Details of Tender Document

The Tender document has been detailed as follows:

Part-I (TECHNO-COMMERCIAL BID)

1. Index
2. PQR (Pre-Qualifying Requirement)
3. List of required documents
4. Details of works done during the last seven years
5. Checklist
6. General Instructions to Tenderer.
7. General Terms & Conditions of Tender.
8. Special Conditions
9. Technical Specifications
10. Safety Rules
11. Undertaking
12. Acceptance/ No Deviation Certificate
13. Unpriced Price Bid

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

QUALIFYING CRITERIA FOR TENDER

QUALIFYING REQUIREMENTS

Tenderer should fulfil the following qualifying criteria of the above tender:

(i) LEGAL OBLIGATIONS: Tenderer should have valid PF code no. ESI code no. and GST registration no. and submit the proof of the same or should submit the undertaking to obtain & furnish the same within one month or before issue of LOI, whichever is earlier. Successful bidder will have to submit valid Labour License within 10 days after issue of letter of Intent (LOI) in case they do not possess valid labour license.

(ii) FINANCIAL CAPACITY: The Bidders/Firms who fulfil the following requirements shall be eligible to apply. Joint ventures are not accepted.

(a) Average Annual financial turnover during the last 3 years ending 31st March of the previous financial year, should be at least ₹ 10.49 lacs.

(iii) EXPERIENCE: Experience of having successfully completed similar works during last 7 years ending last day of month, previous to the one in which application are invited, should be either of the following:

(a) Three similar completed works costing not less than, 13.98 lacs.

Or

(b) Two similar completed works costing not less than, 17.48 lacs.

Or

(c) One similar completed work costing not less than, 27.96 lacs.

Similar works means: CONSTRUCTION/COMMISSIONING or CONSTRUCTION AND COMMISSIONING OF PRE ENGG. BUILDING STRUCTURE.

(iv) The vendor should have its own PEB manufacturing facility/plant and the vendor have to submit the valid documents (firm registration copy) in support of the same.

(v) EARNEST MONEY DEPOSIT (EMD): Earnest money must be kept in Techno- Commercial offer. Offer without requisite earnest money will not be considered.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

LIST OF REQUIRED DOCUMENTS

The tenderer should submit documents in support of possessing qualifying requirements as under, duly certified by authorized signatory:

Sl. no.	Documents Required
1	➢ Copy of Income Tax return of previous three financial years i.e. 2018-19, 2019-20 and 2020-21. ➢ Copy of Audited balance sheet & PL A/c of previous three financial years 2018-19, 2019-20 and 2020-21. ➢ Covering letter with calculation of average financial turnover of previous three years i.e. of 2018-19, 2019-20 and 2020-21 duly certified by CA. ➢ Details of similar work successfully completed in support of qualification requirements. ➢ Work orders along with BOQ and completion certificates in original/ photo copy duly attested by authorized representative on the letter head of the organization for which work has been done (submit the reference of a responsible person of that organization who has issued such certificates). BHEL reserve the right to verify these experience certificates/ credentials directly from the authorized representative. In case the same is not verified the bidder may not be qualified.
2	➢ Copy of PAN No. ➢ Copy of valid GST registration no. ➢ Proof of valid PF registration No. and ESI registration certificate should be submitted by successful bidder.
3	➢ No Deviation Certificate duly signed as per format mentioned in Annexure- D. ➢ Un-priced Bill of Quantity with Rate of GST duly signed by the tenderer along with technical bid in Annexure- E.

Note:

(i) Bidders without a valid GST No. on the date of opening of the Technical bid may not be considered for Price bid stage.

(ii) **EMD and Tender cost** shall be submitted as per NIT either in form of cash receipt issued by cash section, BHEL, HEEP, Haridwar (subject to provision of Income tax act) or Demand draft issued by any Nationalized bank in favour of Sr. Accounts Officer (Cash), BHEL, HEEP, Haridwar. EMD submitted by tenderer will be forfeited if bidder revokes his tender within validity period or increases his rates. Offer without requisite EMD (earnest money deposit) & Tender cost will not be considered.

(iii) BHEL reserves the right to accept or reject any/all tender(s) without assigning any reason thereof.

(iv) Tenders shall be digitally signed by persons duly authorized / empowered to do so.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

Annexure-A

DETAILS OF WORKS DONE DURING THE LAST SEVEN YEARS:

(Refer Qualifying criteria condition No. (iii))

(To be submitted along with Techno-Commercial Offer)

S.No	Details of Client		Description of the work	Value of contract	Completion time as stated in Tender (in months)	Date of commencement of work	Date of actual completion	Actual value of work done
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)
	Full Postal address of Clint	**Contact name, email ID, Contact No.**						
01.								
02.								
03.								
04.								
05.								

NOTE: A copy of satisfactory completion certificate and work order copy of each work mentioned above shall have to be submitted by the Contractor along with the tender document. In case of non- fulfilment of above, your offer is liable to be rejected without giving any further opportunity.

I/We agree with the above

Signature of Bidder with Stamp

Signature of Issuing officer

Annexure-B

CHECKLIST

Note: ***Tenderer is required to fill in the following details*** *and should specify respective enclosures attached against each details in the format itself.*

S. No	CRITERION	STATUS (TO BE FILLED BY TENDERER)
1.	Name & address of the Tenderer	
2.	E-Mail ID	
3.	Phone No. (Office) Mobile No. (if any) Fax No.	
4.	Name & designation of the official of the tenderer to whom all the references shall be made	
5.	Whether EMD submitted (By cash/ demand draft). Give detail	
6.	PF Code No.	
7.	ESI Code No.	
8.	GST Registration No.	
9.	Labour licence no. (if available) or give undertaking to submit valid Labour Licence after issue of letter of intent (LOI).	
10.	Proof of having carried out successfully similar nature of work during last 7 years before date of opening of tender. Proof of completion certificate from the original client must be submitted along with award letter/ contract agreement.	Yes / No
11.	Financial statement of accounts (audited balance sheet & PL A/c of last 3 financial years)	Yes / No

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

General Instructions to Tenderer

(Valid for e-Procurement only through BHEL GePNIC Portal)

The Contractors who wish to participate should **go through the Tender documents thoroughly** before quoting, to ensure that the Tender process is not aborted / vitiated, due to them.

1.0 Quoting & Signing the Tender

a. Tender to be submitted through electronic mode only by logging to e-Procurement portal **https://eprocurebhel.co.in/**. Physical submission of tender shall not be accepted. It is mandatory to have a valid digital signature certificate (DSC) for submission of tender on e- Procurement portal. (Refer Director (ER&D) order no. AA:DERD:09:SSP dated 21st August,2021)

b. Vendors interested in participating against an electronic tender are advised to obtain "Digital Signature Certificate" and get themselves registered on "**https://eprocurebhel.co.in/**" website well in advance of the tender closing date. BHEL shall not be able to provide any assistance to the vendor in this regard, and shall not be responsible for failure of the vendor to submit their offer timely against the electronic tender.

c. Before Quoting, the tenderers are advised to inspect the site of work and its environment and be well acquainted with the actual working and other relevant conditions, position of materials and labor. Tenderers are also requested to go through General Terms & conditions, Special Terms & conditions of tender, Scope of work, Technical Terms & Conditions, drawings and specifications and all other documents which are part of tender and shall form part of the agreement to be entered into.

d. While quoting the rate, the tenderer is advised to take into account the likely expenditure, taxes etc. during the operation of the Contract period from the date of commencement of work as directed by BHEL.

e. While quoting the rates the tenderer is advised to take into account all factors including any fluctuations in market rates. No claim will be entertained on this account after acceptance of the tender or during the execution of the contract.

f. EMD should be submitted as per Part-I (Technical Bid) Qualifying Criteria. Techno-commercial bid will be considered only, if the EMD is valid. EMD in any other form except as specified in tender and tender without EMD will be summarily rejected. EMD indicated in the tender may or may not, reflect any specified percentage on value of work. Hence vendors are advised to offer their quote cautiously while submitting their bid, without any presumption.

g. EMD or Proof related to exemption as required as per Terms & Conditions of Tender shall be kept in the online available cover/envelope in GePNIC specified for Techno-commercial bid only.

h. All the corrections / cancellations / insertions, if any, shall be duly attested by the Bidders concerned as per options available on the GePNIC portal.

i. Rates should be quoted as per the Price Bid. Rates quoted in any other form will not be accepted and is liable to be rejected.

   a) If, in the price structure quoted for the required goods / services / works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.
   b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
   c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject of e(a) and e(b) above.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date up to which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.

j. The Bidder shall fill in all the required particulars of the Tender (Techno- Commercial Bid, Price Bids, Terms & Conditions etc.) including corrigendum & the drawing attached therein while submitting their tender.

k. Should a Bidder find discrepancies or omissions in the Tender documents or should there any doubt as to their meaning, he should at once address the authority inviting the Tender, for clarification well before the due date, so as to submit their Tender in time.

l. Every endeavour is made to avoid any error which can materially affect the basis of the tender but the successful tenderer shall take upon himself to provide for the risk or any error which may be subsequently discovered and shall make no subsequent claim on account thereof.

m. Kindly ensure that the total size of the scanned documents to be uploaded remains minimum and within the permissible limits available on the GePNIC portal. If required, documents may be scanned at lower resolutions. However, it shall be sole responsibility of bidder that the uploaded documents are legible.

n. Tenders not in accordance with the Tender conditions herein contained and the Tenders not in original ARE LIABLE TO BE REJECTED.

o. If a Bidder deliberately gives wrong information in his Tender or creates conditions favourable for the acceptance of his Tender, BHEL WILL REJECT SUCH TENDER AT ANY STAGE.

p. Words imparting singular number shall be deemed to include plural number and vice-versa where the context so requires.

q. Canvassing in any form, in connection with the Tender is strictly prohibited and such Tenders are bound to be rejected. All information furnished is taken to be authentic by the bidder for evaluation of the Tender. Should any information be found incorrect subsequently, at any later stage, the Tender / Contract shall be rejected / terminated and action as per BHEL Policy, rules & prevailing Guidelines shall be taken.

r. Should a Bidder's or a Contractor's or in the case of a firm or company of Contractors / any of its shareholder's or shareholder's relative be employed in BHEL Haridwar, the authority inviting the Tenders shall be informed in writing of this fact at the time of submission of the Tender, failing which the Tender may be disqualified, or if such fact subsequently comes to light, the Contract may be cancelled.

s. The Tender schedule and the Tender shall be deemed to form an integral part of the Contract to be entered into for this work.

t. In case of Limited Tender Enquiry if you are not interested to submit the offer, please send a letter specifying the same.

u. There will be cover types with the name to identify how many covers will have to be submitted by a Bidder for a particular tender. For single part bid single cover system consisting of ***EMD Fee/PreQual/Technical/Finance*** in one cover, two part bid double covers system consisting ***EMD fee details/technical*** bid in one cover & ***Financial*** bid in the second cover and in three part bid three covers system consisting ***EMD fee details*** in one cover, ***Technical*** bid in the second cover & the ***Financial*** bid in the third cover.

v. Price bid should not be submitted along with the techno commercial bid in the cover type "Fee/ PreQual/ Technical" specified for techno commercial bid. The price bid has to be submitted separately in the cover type "finance" specified for price bid only.

ALL THE REQUIRED DOCUMENTS SHALL BE FILLED IN THE SAME SERIAL ORDER AS PER THE FORMAT / COLUMN OF THE "TECHNO-COMMERCIAL BID". The annual maintenance and service contract shall be governed as per the BHEL Works policy, Rules & General conditions of the contract.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

w. Bidders shall enclose the certificate of satisfactory performance, from previous customer in the Techno-Commercial Bid envelope, along-with the tender documents in support of their claim of having minimum experience of similar works and /or provide all documents as per PQR criteria.
x. Vendor shall ensure meeting all statutory obligations as applicable during the contract period.
y. The digital signature of the tenderer on the E-tender form will be considered as confirmation that the tenderer has read, understood and accepted all the conditions laid down in the documents unless special deviation is quoted by the tenderer.
z. Deviation from any of the specified requirements should be clearly brought out on a separate sheet titled as deviation. In case of no deviation a ***"NO DEVIATION STATEMENT"*** shall be submitted with the tender (Techno-commercial offer).

2.0 Signing the Tender

a. The Tender shall be digitally signed by the Authorized Signatory Only.
b. Authorized signatory shall be the Proprietor.
c. In case the Bidder is a Partnership Firm under Partnership Act, the Tender shall be signed by all the Partners of the firm or by Partner having authority to sign on behalf of all other partners. Copy of the authority should be enclosed.
d. In case the Bidder is a company, authorized signatory of the company. Copy of the authority will have to be enclosed.
e. In case of Power of Attorney (POA). A copy of the Power of Attorney, duly attested by the issuer shall accompany the tender.
f. If the POA is revoked during the existence of the contract, it shall be the responsibility of the of the issuer to inform the same to BHEL. The issuer shall remain bound by the acts committed under the POA till the date of such information to BHEL.

3.0 Date / Time for opening of Tender

a. The e-Bidding Notice shall be published on e-procurement portal, stipulating the bid submission end date and bid opening date. The bidders are strictly advised to follow date and time as indicated in the e-Bidding Notice. The date and time shall be binding on all bidders.
b. No Vendor shall be required to be present in the BHEL office for any E-Tender opening process. BHEL does not guarantee opening of tenders at the specified Date and Time which may change due to reasons beyond control and hence tenders can be opened after due date and time also. It will, however, be ensured that no bids are submitted after tender closing Date and Time. Vendors cannot submit any offer or attach any file after the due date and time as stipulated under the tender notice.
c. In case of two-part bid, the Price Bids of bidders, who are technically qualified will be opened later. The date & time of price bid opening will be informed to the technically qualified Bidders.

4.0 Quoting

a. Quoting best rate and the sanctity of the L1 status.
b. Quoting the lowest best rate is a must against this Tender. However, bidders are required to understand that the lowest rate offered by them or accepted by them, as the case may be should be honoured throughout the period of the Contract.

5.0 Participation

The Parties who have been suspended or black listed or banned by BHEL HEEP, Haridwar or any other BHEL Unit and are under suspension at the time of bid submission will not be allowed to participate in the Tender and the bidder should declare the same in the Tender. Even during the course of evaluation / finalization of Tender if it is found that some of the parties are black listed / barred from business transactions / under business hold, BHEL will reject their offer.

6.0 Validity of Offers:

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

The rates quoted shall be valid for acceptance for a minimum period of 120 days from the date of tender opening. Withdrawal of Tender or increasing the rates during this validity period is not allowed. Date of tender opening shall be date of opening of first/Techno-commercial bid.

Note: -

1. In case of any ambiguity/discrepancy between any clause of "General Terms & Conditions" and "Special Terms & Conditions, Scope of Work, Technical Terms & Conditions and Bill of Quantity" the clause of "Special Terms & Conditions, Scope of Work, Technical Terms & Conditions and Bill of Quantity" shall prevail.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

General Terms & Conditions of Tender

1. GENERAL

These general terms & conditions shall apply to all the Tender Enquiries, notice inviting tenders, request for quotations concerning the works/services contracts pertaining to Bharat Heavy Electricals Ltd., HEEP, Haridwar (hereinafter referred to as BHEL or the Purchaser). In case of placement of order these conditions will become part of Work Order (W.O.) until unless the deviations are specifically agreed by BHEL.

2. DEFINITIONS

In these general conditions of contract the following terms shall have the meaning hereby assigned to them except where the context otherwise requires: -

(a) "***THE CONTRACT***" shall mean the notice inviting the tender and acceptance thereof and the formal agreement if any, executed between the Bharat Heavy Electricals Ltd., Heavy Electrical Equipment Plant, Haridwar and the contractor together with the documents referred to there in including these conditions, and any special conditions, specifications, designs, drawings etc. All these documents taken shall be deemed to form one contract and shall be complementary to one another.

(b) The **"TENDER DOCUMENT"** means the form of tender as applicable with General and Special Conditions of contract, and the specifications and/or drawings as given to contractors for the purpose of preparing their tender including "Notice Inviting Tender".

(c) The **"WORK"** means the work described in the tender documents in individual work order and/ or accompanying drawings and specifications as may be issued from time to time to the contractor by the Engineer-In-Charge in writing the power conferred upon them, including all modifications or additional works and obligations to be carried out either at the site or in factory, workshop or any other place as may be essentially required for the performance of the work.

(d) The **"SITE"** means the land and/ or other place on into or through which the work is to be executed under the contract or any adjacent land, part or structure which may be allotted to or used for the purpose of carrying out the contract.

(e) The **"CONTRACTOR"** shall mean the individual of firm or company whether incorporated or not, undertaking the work and shall include legal representatives of such individual or persons composing such firm or incorporated company or successors of such person, firms or company as the case may be and permitted assignee of such individual or firm or company.

(f) The abbreviations" Engr/Sr. Engineer / Dy. Mgr/ Mgr./ Sr. Mgr/ DGM/ Sr.DGM" means Engineer/ Senior Engineer/ Deputy Manager/ Manager/ Senior Manager/ Deputy General Manager/ Sr.Dy. General Manager respectively who will direct the contract.

(g) The **"ENGINEER-IN-CHARGE"** means the Engineer/ Sr. Engineer or any other executive deputed by BHEL to supervise the work or part of the work on behalf of the First Party.

(h) Accepting authority: As per BHEL Delegation of Power.

(i) **"APPROVED"** means the approval of directions of the Engineer/ Sr. Engineer or any other executive or person deputed by them for the particular purpose.
BHEL means the Bharat Heavy Electricals Limited/ HEEP plant of the said Company at Ranipur, Hardwar.

(j) The **"CONTRACT SUM"** means the sum accepted or the sum calculated in accordance with the prices accepted in tender and/ or the Contract rate as applicable to the contractor for the entire execution and full completion of the work.

(k) The **"FINAL SUM"** means the actual amount payable under the contract by BHEL to the contractor for the entire execution and full completion of the work.

(l) The **"TIME OF COMPLETION"** is the date or dates for completion of the work or any part of the work as set out in or ascertained in accordance with the individual work or the tender documents or any subsequent amendments thereto.

(m) A **"WEEK"** means seven days without regard to the number of hours worked in any day in that week.

(n) A **"DAY"** shall mean a day of 24 hours from midnight to midnight irrespective of the number of hours worked in that day.

(o) A **"WORK DAY"** means day other than that prescribed by the Negotiable Instruments Act, as being a holiday and consists of the number of hours of labour as commonly recognized by good employers in the trade, in the district where the work is carried out or as laid in the BHEL Rules and Regulations.

(p) **"DEVIATION ORDER"** means any order given by the Engineer-In-Charge to effect an alteration, addition or deduction, which does not radically affect the scope and nature of the contract.

I/We agree with the above

Signature of Bidder with Stamp

Signature of Issuing officer

(q) **"EMERGENCY WORK "** means any urgent measures which in the opinion of the Engineer-In-Charge become necessary during the progress of the work to obviate any risk of accident or failure or which become necessary for security.

(r) **"PROVISIONAL SUM"** or **"PROVISIONAL LUMPSUM"** means a lump sum included by the BHEL in the work for which details are not available at the time of inviting tender.

(s) **"PROVISIONAL ITEMS"** means items for which approximate quantities have been included in the tender documents.

3. EARNEST MONEY DEPOSIT

(a) Vendor is required to deposit the EMD as specified in NIT.

(b) EMD shall not carry any interest.

(c) Modes of deposit:
The EMD may be accepted only in the following forms:

(i) Cash deposit as permissible under the extant Income Tax Act (before tender opening)

(ii) Electronic Fund Transfer credited in BHEL account (before tender opening)

(iii) Banker's cheque/ Pay order/ Demand draft, in favour of BHEL (along with offer)

(iv) Fixed Deposit Receipt (FDR) issued by Scheduled banks/Public Financial Institutions as defined in the companies Act. **(FDR should be in the name of the contractor, a/c BHEL)**
In addition to above, the EMD amount in excess of Rs. Two Lakh may also be accepted in the form of Bank Guarantee from scheduled bank. The Bank Guarantee in such cases shall be valid for at least six months.

(d) Forfeiture of EMD
EMD by the Tenderer will be forfeited as per NIT conditions, if:

(i) After opening the tender and within the offer validity period, the tenderer revokes his tender or makes any modification in his tender which is not acceptable to BHEL.

(ii) The Contractor fails to deposit the required Security deposit or commence the work within the period as per LOI/ Contract.

(e) EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged under the provisions of extant "Guidelines on Suspension of business dealings with suppliers/ contractors" and forfeited/ released based on the action as determined under these guidelines.

(f) EMD given by all unsuccessful tenderers shall be refunded normally within fifteen days of award of work.

(g) EMD of successful tenderer will be retained as part of Security Deposit.

(h) EMD deposited in any modes other than specified at (c) above shall lead to cancellation of the offer.

4. SECURITY DEPOSIT

(a) Successful vendor shall require to deposit security. The total amount of Security Deposit will be 5% of the contract value. EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit.

(b) Modes of deposit:
The balance amount to make up the required Security Deposit of 5% of the contract value may be accepted in the following forms:
i) Cash (as permissible under the extant Income Tax Act)
ii) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL
iii) Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL
iv) Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL)
v) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL)

(c) BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith)

(d) The Security Deposit shall not carry any interest.

(e) The additional condition of Security Deposit (If any) shall be specified in Special Terms & Conditions of tender.

(f) Refund of Security Deposit

I/We agree with the above

Signature of Bidder with Stamp

Signature of Issuing officer

After completion of work awarded, provided always that the contractor shall first have been paid final bill and have rendered a "No Demand" certificate, the security deposit mentioned in condition above shall be refunded to the contractor as follows: 100% shall be released within 3 months of satisfactory completion of the work duly verified by Site/Engineer-In-charge.

5. COMMERCIAL TERMS

- Prices shall be quoted on "Firm Price" basis only.
- Validity of offer shall be for a minimum period of 120 days from the date of Tender Opening.

6. **NOT APPLICABLE**

7. **SETTLEMENT OF DISPUTES/ARBITRATION**

In all cases of dispute, the matter shall be referred for ARBITRATION by sole arbitrator to be appointed by the Unit Head of Bharat Heavy Electricals Ltd., at HARIDWAR. The award of the Arbitrator shall be final and binding on both the parties. The place of Arbitration shall be Haridwar.

JURIDICTION: The courts of Haridwar, India, shall have exclusive jurisdiction.

8. RISK PURCHASE CLAUSE

In case of delays in supplies / defective supplies or non-fulfilment of any other terms & conditions given in the work order the purchaser/contracting executive may cancel the work order in full or part thereof and may also make the purchase of the material / service from elsewhere / alternative source at the risk and cost of supplier. Vendor/Contractor does not agree to above clause, their offer is liable to be rejected. In case any vendor/contractor accepts risk purchase clause initially and subsequently declines to honour the term in the eventuality of RISK PURCHASE, they may be banned for business with BHEL."

9. FORCE MAJEURE CLAUSE

Notwithstanding any other thing contained anywhere else in the contract or WO (Work Order), In case the discharge of obligation under the contract by either party is impeded or made unreasonably onerous, neither party shall be considered in breach of the contract to the extent that performance of their respective obligation is prevented by an event of Force Majeure that arises after the effective date (WO date). In the above clause, Force Majeure means an event beyond the control of the parties to the contract which prevents a party from complying with any obligation of the contract including but not limited to:

I/We agree with the above

Signature of Bidder with Stamp

a) Act of God (Such as but not limited to earthquake, drought, tidal waves, floods etc.).

b) War (whether war be declared or not), Hostilities Invasion, Act of foreign enemy etc.

c) Rebellion, revolution, insurrection, civil war etc.

d) Contamination of Radio Activity from any nuclear fuel or from any other nuclear waste or any other hazardous materials.

e) Riots, commotions, strike unless restricted to the employees of supplier.

f) Acts of terrorism.

g) Other unforeseeable circumstances beyond the control of the parties and which the affected party cannot avoid even by using its best efforts.

h) Cancellation of contract by customer.

i) Change in law / government. Regulation making the performance impossible.

The party claiming to be affected by force majeure shall notify the other party in writing immediately without delay on the intervention and on the cessation of such circumstances.

Irrespective of any extension of time, if an event of force majeure occurs and its effect continues for more than 180 days the affected party shall have right to cancel the contract.

As soon as reasonably practicable following the date of commencement of a Force Majeure Event, and within a reasonable time following the date of termination of a Force Majeure Event, either Party invoking it shall submit to the other Party reasonable proof of the nature of the Force Majeure Event and of its effect upon the performance of the Party's obligations under this Agreement.

The party shall, and shall ensure that its Subcontractors shall, at all times take all reasonable steps within their respective powers and consistent with Good Operating Practices (but without incurring unreasonable additional costs) to:

a) Prevent Force Majeure Events affecting the performance of the party's obligations under this Agreement.

Signature of Issuing officer

b) Mitigate the effect of any Force Majeure Event.

c) Comply with its obligations under this Agreement.

If the war like situation has developed in a country where a seller's works is located in this W.O. or there is political instability and Indian Embassy located in that country forbids or advises for not having any business dealing with the sellers located in such zone / region/ country, then BHEL reserves the right to cancel the order.

10. FRAUD PREVENTION POLICY

The Bidder along with its associate / collaborators / sub – vendors / consultants / service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website http://www.bhel.com and shall immediately bring to the notice of BHEL Management about fraud or suspected fraud as soon as it comes to their notice".

Fraud Prevention policy and List of Nodal Officers shall be hosted on BHEL website, vendor portals of Units / Regions intranet.

11. SUSPENSION OF BUSINESS DEALINGS WITH SUPPLIERS/CONTRACTORS

In order to protect the commercial interests of BHEL, it becomes necessary to take action against suppliers / contractors by way of suspension of business dealings, who either fail to perform or are in default without any reasonable cause, cause loss of business / money / reputation, indulged in malpractices, cheating, bribery, fraud or any other misconducts or formation of cartel so as to influence the bidding process or influence the price etc. Penal action can be initiated on the suppliers / Contractors in line with extant "Guidelines for Suspension of Business Dealings with Suppliers / Contractors". The abridged version of extant 'Guidelines for suspension of business dealings with suppliers / contractors' has been uploaded on http://www.bhel.com on "supplier registration page".

12. IMPLEMENTATION OF INTEGRITY PACT (IP)

Bidders shall submit Integrity Pact (IP), duly signed by its authorized signatory who signs in the offer, along with their techno-commercial bids wherever estimated tender value is Rs. 2 Crore or above. This pact shall be considered as a preliminary qualification for further participation.

12A. INTEGRITY PACT (IP)

i). IP is a tool to ensure that activities and transactions between the Company and its Bidders /Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitor (IEM) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

Sl No	IEM	Email
1	Shri Arun Chandra Verma, IPS (Retd.)	acverma1@gmail.com
2	Shri Virendra Bahadur Singh, IPS (Retd.)	vbsinghips@gmail.com

ii). The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.

iii). Please refer Section-8 of the IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to the above IEM. All correspondence with the IEM shall be done through email only.

Note: No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are mentioned on the first page of tender documents.

13. DAMAGE & LOSS TO PRIVATE PROPERTY & INJURY TO CONTRACT EMPLOYEE

The Contractor shall at his own expense reinstate and make good to the satisfaction of BHEL and pay compensation for any injury, loss or damage occurred to any property or rights whatever including property and rights of BHEL (or agents) servants or employee of BHEL, the injury loss or damage arising out of or in any way in connection with the execution or purported execution of the Contract and further the Contractor shall indemnify, the BHEL against all claims enforceable against BHEL (or any agent, servant or employee of BHEL) or which would be so enforceable against BHEL where BHEL is a private person, in respect of any such injury (including injury resulting in death) loss or damage to any person whomsoever or property including all claims which may arise under the Workmen's Compensation Act or otherwise.

I/We agree with the above

Signature of Bidder with Stamp

Signature of Issuing officer

14. RIGHT OF ACCEPTANCE

a) BHARAT HEAVY ELECTRICALS LIMITED HARIDWAR reserves the right to reject any or all the bids / quotations without assigning any reason thereof. BHEL also reserves the right to increase or decrease the tendered quantities. Bidders should be prepared to accept order for reduced quantity without any extra charges.

b) Any discount /revised offer / bids submitted by a bidder on its own shall be considered, provided it is received on or before the due date and time of offer / bid submission (Part-1). Conditional discounts shall not be considered for evaluation of tenders.

c) Unsolicited discounts / revised offers / bids given after Part-1 bid opening shall not be accepted. No change in price will be permitted within the validity period asked for in the tender enquiry.

d) In case of changes in scope and / or technical specification and / or commercial terms & conditions having price implication, techno-commercially acceptable bidders shall be asked by BHEL to submit the impact of such changes on their price bids. In case a bidder opts to submit revised price bid instead of impact called for then the latest price bid shall prevail. However, in both situations, original price bid will be necessarily opened.

e) The bidder whose bid is technically not accepted will be informed & EMD wherever submitted shall be returned after finalization of contract. EMD shall be forfeited in the event of bidder opting out after tender opening.

f) BHEL reserves the right to short close the existing Purchase Order / Rate Contract / Work Order or any extension thereof at any stage.

15. PRICE SCHEDULE

a) Kindly quote your prices in figures and words both. In case of any discrepancy in value, the prices quoted in words shall be considered for evaluation and establishing L1 status.

b) Applicable IGST / CGST / SGST and any other statutory levy should be indicated separately and clearly in the bid / quotation

I/We agree with the above

Signature of Bidder with Stamp

NB: Financial evaluation of L1, L2 …..Status will be on the basis of Landed Cost to BHEL.

16. **GST RELATED TERMS & CONDITIONS**

Bidder has to specify the following in their techno-commercial bid (part I bid in case of two part bid):

I. a) Legal Name of the bidder as in GST registration, GST registration No., State, Place of business, category of registration under GST i.e. Registered dealer / Unregistered dealer/ dealer opted for Composition Scheme,

b) HSN (Harmonised System Nomenclature) / SAC (Service Accounting Code), description of Goods/Services and applicable IGST / CGST / SGST rate and any other statutory levy, if any, for each item of Goods or Services.

II. a) Unregistered Dealer

Since in case of unregistered dealer, GST will have to be paid by BHEL under reverse charge mechanism, the same shall be added to the quoted price for evaluation bid.

b) Dealer opting for Composition Scheme

In case of registered dealer, who opt for composition scheme at the time of submission of bid, no GST will be payable to the bidder and also same will not be considered for evaluation of bid. Dealer has to declare in technical bid that no GST is shown separately in price bid. However, in case at the time of actual supply, the bidder charges GST at normal rate, the same shall be reimbursed subject to the availability of GST credit to BHEL. In case GST credit is not available to BHEL, no GST will be payable to the bidder.

III. Reimbursement of GST shall be made by BHEL-Haridwar on matching of Contractor inputs as mentioned below at GST portal and after ensuring of availability of input credit to BHEL, Haridwar. Hence, Contractor has to ensure compliance as follows-

a) Timely raising & submission of GST compliant Invoices
b) Timely receipt of Goods & Services
c) Timely and correct payment of applicable GST by supplier/contractor
d) Timely filing of return
e) Compliance of other applicable provisions on supplier/contractor:

Contractor has to also give consent to accept payment of tax after such matching in all cases where bills are

Signature of Issuing officer

submitted directly to BHEL-Haridwar or through bank or under LC or through any other mode.

IV. In the event of any disallowance of input credit (including reversal of credit) or applicability of interest or arising of any other financial liability on BHEL-Haridwar due to any default of supplier/contractor under GST such as non/delayed receipt of Good/Services, delayed raising & submission of invoices, delayed payment of tax, non/wrong declaration of sale by Contractor in return etc. or any other reason not attributable to BHEL, such implication shall be to supplier's/contractor's account and will be deducted from bills.

V. In the event of any change in the status of the bidder after submission of the bid but before the supply/service, GST applicable at the time of supply/service or GST quoted in the bid, based on the registration status of the bidder, whichever is lower shall be payable.

VI. Statutory Variation in Taxes & duties as applicable at the time of supply shall be payable. However, in the event of no change in law but bidder quoting certain tax structure in bid document which is lower than the applicable one, such amount shall be the maximum amount of tax that can be claimed by bidder.

VII. In case of Liquidated damage (LD) recovery, the applicable GST shall also be recoverable from the suppliers.

VIII. As per the extant GST rules, as of now it is not mandatory to file returns immediately and ITC has been allowed on self-declaration. In view of the changed scenario, the payment of GST shall made to the contractors simultaneously with their work/services invoices. The Contractors / vendors shall need to submit the undertaking as per the following format before such GST payments. However in case the availability of ITC on self-declaration is discontinued at the time of submission of invoice then the clause II above shall be applicable.

Certificate of Goods and Service to be furnished by Contractor with each bill / invoice

We hereby undertake that:

1. Goods and Service Tax charged in the following Invoices / Bill Numbers are in compliance with the provision of GST Act & Rules prevailing thereon:

Sl. No	PO No/ Work Order	Invoice No	Invoice date	GST Amount

2. Goods and Service Tax charged in the Bill / Invoice shall be paid by us within due time.

3. Any liability due to any delay / default in payment of GST, return filling or any other NON-compliance under GST Law / Rules, shall be to our account.

4. In the event of any non-compliance on our part, We indemnify BHEL for any financial burden / loss on account of GST / interest / penalty.

5. We give our consent to BHEL to recover any such financial burden if arises on BHEL due to any non-compliance from any outstanding bills. In the event of Nil outstanding, same shall be paid by us to BHEL.

6. In the event of any such default, we agree BHEL to pay all future GST reimbursement after verification of GST compliance under the law.

7. We understand that this arrangement shall be valid till the credit of Input Tax Credit (ITC) is available without online validation or further amendment if any affecting admissibility of ITC to BHEL.

Signature of Authorized Signatory (with seal)
GST No:

IX. The provisional GST registration number of Bharat Heavy Electrical Ltd, Heavy Electricals Equipment Plant, Ranipur, Haridwar is "05AAACB4146P1ZL" with state Code as "05" and State Name as "Uttarakhand".

17. SPECIAL POWERS OF TERMINATION

If at any time after the acceptance of the tender, BHEL shall for any reason whatsoever not require the whole or any part of the work, to be carried out, the Engineer In charge shall give notice in writing of the fact to the contractor, who shall have no claim to any payment of compensation or otherwise, howsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of the foreclosing of the work.

The contractor shall be paid at contract rates for the full amount of the work executed including such additional work i.e., cleaning of site etc. as may be

I/We agree with the above

Signature of Bidder with Stamp

Signature of Issuing officer

rendered necessary by the said foreclosing. He shall also be allowed a reasonable payment (as decided by the Accepting Officer) for any expenses sustained on account of labour and material collected but which could not be utilized on the work as verified by the Engineer In charge but the contractor shall not have any claim for compensation on account of any alterations having been made in the original specifications, drawings, designs and instructions involving and curtailment of the work as originally contemplated.

18. PUBLIC PROCUREMENT PREFERENCE TO MAKE IN INDIA, ORDER 2017

For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017, 28.05.2018, 29.05.2019 & 04.06.2020 and subsequent Orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of this NIT but before finalization of contract/ PO/WO against this NIT. In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and / or local content in respect of this procurement, same shall be applicable.

19. OVERWRITING IN PRICE BIDS

Bid should be free from correction, overwriting, using corrective fluid, etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else shall be liable for rejection.

20. GENERAL NOTES

a. Rates shall be quoted in figures as well as in words and contractor must put his signature & Seal on each page of the tender documents / undertakings, while submitting his offer, failing of which tender may be liable for rejection.

~~b.~~ BHEL reserves the right to cancel the tender at any stage of tendering till signing of agreement without assigning any reason(s) thereof. The tender cost in that event shall not be refunded.

c. The contractor shall not employ any worker less than 18 years of age during execution of his work.

d. In the course of evaluation, if more than one bidder happens to occupy L-1 status, effective L-1 will be decided by soliciting discounts from the respective L-1 bidders.

In case more than one bidder happens to occupy the L-1 status even after soliciting discounts, the L-1 bidder shall be decided by a toss / draw of lots, in the presence of the respective L-1 bidder(s) or their representative(s).
Ranking will be done accordingly. BHEL's decision in such situations shall be final and binding."

e. The work shall be governed by the specifications, general terms & conditions of BHEL contract, special conditions, tender terms, environment related conditions, safety clause and any other relevant conditions applicable time to time.

f. The contractors are advised to see the site before quoting the rates.

g. BHEL reserves the right to award only a fraction or part of the work given in the bill of quantity.

h. Contractor found or reported for non-compliance of the legal obligations during the execution of the contract, shall be debarred from the issue of NITs for at least 01 year or till the proof of compliance is produced.

i. L1 may also be decided based on Reverse Auctioning based on the discretion of BHEL.

j. BHEL does not bind themselves to accept the lowest tender or any tender or to give any reason for their decision.

k. Contractor shall ensure all the safety provisions for the execution of the work awarded. It shall provide all the necessary PPE's (until & unless specified clearly about the issue of any PPE by BHEL in Special or any other Conditions of tender) to his workmen or any individual deployed by him for execution of the work and ensure usage of the same.

l. The evaluation currency for this tender shall be **INR.**

m. The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

I/We agree with the above

Signature of Bidder with Stamp

Signature of Issuing officer

In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.

I/We agree with the above

Signature of Bidder with Stamp

Signature of Issuing officer

SPECIAL CONDITIONS:

1. These special conditions shall be read in conjunction with General Conditions of contract.

2. Following order of precedence shall be followed for execution of the work:
- i) Provision in approved drawings.
- ii) Provision of particular specifications and special conditions, if any.
- iii) Provision as per description of items in the bill of quantities.
- iv) CPWD specifications (Vol. I to VII).
- v) Indian standard Specifications of BIS.

3. The quoted rates will be for all height, depth, lift, lead, shapes and sizes unless otherwise mentioned specifically in the description of item.

4. The quoted rates shall be deemed to include cost of pumping or bailing out water from any source such as subsoil water, rainwater, water from seepage etc.

5. In case of any discrepancy/ typographical error in the bill of quantity, the relevant item as per DSR-2012 schedule of rate should be read.

6. The drawing (s) attached with these tender documents are for the purpose of tender only, giving the Tenderer a general idea of the nature and the extent of works to be executed. The rates quoted by the Tenderer shall be deemed to be for the execution of works taking into account the "Design Aspect" of the items and in accordance with the "Approved Design and Drawings ".

7. The contractor shall get the design and drawings for work got approved by the engineer in charge before starting the work.

8. All design and drawings submitted to BHEL in relation to this work shall be the property of BHEL and BHEL will be free to use it in ways it deems fit.

9. Contractor shall co-ordinate his activities and co-operate with other agencies such as civil work, air-conditioning, electrical and erection department, mechanical department etc. who will also be working for the project.

10. The design calculation /drawings of Pre Engineering Building structure including column footing and plinth beams shall must be approved/vetted by Indian Institute of Technology (IIT)/NIT (National institute of Technology).

11. The contractor shall make available at site all relevant Indian Standard Codes of practice as applicable and other relevant British/German/American Standard.

12. Specifications or tests advised by BHEL or third party inspector appointed by BHEL and shall bear all costs involved in getting the same tested.

13. BHEL reserves the right to engage third party agency for quality inspection of all work done and material brought by the contractor for use in work. The contractor shall make all arrangement to carry out the tests so recommended and bear all expenses incurred.

14. Quantities mentioned in bill of quantity may vary on either side as per actual requirement at site to carry out smooth progress of work.

15. All the taxes such as cess and other taxes shall be recovered as per rule.

16. Earnest Money deposited by the tenderer will be forfeited if:
- (i) After opening the tender, the tenderer revokes his tender within the validity period or increases his earlier quoted rates.
- (ii) The tenderer does not commence the work within the period as per LOI/ contract. In case the LOI/ contract is silent in this regard then within 15 days after award of contract.

17. Earnest Money deposit shall not carry any interest.

18. Security deposit shall be released as follows: 100% shall be released after satisfactory completion of the maintenance period of the work duly verified by Site in charge and clearing of all dues. **The maintenance period of the work shall be one year from the actual date of completion of work**.

19. Contractor will have to protect BHEL equipment and material from fire hazards or any other damages or loss. Contractor will keep watch on his employees and he will be liable for any pilferage/ loss to BHEL due to acts of omission and commission by his employees. Similarly, liability for any compensation to any outsider on account of any act of omission and commission by the employees deployed by the contractor shall lie exclusively with him.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

20. **Nature of award of Contract:** Only a single contract shall be awarded for the entire scope of work, including design, detailed engineering, fabrication, supply, erection and handing over of Pre-Engineered Buildings (PEBs) including design and drawings of column foundations and plinth beams for the covered gantry shed for DABG expansion project Phase-I in HEEP. No other form of contract shall be entertained.
21. The contractor shall effect and maintain professional indemnity insurance for the amount equal to Indian Rupees 35 Lakhs. The contractor shall produce evidence of coverage of the professional indemnity insurance before any payment is released. The insurance which shall insure the contractor's liability by reason of professional negligence and errors in the design of the works to cause for structure failure shall be valid for 5 years from the date of issue of Completion certificate. The employer will not issue final payment certificate until the contractor has produced evidence that coverage of professional indemnity insurance has been provided for the aforesaid period.
22. **Payment Terms and Conditions:**
    a. No advance shall be given to the contractor.
    b. All payments shall be made through Electronic transfer (E- Mode). No payment shall be made through Cheque / DD or in cash under any condition.
    c. Payment will be released as per the actual progress of work of PEB structure at site against approved BOQ. The payments shall be released after certification by BHEL site engineer.
    d. All payment shall be subject to compliance of Conditions regarding security deposit given in General Conditions of Contact.
23. Tenderer shall submit documentary proof as required for qualifying criteria of the tender along with techno-commercial offer.
24. The bidder shall have to produce original documents for verification, if so decided by BHEL.
25. No excuses like hindrance because of jungle, extreme weather conditions, non-availability of labour and material etc. will be entertained for not completing the work in time. Such factors, if any, may be considered by the tender at the time of submitting the tender.
26. All necessary precautions with respect to safety at site and environmental aspects shall have to be taken by the contractor for activities performed by his workers.
27. For safety in execution of the work, the contractor must ensure that all labour engaged in the work at site should wear personal protective equipment's (PPEs) such as safety shoes, safety helmet, safety belts, gloves, dust masks, apron and welding glasses etc. as required in the activity. If the contractor requests for issue of PPEs for use at site, BHEL may consider issuing the same (subject to availability) at BHEL purchase cost and recovery shall be made from the bills payable.
28. BHEL shall not be responsible for providing accommodation of staff of contractor during the period of work or subsequent maintenance period.
29. The gate passes/ tokens to be issued by the CISF UNIT shall have to be returned to the pass section of CISF after completion of work, failing which recovery at the rate as applicable shall be made from the contractor.
30. Period of validity of offer should be 120 days from the date of opening of tender.
31. **Contractors are advised to see the site before quoting the rates.**
32. **Water and Electricity:**
    Water and electricity shall be supplied to the contractor by the department subject to the following conditions:
    a. Water/electricity charges shall be deducted @ 1.2% of gross amount of work done
    b. One/two point of supply of water /electricity, as decided by the engineer in-charge, shall be provided by BHEL at site. Contractor shall have to make their own arrangement for laying waterline/electric line from these main source(s) of supply to various part of the site of work.
33. No escalation in cost will be permitted under any circumstances.
34. **Material:** Before commencing fabrication, the tenderer shall obtain BHEL's prior approval for the usage of material. The tenderer shall produce necessary documentation (material test reports etc.). The material shall be procured and make of preferably from the under mentioned sources.
    a. Steel for Frames: Essar Steel / Jindal / SAIL / ISPAT / TATA
    b. Roof and wall cladding coils: Zinc alum of Blue scope /NIPPON/Union Steel and all other reputed

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

manufacturers.

35. BHEL reserves the right to cancel the tender at any stage of tendering till signing of agreement Without assigning any reasons thereof. Tender cost in that event shall not be refunded.

36. The work may need deployment of labors in two or three shifts to complete the work in stipulated time. The contractor shall observe provisions of the Factories Act/ Rules in respect of working hours, holidays, rest intervals, leaves and overtime to his employees. Work in second / third shift, overtime, Sundays or on other declared holidays should be carried out after getting written permission from Engineer In-charge.

37. Before commencing fabrication works the contractor shall submit the complete plan for all the activities in advance to be carried out. Accordingly, BHEL representative may visit the PEB manufacturing facility at every stage to inspect the same.

38. The red oxide activity shall be carried out after proper cleaning of surface through sand blasting. The sand blasting activity shall be carried out in the presence of BHEL Engineer-in-charge.

39. The labour component of alignment /fixing of foundation bolt /anchor bolt shall be considered in supply and fixing of anchor activity. No additional payment shall be made for alignment or fixing templet of foundation bolts.

40. To carry out the works inside shop area, the raw material shall be stored outside the shop and no extra lead shall be payable for the same.

41. The soil properties such as bearing capacity etc. shall be provided at the time of start of work.

42. All drawings documents issued to the contractor are the property of the owner and are solely for the purpose of executing the works under this contract and are returnable after completion of the work. The contents of the drawings, documents, shall not be revealed to any persons/ parties not connected with this work.

43. Contractor should engage contract labours after seeking police verification (with no adverse remarks). Such police verification should not be older than three years at any point of time during the duration of the contract. Contract labours deployed by contractor should have valid Biometric Gate Pass for entry into factory premises.

44. As a matter of administrative ease, the contractor should make all disbursements to his workmen preferably through their bank accounts.

45. Contractor will be responsible for good conduct of his employees. In case of any misconduct / misbehavior by any employee, the contractor will replace such employee(s) immediately.

46. The work shall be governed by CPWD specifications, General terms and conditions of BHEL contract, special conditions, environment-related conditions, new safety clause and any other relevant condition mentioned here.

47. Contractor shall submit and finalize detailed quality assurance program within 15 days from the date of start of work as per specifications. This shall include setting up of testing lab, arrangement of testing apparatus / equipment, deployment of qualified experienced manpower, preparation of format for record, Field quality plan etc. On approval of Field quality plan the BHEL shall identify Customer Hold Points (CHP) beyond which work shall not proceed without written approval from Engineer in charge.

48. Samples of materials such as roof/wall sheet, flashing, ridges and fittings etc. required for construction of PEB structures such as anchor bolt, connection bolt, primer, paint etc shall be submitted by the contractor and got approved from the Engineer In- charge before supply in bulk at site of work or carry out in PEB plant. The bulk supply shall strictly confirm to the samples approved. The approved samples shall be kept in the custody of the Engineer In-charge till the completion of the work. The contractor shall get samples tested if so demanded by the Engineer-in-charge to comply with the required specifications. The cost of the samples so submitted and tests so carried out shall be borne by the contractor.

49. All material brought to site for the use in the work should be ISI marked, if available in market. However, all the material used in work shall have to be got approved by the Engr. I/C before execution of the work. The contractor may have to furnish test certificate of all the materials to the satisfaction of department. If required, the material shall be got tested by the department at CBRI or any other government agency at the risk and cost of the contractor.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

50. The contractor shall at his risk and cost, make all arrangements as the Engineer In charge may require for collecting and preparing the required number of samples for all quality checks, mandatory tests as per CPWD / BIS specifications or tests advised by BHEL from Indian institute of Technology or CBRI Roorkee or any other government agency and shall bear all costs involved in getting the same tested.

51. Before starting the work, contractor has to make a separate temporary store for materials issued to store in proper condition as per norms and the same shall be dismantled by contractor after satisfactorily completion of work /as and when required by BHEL.

52. Scaffolding made of steel only as per BIS will be permitted in the work.

53. Contractor should acquaint himself about the type of work, specially about cut-outs, steel inserts fixing and placements. Contractor should also take care about fixing of foundation bolts in pedestals.

54. Any extra item required for the proper completion of work will have to be executed by the contractor with the written approval of BHEL and as per direction of Engineer in charge. The competent authority will decide the rates of such item but on no account the work will be stopped.

55. The contractor will have to comply with the following during execution of contract:
- (i) Valid labour license from Asstt. Labour Commissioner.
- (ii) P.F. code and abide by the relevant laws/rules.
- (iii) E.S.I. code and abide by the relevant laws/rules. In case, contractor has ESI code issued from different state, then he must submit, within one month from the issue of letter of intent, the ESI sub-code of Uttarakhand state.
- (iv) GST Registration and abide by the relevant laws/rules.

56. In case of non-compliance of any of the factory act/ labour laws, the contractor shall be responsible for all the expenses /liability occurring / accruing on BHEL because of this including expenditure of legal proceedings. All such expanses shall be recoverable from the contractor from any of his running contracts/security deposit/other dues with BHEL or from any contract entered with BHEL thereafter.

57. Any applicable taxes/cess shall be recovered from the contractor as per rule.

58. No mobilization advance payment etc. will be given to the contractor.

59. GST & other taxes shall be applicable as per rule and will be made on actual GST rate on submission of GST complied Invoice. GST will be reimbursed after being appeared on GST portal.

60. No bill will be entertained until wages of workers till date are paid, PF and ESI deposited for labour engaged in the work and proof of the same submitted along with the bill.

61. After submission of bill by the contractor, the measurement shall be verified & checked and then only the bill shall be processed.

62. Running bills against work contractors shall be submitted to the finance for payment within 15 days from the date of measurement, unless there is some problem which shall be supported by documents in this regard. Finance will process such bills and release the payment within 30 days normally after receiving the bills in Finance.

63. Final bills against work contractors shall be submitted to finance within 2 months from date of actual completion of work or within one month from date of measurement whichever is earlier, unless there is some problem which shall be supported by a document in this regard. Finance will process such bills and release the payment within 2 months normally after receiving the bills in Finance.

64. Only 90% amount of the contract value will be paid through running bills, remaining 10% amount will be paid after satisfactory completion of the work. All deductions, if any, on account of LD etc will be adjusted against this 10% remaining value.

65. Contractor to ensure compliance of GST law and rules applicable on supply involved in this tender and in the event of any non-compliance by contractor, implication of the same if any shall be on account of contractor.

66. Contractor shall have to carry out the work anywhere outside/inside factory area and nothing extra will be paid for extra lead and lift for work at various heights.

67. Contractor may have to complete the work earlier as advised by Site In charge even before the scheduled period of completion as per the urgency of the work. No excuse for overall completion period will be entertained.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

68. PROGRESS OF WORK & PENALTY

(a) The project is time bound and works shall have to be carried out within the contract period or earlier as required by BHEL. For this contractor shall have to submit bar chart for execution of the project within 15 days of issue of LOI with financial values. The detailed bar chart for the activities for the months shall however be submitted by the contractor for approval from BHEL at least three days before start of the corresponding month. Work should progress as per monthly milestone submitted and agreed by BHEL.

(b) Extension of time for completion of work may be granted by BHEL where delay is not attributable to the Contractor. However, where delay is on account of Contractor, extension of time shall not be granted without L.D (Liquidated Damages). LD shall be charged at the rate of 0.5% (zero point five percent) of total contract value of work for every fortnight (15 days) delay or part thereof subject to maximum of 10% of total contract value. In case delay is 16 days than it will be treated as two fortnight delay for imposing penalty (LD).

(c) Regular meeting (fortnightly or as decided by BHEL) shall be held between BHEL and contractor to review the issues related to progress, penalty, quality and any other aspect.

69. COMPENSATION AS LIQUIDATED DAMAGES FOR DELAY: If the contractor fails to complete and clear the site on or before the schedule date of completion or does not achieve the progress as set out under the caption "TIME" explained in the General conditions, he shall without prejudice to any other right or remedy on BHEL on account of such breach, be liable to pay as compensation as liquidated damages an amount equal to 0.50% of the total contract value for every fortnight (15 days) of extension sought beyond the schedule date of completion of the contract provided that the total amount of compensation as liquidated damages to be paid under this condition shall not exceed 10% of the contract value. Such amount may be adjusted or set off against any sum payable to the contractor under this or any other contract. If delay is for 16 days, it will be counted as delay for 2 fortnights for liquidated damages.

70. Tenderer shall submit proof of documents required as per qualifying criteria of tender along with the techno-commercial offer.

71. The bidder will have to produce original document for verification if so decided by BHEL.

72. Rates should be quoted on overall percentage basis for items given in the bill of quantity and it should be inclusive of all taxes and duties but exclusive of GST as applicable.

73. In case scheduled items & worked-out items are included in BOQ, the contractor must quote rates for both items. L-1 will be judged on cumulative quoted value for all items of the work.

74. Rate quoted less than "20% below'' and more than "10% above'' for worked out item will stand rejected and will not be considered.

75. Conditional offer will be rejected.

76. In case of any discrepancy between general terms and conditions and special conditions, special conditions shall prevail.

77. The bidder's bid without valid GST registration on the date of opening of the tender will be rejected due to non-availability of valid GST registration.

78. Contractor shall pay minimum wages as applicable from time to time including leave with wages to their workers as per rules /act and any changes made thereafter. The rates of minimum wage effective from 01.08.2021 and applicable Up to 31.01.2022 are as under:

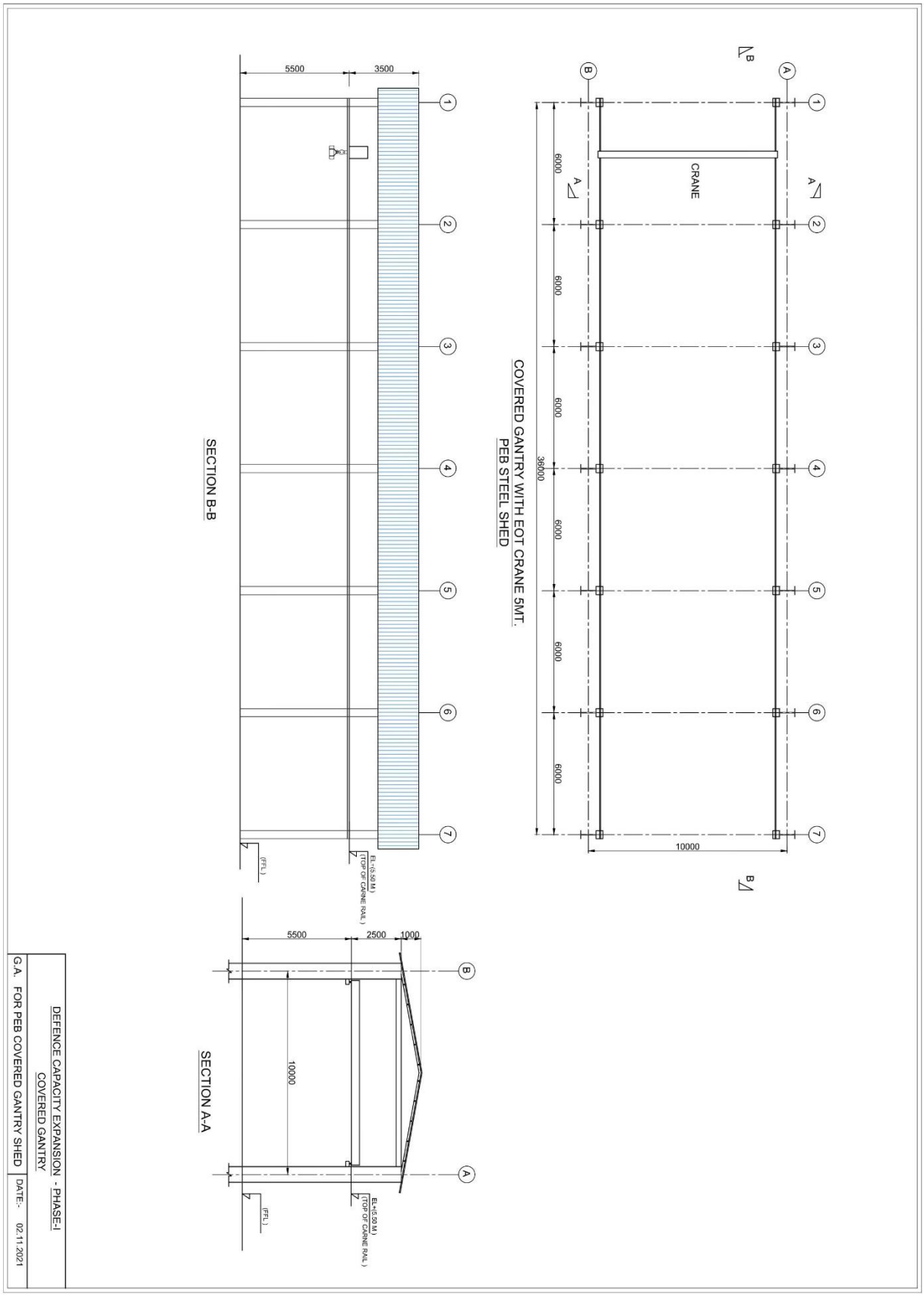
Unskilled labour : Rs 506.85 per day
Semi-skilled labour : Rs 564.31 per day
Skilled labour : Rs 617.92 per day

79. In case of non-compliance of any of the labour laws e.g. payment of minimum wages to his employees or remittance of contribution to the concerned authorities etc., the contractor shall be responsible for all the expenses /liability occurring / accruing on BHEL because of this including all expenditure of legal proceedings. All such expanses shall be recoverable from the contractor from any of his running contracts/security deposit/other dues with BHEL or from any contract entered with BHEL thereafter.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp



Signature of Issuing officer

Signature of Bidder with Stamp

TECHNICAL SPECIFICATIONS

Section No.	Description
A	**Scope of work**
B	**Building Description**
C	**Design Specifications**
D	**Particular Specifications**
E	**Material and Painting Specifications**

SECTION – A

SCOPE OF WORK

1.0 GENERAL:

The scope of work for Pre-Engineered Steel Building System is as defined in the following sections.

a. The scope of work includes design, manufacture, supply and erection of Structural Steel System, Metal Roof System, wall cladding System, Trims and Flashings, gutters, down take pipes, Gantry girders, chequred platform, stair cases, and all other accessories as required for the successful and satisfactory completion of the contract including column foundations and plinth beam design & drawings.

b. The design/drawing of Pre Engineering Building, foundation and plinth beam shall be got vetted by Indian Institute of Technology (IIT)/ NIT (National institute of technology) at contractor's cost before submission to BHEL for approval.

c. Only design and drawing of the column foundation and plinth beams shall be provided by the contractor. The entire execution of the column foundation work, plinth beams and brick work above plinth level and other civil works shall be carried out by HEEP, BHEL, Haridwar.

2.0 DETAILED SCOPE OF WORK:

2.1 Building components are given below.

- Metal roof sheets,
- Side sheeting, Purlins, sag rods, cleats, bolts and nuts,
- Purlins
- Eaves strut
- Steel Portal Frames
- Rafter bracings,
- Column bracings, Portal Bracings
- Gable end sheeting, purlin, columns,
- Trims and Flashings
- Gutters and down take-pipes (calculation to be shown to justify the size).

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

- Ridge vent for entire length
- Foundation Bolts with template as per design.
- Connecting bolts (high strength),
- Base plates with Gussets for stiffening as per design.
- Shim plates for column erection.
- Roof Ridges
- Vertical sheets as per drawing.
- Gantry girders with CHQD. Platform (along the shed)
- Staircases
- Design and supply of working drawing for column foundation/plinth beams

2.2 Testing of all materials and quality control as per quality plan.

2.3. Erection of all the components mentioned in the scope of work.

All aspects of quality assurance, including procurement & testing of materials and other components of the work, as specified or as directed:

a. Clearing site and handing over of all the works, as directed,
b. Maintenance of the completed work during the maintenance period,
c. Submission of completion (i.e., 'as-built') drawings and other related documents as specified:

Any other requirement for the commissioning of the buildings in all respects in accordance with the provisions of the Contractor and/or to ensure the structural stability and safety during and after construction

3.0 **DETAILED ENGINEERING:**

3.1 The contractor shall design the structures including column foundation and plinth beams and prepare all the required drawings needed for correct and accurate construction. The design shall be strictly in accordance with the "Design Specifications" given in ***Section -D*** and building description given in ***Section-C***.

3.2 The contractor shall submit the design basis and General Arrangement (G.A) of the structure along with required explanatory sketches/drawings and get the same reviewed by BHEL before starting the final design. The contractor shall get the design vetted by Indian Institute of Technology (IIT) any other National Institute of Technology (NIT) and get the same approved by BHEL before preparing ready for Construction (RFC) drawings.

3.3 Construction of the structure shall not be taken up at site till all the drawings are reviewed by BHEL and comments/suggestions given by consultants/BHEL are incorporated.

3.4 BHEL reserves the right to review any/all or none of the designs and drawings. Review by BHEL shall not relieve the contractor of his responsibility for correct design and execution of the works.

3.5 The final design and RFC drawings shall directly adhere to the reviewed design basis and general arrangement and shall incorporate all the comments / suggestions given by BHEL without any extra cost to the Owner and any implication on time schedule for completion of work.

3.6 After the completion of erection and construction, the contractor shall submit to the Owner "As Built" drawings in 3 sets of copies as specified elsewhere.

4.0 FABRICATION /MANUFACTURING:

The contractor shall use his own premises /workshop /manufacturing facility to manufacture/fabricate the building components as per the approved design, drawings and quality plan.

5.0 CONSTRUCTION:

5.1 Erection of all structural works, roofing, cladding, framed openings etc., including supply of all materials, labour, supervision, plant, tools and tackles etc., shall be carried out by the Contractor.

5.2 All materials and construction shall conform to the Material and Painting Specifications given in

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

Section –E of this document.

5.3 Erection of Pre-Engineered Building shall be done in the presence / guidance of PEB Manufacturing experts.

5.4 Foundation Bolts shall be fixed and grouted by the civil contractor. The alignment by fixing template for the same and levels are to be checked and certified by the PEB Manufacturer's Engineer.

5.5 No welding is permitted at site unless otherwise cleared by the Consultant/BHEL

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

SECTION –B

BUILDING DESCRIPTION

General Features of the building are given below:

	Name of the building	**New Sand Reclamation Plant**
1	Type of frame	Rigid frame structure
2	Span	10 m c/c of roof leg
3	Length	36 c/c of column
4	Clear height	10 m clear at knee
5	Roof Slope	1:10
6	Type of end frame	Front Frame: Standard post and beam system. Back end frame : Rigid Frame
7	Bay spacing	6 No @ 6 m
8	Interior Columns	No interior columns are to be provided
9	Wind Bracings	Rods/ angle bracings
10	Roof sheeting	0.55 mm thick , high tensile (550 Mpa) , high rib , bare galvalume sheeting of trapezoidal profile.
11	Wall Sheeting	0.55 mm thick , high tensile (550 Mpa) , high rib , SMP Coated galvalume sheeting of trapezoidal profile.
12	Insulation	No insulation is required.
13	Canopies	No canopies required.
14	Sky lighting	No sky light is required.
15	Opening/Door	No door is required
16	Eaves Gutters and down take pipes	Suitable eaves Gutters and down-take pipes in Color coated galvalume sheets.
17	Ventilations	No ventilator are required .
18	Painting of frames	Minimum 2 coats of synthetic enamel paint over one coat of red oxide primer so as to give a smooth finish of specified colour.
19	Louvers	Nom louvers are required.
20	Provision for future expansion	Along the length of the covered gantry shed at one end.
21	Anchor bolts	Suitable anchor bolts with templates
22	Chequred platform	Along with gantry girders in both direction (along the length)
23	Staircase	Provision of two staircases for EOT crane at two locations

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

Note: - The shop dimensions provided in the above given table are tentative however the final dimensions shall be provided at the time of start of work.

SECTION – C
DESIGN SPECIFICATIONS

1.0 GENERAL:

The design considerations given hereunder establish the minimum basic requirements for the design. However, structure shall be designed for the satisfactory performance of the functions for which the same is to be constructed.

1.1 Whenever any reference to IS Code is made, the same shall be taken as the latest revision (with all amendments issued there to-) on the notified date of submission of tender. For **this work IS 800-2007 to be followed.**

1.2 Apart from the IS Codes mentioned in particular for wind, live and earthquake loads in the various clauses of this specifications, all other relevant codes such as American standards (AISC, MBMA, AISI & AWS specifications) related to the specific job under consideration and / or referred to in the above mentioned codes may be followed wherever applicable, if the specifications for the same are not available in the relevant IS codes.

1.3 In case of any variation / contradiction between the provisions of Codes and the specifications given hereunder, the provisions given in these specifications shall be followed.

2.0 LOADING

2.1 **General**

The structure shall be designed for all loads, including the weight of structure, live load, wind or earthquake. Due consideration shall be given to loading during the construction/erection phase and accounted for in the design. The design must be suitable for future expansion of the building.

2.2 **Design Loads**:

2.2.1 **Dead Load:**

Self Weight of Structure including Purlins, Sheeting, Girts Bracings weight of turbo ventilators to be added as Dead load. etc.

2.2.2 **Imposed Load (Live Loads)**

Live loads shall be as per IS – 875. For sloped roofs up to 10 deg. it shall be 0.75 KN/M².

2.2.3 **Wind Load:**

Wind loads shall be as per IS: 875.

The basic wind speed of the site is taken as 47 m/s.

The design life span of all structures shall be taken as 50 years.

2.2.4 **Earthquake Load:** Seismic forces shall be as per IS:1893, ZONE IV as applicable to Haridwar.

3.0 VERTICAL DEFLECTION AND HORIZONTAL SWAY LIMITS:

a) **Limiting Deflection**: The limiting permissible vertical deflection for structural steel members shall be as specified below: -Structures / structural components: as per IS 800 2007 code.

b) The limiting permissible horizontal deflection for as per IS 800 2007 code where `h' is height of building at eaves,

4.0. FRAME ANALYSIS:

The frame shall be analyzed with fixed base, suitable for future expansion along end walls, as

given in the general arrangement drawings and specifications

5.0 **DESIGN CHECK:**

The design calculation should be checked by third party institution like Indian Institute of Technology (IIT), Roorkee or any other IIT. BHEL/HEEP, Ranipur, Hardwar may submit the same set of document to another third party institution of their choice and get the approval. Comments/corrections by the third party consultant should be incorporated in the drawing and executed at site at no extra cost to BHEL, HEEP, Ranipur, Hardwar. It shall be the responsibility of the firm to ensure structural stability of the building. The total design of the building shall be done to meet the design parameters given in design or technical specifications.

01. Loads as per clause 3.2 of IS-800 -2007 and IS-875

Design as per IS-800-2007.

Loading combinations as per Clause 3.5 and Table-4 IS-800-2007.

Deflection both lateral & Vertical as per Table 6 – IS-800-2007.

Design should be based on Limit State method.

Both Limit States of strength as well as serviceability should satisfy the performance requirements refer Clause 5.2.2.1 and 5.2.2.2 of IS800: 2007.

Factors governing the ultimate strength as per clause 5.5. of IS-800-2007 should be ensured.

Limit states of serviceability as per clause 5.6 of IS-800-2007 should be ensured

Method of analysis may any one of the method prescribed as per clause 4.1 of IS 800-2007.

Notional Horizontal loads as applicable as per clause 4.3.6 should be applied on the structure and checked.

If Elastic analysis is carried out it should be based on 4.4 of IS-800-2007.

Effective length of comparison member should be as per clause 7.2 and maximum values of effective slenderness ratios should be as per Table 3 of IS - 800-2007.

Limiting width to thickness ratio of elements may be as per Table 2 0f IS-800-2007.

Transfer of Horizontal forces due to wind and EQ to the foundation should be ensured by proper means. Uplift duce to wind and EQ should also be checked for beams and columns, purlins.

Columns should be treated as fixed at foundation level.

Erection loads to be taken in design.

For bolts nuts and washers reference to be made to clause 2.4 of IS-800-2007.

Effective sectional area should be as per clause 7.3.2.

Gusseted column bases should be as per clause 7.4.2.

In the design laterally supported beams reference should be made to clause 8.3.4

Combined stresses refer clause 9.3 of IS-800-2007.

6.0 APPLICABLE CODES:

6.3.2 In general latest version of relevant Indian (BIS) Standards shall be used for designing, but wherever Indian Standards do not cover some particular aspects of design/construction, relevant British/German/American Standards will be referred to.

6.3.3. In case of discrepancy among Standard codes of practice Technical Specifications and provision in sub-clauses in this NIT, the order of precedence will be as below:

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

I. Provisions in N.I.T.
II. Technical Specifications
III. IS 800 -2007
IV. Standard Codes of Practice. In case of discrepancy among Standard Codes of Practice, the decision of the Engineer in charge will be final.

D- PARTICULAR SPECIFICATIONS

1.0. **STEEL STRUCTURES**:

1.1. This section covers the general requirements of designing, preparing necessary drawings, and providing, fabricating, painting, transporting, erecting, fixing in position Structural steel work for buildings, including all necessary temporary works and conducting of associated tests.

1.2. Contractor shall ensure that the Technical specifications detailed herein are carefully read and understood in conjunction with, and related to BILL of quantities, and the contractor in his rates includes all requirements defined herein and in other parts of the Contract Document. Works to be performed shall also include all general works preparatory to the fabrication of structural steel work, launching of steel structures during the works of any kind

1.3. **APPLICABLE CODES AND STANDARDS:**

The codes and standards generally applicable to the work of this section are listed below. Latest revisions of the codes shall only be applicable.

IS-875 Part I:Code of Practice for Design Dead Loads for Building and Structures.

IS-875 Part I:Code of Practice for Design Dead Loads for Building and Structures.

IS-875 Part II:Code of Practice for Design Imposed Loads for Building and Structures.

IS-875 Part III:Code of Practice for Design Wind Loads for Building and Structures.

IS-1893 (2002): Criteria for Earth Quake Resistance Design Structures.

IS-800 (2007):Code of Practice for General Construction in Steel. And all the codes listed in annex-A of the code.

IS-801 (1975)::Code of Practice for use of Cold-Formed Light Gauge Steel Structure.

IS-807 (2006)::Design, Erection & Testing (Structural Portion) of Cranes and Hoists –

Code of Practice.

IS-816 (1969): Code of Practice for use of Metal Arc Welding for General Construction.

IS: 102 Ready mixed paint, brushing, red lead non-setting, priming

IS: 104 Ready mixed paint, brushing, zinc-chrome, priming.

IS: 800 Code of Practice for General Construction in Steel

IS: 801 Code of Practice for use of Cold Formed Light Gauge Steel Structural Members in General Building Construction.

IS: 806 Code of Practice for use of Steel Tubes in General Building Construction.

IS: 808 Dimensions of Hot Rolled Steel Beam, channel and angle sections
IS:811 Cold Formed Light Gauge Structural Steel Sections.
IS:813 Scheme of Symbols for Welding
IS:814 Covered Electrodes for Manual Metal Arc Welding of Carbon and Carbon-Manganese Steel IS:816 Code of Practice of use of Metal Arc Welding for General construction in Mild

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

Steel.
IS:818 Code of Practice for Safety and Health requirements in electric and Gas Welding and Cutting operations.
IS:822 Code of Procedure for Inspection of welds.
IS:875 Code of Practice for Structural Safety of Building, Loading Standards
IS:1024 Code of Practice for use of welding in Bridges and Structures Subject to Dynamic Loading.
IS:1120 Coach Screws
IS:1161 Steel Tubes for Structural Purposes
IS:1182 Recommended practice for Radiographic Examination of Fusion Welded butt Joints in Steel plates.
IS:1363 Hexagon Head Bolts, Screws and Nuts (Grades –C)
IS:1364 Hexagon Head Bolts, Screws and Nuts (Grades A&B)
IS:1365 Slotted Counter-sunk Head Screws
IS:1367 Technical Supply condition for threaded fasteners.
IS:1852 Rolling and Cutting Tolerances for Hot Rolled Steel Products.
IS:1977 Low Tensile Structural Steel
IS:2016 Plain washers
IS:2062 Steel for General Structural Purposes
IS:2074 Ready Mixed Paint, Air drying, Red Oxide-Zinc chrome priming.
IS:3063 Fasteners-Single Coil Rectangular Section Spring Washers
IS:3443 Crane Rail Sections
IS:3600 Testing methods of fusion welded joints and weld metal in steel.
IS:3613 Acceptance tests for wire flux combination for submerged, arc welding.
IS:3757 High strength structural bolts.
IS:4000 Code of practice for high strength bolts in steel structures
IS:4923 Hollow Steel sections for structural use.
IS:5369 General Requirements for plain washers and lock washers
IS:5624 Foundation bolts.
IS:6227 Code, of practice for use of metal arc welding in tubular structures
IS:6623 High strength structural nuts.

IS:6639 Hexagonal bolts for steel structures.

IS:8500 Structural Steel Micro-alloyed (Medium and high strength qualities)

1.4 DESIGN:

1.4.1 The contractor will be required to carry out detailed design of the structures, prepare engineering drawings and detailed 'shop drawings', get these approved from Engineer, and then carry out the fabrication work based on approved drawings.

1.4.2 Contractor's designs shall, unless otherwise specified, be based on provisions of relevant BIS codes. Design guideline and design parameters are mentioned in ***SECTION –C*** to these specifications.

Where corresponding parameters mentioned in BIS codes are different from those mentioned in ***SECTION C*** the latter shall take precedence.

1.4.3 Contractor's designs shall be based on general descriptions of buildings given in SECTION -B to these specifications, and those shown in tender drawings Where information given in SECTION-B do not tally with the tender drawings, information given in tender drawings shall take precedence.

1.4.4 Where codes and standards listed in clause 1.3 do not cover the requirements of design, only in those cases the contractor may refer to other international standards of design, however such references should be made only with the approval of the Engineer in charge

1.4.5 Contractor shall submit his design calculations and 'Engineering Drawings' along with proof

design to the Engineer in charge for his approval. The contractor is advised to discuss his design philosophy and design procedure with the Engineer in charge before proceeding with the final design work.

1.4.6 It shall be the responsibility of the contractor to obtain all relevant design information from the Engineer in charge for preparing his design, and other utility services supported by the structure.

1.5 **DRAWINGS:**

1.5.1 The shop drawings should cover all the items pertaining to all temporary works required for fabrication, shop assembling, and transportation scheme for various structural elements. The Contractor shall himself formulate a practical and viable scheme for fabrication of all structural members and launching scheme. The tenderer should, along with the tender specify the scheme that he proposes to adopt for carrying out all the works including fabricating &, transporting the same to site and Launching scheme.

1.5.2 **Column Foundations and plinth beams drawings will be submitted within two weeks from the date of receipt of work order.**

1.5.3 Tender Drawings shall be the 'Basic' drawings for developing design drawings. Design drawings shall then be developed in to final 'Shop Drawings' to be prepared by the contractor. For preparing shop drawings, the contractor shall obtain written approval from the Engineer in charge.

1.5.4 Tender drawings furnished to the contractor shall form a part of these specifications. The contractor shall consult these in detail for all the information contained therein, which pertains to and is required for his work.

1.5.5 Revisions to drawings, even after release for preparation of shop drawings, are likely to be made to reflect additional data, or, additional details defining updated requirements. Revisions to drawings and any new drawings made to include additional work for the Contractor shall be considered a part of this specification and contract. Extra claims by the contractor on this account shall not be entertained.

1.5.6 Tender drawings show all relevant dimensions, and if necessary, clearances of structures, special loading where necessary, general location of openings at various levels and all other information required to enable the contractor to prepare drawings for general engineering / fabrication and erection.

1.5.7 It shall be clearly understood that the Tender drawings are only informative drawings and are not intended to show exact and final information or specific connection details.

1.5.8 In case of variations in 'Drawings' and 'Specifications', the decision of the Engineer in charge shall be final and binding. Should the Contractor during the execution of his work, find discrepancies in the information furnished to him, he shall refer such discrepancies to the Engineer in charge before proceeding with such work.

1.5.9 Contractor shall prepare all fabrication and erection drawings necessary for completing the work satisfactorily.

1.5.10 Drawings shall be of one standard size, and shall be clear and legible. Drawings shall be based on Tender drawings supplied to the contractor, but he shall verify actual clearances and dimensions from site on works executed by other agencies and from Engineer in charge.

1.5.11 Shop drawings shall include, but not be limited to: -

a. **Detailed marking plans.**
b. Details member connections and connections to other structures and components of building.
c. Detailed dimensions for fabrication indicating dimensional modifications required for field conditions
d. Welding and bolting procedures to be used both at shop and field.
e. Cambers required to be provided, and permissible tolerances in fabrication.
f. Assembly and Erection sequences indicating components to be connected at field.
g. Complete bill of materials for each component (preferably drawing wise.)

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

1.5.11 Before submitting of shop drawings and calculations to the Engineer in-charge for his approval, these shall be checked and certified by the contractors own structural Engineer. Till such time shop detail of a component is approved. Fabrication work for the component shall not be started.

1.5.12 If necessary and called for by the Engineer, shop drawings shall be revised to suit modified requirements and these shall be resubmitted for approval of the Engineer in charge.

1.5.13 While the shop drawings prepared by the contractor, and approved by the Engineer in charge represent the correct interpretation of work to be done, the contractor is not relieved of his responsibilities for:-

a) Dimensional accuracy

b) Correctness of engineering and design of connections

c) Fit of parts

d) Details

e) Errors or omissions

f) Material and workmanship

g) Methodology of fabrication and erection

h) Safety of performance

1.6 SUBMITTALS:

1.6.1 On commencement of the Project, the Contractor shall submit the following to the Engineer in charge:-

A. Prior to the technical submittals, the contractor shall submit detailed baseline program and methodology indicating the proposed overall schedule for documentation such as calculations, shop/working drawings, plan/procedures and records. Submission of samples, process of fabrication / delivery to site storage yard for the approval of the Engineer in charge.

B. Complete fabrication drawings, materials lists, cutting lists, bolt lists, welding schedules and QC schedules, based on the design drawing furnished to him and in accordance with the approved schedule. It is highlighted that structural steel members, dimensions thereof indicated in tender drawings are tentative only, and may be modified during final design stage.

C. Results of any tests, as and when conducted and as required by the Engineer in charge.

D. Manufacturer's mill test reports in respect of steel materials, bolts, nuts and electrodes, wires as may be applicable.

E. A detailed list of all constructional Plant & Equipment, such as cranes, derricks, winches, welding sets etc. their makes, model, present condition and location, available to the contractor and the ones he will employ on the job to maintain the progress of work in accordance with the contract.

F. The total number of experienced personnel of each category, like fitters, welders, riggers etc., which he intends to deploy on the project.

G. The contractor shall submit complete design calculations for any alternative sections proposed by him for approval of the Engineer in charge. Use of any alternative section shall be subject to approval of the Engineer in charge. However, no extra payment will be entertained on account of this except as specified in schedule of quantities.

1.7 MATERIALS:

1.7.1 STEEL SUPPLIED BY THE CONTRACTOR:

1.7.1.1 The Contractor shall furnish to the Engineer in charge all mill orders covering the material ordered by him for this work and also the test reports received from the Mills for his approval and information. It is not intended that all the steel materials to be supplied by the Contractor for the work shall be specially purchased from the rolling mills. The Contractor's stock material may be used, provided the mill test reports identified with the materials, satisfactorily

demonstrate the specified grade and quality. The Engineer in charge shall have the right to test random samples to prove authenticity of the test certificates produced by the Contractor, at the Contractor's cost.

1.7.1.2 All steel materials supplied by the Contractor shall be in a sound condition, of recent manufacture, free from defects, loose mill scale, slag intrusions, laminations, pitting, flaky rust, etc. and be of full weight and thickness specified.

1.7.1.3 Wherever the Contractor, in order to accommodate his other materials in stock, desires to substitute structural steels or plates for the sizes shown on drawings, such substitutions shall be made only after authorization in writing by the Engineer in charge.

1.7.1.4 The Engineer in charge may direct that substitution be made, when he considers such substitution is necessary.

1.7.2 HANDLING AND STORAGE:

1.7.2.1 Proper storage of steel (sections and fabricated members) at the job site shall be the responsibility of the Contractor.

1.7.2.2 Structural steel shall be stored out of mud and dirt. Proper drainage of the storage area shall be provided. These shall be protected from damage or soiling by adjacent construction operations.

1.7.2.3 Fabricated steel shall not be handled until the paint has thoroughly dried. Care shall be taken to avoid paint abrasions and other damage. Teel work shall be transported in such a way so as not to over stress the fabricated sections. All pieces bent or otherwise damaged shall be rejected and shall be replaced by the contractor at his own cost.

1.7.2.4 Checking and inspection of fabricated structural steel work by the Engineer in charge shall be done at various stages of completion of fabrication work. The contractor is required to ensure that fabricated steel work is properly stacked such that all joints of all members are either visible or accessible for inspection at all stages of inspection work. Care should also be taken to ensure that fabricated members are not subjected to stresses due to defective stacking.

1.7.3 FABRICATION:

1.7.3.1 All fabrication work shall be done in accordance with IS: 800: 2007 read in conjunction with relevant codes mentioned therein.

1.7.3.2 Fabrication shall be done in workshops approved by Engineer in charge, unless specifically permitted by Engineer in charge that fabrication can be done at site. Under such circumstances work shall be done on a specially designed and constructed platform. Location, size, specification and construction of such a platform shall have prior approval of Engineer in charge. Loads associated with such platforms shall be provided to Engineer in charge.

1.7.3.3 Mild steel rolled sections and plates shall be cut by shearing/machining and grinding the surfaces to true sizes and shapes. Gas cutting of mild steel may be permitted by the Engineer in charge, provided that every cut face and edge is smoothened by grinding operation. Prior approval of Engineer in charge must be obtained for using gas-cutting techniques either by mechanized gas cutters or manually operated gas cutters. While, using gas-cutting methods, proper allowance must be made for grinding to bring the cut piece to exact required dimensions.

1.7.3.4 Extensive use of templates shall be made in doing fabrication work. Templates shall be clean and should have true surfaces prepared for every successive use. Reinforcements for the structural steel members if required shall be included. In case actual members are used as templates for similar pieces are fit to be incorporated in the finished structure. Jigs and manipulators shall be used, where practicable, and shall be designed to facilitate welding and to ensure that all welds are easily accessible to the operators.

1.7.3.5 All material shall be straight and free from twist and bends unless required to be curvilinear in from. If necessary, the material shall be straightened and / or flattened/straightened by pressure. Heating of rolled sections and plates for purpose of straightening shall not be permitted.

1.7.3.6 Curvilinear members shall be formed by bending with the help of pneumatic press. Final shaping, to a very limited extent, however, may be done by local heat application. This shall be done only on receiving approval from the Engineer in charge.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

1.7.4 HOLING:

1.7.4.1 All holes shall be made at right angles to the surface of the member. Holes shall be clean cut without any torn or jagged edges. Holes shall be done by drilling. Punching shall not be resorted to, unless previously approved by the Engineer. In any case, punching of holes in materials having a thickness in excess of the connector diameter, or, for materials thicker than 16mm, the hole shall be punched 3mm less in diameter than the required size and then reamed to the full size. Holes shall not be formed or enlarged by burning or gas cutting under any circumstances.

1.7.5 WELDING:

1.7.5.1 GENERAL: In general, only Automatic submerged arc welding will be used for fabrication. Subject to approval of Engineer in charge, Metal inert gas welding may be done for sort length where access to the location of the weld does not permit submerged arc welding. The welding and the welded work shall conform to IS:816, unless otherwise specified. As much work as possible shall be welded in shops and the layout and sequence of operations shall be so arranged as to eliminate distortion and shrinkage stresses. Unless otherwise specified all weld shall be for full contact for all sides.

1.7.5.2 Electrodes for shielded-arc manual welds shall comply with the requirements of IS: 814 and shall be amenable to radiographic tests and shall be of approved make. The electrodes for manual arc welding shall be suitable for use in the position and type of work, as laid down in the above specifications and as recommended by the manufacturers. Electrodes classification group 1 or 2 as given in IS: 814 shall be used for welding steel conforming to IS:2062. Electrodes shall conform to IS-1442 for steel conforming to IS: 8500. Joints in materials above 20mm thick, and, all important connections shall be made with low hydrogen electrodes Electrode flux covering shall be sound and unbroken. Broken or damaged coating shall cause the electrodes to be discarded. Covered electrodes for manual arc-welding shall be properly stored in an oven prior to use in a manner recommended by the Manufacturer and only an hour's quota shall be issued to each welder from the oven.

1.7.5.3 Electrodes larger than 5mm diameter shall not be used for root-runs in butt-welds. Welding plant and accessories shall have capacity adequate for the welding procedure laid down and shall satisfy appropriate standards and be of approved make and quality, the Contractor shall maintain all welding plant in good working order. All the electrical plant in connection with the welding operation shall be properly and adequately earthed and adequate means of measuring the current shall be provided.

All welds shall be made only by welders and welding operators who have been properly trained and previously qualified by tests to perform the type of work required as prescribed in the relevant applicable standards.

All welds shall be free from defects like below holes, slag inclusions, lack of penetration, undercutting, cracks etc. All welds shall be cleaned of slag or flux and show uniform sections, smoothness of weld metal, feather edges without overlap and freedom from porosity.

1.7.5.4 Fusion faces and surfaces adjacent to the joint for a distance of at least 50mm on either side shall be absolutely free from grease, paint loose scales, moisture or any other substance which might interfere with welding or adversely affect the quality of the weld. Joint surfaces shall be smooth, uniform and free from fins, tears, laminations etc. Preparation of fusion faces shall be done in accordance with the approved fabrication drawings by shearing, chipping, machining or machine flame cutting except that shearing shall not be used for thickness over 8mm

1.7.5.5 In the fabrication of cover-plated beams and built up members all shop splices in each component part shall be made before such component part is welded to other parts of the member. Wherever weld reinforcement interferes with proper fit-up between components to be assembled for welding, these welds shall be ground flush prior to assembly.

1.7.5.6 Members to be joined by fillet welding shall be brought and held a close together as possible

and in no event shall be separated by more than 3mm. If the separation is 1.5mm or greater, the fillet weld size shall be increased by the amount of separation. This shall only apply in the case of continuous welds. The fit-up of joints at contact surfaces which are not completely sealed by welds shall be close enough to exclude water after painting.

1.7.5.7 The separation between fraying surfaces of lap joints and butt joints with backing plate shall not exceed 1.5mm. Abutting parts to be butt welded shall be carefully aligned and the correct root gap maintained throughout the welding operation. Misalignments greater than 25 percent of the thickness of the thinner plate or 3mm whichever is smaller shall be corrected and in making the correction the parts shall not be drawn into a slope sharper than 2 degree (1in 27.5).

1.7.5.8 Welding procedures recommended by appropriate welding standards and known to provide satisfactory welds shall be followed. A welding procedure shall be prepared by the Contractor and submitted to the Engineer in charge for approval before start of welding.

1.7.5.9 Approval of the welding procedure by the Engineer in charge shall not relieve the Contractor of his responsibility for correct and sound welding without undue distortion in the finished structure.

1.7.5.10 Voltage and current (and polarity if direct current is used) shall be set according to the recommendations of the Manufacturer of the electrode being used, and suitable to thickness of material, joint from etc. The work shall be positioned for flat welding wherever practicable and overhead weld shall be avoided.

1.7.5.11 No Welding shall be done when the surface of the members is wet, not during periods of high wind unless the welding operator and the work are properly protected. In joints connected by fillet welds, the minimum sizes of single run fillet welds or first runs and minimum full sizes of fillet welds shall conform to the requirements of IS:816 and IS:823, Fillet welds larger than 8mm shall be made with two or more passes.

1.7.5.12 All 'full penetration butt welds' made by manual arc-welding, except when produced with the aid of backing material or welded in flat position, from both sides in square-edge material, not over 8mm thick with root opening not less than one-half the thickness of the thinner part joined, shall have the root of the initial layer gouged out on the back side before welding is started from that side, and shall be so welded as to secure sound metal and complete fusion throughout the entire cross section.

1.7.5.13 Butt welds shall be terminated at the ends of a joint in a manner that will ensure their soundness where abutting parts are 20mm or more in thickness, run-on and run-off plates with similar edge preparation end having a width not less than the thickness of the thicker part joined shall be used. These extension pieces shall be removed upon completion of the weld and the ends of the weld made smooth and flush with the abutting parts. Where the abutting parts are thinner than 20mm the extension pieces may be omitted but the ends of the butt welds shall then be chipped or gouged out to sound metal and side welded to fill up the ends to the required reinforcement.

1.7.5.14 Each layer of a multiple layer weld except root and surface runs may be moderately peeled with light blows from a blunt tool. Care shall be exercised to prevent scaling or flaking of weld and base metal from over-peeling.

1.7.5.15 Before commencing fabricating of a member or structure in which welding is likely to result in distortion and/or locked up stresses, a complete programme of fabrication, assembly and welding shall be made and submitted to the Engineer in charge for his approval. Such a programme shall, include, besides other appropriate details, full particulars in regard to the following: -

i) Proposed pre-bending of components such as flanges and presetting of joints to offset expected distortion.

ii) Make up of sub-assemblies proposed to be welded before incorporation in final assembly.

iii) Proposed joint forms, classification of wire and flux or covered electrodes, welding process

including fitting and welding sequence with directions in which freedom of movement is to be allowed.

iv) Proposed number, spacing and type of strong details of jigs and fixtures for maintaining proper fit up and alignment during welding.

Any other special features like assembling similar members back to back or stress relief.

Suggestive minimum preheating of metals: -

Thickness of thickest part at point of welding	Minimum Preheat & Interpass Temparature			
	Other than low-hydrogen welding electrodes		Low Hydrogen welding electrodes	
	IS:226 steel or IS: 2062 steel	IS: 961 steel	IS:226 steel or IS: 2062 steel	IS:961
Up to 20 mm incl.	None	Welding with this process not	None	10 Dig C

Minimum pre heat temperature for metal thickness up to 50 mm shall be 10ºC.

		Allowed		
Over 20mm to 40 mm incl.	65º C		10º C	65º C
Over 40mm to 63 mm incl.	110º C		95º C	110º C
Over 63 mm.	150º C		110º C	150º C

1.7.8.16 If so desired by the Engineer in charge, mock up welding shall be carried out at the contractor's cost to establish the efficacy of the proposed programme, with any modification suggested by the Engineer in charge in limiting distortion or/and residual stress to acceptable levels. Such modifications will not relieve the contractor of any of his responsibilities.

1.7.8.17 The ends of butt joints shall be welded so as to provide full throat thickness. This may be done by the use of extension pieces, cross-runs or other approved means. The weld face shall, at all places, be deposited projecting the surface of the parent metal. Where a flush surface is required, the surplus metal shall be dressed off. Splices and butt joints of compression members, depending on contact for stress transmission, shall be accurately machined over the whole section. In column bases, the ends of shafts together with the attached gussets, angles, channels etc., after bolting and/or welding together as the case may be, shall be accurately machined so that the parts connected butt over the entire surface of contact. Care shall be taken that connecting angles or channels are fixed with such accuracy that they are not reduced in thickness by machining by more than 0.80mm.

1.7.8.18 The minimum leg length of a fillet weld as deposited shall be not less than the specified size. In no case shall a concave weld be deposited, unless specifically permitted. Where permitted, the leg length shall be increased above that specified length, so that the resultant throat thickness is as great as would have been obtained by the deposition of a flat-faced weld of the specified leg length.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

1.7.8.19 After making each run of welding, all slag shall be thoroughly removed and the surface cleaned. The weld metal, as deposited (including tack welds), shall be free from cracks, slag inclusions, porosity, cavities and other deposition faults. The weld metal shall be properly fused with the parent metal without under cutting or overlapping at the toes of the weld. The surface of the weld shall have a uniform consistent contour and regular appearance.

1.7.9 INSPECTION OF WELDS:

1.7.9.1 All welds shall be inspected for flaws by any of the methods described in these Specifications, and as per IS: 822. The choice of the method to be adopted, shall be determined by the Engineer in charge.

1.7.9.2 The contractor shall arrange for all tests as called for, at his own cost.

1.7.9.3 In case the tests uncover defective work, such tests shall be at the Contractor's cost and the Contactor shall correct such defects at his own cost and prove the soundness of rectified work.

1.7.9.4 The correction of defective welds shall be carried out as directed by the Engineer in charge without damaging the parent metal. When a crack in the weld is removed, magnetic particle inspection or any other equally positive means as prescribed by the Engineer in charge shall be used to ensure that the whole of the crack and material up to 25mm beyond each end of the crack has been removed. Cost of all such tests and operations incidental to correction shall be to the Contractor's account.

1.7.10 FABRICATION TOLERANCES :

1.7.10.1 Unless otherwise shown on drawings, the fabrication tolerances shall generally be as detailed hereunder.

1.7.11 STRAIGHTNESS:

1.7.11.1 The dimensional and weight tolerance for rolled shapes shall be in accordance with IS: 1852 for indigenous steel and equivalent applicable codes for imported steel. The acceptable limits for straightness (sweep and camber) fro rolled or fabricated members shall be: -

Struts and columns: L/1000 or 10mm whichever is smaller. For all other members not primarily in compression such as purlins, beams, bracings & web members of trusses and latticed girders: L/500 or 15mm whichever is less.(Where L is the length of finished member, or such lesser length as the Engineer in charge may specify).

1.7.12 TWISTS:

1.7.12.1 A limit of twist (prior to erection) in: -

Box Girders and heavy columns:		L/1500
Other members	:	L/1000

1.7.13 CAMBER

1.7.13.1 Tolerance in specified camber of structural members shall be ±3mm.

1.7.14 LENGTH:

1.7.14.1 Tolerance in specified length shall be as follows:-

Type of member		**Tolerance**
A column finished for contact bearing	:	± 1 mm
Other members (e.g. beams) under 10 m	:	+ 0 and -3mm
Other members (e.g. beams) 10 m long and over	:	+ 0 and -5mm

1.7.15 SQUARE-NESS AT END OF MEMBERS:

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

1.7.15.1.1 Beam to beam and beam to column connections where the abutting parts are to be jointed by butt welds, permissible deviation from the square-ness of the end is:-

Beams up to 600mm in depth: 1.5mm

Beams over 600mm in depth : 1.5mm every 600 mm depth up to a max of 3mm.

1.7.15.1.2 Where abutting parts are to be jointed by bolting through cleats or end plates, the connections require closer tolerance. Beams up to 600mm in depth: 1.0mm Beams over 600mm in depth : max of 1.5mm.

1.7.16 BUTT JOINTS:

For full bearing, two abutting ends of columns shall first be aligned to within 1 in 1000 of their combined length and then the following conditions shall be met:

(a) Over at least 80% of the bearing surface the clearance between the surfaces does not exceed 0.10mm.
(b) Over the reminder of the surfaces the clearance between the surfaces does not exceed 0.30mm.

Where web stiffeners are designed for full bearing on either the top flange or bottom flange or both, at least half the stiffener shall be in positive contact with the flange. The reminder of the contact face could have a max. gap of 0.25mm.

1.7.17 DEPTH OF MEMBER:

1.7.17.1 Acceptable deviation from the specified overall depth is:

For depths of 900 mm and under: ± 3mm.
For depths over 900 mm and under 1800mm: ± 5mm
For depths of 1800 mm and over: +8 mm: -5mm

1.7.18 WEB PLATES:

1.7.18.1 Acceptable deviation from flatness in girder webs in the length between the stiffeners or in a length equal to the girder depth shall be 1/150th of the total web depth.

1.7.19 FLANGE PLATES:

1.7.19.1 Limit for combined warp-age and tilt on the flanges of a built up member is 1/200 of the total width of flange or 1.5 mm whichever is smaller measured with respect to centre line of flange.

1.7.19.2 Lateral deviation between centre line of web plate and centre line of flange plate at contact surfaces, in the case of built up sections shall not exceed 3 mm.

1.7.20 INSPECTION:

1.7.20.1 The contractor shall give due notice to the Engineer in charge in advance if the materials or workmanship getting ready for inspection.

1.7.20.2 All rejected material shall be promptly removed from the shop and replaced with new material for the Engineer in charge's approval / inspection. The fact that certain material has been accepted at the Contractor's shop shall not invalidate final rejection at site by the Engineer in charge, if it fails to be in proper conditioner has fabrication in accuracies which prevents proper assembly. No materials shall be painted or dispatched to site without inspection and approval by the Engineer in charge unless, such inspection is waived in writing by the Engineer in charge.

1.7.20.3 Shop inspection by the Engineer in charge or his authorized representative, or submission of test certificates and acceptance thereof by the Engineer, shall not relieve the Contractor from the responsibility of furnishing material conforming to the requirements of these specifications. Nor shall it invalidate any claim, which the Engineer in charge may make because of defective or unsatisfactory material and/or workmanship.

1.7.20.4 The Contractor shall provide all the testing and inspection services and facilities for shop work except where otherwise specified. For fabrication work carried out in the field, the same

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

standard of supervision and quality control shall be maintained as in shop fabricated work. Inspection and testing shall be conducted in a manner satisfactory to the Engineer in charge.

1.7.20.5 **Column Fabrication Tolerances**: The work point at about the elevation of the crane girders seat shall not be vary more than ±1/8th inch from the straight line struck between top and bottom points. The AWS straightness tolerances will control between the work points. The girder seat plates are to be located from the work centre line with a tolerance of ±1/32 inch. or equivalent aisc / mbma manual.

1.7.21 TESTING:

1.7.21.1 MATERIAL TESTING:

If mill test reports are not available for any steel materials, the same shall be got tested by the contractor to the satisfaction of Engineer in charge to demonstrate conformity with the relevant specification.

1.7.22 TESTS ON WELDS:

1.7.22.1 MAGNETIC PARTICLE TEST:

Only where the Engineer in charge requires that flaw-detection of welds be done by 'magnetic particle test', in such cases the tests are to be done in accordance with IS:3703. if heat treatment is performed, the completed weld shall be examined after the heat treatment. All defects shall be repaired and re-tested.

Magnetic particle tests shall be carried out using alternating current. Direct current may be used with the explicit written permission of the Engineer in charge.

1.7.23 DYE PENETRATION TEST:

Where welds are required to be examined by dye penetration inspection method, such tests shall be carried out in accordance with IS: 3658.

1.7.24 RADIOGRAPHIC INSPECTION:

10% Butt welds shall be inspected by radiographic examination method. Such examination shall be done in accordance with the recommendations of IS: 1182.

1.7.25 TEST FAILURE:

At any stage, in the event of any material or work failing to meet an inspection of test requirement, which is not overseen by the Engineer in charge, the Contractor shall notify the Engineer in charge immediately. The contractor must obtain permission from Engineer in charge before repair is undertaken. The quality control procedures to be followed to ensure satisfactory repair shall be subject to approval by the Engineer in charge. The Engineer in charge has the right to specify additional inspection or testing as he deems necessary, and the additional cost of such testing shall be borne by the Contractor. The Contractor shall maintain records of all inspection and testing which shall be made available to the Engineer in charge on demand.

1.7.26 SHOP MATCHING:

Some steel work, particularly columns along with tie beams, bracings etc. may have to be shop assembled to ensure satisfactory fabrication, if the Engineer in charge so desires, he may order such assembly at shop for verification. The Contractor shall comply with such instructions without claiming any extra cost.

1.7.27 SHOP ASSEMBLY:

1.7.27.1 Steel work shall be temporarily shop assembled, as necessary, so that the accuracy of fit may be checked before dispatch. The parts shall be shop assembled with a sufficient number of

parallel drifts to bring and keep the parts in place.

1.7.27.2 Since parts drilled or punched, with templates having steel bushes shall be similar and, as such, interchangeable, such steel work may be shop erected in part only, as agreed by the Engineer in charge.

1.7.28 ASSEMBLY:

1.7.28.1 All parts assembled for bolting shall be in close contact over the whole surface.

1.7.28.2 The component parts shall be so assembled that they are neither twisted nor otherwise damaged, specified cambers, if any, shall be provided.

1.7.28.3 All parts of bolted and welded members shall be held firmly in position by means of jigs or clamps while bolting or welding. No drifting of holes shall be permitted, except to draw the parts together and no drift used shall be larger than the nominal diameter of the bolt. Drifting done during assembling shall not distort the metal or enlarge the holes.

1.7.28.4 Trial assemblies shall be carried out at the fabrication stage to ensure accuracy of workmanship, and these checks shall be witnessed by the Engineer in charge/Authorized inspecting agency. Such trial assembly shall be at the cost of the contractor.

1.7.29 FIELD BOLTS:

1. Requirements stipulated under bolting shall apply for field bolts also. Field bolts nuts and washers shall be furnished by the contractor in excess of the nominal numbers required. He shall supply the full number of bolts, nuts and washers and other necessary fittings required completing the work, together with the additional bolts, nuts and washers totaling to 10% of the requirement subject to minimum of 10 Nos.
2. At the time of assembly, the surfaces in contact shall be free of paint or any other applied finish, oil, dirt, loose rust, loose scale, burrs and other defects which would prevent solid seating or the parts or would interfere with the development of friction between them.
3. If any other surface condition, including a machined surface, is specified, it shall be the responsibility of the Contractor to work within the slip factor specified for the particular case.
4. Each bolt and nut shall be assembled with washers of appropriate shape, quality and number in cases where plane parallel surfaces are involved, such washers shall be placed under the bolt head or the nut, whichever is to be rotated during the tightening operation. The rotated nut or bolt head shall be tightened against a surface normal to the bolt axis, and the appropriate tapered washer shall be used when the surfaces are not parallel. The angle between the bolt axis and the surface under the non-rotating component (i.e. the bolt head or the nut) shall be 90+3 degree. For angles outside these limits, a tapered washer shall be placed under the non-rotating component. Tapered washers shall be correctly positioned.
5. No gasket or other flexible material shall be placed between the holes. The holes in parts to be joined shall be sufficiently well aligned to permit bolts to be freely placed in position. Driving of bolts is not permitted. The nuts shall be placed so that the identification marks are clearly visible after tightening. Nut and bolts shall always be tightened in a staggered pattern and where there are more than four bolts in anyone joint, they shall be tightened from the centre of the joint outwards.
6. If after final tightening, a nut or bolt is slackened off for any reason, the bolt, nut and washer or washers shall be discarded and not used again.

1.7.30 MARKING OF MEMBERS:

1.7.30.1 After checking and inspection, all members shall be marked for identification during erection. This mark shall correspond to distinguishing marks on approved erection drawings and shall be legibly painted and stamped on it. The erection mark shall be stamped with a metal dye with figures at least 20mm high and to such optimum depth as to be clearly visible, even after a member is galvanized.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

1.7.30.2 All erection marks shall be on the outer surface of all sections and near one end, but clear of bolt-holes. The marking shall be so stamped that they are easily discernible when sorting out members. The stamped marking shall be encircled boldly by a distinguishable paint to facilitate easy location. Erection marks on like pieces shall be at identical location. Members having lengths of 7.0m or more shall have the erection mark at both ends.

1.7.30.3 Each fabricated member, whether assembled prior dispatch or not so assembled, shall bear an erection mark, which will help to identify the member and its position in respect of the whole structure, to facilitate re-erection at site. This erection mark shall be incorporated in the shop detail and erection drawings.

1.7.31 ERRORS:

Any error in shop work which prevents proper assembling and fitting up of parts in the field by moderate use of drift pins or moderate amount of reaming will be classified by the Engineer in charge as defective workmanship. All charges incurred by the Engineer either directly or indirectly because of the poor workmanship will be deducted from the amount due to the contractor before payment is made. The amount of such deduction will consist of the sum total of the costs of labour direct or indirect, material, plant, transportation, equipment rental and overhead expenses. In case the Engineer chooses to reject the material because of poor workmanship, the cost of all handling and returning the material to the contractor, if he so desires, shall entirely be the contractors account. All the replacement materials shall be supplied free and in all such cases, the cost of handling, transport and delivery to site shall be borne by the contractor.

1.7.32 ERECTION:

1.7.32.1 Erection of structural steel fabricated components shall be done generally in accordance with provisions of IS 800.-2007.

1.7.32.2 Before starting of erection work, the contractor shall ensure the fulfillment of the following activities:

a) The contractor shall submit, for examination by the Engineer in charge, detailed particulars of his proposed methods of erection of the superstructure steel work, together with complete calculations relating to strength and deflection, if the erection scheme necessitates the attachment of strength steel work to the permanent steel work, the contractor shall submit, for approval of the Engineer in charge, the methods he proposes for making good the permanent steelwork after removing the temporary work. The contractor shall also submit the design and fabrication drawings including detailed calculations of temporary nose, counter weight all temporary support, staging, braces etc. required for safe erection, for approval of the Engineer in charge.

b) The contractor shall provide all construction and transport equipment, tools, tackle and consumables, materials, labour and supervision required for the erection of the structural steel work.

c) Handing, assembling, bolting, welding and satisfactory installation of all fabricated structural steel materials in proper location, according to approved erection drawings and/or as directed by the Engineer in charge.

d) Setting out, aligning, plumbing, leveling, bolting, welding and securely fixing the fabricated steel structures in accordance with the erection scheme or as directed by the Engineer in charge.

1.7.33 ERECTION TOLERANCES:

Erection tolerances shall be as per table-33 OF IS 800-2007

1.7.34 QUALITY CONTROL & TESTING REQUIREMENTS:

1.7.34.1 The contractor shall submit the following:

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

- Quality plan for approval for fabrication as well as erection.
- Proposed overall schedule for documentation of shop drawings, plan/procedures and records submission of produce fabrication.
- The contractor shall himself inspect all materials and shop work to satisfy the specified tolerance limits and quality norms before the same are inspected by Engineer in charge.

1.7.34.2 The contractor shall through appropriate planning and continuous measurements in the workshop and the erection at site ensure that the tolerances specified in this specification are strictly adhered to.

1.7.34.3 Fabricating agency shall have in house facilities for all testing of weld.

1.7.35 VISUAL EXAMINATION:

The contractor shall conduct visual examination and measurement of the external dimensions of welds for all joints. Before examining the welded joints, areas close to it on both sides of the weld for a width not less than 20 mm shall be cleaned of slag and other impurities. Examination shall be done by a magnifying glass which has a magnification power of ten (10) and measuring instrument which has an accuracy of ± 0.10 mm or by weld gauges. Welded joints shall be examined from both sides. The contractor shall examine the following during the visual checks.

i) Correctness and shape of the welded joints.
ii) Incomplete penetration of weld metal
iii) Influx
iv) Burns
v) Un welded craters
vi) Undercuts
vii) Cracks in welded spots and heat affected zones
viii) Porosity in welds and spot welds
ix) Compression in welded joints as a result of electrode impact while carrying out contact welding.
x) Displacement of welded element.

The contractor shall, document all data as per sound practices.

1.7.35 In order to exercise proper control of the quality of the welding contractor shall enforce methods of control as tabulated below:

Purpose	Control subjects	Methods of control
1	2	3
01Control of welding materials and basic metal quality.	Quality control of electrodes, welding wire, flux and protective gases	Weld ability test to determine the technological properties of materials. Mechanical test of weld metal. Metallographic investigations of welds machro-structure and microstructure. Checking of weld metal resistance of inter-crystalline corrosion. Study if weld metal solidity by physical control methods.
02 Checking of welders qualifications	Specimens for quality determination.	Mechanical tests, metal graphic

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

03 Control of welded joint quality.	Control of assembly accuracy and technological welding process.	investigation & checking of welded joints by physical control Checking of assembly quality & Centering of welded members. Checking of welding equipment conditions, Checking corrective ness of welding procedure. Visual examination of welds

SECTION-E

MATERIAL & PAINTING SPECIFICATIONS

1.0 MATERIAL

1.1 SPECIFICATIONS

1.1.1 Primary members fabricated from plates and sections with minimum yield strength of 345 Mpa or to suit design by continuous welding.

1.1.2 Secondary members for Purlins and Grits shall conform to the physical specification of ASTM A570 (Grade 50) or equivalent IS Standards having a minimum yield strength of 345 MPa. The minimum thickness of secondary members shall be 2.5mm.

1.1.3 Rod /ANGLE bracing shall conform to the physical specification IS 2062.OF MIN 245MPA YIELD STRENGTH

1.1.4 All hot rolled sections shall conform to the physical specifications IS 2062. All other miscellaneous secondary members shall have minimum yield strength of 250 MPa.

1.2 DESCRIPTION

1.2.1 **Primary Members:**

Primary structural framing shall include the transverse rigid frames, columns, corner columns, end wall wind columns and crane gantry girders and Frames at Door openings.

1.2.2 **Secondary Members :**

Secondary structural framing shall include the purlins, girts, eave struts, wind bracing, flange bracing, staircases, chequred platforms, base angles, clips, flashings and other miscellaneous structural parts. Suitable wind bracings sag rods to be reckoned while designing the structure.

1.2.2 **PURLINS:**

Purlins should be of Pre Galvanised steel of 345 Mpa having a coating thickness of 275 gsm

1.2.4. **ROOF SHEETING:**

Roof panels shall be made out of 0.55 mm thick high tensile, 550 Mpa , trapezoidal galvalume sheets , with galvalume coating to AZ-150 bare galvalume, as per ASTM A-792-AZ to make TCT of 0.55 mm thick . The profile shall be trapezoidal shaped to satisfy the loading requirements or any other profile if proved to have sufficient strength to take DL, LL, wind loads.

1.2.5 **Wall Panels**

Wall panel material specifications shall be same as roof panels. They shall be polyester coated

of approved standard colour. Having 0.55 mm thick TCT The profile shall have a maximum pitch of 200mm and minimum depth of 26 mm. Alternatively maximum pitch of 333mm with two intermediate stiffening ribs will be acceptable or any other profile if proved to have sufficient strength to take the relevant wind loads.

1.2.6 **SHEETING FASTENERS**:

Standard fasteners shall be self tapping zinc plated metal screws with EPDM bonded zinc plated washers. All screws shall be color coated to match roof and wall sheeting.

1.2.7 **SEALER**:

This is to be applied at all side laps and end laps of roof panels and around self flashing windows. Sealer shall be pressure sensitive elastomeric Butyl tapes. The sealer shall be non-asphaltic, non-shrinking and non toxic and shall be superior adhesive metals, plastics and painted at temperatures from 51°C to +104°C.

1.2.8 **CLOSURES**:

Solid or closed cell closures matching the profiles of the panel shall be installed along the eaves, rake and other locations specified on drawings.

1.2.9 **FLASHING AND TRIM:**

Flashing and / or trim shall be furnished at the rake, corners, eaves, and framed openings and wherever necessary to provide weather tightness and finished appearance. Color shall be matching with the color of wall. Material shall be 26 gauge thick conforming to the physical specifications of sheeting.

1.2.10 SKY LIGHTS:

There will be no provision for sky lights.

1.2.11 GUTTERS AND DOWN SPOUTS:

Gutters and downspouts shall be adequately designed to ensure proper roof drainage system. Material shall be same as that of sheeting.

1.3 **CONNECTIONS:**

1.3.1 SITE CONNECTIONS

a) All primary bolted connections shall be provided with galvanized high strength bolts, washers, nuts conforming to specifications of grade 8.8 OF IS 1367
b) All secondary bolted connections shall be furnished with bolts, nuts, washers conforming to the specifications of grade 4.6 of IS 1367 or ASTM-A307.

1.3.2 SHOP CONNECTIONS

All shop connections shall be welded with appropriate arc welding process and welding shall be in accordance with IS 816,IS-819 ,IS1024,IS-1261 ,IS1323,IS-9595, AWSD 1.1. as appropriate. **The Webs should be welded on to the flanges at both the faces at top and bottom for columns, beams and.** Weld material should have strength more than the parent metal.

1.4 ROOF & WALL BRACINGS

Roof and wall bracings shall have a minimum yield strength of 250 Mpa and shall conform to the specifications IS 2062.

Portal Bracings connecting columns should be min. at two places on both the side walls @ 50m.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

c/c.

1.5 **PAINTING FOR STRUCTURAL STEEL WORK**:

The cleaning & painting specifications for the Structural Steel work shall be as below

a) Sandblasting / shot blasting to Sa 2.5.

b) One shop coats of red oxide zinc phosphate primer (1 x 40 µ)

c) Two site coats of epoxy finish paint (2 x 40 µ). The colour of the finish paint shall be Reliance Blue.

END OF SECTION

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

ANNEXURE –I

SAFETY RULES

A. BHEL SAFETY CODE

1. Suitable scaffolds shall be provided for workmen for all work that cannot safety be done from the ground, or from solid construction except such short period of work as can be done safety from ladder when a ladder is used a extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well suitable footholds and handholds shall be provided on the ladder and the ladder shall be given an inclination not steeper than ¼ to 1 (1/2 horizontal and 1 vertical).
2. Scaffolding or staging more than 3.2 meters above the ground or floor swing or suspended from an overhead support or erected with stationary support, shall have guard rail properly attached, bolted braced and otherwise secured at least 1 meter high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends there of with only such opening as may be necessary for the delivery of materials such scaffolding or staging shall be so fastened as to prevent it from swing from the building or structure.
3. Working platform, gangways and stairways shall be so constructed that they do not sag unduly or unequally and it height of a platform or gangway or stairway s more than 3.25 meters above ground level or floor level it shall be closely boarded have adequate width and be suitably fenced, as described in 2 above.
4. Every opening in floor of a building or in a working platform shall be provided with suitable means to prevent fall of persons or materials by providing suitable fencing or railing with a minimum height of 1 meter.
5. Safe means of access shall be provided to all working platform and other working places. Every ladder shall be securely fixed, no portable single ladder shall be over 9 meters in length. Width between side rails in a rung ladder shall in no case be less than 30 cm for ladders up to ad including 3 meters in length, For longer ladder this width shall be increased by at least 6 mm for each additional 30 cm of length. Uniform step spacing shall not exceed 30 cm.

Adequate precautions hall be taken to prevent danger from electrical equipment. No materials on any of the sites shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor shall provide all necessary fending and light to protect public from the accident and shall be bound to bear expenses of defense of every suit-action or other proceeding at law that may be brought by any person for injury sustained owing to neglect of the above precautions and pay any damages and cost which may be awarded in any such suit, action or proceeding to any such person or which may with the consent of the contractor be paid to compromise any claim by such person.

6. Excavation and Trenching

All trenches 1.5 meters or more in dept, shall at all time be supplied with at least one adder for each 30 m length or fraction there of ladder shall be extended from bottom of trench to at least 1 mete above surface of the ground. Sides of the trench 1.5 meters or more in depth shall be stepped back to give suitable stopper securely held by timber bracing so as to avoid the danger of sides collapsing excavated materials shall not be placed within 1.5 meters of the edge of trench of half no depth of trench, whichever is more. Cutting shall be from top to bottom under no circumstances shall under mining or under- cutting be done.

7. Demolition :

Before any demolition work is commenced and also during the progress of work

a) All roads and open areas adjustment to the work site shall be closed or suitable protected.
b) No electric cable or apparatus which is liable to be a secure of danger over cable or apparatus used by the operator shall remain electrically charged.
c) All practical steps shall be taken to prevent danger to person employed from the risk of fire or explosion or flooding no floor, or roof or other part of building shall be so overloaded with debris or materials as to render it unsafe.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

8. All necessary personal safety equipment as considered adequate by the Engineer-in-charge shall be available for use of person employed on the site and maintain in a condition suitable for immediate use and the contractor shall take adequate steps to ensure proper use of equipment by those concerned.

a) Workers employed on mixing asphalaltic materials cement and lime mortar concrete shall be provided with protective footwear and protective gloves.

b) Those engaged in handling any material which is injurious to the eye shall be provided with protective goggles.

c) Those engaged in welding work shall be provided with welder's protective eye shields.

d) Stone breaker shall be protective goggles and protective clothing and seated at sufficiently safe intervals.

e) When workers are employed in sewers and manholes which are in use, the contactor shall ensure that manhole covers are opened and manholes and ventilator at least for an hour before the workers are allowed to get into their manholes so opened shall be cordoned off with suitable railing and provide with warning signals or boards to prevent accident to public.

i) No paint containing lead or lead products shall be except in the form of paste or readymade paint.

ii) Suitable face masks shall be supplied for use by workers when paint applied in the form of spray or surface having lead paint is dry rubbed and scrapped.

iii) The contactor shall not employ men below the age of 18 and women on the work of painting with products containing lead in any form. Whenever men above the age of 18 are employed on the work of lead painting the following precaution shall be taken.

No paint containing lead or lead products shall be used except in the form of paste of readymade paint.

Suitable face masks shall be supplied for use by workers when paint is applied in the form of spray or surface having lead paint is dry rubbed and scraped.

Overalls shall be supplied by the contractor to workmen and adequate facilities shall be provided to enable working painters to wash during or cessation of work.

9. When work is done near any place where is risk of drawing all necessary equipment shall be provided and kept ready for use and all necessary steps taken for prompt reuse of any person in danger and adequate provision made for prompt first aid treatment of all injuries likely to be sustained during the during the course of the work.

10. Use of hoisting machine ad tackles including their attachments, anchorage and support shall conform to the following:

Adequate

i) These shall be of good mechanical construction, sound materials and adequate strength and free from defects and shall be kept in good working order.

ii) Every rope used in hoisting or lowering materials or as means of suspension shall be f durable quality and adequate strength and free from defects.

b) Every crane driver of hoisting appliance operator shall be properly qualified and no person under the age of 21 yrs shall be in charged of any hoisting machine including any scaffolding winch or give signals to operator.

c) In case of every hoisting machine and or every chain, ring, hook, shackle swivel and pull block used in hoisting or lowering as means of suspension safe working lead shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall have the safe working load plainly marked there on in case of a hoisting machine having a variable safe working load, each safe working load at the condition under which it is applicable shall be clearly indicated. No party of any machine or gear referred to above in this paragraph shall be loaded by the safe working load except for the purpose of testing.

d) In case of department machine, safe working load shall be notified by the Engineer-in-charge. As regards contractor's machine the contractor shall notify safe working load of each machine to the engineer-in-charge whenever the brings t to site of work and get it verified by the Engineer-in-charge.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

11. Motors, gearing, transmission electric wiring and other dangerous parts of hoisting appliances shall be provided with efficient, safeguards, hoisting appliances shall be provided with such means as will reduce to the minimum risk of accident descent of load. Adequate precaution shall be taken to reduce to the minimum risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations which are already energized insulating mats, working apparel such as gloves, sleeves and boots as may be necessary shall be provided. Workers shall not wear any rings watches, carry keys or other materials which are good conductors of electricity.
12. All scaffolds, ladders and other safety devices mentioned or described here in shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is use. Adequate washing facilities shall be provided at or near the places of work.
13. These safety provision shall be brought to the notice of all concerned b display on a notice board at prominent place at the work spot persons responsible for ensuring compliance with the safety code shall be name thereon by the contractor.
14. To ensure effective enforcement of the rules and regulations relating to safety precaution, arrangement made by the contractor shall be open to inspection by the Engineer-in-charge or his representation and the inspecting officers is defined in the contractor's Labour Regulations.

B. GENERAL SAFETY PRECAUTIONS TO BE FOLLOWED AT WORK SITES DURING EXECUTION.

The following safety measures should be strictly adhered to during execution of works at sites.

1. Providing the working platform with toe-board and handrail for continuous working at heights.
2. Providing safety belt and lifeline at all times for men working at heights.
3. Providing dust or fume respirator in places where dust and fume concentration exists.
4. Providing ogles and welding screens.
5. Providing acid and alkali poof rubber gloves for handling acids, alkali and chemicals, which are corrosive.
6. Providing rubber gloves for working on electrical works.
7. Ensuring proper lashing f the components while being transported in vehicles.
8. The vehicles must have side supports or have body to support the materials conveyed.
9. The materials should not be allowed to extend or overflow the sides of vehicles.
10. Materials should not be allowed to overhang from the rear edge of the body of the vehicle
11. Driver of the vehicle must possess license.
12. Vehicle must not be overloaded prescribed limits.
13. Red flags and lights for parts projecting from the body of the vehicle must be provided.
14. The speed restrictions within the factory must be strictly adhered to.
15. The gas cylinders must always be handled on trolleys or kept tied down not in use. The should never be rolled as Roller for conveying.
16. Cylinders should not used without regulators.
17. All excavations may be barricaded and red belts/lamps must be provided.
18. All electrical connections must be properly earthed.
19. No work should be taken up for execution inside shop floor, with out obtaining necessary work permit.
20. Providing helmet for high level work.
21. The contractor should maintain a register regarding the driver license particulars.
22. All personnel protective equipments (PPE) conform to standard specification as per the details given in the code of conduct.

(i) Safety helmets confirming to IS-2925:1984
(ii) Safety Belts confirming to IS-3521:1983
(iii) Safety Shoes confirming IS-1989:1978
(iv) Eye and face protection devices confirming to IS-8520:1977 & IS-8940:1978
(v) Hand and body protective devices confirming to IS-2573:1975

IS-6994:1973

IS-8807:1978

IS-8519:1977

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

Contractor including the subcontractors, agents and labors engaged on work are required to scrupulously adhere to the safety regulations, safety precautions and measures. Any violation thereof will invite punitive action being taken against them. Also contractors with frequent violations of safety regulations will not entrusted with further work in this organization.

General:

All tools, tackles, lifting appliances, material handling equipment's scaffolds, cradles, safety nets, ladders, and equipment etc., used by the contactor shall be of safe design and construction. These shall be tested and certificate of fitness obtained, before putting them to use and from time to time as instructed by authorized BHEL official who shall have the right to ban the use of any item.

C. SAFETY PRECAUTION TO BE OBSERVED WHILE TRANSPORATING MATERIALS

I. Vehicle

1. Vehicle carrying materials should have proper registration documents and must be produced on demand by our security staff.
2. The light on right side i.e. over the driver's cabin shall be in working condition.
3. Both the head light as well as park lamps must be in working condition.

II. Movement of Vehicle

1. The vehicle should not travel at more than 20 KMPH in our premises.
2. The driver of the vehicle must possess heavy duty license and produce on demand by the Security Staff.
3. Vehicles carrying inflammable liquids in the tanks containers should have grinding chain or the tank container should be coated with insulating material s to avoid static electricity.
4. In road junction, speed breaker and Railway crossing the speed should be lowered and vehicles should proceed cautiously.
5. The driving should be "keep to the left" at all places.
6. The vehicles should not park on the road which could obstruct the vehicular traffic.
7. No person other than driver should be allowed to sit or stand on the price mover or trailer.
8. The vehicle should pass only through the approved routs. Short cuts should be forbidden.
9. There must be a safe distance behind another moving truck.
10. The driver should avoid making quick starts, jerk stop or quick turns at excessive speed.

III. Shipping

1. Strong side supports should be provided on both sides of the trailer. The side supports should be fixed in such a way that it cannot be removed even temporarily.
2. Adequate packing must be given for easy slinging operations. The packing materials should be good enough to withstand the load.
3. The stacking of loads on the truck should be evenly placed. The load should not be heaped together or dumped over the chassis.
4. The load on the truck should not be beyond its standard capacity. The carrying capacity must be clearly marked on the trailers also.
5. The loaded materials should be fastened tightly with "WIRE ROPE". Manila rope or coir rope should not at all be used. There must be side packing such as gunny or rubber tyre between the sharp edges of the job and wire rope in order to avoid cut in the wire rope.
6. There must be minimum two fastening and it should be more in case of lengthier loads.
7. The wire rope should be in sound condition i.e. there should not be links knots or bristles etc.
8. The wire rope ends should be clamped with 'U clamps.
9. The loose pieces should be bundled before loading on the truck.
10. There must be red flags or red lamps for the lengthy loads which extend beyond chassis.
11. The materials should not be stacked too high to avoid hitting against live electric lines.
12. The load should not be overhanging more than 0.9 meters from the end of body

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

13. While transporting the scraps, there must be wire net cover to prevent falling of Scrap.

IV. General

The vehicles should not have moved directly inside the production building in case the materials are to be unloaded there. But the vehicles should be parked outside the building and the driver should ascertain the passage as well as the unloading points, with the help of the shop offices. This will avoid the congestion of blocking of traffic in the gangway.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

Annexure-C

UNDERTAKING

(by the tenderer)

1. I/We have carefully perused all the terms and conditions of the tender, NIT including special conditions mentioned in the tender before quoting the offer and I/we commit to abide by them in toto. I/ we have read BHEL General Instructions to Tenderer, General /Special Conditions of Contract and agree to abide by the same.
2. **I/We have submitted the digitally signed tender document in Part-1 of the offer. Part-2 offer i.e. price bid contains only the BOQ and the quoted rate.**
3. I/We shall abide by and fulfill the requirement of all the statutory obligations in respect of EPF, ESI, labour license and all other provisions of labour laws applicable to me/us and maintain muster roll, payment register and all other registers/ records as applicable and produce the same to BHEL officials or statutory authorities whenever desired.
4. I/ We shall abide by the GST Act/ Rules as applicable.
5. I/ we shall decide the number of employees to be deployed for execution of the work and give instruction to my/ our employees. BHEL will have nothing to do or be concerned with the employment of my/ our employees.
6. I/ we shall provide employment card / identity with photograph duly verified and attested by me/ us to my/ our employees.
7. I/ we shall ensure payment of ESI contribution under ESI Act, 1948 and provide ESI membership card to each of my/ our employees.
8. I/We shall pay minimum wages as applicable from time to time including leave with wages to my/ our workers as per rules /act.
9. In case of non-compliance of any of the statutory obligations, labour laws by me/us, I/we shall be responsible for all expenses/ liability occurring /accruing on BHEL because of this including all expenditure on legal proceedings. All such expenses shall be recoverable from any of my/ our running contract with BHEL or any contract entered thereafter.
10. I/ we shall maintain valid labour license throughout the period of contract.

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

Annexure-D

Acceptance Letter / No Deviation Certificate

Notwithstanding anything mentioned in our bid, we hereby accept all terms and conditions of the above tender. Or we hereby accept all terms and conditions of the above tender except the following: (Give reference to Clause Nos. of Terms & Conditions which is not acceptable)

1.
2.
3.
4.
5.

Note: Any deviation specified elsewhere in the tender shall not be considered. Deviations may or may not be accepted by BHEL.

I/We agree with the above

Signature of Bidder with Stamp

Signature of Issuing officer

Annexure-E

UN-PRICE BID

भारत हेवी इलेक्ट्रिकल्स लिमिटेड हीप, रानीपुर (हरिद्वार)-249403					
Estimated Cost: Rs. 34.95 lacs.				**Time of comp. : 5 months**	
Earnest Money: Rs. 69,898/-				**Tender Cost : Rs 500/-**	
BILL OF QUANTITY					
S.NO.	DESCRIPTION OF ITEMS	QTY.	UNIT	RATE	AMOUNT

WORKED OUT ITEMS:

1. DESIGN AND SUPPLY OF PREFABRICATED STRUCTURE OF BUILT-UP SECTIONS SUCH AS COLUMNS, RAFTERS, GANTRY GIRDERS ETC. FOR AN INDUSTRIAL SHED OF COVERED GANTRY IN DABG OF PLAN AREA 36 MX 10M AND 8 M HEIGHT (APPROX.) HAVING 5 MT EOT CRANE PROVISION WITH ALL NECESSARY FITTINGS, FIXTURES COMPLETE AS PER WORKING DRAWINGS PROVIDED BY PEB AGENCY AND DIRECTION OF ENGINEER-IN-CHARGE.THIS INCLUDES THE SURFACE CLEANING BY REMOVAL OF GIRTS, OIL, GREASE THROUGH SAND BLASTING AND ONE COAT OF PHENOL MODIFIED ALKYD RESIN RED PRIMER OXIDE AND ONE COAT OF ENAMEL PAINT OF APPROVED QUALITY IN PRE ERECTION AND SECOND COAT OF ENAMEL PAINT IN POST ERECTION STAGE AS PER DIRECTION OF ENGINEER-INCHARGE COMPLETE IN ALL RESPECT. (DESIGN OF ALL THE PRE FABRICATED MEMBERS SHALL BE ECONOMIC, STRUCTURALLY ADEQUATE, SUSTAINABLE AND AS PER THE LATEST BIS SPECIFICATIONS.

   12 MT 102693.83 1232325.96

2. DESIGN AND SUPPLY OF PREFABRICATED STRUCTURE OF ROLLED STEEL SECTIONS SUCH AS PURLINS, EAVES STRUTS, GIRTS, WIND BRACING, FLANGE BRACING, GIRDER SUPPORTING STRUCTURE ETC ALL OTHER MISC. STRUCTURE NOT COVERED IN BUILT UP SECTIONS REQUIRED FOR ERECTION OF STEEL STRUCTURE FOR THE INDUSTRIAL SHED OF COVERED GANTRY IN DABG OF PLAN AREA 36 MX 10M AND 8 M HEIGHT (APPROX.) HAVING 5 MT EOT CRANE PROVISION WITH ALL NECESSARY FITTINGS, FIXTURES COMPLETE AS PER WORKING DRAWINGS PROVIDED BY PEB AGENCY AND DIRECTION OF ENGINEER-IN-CHARGE INCLUDING SURFACE CLEANING BY REMOVAL OF GIRTS, OIL, GREASE THROUGH SANDBLASTING AND ONE COAT OF PHENOL MODIFIED ALKYD RESIN RED PRIMER OXIDE AND ONE COAT OF ENAMEL PAINT OF APPROVED QUALITY IN PRE ERECTION AND SECOND COAT OF ENAMEL PAINT IN POST ERECTION STAGE AS PER DIRECTION OF ENGINEER-IN-CHARGE COMPLETE IN ALL RESPECT. (DESIGN OF ALL THE PRE FABRICATED MEMBERS SHALL BE ECONOMIC, STRUCTURALLY ADEQUATE, SUSTAINABLE AND AS PER THE LATEST BIS SPECIFICATIONS.

   8 MT 112997.27 903978.16

3. ERECTION OF ALREADY PREFABRICATED BUILT-UP SECTIONS / ROLLED STEEL SECTIONS INCLUDING ASSEMBLING, ALIGNMENT, BOLTING/ WELDING, DRILLING ETC. WITH ALL NECESSARY FITTINGS, FIXTURES SUCH AS CONNECTION BOLTS ETC. REQUIRED TO COMPLETE AS PER WORKING DRAWINGS SUPPLIED BY PEB AGENCY AND DIRECTION OF ENGINEER-IN-CHARGE. (THE PAYMENT FOR SUPPLY OF CONNECTION BOLTS WILL BE PAID SEPARATELY)

   20 MT 7200.00 144000.00

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp

4. SUPPLY AND FIXING OF PROFILED BARE GALVALUME ROOF SHEETING INCLUDING RIDGE CAP AT RIDGES IN PRE-FABRICATED STEEL STRUCTURE SHED OF PLAN AREA NEARLY 36 MX10 M AND HEIGHT 8 M WITH 1000-1020 MM COVER WIDTH, 5 TO 6 CREST, MANUFACTURED FORM HIGH TENSILE BARE GALVALUME STEEL (AZ -150 GSM, ALUMINUM ZINC ALLOY METALLIC COATING OF BOTH SIDE 550 MPA YIELD STRESS).

430 SM 737.17 316983.10

5. SUPPLY AND FIXING OF PROFILED COLOR COATED GALVALUME WALL SHEETING IN PRE-FABRICATED STEEL STRUCTURE SHED OF PLAN ARE NEARLY 36 M X10 M AND HEIGHT OF 8 M WITH 1000-1020 MM COVER WIDTH, 5 TO 6 CREST MANUFACTURED FORM HIGH TENSILE BARE GALVALUME STEEL (AZ -150 GSM, ALUMINUM ZINC ALLOY METALLIC COATING OF BOTH SIDE 550 MPA YIELD STRESS) HAVING 0.55MM TCT OF MAKE TATA BLUESCOPE/JSW INCLUDING DRILLING WITH SELF-TAPPING SHEET METAL SCREW, WITH NEOPRENE WASHERS ETC. AND ALL OTHER REQUIRED FIXTURES COMPLETE AS PER THE DRAWINGS. THE SHEET SHALL HAVE WIDE PANS WITH REQUIRED NOS. OF SMALL STIFFENING RIBS FOR EFFECTIVE WATER SHEDDING AND SPECIAL MALE/FEMALE ENDS WITH FULL RETURN LEGS ON SIDE LAPS FOR PURLIN SUPPORT. THE MALE END OF THE SHEET SHALL HAVE ANTI CAPILLARY FLUTE AT SIDE LAPS TO PREVENT LEAKAGE. THE SHEET SHALL BE FIXED BY MEANS OF GALVANIZED SELF-TAPPING DRILLING SCREWS IN LENGTH MAXIMUM UP TO 12 M LONG OR AS PER SITE REQUIREMENT AND AS PER DIRECTION OF ENGINEER-IN-CHARGE.

415 SM 802.50 333037.50

6. SUPPLY AND FIXING OF RAIN WATER GUTTER WITH 0.55MM THICK TCT COLORED COATED SHEETS OF MAKE TATA BLUESCOPE/JSW INCLUDING, ALIGNMENT, FIXING, DRILLING ETC. WITH ALL NECESSARY FITTINGS, FIXTURES REQUIRED TO SEAL THE GUTTER JOINTS WITH BUTYL RUBBER ETC OR AS PER DIRECTION OF ENGINEERIN-CHARGE COMPLETE IN ALL RESPECT AS PER THE DRAWINGS.

85 MR 534.33 45418.05

7. SUPPLY AND FIXING OF RAIN WATER DOWN TAKE PIPE OF REQUIRED SHAPE SUCH AS RECTANGULAR (SIZE 150MMX 150MM APPROX.) OR CIRCULAR SHAPE HAVING 150 MM DIA OF 0.55MM THICK (TCT) COLOR COATED GALVALUME STEEL SHEET OF MAKE TATA BLUESCOPE/JSW INCLUDING FIXING WITH SUPPORTING STRUCTURE INCLUDING ALL REQUIRED MATERIALS SUCH AS SCREWS, BRACKETS, ELBOWS ETC. COMPLETE IN ALL RESPECT AS PER DIRECTION OF ENGINEER-IN-CHARGE.

125 MR 531.34 66417.50

8. SUPPLY AND FIXING OF COLORED COATED FLASHING AT EDGES WHEREVER REQUIRED FOR WEATHER TIGHTNESS /LEAKAGES HAVING 0.55MM TCT OF MAKE TATA BLUESCOPE/JSW INCLUDING DRILLING WITH SELF-TAPPING SHEET METAL SCREW, WITH NEOPRENE WASHERS ETC. AND ALL OTHER REQUIRED FIXTURES COMPLETE AS PER THE DRAWINGS AND AS PER DIRECTION OF ENGINEER-INCHARGE. ASSEMBLING, ALIGNMENT, WELDING, DRILLING ETC. WITH ALL NECESSARY FITTINGS, FIXTURES COMPLETE AS PER THE DRAWINGS AND DIRECTION OF ENGINEER-IN-CHARGE.

170 SM 803.23 136549.10

9. PROVIDING DESIGN CONSULTANCY AND DESIGN FOR SUB STRUCTURE SUCH AS COLUMN FOOTINGS/BEAMS AS PER THE LOAD REQUIREMENTS. THE WORK INCLUDES DESIGN OF CIVIL WORK LIKE FOOTING, BEAMS, SHEDS ETC AND SUPPLY OF WORKING DRAWINGS (4 HARD COPIES AND SOFT COPIES ALSO) FOR THE SAME SHOWING ALL

REQUIRED DETAIL INCLUDING DETAILS OF FIXING OF ANCHOR BOLTS ETC. COMPLETE IN ALL RESPECT.

1 JB 70000.00 70000.00

10. FIXING AND ALIGNMENT OF CRANE RAIL ON GANTRY GIRDERS AT A HEIGHT OF UP TO 8 TO 10 METER FROM FINISH FLOOR LEVEL ON GANTRY GIRDERS. THE WORK INCLUDES SHIFTING OF CRANE RAIL AT SITE FROM BHEL STORE, ALIGNMENT OF RAILS, MAKING THE HOLES IN GANTRY GIRDERS AND FIXING THE SAME WITH ALL REQUIRED FIXTURES SUCH AS MS PLATES, NUT & BOLTS ETC. AND LEVELLELING THE RAILS COMPLETE AS PER DIRECTION OF ENGINEER-IN-CHARGE. (NOTE: ONLY THE CRANE RAIL WILL BE SUPPLIED BY BHEL FREE OF COST FROM BHEL STORE. THE PAYMENT FOR FIXING MS PLATES, BOLTS ETC WILL BE PAID SEPARATELY AGAINST ITEM OF BUILT UP SECTIONS AND CONNECTION BOLTS).

4 MT 29000.00 116000.00

11. SUPPLY AND FIXING OF MS CONNECTIONS BOLTS OF HIGH TENSILE STRENGTH GRADE CONFORMING TO ASTM A325/IS1367 (GRADE OF 8.8) OF STANDARD QUALITY WITH BLACK COATED SURFACE IN ALL BUILT-UP STRUCTURES, ROLLED STEEL SECTIONS FOR ERECTION OF THE STRUCTURE COMPLETE AS PER DIRECTION OF ENGINEER- IN-CHARGE.

0.6 MT 148649.77 89189.86

12. SUPPLY AND FIXING OF MS ANCHOR BOLTS OF HIGH TENSILE STRENGTH GRADE CONFORMING TO IS 2062 GRADE E250 OF STANDARD QUALITY WITH BLACK COATED SURFACE IN FOUNDATION FOR ERECTION OF THE COLUMNS STRUCTURE COMPLETE AS PER DIRECTION OF ENGINEER-IN-CHARGE. THE WORK ALSO INCLUDES PROVISION AND FIXING OF TEMPLATE, ALIGNMENT OF BOLTS/TEMPLATES ETC. IN FOUNDATIONS COMPLETE IN ALL RESPECT.

0.4 MT 102462.27 40984.91

RATES WHICH ARE QUOTED BEYOND THE RANGE GIVEN BELOW MAY NOT BE CONSIDERED.

	LOWER LIMIT	**UPPER LIMIT**
FOR WORKED OUT ITEMS:	**20% BELOW**	**10% ABOVE**

I/WE HAVE GONE THROUGH ALL THE SPECIFICATIONS, SPECIAL & GENERAL CONDITIONS, CONTRACTOR'S OBLIGATIONS ENCLOSED WITH THIS TENDER DOCUMENT AND AGREE TO ABIDE BY THESE.

FOR WORKED OUT ITEMS

I/WE HEREBY TENDER (XXXXXXXXXXXXXXX) % (IN WORDS XXXXXXXXXXXXXXXXXXXXXXXX) **ABOVE / ATPAR / BELOW** THE RATES FOR ALL THE ITEMS GIVEN IN THE BILL OF QUANTITY.

Rate of GST (.....%)

I/We agree with the above

Signature of Issuing officer

Signature of Bidder with Stamp