U.P. CO-OPERATIVE SUGAR FACTORIES FEDERATION LTD.
9-A, RANA PRATAP MARG, LUCKNOW
Telephone: (0522) 2200183 **Fax: (0522) 2627994 (0522)2628310**
Email: upsugarfed@yahoo.co.in **Website: www.upsugarfed.org**

COMPETITIVE e-bidding

FOR

Techno-commercial proven technical upgradation jobs for improvement in working efficiency /modernization of The Kisan Sahkari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, all civil and structural works etc.) as per specifications and scope of work given in the bid document.

e-bid reference	:	53/UPF/PRO.FIN/NANAUTA/42 dt. 19/09/2022
e-bid download start date	:	19/09/2022 6:55 PM ONWARDS
e-bid submission start date	:	19/09/2022 6:55 PM ONWARDS
Last date and time for submission of e-bids	:	17/10/2022 upto 6.55 PM
Pre- bid Meeting date& Time	:	29/09/2022 at 11.00 AM UP COOP SUGAR FEDERATION 9 A RANA PRATAP MARG LUCKNOW
Date and time of opening of on line technical e-bids	:	18/10/2022 at 11.00 AM
Date and time of opening of on line financial e-bids	:	19/10/2022 at 11.00 AM
Place of opening of e-bids	:	U.P.Co-operative Sugar Factories Federation Ltd., 9-A, Rana Pratap Marg, Lucknow
Address for communication	:	Managing Director U.P. Co-operative Sugar Factories Federation Ltd. 9-A, Rana Pratap Marg, Lucknow
e-bid EMD	:	**Rs. 22,00,000.00(TWENTY TWO LAKHS)**

This Document Contains 115 Pages

It will be the responsibility of the e-Bidders to check U.P. Government e-Procurement website https://etender.up.nic.in for any amendment through corrigendum in the e-tender document. In case of any amendment, e-Bidders will have to incorporate the amendments in their e-Bids accordingly.

e-tender Document Processing fees / Cost: 35,000.00 + 18% GST = 41,300.00

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Email: upsugarfed@yahoo.co.in **Website: www.upsugarfed.org**
Ref no. 54/UPF/PRO.FIN/NANAUTA/42 Dated: 19/09/2022

E-Tender Notice

E-tenders are invited for Techno-commercial proven technical upgradation jobs for improvement in working efficiency /modernization of The KisanSahkariChini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, all civil and structural works etc.) as per specifications and scope of work given in the bid document.

The tender Document may be downloaded from portal http:/etender.up.nic.in and Federation's website www.upsugarfed.org.

Schedule of Tenders:

1	Name of the department	UP Co-operative sugar factories federation ltd., 9-A, Rana Pratap Marg, Lucknow
2	Procedure for obtaining E-Bid	Tender form is to be down loaded from E-tender portal http://etender.up.nic.in and federation's website www.upsugarfed.org.
3	Price of bid document(Tender fee)	**Rs. 35,000.00 + 18% GST= 41,300.00** (non-refundable) through RTGS/NEFT by any Nationalised/Scheduled Commercial Bank in favour of UP Co-operative sugar factories federation ltd. payable at Lucknow.
4	E-Bid EMD	**Rs.22,00,000/- (Rs. Twenty two lacs only)** through RTGS/NEFT by any Nationalised/Scheduled Commercial Bank in favour of UP Co-operative sugar factories federation ltd. payable at Lucknow. **Name of Benificary**:-U.P.Coop. Sugar Factories Federation Ltd. **Bank Account No.**:-**53012823858** **IFS Code No** :-SBIN0060284 **Name of Bank Branch**:-**VidhanSabha Marg,Lucknow.**
5	E-bid submission start date	19/09/2022 6:55 PM Onwards
6	Last date & time of submission of bids	17/10/2022 upto 6.55 PM
7	Pre- bid Meeting date & Time	29/09/2022 at 11.00 AM
8	Opening of technical bid (date & time)	18/10/2022 at 11.00 AM
9	Opening of financial bid (date & time)	19/10/2022 at 11.00 AM

The tender fee and E.M.D. will be deposited in Federation office on or before the date & time specified. E-Tender without E.M.D. & e-bid document fee shall be rejected. The Federation reserves the right to cancel any or all bids or the e-bidding process without assigning any reason thereof. The decision of Federation will be final & binding upon bidders.

(Ramakant Pandey)
MANAGING DIRECTOR

INVITATION FOR e-Bids

1. Techno-commercial proven technical upgradation jobs for improvement in working efficiency /modernization of The KisanSahkariChini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, all civil and structural works etc.) as per specifications and scope of work given in the bid document.

2. **Bidders are advised to study the tender document carefully and are advised to visit the Nanauta Sugarmillto assess the actual work**,especiallyevaporator station jobs regarding bleeding scheme connection etc. at the project site, capacity of various equipment/systems, for getting desired results. Submission of e-Bid against this tender shall be deemed to have been done after site visit, careful study and examination of the procedures, terms and conditions of the tender Document with full understanding of its implications.

3. The e-Bid prepared in accordance with the procedures enumerated in ITB Clause 15 of Section-I should be submitted through e-Procurement website https://etender.up.nic.in.

4. **The tender document is available at e-Procurement website https://etender.up.nic.in or Federation's website www.upsugarfed.org from** dated 19/09/2022 at 06:55 PM onwards**. Interested bidders may view, download the e-Bid document, seek clarification and submit their e-Bid online up to the date and time mentioned in the table below:**

1	Name of the department	UP Co-operative sugar factories federation ltd., 9A, RanaPratap Marg, Lucknow
3	Procedure for obtaining & submission of E-Bid	Tender form is to be down loaded from E-tender portal http://etender.up.nic.in and federation's website www.upsugarfed.org
4	Price of bid document(Tender fee)	Rs. 35,000.00+18% GST= 41,300.00through RTGS/ NEFT by any Nationalised/Scheduled Commercial Bank in favour of UP Co-operative sugar factories federation ltd. payable at Lucknow.(RTGS payment details given in tender notice)
5	E-Bid EMD	Rs. 22,00,000.00 (Rs. Twenty Twolacs only) through RTGS/NEFT by any Nationalised/Scheduled Commercial Bank in favour of UP Co-operative sugar factories federation ltd. payable at Lucknow.
6	Last date & time of submission of bids	17/10/2022upto 6.55 PM
7	Pre- bid Meeting date & Time	29/09/2022 at 11.00 AM
8	Opening of technical bid (date & time)	18/10/2022 at 11.00 AM
9	Opening of financial bid (date & time)	19/10/2022 at 11.00 AM
10	Contact officer	Mr. S K Ohri, G.M.(Proj.) -7880888890 Mr. Vinod Kumar G.M.(Tech) -7880888809 Mr. AnkurVerma, A.O. (Proj. Fin.)-9450155435

5. All e-Bid must be accompanied by e-Bid Earnest Money Deposit (EMD). No Interest would be payable on e-Bid Earnest Money deposited with the Federation.

6. The e-Bids will be electronically opened in the presence of bidder's representatives, who choose to attend the venue on the date and time mentioned in the above table. An authority letter of bidders' representative will be required to be produced.

7. The Federation reserves the right to accept or reject any or all the e-Bids/annul the e-Bid process without assigning any reason thereof. The decision of the Federation will be final and binding on bidders.

8. In the event of date specified for e-Bids opening being declared a holiday for the Federation's office then the due date for opening of e-Bids shall be the following working day at the appointed time and place.

9. All the required documents including Price Schedule/BOQ should be uploaded by the e-Bidder electronically in the PDF/XLS format. The required electronic documents for each document label of Technical (Fee details, Qualification details, e-Bid Form and Technical Specification details) schedules/packets can be clubbed together to make single different files for each lab.

10. The companies/firms who are registered at e-Procurement portal for e-tendering with UP Electronics Corporation Ltd, 10 Ashok Marg, Lucknow-226002, would only be eligible for participating in this e-tender as well as in e-tendering system of U.P. Govt. departments. All companies/firms who have not registered themselves with UPLC Ltd, Lucknow for e-tendering till date can get their registration done by depositing a filled in form issued by UPLC Ltd, Lucknow along with registration fee for participating in this e-tender. The companies/firms, who are not having digital signature, can also get their digital signature on deposit of processing fees. The companies/firms may contact the officials on phone numbers (0522) 4130303 Extn. 305 & 307, 09721451211, for their Registration/Digital Signature Certificate related queries. The registration fee may also be deposited through RTGS (details as under):-

    M/s U.P. Electronics Corporation Ltd,
    Punjab National Bank
    Ashok Marg, Lucknow
    A/C No. 7177002100000669
    IFS code- PUNB0717700
    Rs.6000/-

For E-bid submission process Enquiry Please Contact Following Persons

Sri Rritvik Saxena (Federation) 9415526023, 7880888823

SECTION I : INSTRUCTIONS TO BIDDERS (ITB)

(A) THE BID DOCUMENT

1- Cost of e-Bid

a) The bidder shall bear all costs associated with the preparation and submission of its e-Bid and U.P. Co-operative Sugar Factories Federation Ltd, Lucknow (hereinafter referred to as "the Purchaser"), will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the e-Bid process.

b) This tender document is available on the web site https://etender.up.nic.in and www.upsugarfed.orgto enable the bidders to view, download the e-Bid document and submit e-Bids online up to the last date and time mentioned in e-Tender notice/e-tender document against this e-Tender.

The bidders shall have to pay e-Tender document fee of Rs.35,000.00 + 18% GST= 41,300.00 in favour of U.P. Co-operative Sugar Factories Federation Ltd, Lucknow. This e-tender document fee will be non-refundable.

2- Contents of e-Bid Document

2.1 The goods required to be supplied; e-Bid procedure and contract terms and conditions are prescribed in the e-Bid document. The e-Bid document includes:

Invitation for e-Bid

Section I	: Instruction to bidders (ITB);
Section II	: Conditions of E-tender/ Contract (CC),
Section III	: Technical e-Bid;
Section IV	: Financial e-Bid;

2.2 The bidder is expected to examine all instructions, forms, terms and specifications in the e-Bid document. Failure to furnish all information required as per the e-Bid document or submission of e-Bid not responsive to the e-Bid document in every respect will be at the bidder's risk and may result in rejection of the said e-Bid.

3- Clarification of e-Bid Document

A prospective bidder requiring any clarification of the e-Bid document may raise his/her point of clarification through Bid Management Window after successfully login to the e-Procurement website https://etender.up.nic.in. The bidder may seek clarification by posting query in the relevant window after clicking "Seek Clarification" option in the view e-tender details window for e-tender which can be selected through my tender option of e-Bid submission menu. The clarification will be replied back by the Purchaser through the e-Procurement website which can be read by the bidder through the "Clarification" option under Bid Submission menu. The Purchaser may also respond to clarifications raised by the prospective bidders on Purchaser's e-mail address upsugarfed@yahoo.co.in.

4- Amendment of e-Bid Document

4.1 At any time prior to the deadline for submission of e-Bid, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the e-Bid document by amendments. Such amendments shall be uploaded on the e-Procurement website https://etender.up.nic.in and Purchaser's web site www.upsugarfed.org through corrigendum and shall form an integral part of e-Bid document. The relevant clauses of the e-Bid document shall be treated as amended accordingly.

4.2 It shall be the sole responsibility of the prospective bidders to check the web site https://etender.up.nic.in and www.upsugarfed.org from time to time for any amendment in the e-tender document. In case of failure to get the amendments, if any, the Purchaser shall not be responsible for it.

4.3 In order to allow prospective e-Bidders a reasonable time to take the amendment into account in preparing their e-Bids, the Purchaser, at his discretion, may extend the deadline for the submission of e-Bids. Such extensions shall be uploaded on the e-Procurement website https://etender.up.nic.in and Purchaser's web site www.upsugarfed.org.

(B) PREPARATION OF e-Bid

5- Language of e-Bid

5.1 The e-Bid prepared by the bidder, as well as all correspondence and documents relating to the e-Bid exchanged by the bidder and the Purchaser shall be written either in English or Hindi language. The correspondence and documents in Hindi must be accompanied by embedded/separate Hindi font files. Only English numerals shall be used in the e-Bid.

6- Documents Constituting the e-Bid

6.1 The e-Bid prepared by the bidder shall comprise the following components:

(a) **Technical e-Bid** - It will comprise of:

(i) **Fee Details-** includes copies of e-tender document processing/Cost and e-Bid Earnest Money Deposit.

(ii) **Qualification Details** – includes copies of required documents as per ITB Clauses 10 and 11 in PDF format justifying that the bidder is qualified to perform the contract if his/her bid is accepted and that the bidder has financial, technical and production capability necessary to perform the contract and meets the criteria outlined in the Qualification Requirement and Technical Specification and fulfill all the conditions of the Contract and that the goods and ancillary services to be supplied by the bidder conform to the e-Bid document and Technical Specifications.

(iii) **e-Bid Form** – includes copy of filled in e-Bid Form as per Section-III(A) of e-tender document in PDF format justifying that the bidder is complying with all the conditions of the Contract and Technical Specifications of the e-Bid Document as no deviation will be acceptable to the Purchaser.

(iv) **Technical Specification Details** – includes copy of filled in Technical Specifications as per Annexure-II of Technical e-bid. HMBD will be submitted in technical bid.

(b) **Financial e-Bid**– Financial e-Bid will comprise of:

(i) **e-Bid Form** – includes copy of filled in e-Bid Form as per Section-IV (A) of e-tender document in PDF format.

(ii) **Price Schedule/BOQ -**includes Price Schedule/BOQ as per Section-IV (B) in XLS format to be filled after downloading from the e-Procurement website for this e-tender.

7- e-Bid Form

7.1 The bidder shall complete the e-Bid Form and the appropriate Price Schedule/BOQ furnished in the e-Bid document, including the goods to be supplied, their quantities and prices in the format given in the e-Bid document.

8- e-Bid Price

8.1 The bidder may quote in the downloaded spread sheet file for Techno-commercial proven technology jobs regarding technical upgradation for improvement in working efficiency /modernization of The KisanSahakariChini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, all civil and structural works etc.) as per specifications and scope of work given in the bid document.

8.2 The price is F.O.R Destination including all duties and other taxes/GST.

The price quoted as above as 8.1 will be inclusive of basic rate, packing & forwarding, freight charges, Loading/Unloading charges, custom duty/GST, insurance, all other taxes & duties levied by Central/State Government and other relevant miscellaneous expenses etc. ,as per scope of work given in bid document.

8.3 Prices quoted by the bidder shall be fixed (during the bidder's performance period of the Contract) and not subject to variation on any account subject to ITB Clause. E-Bid submitted with an adjustable price quotation unless asked for shall be treated as non-responsive and rejected.

9- e-Bid Currencies

Prices shall be quoted in Indian Rupees only.

10- Documents Establishing bidder's Qualification

10.1 Pursuant to ITB Clause 6, the bidder shall furnish, as part of its Technical e-Bid, documents establishing the bidder's qualification to perform the Contract if its e-Bid is accepted. The documentary evidence should be submitted by the bidder electronically in the PDF format.

10.2 The documentary evidence of bidder's qualification to perform the Contract if its e-Bid is accepted shall be as per Pre-Qualification Requirements given in section ll (2) and shall be submitted as specified in e-tender document.

11- Documents establishing good's Conformity to e-Bid Documents

Pursuant to ITB Clause 6, the bidder shall furnish, as part of its e-bid, documents establishing the conformity to the e-Bid documents of all goods and services which the bidder proposes to supply under the contract. The documentary evidence should be in form of the PDF file format.

12- e-Bid Earnest Money Deposit (EMD)

12.1 Pursuant to ITB Clause 6, the bidder shall furnish, as part of its e-Bid, an e-Bid EMD of Rs. 22.00 lakhs (Rs.Twenty two lacs only) in favour of U.P. Co-operative Sugar Factories Federation Ltd., Lucknow. No Interest on EMD will be paid.

EMD furnished by all unsuccessful bidders will be returned to them (except successful and L2 bidder) without any interest whatsoever at earliest after issue of LOI. EMD of L2 will be refunded, without any interest after execution of Agreement with successful bidder.

12.2 The e-Bid E.M.D is required to protect the Purchaser against the risk of bidder's conduct which would warrant the EMD's forfeiture.

12.3Any e-Bid not secured in accordance with ITB Clauses 12.1 and 12.3 above shall be treated as non-responsive and rejected by the Purchaser.

12.4 Forfeiture of EMD:

EMD of a tenderer will be forfeited, if the tenderer withdraws or amends his tender or impairs or derogates from the tender in any respect after expiry of the deadline for the receipt of tender but within the period of validity of his tender. Further, if the successful tenderer fails to furnish the required performance security within the specified period, his EMD will be forfeited.

12.5 Refund of EMD:

EMD furnished by all unsuccessful tenderers will be returned to them without any interest whatsoever, at the earliest after expiry of the final tender validity period but not later than 30 (thirty) days after conclusion of the contract. EMD of the successful tendererwillbe be returned, without any interest whatsoever, after receipt of performance security in the form of FDR from him as called for in the contract.

13- Period of Validity of e-Bid

13.1 e-Bid shall remain valid for 90 days from the opening of financial bid pursuant to ITB Clause 19.B-2. An e-Bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.

13.2 In exceptional circumstances, the Purchaser may solicit the bidder's consent to an extension of the period of e-Bid validity. The request and the response thereto shall be made in writing. A bidder may refuse the request without forfeiting its e-Bid security. A bidder granting the request will not be required nor permitted to modify its e-Bid.

14- Format and Signing of e-Bid

14.1 The bidder shall prepare one electronic copy of the Technical e-Bid and Financial e-Bid.

14.2 The e-Bid document shall be digitally signed, at the time of uploading, by the bidder or a person or persons duly authorized to bind the bidder to the Contract. The letter authorization shall be indicated by a scanned copy of written power-of-attorney accompanying the e-Bid. All the pages/ documents of the e-Bid that are to be uploaded shall be digitally signed by the person authorized to sign the e-Bid.

15- Submission of e-Bid

The Bid Submission module of e-Procurement website https://etender.up.nic.in enables the bidders to submit the e-Bid online in response to this e-tender published by the Purchaser. Bid Submission can be done only from the Bid Submission start date and time till the Bid Submission end date and time given in the e-tender. Bidders should start the Bid Submission process well in advance so that they can submit their e-Bid in time. The bidders should submit their e-Bid considering the server time displayed in the e-Procurement website. This server time is the time by which the e-Bid submission activity will be allowed till the permissible time on the last/end date of submission indicated in the e-tender schedule. Once the e-Bid submission date and time is over, the bidders cannot submit their e-Bid. For delay in submission of e-Bid due to any reasons, the bidders shall only be held responsible.

The bidders have to follow the following instructions for submission of their e-Bid:

15.1 For participating in e-Bid through the e-tendering system, it is necessary for the bidders to be the registered users of the e-Procurement website https:// etender.up.nic.in. The bidders

must obtain a User Login Id and Password by registering themselves with U.P. Electronics Corporation Limited, Lucknow if they have not done so previously for registration. Refer to details given in Invitation for e-Bid Clause 10.

15.2 In addition to the normal registration, the bidder has to register with his/her **Digital Signature Certificate (DSC)** in the e-tendering system and subsequently he/she will be allowed to carry out his/her e-Bid submission activities. Registering the Digital Signature Certificate (DSC) is one time activity. Before proceeding to register his/her DSC, the bidder should first log on to the e-tendering system using the User Login option on the home page with the Login Id and Password with which he/ she has registered as per clause 15.1 above.

For successful registration of DSC on e-Procurement website http://etender.up.nic.inthe bidder must ensure that he/she should possess Class-2/ Class-3 DSC issued by any certifying authorities approved by Controller of Certifying Authorities, Government of India, as the e-Procurement website https:// etender.up.nic.in is presently accepting DSCs issued by these authorities only. The bidder can obtain User Login Id and perform DSC registration exercise as described in clauses 15.1 and this clause 15.2 above even before e-Bid submission date starts. The Purchaser shall not be held responsible if the bidder tries to submit his/her e-Bid at the last moment before end date of submission but could not submit due to DSC registration problem.

15.3 The bidder can search for active tenders through "Search Active tenders" link, select a tender in which he/she is interested in and then move it to 'My Tenders' folder using the options available in the e-Bid Submission menu. After selecting and viewing the tender, for which the bidder intends to e-Bid, from "My Tenders" folder, the bidder can place his/her e-Bid by clicking "Pay Offline" option available at the end of the view tender details form. Before this, the bidder should download the e-tender document and Price Schedule/Bill of Quantity (BOQ) and study them carefully. The bidder should keep all the documents ready as per the requirements of e-tender document in the PDF format except the Price Schedule/Bill of Quantity (BOQ) which should be in the XLS format (Excel sheet).

15.4 After entering and saving the Tender Fee and EMD details, the bidder should click "Encrypt & Upload" option given in the online payment details form so that "Bid Document Preparation and Submission" window appears to upload the documents as per Technical (Fee details, Qualification details, e-Bid Form and Technical Specification details) and financial (e-Bid Form and Price Schedule/BOQ) schedules/packets given in the tender details.

15.5 Next the bidder should upload the Technical e-Bid documents for Fee details (e-tender fee and EMD), Qualification details as per "ITB Clause 10 and 21", e-Bid Form as per "Section-III(A) to III(I)" and Technical Specification details as per "Section-III(C):Technical Specifications" and Financial e-Bid documents as per "Section-IV(A):e-Bid Form" and "Section-IV(B):Price Schedule/BOQ" of e-tender document. Before uploading, the bidder has to select the relevant Digital Signature Certificate.
He may be prompted to enter the Digital Signature Certificate password, if necessary. For uploading, the bidder should click "Browse" button against each document label in Technical and Financial schedules/packets and then upload the relevant PDF/XLS files already prepared and stored in the bidder's computer. The required documents for each document label of Technical (Fee details, Qualification details, e-Bid Form and Technical Specification details) and financial (e-Bid Form and Price Schedule/BOQ) schedules/packets can be clubbed together to make single different files for each label.

15.6 The bidder should click "Encrypt" next for successfully encrypting and uploading of required documents. During the above process, the e-Bid documents are digitally signed using the DSC of the bidder and then the documents are encrypted/locked electronically with the DSC's of the bid openers to ensure that the e-Bid documents are protected, stored and opened by concerned bid openers only.

15.7 After successful submission of e-Bid document, a page giving the summary of e-Bid submission will be displayed confirming end of e-Bid submission process. The bidder can take a printout of the bid summary using the "Print" option available in the window as an acknowledgement for future reference.

15.8 Purchaser reserves the right to cancel any or all e-Bids without assigning any reason.

16- Deadline for Submission of e-Bid

16.1 e-Bid (Technical and financial) must be submitted by the bidders at e-Procurement website https://etender.up.nic.in not later than 17/10/2022 upto 06:55 PM (as the server time displayed in the e-Procurement website).

16.2 The Purchaser may, at its discretion, extend this deadline for submission of e-Bid by amending the e-Bid document in accordance with ITB Clause 4, in which case all rights and obligations of the Purchaser and bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

17- Late e-Bid

17.1 The server time indicated in the Bid Management window on the e-Procurement website https://etender.up.nic.in will be the time by which the e-Bid submission activity will be allowed till the permissible date and time scheduled in the e-tender. Once the e-Bid submission date and time is over, the bidder cannot submit his/her e-Bid. Bidder has to start the Bid Submission well in advance so that the submission process passes off smoothly. The bidder will only be held responsible if his/her e-Bid is not submitted in time due to any of his/her problems/faults, for whatsoever reason, during e-Bid submission process.

18- Withdrawal and Resubmission of e-Bid

18.1 At any point of time, a bidder can withdraw his/her e-Bid submitted online before the bid submission end date and time. For withdrawing, the bidder should first log in using his/ her Login Id and Password and subsequently by his/her Digital Signature Certificate on the e-Procurement website https://etender.up.nic.in. The bidder should then select "My Bids" option in the Bid Submission menu. The page listing all the bids submitted by the bidder will be displayed. Click "View" to see the details of the e-Bid to be withdrawn. After selecting the "Bid Withdrawal" option, the bidder has to click "Yes" to the message "Do you want to withdraw this bid?" displayed in the Bid Information window for the selected bid. The bidder also has to enter the bid Withdrawing reasons and upload the letter giving the reasons for withdrawing before clicking the "Submit" button. The bidder has to confirm again by pressing "Ok" button before finally withdrawing his/her selected e-Bid.

18.2 The bidder has to request the Purchaser with a letter, attaching the proof of withdrawal and submission of e-Bid EMD in the office of Purchaser, to return back the e-Bid security/EMD as per the manual procedure.

18.3 No e-Bid may be withdrawn in the interval between the deadline for submission of e-Bids and the expiration of period of e-Bid validity. Withdrawal of an e-Bid during this interval may result in the bidder's forfeiture of his/her e-Bid E.M.D, pursuant to ITB Clause 12.8.

18.4 The bidder can re-submit his/her e-Bid as and when required till the e-Bid submission end date and time. The e-Bid submitted earlier will be replaced by the new one. The payment made by the bidder earlier will be used for revised e-Bid and the new e-Bid submission summary generated after the successful submission of the revised e-Bid will be considered for evaluation purposes. For resubmission, the bidder should first log in using his/her Login Id and Password and subsequently by his/her Digital Signature Certificate on the e-Procurement website https://etender.up.nic.in. The bidder should then select "My Bids" option in the Bid Submission menu. The page listing all the bids submitted by the bidder will be displayed. Click "View" to see the details of the e-Bid to be resubmitted. After selecting the "Bid Resubmission" option, click "Encrypt & Upload" to upload the revised e-Bid documents by following the methodology provided in clauses 15.4 to 15.7.

18.5 The bidders can submit their revised e-Bids as many times as possible by uploading their e-Bid documents within the scheduled date & time for submission of e-Bids.

18.6 No e-Bid can be resubmitted subsequently after the deadline for submission of e-Bids.

(C) e-Bid OPENING AND EVALUATION OF e-Bid

19. (A) Opening of Technical e-Bid by the Purchaser

19.1 The Purchaser will open all technical e-Bids on 18/10/2022 at 11:00 AM, in the presence of bidders' representatives who choose to attend,atU.P. Co-operative Sugar Factories Federation Ltd, 9-A, Rana Pratap Marg, Lucknow. The bidder's representatives who are present shall sign a register evidencing their attendance. In the event of the specified date of e-Bid opening being declared a holiday for the Purchaser, the e-Bids shall be opened at the appointed time and place on the next working day.

19.2 The bidder's names and the presence or absence of requisite e-Bid security and such other details as the Purchaser at its discretion may consider appropriate, will be announced at the opening. The name of such bidders not meeting the Technical Specifications and qualification requirement shall be notified subsequently.

19.3 The Purchaser will prepare minutes of the e-Bid opening.

19.4 **Managing Director reserves the right to postpone the date and time of opening of Technical & Financial E-Bid in unavoidable circumstances and all the bidders will be informed accordingly.**

19. (B) Opening of Financial e-Bid

19.5 After evaluation of technical e-Bid, the Purchaser shall notify those bidders whose technical e-Bids were considered non-responsive to the Conditions of the Contract and not meeting the technical specifications and Qualification Requirements indicating that their financial e-Bids will not be opened. The Purchaser will simultaneously notify the bidders, whose technical e-Bids were considered acceptable to the Purchaser. The notification may be sent by letter, fax or by e-mail.

19.6 The financial e-Bids of technically qualified bidders shall be opened on 19/10/2022 at 11:00 AM in the presence of bidders who choose to attend the bid opening. The date for opening of financial bids will be communicated to the technically qualified bidders

subsequently after completion of technical e-bid evaluation. The name of bidders and quoted F.O.R. Price will be announced at the meeting.

19.7 The Purchaser will prepare the minutes of the financial e-Bid opening.

20- Clarification of e-Bid by Purchaser

During evaluation of e-Bid, the Purchaser may, at its discretion, ask the bidder for a clarification of his/her e-Bid. The request for clarification and the response shall be in writing.

21- Evaluation of technical e-Bid and Evaluation Criteria

21.1 The Purchaser will examine the e-Bid to determine that they are complete, whether they meet all the conditions of the Contract as per prequalification of bidder that required e-tender fee, e-Bid EMD, experience of similar projects and plant balancing details and other required documents have been furnished, that the documents have been properly digitally signed, and whether the e-Bids are generally in order. Any e-Bid or e-Bids not fulfilling these requirements shall be rejected.

21.2 The bidders shall submit the scanned copies of following as documentary proof for evaluation of their technical e-Bids of all the documents listed in eligibility criteria of bidder under section II; condition of E-Tender.

21.3 **The bidder shall submit the documentary proof of the Status of the company along with names of Directors/Partners/Proprietor along with documents.**

21.4 The e-Bids found to be not responsive to and not fulfilling all the conditions of the contract and not meeting Technical Specifications and Qualification Requirements to the satisfaction of Purchaser shall be rejected and may not be subsequently made responsive by the bidder by correction of the non-conformity. The e-Bids of bidders mentioning any of their conditions which are not mentioned in the e-tender document or are not in conformity with the conditions of the contract shall be rejected.

21.5 It shall be the discretion of the Purchaser to decide as to whether an e-Bid fulfils the evaluation criterion mentioned in this e-tender or not.

22 Financial Evaluation and Comparison of e-Bid

22.1 The Purchaser will evaluate and compare the financial rates of (Total price) quoted in the price schedule/BOQ of Nanauta mill of e-Bids of those bidders whose technical e-Bids are found responsive as per the conditions of the e-tender only for those items of the bidders which have been technically accepted by the Purchaser.

22.2 No additional payments shall be made for completion of any contractual obligation beyond the quoted prices. If the Seller does not accept the correction of errors if any, its e-Bid shall be rejected and its e-Bid security may be forfeited.

22.3 No weightage/preference shall be given to the bidder quoting any higher technical specifications against the technical specifications of the items asked in the e-tender.

22.4 The evaluation of a Financial bid shall be based on in terms of rate quoted including GST, other taxes/duties if any, packing forwarding, insurance etc. (Total Price), by the bidder forTechno-commercial proven technology jobs regarding technical upgradation for improvement in working efficiency /modernization of The KisanSahakariChini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified on EPC basis (Supply, erection and commissioning including designing,

engineering, manufacturing, procurement of bought out items, all civil and structural works etc.) as per specifications and scope of work given in the bid document.

22.5 The Financial Bids will be opened by Tender committee in the presence of Bidder's representatives who choose to attend the Financial Bid opening on date and time to be communicated to all the technically qualified Bidders. The Bidder's representatives who are present shall sign a register evidencing their attendance.

a) The name of Bidder, Bid Prices etc. shall be announced at the meeting. The commercial quotes of the lowest Bidder shall be notified as L-1. The rate offered by the L-1 shall be first taken into consideration.

b) In case successful bidder fails to execute Agreement, his EMD will be forfeited and shall be black listed from participating in any future bidding in Federation and legal action may be taken by the Federation for recovery of losses which may have sustained by federation on this account. Under these circumstances the Purchaser may award contract to other bidders at the same rate or cancel the tender & invite the bid again.

23- Contacting the Purchaser

23.1 Subject to ITB Clause 20, no bidder shall contact the Purchaser on any matter relating to his/her e-Bid, from the time of the e-Bid opening to the time the Contract is awarded. If the bidder wishes to bring additional information to the notice of the Purchaser, he/she can do so in writing.

23.2 Any effort by a bidder to influence the Purchaser in its decisions on e-Bid evaluation, e-Bid comparison or contract award may result in rejection of the bidder's e-Bid.

24- Award Criteria

24.1 The Purchaser will determine to its satisfaction whether the bidder(s) that is selected as having submitted the lowest rate (L-1) evaluated responsive bid meets the criteria specified in ITB Clause 10 and is qualified to perform the contract satisfactorily.

24.2 Subject to ITB Clause 26, the Purchaser will award the contract to the lowest rate (L-1) evaluated successful Bidder whose bid has been determined to be responsive to all the conditions of the contract and meeting the Technical specification and qualification requirement of the Bidding Document.

24.3 After awarding contract to the successful bidder, Agreements as per Section III (C), will be executed within 15 days of issue of Letter of Intent (LOI). Draft Agreements regarding supply, Erection & Commissioning are enclosed in the bid form.

24.4 Purchaser's right to vary Quantities at the Time of Award

24.5 Purchaser's right to accept any e-Bid and to reject any or all e-Bids

The Purchaser reserves the right to accept or reject any e-Bid, and to annul the e-Bid process and reject all e-Bids prior to contract award at any time without assigning any reasons thereof, without thereby incurring any liability to the affected bidder or bidders.

24.6 Issue of Letter of Intent (LOI)

The Purchaser will issue LOI to the successful bidder in writing by letter/e-mail/fax.

24.7 **Signing of Contract**

The successful bidder is required to sign the agreement as per draft Agreements provided in the bid document within 15 days from the date of issue of Letter of Intent(LOI).

SECTION II: CONDITIONS OF E-Tender/ CONTRACT (CC)

On line e-bidding forTechno-commercial proven technology jobs regarding technical upgradation for improvement in working efficiency /modernization of The KisanSahakariChini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters ,under the aegis of U.P.Cooperative Sugar Factories Federation Ltd. Lucknow on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, all civil and structural works etc.) as per specifications and scope of work given in the bid document.

Definition of Bidder

The Bidder's may be any one of the following: - Company (registered as per Indian Companies Act) or Group of Companies (Companies owned by the promoters of a Single Industrial Group and the Companies must be registered as per Indian Companies Act) or Limited Liability Partnership – LLP (registered as per Limited Liability Partnership Act, 2008) or private limited company or Partnership Firm (registered as per Indian Partnership Act, 1932).

25. Pre-qualification of the bidder (Eligibility Criteria):

1. The Bidder during the last five years must have successfully completed two similar type of upgradation, modernization/expansion work in existing sugar mills, on Turnkey/EPC basis including Designing, Engineering, manufacture / procurement, supply, erection, and commissioning (including Civil Work) with satisfactory performance in India with target steam consumption@45 (±2) % on cane in executed projects.

   The bidder will submit the Performance certificate for successful completion/executed similar type of projects from the clients in technical bid. The bidder will also submit the HMBD fuel-steam-power balance, evaporator bodies configuration (including additional and existing heating surface) in order to achieve the desired steam consumption on cane in nanauta sugar mill.
2. Bidder blacklisted or engaged in any legal proceedings with U.P. Cooperative Sugar Factories Federation, Lucknow/Cooperative Sugar Mill/NCDC/NFCSF or by any Central/State Government organizations are not eligible. The bidder will furnish undertaking about this.
3. The turnover of the bidder during last five financial years should be not less than Rs. 08 crores (minimum) for each year **OR** average turnover of Rs. 10 crores (minimum) for above mentioned five year. The Bidder will submit the details of last five year turnover duly certified by Chartered Accountant (with UDIN No.), along with last five years Audited Balance Sheet.
4. The bidder shall submit the copies of the last five years filled Income Tax Return alongwith self-certified copy of PAN card.
5. The Net Worth of the bidder should be at least Rs. 10 crores as on the date of bidding duly certified by banker as per Performa given in technical Bid. The Bank net worth of the Bidder shall be atleast Rs. 10 crores (Rupees ten crores) issued by the banker (Nationalized/Scheduled Commercial bank) and Chartered Accountant (with UDIN No.) not earlier than 3 months from the bidding date.
6. Other conditions which are necessary to be fulfilled by the Bidder.

   a) EMD will be Rs. 22,00,000.00 (Twenty two lacs only) through
   b) RTGS/NEFT.
   c) Price of e-bid document will be Rs. 35,000.00+GST(18%) through RTGS/NEFT.
   d) Tender without EMD and e-bid Document fee will be rejected.
   e) All required documents as per tender document.

GUIDELINES FOR BIDDER

1. The bidders are advised to visit the Sugar Mill to assess the actual work at the project site, capacities of equipment, evaporator station configuration and bleeding scheme, before submitting their bids.
2. The bidder must also assess the dismantling work of structures/buildings and all type of civil work of foundation etc., at the site, which is included in the scope of work of the Seller.
3. The price quoted should be valid upto 24 months after commissioning of equipment/system.
4. Bid price will include timely supply of various equipment/systems,modification in system,erection & commissioning including civil work and operation / maintenance of newly erected equipment and systems for 24 months after commissioning of equipment. Consumables & spares for trouble free operation of equipment/machinery & their maintenance will be provided by mill after commissioning.
5. The information given in the bid documents and the plans and drawings forming part thereof is merely intended as general information without any undertaking on the part of the Purchaser as to their accuracy and without obligation relative thereto upon the Purchaser. Before submitting bid, the bidders are advised to inspect the Sugar Mill plant & site of work and the environments and be well acquainted with the actual working and other prevalent conditions, facilities available, rules and regulations of Central and State Government Act governing the construction and operation of the Sugar Mill plant etc. No claim will be entertained later on the grounds of lack of knowledge.
6. All staging, structure, staircase & platform etc will be provided by the party to suit the working facility. Seller shall supply the critical / important equipment among the choices given in Annexures of Draft Agreement, subjected to Purchaser's approval. IN case of any dispute regarding specifications of equipment, the decision of NFCSF/UPCSFFL will be final.

A Pre-bid conference meeting will be held with interested parties on the date mentioned in the Time Schedule of Bid Process at Meeting hall of UP Coop. Sugar Factories Federation Ltd., 9-A Rana Pratap Marg, Lucknow to answer prospective bidder's clarifications/queries and any suggestions relating to the Bidding. After Pre-bid conference if UP Coop. Sugar Factories Federation Ltd. may consider to amend Technical and Financial Bid document based on the suggestions of interested parties, and then the amended Technical and Financial Bid will be uploaded at e-tender site https://etender.up.nic.in. as corrigendum.

7. Power of Attorney of the person who has signed the tender documents.
8. Affidavit of bidder that he has not been blacklisted.No legal proceedings should be on account of non-satisfactory performance due to any type of work in any govt. Organizations.Such affidavit should be provided.
16. Networth certificate of the banker in the following format:

TO WHOM IT MAY CONCERN

This is to certify that M/s …… having its registered office at …… is maintaining current A/c in our bank at …….. Branch. The average monthly transaction in this account is Rs……. (in words). M/s …… is also availing credit facility from this bank upto the limit of Rs. ……. (in word).

It is further certified that M/s ……. is valuable customer of our bank and it's net worth is a sum of Rs. ……. Crores.

Signature of Bank Manager
Manager ID No
Seal of Bank
Date _____

17. If the bidder deliberately gives wrong information in the bid especially wrong performance certificate of successful execution of his earlier work, the Purchaser reserves the right to reject such bid at any stage or to cancel the contract, if awarded & forfeit Earnest money.

26. Disqualification

Notwithstanding anything to the contrary contained in this Technical and Financial Bid documents and without prejudice to any of the rights or remedies of the UP Coop. Sugar Factories Federation Ltd., the UP Coop. Sugar Factories Federation Ltd. at any stage of the process and its participation in the process and/or its TECHNICAL & FINANCIAL BID and subsequent submissions be dropped from further consideration for any of the reasons including without limitations those listed below:

a) Failure to produce proof documents given under prequalification of bidder under section-II of conditions of e-tender regarding execution of similar type of works including appropriate HMBD fuel-steam-power balance to achieve the desire results
b) Bidder blacklisted or undergoing legal proceedings with U.P. Cooperative Sugar Factories Federation, Lucknow/NCDC/ NFCSF and by any Central/State Government organizations are not eligible; or
c) Failure to deposit tender fee ,EMD and other documents as per listed in eligibility criteria of the bidder; or

d) UP Coop. Sugar Factories Federation Ltd. is not satisfied with credit worthiness/ownership structure of the Prospective Bidder; or

e) Failure to comply with the reasonable requests of UP Coop. Sugar Factories Federation Ltd. in relation to the EPC Process; or

f) If it is discovered at any time that the Prospective Bidder is subject matter of winding up or insolvency or other proceedings of similar nature; or

g) Any information regarding the Prospective Bidder which becomes known to UP Coop. Sugar Factories Federation Ltd. and which is detrimental to proposed process and/or the interests of UP Coop. Sugar Factories Federation Ltd.; or

h) Initiation or existence of any legal proceedings, by or against the Prospective Bidder in respect of UP Coop. Sugar Factories Federation Ltd., which proceeding may be prejudiced by the participation of the Applicant in the short listing of Prospective Bidder; or

i) Any restrictions or limitations have been put on the Prospective Bidder pursuant to any regulatory or statutory guidelines to participate in the process; or

j) The Prospective Bidder has been convicted for an offence under any legislation designed to protect the members of the public from financial loss due to dishonesty, incompetence or malpractice; or

k) The Prospective Bidder has been disqualified from participating in any tender either by Government of India or any of the State Governments/ Union Territory Governments, mere pendency of an appeal against the order of disqualification, if any, passed by Government of India or any of the State Governments/ Union Territory Governments will have no effect on the disqualification of Prospective Bidder; or

l) If information becomes known after the Prospective Bidder has been qualified at any stage to proceed with the process, which would have entitled UP Coop. Sugar Factories Federation Ltd. to reject or disqualify the relevant Prospective Bidder, at that time, or at any time, such information becomes known to the UP Coop. Sugar Factories Federation Ltd.

m) UP Coop. Sugar Factories Federation Ltd.'s determination that one or more of the events specified above have occurred shall be final and conclusive.

27. All pages of the Bid document including drawing shall be initialed with seal at the lower right hand corner or signed with seal wherever required in the Bid documents by the Bidder or by a person holding power of attorney authorizing him to sign on behalf of the Bidder before submission of tender. All signatures in Bid documents shall be dated as well.

28. **DECLARATION** (to be submitted by the Bidder)

(To be submitted on Bidders letter head)
To,

The Managing Director
UP Co-operative Sugar Factories Federation Ltd.
9-A, Rana Pratap Marg
Lucknow, Uttar Pradesh
Ref: Tender No. Date:

This has reference to your Tender Notice. Accordingly we are submitting our offer. I/We declare that I/We have gone through and carefully examined the scope of supply, erection,civil work and commissioning of equipment/systems as per scope of work in bid document, terms and conditions, technical specifications and other details enclosed with this Agreement. We hereby confirm that the scope of supply & the other technical details of our offer conform strictly to your technical specifications. We have enclosed all technical details, drawings & other information as required in your requisition.

We have read and understood the above terms & conditions of this tender and hereby agree to abide by them and the same are acceptable to us.

Authorized signature with
Co. Rubber Stamp.

Date:
Place:

SECTION III: TECHNICAL E-BID

III(A) e BID FORM
III(B) SCHEDULE OF REQUIREMENTS
III(C) DRAFT AGREEMENT FOR SUPPLY
III(D) DRAFT AGREEMENT FOR ERECTION&COMMISSIONING
III(E) CAPABILITY STATEMENT
III(F) DRAFT M.O.U. FOR CONSORTIUM
III(G) DRAFT AFFIDAVIT

SECTION III(A): e-BID FORM

e-Bid Ref. No 53/UPF/PRO.FIN/NANAUTA/42 Date: ……..

To:

The Managing Director,
U.P. Co-operative Sugar Factories federation Ltd,
9-A, Rana Pratap Marg Lucknow (U.P)-226001

Dear Sir,

Having examined the e-Bid Documents, we, the undersigned, offer to deliver Techno-commercial proven technology jobs regarding technical upgradation for improvement in working efficiency /modernization of The KisanSahakariChini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters ,under the aegis of U.P.Cooperative Sugar Factories Federation Ltd. Lucknow on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) as per specifications and scope of work given in the bid document.

The Seller will also operate and maintain the newly supplied, erected and commissioned equipment/ system for 24 months after commissioning. warranty of all new equipment/systems will be for 24 months from the commissioning date and all non performing parts/equipment will be rectified/replaced free of cost during this period. We undertake to supply, erect and commission the machinery/equipment as per desired specifications with trials upto 30 september, 2023**.** The equipment/systems will be commissioned and trialed by specified date.

In addition to this, the particulars of our organization such as legal status, details of experience & past performance, capability statement & required e-bid EMD* for Rs. Twenty two lac only is furnished with this e-bid form.

Until a formal contract is prepared and executed, this e-Bid, togather with your written acceptance thereof and your Letter of Intent shall constitute a binding contract between us.We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1998".

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

Dated this.....day of……20.....

Signature (in the capacity of)
Duly authorized to sign e-Bid for and on behalf of.....

SECTION III (B): SCHEDULE OF REQUIREMENTS

Item Code	Brief Description	Destination	Time for Completion	e-Bid E.M.D.
for Techno-commercial proven technology jobs regarding technical upgradation for improvement in working efficiency /modernization of The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters ,under the aegis of U.P.Cooperative Sugar Factories Federation Ltd. Lucknow on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items,all civil and structural works etc.) and operate and maintain of all newly commissioned equipment and systems for 24 months from date of commissioningas per specifications and scope of work given in the bid document.		**The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh**	**before 30 September, 2023 with trials and complete in all respect to run and to give desired results.** **No time extension will be given to complete the project in all respect except force majeure, if any.**	Detail of Payment with date and UTR No.

SECTION III (C)- DRAFT AGREEMENT FOR TECHNICAL UPGRADATION JOB FOR IMPROVEMENT IN WORKING EFFICIENCY/MODERNIZATION OF THE KISAN SAHAKARI CHINI MILLS LTD., NANAUTA, DIST. SAHARANPUR, UTTAR PRADESH

(OnRs. 500/- non-judicial stamp paper)

THIS AGREEMENT MADE on the day of ……..between The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh through Sri----------,---------- (hereinafter referred to as the 'Purchaser' which expression shall, unless repugnant to the subject or context include their successors) of the One Part and .....**,** a company registered under the Companies Act, 1956, having its registered office at ....., and work place of business at ....., represented by Shri ..... (Hereinafter referred to as the "Seller" which expression shall unless repugnant to the subject or context include their legal representatives, administrators, successors).

WHEREAS the Bid of the 'Seller' contained in their bid document dated ..... as to supply (including designing, engineering, manufacturing, procurement of bought out items,all civil and structural works etc.), Erectionand Commissioning for Techno-commercial proven technology jobs regarding technical upgradation for improvement in working efficiency /modernization of The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters,under the aegis of U.P.Cooperative Sugar Factories Federation Ltd. Lucknow on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) as per specifications and scope of work given in the bid document.

Trial of system to normsin accordance with the delivery schedule specified in the Schedule of Requirements (Section III (B) **at The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur**, Uttar Pradesh has been accepted by the Purchaser and the Seller has been awarded the Letter of Intent No. …… dated....., according to specifications etc. given in **Annexure I to VI** forming part of this Agreement on the terms and conditions hereinafter appearing.

AND WHEREAS the Contract Price hereinafter mentioned is based on the Seller's undertaking to supply (including designing, engineering, manufacturing, procurement of bought out items,all civil and structural works etc.), Erection and Commissioning for Techno-commercial proven technology jobs regarding technical upgradation for improvement in working efficiency /modernization of The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters,under the aegis of U.P.Cooperative Sugar Factories Federation Ltd. Lucknow on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) as per specifications and scope of work given in the bid document.

The date of completion of project is before 30 September 2023. The mill will handover site clearance in writing to seller regarding every equipment and system. **Seller will give trials as per schedule is the essence of contract & if the Sellers fails to do so, the Seller shall pay liquidated damages as hereinafter provided, as per terms of this Agreement, subject to the Purchaser fulfilling the obligation in time except under force majeure conditions.**

NOW THEREFORE, the parties hereto have agreed on the following terms for procuring, manufacturing, supplying the said Machinery and Equipment & performance and other matters connected therewith referred to herein.

1.0 DEFINITION

(a) **Site:** Site shall mean the location of Sugar Mill where the aforesaid plant & machineries of system are to be set up.

(b) **Machinery and Equipment:** The Machinery and Equipment shall mean the equipment and machineries required for upgradation/modification of existing plant of the Sugar Mill & establishment of new system.

(c) **Purchaser:** Purchaser means The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur and their legal successors in title to the Purchaser but not (except with the consent of the Seller) any assignee of the Purchaser.

(d) **Seller:**Seller means successful bidder M/s._____ (Name of machinery Seller) India, whose bid has been accepted by the Purchaser and legal successor in title to the Sellers but not any assignee of the Sellers.

(e) **Contract Price:** Contract Price means the sum stated in the Contract mentioned in this bid document.

(f) **Bid:**Bid means the price offered by the successful bidder to the Purchaser for the supply of system forTechno-commercial proven technology jobs regarding technical upgradation for improvement in working efficiency /modernization of The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters,under the aegis of U.P.Cooperative Sugar Factories Federation Ltd. Lucknow on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) as per specifications and scope of work given in the bid document.

(g) Completion Time: **Completion time means delivery, erection and commissioning of project with trials before 30 September, 2023.**

(h) **Basic Price** means price stated in this bid document.

2.0 SCOPE OF SUPPLY IN TOTALITY

Supply (including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) of system on for Techno-commercial proven technology jobs regarding technical upgradation for improvement in working efficiency /modernization of The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters ,under the aegis of U.P.Cooperative Sugar Factories Federation Ltd. Lucknow on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) as per specifications and scope of work given in the bid document.

The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. SaharanpurUttar Pradesh as detailed here under for achieving the guaranteed performance parameters specified for each section (according to specifications etc. given in bid document forming part of this Agreement).

2.1 The mill will handover site clearance in writing to seller regarding every equipment and system. The Seller will be responsible for providing an efficient, reliable and state of art technology equipment. The specifications in this Agreement, attempt to define the scope and specifications. However, the onus of providing the appropriate equipment and auxiliaries for successful commissioning, proving performance and operation, entirely rests with the Seller, both for modification and units.

The scope of work for the machineries and equipment and associated systems covered under the specifications will include, but not limited to the following;

i. Design, engineering, giving necessary details of each and every station, manufacture, procurement and supply including fabrication, assembly, shop testing and inspection at manufacturer's works/site as required. (According to specifications etc. given in bid document forming part of this Agreement).All**Drawing and design will be validated by mill/ national federationespecially for evaporator configuration and bleeding arrangement to get the desired results. National federation decision will be final in case of drawings, machinery specifications and for any other technical matter.**

ii. Providing all laborers, materials and equipment for fabrication testing at shop / site, as required. Man power for trial and commissioning will be supplied by the party.

iii. ALL tools and tackles required for erection will be provided by the party.

iv. The specifications are intended to cover the design, engineering layout, manufacture /procure, supply, erection, testing and commissioning of entire process modification and package units equipment, associated systems, electrical distribution system, necessary piping /supports / valves / instruments, PLC based control & instrumentation system, necessary structures and supervision of work of erection, commissioning and civil & structural works.**Provision of platforms, ladders etc. will be in the seller scope for trouble free operation of the equipment/vessels.**

v. Supplies and services shall be rendered in conformity with proven engineering principles, taking into account the current state of the art technology. The requirements of the contract must be fulfilled in its entirety.

vi. The supplies and services within the scope shall be rendered inclusive of all appliances and interconnecting arrangements, necessary for installation of all accessories and for satisfactory operation, maintenance and repair.

vii. The scope of supply and services shall include all necessary work and supply of equipment and material whether mentioned in these specifications or not, but which are necessary for the satisfactory, reliable, safe operation, maintenance and required for achieving guaranteed performance parameters. **The specifications of equipment will be at par with the specifications laid down by national federation and best standard practices in sugar industry.**

viii. Any equipment, devices or material even if not included in specifications, but found necessary for the safe and satisfactory functioning of the unit, shall be supplied by the Seller at no extra cost to the Purchaser, as though, such equipment, material or work were not originally specified and formed part of the scope of work.

ix. Design and drawing of machinery, foundation, building and all other related civil works shall be in scope of Seller. Seller should provide above mentioned design/drawings duly signed by authorized person to Factory/Federation for vetting and approval.

x. The Seller will also dismantle old structure, foundation/building present at the site, if required will make all the arrangements to connect the old system to new supplied one.

xi. All civil work including all machinery foundations and structure as required.

xii. Erection and commissioning of all machinery and equipment.

xiii. ***Services - Design and Engineering***
Preparation of design calculations and detailed drawings.
Preparation of load data, coordinating drawings etc. along with foundation drawing to Purchaser for the purpose of approval of design and construction of machinery foundations
Preparation of Price Break-up, Billing Schedule, Delivery Schedule, Time Schedule for preparation of foundations
Preparation of Bills of Quantity
Preparation of manufacturing drawings
Preparation of quality assurance and inspection plans and implementation schedule.
Preparation of schedule for site testing and commissioning including system auditing.
Machinery layout

xiv. To various statutory requirements and guidelines of various Act/Statute/Rules.

xv. Erection & Commissioning
- Unloading, unpacking, shifting to locations, positioning, aligning and fixing of equipment which are included in contract
- Pre-commissioning checks.
- Commissioning , testing and trials runs and performance trial
- Completion of documentation and records.

xvi. Testing of materials
Testing of materials shall be carried out in Government authorized laboratories apart from manufacturer's laboratories at the cost of the Seller.

xx. **Inspections / Review Meetings**
Making the arrangements for periodical and final inspection of all major equipment at own or sub-contractor's works.Attending the periodical review meetings at site or at the agreed locations.

2.3 While preparing the delivery schedule, the Seller shall ensure that the machinery and equipment are delivered in sequence of priority for erection so that the items which are to be erected first as per erection schedule shall be sent first and with the same order of priority the progress of delivery shall be maintained thereafter accordingly.

2.4 The said monthly delivery schedule shall also indicate the approximate value of the major equipment The Seller may send some critical items with the written consent of the Purchaser before the due date of delivery. However, if the delivery of any of the item as per delivery schedule is delayed, the delivery of the subsequent items shall not be held up on this Account.

2.5 The performance of the equipment to be demonstrated as per details given in **Annexure – III** of this Agreement.

2.6 Provided further that in case the party requires any change in list of equipment's and machinery to get the desired results as per performance parameters, the same will be given in pre bid meeting for consideration.

2.4 The makes of the critical equipment to be supplied by the Seller will be strictly according to the alternative given in the bid document.

2.5 The Seller shall furnish month-wise (approx.) money requirement towards supply of machinery and equipment within one month from the date of signing of this Agreement.

2.7 The equipment/system is to be commissioned on the desired date finalized by the Purchaser without any price escalation. The price and date of delivery and commissioning of the machinery is firm.

2.8 The equipment/systems in Sugar Mill shall be designed, manufactured, supplied erected and commissioned & performed as per term & conditions of the Bid document

2.9 The system shall be erected on the available land/ dismantled and levelled land within / outside the existing premises.

2.10 All equipment and system erected and commissioned by the party will be operated and maintained for 24 months after commissioning.

2.11 The newly erected evaporator bodies will be connected with old system/bodies. This includes all juice/vapor/ condensate pipelines, valves etc. in all respect to achieve targeted steam consumption and to operate the bleeding system in coordination with old and new ev bodies.

3.0 CONTRACT PRICE

3.1 Supply, erection and commissioning (including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) for Techno-commercial proven technology jobs regarding technical upgradation for improvement in working efficiency /modernization of The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targetted identified qualitative parameters ,under the aegis of U.P. Cooperative Sugar Factories Federation Ltd. Lucknow on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) as per specifications and scope of work given in the bid document.

The Seller shall also need to complete all associated electrical, mechanical, PLC system, instrumentation work including all control rooms required for installation, commissioning of entire equipment and proving performance other related works herein mentioned at a total price of Rs …….. lacs (Rs ..... only) (hereinafter referred to as the 'Contract Price') subject to terms and conditions, hereinafter, provided.

The above price offered will be "F.O.R. destination i.e. site price" according to the specifications and details given in Annexures _____and includes Ex-works (Ex-Bidders or their sub-contractors workshop or place of supply loaded on trucks including packing and forwarding charges) price, necessary facilities, freight to site, all taxes and duties viz.GST and other leviable taxes/duties (as applicable) and insurance as per the break-up give below:

Sl.No.	Particulars	Amount (in lakhs)
i)	Basic Price **Supply, erection and commissioning (including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) for** Techno-commercial proven technology jobs regarding technical upgradation for improvement in working efficiency /modernization of The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targetted identified qualitative parameters ,under the aegis of U.P. Cooperative Sugar Factories Federation Ltd. Lucknow on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) as per specifications and scope of work given in the bid document.	
ii)	GST	
	Total Contract Price	

3.1.2 **Total of 3.1 (i) to (ii) above :Rs.....**

Total Contract Price Rs. _____Lacs_____)

3.2 It is to be clearly understood that the total Contract Price is Rs..... lakhs(Rupees ..... only) which includes the following:

i) All work given under scope of work on EPC basis and guidelines in the bid document.
ii) All Civil Foundation, bolts and packing plates and all related civil work.
iii) Cost of all other items which are necessary for completing supply as per scope of supply.
iv) All other taxes, duties and octroi paid by the Sellers or their sub-contractors on raw materials, components and other material for their own manufacturer of finished equipment or part of finished equipment.
v) Custom duty on imported machinery, equipment, raw material and finished goods.
vi) Freight and insurance costs, packing and forwarding charges
vii) Lagging, Painting materials, cost of pipeline etc.

Note:

Purchaser shall be entitled for the GST Credit benefits wherever legally permissible as per applicable provision relating to GST from time to time. Sellers shall ensure, in time, the requisites from their end to this effect.

3.3 The total Contract Price amounting to Rs..... lakhs above at 3.1.2 is firm upto satisfactory performance of the equipment and machinery. However, any increase or decrease in statutory taxes or duties will be made applicable to both the Purchaser & Seller subject to the authenticated proof. The increase in the amount of taxes and duties will be on Seller's account if the material is not supplied within the schedule time period.

The total price offered at above is inclusive of the total amount in respect of GST, and other taxes. The total price offered is also inclusive of GST and other duties at the destination point, on finished bought out items supplied directly to site from sub-contractors works. The goods will be sent duly insured by an Insurance Companies regulated by IRA as mentioned in this bid document.

All the above details of GST/taxes, duties actually paid by the Sellers shall be shown separately for own manufactured items and for bought out items and claimed by the Sellers from the Purchasers as a reimbursement of the same, in each invoice/bills to be submitted by the Sellers limited to the amount shown against column no. 3.1 (ii) and (vi). The amount shown in Seller's bill for payment of all such taxes, surcharges and duties will be computed on the basis of relevant statutory provisions in force on the date of dispatch and shall be the actual amount as paid by the Sellers. The Sellers shall furnish to the Purchasers with their bills excise duty gate pass in support of excise duty and special excise duty paid.

In order to pass on the GST benefits to the Purchaser, the Seller will have to deliver the transport copy of invoice along with relevant documents to the Purchaser as per timely requirement of GST. The Seller shall also provide the relevant documents to claim GST Credit benefits as required by concerned authorities. The Seller shall supply necessary documents as may be deemed necessary in this regard.

PROVIDED ALWAYS THAT the Purchaser or their authorized representatives shall be shown all original documents and accounting records in support of GST, customs duties on imported machinery/components and original bills of the sub-contractors for satisfying that the GST and other taxes as aforesaid has actually been paid to the sub-contractors including taxes and duties charged in bills.

3.4 Provided that not later **than 15 days of the date** of signing of this Agreement, the Seller shall furnish to the Purchaser a statement for price breakup subject approval of the seller as per which the Purchaser shall pay to Seller.

3.5 Likewise Seller shall also furnish to Purchaser, Billing Schedule **within 30 days of signing** of this Agreement with details along with month wise cash flow requirement.

3.6 The sale of Machinery and Equipment under this Agreement shall be governed by Sales of Goods Act/Goods and Services Act and all necessary documents of claiming GST credit will be exchanged between the Purchaser and Seller.

4.0 INSURANCE

The Contract Price mentioned in this bid document is inclusive of the charges for comprehensive risk insurance of all Machinery and Equipment and other consumables including Transit Insurance. Machinery and Equipment shall be directly dispatched to the Purchaser's Sugar Mill plant site from Seller/sub-contractors or sub-Sellers respective places of manufacture and dispatch and the transit insurance policy in respect thereof shall be arranged by the Seller at such premium rates with such insurance company as may be approved by the Purchaser and kept in full force and effect until commissioning of the said project.

The Sellers shall have the interest of the Purchasers noted upon such policies of insurance. The insurance policies shall be taken by the Sellers in the joint name of the Sellers and the Purchaser.

If any consignment is received at the place of destination in damaged condition or is lost in transit, the representative of the Purchaser will take open delivery from the carriers and will give suitable remarks in the delivery book maintained by the Station Master or other carriers about the loss or breakage in transit. The representative of the Seller shall lodge claims with the Railways or other carriers on behalf of the Purchaser in time with a copy to the Sellers Head Office to enable them to lodge claim with the insurance company. All realization of claims from the carrier/railway and insurance company, whether in the name of the Seller or the Purchaser, shall be to the account of the Seller. The Seller shall supply the replacement of Machinery and Equipment, goods or parts lost or damaged in transit, free of cost delivered at 'site' to the Purchaser within the time so as to adhere to the date of Performance Trial i.e. …….

It shall be responsibility of the Sellers to lodge the claims, if any, with the Insurance Company and to replace the items of plant and machinery lost or damaged. Such replacement to be done by the Sellers free of cost delivery at site within stipulated time so as to suit the date of Performance Trial. All moneys received against claims shall be to the account of the Sellers. In case of replacement no amount either in form of price or duty or tax or anything shall be paid to the Sellers, and GST, if again paid by the Sellers/their sub-contractors/sub-Sellers on replacement shall not be reimbursed.

5.0 DELIVERY

5.1 Seller agree for Techno-commercial proven technical upgradation jobs for improvement in working efficiency /modernization of The Kisan Sahkari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, all civil and structural works etc.) as per specifications and scope of work given in the bid document **at The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur from our manufacturing works/units as per specifications and scope of works outlined in bid document.**

The Seller agree start the supply of Machinery and Equipment, construction of foundations & buildings and erection and commission of machinery and Equipment specified, so that the supply of Machinery and Equipment and construction of foundations, and commissioning of Machinery and Equipment are completed within eight months from the date of agreement. Agreement will be made between the concerned sugar mill and the seller within 7 days after issue of letter of intent.

5.2 The Seller shall prepare and submit following to the Purchaser within 25 days from date of signing of this Agreement i.e. pert chart of supplies,erection, commissioning:

a) Finalize the drawings, with Purchaser's approval.Evaporator bodies lay out and bleeding connection details will be approved by mill.
b) A time schedule for construction of foundations,if any in the sequence required for the erection of the Machinery and Equipment to ensure commissioning of Machinery and Equipment.The price break up of all equipment.
c) A delivery schedule of Machinery and Equipment, the Seller shall ensure that the machinery and equipment are delivered in sequence of priority for erection so that the items which are to be erected first as per erection schedule shall be sent first and with the same order of priority the progress of delivery shall be maintained thereafter accordingly.

5.3 The Seller shall place orders and furnish to the Purchasers the order acceptance copies from respective sub-vendors (on their official letter heads) in case of bought out items for supply progressively of long delivery items, subject to the approval of Purchaser, before claiming the IInd installment of advance and shall keep the Purchaser informed about the same.

5.4 The Seller shall provide to the Purchaser load data, coordinating drawings etc. along with foundation drawing to Purchaser for the purpose of approval of design and to enable the Purchaser to inspect/check machinery foundations according to schedule referred to therein to ensure commissioning of all equipment& machineries.

5.5 The foundation drawings of machinery equipment prepared by the Architect of the Seller shall be vetted by the Purchaser before execution. The purchaser's civil engineer with their stamp of approval or comments, shall return the drawings within 5 days of submission by the Seller.

5.6 The checking of the machinery foundations shall be done jointly by the Seller and the Purchaser at Sugar Mill plant site.

6.0 The Sellers shall supervise the erection, commissioning & performance work to be carried out to the satisfaction of Purchasers. Since time is the essence of the contract, Seller shall ensure that erection work is completed in such a manner that Machinery & Equipment is commissioned as Scheduled date.

7.0 VISIT TO WORKSHOP AND INSPECTION:

7.1 The quality and design features and workmanship of the system equipment and machineries shall be strictly in accordance with bid documentforming part of this Agreement and standard engineering practices. The Purchaser shall inspect the items, as per inspection procedure laid down in bid document**.**
Inspection team will visit the place of manufacture, assembly of the machinery and also Purchaser plant site and inspect the same.
The Seller and their sub-contractors for bought out items shall offer the plant and machinery for inspection during the course of manufacture as well as before dispatch. Scheduled visits may be fixed by the Inspection team. The Seller shall give at least 7 days clear notice to the Purchaser and their nominated consultant before the dispatch of the machinery to the site. In case the Inspection Agency feels that inspection will be delayed before dispatch, they will accordingly send a certificate to the Seller with an instruction to dispatch the material attaching the certificate itself. Such materials will be inspected at site. The Seller shall supply necessary details of designs with calculations and drawings wherever required by the inspection agency for the verification of the details of specifications and for the purpose of inspection as incorporated in the Agreement. Details of items to be inspected and procedure there of etc.. The Purchaser or their Inspection Agency shall have the right to reject any material or assemblies or sub-assemblies if these are not of the specified quality and workmanship on the ground that they cannot be rectified.

7.2 The Purchaser or their nominee shall be within their rights to bring to the notice of the Seller any deviation observed from the specifications or standard engineering practices and the Seller shall be required to rectify such defects and deviations, if any, at their own cost. Such inspection by the Purchaser or their nominees shall not absolve the Seller from their

responsibility of supplying the plant and machinery in accordance with the **Annexures** and terms of this Agreement. Seller shall provide the necessary facilities to the inspecting agency for proper inspection and testing of the equipment at Seller's or his sub-contractors works.

PROVIDED that in case of any major change in procedure, the Inspection Agency shall give sufficient advance intimation to the Seller. The Seller shall also provide inspection facilities normally available at the plant site for machinery inspection.

7.3 The Seller or their sub-contractors shall also satisfy the Purchaser and/or their Inspection Agency that adequate provisions have been made (a) to carry out instructions of the Purchaser and/or the Inspection Agency fully and with promptitude (b) to ensure that parts or materials required to be inspected are not used before inspection and (c) to prevent rejected materials or parts from being used.

7.4 Where parts, assemblies or sub-assemblies not approved/passed by the Inspection Agency have been rectified or altered, such parts, assemblies or sub-assemblies shall be segregated for separate inspection and approved before being incorporated in the plant and machinery.

7.5 The Purchaser or their Inspection Agency shall have the right to give their inspection mark on all items inspected by them.

8.0 TRIALS

8.1 The water, steam and vacuum and other trials shall be conducted by the Seller, before the commissioning of the Machinery and Equipment after complete delivery and the erection by the Seller to the entire satisfaction of the Purchaser.**Manpower for trial and commissioning will be provided by the seller.**

8.2 On completion of the steam, water and vacuum trials to the entire satisfaction of the Purchaser and to that effect the Purchaser furnishes a certificate to the Seller that all the Machinery and Equipment mentioned in **Annexure I to VI** have been inspected and approved by the Inspection Agency, delivered as per detailed part list of material referred to above, erection and trials have been conducted satisfactorily under the supervision of Seller in accordance with the terms and condition of this Agreement.

9.0 PERFORMANCE TRIAL AND PERFORMANCE RELATED SECURITY IN THE FORM OF F.D.R. (AUTO RENEWED)& SECURITY MONEY:

9.1 The Seller hereby guarantee:

9.2 That all the Machinery and Equipment are supplied as specified in **Annexure I to II** under scope of work and technical specificationsforming part of this Agreement.

9.3 The performance parameters shall be achieved during performance trial as detailed in **Annexure-III**.

9.4 That all the machinery and equipment will be brand new of latest design and state of art technology,standard specifications and first class material and workmanship. Any part found defective within Twenty four months from the date of commissioning of the plant, shall be replaced fully or satisfactorily rectified by the Seller free of cost.

9.5 Entire Machinery and Equipment shall perform to establish the parameters detailed, under specifications and **Annexure-III** (Performance Parameters.) In effect of the same the Seller **shall submit FDR pledged in favour of the Purchaser** as detailed **at 16.4**

9.6 Seller shall conduct the successful performance trail of the equipment as per terms of this Agreement. The Purchaser shall give Ten days clear notice to the Seller for witnessing the performance trial. The performance trial should be conducted for **fiveconsecutivedays under normal working condition of mill within 12 months**after commissioning in the presence of representatives of:

1. Purchaser
2. Seller
3. Uttar Pradesh Coop. Sugar Factories Federation Ltd.
4. National Federation of co-operative sugar factories fed ltd, New Delhi

Any three authorized representative of the said Committee shall be necessary to form quorum for conduct the performance trial. The above said committee would tabulate the results achieved during the trial period of **five consecutive days** for the Machinery and Equipment indicating clearly whether performance has been achieved or not (reference performance parameters is given under **Annexure-III and Annexure-VII of technical e-bid document)(Performance Parameters and Performance Certificate**).

9.7 If the trials referred to in this document are completed according to the agreementand to the satisfaction of the representatives mentioned above, or in their absence to the satisfaction of Committee constituted of persons mutually agreed upon by the Purchaser and the Seller, a certificate to that effect shall be issued by the Purchaser to the Seller. On furnishing of such a certificate by the Purchaser, the Machinery and Equipment shall be deemed to have achieved the guaranteed performance.

9.8 **The Performance Security should be equivalent to 10 % (ten percent) of the value of the Total** contract price (including GST) rounded to the nearest multiple of hundred in form of F.D.R. pledged in the name of Nanauta Sugar Mill. (Auto Renewed).

9.9 Performance Security is to be furnished by a specified date (generally within 15 (fifteen) days from the date of notification of the award/letter of acceptance) and it should remain valid for a period of 30 (thirty) days beyond the date of completion of all contractual obligations of the supplier, including warranty obligations.

9.10 **Forfeiture of Performance Security**:

Performance security is to be forfeited and credited to Nanauta Sugar Mill Account in the event of a breach of contract by the seller in case if project is not commissioned and got performance trial with in specified time mentioned in Tender Document/Agreement.

9.11 **Refund of Performance Security:**

Performance Security will be refunded to the supplier without any interest, whatsoever, after it duly performs and completes thecontract in all respects under the contract including performance trial and warranty obligations.

9.12 **WARRANTY**

Warranty period will be for 24 months from the date of commissioning of project. During this period, any defective/non performing new equipments& machinery, will be repaired/replaced free of cost by the party.

9.13**Security money**

Security money will be 5% of the total contract price (excluding GST). This security money will be deducted on pro-rata basis from every bill.

This Security Money will be refunded after 30 days from the date of successful performance Trail.

9.14 The F.D.R. (Auto Renewed) required to be furnished by the Seller under the provision hereof to secure establishment of performance parameters of Machinery and Equipment supplied by them or for any other purpose under the provisions hereof shall be in the form of the Purchaser, which form(s) shall invariably include the provision that the decision of the Purchaser as to whether there has been any loss or damage or default and or negligence on the part of the Seller will be final and binding on the guarantor/issuer bank, that the right of the Purchaser shall not be affected or suspended by reason of the fact that any dispute or disputes have been raised by the Seller with regard to their liability or that proceedings are pending before any tribunal, arbitrator(s) or court with regard thereto or in connection therewith, that the guarantor/issuer bank shall pay to the Purchaser the sum under the guarantee(s) without demur on first demand and without requiring the Purchaser to invoke any legal remedy that may be available to them, that it shall not be open to the guarantor/issuer bank to know the reasons of or to investigate or to go into the merits of the demand or to question or to challenge the demand or to know any facts affecting the demand or to require proof of the liability of the Seller before paying the amount demanded by the Purchaser under the guarantee(s). In case of invocation of any bank guarantee/s by the Purchaser. The invocation letter need to be counter signed by the Managing Director, Uttar Pradesh Coop. Sugar Factories Federation Ltd., 9-A, RanaPratap Marg, Lucknow – 226 001

9.15 The F.D.R. (Auto Renewed)required to be furnished by the Sellers under the provisions hereof to secure the performance of the Plant, equipment and machinery supplied & erected by the Seller or for any other purpose under the provisions hereof shall be for such period as may cover establishment of performance parameters respectively as stipulated under this Agreement. If however, the period of Agreement is extended due to force majeure under the provisions of this Agreement, Seller shall have such guarantees extended upto the corresponding extended period. Failure of the Sellers to do so will amount to a breach of the contract and in no case the extension of the period of the contract shall be construed as waiver of the right of the Purchasers to enforce the guarantee.

10.0 PURCHASER'S RESPONSIBILITIES:

a) The Purchaser shall handover the site (after clearance) for installation of the plant as early as possible after the date of agreement.

b) The Purchaser may, on the request of Seller, provide suitable area for site fabrication of items provided that the details of essential fabrication works to be done at factory site shall be furnished by the Seller to the Purchaser well in advance.

c) Timely approval of layout, drawings, PERT/CPM, price breakup, delivery schedule, payment schedule etc. subject to timely submission by the Seller.

d) The Purchaser shall provide an electricity and water for erection and commissioning of equipment.

e) The Purchaser shall provide adequate water supply free of cost to the Seller at factory site. The necessary pipeline connection shall be arranged by the Seller.

f) The Purchaser shall provide, electricity for start-up of machinery and equipment/systems.

h) This will be the responsibility of mill to give clear space for erection of evaporator bodies and other equipment.

g) The purchaser will provide other basic facilities such as accommodation for project team, if available, free of cost.

h) All consumables & spares after commissioning of the project will be arranged by the purchaser in order to make trouble free operation of all the machinery, equipment and the system.

11.0 SELLER'S RESPONSIBILITIES:

a) Within 15 days of the signing of this Agreement, the Seller shall provide the equipment-wise break-up prices for major items of equipment mutually agreed between Purchasers & Sellers. The quarterly billing schedule should also be submitted within 15 days of signing of this Agreement. The Seller will get price break-up and billing schedule approved from the Purchaser within 20 days.

b) The Seller undertake to hand-over within 10 days from the date of signing of this Agreement, a time schedule of deliveries relating to major equipment's and erection work as detailed in bid document.

c) The Seller undertake to hand-over to the Purchaser 6 (six) copies of the drawings and maintenance manuals with description and detailed instruction.

d) A PERT/CPM/Composite bar chart shall be finalized, with the mutual consultation between the Purchaser and Seller and authorized agency, within 10 days after signing of this Agreement. The Seller will get PERT/CPM/Composite bar charts approved from the Purchaser within 15 days.

e) An insurance coverage by an insurance company regulated by IRDA for the transit safety of equipment from place/s of concerned manufacturer/s works to the Purchaser site at The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh.This insurance coverage shall be valid till 30 days of receipt of the entire Machinery and Equipment at Site.

f) The Seller shall adhere to schedules, submission of drawings, manual and other documents as mentioned. All tools and tackles, manpower for erection and commissioning will be provided by the seller.

g) The Seller shall ensure that all the major and important machinery items, equipment, plant and machinery dispatched from the Sellers works/their sub-contractors' works are encased in packing boxes to prevent from any losses, damage etc. Any equipment, devices or material even if not included in specifications, but found necessary for the safe and satisfactory functioning of the unit, shall be supplied by the Seller at no extra cost to the Purchaser, as though, such equipment, material or work were not originally specified and formed part of the scope of work.

h) The seller will be responsible for human safety of the workmen engaged in erection work, pf deduction, insurance and other statuary requirement covered under labor act.

i) The Sellers shall provide comprehensive risk insurance of all Machinery and Equipment and other consumables including Transit Insurance. The seller will provide manpower for trial and commissioning of all the equipments.

12.0 PATENT:

Patent and/or Copyrights

The Seller shall hold and save the Purchaser, its officers, agents, servants and employees from liability of any nature or kind including costs and expenses for or on account of any copyright or un-copyright, composition, secret processes, patented or appliance unpatented, articles or manufactured or used in the performance of this contract including their use by the Purchaser unless otherwise specifically stipulated in this Agreement.

In the event of any claim or demand being made or action being brought against the Purchaser for infringement of patent in respect of any machine, plant used or supplied by the Seller under this Agreement or in respect of any method of using or working by the Purchaser or such machine, plant or thing, the Seller will indemnify the Purchaser against such claims or demand and all costs and expenses arising from or incurred by reason or such claim or demand.

PROVIDED THAT the Purchaser shall notify in writing the Seller immediately if any claim is made and that they shall be at liberty, if they so desire with the assistance of the Purchaser, if required, but at the Seller's own expenses, to conduct all negotiations for the settlement of the same or any litigation that may arise there from; and

PROVIDED THAT no such machine, plant or thing shall be used by the Purchaser for any purpose or in any manner other than that for which they have been supplied by the Seller as specified in this Agreement.

13.0 Time Extension on account of Force Majeure

Force Majeure means an event beyond the control of the supplier and not involving the supplier's fault or negligence and which is not foreseeable. Such events may include, but are not restricted to, acts of the purchaser either in its sovereign or contractual capacity, 105 wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, earthquake, fires, floods, explosions, epidemics, quarantine restrictions, strikes, lockouts, and freight embargoes.

If there is delay in performance or other failures by the supplier to perform its obligation under its contract due to event of a Force Majeure, the supplier shall not be held responsible for such delays/failures. If a Force Majeure situation arises, the supplier shall promptly notify the purchaser in writing of such conditions and the cause thereof within 21 (twenty one) days of occurrence of such event. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

There may be a Force Majeure situation affecting the purchase organization only. In such a situation the purchase organization is to take up with the supplier on similar lines as above for further necessary action

14.0 TERMS OF PAYMENT:

The Purchaser shall pay the Contract Price in the following manner: -

14.1 1st advance 10% (Ten percent) of the Basic Price amounting to Rs..... lakhs (Rupees ..... only) will be paid after signing of this Agreement subject to written request and furnishing aBank Guarantee of any Nationalized/Scheduled commercial Bank for the said amount to the Purchaser. The advance given shall carry interest @ 12% per annum on reducing balance from the date of NEFT/RTGS till the progressive adjustment in the bills.

14.2 **2nd advance 10 % (Ten percent) of Basic price amounting to Rs..... lakhs (Rupees ..... only) will be paid after signing of this Agreement subject to written request and furnishing of a Bank Guaranteeof any Nationalized/Scheduled commercial Bank to the Purchaser for the said advance on fulfilling the following obligations of the Purchaser. The advance given shall carry interest @ 12% per annum on reducing balance from the date NEFT/RTGS till the progressive adjustment in the bills. However, if the Seller fulfills his contractual obligations, the release of above advance can be preponed accordingly.**

a) Submission of drawings and layout of Sugar Mill by Seller and approval of the same by Purchaser as per Tender document.

b) Proof of placement of order of bought out long delivery items and the order acceptance by the concerned party on whom the orders are placed to the satisfaction of the Purchaser, for the following items.

The proof of order and acceptance by the parties for supplying long delivery items should indicate clearly the items of order placed on them with major technical specifications, agreed date of delivery and should also confirm that the said items are for The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh only. The above proof need not contain the commercial aspects of the items concerned.

c) Submission of Price Break-up, Delivery Schedule of machinery and Equipment, Time Schedule of construction of foundation and approval of the same by the Purchaser.

d) Submission of billing schedule as per tender document and approval of the same by the Purchaser.

e) Complying all other contractual obligations which have become due up to that time.

f) A utilization certificate signed by Chief Executive Officer of the Seller for the 1st advance paid as per clause 14.1 that the said advance has been utilized exclusively for purchase of machinery and equipment for The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur Uttar Pradesh. Seller has also to provide documentary proof to the satisfaction of the Purchasers that the said advance had been utilized exclusively for Purchase of machinery & equipment.

14.3 All the above instalments of advance payment shall be utilized by the Seller for the purpose of procurement of materials/equipment required for the said Machinery and Equipment only. The Seller shall produce autilization certificate of the second advance, within 30 days of receiving it, for placement of orders of all bought out items as envisaged in clause 14.2(b). They shall also furnish the proof and confirmation by the sub Sellers of Seller with details mentioned as at 14.2(b) above, in respect of bought out items.

If the Seller fails to receive payment of any instalment(s), of any advance for non-compliance of any contractual obligation on their part, the Seller shall not be entitled to any extension of time, for supply of equipment for making the Machinery and Equipment ready for commissioning.

14.4 After adjusting proportionate amount of advances & interest on advances from the bills, the balance amount of the Contract Price as mentioned in clause 3.1.2 including 100%

GST actually paid by Seller shall be paid to the Seller. Following documents are to be presented by the Seller with the invoice;

j) Inspection report of the Inspection Agency in respect of items which are required to be inspected before dispatch.

ii) Invoices, dispatch list and Railway Receipt/ goods receipt to be presented by the Seller against full part of the machinery supplied. In every invoices, the Seller shall give reference of the detailed billing list against each items of Machinery and Equipment supplied.

iii) GST invoices and gate pass showing the actual amount of GST & other taxes if applicable and paid on all bills for base price so as to ensure the Purchaser gets GST credit

Any wharf age or demurrage attributable to the Seller shall be borne and payable by the Seller and shall be the responsibility of the Seller only. In case the machinery is transported by road, the same shall be duly insured before transportation.

14.5 The Seller shall not sell or divert any material, sub-assemblies, machinery and equipment meant for the Sugar Mill Plant of the Purchaser, after the same have been inspected by the Purchaser, or an authorized representative of the Purchaser, under any circumstances, without prior written consent of the Purchaser as per terms of this Agreement.

14.6 The Contract Price as at 3.1.2 is firm and holds good till the Performance Trial of equipment. No price escalation will be given. However, any increase or decrease in statutory taxes or duties will be made applicable to both the Purchaser & Seller subject to the authenticated proof. The increase in the amount of taxes and duties will be on Seller's account if the material is not supplied within the schedule time period.

In case the Sellers fail to supply and delivery all the said equipment within the time agreed herein as per Annexure –I to IV, the Sellers shall be liable to pay to the Purchasers interest at the rate on PLR of State Bank of India on the amount of unadjusted amount paid to the Sellers reckoned from the stipulated date of completion of delivery of the said equipment's as specified in Annexure-I to IV, the date of payment in respect thereof is made to the Sellers by the purchasers then interest at State bank lending rate shall be paid by the Sellers to the Purchasers from the date of payment as aforesaid is made till the date the material or equipment concerned is received at site.

14.7 All taxes & duties such as CGST/SGST/IGST etc. are to be paid at actual as charged in Invoices & proof of payment is furnished subject to the maximum amount as specified in clause 3.1 (i) & 3.1 (vi).

15.0 PENALTIES/ LIQUIDITY DAMAGES

15.1 To secure the contractual obligations under this Agreement, the Seller shall be liable to pay the following penalties, if the Sellers

To secure the contractual obligations under this Agreement, the Seller shall be liable to pay the following penalties, if the Sellers fail to deliver/supply/commissioning any or all the machinery & equipment within the delivery scheduled time specified in the contract, they shall pay liquidated damages by an amount equal to 0.5% (half per cent) per week or part thereof, of the

Contract Price of any or all equipment but not exceeding 10% (ten percent) of the total Contract Price.

16 BANK GURANTEE AGAINST TIMELY DELIVERY, ERECTION & COMMISSIONING.

16.1 Successful Bidder will submit a bank guarantee issued by a Nationalized/ Scheduled commercial bankwithin 15 days from the date of signing of the Agreement, for 10% (ten percent) of the total Contract Price (including GST). This bank guarantee will be refunded after successful commissioning of the project with in specified time limit given in Tender conditions after deduction of penalty on account of delay in timely delivery, erection & commissioning, if any.

16.2 If the Seller shall abandon this contract or otherwise fail to supply and deliver the Machinery and Equipment within the scheduled period or any extension thereof granted by the Purchaser, or if the work or any part thereof failed to be performed due to Force Majeure mentioned in Clause 13.0 and in any such case the Seller shall refund to the Purchaser within 30 days of demand such part of the advance payments there under made to them. The Purchaser shall have the right to proceed in any manner, as deemed fit, to protect its interest.

16.3 All Guarantees/F.D.R. (Auto Renewed)will be irrevocable except with the written consent of the Purchaser.

The Bank guaranteerequired to be furnished by the Sellers under the provisions hereof to secure the advance payment or F.D.R. (Auto Renewed)to secure the performance of machinery or the F.D.R. (Auto Renewed)/Bank guaranteefor any other purpose under the provisions hereof shall be in the form (s) approved by the Purchasers which form (s) shall inter-alia invariably include the provisions that the decision of the Purchasers as to whether there has been any loss or damage or default and/or negligence on the part of the Sellers, will be final and binding on the **Guarantor/issuer bank**, that the right of the Purchaser to recover from **Guarantor/issuer bank** any amount due to the purchaser shall not be affected or suspended by reasons of the fact that any dispute or disputes have been raised by the Sellers with regard to their liability or that proceedings are pending before any Tribunal Arbitrator(S) or Court with regard thereto or in connection therewith and that the **Guarantor/issuer bank**shall pay to the Purchasers the sum under the guarantee without demur on first demand and without requiring the Purchasers to invoke any legal remedy that may be available to them and that it shall not be open to **Guarantor/issuer bank** to know the reasons of or to investigate or to go into the merits of the demand or to question or to challenge the demand or to know any facts affecting the demand or to require proof of the liability of the Sellers before paying the amount demanded by the Purchaser under the guarantee/F.D.R. (Auto Renewed)(s) and that the guarantee/F.D.R.(Auto Renewed)shall be invoked only when the invocation letter is signed by the Purchasers, **countersigned by the Managing Director, Uttar Pradesh Coop. Sugar Factories Federation Ltd.**

17.0 PACKING MATERIALS

All containers (including packing cases, boxes, tins, drums and wrapping, etc.) in which machinery and equipment and stores will be supplied shall be considered non-refundable to the Seller.

18.0 EXCESS MATERIALS

Not to hamper the erection work, the Seller may bring on the site materials such as piping, valves fittings, consumables, cables, and wires, hardwares, insulation materials, refractory bricks, lubricants, paints, electrodes, gases, emery papers, kerosene oil, grease, cotton waste, asbestos rope, red/white lead, shims etc. for completion of work as per this Agreement. Such material as are found surplus after completion of erection shall be treated as the property of Seller and shall be taken back with prior approval of the Purchaser. Any material including tools & tackles etc., brought by the Seller at the site and not paid for by the Purchaser can be taken out by the Seller after the Purchaser's approval.

19.0 ARBITRATION

"Solely for the purposes of settlement of any dispute arising between the parties out of this agreement, the contractor shall be treated as an agent of the mill and any dispute arising out and between the parties to this agreement shall be referred to arbitration to the Registrar in accordance with Section 70 of the UP Cooperative Societies Act, 1965."

20.0 TRANSFERABILITY OF THE CONTRACT

Either party shall not be transfer their right and obligations arising out of or in relation to this Agreement except with the written consent of the other party.

21.0 NEGLIGENCE OF THE SELLER

If the Seller shall neglect to manufacture or supply the all plant, machinery and equipment and factory buildings with due diligence and expedition or refuse or neglect to comply with any reasonable orders given to them in writing by the Purchaser in connection therewith, the Purchaser may give notice intimating to the Seller to make good within a reasonably specified time, the failure, neglect or contravention complained of, and if the Seller still without reasonable cause fails to comply with the notice within the time specified in the notice to be reckoned from the date of receipt of notice by the Seller, the Purchaser may take over the work of manufacture and supply of the Machinery and Equipment as a whole or in part out of the Seller's hands and/or may give it to another person on contract at a reasonable price and are entitled to recover any excess cost thus incurred by the Purchaser or make it good from any bills or dues of the Seller pertaining to this Agreement or recover such amount from the Seller.

22.0 FOREIGN EXCHANGE

Any foreign exchange required for import of raw materials or equipment shall be arranged by the Seller. Non-availability of foreign exchange shall not entitle the Seller any extension of time for delivery of the Machinery and Equipment.

23.0 RIGHTS UNDER THE AGREEMENT

Unless otherwise specifically agreed, any concession shown by the parties to the Agreement to one another shall not prejudice their individual rights under this Agreement.

24.0 POWER TO CLOSE WORK

If at any time after signing this Agreement, the Purchaser shall, in order to comply with any directives of the Government of Uttar Pradesh not require the whole or any part of the work relating to designing, preparing engineering lay out, manufacturing, procuring, supplying of the proposed machineries &equipment for the said project system under the terms of this Agreement, to be carried out, the Purchaser shall give notice in writing of the fact to the Sellers

who shall have no claim to any payment by way of compensation or otherwise on account of any profit or advantage which they might have derived from the execution of the said work in full but which they could not derive in consequence of the giving up of the work before completion. The Sellers shall be paid at contract rates for the full amount of work, any labour and material collected at site or arrangement made for execution of the work which could not be utilized either fully or partially on the work on account of the giving up of work as aforesaid. Where partial utilization of material and arrangements as aforesaid have been made, the payment will be made in proportion to the value of the work done to the satisfaction of the Purchaser to the value of the whole work covered by the contract.

In the event of the closing of the work as above the Sellers undertake to refund within 120 days all outstanding unutilized and unadjusted amount of the advance payment, if any, thereafter with interest at the lending rate of State Bank's prevailing at that time.

25.0 TERMINATION OF CONTRACT

The Purchaser reserves the right to terminate the whole or part of this Contract due to any or all the following conditions:

25.1 If the Seller assigns the contract, or sub-let the Contract without the consent of the Purchaser and Sellers has failed or refused to take remedial steps, or the Seller :

a) Has abandoned the contract, or
b) has without reasonable excuse suspended performance of the contract for 30 days after receiving from the Purchaser written notice to proceed, or
c) Despite previous warnings in writing from the Purchaser is not manufacturing/ supplying/ erecting the Plant and equipment in accordance with the Contract, or is failing to proceed with due diligence or is neglecting to carry out his obligations so as to affect adversely the Performance of the Contract.

25.2 The Purchaser may give 21 days' notice to the Sellers of its intention to proceed in accordance with the provisions of this Clause. Upon the expiry of such notice the Purchaser may without prejudice to any other remedy under the contract and without affecting the rights and powers conferred by the contract on the Purchaser, terminate this Agreement. Upon such termination the Purchaser shall be entitled to purchase Plant and equipment in substitution for the Plant and equipment at seller's expense or may itself complete the Plant and equipment.

25.3 As soon as practicable after the Purchaser has terminated the Agreement the Purchaser shall, by or after reference to the Parties and after making such enquiries as he thinks fit, determine the amount then due to the Sellers as at the date of termination and certify the amount thereof. The amount so certified is herein called 'Termination Value'.

26. PAYMENT AND TERMINATION

The Purchaser shall not be liable to make any further payments to the Sellers until the costs of completing the Plant and equipment or obtaining substitute Plant and equipment elsewhere and all other expenses incurred by the Purchaser have been ascertained and the amount payable certified by the Purchaser (herein called 'the Cost of Completion'). If the Cost of Completion when added to the total amounts already paid to the Seller as at the date of termination exceeds the total amount which the Purchaser certifies would have been payable to the Sellers under the Contract on completion the Purchaser shall certify such excess and the Sellers shall upon demand pay to the Purchaser the amount of such excess. Any such excess shall be deemed a debt due by the Sellers to the Purchaser and shall be recoverable accordingly. If there is no such excess the Sellers shall be entitled to be paid the difference (if any) between the Termination Value and the total of all payments received by the Sellers as at the date of termination.

If the Purchaser have any information that the Seller has become bankrupt or insolvent, or Receiver has been appointed, or compound with his creditors, or being a corporation commence to be wound up, not being a members' voluntary winding up for the purpose or amalgamation or reconstruction, or have an administration order made against him or carry on his business under an administrator or a receiver or manager for the benefit of his creditors or any of them, the Purchaser may be entitled to:

a) To terminate the Agreement forthwith by 21 days' notice to the Sellers or to the receiver, manager, administrator or liquidator or to any person in whom the contract may become vested, or

b) To give such receiver, manager, administrator or liquidator or other person the option of carrying out the Contract subject to his providing a guarantee for the due and faithful performance of the Contract up to an amount to be agreed.

27.0 DEATH, BANKRUPTCY ETC.

If the Sellers shall die or commit any act of bankruptcy, or being a corporation commenced to be wound up except for re-construction purposes or carry on its business under a Receiver, the executors, successors, or other representatives in law of the state of the Sellers or any such receiver, liquidator, or any person in whom the Contract may become vested shall forthwith give notice thereof in writing to the Purchasers and shall for one month during which he shall take all reasonable steps to present stoppage of the execution of this contract have the option of carrying out the contract subject to his or their providing such guarantee as may be required by the Purchaser but not exceeding the value of the Sugar Mill Plant for the time being remaining unexecuted. In the event of stoppage of the manufacturer of the Sugar Mill Plant the period of the option under this clause shall be 14 days only. Provided that, should the above option not be exercised, the Contact may be determined by the Purchaser by notice in writing to the Sellers and the Purchasers may exercise the same power which they could exercise and will have the same rights which they would have under the clause 21 if the work had been taken out of the Sellers hands under the clause. Further the claims of the Purchaser shall be preferred over the claims of other secured and unsecured creditors.

28.0 PARTIES TO INFORM THEMSELVES FULLY

Either Party shall be deemed to have noted that time is the essence of the contract and have carefully examined and satisfied themselves as to the terms and conditions, specifications, schedules, appendices and drawings etc. mentioned in Annexure -XI, other formats and appendices attached to this Agreement.

29.0 EFFECT AND JURISDICTION OF THE CONTRACT

The laws applicable to this contract shall be the laws in force in India.

For the purpose of jurisdiction, the courts at Lucknow have the jurisdiction to entertain suit or legal proceedings arising of this Agreement, subject to the arbitration clause 19 under this Agreement.

30.0 LIMITATION OF LIABILITY

The liquidated damages and replacement shall be limited to the Performance Guarantee under Clause 16.1(iv) of this Agreement and the Warranty under Clause 22.1 of this Agreement and beyond this, the Purchaser shall have no right to any other claims.

31.0 COMPLETION OF CONTRACT

Unless earlier terminated under the provisions of this Agreement shall be deemed to have been completed at the expiration of the warranty period as provided for under the warranty clause 22.

32.0 This Agreement including the Annexures, formats and appendices annexed hereto has been executed in two copies, the original remains with the Purchaser and the second copy will remain with the Seller. By signing this Agreement, both the parties -the Purchaser and the Seller agree to abide by its Clauses. Any alterations amendments or changes in this Agreement or its Annexures etc. will be valid only if agreed to by and between the Purchaser and the Seller in writing.

33.0 Stamp duty levied on this Agreement shall be borne by the Seller

34.0 This document consists of the following Annexures:-

Annexures No.	**Contents**
Annexure I	Scope of Work.
Annexure II	Technical Specifications of Equipment& Machinery.
Annexure III	Performance Parameters
Annexure IV	List of approved makes for critical brought out items.
Annexure V	Inspection procedure.
Annexure VI	Parameter for inspection at manufacturers works.
Annexure VII	Performance Certificate.
Annexure VIII	Draft of Bank Guarantee against first & second advance payments.

IN WITNESS HEREOF THE PARTIES HEREUNTO HAVE SET THEIR RESPECTIVE HANDS ON THE AFORESAID DATE.

FOR AND ON BEHLAF OF THE PURCHASER
THE KISAN SAHAKARI CHINI MILLS LTD.
NANAUTA,UTTAR PRADESH

_____
( )
General Manager

FOR AND ON BEHALF OF THE SELLER
.....

_____
( )

WITNESS

1……..

2……..

WITNESS

1……..……..

2……..……..

ANNEXURE I

SCOPE OF WORK

Technical upgradation jobs for improvement in working efficiency /modernization of The Kisan Sahkari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, all civil and structural works etc.) as per specifications and scope of work given in the bid document.

The Successful bidder shall also operate and maintain the newly installed system and equipment/machinery for 24 months after commissioning. the warranty of the equipment/systems will be also for 24 months from commissioning date and the non performing/defective parts/equipment will be replaced free of cost during this period. The performance parameters shall be achieved as mentioned in this bid document.

The bidder will give details of schemes including complete Heat and Mass balances (HMBD's) showing Fuel, steam, power, water and condensate balance in order to achieve desired steam consumption @ 45 % on cane (maximum) in technical bid and other performance parameters. The exhaust steam generation should match the exhaust steam consumption (including De-super heating gains). The essence of this tender is to crush the cane on rated capacity(5000 TCD in 22 hrs.) with steam consumption% cane 45%(± 2%). The newly installed evaporator bodies juice, vapor bleeding connections, valves will be connected with old existing system in order to make trouble free operation.

Technical Up-gradation of Mill House Plant &Machinery

Design Basis:

1) Plant Utilization - + 95 %
2) Plant Capacity - 5000 TCD (22 hours working)
   - 227 TCH
3) Imbibition % Cane - 270 % on Fiber or 40 % on Cane
4) Mixed Juice % Cane - + 107 (Expected)
5) Pol % Bagasse - < 2.0
6) Moisture % Bagasse - < 50
7) Steam Consumption % Cane - 45 %(±2%)
8) Exhaust Pressure at Evaporator station(first effect) - 0.80 Kg/Cm^2 g (Desired)

S.N.	Equipment Description	Qty.
A.	**Mill Section:**	
1.	**Tippler** Replacement of existing Tippler by new Tippler of 55T/tip & new head on cutter on cutter on auxiliary carrier, cutter having 62 knives & drive 300 HP x 2 nos. motors, installation & required f"u"Iation and up to commissioning.	**01 set**
2.	**Mill Automation & Imbibition control system:** • ACFC up to 1st mill: New ACFC system based on DCS up to 1st mill, GRPF and Donnelly chute, for mill 2nd to 4th: Donnelly chute & mill load based mill control, • Imbibition control and tank level control: Existing flow meters and control valves used and new control valve and hot water tank level to be provided. • For above required chest pressure sense and Turbine RPM, Donnelly chute senses and mill roller lift indicators, DCS system, control valve, level sensors, cabling, and installation and up to commissioning of above mill automation must be provided.	**01 Set**
3.	**Fibrizer**	

	• Existing Swing diameter of fibrizer1830 mm to be increased by to 2130 mm by replacing hammer with new shaft and accordingly new suitable anvil plate. The anvil plate wrap angle 160º and pocket size 275 mm x 275mm x150mm deep and plate thickness 28 mm. • Modification at head of cane to accommodate increased swing dia. The carrier feeding angle i.e. axis passing through centre of carrier and fibrizer centre with horizontal shall be 40º.	
4.	**Tram Iron Separator** Replacing existing tramp iron separator with new.	**01 Set**
5.	**Mill no 2, 3 and 4:** Three roller TRPF in place of existing UFR. TRPF shall be driven by chain & sprockets and drive from mill top & feed roller and TRPF speed 30% than the mill speed. The chain shall be triplex and 3.5 inches. Drum shall be 28 mm thick and teeth and drum fully hard faced. The drum shall be welded on through and through shaft of 40C8 material. Bottom roller must be fully porous/ lotus. Addition of new Donnelly chute (MOC –SS-409) and modification of IRC head to match the feeding to TRPF. Providenew SS409 nose plates (8mm thick) to existing Donnelly chute shall be provided	**03Set**
7.	**Mill no 1 to4:** • Reshelling of Top & discharge rollers with 3 nozzle lotus (semi – couch- 4 nos. top(Three Nozzles) • Lotus roller – 4 nos. discharge (single nozzles) • Chevron grooves to top & feed roller • Top roller scraper lifting above horizontal line • Roughening of rollers (arc welding) up to ½ depth of roller groove to top, feed and discharge roller • Tear drop (Spigot spot) welding on landing of top roller grooves. • Trash plate heel clearance of 40-50 mm on discharge roller OD • Providing box type juice imbibition trays – 02nos. • Replacement of all mill A frame.	
B)	**Boiler & Powerhouse Section**	
1.	i. Boiler Automation based on DCS by sensing and controlling furnace draft and ID, FD control for 3 boilers. ii. Auto drum water level control for 30TPH -1 no iii. Required Panels for monitoring and indications and DCS system and its consoles at boilers of 20 TPH and 40 TPH & mill section iv. A complete AC room for DCS.	**01 Set**
2.	**AC VFD** Provide AC VFD to all motors of ID, & FD to 03 nos. Boilers and required motor conversion to make VFD suitable and one each no. spare VFD and connections required. Complete AC room for DCS.	
3.	**Steam Flow meters** Provision of steam flow meters of suitable capacity for live steam line from boiler to mills, fibrizer turbine, and powerhouse turbine sand PRD station total 10 nos. flow meter	
4.	Economizer modification: replacement of fin type economizer with coil type economizer for each 20 Tons boiler	**02 Nos.**
5.	Soot blowers to 3 no boilers of Retractable to Super Heater, Bank Tubes and Economizer of total 4 nos.of each boilers.	
6.	Powerhouse: Auto factor power control unit and 500KVA capacitors each to 3 no TG sets.	**3 Nos.**
7.	Modifications jobs in order to keep pressure drop from boiler header to all turbine of	

	steam line to turbines maximum 1kg. per sq. cm., All HP steam piping upgradation.	
C.)	**Boiling House**	
1.	Addition of return condensate flow meter for measurement of exhaust condensate, capacity-150 MT/Hr.	1 no
2.	Addition of PRDS automation & Exhaust de super heating system.	1 Set
3.	Addition of raw juice pump an TJ pump-400 m3/hr with VFD system	1 set
4.	Addition of raw juice mass flow meter -300 MT/hr capacity with mega display	1no.
5.	Addition of Juice flow stabilization system for controlling raw juice flow	1 set
6.	Addition of DCH for SJ final heating & CJ heating	2 set
7.	Addition of evaporator bodies- 4000m2 FFE- 1 no & 2500 m2 robert-1 no and rearrangement of evaporator bodies with all connecting pipelines to old system of juice, vapor, exhaust etc. with valves and condensate system with valves and pipelines for proper bleeding arrangement in order to get desired steam consumption. The old and new system should run satisfactorily to get desired steam consumption.	2 nos.
8.	Vacuum filter of capacity 14x28 feet with all accessories	1 no.
9.	Batch type centrifugal machine 1750 kgs/cycle with non lube type air compressor suitable capacity for A- massecuite.	1 no.
10.	Injection Header replacement & modification	1 set
11.	Addition of vertical injection pumps- 3000 m3	1 set
12.	Addition of spray pump-1 no- 3000 m3 capacity& modification in spray condensate & cooling system to reduce power & water consumption	1 set
13.	Centralized PLC system for pressure , temperature of juice, live steam, exhaust steam, vapor etc.	1 set
14.	Replacement of existing 10 MT capacity grader & elevator by new one- 35 MT/hr capacity with structure	1 set
15.	Lagging & cladding work of old equipment's-Evaporator, juice heater, vapour piping, clarifier, vacuum pans (total covering area of 1000 sq. m)	1 set
16.	Staging, structure & vapour, exhaust, juice, condensateetc piping & valves modification work at evaporator & juice heater station.	1 set
17.	All type of civil works including dismantling of old structure, if any, civil foundation for evaporators bodies and other civil works related to complete the project	1 set
18.	Proper insulation with aluminum cladding of new evaporators bodies, juice heaters, new exhaust and vapor pipelines. All new pipe lines will be painted as per norms of industry.	1 set
19.	Platform, ladders and other approach in order to make trouble free operation of newly erected equipments.	1 set

Note:

A. Above details regarding equipment/system is the indicative basic feedback of the work to achieve the desired results as per performance parameters given in this bid document. Bidders may do minor changes regarding selection of equipment/systems,especially regarding heating surface of evaporator bodies and juice heaters, for proper balancing of the sugar mill in order to achieve steam consumption %cane @45%(+/-2%) and other desired parameters. The bidder will give the evaporator bodies configuration and concern details as per the Scope of Work in technical bid.

B. All bidders are advised to visit Nanauta sugar mill before pre bid meeting for actual assessment of work before quoting the price.Bidders are also advised to consult and validate evaporator configuration with technical team of concerned mill.

C. it is of prime importance thatstart of crushing season 2022-23 (last week of october,2022) should not be delayedon account of addition of equipment/systems and modification/upgradation work. **Under unavoidable circumstances, the planning should be done accordingly to provide terminal points etc. to connect the newly installed bodies, equipment etc. with existing system as early as possible during crushing season.**

D. The party will operate and maintain all new system, equipment and machinery for 24 months after commissioning of equipments.

GENERAL CONDITIONS FOR BIDDER'S SCOPE OF WORK:

1. All civil work for erection of different equipment, machinery, evaporator bodies,juice heaters, including foundation work,staging,column etc.connecting the new bodies,juice heaters and other equipment/systems with existing ones will be in the scope of party.

2. To connect the various equipment/systems and evaporator bodies with the existing system, end-points with valves, pipelines etc., will be provided to make trouble free connection during the shutdown period of the mill.Aluminium cladding insulation of newly supplied tubular vessles, all pipe lines, desuperheater will be in the scope of bidder. All supplied equipment will be well equipped in all respect as per site conditions to run during crushing season and to get the desired results.

3. All the machinery and equipment supplied should be brand new of latest design, fabricated as per ISI or equivalent Standard and tested for construction of first class material and workmanship along with material test certificates including bought out items according to technical specifications and as per given Engineering standards (of tender document) for construction material and latest design model. Provision of Platforms, ladders etc will be in the scope of party for ease of operation.

4. The work is to be executed as per the terms & conditions stipulated in the tender document and this Agreement.

5. Scope of Supply includes all the necessary equipment/systems with structural staging, platforms, approach ladders, walkways, sheds, supports, electrical, s.s tubes, instrumentation etc. of each section/equipment, duly coated with protective paints both internally and externally and insulation as applicable and all civil works. This also includes other tools & tackles required for the fabrication, erection at site and adequate manpower quite conversant with the fabrication & erection work of such plant and machinery.

6. All foundation bolts, foundation wedges, alignment packings, liners etc. are also included in the scope of supply.

7. After the finalization of the order, the Seller will prepare all civil foundations if any, structural and the detailed fabrication drawings and loading data of each and every plant & machinery, piping, electrical cabling, instrumentation, circuit drawing, layout drawing, isometric drawings, equipment layout drawings, elevation drawings for approval from Purchaser as well as by concerned Govt. Authority and shall be submitted well in advance to Purchaser for prior examination and approval thereof.

8. All the consumables required for erection & commissioning like gas, all types of welding/ brazing or soldering rods, emery papers, grinding paste, hold lights, graphite, Kerosene Oil, Rustburg, back joints, steam packing etc. are also included in the scope of supply.

9. All types of tools & tackles like hoisting tools, chain blocks, pulleys, wire rope hooks, tube expanders, hydraulic pumps and all special tools etc. shall be arranged by Seller. All staff including engineers, technicians, skilled, unskilled workers, Khalasi required for loading/unloading, fabrication, erection, testing and trials etc. shall be arranged by Seller. The machinery & other equipment delivered at site should be properly stored at site. The transportation of machinery and equipment from the stored place to their respective position shall also be in the scope of Seller.

10. Technical services included in the scope of supply:

a. Project In charge: Seller will retain a qualified, experienced and responsible project engineer/manager to supervise the installation and erection/ commissioning of the plant at site.

b. Training of the Purchaser's personnel: Seller shall arrange to train the Purchaser's personnel to operate the equipment/systems after two year warranty period.

11. All equipment including bought out items shall be offered for inspection to the authorized representative of Purchaser before dispatch.

12. The Seller shall prepare and submit to Purchaser the time schedule as per PERT/CPM chart. Seller should ensure that it will maintain the time schedule as per the chart. The equipment delivery shall strictly be in as per schedule given in the scope of work.

13. All materials of construction and fabrication shall be as per relevant ASME/ASA/AISI/ ASTM /ANSI /BS /IS/Standards and acceptable equivalent standards referred to in the Technical Specifications herein and in the tender document. They should also comply with standard and good engineering practices acceptable to the Purchaser and its expert consultant.

14. The Seller shall be fully responsible for any mishaps/casualty/fatal accidents of their employees during the contract period of project. Sugar mill shall not be responsible at all for such mishaps whatsoever. The Seller shall also be fully responsible for any mishaps/casualty/fatal accidents of Purchaser employees/machinery during erection and commissioning.

15. The layout for Installation of the equipment/system will be prepared by the Seller in consultation of Purchaser and will conform to various statutory requirements and gudielines of various Act/Statute/Rules and in order to provide working facility.

Following shall also be in the scope of supply:-

16. Painting – General
    a. All steel structures shall be given red oxide primer coating followed by appropriate final coating
    b. Railings and staircases, wherever required as per the factory act., duly coated.

17. All designs with respect to civil, structures, tank foundations etc. should follow the standard code practice for earth quake resistant designs viz. as per IS 1893.

18. Insulation, lagging with aluminum cladding, earthing, lightening arrestor, flame etc.

19. All dismantling, levelling/filling and shifting of waste to a designated placeif required shall be in scope of Seller. All required structural works etc. shall also be in the scope of seller.

20. The capacity, efficiency and performance of the said plant & individual units should be guaranteed as per performance parameters for individual items, steam consumption and other parameters.

21. Any other items or activities not specifically mentioned in the scope of work and equipment list and required for completion of project are deemed to be included in the scope of work.

22. Mill/power turbine modification/upgradation including erection, if required then that work will be done by the Original Equipment Manufacturer (O.E.M).

ANNEXURE II

TECHNICAL SPECIFICATION OF EQUIPMENT/SYSTEM AND MACHINERY TO BE SUPPLIED

The specifications of the various equipment are outlined below. All specifications should be as per best standard practices of industry and national federation specifications. In case of any dispute/differences, the National Federation ,New Delhi decision will be final.

A- Mill Section:

1. Tippler - 1 No.

The Sugar mill is having Truck Tippler of loading capacity 30 tons/tip with an angle of 55 deg. The trolleys are coming with more than 40 ton loads. Hence the existing truck tippler shall be replaced with new one with following specifications.

Specifications:

The truck/Trolley tippler having loading capacity 55 tons/tip with an angle of 55 deg. max, complete with platform suiting the truck & trolley size, tilting gear mechanism complete with hydraulic equipment, rear stops, front hooks and power pack with control system shall be provided.

The tippler shall be suitable for 10 to 12 tips per hour.

Tippler shall provide the feed to the existing auxiliary cane carrier.

One Head on Cutter set shall be installed at the head of existing auxiliary cane carrier with not less than 62 knives secured to cast steel hubs of IS :1030 grade 280 – 520 W mounted on a forged steel shaft of minimum 250 mm dia. of 45 C8 quality. The dia. over the tips of knives shall not be less than**1600 mm** having width of **3960 mm.** The knife shaft shall be supported at 200 mm bore, heavy duty self aligning double row spherical roller bearings with adopter/withdrawal sleeve in cast steel Plummer blocks. The knives shall be of special shock resisting steel having hard faced cutting edges, hardness 45 to 48 HRC and tenoned into the hubs eliminating the shear on the bolts which should be of EN8 steel or of equivalent strength with nylock nuts. The knives shall conform to IS; 8461. A suitable flywheel of CI grade FG 260, IS- 210 duly machined and well balanced shall be provided at the outer end of the shaft.

Head on Cutter set shall be driven by a continuously rated CACA slip ring motor of **300 HP x 02 Nos.** and 1440 R.P.M. synchronous speed at a total slip of 15 percent. It shall be coupled to the geared coupling through suitable helical gearbox having service factor not less than 2.0 by means of gear coupling to get final speed of **300 RPM** capable of transmitting **300HP each** continuously. The motor shall be complete with starter (current not exceeding300% of FLC) and suitable buffer resistance.

The Head on Cutter shall be interlocked sequentially with auxiliary cane carrier and run smoothly.

2. Mill House Automation:

All four mills are driven by Steam Turbine TEW Make, 750 BHP each with inlet steam Pressure of 42 Kg/cm², 400 ºC with exhaust steam pressure 01 Kg/cm² & input and output RPM of 4000/750 RPM.

Auto cane feed control system for 1stmill

One set DCS based automatic cane feeding device to ensure uniform feed rate to first mill with provision to change the feed rate at any time having a variation not more than +/- 5% of set rate. Primary cane carrier shall follow speed of secondary cane carrier/Rake carrier in a fixed ratio. Load of all cane preparation devices shall override the speed signal of each cane carrier and rake carrier. When load of any cane preparation device exceeds 80% of rated load,

the speed of that cane carrier shall be proportionately reduced. If load exceeds 100% of rated load, that cane carrier will stop. It will restart automatically when overload condition on that cane preparation device becomes normal. These overload settings shall be adjustable from the control panel. Also cane carrier speed shall reduce proportionally with level in mixed juice tank. The necessary field instruments shall be provided. The system shall have the following provisions.

Sensors : For load sensing of cane preparatory devices such as chopper, leveler, fibrizer and 1st mill, suitable current transformers / two wire electronic analogue pressure transmitters with capacitance sensing technology with 4-20 mA DC output and configurable for calibration to the required pressure ranges within the designed pressure span of the transmitter. In addition to this, level sensing of prepared cane at **donnely chute** may be considered and supplied accordingly.

Control Action: The system should be provided with two control actions i.e. proportional and ON-OFF control actions. Proportional control as per the 1st mill load. ON- OFF control as per the high load settings of the cane preparatory devices and first mill. The necessary field instruments required shall beprovided.
Set Point : Following settings are to be provided,

For loads of various cane preparatory devices and 1st millsteamdrives precision load setters of 1 K 10 Turns helipots with dialknobs.
For average height and feed rate precision 10 K 10 Turns helipots with dial knobs.

Visual Indication: Coloured lamp indicators for the high set load values.

Carrier Speed Adjustments: The speed of the cane carriers can be adjusted from zero to the rated RPM with the settings provided on the control panel at operators console.

Indicators : Analogue load indicators (i.e. current or pressure indicators) and speed indicators.
Power Supply: 230 V AC, 50 Hz
The device shall be capable to achieve performance even under extreme conditions of shock, vibration, humidity, electrical interference. The necessary Donnelly chute sensors, field instruments required shall be provided.
All electrical / electronic components used in the device shall confirm to the existing Indian specifications.

Speed Control of Balance Three Mills

Individual mill speed control system shall be provided to maintain a constant level in the Donnelly chute and sensing the chest pressure and turbine RPM of each mill. The mill shall be operating on the base of top roller load. The desired load issetby user from DCS. The feed and discharge roller is operated according to set ratio of Top roller set load. The desired ratio is setby user from DCS. The mill will operate between min and Max limits. There iscompensation for different process parameters for controlling Mills RPM. If chute level is greater than the set level then RPM of Mill will increase.
Mill Top Roller Lift Indicators shall be provided and shall be displayed on DCS System

Auto Imbibition Water Flow &Temp.Control.

Imbibitions water flow will be controlled to maintain a fixed ratio of imbibition water to cane. The desired ratio will be fed through the keyboard and the load on the third Mill will be

measured. The flow of imbibitions water will be regulated to maintain the ratio at various loads. If load of third Mill is below the minimum running load, imbibitions water flow will stop. If third mill is bypassed, the system will automatically controlled by second mill load through software program without any extra hardware cost. The level of the tank should also be monitored and controlled through VFD at pump and temperature of the maceration water is to be controlled between 70 – 90 decks.

New DCS Control System for Mills

Entire Mill control system shall be monitored/controlled from the plant DCS Systemthroughtheremotecontrolstation locatedinmillcontrolroom.
DCS control system should include display of complete gimmick diagram of all the moving parts from cane carrier to bagasse carrier at milling station in motion. All the parameters like cane feed control speed control motor load amperage, levels of all the Donnelly chutes, mill RPM, top roller lift indications, mix juice and imbibitions waterflowindications.Levelinmixjuicetankalongwithjuicestabilizationsystem.
All these parameters should be sensed and data logging and printing arrangement shall be provided. The entire display and control logging and printing system should be on DCS system and computerized control from air conditioned and dust proof control cabin.

3. Modification in Existing Swing Fibrizor

The sugar mill is having Swing hammer type fibrizor with 111 Nos. hammers driven by 2000 BHP Steam turbine at output speed of 750 RPM with swing diameter of 1830mm.

To achieve better PI of more than 85 for improvement in mill performance, it is proposed to increase swing diameter from 1830 mm to 2130 mm by replacing hammers on new shaft and accordingly new suitable anvil plate. The anvil plate wrap angle 160° and pocket size 275 mm x 275 mm x 150 mm deep and plate thickness of 28 mm.
The existing steam turbine drive shall be used.
The necessary modification at head of cane carrier to accommodate increased swing dia. shall be done. The carrier feeding angle i.e. axis passing through centre of carrier and fibrizer centre with horizontal shall be 40°as existing one.

4. <u>Tramp iron separator</u>

Electromagnetic type tramp iron separator shall be provided on the belt conveyor to pick up any iron piece up to a maximum weight of **30 Kg**. from a distance of 350 mm will be from top of belt a cane blanket of 300 mm thickness over the belt conveyor.

5. <u>TRPF system</u>

A pair of tooth roller shall be minimum 1000 mm outside diameter 1980 mm shell length. The roller shall be fabricated out of 28 mm thick shell plate. The Journal size shall be minimum Dia. 350mm x 420 mm the shaft shall be of 40 C-8 qualities confirming to IS1570-1979 or equivalent bearing min strength 58kg mm2.Shaft shall be complete throughout the length of TRPF Roller. The roller surface shall be hard faced to 40 to 45 RC. Bottom roller shall be fully porous/lotus type.
The roller shall be supported on Cast steel bearing of IS-1030 grade II with Gunmetal bush, necessary oil Lubrication arrangement shall be provided.

Head stock shall be fabricated out of IS2062 weld able quality mild steel plate. Head stock shall be stress relieved by induction method & machined to suit TRPF roller. Taper wedge shall be provided in between top & bottom roller bearing to adjust the setting between the TRPF Rollers.
Pressure chute shall be made out of 28mm thick m. s. plate of IS-2062 quality material. Inside surface of pressure chute shall be lined with 5 mm thick stainless steel plate of AISI-304

quality. The pressure chute shall be suitable reinforced to with stand maximum pressure of 7 kg/cm2 pressure chute shall have arrangement to change of setting.
The TRPF drive shall consisting of 3.5" pitch Triplex chain sprocket with 3.5" pitch Triplex chain The pressure feeder top & bottom rollers shall be driven by mill top & bottom rollers receptively. Surface speed of TRPF roller shall be about 30% higher than mill roller speed.
The existing mill steam turbine of 750 BHP shall be suitable modified to increase capacity due to increase in power requirement because of addition of TRPF System.
Addition of new Donnelly chute (MOC –SS-409) and modification of IRC head to match the feeding to TRPF shall be done. New SS409 nose plates (8mm thk) to existing Donnelly chute shall be provided.
These three mills shall be provided with Donnelly chute, fabricated out of 6 mm thick stainless steel plate of 409 grade with stiffeners and shall have arrangement to adjust the blanket thickness from top. The height of each chute shall be about 3 meter. **Each Donnelly type chute shall have level sensors having ON/OFF control of intermediate rake carriers drives, sequencinginterlock.**

6. Modifications in Mills 1 to4

- Reshelling of Top rollers with 3 nozzle lotus (semi-couch – 4 nos top (Three nozzles)
  The composition of the shell material shall conform to IS : 11202 - 1985 and shall be:
  Totalcarbon -3.20 to 3.6 percent.
  Manganese - 2.2 to 3.2percent
  Silicon - 1.2 to 2.2 percent
  Phosphorus - 0.5 per cent Max. Sulphur - 0.15 percentMax.
- Lotus roller – 4 nos. discharge (singlenozzles)
  The composition of the shell material shall conform to IS : 11202 - 1985 and shall be:
  Total carbon -3.20 to 3.6 percent.
  Manganese - 2.2 to 3.2percent
  Silicon - 1.2 to 2.2 percent
  Phosphorus - 0.5 per cent Max.
  Sulphur - 0.15 percentMax.
- Chevron grooves to top &feedroller
- Top roller scraper lifting above horizontalline
- Roughening of rollers (arc welding) up to ½ depth of roller groove to top, feed and dischargeroller
- Tear drop (Spigot spot) welding on landing of top rollergrooves.
- Trash plate heel clearance of 40-50 mm on discharge rollerOD
- Providing box type juice imbibition trays – 02nos.
- Replacement of mill 1 & 4 A frame.

B.) Technical Up-gradation of Boiler& Power HousePlant

The details of existing boilers are as given below:-

1) 40 TPH Boiler : 02Nos.

Make	LIPI
Quantity	02 Nos.
Type of fuel	Bagasse

Capacity	40 TPH Each
Steam pressure	45 Kg/cm²g
Steam temperature	415ºC±15
Type	Travelling Grate Type
HSA of Boiler Bank	903.93 m² Each
HSA of Furnace	386.58 m² Each
HSA of Super Heater	182.88 m² Each
HSA of Economiser	372.86 m² Each
HSA of Air Heater	1206.1 m² Each
Super Heater Steam Temperature	415ºC±15
ID Fan	25 m² Each- 02 Nos., 180 H.P Motor
FD Fan	75 KW
PS Fan	15 HP
SA Fan	37 KW
Feed Pump	Cap. 60 m³/Hr.,Head-650 m,Motor-148 KW,2950 RPM**Qty. 03 Nos.**Turbo Feed Pump – 01 No.– 500BHP Steam Driven
Chimney	RCC 3 mtr Dia. x 45 m Height with wet scrubber

2) 30 TPH Boiler : 01No.

Make	**Texmaco**
Quantity	01 No.
Type of fuel	Bagasse
Capacity	30 TPH
Steam pressure	21 Kg/cm²g
Steam temperature	315ºC±15
Type	Dumping Grate Type
HSA of Boiler Bank	1068 m²
HSA of Super Heater	107.89 m²
HSA of Economiser	261.3 m²
HSA of Air Heater	1206.1 m² Each
Super Heater Steam Temperature	315ºC±15
ID Fan	30 m³/Sec., 250 H.P Motor
FD Fan	75 HP
SA Fan	50 HP
Feed Pump	Cap. 50 m³/Hr.,Head-300 m, Motor-75HP ,2950 RPM **Qty. 02 Nos.**
Chimney	MS2.61mtr Dia. x 32 m Height

3) 20 TPH Boiler : 02Nos.

Make	**ISGEC**
Quantity	02 Nos.
Type of fuel	Bagasse
Capacity	20 TPH
Steam pressure	21 Kg/cm²g
Steam temperature	315ºC±15
Type	Dumping Grate Type
HSA of Boiler Bank	850.75 m²
HSA of Super Heater	53 m²
HSA of Economizer	310.26 m²
Super Heater Steam Temperature	315ºC±15
ID Fan	150 H.P Motor
FD Fan	40HP

BoilerAutomation:

The following automation shall be provided for existing 30 TPH – 01No.Texmacomake & 40 TPH – 02 Nos. Lipi make Boilers.

i) **Three element drum level control system for existing 30 TPH Boiler – 01No:** Drum level shall be automatically controlled using the three element control

philosophy to ensure quick response of the system. In case of drum level falls below minimum level, the feed water control valve will open fully. In case drum level rises above maximum level, the feed water control valve will close fully.

ii) Combustion control system &Furnace pressure control system:

The following automation shall be provided for existing 30 TPH – 01No. Texmaco make & 40 TPH – 02 Nos. Lipi make Boilers.

This will be an integrated control loop for maintaining the steam pressure. According to the steam pressure the master controller will adjust speed of AC VFD to feed more or less fuel to the Boiler and FD fan to control amount of primary air sent to the furnace respectively. To ensure that this adjustment is correct, the signal of O2 % in flue gases will be taken in the loop to make the final correction in the speed of FD fan.

ID fan speed shall be controlled to maintain draft inside the furnace to – 5 mmWC.

Required Panels for monitoring and indications and DCS system and its consoles at boilers of 30 TPH and 40 TPH shall be provided.

Two air compressors (one as standby) shall be provided to supply oil and moisture free air through refrigeration dryer system, for pneumatically controlled instruments. Spare air filtering and drying system shall also be provided along with standby compressor set.

COMPUTERIZED BOILER AUTOMATION: -

All the above mentioned indication, monitoring and control systems to be hooked on distributed control system (DCS). All control monitoring and interlock function will be provided for smooth functioning of the Boilers. Comprehensive instrumentation and control equipment shall be provided for each system of the plant. The controls will be located in the central control room. Instrumentation will broadly cover the following functions:

- Local indication bygauges
- Remote indications through transmitters
- Interlocks for safety of personnel /equipment
- Closed loop control system using single loop controller/DCS
- Status indicators
- Alarmannunciation

Controls and interlocking will be through microprocessor based hardware. Actuation will be done generally through pneumatic actuators.

The DCS shall be provided keeping in view the safety, reliability and availability for comprehensive presentation of plant operation status, trends and essential operation interacting facility.

Transmitters for the measurement and control will be of electronic type using solid state hardware. Field signal transmission will be 4-20 mA, two wire system suitable for long distance transmission and compatibility with computer interface and ease conversion into voltage signals using simple resistor.

The control system will be designed to facilitate manual operation of the plant from the control panel. Necessary hardware indicators and recorders will be provided on the control panel located in the control room.

Closed loop control system will be provided for Boiler and their auxiliaries with processor and sensor level redundancy.

All control valves and damper operations will be of pneumatic type with fast response and have ease of maintenance and should be remote controlled room control desk.

All operations of the Boiler and turbines should be indicated on computer screen for different sections indicating all the operating parameters on MIMIC diagram. Control room should be provided with water cooled air conditioningsystem.

1. AC VFD Drives for ID & FD Fans for 3 Nos.Boilers

AC VFD Drives shall be provided for existing 30 TPH – 01No. Texmaco make & 40 TPH – 02 Nos. Lipi make Boilers. The motor details are provided as above. The required motor conversion to make VFD suitable shall be done as required and one no. spare VFD of highest capacity shall be provided.

2. Steam Flow meters:

10 Nos. Steam flow meters shall be provided to measure steam flow of suitable capacity for live steam line from all boiler to mills, fibrizor turbine, and power house turbines and PRD station.

3. Economizer modification:

Setting up coil type economizer by replacing fin type economizer in each 20 ton boiler.

4. Soot Blowers

Motorized automatic adequate Soot Blowers of retractable type complete with PRS, piping, drain and other accessories are to be provided 04 nos. at appropriate location for effective cleaning of Super Heater coils, bank tubes, economizer coil etc. Motorized automatic retractable Soot Blower for Super Heater elements each covering half of the furnace width shall beprovided.
This shall be provided for existing 30 TPH – 01No. Texmaco make & 40 TPH – 02 Nos. Lipi make Boilers.

5. Power House Works :

The Auto factor power control unit and 500 KVA capacitors each to 3 no TG sets shall be provided.
Suitable number and rating low loss power capacitors APP double layer type shall be supplied to improve the plant power factor to 0.92, at 5000 TCD (22 Hrs. Basis) crushing capacity. The power capacitors shall conform to IS-2834 specifications. Suitable capacity capacitors shall be connected to main distribution panel through APFC panel.
Capacitors shall be connected to main distribution panel through auto power factor correction relay and capacitor switching shall be by contactors / thyristeried switching. If thyristeried switching is used capacitors shall be MPP type.

6. Modifications for pressure drop of steam line to turbine:

The existing piping from steam header to turbine shall be redesigned and redeveloped in order to keep pressure drop from boiler header to all turbine maximum 1kg. per sq. cm., All HP steam piping shall be provided with insulation wherever required.

C.)<u>Technical Up-gradation of Boiling House Plant &Machinery</u>

The Evaporator configuration in the Boiling house shall be designed for crushing 5000 Tons of cane per day (TCD) on 22 hrs. basis i.e. 227.27 TCH to produce white plantation sugar. The overall steam consumption of sugar plant shall be around 47% on cane at270% imbibition on fibre.

1. Condensate Flow meter

One No. return condensate flow meter for measurement of exhaust condensate, capacity-150 MT/Hr shall be provided.

2. Pressure Reducing & De-superheating Station & Exhaust De-super HeatingSystem:

Pressure Reducing & De-superheating control valves shall be provided for controlling the temperature and pressure of the steam for Boiling House. The quantity of live steam to the PRDS should be monitored with flow meter and totalizer.

Exhaust de-superheating system shall be installed to maintain the exhaust steam temperature at around 125° C to the process house from Mill & Power turbine.

3. Raw juice pump and TJ pump

Raw juice pumps and treated juice pumps of capacity 400m^3 /hr. with 75 mtr. Head should be supplied. One raw juice pump and treated juice pump will be spare.

4. Juice Weighment

Mass flowmetercapacity	:	300 cu.m/hr.
Accuracy	:	± 0.10% of mass flowrate.
Indicationfacilities	:	i) Flow rate in cu.m./hr. ii) Current hour flow intonnes iii)Last hour flow intonnes

The various parameters shall be hooked up in PLC/DCS.

5. JuiceFlowstabilization:

For ensuring regular screened juice flow to the process which will stabilize regular flow of juice to clarification and evaporator stations in boiling house, juice flow stabilization system shall be installed, details as below.

Juice flowstabilizationcapacity	: 370 cum./hr.
Controlrangeaccuracy	: 30% to100%
Juiceflowvariation	: ± 5 % of preset value

The system shall include the necessary control units, flow indication at mills and boiling house, flow recorder etc. and shall be compatible for centralized control DCS system.

6. <u>Direct Contact Juice Heater(DCH):</u>

Two DCH of suitable capacity with automation to be provided for SJ 3 heating. The direct contact juice heaters (DCH) shall be of all SS-304 construction designed at designated rate of sulphited juice and clear juice for ultimate capacity), complete in in-built entrainment separators, NRV in vapour line, control valves, auto control of temperature with all accessories. Thickness of DCH shell & internals shall be as per design but shall not be less than 6 mm

7. <u>Addition of evaporator bodies:</u>

The present evaporator configuration is such that the steam demand to the process house is very much on higher side and it may be around 56 – 58 % on cane and the live steam bled through PRDS may be around 35 Tons/hr.

The new evaporator configuration is so designed that the steam demand to the process house will be around 50 % on cane and the live steam bleeding to the boiling house will beminimum.

In the new evaporator configuration, One evaporator SK body of 4000 sq. m HS willbe added to the existing 2300 SK body so that the new SK body will be the main body and 2 Nos. of existing SK bodies (2300 & 800) will be working as a standby when the new body of 4000 sq. m is taken up forcleaning.

In the 2ndbody of the quintuple system, one radial flow type Roberts body of 2750sq. m HS will be added to the existing two Nos. of RB of 1750 sq. m HS and in the all the three bodies,

two bodies will be working and one old body 1750 sqmwillbe used as a floating body The necessary isolation valves to be provided as per the requirement.

General specifications of Falling Film Evaporator (FFE)

The FFE vessel shall be of efficient design shall be provided with suitable transfer pumps, circulation pumps with respect to standard wetting ratio. All pumps shall have standby arrangement.

The tubes shall be SS-304, 1.2 mm thick, fully annealed after final drawing.
The tube size must be OD 45 mm, thickness 1.2 mm & length 10000 mm.

The pitch of the tubes shall be such that ligament shall not be less than 16 mm in any case.

Fabrication parameters:

Material of construction shall be Carbon steel plates as per IS: 2062-2011.

S.No.	Units	Minimum thickness of mild steel plates for construction of FFE (mm)
1)	Body shell, Calandria shell & steam jacket	16
2)	Top cone (dished type)	22
3)	Bottom cone /dish	22
4)	Shell of vapour space and support skirt	16
5)	Tube plate (Top & bottom)	36
6)	Base plate ring	36
7)	Skirt shell	16

Juice distributor shall be of SS 304.

The design must ensure that the expansion of tubes in the bottom tube plate is carried out without any difficulty and Hassel free tube replacement.

An efficient and proven juice distribution system should be provided to ensure uniform distribution of juice on top tube plate.

The internal save-all must be of efficient design and must not impart drop in vapour pressure.

The evaporator vessel shall have sight and light glasses. Location of light glasses should be such that it illuminates the whole tube plate / inside system of FFE.

Pressure gauges, temperature gauges and thermo well for thermometer/ RTDs in calandria steam inlet and vapour space of heat exchanger vessels shall be provided.

All gauges shall be mounted on an aesthetically looking gauge board only.

All manholes shall be hinged and quick opening / closing type.

The steam safety valves shall be of butterfly auto controlled type compatible to DCS.

All the sight & light glasses shall be of minimum 200 mm dia. The 1st sight glass shall be 250 mm.

The light and heavy nox. Outlets shall be arranged and connected in separate headers with separate valves. All Nox gas pipe lines, headers shall be of SS 304 grade schedule 10 in case of pipe dia less than 80 mm and of schedule 20 above 80 mm pipe dia.

Continuous juice / syrup sampler shall be provided.
There shall be only one vapour outlet from the catchall of entrainment separator vessel.

Suitably sturdy base ring shall be provided.

The equipment must be designed in such a manner that the outlet juice is taken out from the heat exchanger vessel / vapour separator. Compact entrainment separator, internal or external shall be as per vapour capacities. There shall not be any chance of entrainment from the system.

The FFE vessel shall be complete in every respect with necessary fittings for satisfactory operation.

Suitable pump with receiver bottle for exhaust condensate extraction with standby arrangement shall be provided. Pump capacity not less than 80 cu.m./ hr., with AC VFD drive RPM not exceeding 1500 and shall be compatible to centralized control DCS system.
On line conductivity measurement of condensate water shall be provided so that any sugar trace detected in exhaust condensate for boiler shall be drained to save boiler water contaminationwith alarm in control room.

Efficient condensate extraction shall be provided with efficient flash heat recovery system
Heat recovery from exhaust steam condensate through free flow plate type heat exchange shall be done. By pass arrangement shall also be provided.

A total CIP system for cleaning of all FFE bodies complete in all respects shall be provided.

General specification common to all conventional (Robert type) evaporator

Efficient design with peripheral juice, condensate and noxious gas outlets. The tubes shall be SS-304, 1.2 mm thick, fully annealed after final drawing. The pitch of the tubes shall be such that ligament is not less than 12 mm in any case.
Minimum thickness of mild steel plate of calendria and body shall be of 16 mm, bottom soucer22 mmand tube plate 32 mm.The bottom saucer shall be welded to the calandria. The design must ensure that the expansion oftubes in the bottom tube plate is carried out without any difficulty.

8. Vacuum filter:

Vacuum filter assembly including the shell, S.S. decking, screen, scrapping arrangement, vacuum regulating system, juice withdrawal, S.S. piping assembly, juice trough with stirrer, juice separator in the vacuum line, driving arrangement, electric motors, gear boxes etc.

9. Batch type centrifugal Machine:

One flat bottom fully automatic recycling batch type centrifugal machines capacity 1750 kg/charge and 20 charges per hour shall be provided for curing refinery massecuite. Both of the two machines shall be utilized for curing R1 massecuite. The centrifugal machines shall be driven by AC variable frequency drive motor.

Specification of High grade fully automatic plough discharge centrifugal machines with AC VFD drive

Batch type, high grade centrifugal machines, each of 1750 kg / charge, minimum 20 cycles / hr, fully automatic recycling type centrifugal machines shall be supplied for single curing of Á' massecuite with 9495 deg. Brix. Massecuite to pugmill shall flow by gravity. Magnetic flow meter with indicating, integrating and recording facility for hot water (SHWW) use in A-Centrifugal machines shall be provided.

Basket shall be SS DIN Standard 1.4462 / SS Standard metaullergy.

Working screen – Brass, Backing screen – S.S. Backing screen, 4 mesh DOVEX R Type

Spindle- material specification – Forged steel as per IS 2004 CLASS IV

The machines will be driven by suitable power AC VFD.

All operations of the automatic recycling type machines including charging and discharging, changing the speed, application of superheated wash water, molasses separation, operation, bottom valve closing etc. Shall be automatic. Manually operated brakes shall also be provided with process logical control programme such that the plough should not be operated at higher basket speed than ploughing speed of 60 RPM. Manually controlled steaming arrangement of monitor casing shall be provided.

Each machine shall have individual switch fuse isolator of suitable rating, an ammeter, and thyristorised/ air break-contactor for operating the machine in manual and fully automatic recycling with a separate selector switch. All operations such as charging, bringing the machine at different speeds, retardation, water wash, pugmill gate opening and closing, syrup separation, cycle over etc. Shall be given on control box and indicated by different lamps. All these applications shall also be possible to be applied by push button/rotary switch in manual or automatic position of the selector switch from the control box except bringing the machines at different speeds, retardation and cycle over. Control box shall have speed indicator etc. Necessary arrangement in the panel shall be provided for tripping of the machine in case of high temperature on sensing through ETDs of the motors. AC VFD motor panel board & drive shall be equipped with AC's with standby arrangements.

The machines shall be complete with all accessories, auxiliaries, including support, structure, platform pug mill with drive, super – heated wash water system (PHE) with stand-by arrangement, air compressors with standby (1+1), run-off tanks, run-off pumps (1+1) with drive, incoming and control panels etc. Air compressor for A – centrifugal machines shall be independent of Air compressor for instrumentations of boiling house. The centrifugal station shall be complete in all respects and shall have necessary accessories namely Air compressor 7 kg/cm² (g) with standby arrangement with receiver and refrigeration dryer system to supply moisture free air for pneumatic control of centrifugal machines.
All pumps shall have standby arrangements. Mono rail with suitable capacity for hoisting shall be provided

Structure, pug-mill, molasses gutters and all other accessories suitable for installation of one no. Similar machines shall be provided for ultimate capacity.

'Auto – manual' switch shall be provided for manual operation in case of failure of control system. Necessary manual controls shall be provided.

Manually operated power actuated brakes shall also be provided for emergency.

Necessary arrangement in the panel shall be provided for tripping of the machine in case of high temperature on sensing through ETD, of the motors and excessive vibrations / wobbling.

Suitable interlocking arrangement shall be provided in panels so that not more than one machine start at a time.
Provision shall be made in lay out suitable for ultimate capacity of 7500 TCD

Molasses Run-off Tanks

Two (2) sets of vertical cylindrical, 8mm thick of Mild Steel IS 2062 construction molasses run-off tanks each of 3 m3 capacity, one for AH molasses and one for AL molasses shall be supplied.

Molasses Pumps

Two (2) sets of molasses run-off pumps of suitable capacity and head for each duty, one operating and one standby, complete in all respect with AC motor shall be provided.

Pug Mill

The pug-mill shall be made out of 8 mm thick mild steel plate and provided having paddle type stirring arrangement, driven by Ac electric motors through shaft mounted planetary gearbox.

10. Injection water pumps Header Replacement & Modification and new Injection waterpump:

Injection pumps of different characteristics for eg, different Heads are being run together which will deteriorate the performance of low head Injection pumps. Due to this more Injection pumps are being operated continuously to achieve the required vacuum in Evaporators & Pans. Batch Pans restarting after the dropping of pans is around 45 minutes which will reduce the capacity of the pans.

For vacuum creation in vacuum pans & evaporators, one vertical mixed flow type pump 3000 m^3/hr with 22 mtrs head, one pump of 2500 m^3/hr with 15 mtrs head& one separate pump for Evaporator (i.e.) 1000 m^3/hr with 22 mtrs head are in operation.

To rectify all these issues in the injection water station, the following recommendations are suggested

1. All the pumps Head should be made equal and for that the pump supplier to be called and 15mtrs head pump should be raised to 22 mtrs head so that pump pressure will improve and this will ultimately improve the performance of the panstation.
2. The MS injection water header of lower dimension should be replaced with higher sizing of minimum of 1200 mm dia with 12 mm thickness to maintain the required pressure.
3. Both the Injection water headers should be in the same level and also all the condensers should be in the equal level.

The header pressure should be around 1 Kg/sqcm and around 0.4 Kg/sq cm at the inlet of condenser for efficient pan boiling.

11. One New vertical mixed flow type pump 3000 m^3/hr with 22 mtrs head with motor shall be provided.

However new vertical injection pump which is to be run continuously for reducing water consumption and for automation.

The delivery pipeline of each pump shall be individually connected to the respective headers with tangential connection.

The pumps shall have CI casting, SS impeller and SS-410 shaft & sleeves.

Suction strainer of stainless steel construction 304 grade, NRV and isolation valves in the delivery lines shall be provided.

Thickness of injection headers M.S. fabricated pipeline shall be of 12mm..

12. <u>Spray pump.</u>

One MF 40 x 45 spray pump with motor of capacity 3000 cum/hr capacity with 18 mtrs Head to be provided as a replacement of old obsolete spray pump. The new pump shall have CI casting, SS impeller and SS-410 shaft &sleeves. Modification in spray condensate & cooling system to reduce power & water consumption.

13. Centralized PLC System for Boiling House-

Centralized PLC system for Pressure & Temperature of juice, Live steam, Exhaust steam, Vapouretc indication, monitoring and control systems to be hooked on distributed control system (DCS). All control monitoring and interlock function will be provided for smooth functioning of the Boiling House equipment. Comprehensive instrumentation and control equipment shall be provided for each section of boiling house. The controls will be located in the central control room. Instrumentation will broadly cover the following functions:

- Local indication bygauges
- Remote indications through transmitters
- Interlocks for safety of personnel /equipment
- Closed loop control system using single loop controller/DCS
- Status indicators
- Alarm annunciation

Controls and interlocking will be through microprocessor based hardware. Actuation will be done generally through pneumatic actuators.

The DCS shall be provided keeping in view the safety, reliability and availability for comprehensive presentation of plant operation status, trends and essential operation interacting facility.

Transmitters for the measurement and control will be of electronic type using solid state hardware. Field signal transmission will be 4-20 mA, two wire system suitable for long distance transmission and compatibility with computer interface and ease conversion into voltage signals using simple resistor.

The control system will be designed to facilitate manual operation of the plant from the control panel. Necessary hardware indicators and recorders will be provided on the control panel located in the control room.

Closed loop control system will be provided for Boiling house equipments with processor and sensor level redundancy.

All control valves will be of pneumatic type with fast response and have ease of maintenance and should be remote controlled room control desk.

All operations of the Boiling House equipments should be indicated on computer screen for different sections indicating all the operating parameters on MIMIC diagram. Control room should be provided with water cooled air conditioning system.

14. SUGAR GRADER

Presently, Two sugar graders of 10 Tons/hr and 20 Tons/hr capacity are available for grading ofsugar.

Proposal:

One sugar grader of Mogensen type of 35 tons/hr capacity is to be provided to improve the grading efficiency replacing existing 10 Tons/hrgrader.

15. Insulation & Lagging

Insulation and lagging of all new equipment, pipes and fittings etc. of the sugar plant shall be supplied.

All the new equipment and pipelines surfaces in the sugar plant above 55 deg. C temperature shall be effectively lagged.

Lagging of boiling house equipment & piping shall be from factory made mattresses of Bonded Mineral wool of readymade mattresses specifications. All lagging shall be cladded with minimum 22 gauge aluminium sheet cladding.

Glass wood/Mineral wool for vessels and piping shall be provided. The thickness shall be to suit the temperature and diameter of pipe. Lagging of all the heat exchange equipment, steam and condensate pipes, valves having high temperature fluids such as juice, condensate, vapour etc., pipes, flanges and fittings for new equipment shall beprovided.

16. Staging &Structures

The necessary staging & structure for various new equipment in boiling house to be provided.

GENERAL SPECIFICATION OF EQUIPMENTS

Specification for Electric motors

All the electric motors up to 100 HP except ID Fan motors shall be squirrel cage TEFC enclosure induction motors. All motors above 100 HP shall be slip ring SPDP enclosure induction motors. All the electric motors (except fibrizer and mill drive motors) shall be suitable for operation at 3 phase, 50 Hz, 415 volts, AC supply and shall conform to IS-325- 1978 and IS-4722 specifications.

Motors for batch type centrifugal machines shall be suitable for S1 duty as per IS-4722 specifications and shall be designed for an ambient temperature of 50 deg.C and shall be fitted with ETDs in each phase for thermo-protection of motor windings.

Electric motors for cross travel and long travel of cane unloader and mill house cranes shall be slipring TEFC enclosure suitable for S5 duty as per IS-4722 specifications. The electric motors for hoisting/de-hoisting of cane unloader and mill house crane shall be squirrel cage TEFC enclosure suitable for S5 duty as per IS-4722 specifications.

Electric cables (11 KV, 1.1 KV grade)

All power, control and lighting electric cables for the entire electrical distribution system shall be supplied.

The power electric cables from the main distribution panel to each MCC and to auxiliary panel shall be suitable for the connected load at unity load factor excluding standby equipment. Suitable deaerating factor for the cables shall be considered as per the recommendations of cable manufacturers. All power and lighting cables shall be PVC insulated, entigra, suitable for use at 1100 V and shall conform to IS-1554(part I) specifications. All the control cables shall be of copper conductor. The minimum cross sectional area per core shall be 4 mm^2 for entigrad conductor and 2.5 mm^2 for copper conductor for power cables and 1.5sq.mm. copper conductors for control cables. All the power & lighting cables shall be 3. 1⁄2 core. All other cables from MCC to motors shall be 3 core.

All cable terminations shall be through crimping type cable lugs. Cable glands shall be provided at panels.

Power factor correcting capacitors

Suitable number and rating low loss power capacitors APP double layer type shall be supplied to improve the plant power factor to 0.90, at 5000 TCD (22 Hrs. Basis) crushing capacity. The power capacitors shall conform to IS-2834 specifications. Suitable capacity capacitors shall be connected to main distribution panel through APFC panel. Capacitors shall also be connected to the motor control centers and across motors of rating 125 KW and above with SF unit, contactor and 'ON' indication.

Capacitors shall be connected to main distribution panel through auto power factor correction relay and capacitor switching shall be by contactors / thyristeried switching. If thyristeried switching is used capacitors shall be MPP type.

Specification for De-superheating Station

Pressure Reducing & De-superheating control valves shall be provided for controlling the temperature and pressure of the steam for Boiling House and to gain the additional steam for process. The quantity of live steam to the PRDS should be monitored with flow meter and totalizer.

Specification for Pipelines and Fittings

All hot and cold water,, juice, syrup, magma, molasses, massecuite and bled vapours, live steam, reduced pressure and exhaust steam pipe lines shall be suitable for 5000 TCD and all headers shall be

designed for ultimate capacity. Various pipelines shall be designed so that velocities given below are not exceeded at 5000 TCD.

a) Water and juice : Suction 1.0 m/second Delivery 1.2 m/second.
b) Condensate : Suction 1.0 m/second Delivery 1.2 m/second.
c) Syrup : Suction 0.5 m/second Delivery 1.0 m/second.
d) Molasses : Suction 0.3 m/second Delivery 0.5 m/second.
e) Massecuite/ Magma: Suction 0.1 m/second Delivery 0.15 m/second
f) Superheated/ Saturated steam : 30 m/second
    - Exhaust steam : 30 m/second
    - Bled vapours : 30 m/second
g) Compressed air/ SO_2 : 20 m/second
h) A maximum pressure drop of 2.0 kg/cm^2 g. Shall be allowed from boiler outlet to the inlet of power turbine and maximum pressure drop of 0.10 kg/cm^2 g shall be allowed from power turbine to the inlet of evaporator.
i) All pipelines, valves etc. Shall be designed for 5000 TCD and not for ultimate capacity, but main exhaust header, inter connecting piping at evaporator and vapour piping to pans shall be designed for capacity of 5000 TCD for 22 hrs. Basis.

Safety valves to be provided in the steam pipe lines wherever necessary. Blow off pipes shall extend beyond the roof/factory buildings safety valves in the exhaust and reduced pressure lines shall be butterfly type auto operated compatible to PLC. Suitable drains, valves, steam traps etc. Shall be provided in all steam lines, where necessary. High pressure steam manifold of 500 mm shall be provided for ultimate capacity. It shall have additional provision of blind nipple for one additional boiler on incoming side one additional inputs for turbo alternator on outgoing side. It shall have flanged ends.

The pipes shall conform to specifications given below :

Cast Iron Pipes and Fittings :

The pipes shall be class 'B' and shall conform to IS:1537-1976 specifications and integrally cast flanged joints or spun pipes with screwed ends on flanges as per IS:1536-1976 shall be used.

The pipe fittings shall be class 'B' and shall conform to IS:1538 (part I to XXIII) – 1976 specifications. Only flanged joints shall be used. One side of the flanges shall be machined in case all pipe fittings.

Mild Steel Pipes

All mild steel pipes and pipe fittings used for conveying of air, cold water, to water (except boiler feed water) oil (except oil for hydraulic accumulators), molasses, massecuite, juice, lime, syrup, noxious gases etc. Shall conform to IS:1239(part I)-1976 and IS:1239 (part II)-1982 specifications. All juice from mills to inlet to evaporator shall be of SS grade 304 schedule 20 and syrup piping including entigrade juice piping shall be class `C' (heavy) and rest of the piping shall also be of class `C' class (heavy). The thickness of mild steel pipes having diameter more than 200 mm shall be 8 mm.

In case of all piping above 25 mm NB only flanged joints shall be used. All flanges to be as per IS:6392-1971 or to suit connecting prescribed valves.

Live steam, exhaust steam and boiler feed water piping:

These shall conform to I.B.R. wherever applicable. The thickness of exhaust and vapour steam piping shall be minimum 8 mm in case of 300 mm dia. And above.

The distance between two flanges in straight portion of pipes shall not exceed 6 metres except steam, vapour feed water pipe. In case of bends, flanges shall be provided atleast at one end. All steam expansion bellows shall be of stainless steel tested at 1.5 times the exhaust steam pressure.

Valves shall be provided in each branch line of juice heater,, reduced pressure steam lines, water separator, drain, steam trap etc.

All delivery lines of juice, water and syrup of centrifugal pumps shall have non-return valves except in case of unstrained imbibition juice pump, lime and Mud pumps, Water connections to be provided at each station for cleaning.

All exhaust steam valves for evaporator and pans shall be right angle valves.

All bearing and oil cooling water to be collected in a masonry tank which shall not be more than 10 metres away from the factory building.

Specification of Supporting steel structure

Necessary staging for all the machinery including supporting columns, integral floor structure, staircases, railings etc. Shall be provided. Mills, mill drive, turbo generator, clarifier and lime slaker shall be on R.C.C. staging. Sulphur furnaces shall be on steel staging with R.C.C. flooring. Other machinery except those on floor level shall have its own supporting steel staging.

Pipelines, mill and power house cranes, condensers, flash tanks, cyclone separators can be supported on building columns. No weight of other machinery or platform shall be transmitted to building columns. Mills to have mild steel chequered or perforated or grating flooring. Centrifugals to have chequered plate floor. In the boiling house chequered plate flooring shall be provided. All gangways, passages, staircases, working platform and railings shall be convenient. Chequered plate thickness shall be minimum 6 mm.

End columns of pan staging to be similar to intermediate columns to take load of pans to be added.

A clear working platform of atleast 2.0 m. Width shall be provided in working front of pans and evaporator bodies. Moving space between pans shall be 1000 mm and in evaporator bodies a distance of 750 mm shall be provided. In case of other units a clear working platform of atleast 1.2 m. Width to be provided.

All statutory requirement regarding staging platform staircases, safety devices etc. Shall be observed at the design stage.

Specifications for Insulation

For lagging the equipment, pipes and fittings etc. Of the sugar plant as per specifications the Sellers scope of supply should be as follows:

All the equipment and pipelines (including fittings as defined under Clause 6 of IS:7413 specifications), surfaces in the sugar plant above 55 deg. C. Temperature should be effectively lagged (except where heat dissipation is desirable and the surfaces which become hot intermittently such as steam traps and relief valve outlet pipes, vents, blow- down pipes etc.)

Material to be used:

For lagging: Factory made mattresses of Mineral wool (LRB mattresses) as per IS:8183 – (latest issue) specifications. The bulk density of the material should be:

100 kg/m^3 for hot surface temperatures upto 250 deg. C.

120 kg/m^3 for hot surface temperatures above 250 deg. C. But upto 550 deg. C. (as per clause 3.2 of IS:8183 – (latest issue) specifications)

The thickness of the lagging should be such that the difference between temperature measured (at any time during the maintenance warranty period as per clause 22 of the draft agreement) at any point on the outer surface of the lagging cladding (i.e. protective finish) and the ambient temperature at that time should not exceed 10 deg. C.

For protective finish:

Material for cladding of all lagging in the sugar plant should be 22 gauge aluminium sheet cladding (as per IS:7413 standard specifications) (except as follows). It includes fixing of 'L' lugs, M.S. flat rings, wire netting stitched with lacing wire and fixing of aluminium sheet with the help of self-taping screws and grooving all joints with necessary overlap to make it completely water proof.

The valves and flanges (including the flanges of the equipment) to be lagged shall be provided with openable lagging boxes for valves and fittings of the HP steam lines (including boiler plant) openable boxes shall be out of 18 SWG thick aluminium sheets as per IS:737 designation 31000 condition H3.

All the turbines lagging should be provided with boxes of 3 mm thick Aluminium sheets. Lifting block should be provided for these boxes.

Balance materials (not specified above) should be as per IS:7413 specifications.

Application and finishing of the lagging materials, protective coverings etc. Should be carried out by the Seller as per IS:7413 (latest issue) specifications.

All specifications of the equipment/machinery/system, which comes under scope of supply, erection and commissioning of the bidder, will be as per general standard norms of the industry. In case of any deviation, the concerned sugar mill decision will be final.

The scope of work for the machineries and equipment and associated systems covered under the specifications will include, but not limited to the following;

- Design, engineering, giving necessary details of each and every station, manufacture, procurement and supply including fabrication, assembly, shop testing and inspection at manufacturer's works/site as required. (according to specifications etc. given in bid document forming part of this Agreement).Drawing and design will be validated by mill specially for evaporator configuration and bleeding arrangement to get the desired results.

- Providing all labours, materials and equipment for testing at shop / site, as required.

- Special tools and tackles required for operation and maintenance, inspection, and repair of the equipment / systems offered.

- Painting, lagging, aluminium cladding of new equipment/tubular vesslles/exhaust pipes/desuperheater etc.shall be of Sellers scope of work

The specifications are intended to cover the design, engineering layout, manufacture /procure, supply, erection, testing and commissioning of entire process modification and package units equipment, associated systems, electrical distribution system, necessary piping /supports / valves / instruments, PLC based control & instrumentation system, necessary structures and supervision of work of erection, commissioning and civil & structural works. Provision of platforms, ladders etc will be in the seller scope for trouble free operation of the equipment/vessels.

Supplies and services shall be rendered in conformity with proven engineering principles, taking into account the current state of the art technology. The requirements of the contract must be fulfilled in its entirety.

The supplies and services within the scope shall be rendered inclusive of all appliances and interconnecting arrangements, necessary for installation of all accessories and for satisfactory operation, maintenance and repair.

The scope of supply and services shall include all necessary work and supply of equipment and material whether mentioned in these specifications or not, but which are necessary for the satisfactory, reliable, safe operation, maintenance and required for achieving guaranteed performance parameters. The specifications of equipment will be at par with the specifications laid down by national federation and best standard practices in sugar industry.

Note- Any equipment, devices or material even if not included in specifications, but found necessary for the safe and satisfactory functioning of the unit, shall be supplied by the Seller at no extra cost to the Purchaser, as though, such equipment, material or work were not originally specified and formed part of the scope of work.

Design and drawing of machinery, civil foundation, building and all other related civil works shall be in scope of Seller. Seller should provide above mentioned design/drawings duly signed by authorized person to Factory/Federation for vetting and approval.

The Seller will also dismantle old structure, foundation/building present at the site, if required will make all the arrangements to connect the old system to new supplied one.

All civil work including all machinery foundations and structure as required.

- Erection and commissioning of all machinery and equipment.

- Services - Design and Engineering
- Preparation of design calculations and detailed drawings.
- Preparation of load data, coordinating drawings etc. along with foundation drawing to Purchaser for the purpose of approval of design and construction of machinery foundations
- Preparation of Price Break-up, Billing Schedule, Delivery Schedule, Time Schedule for preparation of foundations
- Preparation of Bills of Quantity
- Preparation of manufacturing drawings
- Preparation of quality assurance and inspection plans and implementation schedule.
- Preparation of schedule for site testing and commissioning including system auditing.
- Machinery layout
- To various statutory requirements and guidelines of various Act/Statute/Rules.
- Erection & Commissioning
- Unloading, unpacking, shifting to locations, positioning, aligning and fixing of equipment which are included in contract
- Pre-commissioning checks.
- Commissioning , testing and trials runs and performance proving
- Completion of documentation and records.
- Testing of materials
  Testing of materials shall be carried out in Government authorized laboratories apart from manufacturer's laboratories at the cost of the Seller.
- Inspections / Review Meetings
  Making the arrangements for periodical and final inspection of all major equipment at own or sub-contractor's works.
  Attending the periodical review meetings at site or at the agreed locations.

While preparing the delivery schedule, the Seller shall ensure that the machinery and equipment are delivered in sequence of priority for erection so that the items which are to be erected first as per erection schedule shall be sent first and with the same order of priority the progress of delivery shall be maintained thereafter accordingly. The said monthly delivery schedule shall also indicate the approximate value of the major equipment The Seller may send some critical items with the written consent of the Purchaser before the due date of delivery. However, if the delivery of any of the item as per delivery schedule is delayed, the delivery of the subsequent items shall not be held up on this Account.

The performance of the equipment to be demonstrated as per details given in this document.

Provided further that in case the Purchaser requires any additional items related to the machinery & equipment or ask for any major changes in the specifications as given in bid document forming part of this Agreement, the Seller hereby agree to make such supplies, additions, modifications, alterations or changes and the Purchaser shall bear the cost of the same.

The makes of the critical equipment to be supplied by the Seller will be strictly according to the alternative given in the bid document.

The Seller shall furnish month-wise (approx.) money requirement towards supply of machinery and equipment within one month from the date of signing of this Agreement.

The equipment/system is to be commissioned on the desired date finalized by the Purchaser without any price escalation. The price and date of delivery and commissioning of the machinery is firm.

The equipment/systems in said Sugar Mills shall be designed, manufactured, supplied erected and commissioned & performed as per term & conditions of the Bid document
The system shall be erected on the available land/ dismantled and levelled land within / outside the existing premises.

UNINTERRUPTIBLE POWER SUPPLY SYSTEM

UPS system shall be provided separately for each section.
The Uninterruptible Power Supply (UPS) system of continuous duty shall supply regulated, filtered and uninterrupted 230V, 50 Hz, single phase power, within specified tolerances, to system AC loads. Each inverter shall supply only 50% loads under normal conditions. All necessary equipment required for protecting UPS equipment and connected inputs and outputs shall be furnished by the Seller as an integral part of this system.

AC Distribution Boards

Panel boards for distribution of continuous AC power to essential loads shall be dead-front type panel boards rated for 600 V, AC service. The hinged panel board front shall cover the fuses and wiring gutter but not the switch handles. The hinged front and switch handles shall be covered by the enclosure door.
Filed Instrument & Control System

Field Instruments

All field instruments (Absolute Pressure, temperature, Level, pH, Brix/conductivity, Pressure, Flow transmitter and Final control element (control valve, power cylinder etc.). Accuracy should be +/- 2%. Error more than 5% will not be accepted

Control System
All DCS control systems at Refinery clarification house and pan station should be functional as per programme and parameters preset in the DCS for the control. All graphics and mimic diagrams, data's to be displayed and on DCS MMI.
By passing of any control system or its MMI interface during the performance trial of plant machinery/process equipment will not be acceptable.

STANDARD COLOUR SCHEME

Following standard Colour Scheme shall be followed.
Air Compressors, Fans, Vacuum Pump
Ultramarine Air receivers Aqua
Electric motors, equipment Orange
Handrails, Safety guards Golden Yellow

Pumps, Gearboxes		Turquoise
Piping:	Condensate, Cold Water	Jade
	Drain	Black
	Flocculent	Lichen
	Fire Fighting	Signal Red
	HP Steam	Pearl Grey
	Hot Water	Jade
	Instrument Air	Aqua
	Injection Water	Jade
	Lime Slurry	Lilac
	LP Steam	Pearl Grey
	Massecuite	Cream
	Overflow	Same as tank or
	Oil / Lubricants	Golden Tan
	Plant Air	Aqua
	Potable Water	Jade
	Saccharide Solution	Lilac
	Sodium Hydroxide	Lilac
	Sodium Hypochlorite	Lilac
	Sugar Syrup	Cream
	Torri Water	Jade
	Vapour or Vent	Same as tank or
	Structural Steel work	Smoke Blue
	Screw conveyors,	
	Sugar bin	Palm Green
	Tanks & Vessels :	
	Process	Cream
	Water	Jade
	Caustic, Acid	Lilac
	Lime Saccharate	Lilac

Note- All equipment will be as per best standard of Indian Sugar Industry. In case of any dispute regarding specification, UPCSFF/NFCSF decision will be final.

INSPECTION AND TESTING SPECIFICATIONS

1.0 ENGINEERING STANDARDS

IS & International Codes

This section of the report gives the basic criteria for the design of the plant. The design parameter, such as sizes, ratings, quantities, material specification, type of equipment etc. described in the report are approximate. Necessary changes could occur on the detailed Purchasing of the plant to achieve the intent of this report to make the scheme successful.

All materials, equipment, workmanship, shop & field test etc. shall conform to the latest Indian Standard Specifications (IS), Indian Boiler Regulations and Codes of Practices as and wherever applicable and other codes as specified. In case recourse is required to be made to any other International Standard, due to nonexistence of Indian standard or any other reason, the supplier shall specify the same.

Whenever reference is made in the contract to the respective standards and codes in accordance with which goods and materials are to be furnished , and the work is to be performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly set forth in the contract. Differences between the standards must be fully described in writing by the Supplier and submitted to the Purchaser for approval, along with the bid.

In the event the Purchaser determines that such proposed deviations do not ensure equal I 23 vffvor higher quality, the Supplier shall comply with the standards and codes set forth in the documents.

Applicable Standards

The minimum acceptable material quality for various components of the plant shall conform to the Indian Standards as summarized hereunder, unless otherwise specified in Technical Specifications. The list must not be treated as comprehensive. For the standards not mentioned in the list, relevant IS or BS should be followed.

No.	Item	Standard Code
1	Cast Steel Castings	IS: 2708-1993, IS: 276-2000, IS: 1030-1998, IS: 2856-1999
2	Specifications for alloy steel castings for pressure containing parts suitable for high temperature service.	IS: 3038-1992
3	Forge and carbon steel Shafts	IS: 1570-1979
4	Gun metal valves	IS: 778-1984
5	Steel Globe Valves	IS: 10605-1989
6	Gray Cast Iron	IS: 210 – 1962
7	Cast Iron Flexible coupling	IS: 2693 - 1964
8	Cast Iron Sluice Valve	IS: 2685 – 1971
9	Gear box, worm or helical gear, selection	IS: 7403-1974
10	Method for load rating of worm gears	IS: 7443-2002
11	Insulation	IS: 7413-1981
12	Insulating oils	IS: 335-1993
13	Specification for bonded mineral wool	IS: 8183-1993
14	Mineral wool	IS: 36”-1985

15	Sheet rubber	IS: 638-1979
16	Mild steel pipe	IS: 1239-2004 Part-1 IS: 1239-1992 Part-2
17	Steel Pipe Flanges	IS: 6392-1971
18	Slide rails for electric motors	IS: 2968-1964
19	3-phase Induction motors	IS: 325-1996
20	Energy efficient electric motors	IS: 12615-2004
21	Motor cooling	IS: 6362-1995
22	Rotating electric machine	IS: 4722-2001
23	Degree of protection provided by enclosures of rotating electrical machinery	IS: 4691-1985
24	Cables	IS: 1554 -1988 Part 1 & 2
25	Cross linked polyethylene insulated PVC sheathed cables	IS: 7098-1993 Part 1- 3
26	Conveyor chains & slats used in sugar industry	IS: 14667-1999
27	Code of recommended practice for conveyor safety	IS: 7155-1994 Part 1 - 8
28	Code of practice for selection and design of belt conveyors	IS: “592-2000
29	Toughened belt conveyor	IS: 4776-1977
30	Idlers and idler sets for belt conveyors	IS: 8531-1986
31	Lightning Arrestors for AC system	IS: 3070-1993 Part 1-3
32	Practice for the protection of the building and allied structures against lightning - code of	IS: 2309-1989
33	Roller Bearing Plummer Blocks	IS: 4773-2002
34	Specifications for foundation bolts	IS:5624-1993
35	Rules for construction of power boilers	ASME SECTION I
36	Welding & Brazing Qualification	ASME SECTION IX
37	Undefined precision vessel code	ASME SECTION VIII
38	Welding qualification	ASME SECTION IX
39	Guide for evaluation of measurement un- certainty in performance test of steam	ASME PTC 6.0

40	Safety and relief valves	ASME PTC 25.3
41	Pipe flanges and flanges fittings	ASME B.16.5
42	Butt welding fittings	ASME B.16.9
43	Socket welding and threaded fittings	ASME B.16.”
44	Code for power piping	ASME B.31.1

BRITISH STANDARDS		
1	Industrial type metal floors, walk ways and stairways	BS-4592
2	Stairs, ladders and walk ways	BS-5395
3	Pipe Flange Drilling	BS : 10-1962
INDUSTRIAL STANDARDS (MISC.) PRACTICE IN INDUSTRY		
1	Indian boilers regulation	IBR
2	American gear manufacturers Association	AGMA
3	Structural Welding Code	AWS D1.1
4	Instrument Society of America	ISA
5	National Electrical Manufacturers Association	NEMA
6	National Fire Protection Association	NEPA
7	IEC recommendation Publication No.4S for turbine	CSN - 080030 DIN - 1943
STANDARD CODES FOR TESTING		

1.	Method for tensile testing of steel products	IS:1608 - 1995
2.	Specification for acceptance standards for ultrasonic inspection of steel castings	IS: 9565 - 1995 IS: 7666 - 1998
3.	Code of procedure for inspection of welds	IS: 822 - 1970
4.	Methods of inspection of spur and helical gears	IS: 7504 - 1995
5.	Bevel gears inspection	IS: 109” - 1984
6.	Overhead cranes	IS: 807 - 1976
7.	Methods of determination of efficiency of rotating electrical machinery	IS: 4889 - 1968
8.	Measurement and evaluation of vibration of rotating machines	IS: 4729 - 1975
9.	Guide for testing of insulation resistance of rotating machines	IS: 7816 - 1975
10.	Guide for testing synchronous machines	IS: 7132 - 1973

2. MATERIALS

Forgings

All shaft forgings above 150 mm diameter shall be subjected to internal examination for the detection of flaws and to heat treatment for the relief of residual stresses.

Castings

All cast materials shall be as free as is practical of blow holes and flaws. No welding, plugging or filling of any defective parts shall be done without the sanction of the purchaser or his representative. Heavy steel castings shall be rough machined and then normalized by heat treatment before finish machining.

Foundation bolts

Foundation bolts, holding down bolts, rag bolts with nuts and washers for all the equipment, structure etc. with grouting pads, covered under the bid, shall be supplied by the Supplier.

Fasteners

Nuts, bolts and other fasteners employed in the construction of the plant shall conform to the requirements of the appropriate Indian Standards, where applicable.When fitting on outdoor equipment all bolts, nuts and washers shall be of non- rusting material when in contact with non-ferrous parts. Where fitted bolts are used there shall be a driving fit into the reamed holes they are to occupy and be marked to ensure correct re-assembly on site. The threaded portion of such bolts shall be of a diameter that shall prevent damage to the thread on assembly.

All nuts, bolts, fasteners required for assembly or mounting of any equipment procured through these documents, including foundation and holding down bolts, are to be included in the supplies.

Gaskets, Diaphragms

Rubber or rubber-based materials shall not be used for gaskets, diaphragms, etc.
Instead, synthetic materials, not subject to deterioration due to climatic conditions shall be employed. The supplier shall include for supply of all gaskets required for jointing of pipe flanges. Generally specifications of gaskets for different duties shall at least be equivalent to the following:

For exhaust steam piping, and water piping; wire inserted synthetic red rubber gasket, 3mm thick.

For compressed air piping, synthetic red rubber sheet gasket, 3mm thick.

Conveyor Belting

In the case of conveyor belting this shall also be of synthetic materials of multi- ply construction, with joining ends suitable for Site vulcanizing. The belts shall be supplied initially with mechanical joining material for temporary use for running- in the belts to take out the initial stretch.

GEAR UNITS

Unless otherwise started in the particular specification, all gear units for reducing or increasing speed of a prime mover, shall be of the totally enclosed type with casing cast in suitable materials and containing gears rated in accordance with Indian Standards. All gear boxes shall be of min 1.7 service factor (wherever service factor stipulated in Indian Standards is below this value) as per AGMA rating unless stated otherwise. All gear boxes shall be helical type. Anti-run back device shall be provided for elevators. The gears shall be mounted on steel shafts running in ball or roller bearings unless otherwise specified.

As applicable to duty the gear case shall incorporate an integral type of anti- runback gear. The gear case, bearings and couplings shall be as detailed in the particular specification. All gear boxes above 25 hp shall be of helical type. The speed ratio of worm reduction gears shall not be more than 50:1.

3. CONVEYORS AND ELEVATORS

Belt type Conveyors

Belt type conveyors for handling bulk material shall be of robust construction with structural frame in accordance with the Indian Standards stated. Bearings for the toughing and return idlers shall be of the greases packed sealed- for-life type, ball or roller type. Toughing and return idlers shall be of the heavy duty type. The Conveyors shall be fitted with rotary brush type of cleaners.

All conveyors shall have either a screw type tension unit operating on the tail pulley or a gravity operated unit of the loop pattern placed near to the conveyor drive. The tension carriages shall operate in guides mounted below the conveyor stringers. Take-up shall not be less than 2% of the conveyor length. All belt conveyors shall be provided with screw type adjustment at the tail pulley for tightening and adjustment of the belt.

Scraper Conveyors

Scraper conveyors shall be of robust construction with structural steel frames in accordance with Indian Standards stated. Scraper flights shall be constructed of heavy duty steel slat or finger design and fitted with connectors to suite the appropriate chain attachments, unless otherwise specified.

Screw Conveyors

Conveyors to be either ribbon or full blade scroll type of carbon steel robust construction fitted with tubular shafts, unless otherwise specified. Central bearing is unacceptable.

CONVEYOR STRUCTURES

The steelwork shall be designed in accordance with Indian Standards, to suit the loadings and environmental conditions. Care shall be taken in detailing to avoid areas inaccessible for painting and pockets which could catch water. Construction shall generally be by welding, bolts to be used for Site assembly. Conveyor stringers shall be of rolled steel angle or channel construction, adequately braced and provided with short supports to ground level or adjacent structures or forming an integral part of bridge steelwork where appropriate. Decking plates shall be 3.25 mm thick mild steel, unless otherwise specified, bolted in position, flanged as required to give adequate stiffness. For belt conveyors, where decking plates are provided at feed points only, they shall extend for an adequate distance along the conveyor in the direction of belt travel.

Conveyors which are fully supported along their length by floor steelwork shall be constructed from longitudinal and vertical members forming a framed structure of rolled steel channel and angle section braced as necessary. Conveyor head and tail frames shall be constructed from rolled steel channel and angle section, all adequately braced.

Screw conveyor trough shall be fabricated from 6 mm thick carbon steel plate with rolled steel angle flanges and end plates shall be 8 mm thick with felt seals and backing plates for the shafts. Cover plates, where required, shall be of flanged construction from carbon steel sheets for bolted or quick release fastening.

4. MACHINERY STAGING

Design and supply

The design, materials, detailing, fabrication and supply of structural steelwork staginess shall comply with the provisions of relevant Indian Standard Specifications, metric units, current at the time of tender, together with the specification therein mentioned, except as otherwise required by the particular specification.

General Requirement

Except where otherwise authorized, all materials shall comply with the requirements of the particular specification and the relevant Indian Standard as specified.

New Materials

All materials used throughout the Works shall be new.

Miscellaneous Materials

All materials not full specified in the particular specification and which may be offered for use in the Plant shall comply with the appropriate Indian Standard and in the absence of such a standard shall be of approved commercial quality.

STAIRWAYS, LADDERS, HANDRAILS AND HANDRAIL STANCHIONS

- For steel stairways, the treads and landings of stairways shall be open mesh construction. All treads in a flight shall match one with another and also with the line pattern of the landings and, where possible, with the floors served by the stairs.

- Toe plates shall be 100 mm high and shall be provided at the edges of all landings, platforms and floors.

- Chequered plate flooring is to be “Durbar" non-slip raised pattern or other equal approved gratings. Individual plates are to be cut and fitted so that the pattern or other equal approved, individual plates are to be cut and fitted so that the pattern on adjacent panels matches in all directions. Unless otherwise stated, the plate shall be minimum 5 mm thick on plain and shall be fastened to the steelwork by 6 mm counter sunk set screws at a pitch not exceeding 535 mm centers or by welding. Chequered plate and grating to be galvanized.

- Ladders shall be with single rungs, shouldered at each end, inserted into prepared holes in the stringers and welded. The pitch of additional rungs to bridge the gap between the top rung of ladders and edges of platforms shall not exceed 57 mm.

- The stringers shall open out at the top of the ladder to allow adequate room for the user to turn to face the ladder when descending and the stringers shall extend a minimum of 1060 mm above the level of the platform. Where necessary the stringers shall be bent over to form a continuous connection with the platform hand railing and at the same height as the top rail.

- Stringers shall be attached to the adjacent structure by suitable cleats which shall be firmly attached to the stringers and the supporting structure and be sufficiently close together to make the ladder rigid throughout its length. The cleats shall be of sufficient length to give required clearance at the back of the ladder. The top rung of a ladder shall be at the same level as the floor or edge of the platform unless the flooring of the platform has been extended to form the top rung there shall be no obstructions above this level.

- Stairways and floor openings shall have double rail hand railing. Standards, top and bottom railing shall be out of minimum 40, 25 and 20 mm NB pipes respectively. All railing pipes shall be as per IS: 1239 Part I Light or equivalent and galvanized.

- The standards shall be vertical and spaced at no more than 1800 mm centers and the top rail shall be 1070 mm above the finished floor or landing level. Standards shall be fixed to the supporting steelwork with a minimum of two 16 mm diameter bolts or welded. Bends in hand railing shall be carefully formed to give satisfactory continuity of curvature and alignment and

rails shall be joined with a flush scarf joint held together by means of a tapered pin or other approved joint.

- Hand railing for ladders shall meet with the general requirements as above except that the single rail shall be approximately 100 mm clear of the stringer and the standards shall be short single ball type mounted at right angles to the stringer.

5. PUMPS

Unless otherwise stated in the particular specification, all centrifugal pumps shall preferably run at speeds not exceeding 1500 RPM. Maximum efficiency of the pumps shall be at 70- 80% rated load.

All pumps shall be manufactured appropriate to its capacity, head and duty in accordance with the relevant Indian Standard. Material of construction to be used generally as follows unless specified.

Impeller : SS
Shaft : Stainless Steel
Casing : Cast Steel

Data for all pumps shall be tabulated indicating the following information:

I. Fluid to be pumped
II. Type of pump (e.g. split casing centrifugal)
III. Rotational speed
IV. Impeller diameter
V. Power consumed and motor size
VI. Material of construction of
VII. Casing
VIII. Impeller
IX. Shaft
X. Neck ring
XI. Bushes
XII. Quantity of fluid to be pumped
XIII. NPSH required
XIV. Total net pumping head from all causes
XV. Bearing type and number

For all pumps the following characteristic curves shall be furnished:

- Capacity against head
- Capacity against efficiency
- Capacity against power consumption

All pumps are to be supplied with water sealed packed glands unless otherwise specified. Where fluid being pumped is water this may be fed from the pump discharge into the gland. For pumps pumping hot water, condensate, Supplier shall indicate weather separate gland cooling water is required and its quantity. All centrifugal pumps shall be supplied fully assembled and aligned with electric motor and shall be complete with coupling, common base plate, coupling guard and holding down / foundation bolts.

6. PIPING

- All piping shall be made of a grade and thickness appropriate to the substance it has to contain its pressure and temperature, and all in accordance with the relevant Indian Standard. Where steam or vapour piping is fitted to plant, loads due to expansion are to be compensated for by utilizing loops or bends, loop or vertical bend below main line is preferred. Where fitting of

bend or loop is not possible then bellows may be used. Material of construction for bellows on steam lines shall be stainless steel.

- Gradient of 50 mm in 30 m length of pipe in the direction of steam flow shall be provided on all horizontal pipelines to facilitate drainage.

- A maximum pressure drop of 1.2 kg/sq. cm (g) per 100 m pipe length shall be allowed in the pipelines.

- Safety valves are to be provided in the steam pipe lines wherever necessary. Safety valves in the exhaust and reduced pressure steam lines shall be lever operated, unless otherwise specified.

- Suitable drains, valves, steam trapping arrangement shall be provided in all steam lines wherever necessary. Steam trapping arrangement shall consist of two 20 mm NB globe valves and is down in the sketch enclosed. (This arrangement is referred as Double Valve Steam Trap in the write up). The double valve steam traps shall be provided at all natural drainage points in high pressure, reduced pressure and exhaust steam lines; including bottom of lops, just before risers, below steam separator and ahead of reducing and shut off valves.

Piping Materials

The piping material selection shall be based as under:

- For temperature above 4000C to 5000C, SA 335 Gr. P"/P12/P22.
- For temperature 3990C and below SA 106 Gr. B/C or ASTM A-53 seamless.
- For HP/LP chemical dosing SA312TP304 ,stainless steel (SS pipe schedule 10).
- All mild steel pipes and pipe fittings used for conveying of air, cold water, hot water except feed water, oil shall conform to IS: 1239-1976 (Part I) and IS:239-1962 (Part II) specifications. The piping shall be Class 'C'. The thickness of the mild steel pipes having diameter more than 200 mm shall be 8mm min.
- In case of all piping above 25 mm NB, except for exhaust steam and vapour piping only flanged joints shall be used. All flanges shall conform to IS: 6392- 1971. The distance between two flanges in straight portion of pipes shall not exceed 6 meters. In case of bends, flanges shall be provided at least on one end. Flanges at ends of pipeline, pipe shall be provided with bolted blind flanges.
- Live steam, Exhaust steam and Vapour piping

These shall conform to IBR, as applicable. The thickness of exhaust steam and vapour piping shall be minimum 8 mm for 300 mm dia and above. All steam expansion bellows shall be of stainless steel tested at 1.5 times the steam pressure. On high pressure and reduced pressure lines, a branch line shall be taken from the top of main line and not from bottom.

Valves in piping

- Valves shall be provided in each branch line of high pressure, reduced pressure steam lines, water separator, drain etc. Suction and delivery lines of all pumps, shall be provided with isolating valves.
- Delivery lines of all pumps shall be provided with non-return valves. Non- return valve shall be installed between pump delivery flange and isolating valve.
- Delivery lines of all pumps shall be provided with by-pass line with valve back to suction source.

7. Preparation for Site Assembly

- All pipe work supplied for Site butt-welding shall have the ends machined and protected for transportation.
- Pre-fabricated piping sections shall be capable of being fitted into place without springing or forcing except where cold pull is required.
- The outside surface of the piping shall be painted with one coat of red oxide.
- All flanges and nozzles shall be protected with wood or suitable covers and the thread ends greased and protected.
- Flanges and Fasteners

All bolt holes in flanges shall be equally spaced off vertical and horizontal center lines of pipes conforming to BS 10, Table D for all liquids such as water, juice, syrup, magma, molasses, air, oil, exhaust steam and vapour {Exhaust steam and vapour up to 1.6 kg/sq. cm(g)}. For high pressure steam above 1.6 kg/sq. cm (g), the relevant IBR standards shall apply. Orifice plate flanges shall be standard to schedule unless otherwise stated.Loose flanges and cutting lengths on pipelines shall be supplied to allow for alignment errors in plant location.All bolts, nuts and washers plus 10% spare shall be supplied by the Supplier.

Pipe Supports

Piping shall be carried by supports of suitable fabrication to ensure that no undue stresses are placed on adjoining pipe work and equipment. Piping connected to equipment shall be so supported that minor equipment, valves etc., can be readily removed without additional supports and with a minimum of dismantling. Anchor sliding, spring, resting, etc. supports shall be provided for those pipe runs demanding this form of fixing and shall be fabricated in accordance with the duty of the pipe. Flexibility of all high pressure, reduced pressure and exhaust steam piping shall be designed in accordance with IBR.

8. Velocities

All hot and cold water, juice, syrup, magma, molasses, massecuite, bled vapors, live steam, reduced pressure and exhaust steam pipe lines, all headers shall be designed for ultimate crushing capacity. Various pipelines shall be designed so that velocities given below are not exceeded at specified crushing rate.

i)	Water and juice	:	Suction 1.0 m / second Delivery 1.2 m / second
ii)	Condensate	:	Suction 1.0 m / second Delivery 1.25 m / second
iii)	Syrup	:	Suction 0.5 m / second Delivery 1.0 m / second
iv)	Molasses	:	Suction 0.3 m / second Delivery 0.5 m / second
v)	Massecuite / Magma	:	Suction 0.1 m / second Delivery 0.15 m / second
vi)	Superheated & Saturated steam, Exhaust steam, Bled Vapour	:	30 m / second
vii)	Compressed air	:	/ second at 0.5 kg/sq cm g

9. VALVES

- All valves shall be of the rising spindle outside screw type.

- Valves shall be installed so that any plant item may be isolated from all services and process lines and to allow tanks and vessels to be drained and vented.

- Valves shall be supplied in order that standby pumps may be serviced during normal factory operations.

- Valves in infrequently used pipelines shall be positioned in such a manner as to avoid piping remaining filled with fluid for prolonged periods of time.

Valve Types

The following is a general guide as to the type of valve required to be used for a particular duty.

- Globe Valves

These shall be used on small bore pipelines (up to 50 mm) for such duties as: Exhaust steam and vapour
Hot water Wedge or Parallel Slide Gate Valves Shall be used where control of flow is desired by direct hand operation of spindle wheel.

The pipeline duties envisaged for these valves are:

- High pressure steam
- Exhaust steam stop valves at prime movers
- Hot water
- Juice services
- Condensate
- Cold water

- Butterfly valves

Where flow of materials is required to be controlled by gear operated spindle wheels or by valve actuators, butterfly valves shall be employed. In addition, special duties shall have valves considered most suitable for those duties. Non-return valves, relief valves, ball float valves, bib nos. test cocks, drain cocks, etc., shall be provided as considered necessary for the efficient functioning of the plant and to facilitate repair work and maintenance.

TANKS & VESSELS

Tanks of a capacity of up to 30 cubic meters of the open top or vented to atmosphere type, shall be rectangular or cylindrical construction as dictated by the particular specification. These shall be fabricated of mild steel, unless otherwise specified, of a minimum thickness of 6 mm and shall be constructed with all necessary bracing, connection branches and pads, flanged, screwed and tapped as necessary.

Each tank shall be supplied with, or have fitted, the necessary fittings such as manhole cover, internal and external vertical caged ladders, and peripheral roof handrail as necessary.

INSULATION

These Specifications cover the general requirements for insulation work. The Supplier shall refer to the relevant IS for selection, inspection and application of the insulation with aluminum

cladded. In case of doubt, clarification may be sought from the 'Purchaser'. The supplier shall supply all material, consumables, labor, tools and equipment of the Plant necessary for executing the insulation work.

Insulation Material

Insulating material such as glass wool or mineral wool shall be selected depending upon the temperature of the fluid / steam. Calcium silicate (Hysil blocks) which is chemical compound of lime and silica along with mineral fibre are used as second layer behind the refractory for effective internal insulation. The supplier shall supply insulating materials for the Work as specified in the relevant IS or described as under, whichever thicknesses are higher.

- Glass wool blanket, 75 mm thick
- Galvanized chicken wire Honey comb mesh, 22 SWG
- Galvanized steel wire 18 SWG for equipment and 20 SWG for pipings
- Insulating cement
- Aluminum sheet metal for cladding 20 SWG
- Cadmium plated sheet metal screws for cladding on steam turbines
- Black washers for attaching binding wire to vessels

All exposed portions which operate at temperatures greater than 600C will be provided with insulation.

Major portion of the boiler exposed to outside are insulated with Lightly Resin Bonded (LRB) mineral wool. For insulation thickness of more than 75 mm, two or more layers of mattress will be used and each layer will be backed up with galvanized steel wire netting. Mineral wool mattress confirming IS 8183 is used. Thermal conductivity of mineral mattress will be as per IS 3346. The density of insulation for temperature up to and including 4000C shall be 100 kg/m3 and above 4000C shall be 120 kg/m3. All insulated surface will be covered by an outer covering (cladding) of Aluminum sheet. All insulating sheeting joint shall be sealed and made effectively weather and water proof.

Perfect leak tight arrangement of sealing will be provided at furnace roof where super heater tube penetrates.

Insulation of piping

Pipe insulation more than 75 mm shall be installed in multiple layers with joints staggered around the circumference.
All fittings including valves and flanges shall be insulated. Provide clearance for removal of flange bolts. After insulating valves or other piping specialty, wrap flange with Aluminum sheet and insulate the joint.Pipelines shall not be insulated before the system is hydraulically tested and approved by the Purchaser.Molded insulation shall be secured to the pipe with binding wire.When insulation mat is split and wrapped around the pipe, joints shall be painted with insulating cement to form a smooth, neat surface.

Insulation of equipment

Glass wool blankets shall be cut and fitted to the contours of the equipment and secured to chicken wire mesh so that each insulating pad can be removed and reinstalled. Fabricate sheet metal housing in sections and secure with sheet metal screws. The housing shall be designed so that it is sturdy and can easily be removed and replaced.

Insulation of Vessels

Hooks, rolled angles, flats are to be welded to the equipment of the Plant being insulated, for securing and supporting the insulating material and Aluminum cladding.Washers are to be welded to the vessel surface to attach binding wire used to secure insulating material to vessel. Install blanket insulation and secure with binding wire.Aluminum sheet cladding is to be installed over the insulating material and secured to supports with sheet metal screws. The cladding shall be designed and installed so that the joints are watertight.

Insulating Material Thickness

The following table indicates the minimum thickness of insulating material Mineral wool of 120-125 kg/cum density, for piping, vessels and equipment of the plant.

Pipe Dia (mm)	Temperature								
	65 To 120	121 to 148	149 to 203	204 To 259	260 to 314	315 to 370	371 to 425	426 to 481	482 to 537
12	25	25	25	30	30	40	40	50	50
20	25	25	30	30	40	50	50	50	50
25	25	25	30	30	50	50	50	50	62.5
40	25	25	30	40	50	50	62.5	62.5	62.5
50	25	25	30	40	50	50	62.5	62.5	62.5
75	25	30	40	45	50	62.5	62.5	75	75
100	25	30	45	45	62.5	62.5	62.5	75	87.5
150	25	40	50	50	62.5	62.5	75	87.5	87.5
200	40	50	50	50	62.5	75	87.5	100	100
250	40	50	62.5	62.5	75	75	87.5	100	100
300	40	50	62.5	62.5	87.5	87.5	100	100	125
Surfaces	50	62.5	75	75	87.5	100	100	150	200

ELECTRICAL SYSTEM

- System Parameters

Voltages used shall be as below:

Low tension	415	V	3 pH	50 Hz
Welding supplies	415	V	3 pH	50 Hz
Lighting	415/220	V	1 pH	50 Hz
Socket outlets	220	V	1 pH	50 Hz
Anti-condensation heaters	220	V	1 pH	50 Hz
Portable tool transformers	220/”0	V	1 pH	50 Hz
Hand lamp transformers	220/25	V	1 pH	50 Hz
Control circuits	“0	V	1 pH	50 Hz
Instrument supplies	“0	V	1 pH	
Emergency lighting	“0	V	DC	
Tripping supplies	30	V	DC	

- Electric Motors

Unless otherwise stated in the particular specification, all motors within the factory buildings shall be of the totally enclosed fan cooled type. All motors above 25 bhp. shall be of energy efficient type.Motor bearings shall be of ball and/or roller type each fitted with oil or grease lubricators. Small motors can have sealed bearings.

The motor winding ends shall be brought out to terminal boxes to enable phase tests to be made and for interchanging phases without disturbance to any sealing compound.Motors shall be to IP 54 protection and insulation Class F. Temperature rise shall be limited to class B. An Earthing terminal shall be fitted to the stator frame.Terminal box shall be located either on left or right side of the motor and shall be rotatable in steps of 900 to facilitate cable entry from any direction.Space heaters are to be provided for all motors above "2 kW rating.
Terminals of the space heaters are to be located in the main terminal box and are to be covered with an insulated shroud.
Squirrel cage motors are required unless otherwise specified. Reasons shall be stated for any deviation from this type of machine.

- Cabling and Wiring

- Motor Starters

MCCs shall be supplied by others and shall be fitted with the necessary starters and protection switchgear for the motors included in this tender. The Supplier is required to quote for all the Starters of motors.
Power supply at MCC/VFD panel incomer shall be provided by client.

13 INSTRUMENTS

- Electronic range of instruments shall be standardized on 4 to 20 mA signals, receiving instruments for control and recording purposes accepting 1.0 volts, DC to 5.0 volts DC. The pneumatic range shall utilize signals of 0.2 to 1 kg/sq. cm (g).
- All electrical instruments and meters shall comply with Indian Standards and unless otherwise specified shall be of industrial grade accuracy.
- Meters shall be calibrated to the appropriate grade in Indian Standards with due allowance being made for the errors in the associated instrument transformers.
- Calibration of all instruments shall be in the units of measurement specified in these documents. Temperature measurement for temperatures above 150 0C shall be of the thermocouple type and below 150 0 C of resistance type.
- Pressure gauges shall comply with requirements of Indian Standards. Stop cocks shall be fitted adjacent to each pressure gauge and isolating valves included where pressure gauge piping is connected with the main system. On-plant instruments and gauges are to be locally mounted and fitted in robust cases.

Instrumentation & Control

Information to be furnished by Seller:

- The seller shall furnish the following documents along with the Bid: Complete bill of material of instruments/equipment and accessories with their particulars. System architecture Technical literature of all instruments and control system. Dimensional drawings of the panels/cubicles.
- Load burden of each system/subsystem furnished by Seller to be fed by UPS and DC sources with inrush current details and heat load for each cubicle/system cabinet/panel section.

14 Power Supply and Air Supply

- Power Supply

The normal voltage, phase, frequency and percentage variations at which power supply feeders shall be provided by the purchaser are as follows:

Voltage : 415V+10%
Frequency : 50 HZ+5%
Phases : 3

- Air Supply

The seller shall supply instrument air as elaborated below.

Clean, dry, oil free instrument Quality air of the following quality shall be provided for various pneumatic control devices &accessories:-

Nominal pressure	:	7 kg/cm2 gauge
Range of pressure	:	3.5 to 8.5 kg/cm2(g)
Dew point	:	+2 °C at the above pressure.- 40 °C at NTP
Maximum particle size	:	5 microns

Pneumatically operated equipment offered by the Seller shall be designed to operate with the above air supply and adequately cater to their respective duty within the full range of pressure variation.

15 Special Tools and Tackles, Special Calibration Instruments

Seller must offer special tools & tackles and special calibration instruments required during start-up, trial run, operation and maintenance of the plant.

Interface with Owner Furnished Equipment/Systems

The Seller shall furnish necessary interface equipment required for satisfactory operation of equipment furnished by the Seller with Owner's existing equipment. The Seller shall fully meet all the interface requirements with existing control systems, switchgear & motor control centers etc.

16. DISTRIBUTED INTEGRATED CONTROL SYSTEM

- Distributed Integrated Control System (DICS)/ Programer logic control (PLC) includes Regulating Controls, Interlocking and Protection, Sequential Controls, Operator Interface Units, Monitoring and Information data archiving, Historical data storage and retrieval, Trending, Alarms & Reports.

- Seller shall offer latest system available with him & shall also confirm that PLC/ DICS system hardware / software shall be upgraded free of cost, for hardware up to commissioning of the project and software up to 3 years after commissioning of the project.

- The PLC/ DICS shall receive process signals from field sensors & transmitters and shall give commands to final control elements, alarms, trip relays, etc. All signal converters, to convert sensor signals to standard 4 to 20 mA signals shall be included in Seller's scope of supply.

- High ended PLC/ DCS System with stand by communication redundancy should be placed at Mill house, Clarification & Evaporation section, Pan Boiling section and Boiler/Power generation section in air-conditioned control room with air curtains at doors to maintain the temperature of 27 deg.C.

- Field Instruments: All process sensors & transmitters shall be provided for sensing process parameters. These shall be of smart type with local display and ability to be monitored / re-calibrated from the Purchasing station.

The specifications of the VFD shall be as follows –

- VFD shall be of 12 pulse, Suitable KW or its equivalent for mill for incoming supply of 690 V, 50 HZ, AC. Each inverter cubicle shall be fabricated for 14/16 SWG. CRCS sheets, free standing, aestivated & painted with anticorrosive paints. Overload duty shall be of class V with a protection of IP – 41.Each drive shall be complete with all the salient features including protection for its drive.
- The cubicle shall house all the switch gear & their protectors, controls, thyristor, regulating modules, interlocking relays & filters etc. All necessary meter indicators, enunciators, controls etc. shall be neatly arranged on cubicle front doors with neoprene gaskets on all edges of the panel. Ventilation openings shall be provided at the top of the panel & on side covers by louvers suitably covered by wire mesh.
- Drive shall have provision for bi-direction speed regulation & will be +/ - 1 % of the base speed by tacho-feed back . The panel will have the facility to accept 4 – 20 m A signal for speed setting in local auto mode & to have control from PLC/DCS.
- Each of the drives shall be provided Ammeter, Voltmeter with selector switch, speed indicators, KWH meters etc.
- The pressure ventilation system with electric motor drive blower with filter shall be provided for panels. One common control desk with all the controls shall be provided for each motor to be controlled common desk.
- Specifications of Inverter Duty Transformers shall be –
- • Quantity : 2 Nos.
- • Rating :Continuous, 2.0 MVA each suitable for 12 pulse drive
- • Primary Voltage : 11KV +/- 10 % (winding delta connected)
- • Secondary Voltage : 690 V /690 V (winding delta / star)
- • Impedance : 5.95 %.
- • Vector : D Doy 11.
- The transformer shall be complete with fittings & accessories like conservator, MOG, BREATHER, Bucholtzrelay , with contacts etc for alarm & trips , pressure relief devices, thermometer packets , OTI & WTI , Valves , earthing terminals , cooling accessories , bi-directional flanged rollers with locking &bolting device for mounting on rails , air release devices , inspection box , marshall box etc .
- Each transformer feeder shall have incoming supply 400 amp 11 kV VCB , kw meter, kw h meter an ammeter , instantaneous o/c relay , earth fault relays , ID MT over current relay.
- The electrical installation for mill drive motor, inverter panel and transformer etc. shall be complete in all respect.
- Centrally Air conditioning system and equipment of control room for mill drive inverter penal shall be supplied by the seller. The room (Air Conditioned) and civil work shall be provided.

17 Basic Features/Design Requirements

The instrumentation and controls shall be designed for maximum availability, reliability, operability and maintainability.

All I&C equipment shall be designed for their specific application within the sugar mill and shall be furnished for required control, protection, alarm and remote monitoring. The application and selection of these I&C equipment including signal converters, interposing relays, microprocessors, etc. shall be the responsibility of I&C Seller.

All I&C equipment furnished must have proven experience of working in the sugar factories, at least two sets of such equipment installed in a similar sugar factory have been running successfully for at least two years. No prototype components shall be used.

DICS/ PLC shall be of latest design, not be more than 3 year old. The control system shall be highly modular and arranged to reflect the grouping of plant equipment and systems to be controlled.

Any local junction termination boxes or auxiliaries which are required to implement the interface design shall be supplied by I&C Seller.

Control system shall comply with following general failure criteria :

>No single fault can cause the complete failure of the control system.

>The grouping of control functions into system blocks shall be arranged such that failure of any one block will only partly degrade the control of the overall system.

>Alarms shall be provided for all abnormal conditions of the process.

18.The following colors shall be selected for equipment status indications:

Green	:	Energized, Running, Valve Open
Red	:	De-energized, Stopped, Valve Closed
Light yellow	:	Abnormal condition, Discrepancy
White	:	Control Power Available

19. DRAWINGS AND DOCUMENTS

- All drawings, manuals and other related information of the specified equipment shall be submitted to the Project management Consultant/Sugar factory for approval within a period of two weeks from the date of signing of agreement.
- The supplier shall be responsible for any discrepancies, errors and omissions in the drawings submitted by him, not withstanding any approval accorded by the Purchaser.
- All costs as a consequence of errors in drawings and documents shall be borne by the Supplier.
- All drawings, technical literature, manuals and parts lists shall be provided by the Supplier as may be required for facilitating erection, commissioning, operation and maintenance of the plant. Where the Supplier is contracted to supply a system of connected plant items, flow diagrams shall be submitted showing the relationship of the connected items to each other and outlining terminal points.
- All drawings, parts lists, service and maintenance manuals shall be supplied in triplicate for use of the Purchaser, the Consultant and the erection, commissioning and operating personnel. Where specialized maintenance manuals are not available, standard manufacturer's literature shall be provided. Wiring diagrams for instrumentation shall indicate wire numbers, drawn as viewed from front to back of panels.

20. DRAWINGS

- The Sellers shall submit to the Purchaser for approval Drawings and information (including calculations) as may be called for there in, and in the numbers therein required.
- During the progress of the Contract within such reasonable times as the Purchaser may require such drawings of the general arrangement and details of the Plant and equipment as may be specified in the Contract or as the Purchaser may reasonably require and the Purchaser shall convey his approval or disapproval thereof. If Purchaser fails to do so within the time given in the Contract or the Programme, or, if no time limit is specified, within 30 days of receipt they shall be deemed to have been approved.
- Approved drawings shall be signed or otherwise authenticated by the Purchaser. The Sellers shall supply additional copies of approved drawings in the form and Numbers stated in the contract.
- Any drawings which the Purchaser disapproves shall be modified and re- submitted without delay.

Approved Drawings

- Approved drawings shall not be departed from except where the Purchaser requests for minor variations.
- The Purchaser shall have the right at all reasonable times to inspect all drawings of any part of the Plant and equipment.

Purchaser's use of Drawings etc. supplied by the Sellers

Drawings/information supplied by the Sellers will be used by the Purchaser only for the purposes of erecting, installing, testing, completing, maintaining, adjusting and repairing the Plant and equipment. No license is granted to the Purchaser to copy or use drawings or information so supplied in order to make or have made spare parts for the Plant and equipment. Drawings or information supplied by the Sellers shall not without the Sellers's consent be used, copied or communicated to a third party by the Purchaser or the Purchaser otherwise than as strictly necessary for the purposes of the Contract.

Sellers's use of Drawings etc. supplied by Purchaser

Drawings and information supplied by the Purchaser to the Sellers for the purposes of the Tender and the Contract shall remain the property of the Purchaser. They shall not without the consent of the Purchaser be used, copied or communicated to a third party by the Sellers otherwise than as strictly necessary for the purposes of the Contract.

Manufacturing Drawings

Notwithstanding any other provisions of the Contract the Sellers shall not be required to provide to the Purchaser shop drawings or any Sellers's confidential manufacturing drawings, designs, or know-how or the confidential details of manufacturing practices, processes or operations.

Errors in Drawings etc supplied by Sellers

- Notwithstanding approval by the Purchaser of drawings or information submitted bythe Sellers, the Sellers shall be responsible for any errors, omissions or discrepancies therein unless they are due to incorrect drawings or information supplied by the Purchaser .

- The Sellers shall bear any cost it may incur as a result of delay in providing such drawings or information or as a result of errors, omissions or discrepancies therein, for which the Sellers is responsible.

- The Sellers shall at its own expense carry out, or bear the reasonable cost of, any alterations or remedial work necessitated by such errors, omissions or discrepancies for which he is responsible and modify the drawings or information accordingly.

- The performance of Sellers's obligations under this clause shall be in full satisfaction of the Sellers's liability under this clause but shall not relieve it of liability under Clause 20 (Penalty for Delay).

AS BUILT DRAWING

Sellers shall submit three sets of “AS BUILT DRAWING" to the Purchaser immediately after satisfactory commissioning of Plant and Equipment.

CIVIL WORKS

DETAILS OF BUILDINGS AND FOUNDATIONS TO BE CONSTRUCTED

M/s UP Co-operative Sugar Factories Federation Ltd. Is proposing UPGRADATION WORK in kisan sahkarichini mill, Nanauta

Design Philosophy

Civil Design Basis

Loads are applied on STAAD.PRO model design check is done by STAAD.Pro Software analysis as per IS456:2000.

For Steel buildings and structures RC Pedestals are to be provided to transfer the forces to Foundation.

The Water bearing structures such as spray pond etc. are to be designed as per IS 3370.

Architectural Design Basis

UP Sugar Factories Federation Ltd. And the UP State Government has very high aesthetical standards for this plant since it would like this plant to be a model sugar plant not for the state but also for the entire nation. The architectural philosophy should also follow this brief and the elevations should consist of at least three colours and should reflect a modern industrial plant. Adequate light and ventilation through polycarbonate sheeting and louvers, rigvent monitor is a must. A minimum of two different elevations with 3-d views of the sugar factory and power house should be presented to the management for approval. The power house lobby should be made of high quality finishes which will be used to host several state and national dignitaries.

Site Information

Site Location:

Site is located at Sugar Mills as per bid document

Units of Measurement

The International System of Units (SI) will be used.

Design Loads and Geotechnical data

Dead Loads

Dead loads will include the weight of all structural and architectural components and other permanently applied external loads. Self weight of materials may be calculated on the basis of unit weights given in IS: 875.

Live Loads

The loads listed hereunder are the minimum loads for the areas involved. Loading resulting from concentrations of facilities in specific areas will be substituted where listed base loading is exceeded.

The live loads on floor will be taken as per IS: 875 (part-2).

Control rooms	-	15 kN/m2
Terrace area of any room	-	5kN/m2
Slab adjacent to mill foundation and TG laydown area in power house	-	20 kN/m2
Equipment Floor area	-	10 kN/m2
Official and non industrial rooms	-	3.5kN/m2
Roof Live load	-	0.75kN/m2 (Not accessible)
Roof Live load on corrugated sheets	-	0.4 kN/m2
All stairs	-	5 kN/m2

Wind Load

The Wind pressure shall be calculated based on the data furnished below and other provisions laid in IS: 875 (Part 3) – 1987.

Basic Wind speed	=	47 m/sec
Risk coefficient	=	1.07
Terrain category	=	1
Structure class	=	Class C for all houses

Topography factor = 1.0

Earthquake Load

i) The lateral forces will be established in accordance with the recommendations of IS: 1893.-2002

ii) The importance factor for all power plant buildings and structures shall be taken as 1.5.

iii) Seismic zone = Zone III

iv) Damping: For all concrete structure damping shall be 5%. For all Steel structures damping shall be 2%

v) Importance Factor I = 1.75 unless specified otherwise

vi) Importance Factor I = 2.0 for Stack-Like structures in Category I (IS1893- Part 4): 2005

vii) Response Spectra: For Type I soil as per IS1893-Part1.

viii) For Response Reduction Factor 'R' refer table 7, IS1893 (Part 1) 2002.

Load Combinations

Generally combinations of the loads shall be as stated below:

- DL

ii) DL + LL

iii) DL + WL or SL

iv) DL + LL + WL or SL

Where, DL is Dead loads

LL is Live loads

WL is Wind loads

SL is Seismic loads

Partial Safety Factors for Loads – RC Structures Design using Limit State Method as per IS: 456

LOAD COMBINATIONS	**LOAD Factors For Limit state of collapse**			**LOAD Factors for limit state of serviceability.**		
	D.L.	**L.L**	**W.L**	**D.L.**	**L.L.**	**W.L.**
DL + LL	1.5	1.5		1.0	1.0	--
DL + WL/SL	1.5		1.5	1.0	--	1.0
DL + LL + WL/SL	1.2	1.2	1.2	1.0	0.8	0.8
DL + WL/ SL	0.9		1.5	--	--	--

Note: Wind and seismic loads shall be considered for both X & Y directions .

Permissible stress:

The permissible stress shall be as per relevant IS codes.

Foundations

Based on the geotechnical report the following conclusions can be drawn about the soil conditions at site

Soil strata is comprises of Silty clay of medium plasticity (CI) silty clay of low plasticity compressibility (CL) and silty clayey silt of very low plasticity (CI/ML) and 'ML' sandy silt .

Observing bearing capacity from shear as well as from settlement criteria, it is revealed that shear failure consideration will govern the design of foundation rather than the settlement.

Water table was met up to 6.0m depth below ground level.

The values of allowable bearing capacity at 1.20m ,1.50m & 2.0m depth below existing ground level have been evaluated for Isolated footing of 1.20 m &1.50m widths and the results are tabulated below: -

Depth (m)	Width/ Size (m)	Type of footing	Allowable Bearing Capacity T/m^2
1.20	1.20	Isolated Footing	8.80
1.50	1.20	Isolated Footing	10.20
2.0	1.50	Isolated Footing	11.05

Based on the above observations Isolated footing is recommended at 1.20m, 1.50m & 2.0m depth and bearing capacity values may be considered as per the above table If, any change is envisaged then the same may be referred to us for recalculation.
All foundations considered are open spread type.
Partial contact between the foundation and soil strata will be considered wherever applicable. The footing will be checked for minimum contact area, and maximum bearing pressure will be calculated for the actual contact area only.
For design of foundations the permissible increase of Allowable Bearing Pressure or Resistance of Soils shall be as follows:

- As per Table 1 of IS1893 (Part 1 -2002) with combinations including seismic loads
- 25% with combinations including wind load.

Foundation shall be designed to carry all the loads from equipment or super-structure which they support in accordance with the relevant codes.
FS against overturning as per IS 1904 clause 17.2 - 1.5 (with wind and seismic) and 2.0 (Normal operating condition). FS against sliding as per IS 1904 clause 17.1.1 - 1.5 (with wind and seismic) and 1.75 (Normal operating condition).
Foundation plinth for structural columns and equipment supports shall extend not less than 50 mm from the edge of base plate.
The clear distance between a standard mild steel anchor bolt or anchor sleeve/pocket and the face of the foundation shall be not less than 75 mm. All bolts confirming to IS 1367-8.8/8/CS
Minimum thickness of lean concrete layer shall be 100 mm and shall extend 100mm beyond the foundation edge.
Buried structures shall be checked for floatation with ground water at FGL. (i.e. at finished ground level). FOS against floatation shall be ≥ 1.2

Foundation for Vibratory Equipment

Design of foundations for vibratory equipment such as engine, pump, fans etc. will be done in accordance with IS:2974 and will be isolated for vibration control. To avoid resonance, natural frequency of the foundations will be kept 20% away from the operating frequency and amplitudes will be kept within the allowable limits specified by the manufacturer or in their absence as specified in the IS Codes. Other equipment foundations will be of block type. For minor foundations, dynamic analysis need not be carried out and the same will be sized as to have a mass 2 to 3 times the machine mass. Relevant IS codes will be referred for design of block foundation.

Mill foundation will be RCC block type foundations. Where free vibration and forced vibration cases will be checked against all necessary permissible limits. Mill foundation model will be analysedfor :

a) Self weight of foundation, static weight of machines, (DL)
b) Normal torque load (TL)
c) Dynamic Load (RD)

Concrete mix M25 will be used and all foundation hardware and metal inserts will be embedded in to the concrete. IS code 2974 will be taken as guidelines for design and construction of the foundation.

Analysis Methods

3D Analysis of the structures is carried out by using the software STAAD Pro 2008 Vi or higher. Appropriate load and its combinations, as per relevant clauses in IS codes, for most unfavourable effects are chosen for design.

Design Life

The design life of the structure is assumed as 75 years. This requirement is not applicable to replaceable materials.

Design Methodology

All R.C.C structures shall be designed according to the Limit State Method as specified in IS: 456 – 2000.

Materials

The self-weight of the various elements are computed based on the unit weight of materials as give below:-

Table 7-1:

Materials	**Unit weight kN/m^3**
Reinforced Cement Concrete	25.00
Steel	78.50

Concrete Grade

The following grades of concrete as per IS 456 will be adopted for the type of structure noted against each. Design mix shall be used for RCC work as per standards.

Type of structures		**Grade of concrete**
Lightly loaded structures, Grade slab, and paving etc.	:	M25
All RCC members in foundation & Substructure	:	M20
All RCC members in Superstructure	:	M30
All Water retaining structures and ACC	:	M30
TG Foundation, Superstructure & TG Deck	:	M30
Mill foundation	:	M25
Chimney Foundation	:	M30
Chimney Shell Wall (as per design)	:	M30
PCC for Water retaining structures	:	1:3:6
PCC for Remaining Foundations	:	1:4:8
Fill concrete	:	1:5:10

The groundwater & soil is assumed as non aggressive in nature &sulphate /chloride contents are assumed within permissible limits. Hence, no any special cement is considered as well as no any special treatment to reinforcement is considered.

Fire Resistance for Concrete shall be 1.5 hours

Reinforcement Grade

High yield strength deformed bars of various diameters grade Fe-500 conforming to IS: 1786 will be used as reinforcement for all reinforced concrete structures.

Bricks

Local bricks having the following average compressive strengths will be used for masonry

Class A = 4.2 N/sq.mm.

Class B = 3.5 N/sq.mm.

Nominal Cover to Reinforcement

Concrete Cover to Reinforcement is defined in terms of nominal cover. Nominal cover is the design depth of concrete cover to all steel reinforcement, including stirrups/links. It is the dimension used in design and indicated on the engineering drawings. The engineer shall use the following nominal cover requirements.

Description		**Top (mm)**	**Bottom (mm)**	**Sides (mm)**
Footings	:	50	75	50
Grade Beam	:	40	40	40
Grade Slab	:	25	25	25
Beams above EL +0.00M	:	35	35	35
Column & Pedestals	:	50	--	50
Lintel Beam(less than 300 x 300)	:	25	25	25
Slab & Stair cases	:	25	25	25
Block Foundation including STG Foundation	:	50	75	50
Water Retaining Structures				
Base Soft and Walls (Water face)	:	50	50	50
Base Soft and Walls (Soil face)	:	40	40	25
Pre-cast Units	:	15	25	20
Walls	:	25	25	35

For any other elements not specified above, clear cover shall be as per the clause 26.4 of IS: 456 – 2000.

Codes & Standards

The relevant Indian Standard codes, as given below, shall be followed for structural design:

Table 9-1:

Sl.No.	**Code**	**Description**
1.	IS: 875 (Part 1) – 1987	Code of Practice for Design Loads (other than earthquake) for Buildings and structures – Unit weights of buildings materials and stored material.
2.	IS: 875 (Part 2) – 1987	Code of Practice for Design Loads (other than earthquake) for Buildings and structures – Imposed Loads.
3.	IS: 875 (Part 3) – 1987	Code of Practice for Design Loads (other than earthquake) for Buildings and structures – Wind loads.
4.	IS: 875 (Part 4) – 1987	Code of Practice for Design Loads (other than earthquake) for Buildings and structures –Snow loads.
5.	IS: 875 (Part 5) – 1987	Code of Practice for Design Loads (other than earthquake) for Buildings and structures – Special loads and load combinations.

6.	IS: 456 – 2000	Code of Practice for Plain and Reinforced Concrete.
7.	IS: 1786 – 1985	Specification for High Strength Deformed Steel Bars and Wires for Concrete Reinforcement.
8.	IS: 432 (Part 2) – 1982	Specification for Mild Steel and Medium Tensile Steel Bars and Hard Drawn Steel Wire for Concrete Reinforcement – Hard Drawn Steel Wire.
9.	IS: 1343 – 1980	Code of Practice for Pre stressed Concrete.
10.	IS: 13920 – 1993	Ductile detailing for reinforced concrete structures subjected to seismic forces – Code of practice.
11.	IS: 14268 – 1995	Uncoated Stress Relieved low relaxation seven-ply stand for Pre stressed Concrete -
13	IS: 2974-Part 1-1982	Code of practice for Design and Construction for Machine Foundations: Foundation for Reciprocating Type Machines
14	IS:1893-(Part 1)-2002	Criteria for Earthquake Resistant Design of Structures: Part 1 General Provision and Buildings.
15	IS:1893-Part 4-2005	Criteria for Earthquake Resistant Design of Structures: Part 4 Industrial Structures including Stack-Like structures
16	IS:1904-1986	Code of Practice for design and construction of foundation in soils – General Requirements
17	IS: 2974-Part 2-198	Code of practice for Design and Construction for Machine Foundations: Foundation for Impact type machines (Hammer foundations)
18	IS: 2974-Part 3-1992	Code of practice for Design and Construction for Machine Foundations: For rotary type machines (medium and high frequency)
19	IS: 2974-Part 4-1979	Code of practice for Design and Construction for Machine Foundations: Foundation for rotary type machines of low frequency.
20	IS: 3370-Part 1-1965	Code of Practice for Concrete Structures for Storage of Liquids – General Requirements.
21	IS: 3370-Part 2-1965	Code of Practice for Concrete Structures for Storage of Liquids – Reinforced Concrete Structure
22	IS: 3370-Part 4-1967	Code of Practice for Concrete Structures for Storage of Liquids – Design Tables.
23	IS:13920-1993	Ductile Detailing of Reinforced Concrete Structures subjected to Seismic Forces
24	IS:2502-1963	Code of Practice for Bending and Fixing of Bars for Concrete Reinforcement
25	IS: 2950-Part 1-1981	Code of Practice for Design and Construction of Raft Foundation- Part-1 Design.
26	IS:1905-1987	Code of Practice for Structural Use of Un reinforced Masonry.

ANNEXURE-III

PERFORMANCE PARAMETERS

Following Performance parameters are to be achieved during performance trial at Nanauta sugar mill on normal working conditions of mill -

1. **Cane preparation and Milling:**

S.No.	Factory Name	Bagasse moisture % (Max)	Preparatory Index (PI) (±1)	Primary Extraction (PE)
1	NANAUTA	49.5 to 50.00(maximum)	88	71 to 72

2. **Process House Overall:**

S.No.	Factory name	Steam Consumption% Cane (Maximum)	Bagasse saving % Cane	Losses % Cane (Maximum)	M-30 Sugar ICUMSA value (Maximum)
1	NANAUTA	45% (+/- 2%)	03%(Subject to fiber and bagasse% cane at the time of performance trial.) under normal working conditions.	1.90%	110

Note:

I. The steam consumption of the whole plant will be measured by flow meter.

II. Water balance is to be carried out by the bidder so as to suggest to keep the quantity of effluent generation from factory within limit. Overall water balance (in present scenario and after modernization) and water conservation is to be considered as to limit the gross effluent generation from factory as per CPCB norms.

3. **Mill Imbibition water control:**

Accuracy in water flow rate : +/- 0.1 %

4. **Juice flow stabilization system:**

Accuracy in juice flow rate : +/- 0.1 %

5. **Measurement of Steam flow from boilers:**

Correct Measurement of flow rate indicating in tons per hour for every hour, previous hour and twenty four hours.

6. **Centrifugal Machines:**

The guaranteed capacity of continuous centrifugal machines shall be as per parameters mentioned in technical specifications.System will be designed to maintain continuous supply of 115 +/- 5 deg C water at A centrifugal machines.

7. **Spray and Injection:** Power Consumption must be less than 2KW/TCH

ANNEXURE IV

LIST OF APPROVED SUPPLIERS FOR CRITICAL EQUIPMENT

SL. NO.	NAME OF EQUIPMENT	NAME OF SUPPLIERS
1	VACUUM PUMP	KAKATI/KIRLOSKAR/PPI
2	BOILER FEED WATER PUMP	KSB/SULZER
3	CENTRIFUGAL PUMPS	KIRLOSKAR/SINTECH GHAZIABAD
4	MILL DRIVE	KIRLOSKAR/CROMPTON/SIEMENS/ABB
5	COMPRESSOR	KIRLOSKAR/INGERSOL RAND/AtlasCapco
6	(a) ELECTRIC MOTORS (b) CRANE DUTY ELECTRIC MOTOR	KIRLOSKAR/ CROMPTON/ SIEMENS/ BHARAT BIJLEE
7	VFD MOTORS FOR MILL DRIVE and OTHER DRIVE	KIRLOSKAR/ CROMPTON/ ABB/ SIEMENS/ DANFOSS & their system houses
8	OTHER PUMPS	KIRLOSKAR/ SINTECH GHAZIABAD / GITA/ RISANSI/ PSP
9	MILL GEAR BOX	ELECON/ PREMIUM/ WIL
10	ROPE COUPLING	JPMA
11	DCS-MICROPROCESSOR SYSTEM	ABB/ SIEMENS/ YOKOGAVA/ HONEYWELL/ ROCKWELL
12	VF DRYER	VS Project/
13	All types of Valves	Puri Industries/Leader/Kirloskar
14	Centrifugal machines	WIL/KRUPP(TKIL)/KCP
15	Mass Flow Meter	Honeywell, Baumer, Delval, eaton instrument, Bosh, TEADIT

ANNEXURE-V

INSPECTION PROCEDURE

GENERAL

1. Whenever there is no particular reference in the Agreement about IS/ISO Standards, the equipment/units should be manufactured/fabricated strictly in accordance with Latest IS/ISO Standards.
2. Inspection at Manufacturer's workshop prior to dispatch (to be read only those applicable to Sugar Mill equipment / machinery and captive power plant in Sugar Mill).
3. The list of machinery and equipment to be inspected by authorized agency at manufacturer's works prior to dispatch is furnished in enclosed Annexure-X.
4. The inspection call from OEM/Sub-Vendor should be enclosed with Internal Inspection Report duly signed by Sub-Vendors authorized person and OEM's representative.
5. During the course of inspection at manufacturer's workshop, the manufacturer will make available the following test certificates in respect of raw material for verification.
6. Material Test Certificate giving chemical composition, physical properties such as ultimate tensile strength, Elongation %, yield strength, hardness of finished product etc. in respect of steel forgings, steel castings, boiler drums and tubes, brass tubes, stainless steel tubes steam piping and valves, components of conveyor chains, enclosed gear boxes and alternator etc.
7. At the time of inspection, the manufacturer will provide, free of cost, instruments, measuring devices such as straight edge, micrometers, DP test chemicals, line dori, verniers, calipers, 'GO' and 'NO GO' gauges, hardness tester, ultrasonic testing instrument, stroboscope, vibration meter, noise level measuring instrument, dial gauge, feeler gauge, drift expansion/flattening test facility for various tubes, breaking load test and hydraulic test facility or any other instrument or test facility as may be required.
8. For Electrical Items, the manufacturer will provide, free of cost, the instruments such as Secondary Injection Kit, High Voltage Testing Instrument, Megger, Kelvin bridge, Vibration meter, Stroboscope, Phase sequence tester, Voltmeter, Ammeter, or any other instrument or test facility as may be required.
9. Witnessing ultrasonic testing of drive and driven shafts.
10. For Stainless Steel Tubes, Brass tubes and boiler tubes, following inspection shall be carried out by MILL.
    (i) Dimensional checking of random samples.
    (ii) Witnessing Destructive Testing of sample tubes drawn at random, for tensile strength, flattening test, flaring test, reverse bend test, elongation test, acid test as per procedure of IS:13316-1992 for SS tubes, and relevant IS/BS code for boiler tubes.
    (iii) Verification of material test certificates furnished by manufacturer.
    (iv) Witnessing hydraulic testing of random samples of SS/brass/boiler economizer & super heater tubes.
    (v) For Boiler Tubes Verification of IBR test certificates, IBR stamping and heat numbers marked on the tubes, hydraulic test certificate.
11. Manufacturers shall also provide dynamic balancing test certificate for high speed rotating parts, wherever required.
12. The Inspecting Officer of authorized agency shall be within his rights to bring to the notice of the manufacturer/Sellers, any defects and deviations observed from the approved drawings / Agreement specifications / standard engineering practices / relevant Indian / British / DIN / API codes etc. and the manufacturer / Seller shall be required to rectify such defects and deviations at their own cost. Such inspection by authorized agency or its nominees shall not absolve the manufacturer / Sellers from their responsibility of supplying the machinery and equipment in accordance with the terms and conditions of the Agreement.
13. The OEM/Sub-Vendor shall arrange test motors, gear boxes for witnessing, no load running trial of their equipment.

ANNEXURE –VI

PARAMETER FOR INSPECTION AT MANUFACTURER'S WORKS

1. Condensers, reboiler etc.: Dimensional check up, hydraulic test, welding quality and material specifications.
2. Distillation Columns, Plates & Caps and other internals. : - do
3. (a) AC Motor
   Testing procedure with control panel as prescribed in the latest IS code.
   (b) Hydraulic drives for Mills
   Procedure to be finalized in consultation with manufacturers.
4. Enclosed Transmission Gear Boxes
   - Checking up of dimensions, handing and reduction ratio,
   - Witnessing the no load running trial at full input speed of each gear box fitted with forced lubrication system at partial loading by damping.
   - Open Inspection:
   - Checking up of tooth contact and blue impressions.
   - Measurement of back lash, tooth contact area, hardness of shaft and gear wheel and pinion, oil circulation system and nozzle location etc.
   - Teeth surface finish checking – visually.
   - Verification of material composition certificate, ultrasonic test and dynamic balancing certificate stress relieving & physical test report, for gears/pinions/shafts.
   - Verification of Service Factor, H.P. rating calculations ,and

   Pressure Lubrication System having 2 pumps, 2 motors,
   a) coolers, 2 micro filters etc.
   - Routine test certificate of gearboxes.

5. BOILER

5.1 Pressure Parts :

- Dimensional checking of drum, wall thickness, tube hole sizes (with go-no-go gauge), drum internals.
- Verification of material composition certificate for drum, tubes, super heater and economiser elements and tube holes size in drum, stress relieving certificate for drum, header, etc.
- Hydraulic test of headers and economiser coil and super heater coil etc.
- Witnessing destructive testing of random selected sample of boiler tubes as per para 1.9, and checking of tube thickness, o.d.,. and IBR stamping verification.

5.2 A.C. variable frequency Motor Drives for ID/FD fans

Inspection and testing as per procedure described in para 2.1.7 (b) in case D.C. motors and as per relevant IS code in case of A.C. motors.

5.3 ID/FD/SA Fans:

- Verification of impeller curvature, wearpad for ID, test certificates for dynamic balancing of impeller of ID, FD, SA fan etc. and sizes of plate s thickness etc.
- Verification of calculations for capacity and head of fans.
- Dimensional verification as per approved drawing.
- Witnessing measurement of free air delivery/capacity.
- Witnessing ultrasonic testing of shafts of fans.
- MTC for shaft, characteristic curves for fan performance etc.

5.4 Furnace Grate Assembly

- Dimensions of assembled frame sizes. etc.
- Operation of grate bar movement & traveling grate movement by fitting of auxiliary drive.
- Checking of grate bar hole details and hardness and MTC

5.5 Oil firing equipment assembly

- Running trial of the system.
- MTC, RTC and hydraulic testing certificate for individual equipment.
- Verification of tube plate thickness, door thickness and door straightness etc. Measurement of tube plate holes size checking by go and no-go gauge, no. of holes per pass, no. of passes, lay out of passes on top and bottom covers, condensate outlet connection, noxious gas connection, drains, airvent connection, checking of door-tightening arrangement with T-bolt/I bolt with individual pin arrangement, Steam/Vapour entry connections , ligament, welding quality, distance between tube plates and alignment, variation pitch of holes, witnessing hydraulic testing of steam, vapour and double beat valve etc.
- Condensate outlet connection, noxious gases connection, drains/air vent connections, checking of steam/vapour connections.
- For plate type heaters, measurement of thickness of plates, size, gasket and hydraulic testing, scrutiny of material test certificate for S.S.
- Tube plate holes to be finished by reaming.
- Inspection and testing of S.S./Brass tubes shall be as per para 1.9.

6. Evaporators

- Verification of dimensions of calandria, body, catchall, tube plate thickness, holes etc., measurement of tube holes with go and no go gauge, alignment and distance between tube plates, ligament and pitch for tube holes, welding quality, witnessing hydraulic testing of steam and vapour valves etc.
- Checking the Layout of holes in the tube plate and its finish by Reaming, condensate outlet connections, noxious gases outlet connection, vapour inlet sizes, ovality of calandria, if any, tube plate straightness and tie rod fixing.
- Checking of saveall construction & plate thickness & curvature of vanes etc.
- Inspection and testing of S.S./Brass tubes shall be as per para 1.9

7. CONDENSING AND COOLING SYSTEM

7.1 Dimensional checking for condenser and ejector and material of construction with MTC.

7.2 Witnessing of hydraulic testing of condenser, ejector and tail pipe at 2 kg/cm^2 g, nozzle plate details, nozzle convergent angle and distance.

7.3 Nozzle details of condenser/ejector.

PRESSURE REDUCING VALVES, EXHAUST AND VAPOUR PIPING

(i) PRDS Station

- Checking up of pressure reducing valves, bypass valves,
- Pneumatic control checking
- Desuper heater checking and water spray trial
- Hydraulic testing of valves and vessels.

Exhaust piping and vapour piping and valves more than 400 MM, NB size.

- Verification of dimensions, thickness, welding quality.
- Checking of valves for its components and witnessing hydraulic testing at 6 kg/cm^2.
- Verification of general arrangement drawing of exhaust/vapour piping.

8. **ELECRICALS**

8.1 MCC, Main distribution panel, Bus bar turnking, Bus coupler panel, APFC Panel, Control panel for DG set, Control panels for centrifugal machines.

8.2 Verification of dimensions and makes of different components.

8.3 Testing of simulation of various protective devices in each panel.

8.4 H.V. and insulation test of each panel assembly, each MCC assembly and bus bar trunking assembly.

8.5 No load sequence operation test of each panel assembly.

8.6 Verification of single line diagram of electrical distribution system as well as size of bus bars and cables and quantity of power factor improving capacitors.

9. H.P. STEAM PIPING

Distribution Header

Witnessing of the Hydraulic Testing of Header.

Dimensional checking
Verification or material test certificate, IBR approval.

H.P. Piping

Checking up Pressure Drop Calculations, Pipe Sizes with reference to Flow and Velocity and general arrangement drawing.

Checking flexibility analysis, Scrutiny of material Test Certificate for the H.P. Piping.

Checking and hydraulic testing of pipes and manipulation as per approved drawing.

Checking of IBR stamping of pipings and flanges.

Steam Separators

Material test certificate verification

Dimension at check

Witnessing of hydraulic testing

Valves covered by IBR (covering over and above 100 mm size, 20 kg/cm^2 pressure)

Dimensional checking

Witnessing hydraulic testing of sample drawn at random in each size.

Scrutiny of test certificate given by manufacturer and C.I.B.

IBR – stamping etc.

10. MISCELLANEOUS

10.1 All C.I. Valves above 150 mm NB, all C.I. Pipes, Tees, Bend etc.
10.2 Checking up of dimensions, internals and scrutiny of test certificate for S.S. components.
10.3 Witnessing hydraulic testing of valves and pipes selected at random.

INSPECTION AND TESTING OF PLANT AND EQUIPMENT BEFORE DISPATCH

- Purchaser's Entitlement to test etc.

  The Purchaser shall be entitled at all reasonable times during manufacture to inspect examine and test on the Sellers's premises the materials and workmanship and performance of all Plant and equipment to be supplied under the Contract. If part of the Plant and equipment is being manufactured on other premises, the Sellers shall obtain from the Purchaser, permission to inspect, examine and to test as if the Plant and equipment were being manufactured on the Sellers's premises. Such inspection, examination or testing shall not release/absolve the Sellers from any obligation under the contract.

- Date for Tests or Inspection

  The Sellers shall inform the Purchaser reasonably in advance the date on and the place at which any Plant and equipment will be ready for the tests or inspection as provided in the Contract. The Purchaser shall give the Sellers 72 hours' notice of his intention to attend the Tests or inspection. If the Purchaser shall, barring reasons attributable to Force Majeure, not attend at the place so named on the date agreed, the Sellers may proceed with the tests or inspection, which shall be deemed to have been made in to the Purchaser's presence. The Sellers shall forthwith forward to the Purchaser duly certified copies of the results of the Tests or inspection.

- Services for test or inspection

  The Sellers shall provide free of charge such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as may be requisite and as may be reasonably demanded to carry out the Tests or inspection.

- Certificate of tests or inspection
  When the Purchaser is satisfied that any Plant and equipment has passed the Tests or inspection referred to in this Clause he shall forthwith issue to the Sellers a certificate to that effect

- Failure on tests or inspection

  After inspecting, examining or testing any Plant and equipment the Purchaser shall if decide that such Plant and equipment or any part thereof is defective or not in accordance with the

Contract, he may reject the said Plant and equipment or part thereof by giving the Sellers, notice of such rejection within seven (7) days, stating therein the grounds upon which the said decision is based.

Following any such rejection the Sellers shall make good or otherwise repair or replace the rejected Plant and equipment and resubmit the same for the Tests or inspection in accordance with this Clause and all expenses reasonably incurred by the Purchaser in attending or in consequence of such re-testing or inspection shall be deducted from the Contract Price.

- The design and manufacture of the Plant and equipment items shall conform to Indian standards.

  The testing and inspection will be according to applicable Indian standard and good Purchasing practice. In case there is no applicable Indian standard, the test and inspection shall be carried out to ensure that the equipment is manufactured according to the design and manufacturing requirements of respective Plant and equipment items. The results of testing and inspection shall be drawn up in test report(s) and certificate(s) of quality shall be issued indicating the important and essential details of the testing which are in conformity with the above-mentioned standards.
- The Purchaser has the right to send its representative(s) at Purchaser's expense to the Purchasing offices and workshop or factory of the Sellers and/or of the Sellers's sub-supplier(s) at all times, within normal working hours after giving due notice, for the purpose of checking relating to the accomplishment of the Sellers's contractual obligations, the workmanship and the quality of the Plant and equipment items, wherever in progress, as well as the quality of materials used in manufacturing of the Plant and equipment items concerned, provided the work is not interrupted as a result.

- The Sellers shall make available to the Purchaser's representative(s), free of charge, such conditions and means necessary at the Purchasing offices and workshop for the testing and inspection of the Plant and equipment items concerned and for design work. The Sellers shall within 15 (Fifteen) days from the Effective Date of the Contract send to the Purchaser a list of Plant and equipment items to be tested and inspected.

- The Purchaser reserves the right to ask the Sellers to arrange tests and inspections for the Plant and equipment items which the Purchaser wishes to inspect for which he shall provide the list within 15 days of receiving the list in clause 4.1.8 above.

- The Sellers shall notify the Purchaser by fax / email at least one week before the scheduled dates of the tests and inspections of Plant and equipment items to enabling the Purchaser to enable travel for its representatives.

- At least 3 (three) days before the dates scheduled by the Sellers, the Purchaser shall notify the Sellers of its representative(s) who will participate in the testing and inspection and at the expiry of which period, barring force majeure, the Sellers shall be free to Dispatch the items for delivery to the Purchaser.

- The attendance or participation of the Purchaser's representative at the tests and inspections carried out by the Sellers and Sellers's sub-supplier(s), or the above mentioned representative's agreement to the results of the tests inspections shall not be deemed as releasing the Sellers from any undertaking with regard to the quality and quantity of the Plant and equipment items and does not in any way limit the Purchaser's right with regard to the guarantees mentioned in Annexure-B-9 (Performance Guarantee).

- If the Purchaser's representative(s) find that the Plant and equipment items do not conform to the standards agreed by both contracting parties and/or to the conditions of the present Contract, then the Sellers undertakes to eliminate immediately these defaults by his own means and expense without detriment as far as possible to the commissioning period of said Plant and equipment items. After elimination of the said manufacturing defaults, the Plant and equipment items in question shall be submitted to new tests under the conditions specified in this article.

- The sellers shall not sell or divert any material, sub-assemblies, machinery and equipment meant for the sugar plant of the purchasers, after the same have been inspected by the purchasers, or an authorized representative of the purchasers, under any circumstances, without prior written consent of the purchasers as per terms of this agreement.

  QUALITY ASSURANCE, TESTING AND GUARANTEES

- PERFORMANCE & TESTS

Some of the applicable Indian and Overseas Standards related to Tests on various equipment of the Plant are listed under Clause 2.1.2. The list is not meant to be comprehensive. For the Standards, which are not mentioned in the list, relevant Indian or overseas standard should be followed. In all cases, latest version of relevant Standard should be applicable.

- Standards for Tests

On overall completion of erection and commissioning, performance tests of unit equipment of the Plant and systems shall be conducted to verify conformity with specified capacities and efficiencies. Such performance tests shall be conducted in accordance with procedures prescribed in relevant Standards. Where Indian Standards Specifications do not provide relevant test procedures, the Supplier shall submit to the Purchaser for approval, the test procedures to be adopted. The Purchaser's decision in such cases shall be final.

Acceptance of the equipment, as a result of these performance tests shall in no way relieve the Supplier from its obligations with respect to the Defects warranty clause or with respect to any other condition applicable under the contract.

- Equipment of the Plant

As and when erection of equipment of the Plant are completed, tests will be conducted, as appropriate which would include but may not be limited to the following:

- Dimensional and quantity checks
- Conformity to specifications
- Hydraulic tests of tanks, vessels, pipelines etc.
- Mechanical tests on rotating machinery like pumps, compressors, fans, turbines etc.
- No load running tests on conveyors and other mechanical drive systems
- Standard running tests on rotating mechanical and electrical machinery
- Vibration tests on rotating mechanical and electrical machinery.

General Requirements

All equipment furnished under this specification shall be subject to test by authorized quality assurance personnel of the Seller, representatives of the purchaser and/or Technical Specialist during

manufacture, erection and on completion. Seller1s quality assurance personnel for these shop and site tests shall be identified in advance and shall be acceptable to the purchaser. The approval of the Purchaser /Technical Specialist or passing of such inspection of tests will not, however, prejudice the right of the owner to reject the equipment if it does not comply with the specifications when erected or fails to give complete satisfaction in service.

The Seller shall furnish details of shop and site tests proposed to be conducted by him at various stages to meet the specification requirements for each type of instrument/system along with his proposal. Seller shall also furnish details of his proposed shop and site quality assurance organization for this contract.

Seller shall prepare a detailed shop and site 1Quality Assurance Program' to meet the requirements of these specifications for purchaser1s approval. This document shall also contain the formats for reports and maintenance of test records, specification of test equipment to be used for site tests.

- Shop Tests

General Requirements

Shop tests shall include all tests to be carried out at Seller1s works, at works of his sub-Seller's and at works where raw materials used for manufacture of equipment is produced.

- Material Tests

Whenever tested quality material is specified and wherever called upon by Safety Regulations or by the design code, the test pieces are to be prepared and tested to purchaser1s satisfaction.

In the event of purchaser being furnished with certified particulars of tests which have been carried out by the suppliers of material, the purchaser may, at his discretion, dispense with these tests.

- Tests at Manufacturer's Works

Works tests are to include electrical, mechanical performance and hydraulic tests in accordance with relevant codes or any other approved standard or any other tests called for by the purchaser under these specifications to ensure that the equipment being supplied fulfills the requirements of these specifications.

- On-Site Tests

All the site activities including unloading, storage cum insurance of equipment and materials on arrival to site, installation, commissioning and carrying out all the tests at site shall be performed by the Seller at no cost to the purchaser in presence of Purchaser/Consultant1s representatives and with the permission of owner as and when required.

The Seller shall furnish the necessary manpower and the services of technical representative(s), who shall provide technical guidance and advice for the installation of the equipment and placing the system in operation. The services of the technical representative(s) shall be available for the period from arrival of the equipment on site until the equipment is finally accepted by the purchaser. The on-site tests shall include the following tests in the sequence given:-

- Inspection of Equipment on Arrival

  The Seller1s field representative(s) shall inspect all supplied equipment upon arrival on-site. All observed damage to equipment shall be reported to the Purchaser /Purchaser.

- Preliminary On-Site Checks and Tests

  After field installation and before equipment energisation and connection of field inputs, the Seller shall carefully inspect all equipment and shall check all Seller supplied wiring and cable to Assure correctness of corrections and proper equipment installation.

- Start-up

  On completion of erection of the equipment and before start-up, each item of the equipment shall be thoroughly cleaned and then inspected jointly by the purchaser and the Seller for correctness and completeness of installation and acceptability for start-up, leading to initial pre-commissioning tests at site. The list of pre- commissioning tests to be performed shall be as mutually agreed and included in the Seller1s quality assurance program.

- Trial Operation

  The plant shall then be on trial operation during which period all necessary adjustments shall be made while operating, over the full load range enabling the plant to be made ready for performance and guarantee tests. The duration of Trial operation of the complete equipment shall be 7 days out of which at least 72 hours shall be continuous operation on full load or any other duration as may be agreed to, between the purchaser and the Seller. The Trial Operation shall be considered successful, provided that each item of the equipment can operate continuously at the specified operating characteristics, for the period of Trial Operation.

- System Documentation Check

  Upon successful completion of the preliminary On-Site checks and Tests the purchaser1s and the Seller1s representative shall check that all required system documentation, in its final form was delivered to the purchaser. All error and insufficiencies in the system documentation, (manuals, drawings, and software) shall be corrected by the Seller before the system is accepted by the purchaser. Duly corrected system documentation shall be furnished to purchaser and Consultant.

- Performance and Guarantee Test and Acceptance of the System by purchaser

  Dynamic load tests while maintaining safe process conditions and without endangering the equipment. All tests will be performed with the system in automatic mode:
  Drop 50 per cent of maximum load capability from approximately full load at a rate of 10 per cent per minute.
  Drop load from full rated output to the lowest load runback limit, at a
  rate corresponding to the fastest runback rate.

  Pick up 50 per cent of the maximum load capability from approximately 50 per cent load at a rate of 10 per cent per minute.

  During transient conditions causing deviation of process variables, the control system furnished under this specification shall not permit deviations which exceed those permitted by the manufactures of the controlled process equipment, for load demand changes upto 10 percent of rated full load capability per minute. Controlled process variables shall return to normal in a stable manner and without any loop interactions or cycling of generation when generation matches unit load demand.

- Painting

The plant shall be painted before dispatch to Site. Painting specifications are furnished hereunder. To facilitate correct re-assembly of gearing, turbines, vessels, etc. at Site, colour identification shall be applied to each plant piece and its associated equipment of the plant and parts, within a series or train of similar pieces.

Preparation of surfaces

Prior to treatment, the metal surface shall be cleaned of dirt and grease, layer of rust, weld spatter etc. These shall be removed by pickling, power tool chipping, de-scaling, sanding, wire brushing or grinding. For wire brush cleaning, the wire brush shall be applied carefully over the surface in vertical and horizontal direction.

For motor driven cleaning, brush, tube cleaner and disk sander shall be used. The work shall be done in such a way that the brush is applied over two times on each portion of the object to be treated. Either feather type or gear type cutter shall be attached to the tube cleaner. Application of the cutter shall be done carefully in the longitudinal direction except for unavoidable cases.

Recommended types of paints

Painting for Machinery, Equipment of the Plant, and Piping shall be applied as follows:

Primary coat	-	Red Oxide Paint
Under Coat	-	Pthalic Anhydride
Paint Finish Coat	-	Pthalic Anhydride Paint

Corrosion protection (wherever required)- Pitch based resinous Galvanized Steel

Internal surface of vessels, tanks, heat exchangers, etc.

Machine finished surface where performance will be adversely affected if painted. In the case of layered painting, the next painting shall be applied after cleaning the surface of the previous layer and after a gap of minimum 8 hours drying.

The coating thickness of each layer shall be uniform. Notices, name plates, lettering, gauges, sight glasses and similar items shall not be painted over and shall be protected during painting by the application of masking tape and cleaned after painting is over.

The thickness of finish painted film shall be even. The standard thickness values to be measured by net micro-thickness gauge shall be as follows:

- Packing

All equipment of the Plant shall be packed as necessary to provide adequate protection during delivery to Site.

The Goods shall be fully protected from weather and corrosion by suitable paint, preserving grease or wax paper together with silica-gel or any other protective hygroscopic material, as may be required.

The packing cases shall be lined internally with tarred paper or polythene and the lids lined internally with roofing paper.

The packing cases shall be of substantial timber construction screwed or nailed together and shall be provided with skids preventing direct contact with the ground or floor, and permitting the use of fork-lift trucks or slinging for lifting by cranes.

Small items shall be gathered together and transported in packing cases.

ANNEXURE-VII

PERFORMANCE CERTIFICATE

This is to certify that M/s _____ have supplied, erected and commissioned following equipment/systems in accordance to the performance parameters defined in the bid document.

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

ANNEXURE-VIII

DRAFT OF BANK GUARANTEE AGAINST FIRST & SECOND ADVANCE PAYMENTS

Bank Guarantee No._____

THIS GUARANTEE MADE THIS_____day of Two thousand & Eighteen, by the _____ Bank, having its branch office at _____ (hereinafter called 'The Guarantor' which expression shall, unless repugnant to the context or contrary to the meaning thereof, include its successors and assignees) of the one part in favour of The Uttar Pradesh Coop. Sugar Factories Federation Ltd., Lucknow on behalf of The Kisan Sahakari Chini Mills Ltd., ----------, Uttar Pradesh – hereinafter called 'The Purchaser' which expression shall, unless repugnant to the context or contrary to the meaning thereof include its successors and assignees) of the other part.

WHEREAS M/s ....., **a company registered under the Indian Companies Act,1956 having its registered office at..... and chief place of business at** ..... **(Hereinafter called 'The Seller' which expression shall unless repugnant to the subject or context include their legal representatives, administrator, successors or permitted assignees) has entered into with the Purchaser an Agreement dated _____ (hereinafter called the said Agreement) to Supply, erection and commissioning (including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) for** Techno-commercial proven technology jobs regarding technical upgradation for improvement in working efficiency /modernization of The Kisan Sahakari Chini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters ,under the aegis of U.P. Cooperative Sugar Factories Federation Ltd. Lucknow on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) as per specifications and scope of work given in the bid document.
The Seller will also operate and maintain the newly erected equipment/system for 24 months from date of commissioning and the warranty will be for 24 months from the date of commissioning.

(hereinafter referred to as "the said Machinery and Equipment") for the Purchaser's new system to be set up at ----------, Distt. ----------, Uttar Pradesh in accordance with the terms and conditions therein contained.

AND WHEREAS under clause 16.1(i)/16.1(ii) of the said Agreement, the Purchaser is required to pay to the Seller against the security of a Bank Guarantee an advance payment of Rs..... lakhs (Rupees .....only) representing 10% (Ten per cent) of portion of Ex-Works Price mentioned at clause no. 3.1.2 as first/second advance payment for the purpose of procurement of materials/equipment for the said Machinery and Equipment and such guarantee to be valid till the full advance amount is adjusted against the Ex-Works price of the actual deliveries as provided in price break-up (Annexure-VI of the Agreement) of Machinery and Equipment supplied to site.

AND WHEREAS before advance payment as aforesaid is made the Guarantor has at the request of the Seller agreed to give a guarantee as hereinafter contained.

NOW THIS DEED WITNESSES AS FOLLOWS:

(a) In consideration of the premises the Guarantor hereby undertakes to pay the Purchaser within thirty days of demand and without demur such a sum not exceeding Rs..... lakhs (Rupees .....only) as the Purchaser may demand representing 10% (Ten per cent) of the Ex-works Price and cost of foundations and buildings and if the Guarantor fails to pay the sum within the said period, the Guarantor will also pay, on the sum demanded, interest @ 12 % (Twelve percent) p.a. from the date of demand till the date of payment. Provided that the liability of the Guarantor hereunder shall be adjusted and reduced with the progress of delivery of Plant Machinery and Equipment supplied by the Seller and to the extent adjustment shown in Seller's invoices upto that time as per clause 16.0 and its sub-clauses of the said Agreement.

(b) The Guarantor shall pay to the Purchaser on demand the sum under Clause 1 above without demur and without requiring the Purchaser to invoke any legal remedy that may be available to them, it being understood and agreed, FIRSTLY that the Purchaser shall be the sole judge of and as to whether the Purchaser shall be the sole judge of and as to whether the Seller have committed breach of any of the terms and conditions of the said Agreement and SECONDLY that the right of the Purchaser to recover from the Guarantor any amount due to the Purchaser shall not be affected or suspended by reasons of the fact that any dispute or disputes have been raised by the Seller with regard to their liability or that proceedings are pending before any Tribunal, Arbitrator(s) or Court with regard thereto or in connection therewith, and THIRDLY that the Guarantor shall immediately pay the aforesaid guaranteed amount to the Purchaser on demand and it shall not be open to the Guarantor to know the reasons of or to investigate or to go into the merits of the demand or to question or to challenge the demand or to know any fact affecting the demand and LASTLY that it shall not be open to the Guarantor to require proof of the liability of the Seller to pay the amount before paying the aforesaid guaranteed amount to the Purchaser.

(c) This Guarantee shall come into force from the date hereof and shall remain valid till 30 days after the full advance amount is adjusted under clause 16.0 & its sub-clauses of the said Agreement, which according to the terms and conditions of the said Agreement is stipulated to be adjusted by proportionate10% (ten per cent) of the Ex-works Price mentioned at clause 3.1.2 of the said Agreement of the Sellers for effected actual deliveries of the Machinery and Equipment at site, but if the actual deliveries as aforesaid have not been completed by the Seller within the said period for any reason whatsoever, the Guarantor hereby undertakes that the Seller shall furnish a fresh or renewed guarantee on the same proforma for such further period as the Purchaser may intimate failing which the Guarantor shall pay to the Purchaser a sum or sums not exceeding Rs.....lakhs (Rupees .....only) or the residual amount of balance advance left after proportionate adjustment in accordance with clause 1 above, as the Purchaser may demand along with the interest @ 12 % (Twelve percent) p.a. on unadjusted amount of advance.

(d) This guarantee is in addition to and not in substitution for any other guarantee executed by the Guarantor in favour of the Purchaser on behalf of the Seller.

(e) The Seller and the Purchaser will be at liberty to vary and modify the terms and conditions of the said Agreement without affecting this guarantee, notice of which modifications to the Guarantor is hereby waived and the same shall be deemed to have been done with the assent of the Guarantor.

(f) This Guarantee shall not be affected by any change in the constitution of the Guarantor or of the Seller nor shall the guarantee be affected by the change in the constitution of the Purchaser or by amalgamation or absorption with any other body corporate and this guarantee will be available to or enforceable by such body corporate.

(g) This guarantee is irrevocable except with the written consent of the Purchaser.

(h) The neglect or forbearance of the Purchaser in enforcing any payment of moneys, the payment whereas is intended to be hereby secured or the giving of time by the Purchaser for the payment thereof shall in no way release the Guarantor from its liability under this guarantee.

(i) The invocation of this guarantee shall be by a letter signed by the Purchaser and countersigned by the Managing Director, Uttar Pradesh Coop. Sugar Factories Federation Ltd., Lucknow and notifying/declaring the amount of advance remaining unadjusted and payable to the Purchaser.

(j) Notwithstanding anything stated hereinbefore the liability of the Guarantor under this guarantee is restricted to Rs..... lakhs (Rupees .....only) alongwith the interest @ 12 % (Twelve percent) p.a. on unadjusted amount of advance . This guarantee shall remain in force upto …….. Unless a demand or action under this guarantee is filed against the Guarantor in writing within three months from the date of expiry i.e. on or before …….. all rights of the Purchaser under this guarantee shall be forfeited and the Guarantor shall be released and discharged from all liabilities hereunder.

IN WITNESS WHEREOF _____ for and on behalf of the Guarantor have signed this deed on the day and year above written.

Witnesses: **For and on behalf of the Guarantor**

SECTION III (E): CAPABILITY STATEMENT (CS)

1. (a) Name and complete mailing address of the business/sales office of the bidder.

(b) Name of Authorized Official
(c) Phone:
(d) Fax:
(e) E-mail:
(f) Principal place of business
(g) Website of Bidder's Firm

Parties Will Have To Furnish Under Noted Information During The Technical Discussions With Documentary Proof:

1	Address of main workshop where the major portion of the plant and machinery will be	
2	Address for sending all communication (letters) during the execution of the project	
3	Name of Banker with full address. Type of account and account no.	
4	Details of any two turn key projects of similar type of technical upgradation work executed in existing mills as per CS1 proforma during last five years.	
5	Complete Heat and mass balance, fuel, water, steam, power and condensate balance in order to achieve steam consumption @45%(+/-2%)on cane and other desired results.	
6	Balancing of plant calculations with respect to exhaust steam generation and exhaust steam consumption (including desuperheater gains)	
7	Enclose the performance certificate of the two executed projects from the Purchaser specially reduction is steam consumption and over all improvement after upgradation work	
8	Detail of Tender Fee	
9	Detail of E.M.D.	
10	The turnover of the bidder during last five financial years should be not less than Rs. 08 crores for each year or Average turnover of Rs. 10 crores(minimum) for above mentioned five years.The Bidder will submit the detail of last five year turnover duly certified by Chartered Accountant(with UDIN No.), along with last five years Balance Sheet.	
11	The bidder shall submit the copies of the last five years filled Income Tax Return with copy of PAN card (copy self-attested).	

12	The Net Worth of the bidder should be at least Rs. 10 crores as on the date of bidding duly certified by banker as per Performa given in technical Bid. The Bank net worth of the Bidder shall be atleastRs. 10 crores (Rupees ten crores) issued by the banker (Nationalized/Scheduled commercial bank) and Chartered Accountant(with UDIN No.) not earlier than 3 months from the bidding date.	
13	Registration of GST with documentary proof	
14	PAN No. with documentary proof (attested copy of PAN CARD)	
15	Registration No. of ESI and PF	
16	Status of the Proprietary Firm/Partnership Firm/ Companies/ Consortium of Companies along with names of Directors/Partners/Proprietor. Submit relevant registration certificate, Deeds, Article and Memorandum of Association etc.	
17	Authority letter of authorized representative of bidder.	
18	Whether the firm has any criminal suits pending (Give Details)	
19	Affidavit that the bidder has not been blacklisted or not engaged in any legal proceeding with any government department.	
20	Declaration as per clause 27 of section II of Bid Document	
21	The bidder shall submit complete specifications with steam, water, power balances of the plant intended to be supplied.	

Note- The bidders are requested to provide separate folder of hard copies of above documents at the time of opening of technical bid.

Seal and signature of the bidder_____
With Name of Authorized
Official signing the Agreement.

ANNEXURE – CS I

DETAILS OF SIMILAR TYPE UPGRDADATION WORK EXECUTION IN PAST 05 YEARS AND PERFORMANCE OBTAINED

S. No.	Name of Sugar Mill	Capacity (T.C.D.)	Year of Upgradation work executed	Address of Mill	Responsible person name & contact number	Steam Consumption % Cane	
						Before	After

Note: Documentary proof in support of above achievements are to be provided by the seller.

Please submit hard copy of capability statement and annexure CSI at the time of opening of technical bid in addition to part of technical bid document as a whole.

SECTION III (G)

TO WHOM IT MAY CONCERN

I ..... (Full Name), aged about, ... S/oShri ..... (Full Name), is resident of .....

AFFIDAVIT IN RELATION To..... ..... (Permanent address/present address), is the director/representative/partner of M/s ..... (address of registered office), do hereby solemnly affirm and state on oath as under;

1. I/We state and confirm that I/we or our holding company/subsidiary company have not been convicted by any court of law or indicated or adverse orders passed by a Regulatory Authority or Government of India/State Governments/ Undertakings or any FIR related to economic or criminal offence has been lodged against the directors/senior officials of the Company/Firm/me which would cast a doubt on our ability to manage/deal with the public sector unit or which relates to grave offence that outrages the moral sense of the community.

2. I/We further state and confirm that in regard to matters relating to security and integrity of the country, I/we have not been charge-sheeted/Black-Listed by NFCSF/Up Co-operative Sugar Factories Federation Ltd. /Any co-operative Sugar mills or any agency of the Government of India/State Governments/Undertakings and/or not been convicted for any offence by any court of law by me/us or by any of our holding/subsidiary company.

3. I/We undertake that in case of any change in the facts and circumstances during the Agreement period, such change would attract the provisions of disqualification mentioned in tender document.

4. I/We state and confirm that I/we have not been debarred/disqualified from participating in the tender process of Government of India or State Governments or their instrumentalities.

Deponent

Verification

I ..... above named (authorized signatory), do hereby verify the contents of para 1-5 are true to my personal knowledge.

Signed and verified on .....

Deponent

I identify the deponent who has signed before me.

SECTION IV: FINANCIAL e-Bid

SECTION IV(A): e -bid FORM

IFB No. 53/UPF/PRO.FIN/NANAUTA/42 Date : 19/09/2022

To:

The Managing Director,
U.P. Co-operative Sugar Factories federation Ltd,
9-A, Rana Pratap Marg Lucknow (U.P)-226001

Dear Sir,

Having examined the e-Bid Documents, we, the undersigned, offer to deliver technical upgradation/modernization work in the field of energy conservation & improvement of sugar quality for achieving specifically identified qualitative parameters for enhancement of working efficiency ,on EPC basis for Supply, erection and commissioning (including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) of following Cooperative Sugar Mills under the aegis of U.P.Cooperative Sugar Factories Federation Ltd. Lucknow as per specifications and scope of work given in the bid document Sugar Mill at The KisanSahakariChini Mills Ltd., Nanauta, Dist. Saharanpur as per specifications and scope of work

In addition to this, the particulars of our organization such as legal status, details of experience & past performance, capability statement & required e-bid EMD* for Rs. ---------- through RTGS/NEFT in favour of U.P. Co-operative sugar factories fed. Ltd., Lucknow is furnished with this e-bid form.

We further undertake, if our e-Bid is accepted for supply, erection and commissioning (including designing, engineering, manufacturing, procurement of bought out items, civil and structural works etc.) of system Sugar Mill as per specifications and scope of work given in the bid document to deliver the goods in accordance with the delivery schedule specified in the schedule of Requirements .

We agree to abide by this e-Bid for the e-Bid validity period specified in Clause 13.1 of the ITB and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this e-Bid, together with your written acceptance thereof and your Letter of Intent shall constitute a binding contract between us.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption inforce in India namely “Prevention of Corruption Act 1998".

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

Dated this.....day of……20.....

Signature (in the capacity of)

Duly authorized to sign e-Bid for and on behalf of.....

Note –* Details of Payment should be mentioned.

SECTION IV(B): PRICE SCHEDULE BOQ

Validate Print Help

15

Tender Inviting Authority: < U.P. Cooperative Sugar Factories Federation, Lucknow. >

Name of Work: COMPETITIVE e-bidding FOR Techno-commercial proven technical upgradation jobs for improvement in working efficiency /modernization of The KisanSahkariChini Mills Ltd., Nanauta, Dist. Saharanpur, Uttar Pradesh in specific areas to achieve technically targeted identified qualitative parameters on EPC basis (Supply, erection and commissioning including designing, engineering, manufacturing, procurement of bought out items, all civil and structural works etc.) as per specifications and scope of work given in the bid document.

Contract No: 53/UPF/PRO.FIN/NANAUTA/42

Name of the Bidder/ Bidding Firm / Company :						
PRICE SCHEDULE (DOMESTIC TENDERS - RATES ARE TO GIVEN IN RUPEES (INR) ONLY) (This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)						
NUMBER #	TEXT #	NUMBER #	NUMBER	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	BASIC RATE In Figures To be entered by the Bidder in Rs. P	GST Amount in INR Rs. P	TOTAL AMOUNT Without Taxes col (13) = (4) x (7) in Rs. P	TOTAL AMOUNT With Taxes col (14) = sum (8) to (13) in	TOTAL AMOUNT In Words
1	2	7	9	13	14	15
1	Name of Sugar Mill : Nanauta					
1.01	Supply as per Scope of Work given in bid document.			0.00	0.00	INR Zero Only
1.02	Erection & commissioning of equipments & machinery with trial as per Scope of Work given in bid document.			0.00	0.00	INR Zero Only
1.03	Operation & maintenance of newly supplied, erected and commissioned equipments/systems for 12 months from date of commissioning.			0.00	0.00	INR Zero Only
1.04	Total	0.00	0.00	0.00	0.00	INR Zero Only
Total in Figures				0.00	0.00	INR Zero Only
Quoted Rate in Words		INR Zero Only				