR ANY OTHER COST THE QUANTUM OF THE SAME (AS INCLUDED) SHOULD BE CLEARLY INDICATE**

Signature and seal of the Tenderer