Fresh & Healthy Enterprises Ltd.

(A Wholly Owned Subsidiary of Fresh & Healthy Enterprises Ltd. Ltd.,
A Government of India Enterprises, Under Ministry of Railways)
CA Store, HSIIDC Industrial Estate, RAI, Distt. Sonipat, Haryana,
India Pin-131029, India (Ph. +919560391720)

NOTICE INVITING TENDER

E-TENDER NO.: FHEL/Rai/T/O and M/45533 **Dated: 12/02/2024**

For Operation and Maintenance of 12,000 MT Agri Logistic Centre Including Controlled Atmosphere systems, Chiller system, Custom bonded ware house and other allied equipments at FHEL, Rai, Sonipat, Haryana, Pin-131029, India.

OFFICE OF THE CHIEF EXECUTIVE OFFICER,
Fresh & Healthy Enterprises Ltd.
(A Wholly Owned Subsidiary of Container Corporation India Ltd.),
A Government of India Enterprises, Under Ministry of Railways
CA Store, HSIIDC Industrial Estate, RAI, Distt. Sonipat, Haryana,
Pin-131029 India Ph. +919560391720

REGISTERED OFFICE:
C-3, CONCOR BHAWAN,
OPP. APOLLO HOSPITAL,
SARITA VIHAR,
NEW DELHI – 110076.

THE OFFICE OF THE CHIEF EXECUTIVE OFFICER,

Fresh & Healthy Enterprises Ltd.
(A Wholly Owned Subsidiary of Container Corporation India Ltd.),
A Government of India Enterprises, Under Ministry of Railways
CA Store, HSIIDC Industrial Estate, RAI, Distt. Sonipat, Haryana
Pin-131029, India, Ph. +919560391720

NIT
(E-Tendering Mode Only)

E-TENDER NO.: FHEL/Rai/T/O&M/45533 **Dated: 12/02/2024**

1. Online E-Tenders in **SINGLE BID** system are invited for the below mentioned works from established, experienced and reliable firms/contractors/joint venture/consortium firms (Only Through E-tender Mode):
2. The bid document can only be downloaded from the website (www.tenderwizard.com/FHEL) and the intending bidders should submit the document sale price of Rs.1,000/- inclusive all taxes & duties through e-payment and tender processing fee of Rs.1817/- inclusive of GST at the time of making online request.

   Complete tender papers shall be received online as per date & time mentioned below and may be opened at the office of The Office of The Chief Executive Officer.

Tender No.	**FHEL/Rai/T/O&M/45533**
Name of Work	For Operation & Maintenance of 12,000 MT Agri Logistic Centre Including Controlled Atmosphere systems, Chiller system, Custom bonded ware house and other allied equipments at FHEL, Rai, Sonipat, Haryana, Pin-131029, India.
Estimated Cost	Rs.30.80 Lakhs per Annum
Completion Period	(01 year (12 months)) extendable by another one year and 4-month obligatory period.
Earnest Money Deposit	Rs.61,600/-
Cost of Tender Document	Rs.1000/- Inclusive of all Taxes & Duties through e-payment
Tender processing Fee	Rs.1,817/- Inclusive of GST through e-payment
Date of sale of tender **(online)**	14/02/2024 from 15:00 hrs. to 09/03/2024 up to 16:00 hrs.
Last date & time of tender submission	09/03/2024 up to 1600 hrs.
Date & time of E-tender opening	11/03/2024 at 1200 hrs.
Minimum Average annual turnover during last three financial years	Rs.20.53 Lakhs, (The information shall be supported by Chartered Account's Certificate & balance sheet for the previous three financial years (i.e.2020-21, 2021-22, 2022-23) and the current financial year)
Experience with respect to similar nature of work executed during previous 36 months from the tender opening date	Minimum amount of Single work of same nature i.e. operation & maintenance of cold storage including CA system costing not less than **Rs.20.53 Lakhs** or number of works in above mentioned areas of cumulative value not less than **Rs.30.80** Lakhs during last 36 months from the tender opening date.
Financial Solvency	Solvency Certificate from a Nationalized or Scheduled bank for an amount of Rs.**7.70 Lakhs.**
Bid Validity	120 days from the date of opening of the Tender.

3. This Tender notice & its bidding document can be downloaded from the website www.tenderwizard.com/FHEL. This tender notice is also available at on the website www.concorindia.com and CPP portal. However, the intending bidders should submit the document sale price & tender processing fee, through-payment, at the time of making online request.

4. EMD @ Rs.61,600/- to be submitted through e-payment. However, bid security declaration as per ANNEXURE VI to be submitted by the bidder.
5. To participate in the E-bid submission, it is mandatory for the bidders to have user ID & password which has to be obtained by submitting an annual registration charge of in Rs.1,500/- plus GST @18% to M/s. ITI through e-payment. Bidders have to pay the Tender Processing Fee to ITI through e-payment at the time of submission of bid.
6. The detailed tender document can be viewed from the website www.tenderwizard.com/FHEL from 14/02/2024 at 15:00 hrs. to 09/03/2024 up to 16:00 hrs.
7. Corrigendum/Addendum to this tender, if any will only be uploaded in website mentioned in (3) above. This may kindly be noted by bidders/prospective bidders.
8. FHEL reserves the right to reject any or all the tenders, in part or full, without assigning any reason thereof.

Chief Executive Officer

Fresh and Healthy Enterprises Ltd.

TABLE OF CONTENTS

This tender document consists of 81 **pages** the tenderers are requested to check that the tender document is complete while receiving the same. This tender document is not transferable under any circumstances.

All folios of this tender document must be signed by the intending tendered and embossed with official seal at the time of submission.

Note:

1. Tender Documents/sets shall be provided free of cost to Micro & Small enterprises (MSEs) registered with the listed agencies.

2. MSEs registered with the agencies for item tendered will be exempted from payment of Earnest Money Deposit (EMD).

3. MSEs who are interested in availing themselves of these benefit and preferential treatment, the MSEs will enclose with their offer the proof of their being MSE registered with any of the agencies mentioned in the notification of Ministry of MSME indicated below along with the bid.

    i. District Industries Centers

    ii. Khadi & Village Industries Commission

    iii. Khadi & Village Industries Board

    iv. Coir Board

    v. National Small Industries Corporation

    vi. Directorate of Handicraft and Handloom

    vii. Any other body Specified by Ministry of MSME.

4. The MSEs must also indicate the terminal validity date of their registration. In those cases where MSEs are not able to provide the certificate with validity date of their registration, a self-declaration by the MSE (party) on their letter head, confirming the validity of their registration can be accepted.

In case the MSE does not fulfill the criteria listed at Sr. No. 3 & 4 above, such offer will not be liable for consideration of benefits detailed in MSEs Notification of Government of India dated 23.03.2012.

Tender Letter

To

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Name of Work: For Operation & Maintenance of 12,000 MT Agri Logistic Centre Including Controlled Atmosphere systems, Chiller system, Custom bonded ware house and other allied equipments at FHEL, Rai, Sonipat, Haryana, Pin-131029, India.

E-TENDER NO.: FHEL/Rai/T/O&M/45533

Dear Sir,

1. Enclosed please find herewith a complete set of tender documents (Technical & Financial bids) for work mentioned above. Your offer in E-tender mode is invited in **single bid** system of tendering, as per time, date and other instructions indicated below. You are requested to peruse the instructions contained in the above documents and submit your tender, on the due date and time as mentioned in the tender notice, **duly signed on each page along with requisite credentials through e-tendering mode on the website www.tenderwizard.com/FHEL**. **No other mode is acceptable**. The pre-qualification documents in requisite form shall be submitted along with techno commercial bid, in case of single packet system of tendering.
2. The bid is to be submitted in **Single bid system** in E-tender mode with Name of Work and Tender No. **FHEL/Rai/T/O&M/45533**.

2.1 **TECHNICAL BID**

The bid containing the following documents to be scanned and uploaded using the digital signature for signing the documents:

I Attested copies of Affidavit for sole proprietorship/partnership deed/ memorandum and Articles of Association along with details pertaining to place of registration, principal place of business of the firm, etc.

II Attested copy of power of attorney on non-judicial stamp paper of appropriate value of the signatory of bid on behalf of the tenderer.

III Bid Security Declaration as per ANNEXURE VI of tender document.

IV Copy of latest GST return/IT returns filed by the firm.

V Copy of PF, ESI registration certificate.

VI Document in support of financial stability e.g., Balance sheets with profit and loss account for the previous three financial years (i.e. 2020-21, 2021-22, 2022-23) and current financial year, present capital (authorized, issued and paid up), financial arrangement proposed viz., own resources/bank credit etc., current assets, current liabilities, working capital and net worth, **banker certificate regarding solvency**, etc. (Note: - give full details for each).

"The bidder should have positive net worth based on the latest audited financial year's profit & loss/balance sheet."

VII The proof of successful completion Minimum amount of Single work of same nature i.e. operation & maintenance of cold storage including CA system costing not less than **Rs.20.53 Lakhs** or number of work in above mentioned areas of cumulative value not less than **Rs.30.80** Lakhs during last 36 months from the tender opening date.

VIII The tender documents along with any corrigendum/Addendum duly signed and stamped must be scanned and uploaded on the tender wizard website www.tenderwizard.com/FHEL.

IX Letter of submission of tender.

X Bidders desirous to submit their bids have to give an undertaking that the contents of the bidding document have not been altered or modified and no page is missing.

XI Copy of GST Registration Certificate.

XII Copy of PAN No.

XIII The Audited Profit and Loss to be supported by CA Certificate for the previous three financial years i.e. 2020-21, 2021-22, 2022-23 and the current financial year wherein the average annual turnover of the company should be at least 20.53 Lakhs.

XIV Copy of Receipt of Tender Fee of Rs.1000/- Inclusive of all Taxes & Duties.

XV Copy of cancelled cheque.

2.2 Financial Bid

The prices must be filled after downloading the financial bid document in the prescribed format issued through online e -tendering website. The bid should be saved and dully filled up and uploaded to the e-tendering site using Digital Signature for signing the documents.

3.0 General

All bids must be submitted through e-tendering website www.tenderwizard.com/FHEL.

3.1 Period of completion of the entire work is **One Year** as per letter of intent (LOI) and extendable for another one year with obligatory period of four months.

3.2 The E-Tender No. **FHEL/Rai/T/O&M/45533** given above and subject must appear on all correspondence and documents.

3.3 The tender shall be on sale (Online) from 14/02/2024 at 15:00 hrs. to 09/03/2024 up to 16:00 hrs.

3.4 All bids in e-bid must be submitted through e-tendering mode only, not later than 16:00 hrs. on 09/03/2024.

3.5 All the bids received shall be opened on the date and time mentioned in the Tender Notice. Technical and Price Bid shall be opened through online process of e-tendering.

3.6 The sequence of opening shall be as follows:

(i) Technical and Price Bid

3.7 Bidders are requested to pursue the "Instructions to Bidders" and all other terms in the tender document and submit their proposal duly sealed & Sign.

3.8 Fresh & Healthy Enterprises Ltd. Ltd. reserves the right to accept or reject any or all the tenders in part or full irrespective of their being lowest, without assigning any reasons.

3.9 The offer should be submitted in the e-tendering website www.tenderwizard.com/FHEL through e-tendering mode in single bid system.

3.10 Tenderers are also advised to visit the FHEL, Rai, Sonipat & get conversant with the installation & related work expected of them prior to submission of bids.

3.12 No Condition/deviation which is either additional or as modification of the tender condition shall be included in the bids. Conditional tenders shall be summarily rejected.

Yours Faithfully,

Chief Executive Officer

Fresh and Healthy Enterprises Ltd.

SECTION – I
INSTRUCTIONS TO TENDERER

FHEL invites online Open E- Tender No.: FHEL/Rai/T/O&M/45533 for Operation & Maintenance of 12,000 MT Agri Logistic Centre Including Controlled Atmosphere systems, Chiller system, Custom bonded ware house and other allied equipments at FHEL, Rai, Sonipat, Haryana, Pin-131029, India.

1. Content of Bidding Documents:

1.1. The bidding procedures and contract terms are prescribed in the bidding documents. In addition to the Invitation for Bids, the bidding documents include:

a) Instruction to Tenderer.
b) General & Special Conditions of Contract.
c) Scope of Work, Terms & Conditions Governing the Contract.
d) Bid form and price schedules.
e) Contract Form.
f) Performance security form
g) Integrity Pact
h) Bid Security Declaration Form

2. Technical Bid / Price Bid (Single Bid):

a) **Bidders** desirous to submit their bids document downloaded from website www.tenderwizard.com/FHEL have to give an undertaking that the contents of the bidding documents have not been altered or modified and no page is missing.
b) Bidder shall quote for the entire package on a single responsibility basis for the goods and services it proposes to supply under the Contract.
c) The price schedule should include: The price of goods & services at site should be inclusive of GST and other taxes.
d) The offer should be submitted through e-tendering mode in the website www.tenderwizard.com/FHEL containing Single Bid and Bid will be opened at 12.00 hrs. on 11/03/2024.
e) Modification in duties/tax rates, if any, will be considered at any stage.

4 CORRECTIONS OF ERRORS:

Tenders will be checked and corrected by FHEL for any arithmetical errors in computation and summation as follows:

4.1 **The tenderer should quote in figures as well as in words**, the rates and amount tendered by them. The total amount for each item should be worked out and given against each item. Tenderers may note that non-compliance of above may lead to rejection of their tender. In case of discrepancy in rates & amount, the rates will prevail and in case of discrepancy in rates in figures & words, the rates in words will prevail.

4.2 Where percentage rate is asked for, tenderer should write percentage in figures as well as in words. Tenderers may note that noncompliance of above may lead to rejection of their tender and when there is ambiguity between words and figures, words will prevail.

4.3 In case more than one contractor quotes equal L1 rates, further sealed bids will be obtained from L1 tenderers to decide L1. Under any circumstances revised rate should not be more than the original quote rate".

4.4 The bid documents shall be taken as comprehensive and mutually explanatory of one another but in case of ambiguity or discrepancy, shall take precedence in the order given below:

(a) Bill of Quantities (BOQ)
(b) Special Conditions of contract
(c) Scope of work & Additional conditions of conditions of contract
(d) Instructions to tenderers

5 SUBMISSION OF OFFER

5.1 All offers shall be made available as specified in the technical specifications and should be digitally signed by the authorized signatory of the firm on the Tender Document. **A copy of Power of Attorney for signing the bid shall accompany the bid document.**

5.2 All prices and other information having bearing on the price shall be written both in figures and words in the prescribed Price Bid offer form.

5.3 The price bid should be submitted in the prescribed bid form given in **Annexure-IV** of this document. All columns of the form should be filled. Any additional information should be enclosed separately and referred to in the relevant column of the bid form. All relevant product literature must be enclosed with the bid.

5.4 Bids submitted after the specified time of opening will be considered as late bids and will be rejected.

5.5 No bid may be modified subsequent to the deadline for submission.

5.6 Bidders shall furnish clause by clause commentary on all clauses of Bid Document including Technical Specifications.

5.7 The Tenderers who are constituents of a Firm, Company and Association must forward attested copies of the constitution of their concern, power of attorney and partnership deed with their tender. The tender documents in such cases are to be signed by such person as may be legally competent to sign them on behalf of the Firm, Company, Association or Society as the case may be. The tenders, who are not accompanied by the above documents, are liable to be rejected. FHEL will not be bound by any power of attorney granted by the tenderer for changes in composition of the firm made subsequent to the execution of lease. FHEL may, however, recognize such power of attorney and changes after obtaining proper legal advice, cost of which will be chargeable to the tenderer. The cancellation of any document such as power of attorney, partnership deed etc., shall forthwith be communicated to FHEL in writing, failing which FHEL shall have no responsibility or liability for any action taken on the strength of the said documents.

5.8 The tenderer is advised in his own interest to visit the site of work and acquaint him with all local conditions. Work will involve Operation & Maintenance of 12,000 MT Agri Logistic Centre (Including Controlled Atmosphere systems, AHU, Cooling Towers, Water Softening plants, Borewells for water, Refrigeration Racks and Chiller plants & its control panels, Refrigeration & Air-conditioning system, Nitrogen plant, Co2 scrubbers, CA Chambers doors, fans and its associates, electrical system (DG sets, Transformers, HT/LT electrical panels, all motors and pumps, electrical servo stabilizers etc), ETP plant, entire fire and alarm system, Sorting, Grading & Packing line with controlled panels, Carel temperature monitoring system, weighing machines, dock levelers, pump room for water supply and other allied and associate equipments) and Air curtains, RH/Temp. Indicator and data controlling potato machine at FHEL, Rai, Sonipat, Haryana

5.9 The Tenderer should get himself familiarized with location / Area of the working place before quoting the rates.

6 ACCEPTANCE OF TENDER:

6.1 The authority for acceptance of tendered rates will rest with the Chief Executive Officer, Fresh & Healthy Enterprises Ltd, Rai, Sonipat, who does not bind himself to accept the lowest or any other tender nor does he undertake to assign reasons for his decision in this matter.

6.2 Acceptance of tendered rates will be communicated by e-mail. In case where acceptance is indicated by e-mail; the formal acceptance of the tender will be forwarded to the tenderer as soon as possible, but the e-mail should be deemed to conclude the contract.

6.3 The tender documents shall become the property of FHEL with FHEL having no obligation to return them.

6.4 Canvassing in connection with tenders is strictly prohibited and the tender submitted by the tenderer who resorts to canvassing will be liable for rejection.

6.5 On acceptance of the tender, the name of accredited representative of the tenderer who would be responsible for taking instructions from FHEL shall be communicated to FHEL.

6.6 **(a)** The tenderer whose tender is accepted shall be required to appear at the office of Chief Executive Officer/ **CA Store, HSIIDC Industrial Estate, RAI, Distt. Sonipat, Haryana** in person and **submit performance guarantee equivalent to 3% of the contract value** by way of irrevocable Bank Guarantee in favour of "Fresh & Healthy Enterprises Ltd, valid for the **entire contract period plus four months** in the prescribed format **within 15 days from the date of issue of LOA and subsequently sign the agreement.** Failure to do so shall constitute a breach of the contract concluded by acceptance of the tenderer.

(b) The date of start of work will commence within 15 days after furnishing Performance Guarantee and signing of agreement within Fifteen days from LOA.

6.7 The tenderer shall treat the contents of the tender documents as private and confidential.

6.8 Every tenderer shall state in the tender his postal address, e-mail, mobile no. fully and clearly. Any communication sent to the tenderer by e-mail and speed post at his said address shall be deemed to have reached the tenderer in time.

6.9 **FHEL reserves the right to reject any or all tender forms without assigning any reason.**

6.10 Tenders with any special conditions are liable to be rejected. Tenderers are advised not to stipulate any condition of their own in the tender documents issued by FHEL. If at all the tenders finds it necessary to write/clarify/explain/ stipulate anything, it should be done on the tenderer's letterhead paper and the same should be attached/ uploaded while submitting the tender. Any special condition having financial implications quoted by the tenderers will be rejected.

6.11 If at all the tenderers are having any doubt and wanted to quote any special conditions, the same should be brought out by clearly indicating the financial implications of their conditions.

6.12 Tenderers are advised to quote their rates considering all the above facts.

6.13 The successful bidders have to deposit the PERFORMANCE SECURITY DEPOSIT as per clause 5 of section II.

7. WITHDRAWAL OF TENDERS: No offer shall be withdrawn in the interval between the last date for submission of tenders and the expiry of the period of tender validity specified by bidder. Otherwise, Bank Guarantee will be forfeited without any notice.

8 AMENDMENTS OF TENDER DOCUMENTS:

8.1 At any time prior to the last date for submission of the offers, FHEL may for any reason modify the tender documents by an amendment.

8.2 The amendment in the form of an addendum/corrigendum will be published on the website www.tenderwizard.com/FHEL, CPP portal and CONCOR Web site.

8.3 In order to afford to prospective Tenderers reasonable time to consider the amendment/corrigendum in preparing their offers, FHEL may at its discretion extend the last date for the submission of tenders.

8.4 Work shall be carried out as per the instructions of authorized representative of FHEL. In case of new work/alterations/modifications for cold storage/electrical work CPWD specifications (external & internal) with upto date amendment shall be followed.

9 QUALIFYING REQUIREMENTS OF BIDDERS

The Bidder should submit the copy of the following documents in support of their Technical Qualifications.

i) Showing Proof of Employment, i. e. The tenderer shall have PF & ESI registration nos.

ii) Partnership deed with copy of registration certificate if tenderer is a partnership firm memorandum and articles of association along with copy of incorporation certificate in case of company or in case of sole proprietor, an affidavit may be enclosed

iii) The Audited Profit and loss to be supported by CA Certificate for the previous three financial years (i.e. 2020-21, 2021-22, 2022-23) and current financial year wherein the average annual

turnover of the company should be at least Rs.20.53 Lakhs "The bidder should have positive net worth based on the latest audited financial year's profit & loss/balance sheet."

iv) Proof of Experience supported with completion certificate of same nature (Operation & maintenance of cold storage/CA System) of value Rs.20.53 lakhs under single contract in a year during previous 36 months prior to the tender opening or totaling of Rs.30.80 Lakhs during the previous 36 months prior to the date of tender opening with FHEL/Govt./Semi-Govt./PSU/CFS/ or any reputed company.

iv) Copy of PAN No.

v) GST registration number and copy of GST registration certificate.

vi) Document in support of financial stability e.g. Balance sheets with profit and loss account for the last three financial years i.e., 2020-21, 2021-22 and 2022-23 and the current financial year present capital (authorised, issued and paid up), financial arrangement proposed viz., own resources/bank credit etc., current assets, current liabilities, working capital and net worth, banker certificate regarding solvency, etc. (Note: - give full details for each).

vii) The tender documents along with any corrigendum/Addendum duly signed and stamped must be scanned and uploaded on the tender wizard website www.tenderwizard.com/FHEL.

viii) Copy of cancelled Cheque.

ix) Copy of latest GST return/IT returns filed by the firm

x) Bidders desirous to submit their bids have to give an undertaking that the contents of the bidding document have not been altered or modified and no page is missing.

xi) Copy of proof of submission of Tender document Fee Rs.1,000/- (inclusive all taxes & duties).

The bid would be summarily rejected if the bidder does not fulfill the above essential qualification criteria.

IT IS BROUGHT TO THE NOTICE OF TENDERERS THAT THEIR TENDER WILL NOT BE CONSIDERED, IF THEY FAIL TO FULFILL THE MINIMUM ELIGIBILITY AS INDICATED IN NIT

For and on behalf of Fresh and Healthy Enterprises Ltd.

Chief Executive Officer

SECTION - II

GENERAL AND SPECIAL TERMS & CONDITIONS OF CONTRACT

E-Tender Document for Operation & Maintenance of 12,000 MT Agri Logistic Centre Including Controlled Atmosphere systems, Chiller system, Custom bonded ware house and other allied equipments at FHEL, Rai, Sonipat, Haryana, Pin-131029, India.

1. PREAMBLE

Fresh & Healthy Enterprises Ltd. (hereinafter referred to as FHEL) is operating Agri Logistic Centre at RAI, Sonipat, Haryana for storage of perishables, Kiryanas, fruits and vegetables, dairy products, Agro product etc.

2. BONAFIDE OFFER: The tenderer shall be a bonafide contractor, which shall mean an entity as mentioned in qualifying requirement of bidders:

3 VALIDITY OF OFFER: The tender shall remain valid for a period of ninety **(120)** days from the date of tender opening.

4 EARNEST MONEY – EMD @ Rs.61,600/- to be submitted through e-payment.

5 . PERFORMANCE SECURITY DEPOSIT

5.1 a) The successful Tenderer whose tender is finally accepted must deposit as performance guarantee (format at Annexure-V) for successful performance under the contract, an amount equivalent to 3% of the contract value by way of irrevocable Bank Guarantee in favour of "Fresh & Healthy Enterprises Ltd. valid for the **entire contract period plus four (4) months** in the prescribed format attached as Annexure- V **within 15 days from the date of issue of LOA and subsequently sign the agreement.** Performance Guarantee shall be released after satisfactory completion of the work and maintenance period is over.

b) Wherever the contracts are rescinded, the Performance Guarantee will be encashed and the balance work will get done separately.

c) The balance work will be done independently on risk and cost of the original contractor.

d) The original contractor shall be debarred from participating in the tender for executing the balance work. If the failed contractor is JV or a partnership firm, then every member/partner of such a firm would be debarred from participating in the tender for the balance work either in his/her individual capacity or as a partner of any other JV/Partnership firm.

5.2 FHEL shall be entitled to appropriate the whole or any part of the security deposit/performance security deposit in the circumstances hereinafter provided without prejudice to any other remedy or right. FHEL shall be entitled to adjust/ recover any loss and/or damage that FHEL may suffer or sustain by reason of the failure of the contractor to observe and in performance of the terms and conditions of this contract from the amount of security deposit/performance security deposit, and in the event of any balance remaining due to FHEL, the contractor shall forthwith pay the same. In the event of any such deduction being made from the security deposit/performance security deposit, the contractor shall at once make good the deficiency in the amount of the security deposit/ performance security deposit within fifteen days of the date of demand to this effect, failing which FHEL shall deduct the same from the amounts due to the contractor.

5.3 The security deposit referred to above shall be forfeited by FHEL in the event of any breach on the part of the contractor of any of the terms and conditions of this contract, without prejudice to FHEL's right to rescind the contract and other rights and remedies warranted by law.

5.4 (a) The Security Deposit shall, subject to any deduction that may be made there from, be returned to contractor after 6 calendar months after completion of the contract and on issuance of "NO DUES CERTIFICATE" by the respective incharge of FHEL. However, even if there is any delay the Tenderer will not be entitled to any interest.

(b) No interest will be payable on Security Deposit.

6. PAYMENTS

6.1 For doing the work indicated in section-III "**Scope of Work**" the tenderer will be paid according to the finally accepted 'Schedule of Rates'. **The payment will be made on monthly billing basis.**

6.2 The payment under various items of the schedule of rate will be due only on completion of the respective services and on submission of bills along with proof of PF, ESI and GST.

6.4 The rates given in the Schedule of Rates will be binding on both the parties and no change in the rates will be permissible during currency of the contract except the conditions as laid down in para-6.5 and 7 below. It is expressly understood that the tenderer has considered every possible fluctuation in the rates of material and general conditions and other possibilities of each and every kind before quoting the rates. No claims on this account shall be entertained. TDS shall be deducted from bills as applicable.

6.5 Subject to any deductions which FHEL will be authorized to make under the terms of contract that may be applicable while accepting the tender, the contractor shall be entitled for payment as under: "The contractor shall prepare and submit bills to FHEL's official in-charge. Payment of amount claimed will be arranged after necessary checks of the correctness of claim, deducting all charges due including taxes applicable, at the prescribed rate. The aforesaid payment of the bill will ordinarily be made within 15 days of submission. The delay, however shall neither entitle the contractor to claim interest nor stop discharge of the contract.

6.6 A claim for services rendered under this contract shall be made by the contractor to FHEL within three months of such service. If he does not prefer the claim within the said period, he shall be deemed to have waived his right in respect thereof and shall not be entitled to any payment on account thereof. Nevertheless CEO/FHEL, on written request of the party can waive off this limitation and allow late submission of bills if the reasons for delay are found convincing and reasonable.

6.7 No claim in respect of under -payment to the contractor shall be considered valid or shall be entertained unless a claim in writing is made therefore within three months from the date on which payment of the original claim thereto was made. Any claim for such under-payment not received within the stipulated three months period shall be liable to be summarily rejected by FHEL. Nevertheless, on written request of the party CEO/FHEL can waive off this limitation and allow late submission of any claim for such under payment not received within the stipulated three months period.

6.8 **Payment will be made on monthly billing basis**. Payment shall be made through NEFT/RTGs (the contractor should submit the bank details for receiving the payment) in the name of Contractor No request in the change of name will be considered.

6.9 FHEL will have the right to recover any over payment which might have been made to the contractor by FHEL through inadvertence error, etc or any cause whatsoever the amount would be recovered from the bills or from the security deposit or any other amounts due to him. In the event of any such recoveries/adjustments being made from the security deposit, the contractor shall at once make good deficiency in the amount of the security deposit within 15 days of payment to this effect, failing which FHEL will be at liberty to deduct the said amount from the future bills.

6.10 The MSME vendors are required to be registered on TreDS portal. No payments will be released to MSME vendors unless a certificate is given that they have got registered themselves on the TreDS portal.

7. ESCALATION CLAUSE

Prices will remain fixed for the entire duration of contract. No deviation on account of any price index will be admissible.

8. Duration of the Contract

8.1 The contract shall be awarded initially for a period of one year from the letter of intent (LOI) and extendable for another one year. However, it will be obligatory on the part of contractor to continue to work at the rates prevailing on the last date of the contract even beyond

contract period for at least 04 (four) months or till the new contract is finalized, whichever is earlier.

8.2 The rates accepted by the competent authority of FHEL shall remain fixed and valid for entire period of contract i.e., during the one-year period and extendable for next one year.

9 DEDUCTION TOWARDS TAXES OR ANY OTHER LEVY AT SOURCE

9.1 Deduction of Taxes at source or any other statutory taxes/liabilities/charges will be made from the moneys payable to the contractor on the bills for work done in accordance with provisions of the Income Tax Act, 1961 or any statutory modifications of the said Act, and a certificate of such deductions will be issued.

9.2 The Contractor/Tenderer/Vendor undertakes to take registration with GST authority for discharge of its obligation to pay GST in respect of each taxable supply and will intimate the registration details to FHEL. In respect of each supply of Goods and Services contractor/tenderer will specify whether CGST/SGST will be attracted or IGST will be attracted along with rate thereof.

9.3 The Contractor/Tenderer/Vendor indemnifies FHEL, its directors, officers, employees and associates for any loss it may suffer as a result of the Contractor/Tenderer/Vendor not being registered with GST authorities or if registered, for any loss due to non-payment of tax. On request by FHEL, the Contractor/Tenderer/Vendor shall produce evidence that it is so registered and paid all the dues in respect of GST. The Contractor/Tenderer/Vendor will get payment of amount of tax only after the Credit thereof is received by FHEL in the electronic credit ledger on GSTIN. In case the contractor/tenderer/vendor is unregistered then submit appropriate documents establishing that agency is exempted as per the provisions of GST. Also, in case the agency is registered under Composition Levy Scheme, the same will be duly intimated to FHEL with relevant documents.

9.4 Contractor/Tenderer/Vendor shall ensure timely issue of documents such as invoices, declaration forms, reporting, uploading etc. undertaking appropriate statutory compliances as may be applicable, timely payment of GST, and filling of statutory returns within prescribed time lines, to ensure availment and utilization of eligible input tax credits by the FHEL.

9.5 In case of any failure on the part of Contractor/Tenderer/Vendor, any interest/penalties/any other amounts, as may be applicable shall be indemnified by Contractor/Tenderer/Vendor to the FHEL.

9.6 If as result of Change in Law, Contractor/Tenderer/Vendor obtains a benefit by way of reduction in costs due to lower tax rates and availability of ITC, Contractor/Tenderer/Vendor may so notify the FHEL and propose amendment to this Agreement so as to pass the benefit to FHEL which puts it in the same financial position as it would have occupied had there been no such Change in Law resulting in such decreased cost to the Contractor/Tenderer/Vendor.

9.7 Any denial of input credit due to any omission or failure on the part of the Contractor/Tenderer/Vendor, the Contractor/Tenderer/Vendor undertakes to indemnify the FHEL for any delay or denial of input tax credit along with the consequential liability, if any, as may accrue to the FHEL.

10. ILLEGAL GRATIFICATION:

Any bribe, commission, gift or advantage given/promised or offered by or on behalf of the contractor or his partner, agent or servant or any one of his or on their behalf to any employees(s) of FHEL or to any person on his or their behalf in relation to the obtaining or the executing of this or any other contract with FHEL shall in addition to any criminal liability the contractor may incur, entitle FHEL to rescind this contract and all other contract with him. FHEL shall also be entitled to hold the contractor liable to pay to FHEL any loss/damage resulting from such decision and to recover the amount from any money due to the contractor in respect of this and all other contractor, between him and FHEL. The contractor shall not lend to or borrow from or have or enter into any monetary dealing transaction either directly or indirectly with any employee(s) of FHEL and, if he shall do so, FHEL shall be entitled forthwith question or dispute as to the commissions of any offence or compensation

payable to FHEL under this clause shall be settled by the CMD of CONCOR-cum- Chairman of FHEL in such manner as he shall consider fit and sufficient and his decision shall be final and conclusive.

10.1 The contractor shall forbid and take all possible steps within his power to prevent all labour and other persons employed by him from demanding or receiving from any person other than the contractor himself or his agents any remuneration or gratuity whatsoever.

10.2 No person who had retired within two years as a Gazetted Officer in Executive or Administrative duties in any Government service or FHEL shall be the contractor. The contractor shall under no circumstances employ the person, who is in the employment of the Government or FHEL for the purpose of carrying out this contract and further shall not employ and person previously in the employment of the Government or FHEL without express sanction in writing of FHEL. The contract is liable for cancellation if the contractor himself or any of his employees is found to be a person to whom this applied and who had not obtained the necessary permission of FHEL.

11. ARBITRATION

Any dispute or difference whatsoever arising between the parties and of or relating to construction, interpretation, application, meaning, scope, operation or effect of this contract or the validity or the breach thereof, shall be settled by the Arbitrator in accordance with the Arbitration and Conciliation Act, 1996 as amended and the Award made in pursuance thereof shall be final and binding on the parties. “Arbitration Agreement” means an agreement refer to in Section 7 of the Arbitration and Conciliation Act,1996. “Arbitration Award” includes an interim award. Party means a party to the agreement. It is agreed between the parties that FHEL shall give the name of three members of Arbitrators who shall be impartial and not related to the company and the hirer shall firstly agree to any of the Arbitrators named therein. In case the parties do not agree for the appointment of the said Arbitrators then the Arbitrator shall be appointed under the rules of the Delhi High Court Arbitration Centre by anyone or more Arbitrators appointed in accordance with the rules. The parties agree to submit the dispute and the arbitration shall take place at Delhi. The Place of arbitration shall be Delhi High Court arbitration Centre.

12 UNSATISFACTORY PERFORMANCE & CONSEQUENCES THEREOF

12.1 **(a)** If the defective equipment is not attended within 24 hours of the receipt of Complaint irrespective of the fact that the complaint is made on Sunday/holiday, a damage of Rs.1,000/- per unit per day shall be levied and recovered from the contractor’s bill as liquidated damages.

(b) If the cooling system/power supply to the major installations is disturbed for a period of more than 60 Minutes on account of the failure in routine/ preventive/ breakdown maintenance of any of the refrigeration/electrical equipments, damages of 0.5% of the respective monthly contractual charge contractor will be levied from the bills for further delay of every 10 Minute or part thereof subject to maximum of 10% of monthly contract value from each monthly bills.

(c) The decision of CEO will be final and binding on the contractor.

12.2 In addition, in the event of unsatisfactory performance or any failure at any Time on the part of contractor to comply with the terms and provisions of this contract to the satisfaction of FHEL (who shall be the sole judge and whose decision shall be final.) The contractor shall be liable to be fined up to Rs.5,000/- (Rs Five Thousand only) on every single occasion on the sole discretion of the CEO/FHEL.

12.3 The contractor shall at all times ensure that his performance is satisfactory, failing which FHEL shall be at the liberty to get the affected work done through any other agency. In such cases FHEL shall be at the liberty to carry on the work under this agreement through any other agency. Directly for the work and all expenses incurred on this account shall be at the sole risk and cost and responsibility of the contractor and shall be recovered from any money due to him or from his security deposit.

12.4 Furthermore in case of repeated failures/unsatisfactory performance on part of contractor, it shall be open for FHEL to give a show cause notice to the contractor for replying for such failures/unsatisfactory performance within 10 days and in case of FHEL being not satisfied with the reply of the contractor the contract can be terminated immediately. In the event of

such termination of the contract, FHEL shall be entitled to (i) forfeit the security deposit and encash the performance guarantee as it may consider fit, (ii) get the balance work done by making an alternative arrangement as deemed necessary.

12.5 The certificate of the FHEL official in-charge as to the sum payable to the Contractor, if the work in question had been carried out by him under terms of the contract, shall be final and binding on the contractor.

12.6 The contractor shall have no claim whatsoever against FHEL in consequence of the termination of contract.

12.7 Any financial loss incurred by the FHEL authority arising due to any procedural lapses from compliance of statutory obligations on the part of the tenderer shall be recovered by FHEL from the contractor from the running bills.

13. TERMINATION OF CONTRACT AGREEMENT

13.1 In the event of unsatisfactory service or any failure at any time on the part of contractor to comply with the terms and provisions of this contract to the satisfaction of FHEL administration (who shall be the sole judge and whose decision shall be final), it shall be open to FHEL to terminate this contract by giving 30 days' notice to the contractor. In the event of such termination of the contract, FHEL shall be entitled to (I) forfeit the performance guarantee as it may consider fit, (ii) get the balance work done by making an alternative arrangement as deemed necessary. The certificate of the FHEL's Technical Official and verification of work for the sum payable to the tenderer, if the work in question had been carried out by him under the terms of the contract, shall be final and binding on the contractor.

13.2 Besides above, FHEL administration will be at liberty to terminate the agreement at any time without assigning any reason and without being liable for any loss or damage which the contractor may suffer by reason of such termination, by giving the contractor 02 months prior notice in writing of its intention to terminate the agreement. The contractor, however, shall have no right to terminate the agreement under any circumstances. If he discontinues the work before expiry of the agreement, FHEL Administration will be entitled to get the work done from any other agency and to encashment of the performance bank guarantee.

13.3 Any notice to be served on the contractor under this agreement sent to him by registered post to his mentioned address, unless otherwise modified in writing, shall be considered as proper and sufficient service for any purpose in connection with the agreement.

"VERBAL OR WRITTEN UNDERTAKING NOT BINDING UNLESS FORMALIZED "Expect as thereby otherwise provided, a verbal or written arrangement abandoning, varying or supplementing this contract or any of the terms hereof shall not be binding or FHEL unless and until the same are endorsed or incorporated in a formal instrument.

13.4 If at any time, the contractor becomes insolvent or files an application for insolvency or any creditor of his moves the court for adjudicating him as an insolvent or if he is convicted in the Court of Law, FHEL will have the absolute option of terminating the contact forthwith and he shall have no right for damage or compensation on his account.

14 EXIT CLAUSE

FHEL will also have the liberty to seek a cause of termination of contract by serving an advance sixty days' notice against contractor in case there are strong business reasons for it doing so as determined by its management.

15 SAFETY / PRECAUTIONS:

15.1 It shall be the duty of the contractor to acquaint him with all safety regulations as proposed by any statutory authorities.

15.2 The contractor shall indemnify against any violation of safety laws, rules and regulations while carrying out operations as required by the contract.

15.3 All liabilities owing to injury/death of the staff of the contractor during discharge of contract will be to the contractor & FHEL will stand identified for same.

15.4 All staff while working on electrical installation & infrastructure should use adequate safety/protection equipment such as

a) Electrical safety gloves.
a) Rubber shoes.
b) Safety belt.
c) Earthing discharge rod.
d) Insulated line tester.
e) Water proof uniform.

16. LIABILITY FOR LABOUR LAW AND STATUTORY COMPLIANCE:-

All labour and/or personnel employed by Contractor shall be engaged by him as his own employees/workmen in all respect implied or expressed. The responsibilities whatsoever, incidental or direct, arising out of or for compliance with or enforcement of the provisions of various labour laws of the country shall be that of the tenderer. He shall specifically ensure completely with following Laws/Acts and their enactments/ amendments.

The Payment of Wages Act, 1936
The Factory Act, 1948
The Workmen's Compensation, 1923
The Employees Provident Fund Act, 1952
The Contract Labour (Regulation and Abolition) Act, 1970
The Payment of Bonus Act, 1965
The Payment of Gratuity Act, 1972
The Equal Remuneration Act., 1976
The Employees State Insurance Act, 1948
The Industrial Disputes Act, 1947.
The Employment of Children Act, 1938
The Motor Equipment Act,

16.1 The contractor shall indemnify FHEL against all loses, damages, or liability arising out of or imposed in pursuance of any labour laws.

16.2 Any accident/injury/legal liability to their employees or damage to the properties of FHEL the responsibility will be of contractor.

17. CLAIMS UNDER WORKMEN'S COMPENSATION ACT 1923

The contractor shall at all times indemnify FHEL against all claims which may be made under the Workmen's Compensation Act 1923 or any statutory modifications thereof or otherwise for or in respect of any damages or compensation payable in consequence of any accident, injury sustained by any labour/servant or person in his employment and engaged in the performance of contract and shall take responsibility for all risks of accidents or damages which may cause failure of the performance of contract arising out of such accident such laborer or servant and shall be responsible for the sufficiency of all means used by him for the fulfillment of contract. If any such

Accident occurs which may involve any such liability under the Act, FHEL shall be at liberty to withhold such amount from the bills of the contractor and also deposit the same with the Commissioner under W.C. Act.

17.1 The labor's/operator's/contractor's employees engaged in the containers under the terms of the contract are to be deemed as employees of the contractor for all Purposes of Industrial Disputes Act, 947 or other enactments that may be applicable Should necessity arise.

17.2. The contractor shall comply with all the laws, regulations and rules for the benefit of labour/employees that are in force or may come into force and the contractor shall indemnify and keep FHEL indemnified against all loss, damage, claims and costs arising in any manner

whatsoever out of or through or as a result of any failure or omission on the part of the contractor to comply with any such laws, regulations and / or rules. All costs, damages or expenses incurred by FHEL in this connection will be recovered by FHEL from the contractor. It also reserves the right to retain contractor's security deposit or any payment under the contractor to be paid off against such claims. Any kind of penalty imposed by any statutory authorities will be borne by contractor.

18. RESPONSIBILITY/LIABILITY OF THE CONTRACTOR FOR LOSS OR DAMAGE

The contractor shall be liable to compensate FHEL in full for all damages and losses and claims in respect of injuries or damage to any person or whether in his possession or not through his negligence, misconduct, default or any other act of commission or omission or that of his agents, servants or employees**.**

All costs, damages or expenses incurred by FHEL in this connection will be recovered by FHEL from the contractor. It also reserves the right to retain contractor's security deposit or any payment under the contractor to be paid off against such claims.

Any kind of penalty imposed by any statutory authorities will be borne by contractor.

19. SUBLETTING NOT ALLOWED

The contractor shall not sublet, transfer, or assign the contract or any part thereof, without the previous written approval of FHEL. In case the contractor contravenes this condition, FHEL shall be entitled to place the contract elsewhere at the cost and risk of the contractor and all expenses borne on this account shall be recovered from contractor.

20. NOTICES ETC.

Save as otherwise provided, all notices to be issued and action to be taken for and on behalf of the Chief Executive Officer, FHEL shall be issued or taken on his behalf by the official Incharge. The tenderer shall furnish to FHEL the names, designation and address of his authorized representatives, and all complaints, notices, communication, and references shall be deemed to have been duly served to the tenderer if delivered to them or his authorized representative or left at or posted at the address so given. It shall be deemed to have been so given in the case of posting on the day on which they would have reached such address in the ordinary cover of post or on the day on which they were delivered or left.

21. DEATH OF TENDERER

No alteration by death, resignation, addition or otherwise for or to the contractor or the partners constituting the contractor's firm shall vitiate or affect this contract but the contractor's heir or heirs or partners of the firm for the time being shall be absolutely bound by the terms hereof in the same manner as if he/they had been the sole or original party/parties hereto.

22. GENERAL

Any clarification in regard to the meaning or intent or interpretation of any of the provisions of these terms and conditions required on any point shall be sought from the **Chief Executive Officer, Fresh & Healthy Enterprises Ltd, Rai Sonipat** whose decision in the matter shall be final and binding. Any other matter relevant to but not covered in the contract shall also be decided by making reference to Chief Executive Officer whose decision will be final and binding. Further in case of failure to execute the agreement, the contract will be cancelled

23. All Repair or Replacement of item/spares will be in the bidder's scope up to the value of per item for Rs.5,000/- excluding taxes like GST etc. and Value of per items more than Rs.5,000/- will be given by FHEL. Agency has to maintain the minimum inventory of required items and have to be put up to CEO/FHEL on monthly basis or as per requirement with description, make and part nos.

All terms and conditions listed from Para 1 to 23 along with all sub paras read carefully, understood and accepted.

Signature of the Bidder **Full name & address and seal.**

SECTION – III

SCOPE OF WORKS, TERMS & CONDITIONS GOVERNING THE CONTRACT

1. SCOPE OF WORK

Fresh & Healthy Enterprises Ltd. (hereinafter referred to as FHEL) is operating Agri Logistic Centre at RAI, Sonipat, Haryana for storage of perishables, Kiryanas, fruits and vegetables, dairy products, Agro product etc.

2. SCOPE AND NATURE OF WORK:

2.1 **Operation of Installation**: The successful tenderer will be required to provide for repair / replacement and maintenance of (and deploy qualified manpower) & for day to day operation & maintenance/ replacement of Potatoes machines, air curtains, RH/Temp. indicator, Electrical installations of CA Store / Rai which includes Substation 11KV/0.433KV, 1250 KVA DG sets 02 nos., internal and external lighting arrangement in the office building, pump houses, CA store, Machine area and other lighting system and firefighting system, Refrigeration systems with all electrical panels and HVAC System with all electrical panel with all accessories, CA system, gas tightening of CA chambers, flooring & epoxy work, Sorting grading & packing line, water treatment plant, sewerage plant, for the operation, maintenance, replacement of faulty Spare parts of the entire installation of qualified staff shall be deployed round the clock. The inventory list of CA Store is enclosed at **Annexure-III**. This O & M covers all the CA, Electrical, Electronic, Mechanical (incl. Water and Plumbing works) installed in the facility. The successful bidder has to operate and maintain the Laboratory work including R&D and fruit testing during storage, incoming and outgoing fruits **It will be ensured that sufficient no. of leave reserve is being maintained for leaves and holidays. Under the O & M contract of facility, the scope of work shall comprise of** Providing adequate and experienced manpower for operation and maintenance of all refrigerated system, mechanical, electrical, electronic etc plant and machinery installed in the CA store including office building and laboratory on round the clock basis

2.2 The Scope excludes the following items which would be carried out by FHEL: -

- **a.** Supply of fuel for DG sets, Main electrical power and water supply.
- **b.** Housekeeping, Security services, Gardening/Landscaping.
- **c.** Staff for day to day processing, management such as Sorting, Grading, Packing and any material handling along with consumables other than required for maintenance of plant and machinery.
- **d.** The scop of work clearly excludes overhaul/specialized maintenance of major equipment like transformers, DG set, HT breakers, compressor, PLC and Drives etc.

2.3 The contractor supervisor/staff shall not make any change/addition/alteration or modification to existing refrigeration & electrical installation without the approval of CEO of FHEL.

2.4 Schedule of quantity indicated in Annexures is only an approximate estimate of the volumes expected. As mentioned, the quantity mentioned in Annexures is only approximate estimate and shall not be a basis for any dispute with regard to the rate quoted by the tenderer/contractor or for the alteration of terms and condition. The nature and extent of the work is and shall remain subject to variation and adjustment depending upon the actual operational and commercial requirement.

2.5 **Maintenance of Installation**: The maintenance includes periodical maintenance schedules (will be as per OEM/OPM or requirement) as per the recommendations of the OEMs, day to day maintenance, regular cleaning various installations of CA Store, repair or replacement of defective, damaged or burnt items, attention of failure or break down and defect rectifications. (The maintenance and operation of all equipment's will be carried out as per OEM recommendations).

2.6 The contractor has to operate CA Store/entire plant round the clock.

2.7 All safety gears made mandatory under this rule will have to be arranged by the contractor for OEM of equipment and electrical norms.

2.8 All the installation maintenance will be carried out as per the schedules given by the OEM of equipment's.

2.9 Break down or failure of installation shall be attended within minimum time of one hours.

2.10 Contractor has to give special attention for operation and maintenance of the following equipment and machines.

a. **Nitrogen Generators-**
b. **ICA systems**
c. **Carrier Air-conditioning chiller.**
d. **Refrigeration – Heatcraft/Bitzer.**
e. **Atlas Copco / Chicago pneumatic/Kaeser Pneumatic systems.**
f. **Universal Make - Transformers**
g. **Sorting, Grading & Packing machines, Sorting Grading & Packing Lines (make s.a.m.m.o A.p.a Italy), Apple Sorting & Refilling Lines into Bins, Apple Packing Lines in Tray/Cartons, Apple Packing Line in Plastic bags, Apple Packing Line in tray covered with film pack- mod38.**

3. Qualification of Workman:

3.1 The contractor will deploy skilled technicians who are experienced in Controlled Atmosphere systems, refrigeration and air conditioning, Firefighting, Electrical, sorting, grading & packing machines, Gas tightening and other equipments etc. The qualification of the workman deployed by the contractor shall meet the Indian Electricity rule 1956 or other applicable Law.

3.2 All the staff employed by the contractor should be of good antecedent and character. The contractor will have to take prompt action and replace any staff who does not obey the instruction issued by representative of Chief Executive officer.

3.3 The contractor will have to furnish a list of the staff, employed for the complete work to FHEL every month for issuing gate passes and necessary verification. The staff shall be given a distinct uniform as also as identification card bearing the contractor stamp. On change of staff the Contractor will have to recover identity card and also inform to FHEL in writing on next working day.

3.4 All the tools and Tackles for the execution of contract will be arranged by the contractor.

3.5 Inspection and preventative schedule will be carried out by the contractor in presence of FHEL representative as per the recommended schedule.

3.6. Earthing installation: The successful tenderer will be required to maintain (by repair or replace required spares) all the earthing installations provided for CA Store. For this it is necessary to check up all the earthing locations once in a year on a dry day during the dry season and record the result in a year. These results shall be jointly checked and signed in a register by the contractor and FHEL representative. The resistance value of each earthing strip should be less than 1 ohm. The panel bus bar meggering should be done once in a year.

4. Maintenance of CA Store.

4.1 Contractor has to perform the maintenance activities of CA Store as per OEM,s maintenance program but not limited to the following.

4.1.1 Daily log book of CA / RH / TEMP. / Refrigeration system / HVAC / Pump Room / Electrical substation / D.G. Set / other equipment as required / as per OEM Contract.

4.1.2 Daily maintenance checks

4.1.3 Weekly maintenance checks

4.1.4 Monthly maintenance checks

4.1.5 Annual maintenance checks

4.1.6 Seasonal Maintenance checks

4.2 The detailed inventory list of the items given on **Annexure- III.**

4.3 Safety control will be tested for proper functioning and in case if any malfunctioning, the same will be either repaired or replaced by the contractor.

4.4 The all software will be maintenance proper manner in case if any malfunctioning, the same will be either repaired or replaced by the contractor...

4.5 Painting of the corroded parts will be done (paint to be provided by the contractor).

4.6 The contractor has to do all **repairing jobs/replacement of spares** of pump, motor, chiller, condenser, piping, ducting, AHU, cooling towers, griller, diffuser, valve, safety control and other electrical control if required.

4.7 All consumable required for the operation and maintenance of CA Store will be supplied by the contractor.

4.8 Any other work that is necessary to keep CA store in good working condition apart from above if any fault is noticed it should be attended and the CA Store should be kept under working conditions at all times. The successful tenderer will be required to do maintenance, replacement or repair of any pipe line installed in the CA store.

5. Power Generation and Supply Maintenance: The successful tenderer will be required to carry out maintenance (Daily, weekly, monthly, quarterly, yearly, seasonal and all type of breakdown maintenance.) of HT and LT equipment's installed at substation 11KV/0.433 KV at CA Store, as per the OEM's standards and schedule given by FHEL.

5.1 All the HT and LT cable, Communication cable, control cable laid at CA Store will be (maintained) **repair or replaced** by the contractor.

5.2. All statutory approval from Local and Central Electricity Authority for the HT and LT installation etc. shall be arranged by the contractor. FHEL will pay the statutory levies/inspection fees on receipt of advice from concern departments.

5.3. The Contractor will deploy a professionally qualified Site Incharge on regular basis in General shift to supervise the day to day operation and maintenance of entire installation and supervisor should have well experience. The supervisor should have Mobile phone and shall be available in case of emergencies and Break Downs.

5.4. Substations require round the clock monitoring, maintenance and operation in compliance with Indian Electricity Rule 1956 or any other applicable Law under the supervision and guidance of the representative of Chief Executive Officer,

5.5. It will be duty of contractor staffs to operate the DG set as and when power fails.

5.6. The work to be carried out will be in accordance with the Indian Electricity rule 1956 or any other applicable Law. All safety gears made mandatory under this rule will have to be arranged by the contractor.

5.7. The substation will be functioning round the clock 365 days in a year on all holidays and Sundays. The contractor shall have to arrange manpower accordingly.

5.8. All the tools and Tackles for the execution of contract will be arranged for by the contractor.

5.9. Inspection and preventative schedule will be carried out by the contractor staff in presence of FHEL representative as per the recommended schedule.

5.10. Transformer and Servo oil of all transformers and Servo should be checked for oil dielectric strength and filter once in a year. The maintenance should be carried out as per IS 2026 part-III standard.

5.11. All relays of 11KV/0.433KV substation should be tested and calibrated as per norms of IS 3842. Secondary injection testing of all relays including WMP- 13, CDG 61/CAG14 is to be carried out once in a year of HT side. Primary injection testing is to be carried out once in a year for all 11KV/0.433KV substation relays. All the relays should be calibrated once in a year.

5.12. The party should be tested /calibrated relays and breakers from OEM.

5.13 Transformer & Servo oil should be tested at the interval of every three months and its value for Breakdown voltage/ dielectric strength should be maintained more than 50 KV. Filter the oil if the value of dielectric strength is less than 50 KV.

5.14. Checking for insulation leakage and checking of CT, PT and bus bars should be done for maintain the system in efficient manner. All the panel, electrical installations, substations and electrical equipment should be maintain clean.

5.15. Items will be used after getting inspected by FHEL REPRESENATATVE. All the record of replacement should be maintained.

5.16. Tools and tackles of breaker operation, keys of panels should be properly handed over during shifts.

5.17. For communication with different section inside the premises mobile phone should be given to technicians available at site round the clock.

5.18. The contractor should maintain the sufficient qty of consumables spares with them to avoid delays.

5.19. Power factor should be maintained above 0.95.

5.20. The contractor should repair the panel hinges, doors, latching if any during the contract period.

5.21. The cable should be laid in accordance to the IS standard or as specified by the FHEL. Routing of the cable should not infringe with the day to operation of the CA Store. Cable should be properly supported or laid in a definite channel, trench or conduits.

6. Refrigeration & HVAC Maintenance: It will be required to carry out maintenance (Daily, weekly, monthly, quarterly, yearly, seasonal and all type of breakdown maintenance.) of **Refrigeration & HVAC** equipments installed at CA Store, as per the OEM,s standards and schedule given by FHEL.

6.1. All cable laid at CA Store will be maintained / replaced if required by the contractor.

6.2. The statutory approval from Local and Central Authority for the refrigeration & HVAC installation shall be arranged by the contractor. FHEL will pay the statutory levies/inspection fees on receipt of advice from concern departments.

6.3 Refrigeration & HVAC system require round the clock monitoring, maintenance, and operation in compliance with international standards under the supervision and guidance of the representative of Chief Executive Officer,

6.4. The work to be carried out will be in accordance with the Indian Electricity rule 1956 or any other applicable Law. All safety gears made mandatory under this rule will have to be arranged by the contractor.

6.5. The CA Store will be functioning round the clock 365 days in a year on all holidays and Sundays. The contractor shall have to arrange manpower accordingly. On each day, attendance should be got verified by the FHEL representative.

6.6. All the tools and Tackles for the execution of contract will be arranged for by the contractor.

6.7. Inspection and preventative schedule will be carried out by the contractor staff in presence of FHEL representative as per the recommended schedule of OEM, s.

6.8. Refrigeration & HVAC system Gas leakage should be tested before every storage season and recharging after attending leakage

6.9. All relays of Refrigeration & HVAC system should be tested and calibrated as per norms of IS. All the relays should be calibrated once in a year.

6.10. All sensors of Refrigeration & HVAC system should be tested and calibrated as per norms of IS. All the sensors should be calibrated before storage of fruits.

6.11. The party should be tested /calibrated relays, sensors, VFD, Valves, and flow switches from OEM or recommended agency of OEM.

6.12. Items will be used after getting inspected by FHEL REPRESENATATVE. All the record of replacement should be maintained.

6.13. The contractor should maintain the sufficient qty of consumables spares with them to avoid delays

6.14. RH, Temperature, should maintain as per FHEL requirement & recoded.

6.15. All Computers should be maintained in good condition with all required software and antivirus for safe operation of CA Store.

7. Controlled Atmosphere Maintenance:

The CA rooms are fully controllable. The basic requirements of the CA rooms are given below.

1) All CA rooms shall be temperature controlled at least between –1 and +15°C.
2) Lowering product temperature from 15 to 0°C within 5 days.
3) The capacity of the cooling equipment is based on a maximum daily input of 200 tonnes at a temperature of 15° C.
4) Equalize product temperature within the room during storage period. The maximum Product temperature difference between warmest and coldest place in store should not exceed 1.0 degree during filling. A filled room with apples under optimal CA conditions should not have a temperature difference exceeding 0.5° C.

5) Humidity control shall be achieved by controlling the capacity of the evaporator. The cooling equipment shall be designed for optimal moisture control for the selected products. For every CA room the capacity of the evaporator shall be controlled in such a way that moisture loss is not more than 1.5 litre/ tonnes/ month (Apples, Red Starking). By controlling the capacity of the evaporator, dehumidification must be possible for the range of specified products.
6) CA conditions with all possible combinations of CO_2 and O_2 in the range of 0-10 % CO_2 and 0.5 –21 % O_2
7) The rooms should confirm to the leakage tests prescribed in the detailed description. Preparation and testing of CA chambers: Each chamber shall be carried with the maintenance work and tested for suiting the requirements as per ISO 6949, before loading of fruit.

Brands and quantity of sealant

The used sealant should answer the following specifications:

Silicone (Hercuseal Silicone NOF or equivalent)

- Elastic Sealant (low modulus).
- Resistant to mould.
- Good adhesion without the use of a primer on non- porousive surfaces and industrial paints.
- Nearly odourless, acid free.
- High UV resistant.
- Not paintable.
- Durable.

Technical data

Density : 1,020 kg/m3
Curing rate : 1.0 mm in 24 hours
Shrinkage : none
Skin formation time : 15 minutes
MMA (maximal moving capacity) : 25 %
Elongation at break : 400 %
Elongation-module at 100% : 0,35 MPa
Hardness : 15° Shore A

Terostat (Terostat-MS 930 or equivalent)

Technical data

Odour :odourless
Consistency : pasty, thixotropic
Density : approx. 1.5 g/cm3
Solids : 100 %
Curing mechanism : humidity curing
Sag resistance : no sagging (DIN-profile 15 mm)
Skin formation time : approx. 20 minutes
Curing rate : approx. 4 mm/24 hours
Hardness : 27° Shore A
Tensile strength : approx. 300 %

Gas tightening:- Air tightness

To realize maximal air-tightness necessary for CA storage all edges, doorframes, control window-frames, pipes passages, electricity cables (all hatches) etc. must be coated with an elastic finishing.

The finish must be fungus proof, non-corrosive and insoluble in water. The finish is odourfree or odours are removable with ventilation. The finish should be OZON and UV-radiation resistant, and should be able to **withstand temperatures between –2 °C and 38 °C combined with high humidity of 95 %.**

Where possible the finish should be used together with a texture film. A primer must be used to clean the surface before the elastic coating is applied. When this primer is dry, the first layer of coating is sprayed and the texture film is pasted. After drying the total is sprayed a second time.

The CA rooms will be tested for air tightness in accordance with ISO 6949 regulations. The tests include:

1) Measurement of the amount of air (m3) that must be pumped into or out of a room when one wants to keep the air pressure in this room at 70 Pa minimally for 15 minutes.
2) The time it takes to let the pressure drop from 100 Pa to 30 Pa and to increase the pressure in the room from 30 Pa to100 Pa. This should take 30 min minimally.
3) Spraying of soap-water to test the interior of the room under 500 Pa under-pressure.

THIS IS VERY VITAL REQUIREMENT AND THE PERFORMANCE SHOULD SURPASS THE NORMS SET BY ISO REGULATIONS.

Brands for Elastic Coating (material)
Ribbstyle
(Netherlands)
Rubbens
(Netherlands)

8. **Sorting Grading & Packing Machine Maintenance:** The successful tenderer will be required to carry out maintenance, replacement of any spare part on **failure or normal wear & tear** (Daily, weekly, monthly, quarterly, yearly, seasonal and all type of breakdown maintenance.) of Sorting Grading & Packing Machines installed at CA Store, as per the OEM,s standards and schedule given by FHEL.

8.1. The statutory approval from Local and Central Authority for the Sorting Grading & Packing Machines installation shall be arranged by the contractor. FHEL will pay the statutory levies/inspection fees on receipt of advice from concern departments.

8.2 Sorting Grading & Packing Machines require round the clock monitoring, maintenance and operation in compliance with International standers under the supervision and guidance of the representative of Chief Executive Officer,

8.3 The CA Store will be functioning round the clock 365 days in a year on all holidays and Sundays. The contractor shall have to arrange manpower accordingly. On each day, attendance should be get verified by the FHEL representative.

8.4 All the tools and Tackles for the execution of contract will be arranged for by the contractor.

8.5 Inspection and preventative schedule will be carried out by the contractor in presence of FHEL representative as per the recommended schedule of OEM,s.

8.6 All relays, sensors, limit switches of Sorting Grading & Packing Machines should be tested and calibrated as per norms of IS. All relays, sensors, limit switches should be calibrated before storage of fruits.

8.7 The party should be tested /calibrated relays, sensors, VFD, Valves, and flow switches from OEM or recommended agency of OEM.

8.8 Items will be used after getting inspected by FHEL Representative. All the record of replacement should be maintained.

8.9 The contractor should maintain the sufficient qty of consumables spares with them to avoid delays

8.10 All Computers should maintain in good condition with all required software and antivirus for safe operation of CA Store.

9. **Fire Fighting System maintenance:** The successful tenderer will be required to carry out maintenance (Daily, weekly, monthly, quarterly, yearly, seasonal and all type of breakdown maintenance.), Any repair & or replacement of spare parts, any other items of Fire Fighting System installed at CA Store, as per the OEM,s standards and schedule given by FHEL.

9.1. The statutory approval/ renewal of Certificate from Local and Central Authority for the Fire fighting system installation shall be arranged by the contractor. FHEL will pay the statutory levies/inspection fees on receipt of advice from concern departments.

9.2. The CA Store will be functioning round o'clock 365 days in a year on all holidays and Sundays. The contractor shall have to arrange manpower accordingly. On each day, attendance should be get verified by the FHEL representative.

9.3. All the tools and Tackles for the execution of contract will be arranged for by the contractor.

9.4. Inspection and preventative schedule will be carried out by the contractor in presence of FHEL representative as per the recommended schedule of OEM, s.

9.5. All relays, sensors, limit switches of fire fighting systems should be tested and calibrated as per norms of IS. All relays, sensors, limit switches should be calibrated before storage of fruits.

9.6. The party should be tested /calibrated relays, sensors, Valves, and flow switches from OEM or recommended agency of OEM.

9.7. Items will be used after getting inspected by FHEL REPRESENATATVE. All the record of replacement should be maintained.

9.8. The contractor should maintain the sufficient qty of consumables spares with them to avoid delays. (All the fire system and smoke detectors system should be in running condition round the clock to avoid any fire).

10. Floor insulation & epoxy work maintenance:

All the CA chambers are provided with floor insulation and the contractor should carry out the repair work whenever the cracks/damages occur for the floor with the materials and method given below. All the CA chambers, corridors, sorting hall flooring is epoxy coated and if any cracks/damages occurs the same shall be repaired as per following procedure and materials. The repair and material will be in the scope of the contractor.

a) **Cold Store Area**

In case of damage, the floor must be constructed of M25 Grade RCC Slab (laid by Tremix technology) with a topping of 5mm thick self-leveling epoxy finish. Under-floor insulation shall be of 60mm thick super foam in 2 layers of 30 mm each. The floor will have an extremely flat surface especially in the area of the CA doors. The tolerance is maximal 2 mm in a line of 2 meters. The total area Included the corridor in front of the stores are designed in the same way.

b) **Sorting & Grading Area**

In case of damage the floor must be constructed of M25 Grade RCC Slab (laid by Tremix technology) with topping of 5mm thick self-leveling epoxy finish. There will be no floor insulation.

11. Tool, Tackles and consumable

11.1 The CA store will be functioning round the clock 365 days in a year on all holidays and Sunday. The contractor shall have to arrange manpower accordingly. On each day, attendance should be get verified by the FHEL representative.

11.2 All the tools and tackles for the execution of contract will be arranged for by the contractor.

11.3 Inspection and preventative schedule will be carried out by the contractor in presence of FHEL representative as per the recommended schedule of OEM,s.

11.4 The party should be tested/calibrated relay, sensors, VFD,Valves, flow switches from OEM or recommended agency of OEM as per need.

11.5 Items will be used after getting inspected by FHEL Representative. All the record of sould be maintained.

11.6 The contractor should maintain the sufficient quantity of consumables spares with them to avoid delay.

11.7 All Computors should maintain in good condition with all required software and antivirus for safe operation of CA store.

12. The following major equipment should be given for Annual Maintenance Contract with the OEM/Authorized dealer of OEM by the O&M agency separately, with prior approval from FHEL and expenditure will be borne by FHEL.

A) CO2 Scrubber, B) Automation and PLC Carel, C) Manager system, VFD's of Danfoss,
D) DG Sets- Cummins E) Entire Fire Fighting and Alarm systems with allied equipments.

Name & Signature of bidder with Seal of bidder

Annexure –I

LETTER OF SUBMISSION OF TENDER

From:

_____

_____

To:

M/s Fresh & Healthy Enterprises Limited,
……..
……...

Name of Work: For Operation & Maintenance of 12,000 MT Agri Logistic Centre Including Controlled Atmosphere systems, Chiller system, Custom bonded ware house and other allied equipments at FHEL, Rai, Sonipat, Haryana, Pin-131029, India.

Dear Sirs,
Having examined the Tender Documents consisting of general conditions of contract, special conditions of contract, notice/letter inviting tenders, instructions to tenderers, Schedule of Quantities and all other documents and papers, as detailed in the tender documents, and having understood the provisions of the requirements of FHEL, relative to the work tendered for in connection with Projects, and having conducted a thorough study of the job, site(s) involved, the site conditions, soil conditions, the climatic conditions, labour, power, water, material and equipment availability of land for right of way and temporary office and accommodation quarters and all other factors and facilities and things whatsoever necessary or relative to the formulation of the tender and the performance of work.

I/We hereby submit our tender offer for performance of proposed work in accordance with the terms and conditions and within the time mentioned in the Tender Documents at the rate(s) quoted by me/us in the accompanying Schedule(s) of Quantities included within the Tender Documents.

It has been explained to me/us that the time stipulated for job(s) and completion of work(s) in all respect and in different stages mentioned in the Instructions to Tenderers and signed and accepted by me/us is the essence of the contract. I/We agree that in case of my/our failure to strictly observe that time of completion of jobs or any of them and to the final completion work in all respects according to the schedule. I/We shall pay penalty to the FHEL as per provision of tender document.

I/We further agree to sign an Agreement/Bond to abide by the General Conditions and Special Conditions of Contract with all correction slips up to date and amendments, corrigendum annexed, additional conditions, specifications, notice/letter inviting tender and instructions to the tenderers and to carry out all works and according to the specifications for materials and works of the Northern Railway/ MOST/Special conditions. In the case of acceptance of tender, I/We bind myself/ourselves to execute the contract documents within 15 days after notice that the contract has been awarded to me/us and also to commence the work within fifteen days after receipt of orders from the FRESH & HEALTHY ENTERPRISES LIMITED.

I/We also undertake to carry out the work in accordance with the said plan specifications and tender documents as stated in the above para and to bind and provide such of the materials (other than those to be supplied by the FHEL), and to do all such things which in the opinion of the Engineer may be necessary for, or incidental to the construction, completion and maintenance thereof and to complete the whole of the said works in all respects, and hand them over to you or your representative within the period specified; and to maintain the same for the period and in the manner provided in the conditions of contracts.

I/We have annexed to this tender all document contained listed under para 5 of Section - 1 including original tender documents duly signed.

I/We hereby undertake that the statements and herein and the information given in the annexure referred to above are true in all respects and that in event of any such statement or information being found to be

incorrect in any above particulars, the same may be construed to be a misrepresentation, entitling FHEL to avoid any resultant contract.

I/We confirm having submitted the Bid Security Declaration Form as per ANNEXURE VI of the tender document. (Strike off whichever is not applicable.)

SIGNATURE (S) OF THE TENDERER WITH STAMP

Name & Designation of authorized person (s)
Signing the tender on behalf of the tenderer (s)
(Power of attorney to be also enclosed)

Annexure-II

(TO BE EXECUTED ON BONDPAPER OF RUPEES ONE HUNDRED)
FERSH & HEALTHY ENTERPRISES LTD.

Agreement No. .....

THIS AGREEMENT made this_____day of_month_____two thousand and twenty four between FRESH & HEALTHY ENTERPRISES LIMITED, (FHEL) Govt. of India Undertaking and a Company registered under Indian Companies act, 1956 having its registered office at C-3, Mathura Road, Opposite Apollo Hospital, New Delhi 110076 (which expression shall mean and include its successor or successors in office and assigns) representing through Chief Executive Officer, FHEL, hereinafter called "The Company" on the one part and M/s._____ hereinafter called the "Contractor" (which expression shall mean and include their heirs, executors and administrators and assigns) on the other part.

WHEREAS the Company being desirous of having provided and executed certain works mentioned, enumerated or referred to in the specifications, conditions of contract, schedule of quantities of works drawings and other documents consisting of the "Tender" and acceptance thereof, copy hereto annexed, all of which are deemed to form part of this contract and are included in the terms CONTRACT whenever herein used.

AND WHEREAS the Company accepted the tender of contractor for .....**..** the provision and the execution of the said work at the rates stated in the schedule of quantities of work (hereinafter called the "Schedule of Rates")
which is annexed. The contracted value works out to Rs. ---------- (Rupees----------).
Reference (BID LOA and related correspondence)

NOW THIS AGREEMENT WITNESSETH & IT IS HEREBY AGREED AND DECLARED AS FOLLOWS:

1. In consideration of the payments to be made to the contractor for the work to be executed by him, the contractor does hereby covenant with the Company that the contractor shall and will duly provide, execute, and complete the said work for Two years w.e.f. .....**..**as provided in the contract documents perform all other acts to be implied there from or may be reasonably necessary for the completion of the said works and in the manner and subject to the terms and conditions or stipulation mentioned in the contract.

2. In consideration of the due provision, execution, and completion of the said works the Company does hereby, agree with the contractor that the Company will pay to the contractor the respective amount for the work actually done by him or the "Schedule of Rate" as contained in the appended schedule and such other sums as may become payable to the contractor under the provisions of the contract, such payments to be made at such time and in such manner as provided for in this agreement.
3. (a) If the refrigerant system/power supply to the Major Installations is disturbed for more than 60 Minute on account of the failure of the Maintenance in routine/preventive maintenance of FHEL equipment, a damages of 0.5% of the respective BOQ items tendered will be recovered from the bills for further delay of every 10 minutes or part thereof subject to maximum of 10% of the tendered value per month.
   (b) The works shall be executed as per condition laid down in the tender document. If the complaint is not attended within 24 hours of the receipt of the complaint, irrespective of the fact that the complaint is made on Sunday/Holiday, a damages of Rs.100/- per complaint per day shall be recorded and from the contract bill as per liquidated damages.

4. Performance Guarantee

Contractor has submitted irrecoverable performance bank guarantee amounting 3% of contract value of **Rs. ...../- (Rupees..... only).** (Annexure IV of bid document). Performance Guarantee shall be released after satisfactory completion of the work and maintenance period is over. Wherever the contracts are rescinded, the Performance Guarantee will be encashed and the balance work will got done separately, The balance work will be done independently with the risk and cost of the original contractor. The original contractor shall be debarred from participating in the tender for executing the balance work. If the failed contractor is JV or a partnership firm, then every member/partner of such a firm would be debarred from participating in the tender for the balance work either in his/her individual capacity or as a partner of any other JV/Partnership firm.

5. In consideration of the due provision, execution and completion of the said works the contractor does hereby agree to pay the Company the sum as may be due to the Company for the service, if any rendered by the Company to the contractor and such other sum or sums as may become payable to the company towards loss, damage to the Company's equipment materials, plant and machinery liquidated damages, if any, as set forth in the said conditions of contract, such payment to be made at such time in such manner as is provided in the contract.

SIGNED AND DELIVERED FOR AND ON BEHALF OF.....

IN THE PRESENCE OF

WITNESS:

1. _____

2. _____

Annexure –III

Inventory of CA Store

S.NO.	ACTIVITIES	Make	UNIT	TOTAL QUANTITY
1	**CA ROOMS**			
a)	CA Panels	Lloyds/Kirby	Rooms	78
b)	Floor Insulation &		Rooms	78 + Other space
	Trimix			
c)	Corridor Insul. & Trimix		Job	3
d)	Epoxy		Rooms	78
e)	Elastic Coating	Ribbstyle/Rubbens	Rooms	78
2	**CA ROOM DOORS**		Nos.	78
3	**INSPECTION**	Salco/Italy	Nos.	78
	WINDOW			
4	**REFRIGERATION**			
	EQUIPMENT – CA			
a)	Compressor Racks	Heatcraft/Bitzer	Nos.	3
	with Receiver			
b)	Condenser	Alfalaval	Nos.	3
c)	Evaporator	Star coolers &condensers	Nos.	78
d)	Refrigeration Piping		Sets	78
	with Controls			
e)	Cooling Towers	Bell Cooling towers	Nos.	2+1
f)	Cond. Water Pumps	Kirloskar/KSB	Nos.	4
g)	Cond. Water Pipes		Set	1
h)	Refrigerant R-404A		Kg	5000aprx
5	**EQUIPMENT -**			
	HVAC			
a)	A/C Chiller	Carrier	Nos.	1
b)	Evaporator	Star coolers &condensers		
	I)Sort & Grad		Nos.	10
	ii)Packing area		Nos.	7
c)	Cooling Tower	Bell Cooling towers	Nos.	1
d)	Cond. Water pump	KSB	Nos.	2
e)	Cond. Water Pipes		Set	1
f)	chilled water pump	KSB	Nos.	2
g)	chilled water pipes		Set	1
h)	AHU	Zeco	Nos.	1
i)	Ducting for office A/C		Set	1
6	**N 2 GENERATOR**	MVS Engineering		
a)	Equipment		Nos	3
b)	Piping & valves		Set	78
7	**CO 2 SCRUBBER**	Storage control Systems		
a)	Equipment		Nos	6
b)	Pipes & valves		Set	78
8	**AIR COMPRESSOR**	Chicago Pneumatic		
a)	Equipment		Nos	1
b)	Pipes & valves		Set	78
9	**MONITORING &**	ICA/UK	Nos	3
	CONTROL SYSTEM			

10	**PLC PANELS**	Necas automation	Nos	78
11	**AUTOMATION SYSTEM**	Carel	Nos	78
12	**GRADING & SORTING**	Sammo,Italy	Unit	1
	EQPT.			
13	**PACKING EQPT.**	Sammo,Italy	Unit	3
14	**D.G.SET**	Cummins		
a)	Equipment		Nos	2
b)	Chimney with Structure		Set	1
15	**ELECTRICAL INSTALLATION**			
a)	Transformer	Universal	Nos	2
b)	HT Panel and VCB incomerpanel	Tricolite	Nos	1 each
c)	LT Panel	KMG ATOZ	Nos	1
d)	Stabilizers	Labotech	Nos	9
e)	SDB Refrigeration	Trinitron	Nos	9
f)	Bus bar trunking	KMG ATOZ	Set	2
g)	**OTHER ELECTRICAL PANELS**			
	I)Chiller & SGL	Trinitron	Nos	1
	ii)Pkg line & utility	Trinitron	Nos	1
	iii)Office DB	Trinitron	Nos	1
	iv)Fire Hydrant panel	Trinitron	Nos	1
	v)Pumps & CT Fan	Trinitron	Nos	1
	vi)Ventilation DB		Nos	2
h)	Cable	Lapp	Job	1
I)	External lighting	Philips	Job	1
j)	Internal lighting	Philips	Set	1
k)	Lightening arrestor &		Job	1
	Earthing			
	Laboratory equipment		Set	1

Detailed Inventory of above items are given below

	Vacuum Circuit Breaker				
1	TP ELECTRICALLY OPERATED DRAW TYPE VACCUM CIRCUIT BREAKER WITH FOLLOWING ACCESSORIES (I) SPRING CHARGE MOTOR, 230V.AC (II) CLOSING COIL, 24DC (III) SHUNT TRIP COIL, 24, DC (IV) MECHNICAL OPERATION COUNTER (V) MACHNICAL ON/OFF INDICATOR (IV)SAFETY SHUTTER	ABB	VD4 TP,EDO	800A,18.4KA 11KV 1250A,26.3KA 11KV	2 1
	RELAYS- CONTROL & PROTECTION				
2	SP IDMT FLUSH MOUNTED RELAY IDMT O/C SETTING 50-200% IDMT 10-100% AUX CONTACT 2 NO S/R	ABB	ICM21NP	CTR-/5A AUX. SUPPLY 24V,DC	2
3	SP IDMT FLUSH MOUNTED RELAY IDMT E/F SETTING 20-80% IDMT 10-100% AUX CONTACT 2 NO S/R	ABB	ICM21NP	CTR-/5A AUX. SUPPLY 24V.DC	1
4	SP IDMT FLUSH MOUNTED RELAY IDMT O/C SETTING 50-200% IDMT 10-100% INST -500-2000% AUX CONTACT 2 NO S/R	ABB	ICM21P	CTR-/5A AUX. SUPPLY 24V.DC	4
5	SP IDMT FLUSH MOUNTED RELAY IDMT E/F SETTING 20-80% IDMT 10-100% INST -200-800% AUX CONTACT 2 NO S/R	ABB	ICM21P	CTR-/5A AUX. SUPPLY 24V.DC	2
6	FLUSH MOUNTED HIGH SPEED TRIPING RELAY VOLTAGE -24 DC AUX CONTACTS 5 NO+2NC H/R	ABB	PQ8N	24V.DC	3
7	UNDER VOLTAGE RELAY U/V SETTING 40-80% AC VOLTAGE - 110V AC CONTACT -2 C /O	MINILEC	VCTD2	NOMINAL VOLT 110V.AC	1
	CURRENT TRANSFORMER				

8	DUAL CORE DUAL RATIO CURRENT TRF TYPE RASIN CAST	SAVIO/VISHAL	WPL11KV 18.4KA	3:300-150/5-5A CL-1/5P10,15VA 3:150-75/5-5A CL-1/5P10,15VA	3 5
	POTENTIAL TRANSFORME R				
9	3- PHASE POTENTIAL TRANSFORMER	SEIL	RESIN CAST	11KV//3/1/110V//3 CL-1,100VA	1SET
	METERING & INDICATION				
10	DIGITEL COMBINED AMMETER , VOLTMETER AND FREQUENCY METER, WITH SEPARATE DISPLAY OF EACH PARAMETER , 96 Sq.mm.	CONZERV	EM6459	NOMINALVOLT 110V,AC AUX-110V AC	1
11	AMMETER WITH BUILT IN SELECTOR SWITCH 96 sq. mm	CONZERV	DM3258	0-100A CTR-/5A AUX-110V,AC	2
12	DIGITAL TYPE ENERGY MANAGEMENT SYSTEM TO MONITER FRQUENCY VOLTAGE: L-L & AVG CURRENT: PHASE WISE & AVG. POWER PARAMETERS : KVA, KW, KVAR, PF ENERGY PARAMETER : KVAH, KWH, KVARH PHASE ANGLES: AR, AY, AB SIZE : 96 Sq.mm.	CONZERV	EM6400	CTR -/5A 110V AC AUX-110 V AC	1
13	LED TYPE INDICATING LIGHTS RED YELLOW BLUE	ESBEE-L&T	T K SERIES	63.5V AC	1 1 1
14	LED TYPE INDICATING LIGHTS RED GREEN AMBER WHITE	ESBEE-L&T	T K SERIES	24V, DC	6 3 3 3
	CONTROL MCB				
15	CONTRO MINIATURE CIRCUIT BREAKER	MDS-LEXIC	SP,10KA DP,10KA DP,10KA DP,10KA	6A 6A 10A 20A	13 8 5 3
	MISCELLANOUS				
16	HOOTER, 96 Sq.mm.	DELCON	FLUSH	24, DC	1
17	HBC FUSE LINKS WITH COMPATIBLE FUSE BASE	BUSSMANN	ABCNA	3.15A,11KV	3
18	SAPCE HEATER -100 WATT	TELELEC	STRIPS	230V, AC	3
19	THERMOSTAT – IC/O	ANCHO	MT110CU	30-110 ^{O}C	3
20	CFL WITH DOOR SWITCH	REPUTED	-	230V, AC	3
21	SINGEL PHASE THREE PIN PLUG & SOCKET	ANCHOR	-	15A, 240V AC	1
22	BREAKER CONTROL SWITCH SPRING RETURN TO NEUTRAL	SALZER-L&T	SG25 61361	25A	3
23	PUSH BUTTONS BLACK/ YELLOW/ BLUE	ESBEE-L&T	T.K.SERIES	1NO/1NO/1NC	3
24	MUSHROOM HEAD STAY PUT TYPE PUSH BUTTON	ESBEE-L&T	T.K.SERIES	1NO+1NC	3
25	5PIN FOLDING TERMINAL FOR PT	REPUTED	-	-	1SET
26	LOCAL/ REMOTE SELECTOR SWITCH 1 POLE, 2WAY WITH OFF	SALZER-L&T	S6-61025	6A	3
27	AUX. CONTRACTOR, 2NO+2NC	TELEMECHANIQUE	CA3KN2280	24V,DC	4
28	TRANSFORMER FAULT INDICATION RELAY	ABB	TV282J	-	2

S.NO.	DESCRIPTION	RATING	MAKE	MODEL/ CAT, REF	QTY MAIN LT PANEL	S.NO.	DESCRIPTION	RATING	MAKE	MODEL/ CAT, REF	QTY MAIN LT PANEL
1	4P EDO ACB WITH O/C,S/C,E/F RELEASES	4000A, 50KA	ABB	E4S	3	16	MASHROOM TYPE PUSH BUTTON	RED	L&T		2
2	TP EDO ACB WITH OUT RELEASE	2000A, 50KA		E2N	2	17	THREE POSITON MOMENTARY SELECTOR	RED			2
3	TP MDO ACB WITH O/C,S/C,E/F RELEASE	1250A, 50KA		E1N	2			GREEN			2
4	TPN MCCB WITH ROTARY HANDLE	630A, 50 KA		S5H	5	18	MULTI FUN METER	4000/5A	CADEL		2
								2000/5A			2
		300A, 5OKA		S5H	1	19	DIGITAL AMMETER	1250/5A			2
						20	DOUBLE VOLT METER	500V			1
		200A, 5OKA		T3S	5	21	DOUBLE FREQUENCY METER	500V			1
5	SP MCB	6A	SCHENEIDER	-	61	22	SYNCHROSCOPE	-			2
6	DP MCB- 10KA	6A		-	2	23	AUTO OFF MANUAL	6A	SA		1

							SELECTOR SWITCH		L Z E R		
7	TAPE WOUND METERING CTs CL-1 15VA	4000/5A	KAP PA	-	8	24	SELECTOR SWITCH THREE POSITION	6A			1
		2000/5A			6	25	SELECTOR SWITCH FOUR POSITION	6A			1
					6	26	SELECTOR SWITCH TWO POSITION	16A			1
		1250/5A				27	REVERSE POWER RELAY	-	L & T	MRP11	2
8	PCTs TAPE WOUND 15VA 5P10	4000/5A		-	6	28	O/C,S/C,E/F RELAY	-		MC31A	4
		2000/5A			8	29	UNDER VOLTAGE RELAY			MV12A	4
9	POWER CONTACTOR 220V AC COIL	350A	ABB	A210	2	30	UNDER FREQUENCY RELAY		A B B	FCX 103B-00	2
10	CAPACITOR DUTY CONTACTOR 220V AC COIL CAP,DUTY	80KVAR		UA110	8	31	HOOTER 24V DC	24 VDC	S & D		2
		60 KVAR		UA75	8	32	8 WIND.ANN. 24V DC	24V DC			2
		25KVAR		UA30	8	33	BATTERY CHARGER 220V AC/24V DC-15A	15A	A T O Z		2
11	AUX. CONTACTOR/ RELAY 220V AC COIL	5A	SCH NEID ER	-	7	34	DC AMMETER, 96SQ.MM., CL-1.5,	0-20	A E		2
12	AUX. CONTACTOR/RELAY24V DC COIL	5A		-	40	35	DC VOLTMETER, 96SQ.MM., CL-1.5,	0-30			2
13	INDICATING LIGHT LED TYPE 220VAC	RED	L&T		28	36	THERMOSTAT (30 O -90 O)	--	A T O Z		5
		YELLO W			4	37	SPACE HEATER 40W		A T O Z		5
		BLUE			4	38	5A SWITCH SOCKET	5A	A T O Z		5
		GREEN			24	39	TOGGAL SWITCH	5A	A T O Z		5
						40	60W LAMP/ DARK LAMP	240 AC	A T O Z		2
						41	CAPACITOR	75KV AR	E P C O S		8
14	INDICATING LIGHT LED TYPE 24VDC	RED			8			50KV AR			8
		GREEN			6			25KV AR			8
		AMBER			4	42	APFC RELAY	12 STE P	N E P T U N E		2
15	PUSH BUTTON WITH NO/NC CONTACT	RED	L&T		32	43	HRC FUSE WITH BASE	200A	G E		12
		GREEN			32			100A			12
								63A			12
						44	TIMER OFF DELAY 0.6-60SEC	220V AC	L & T		1

S.NO	TEG	DESCRIPTION	PART NO	QTY.	MAKE
01	CP-1	ENCLOSURE 800 X 1000 X	AE 1180.500	01	RITTAL

		300mm (W X H X D)			
02	PLC	PLC FOR CONTROLLING	PC0 1000 CS0	01	CAREL
03	DP	OPERATOR PANEL	PGD0000F00	01	CAREL
04	VFD	VARIABLE FREQUENCY DRIVE	VLT2830	01	DANFOSS
05	TB-1	TB FOR 3 PHASE 440V AC INPUT	UK10N	09	PHOENIX
06	TB-2	TB FOR DI/DD,AI,AD INPUT	UK5N	25	PHOENIX
07	TB-3	TB FOR POWER OUTPUT	UK5N	18	PHOENIX
08	TB-4	TB FOR 24VAC	UK5N	06	PHOENIX
09	TB-5	TB FOR NEUTRAL	UK5N	10	PHOENIX
10	MCB TPN-1	MCB 40A TPN FOR VFD	PTRA-4P-40A	01	M.G.PROTECT
11	MCB TPN-2	MCB 40A TPN FOR HEATER	PTRA-4P-40A	01	M.G.PROTECT
12	MCB SP-1,2,3	MCB 6A SP FOR T/F, FAN, P.SOCKET	PTRA	03	M.G.PROTECT
13	MCB SP-4,5,6	MCB 2A SP FOR R,Y,B INDICATION	PTRA	03	M.G.PROTECT
14	K1,K2	12A POWER CONTACTOR FOR EVAP 1-4	LCID12	02	TELEMECANIQUE
15	K3	32A POWER CONTACTOR FOR HEATER	LCID32	01	TELEMECANIQUE
16	T/F	CONTROL TRANSFORMER 20 VAC/24VAC/2A	01	01	REPUTED
17	O/L-1,2,3,4	OVER LOAD RELAY	LRD-06	04	TELEMECANIQUE
18	A/H-1	2 POSITIOPN,2 POLE SELECTOR SWITCH	XB5AD21N	01	TELEMECANIQUE
19	PB-2,4,6	RED STOP PUSH BUTTON	XB5	03	TELEMECANIQUE
20	PB-1,3,5	GREEN START PUSH BUTTON	XB5	03	TELEMECANIQUE
21	RL-1 TO 5	PLC RELAY FOR CONTROL	RXM	05	TELEMECANIQUE
22	THS-1	TEMP., HUMIDITY SENSOR		01	CAREL
23	T-1,2,3	TEMP.,SENSOR		03	CAREL
24	IL1,2,3	3 PHASE INDICATION	XB7 EV05MPN	03	TELEMECANIQUE
25	IL4,5,6	EVAP. 1-4 ON, HEATER ON	XB7 EV05MPN	03	TELEMECANIQUE
26	IL7,IL8	TRIP ON ,AUTO ON	XB7 EV05MPN	03	TELEMECANIQUE
27	FAN	FAN FOR HEAT EXHAUST	21725A2	03	RAXNORD
28		FUSE TERMINAL		01	PHOENIX
29		POWER SOCKET		01	REPUTED
30		PVC CHANNEL	45X60	05	ROLLY TRAY
31		WIRE		1LOT	LAPP

1 X 78 Nos.

Bus rating : TPN Copper						800A	800A	800A	800A	250A	400A	250A	400 A	60 A	60A	60 A	250 A	
Ph.A	Panels Qty.					1	1	1	1	1	1	6	1	1	1	1	1	17
		Type / Rating				M/C Ph1	M/C Ph2	M/C Ph3	AC-SGL	PKG-Utility	Hydrant Pump	Sub DB-Evp.	Pump & CT Fan	Evp. DB 1	Evp. DB2	Evp. DB 3	Off Blk	Total
	Voltmeter	0-500V	96X96 mm			1	1	1	1	1	1	1	1				1	14
	Ammeter with Sel. Switch	0-600A	96X96 mm	CTR-600/5 A		1	1	1	1									4
	Ammeter with Sel. Switch	0-300A	96X96 mm	CTR - 300/5 A							1		1					2
	Ammeter with Sel. Switch	0-200A	96X96 mm	CTR - 200/5 A						1							1	2
	Ammeter with Sel.	0-100A	96X96 mm	CTR-100/5								1						6

	Switch			A														
	R. Ph. IL	Red	220 VAC			1	1	1	1	1	1	1	1	1	1	1	1	17
	Y. Ph. IL	Yellow	220 VAC			1	1	1	1	1	1	1	1	1	1	1	1	17
	B. Ph. IL	Blue	220 VAC			1	1	1	1	1	1	1	1	1	1	1	1	17
	Control MCB	6A	SP			3	3	3	3	3	3	3	3	3	3	3	3	51
	Neutral Link	20A				1	1	1	1	1	1	1	1	1	1	1	1	17
	Current Transformer	600/5A	10VA CL1	Resin Cast		3	3	3	3									12
	Current Transformer	300/5A	10VA CL1	Resin Cast							3		3					6
	Current Transformer	200/5A	10VA CL1	Resin Cast						3							3	6
	Current Transformer	100/5A	10VA CL1	Resin Cast								3						18
	Incomer																	
	Rotary Handle for I/C MCCB					1	1	1	1	1	1	1	1				1	14
	MCCB	630A	TP+NL	50 KA	NS630N	1	1	1	1									4
	MCCB	300A	TP+NL	50KA	NS400N						1		1					2
	MCCB	200A	TP+NL	36KA	NS250N					1							1	2
	MCCB	100A	TP+NL	36KA	NS100N							1						6
	MCB	40A	FP	10KA										1				1
	MCB	32A	FP	10KA											1	1		2
	Outgoing																	
	MCCB	500A	TP	50KA	NS630N	1	1	1										3
	MCCB	400A	TP	50KA	NS400N				1									1
	MCCB	150A	TP	36KA	NS160N													0
	MCCB	125A	TP	36KA	NS160N				3									3
	MCCB	100A	TP	30KA	Easypact	4	4	4			1		1				1	15
	MCCB	63A	TP	30KA	Easypact				1	4								5
	MCCB	40A	TP	30KA	Easypact				1	2								3
	MCCB	32A	TP	30KA	Easypact				2	1								3
	MCCB	20A	TP	30KA	Easypact	3	3	3		1								10
105A	DOL	57KW									1							1
42A	DOL	22KW							2									2
35A	DOL	18.7KW											7					7
29A	DOL	15KW															2	2
21A	DOL	11KW									2							2
14A	DOL	7.5KW											4				1	5
11.2A	DOL	5.5KW																0
7.5A	DOL	3.7KW											4					4
5A	DOL	2.2KW											11				1	12
	VSD	7.5KW											1					1
	VSD	3.7KW											1					1
	MCB	63A	FP	10KA									1				2	3
	MCB	40A	FP	10KA								15						90
	MCB	16A	TP	10KA										4	4	5		13

RATING CHART FOR DOL STARTERS

	57KW	22KW	18.7KW	15KW	11KW	7.5KW	5.5KW	3.7KW	2.2KW
MCCB 30 KA TP	200A	100A	100A	100A	63A				
MCB TP 10 KA						63A	32A	32A	32A
NEUTRAL LINK	20A	20A	20A	20A	20A	20A	20A	20A	20A
CONTROL MCB	6A	6A	6A	6A	6A	6A	6A	6A	6A
CONTACTOR	150A	50A	40A	32A	25A	25A	18A	12A	12A
Over Load Relay	105A	42A	35A	29A	21A	14A	11.2A	7.5A	5A
Auto/Manual selector	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.
Manual Start P.B.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.
Manual Stop P.B.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.
ON Indicating Light	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.
Spare Contactor contact wired for PLC feedback	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.
Spare OLR contact wired for PLC feedback	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.
Spare Auto contact wired for PLC feedback	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.	1NO.

MAKES OF THE COMPNENTS		
MCCB		**SCHNEIDER or ISI mark**
MPCB		**SCHNEIDER or ISI mark**
CONTACTOR		**SCHNEIDER or ISI mark**
MCB		**SCHNEIDER or ISI mark**
METERS		**RISHABH or ISI mark**
SELECTOR SWITCH		**SALZER or ISI mark**
Auto/Manual selector		**SALZER or ISI mark**
CT'S		**PRECISE or ISI mark**
PUSH BUTTONS / INDICATING LIGHTS		**L&T- ESBEE or ISI mark**
PANEL ENCLOSURE		**RITTAL or ISI mark**
EARTHING		**GI 32X6 MM or ISI mark**
BUSBAR TPN AS PER RATING IN BOM		**COPPER or ISI mark**

CABLE SCHEDULE- FOR SDB PANELS

S. NO	PANEL/EQPMT DESCRIPTION	AREA/LOCATION	EQUIPTMENT DESCRIPTION & LOCATION	EQUIPTMENT RATING	CABLE SIZE	TYPE OF CABLE	CABLE LENGTH
A	POWER CABLING						
1	MAIN LT PANEL	LT ROOM	OUT GOING TO				
			SERVO STABLIZER 1. UTILITY	400 KVA	2X3.5C x 400 SQMM	AYFY/ A2XFY	2 X 35
			SERVO STABLIZER 2. UTILITY	400 KVA	2X3.5C x 400 SQMM	AYFY/ A2XFY	2 X 35
			SERVO STABLIZER 3. UTILITY	400 KVA	2X3.5C x 400 SQMM	AYFY/ A2XFY	2 X 35
			SERVO STABLIZER 4. UTILITY	400 KVA	2X3.5C x 300 SQMM	AYFY/ A2XFY	2 X 35
			SERVO STABLIZER 5. UTILITY	150 KVA	1X3.5C x 300 SQMM	AYFY/ A2XFY	1 X 35
			SERVO STABLIZER 6. OFFICE BUILDING	150 KVA	1X3.5C x 300 SQMM	AYFY/ A2XFY	1 X 370
			SERVO STABLIZER 7. PUMP ROOM	250 KVA	1X3.5C x 400 SQMM	AYFY/ A2XFY	1 X 220

			SERVO STABLIZER 8. PUMP ROOM	250 KVA	1X3.5C x 400 SQMM	AYFY/ A2XFY	1 X 220
			SERVO STABLIZER 9. UTILITY	150 KVA	1X3.5C x 300 SQMM	AYFY/ A2XFY	1 X 50
	STABLIZER 1 400 KVA	UTILITY	M/C PANEL PH 1	630A	2X3.5C x 400 SQMM	AYFY/ A2XFY	2X 125
	STABLIZER 2 400 KVA	UTILITY	M/S PANEL PH 2	630A	2X3.5C x 400 SQMM	AYFY/ A2XFY	2 X 105
	STABLIZER 3 400 KVA	UTILITY	M/C PANEL PH 3	630A	2X3.5C x 400 SQMM	AYFY/ A2XFY	2X 110
	STABLIZER 4 400 KVA	UTILITY	AC PANEL SGL	630A	2X3.5C x 300 SQMM	AYFY/ A2XFY	2 X 200
	STABLIZER 5 150 KVA	UTILITY	PKG LINE & UTILITY	200A	2X3.5C x 300 SQMM	AYFY/ A2XFY	1 X 35
	STABLIZER 6 150 KVA	Office BLDG	OFFICE DB	200A	1X3.5C x 300 SQMM	AYFY/ A2XFY	1 X 40
	STABLIZER 7 250 KVA	PUMP RM BLDG	HYDRANT PANEL, PUMP ROOM	300A	1X3.5C x 400 SQMM	AYFY/ A2XFY	1 X 40
	STABLIZER 8 250 KVA	PUMP RM BLDG	PUMP & CTF PANEL, PUMP ROOM	300A	1X3.5C x 400 SQMM	AYFY/ A2XFY	1 X 40
	STABLIZER 9 150 KVA	UTILITY	LIGHT & POWER DB, UTILITY	200A	1X3.5C x 300 SQMM	AYFY/ A2XFY	1 X 40
2	M/C PANEL PH 1	M/C STAGE CORR	COMPRESSOR	156 KW	1X3.5C x 400 SQMM	AYFY/ A2XFY	1 X 30
			EVAP DB	42 KW	1X 4C x 35 SQMM	NYY	1 X 35
			EVAP DB	42 KW	1X 4C x 35 SQMM	NYY	1 X 35
			CO 2 SCR	3.1 KW	1X 4C x 4 SQMM	NYY	1 X 35
			CO 2 SCR	3.1 KW	1X 4C x 4 SQMM	NYY	1 X 35
			N2 GEN	22 KW	1X 4C x 16 SQMM	NYY	1 X 45
				268 KW			
3	M/C PANEL PH 2	M/C STAGE CORR	COMPRESSOR	156 KW	1X 3.5C x 400 SQMM	AYFY/ A2XFY	1 X 30
			EVAP DB	42 KW	1X 4C x 35 SQMM	NYY	1 X 35
			EVAP DB	42 KW	1X 4C x 35 SQMM	NYY	1 X 35
			CO 2 SCR	3.1 KW	1X 4C x 4 SQMM	NYY	1 X 35
			CO 2 SCR	3.1 KW	1X 4C x 4 SQMM	NYY	1 X 35
			N2 GEN	22 KW	1X 4C x 16 SQMM	NYY	1 X 45
4	M/C PANEL PH 3	M/C STAGE CORR	COMPRESSOR	156 KW	1X3.5C x 400 SQMM	AYFY/ A2XFY	1 X 30
			EVAP DB	42 KW	1X 4C x 35 SQMM	NYY	1 X 35
			EVAP DB	42 KW	1X 4C x 35 SQMM	NYY	1 X 35
			CO 2 SCR	3.1 KW	1X 4C x 4 SQMM	NYY	1 X 35
			CO 2 SCR	3.1 KW	1X 4C x 4 SQMM	NYY	1 X 35
			VENTILATION DB 1	6 KW	1X 4C x 6 SQMM	NYY	1 X 30
			VENTILATION DB 2	6 KW	1X 4C x 6 SQMM	NYY	1 X 80

5	AC PANEL SGL	M/C STAGE CORR	CHILLER	134 KW	1X 3.5C x 300 SQMM	AYFY/ A2XFY	1 X 30
			SORTING LINE	28 KW	1X 4C x 35 SQMM	NYY	1 X 100
			PACKING LINE	21 KW	1X 4C x 16 SQMM	NYY	1 X 50
			EVAP DB	10 KW	1X 4C x 10 SQMM	NYY	1 X 60
			EVAP DB	6.5 KW	1X 4C x 6 SQMM	NYY	1 X 20
	AC PANEL SGL		HUMD PUMP	10 KW	1X 4C x 10 SQMM	NYY	1 X 30
			CHWP 1(W)	22 KW	1X 4C x 16 SQMM	NYY	1 X 30
			CHWP 2(SB)	22 KW	1X 4C x16 SQMM	NYY	1 X 30
6	PKG LINE& UTILITY	UTILITY	HUMD PUMP	4 KW	1X 4C x4 SQMM	NYY	1 X 40
			PACKING TRAY	10 KW	1X 4C x10 SQMM	NYY	1 X 30
			EVAP DB	13 KW	1X 4C x10 SQMM	NYY	1 X 40
			POLYBAG	7 KW	1X 4C x6 SQMM	NYY	1 X 60
			AIR COMPRESSOR	10 KW	1X 4C x10 SQMM	NYY	1 X 40
			UTILITY DB	10 KW	1X 4C x10 SQMM	NYY	1 X 20
			(FORK LIFT CHARGING)				
7	OFFICE DB	OFFICE BUILDING	A H U	7.5KW	1X 3C x10 SQMM	NYY	1 X 40

			LAB	7.5KW	1X 4C x10 SQMM	NYY	1 X 50
			STROM WATER LIFT PUMP(W)	7.5KW	1X 4C x10 SQMM	NYY	1 X 40
			STROM WATER LIFT PUMP(SB)	7.5KW	1X 4C x10 SQMM	NYY	1 X 40
			L&PDB	7.5KW	1X 4C x10 SQMM	NYY	1 X 30
			PUMP DOL	2.2KW			
8	HYDRANT PANEL	PUMP ROOM BLDG	FIRE PUMP	57KW	1X 3C x120 SQMM	NYY /A2XFY	1 X 30
			JOCKY PUMP	11KW	1X 3C x10 SQMM	NYY	1 X 40
			JOCKY PUMP	11KW	1X 3C x10 SQMM	NYY	1 X 40
			ETP	10KW	1X 4C x10 SQMM	NYY	1 X 100
			SUMP PUMP	2.2KW	1X 3C x4 SQMM	NYY	1 X 40
			TUBE WELL	3.7KW	1X 3C x4 SQMM	NYY	1 X 40
			FEED PUMP SORTING LINE	2.2KW	1X 3C x4 SQMM	NYY	1 X 40
			DOMESTIC W LIFTG PUMP	2.2KW	1X 3C x4 SQMM	NYY	1 X 40
			SOFTNING W PUMP	2.2KW	1X 3C x4 SQMM	NYY	1 X 40
			RAW WATER PUMP	2.2KW	1X 3C x4 SQMM	NYY	1 X 40

S. NO	PANEL DESCRIPTION	PANEL LOCATION	EQUIPTMENT DESCRIPTION		CABLE SIZE	TYPE OF CABLE	CABLE LENGTH
	LOCAL PLC2(SGL)	M/C STAGE	4INPUT TEMP SENSOR		4X2CX1.0SQMM	UNITRONIC LIYY	4X30
			4INPUT HUMD SENSOR		4X2CX1.0SQMM	UNITRONIC LIYY	4X30
	LOCAL PLC3(PKG)	UTILITY	4INPUT TEMP SENSOR		4X2CX1.0SQMM	UNITRONIC LIYY	4X30
			4INPUT HUMD SENSOR		4X2CX1.0SQMM	UNITRONIC LIYY	4X30
	LOCAL PLC1,2,3		MODL VALVE EVAP		1X2CX1.0SQMM	OLFLEX CL100	18X30
	MAIN PLC	M/C STAGE	LOCAL PLC(LOOPING81)		1X2CX1.5SQMM	UNITRONIC LIYCY	81X18
	MAIN PLC		CHILLER/COMPR PANEL		1X2CX1.5SQMM	UNITRONIC LIYCY	4X100
	MAIN PLC		PUMP ROOM LOCAL PLC		1X2CX1.5SQMM	UNITRONIC LIYCY	1X200
	LOCAL PLC2(SGL)	UTILITY	OFFICE BLDG LOCAL PLC		1X2CX1.5SQMM	UNITRONIC LIYCY	1X100
	PUMP INTER LOCKING WITH						
	COMPRESSORS						
	PUMP&CTF PANEL	PUMP ROOM BLDG	COMPR PANEL PHASE II		1X4CX1.0SQMM	OLFLEX CL100	1X250
	COMPR PANEL PHASE II		COMPR PANEL PHASE I		1X2CX1.0SQMM	OLFLEX CL100	1X40
			COMPR PANEL PHASE III		1X2CX1.0SQMM	OLFLEX CL100	1X40
			CHILLER PANEL		1X2CX1.0SQMM	OLFLEX CL100	1X70
	NOTE: 1) CABLE SIZES MAY BE AS GIVEN ABOVE OR EQUIVALENT						
	2) CABLE LENGTHS ARE APPROXIMATE AND INDICATIVE ONLY						
	3) CABLE WILL BE AS PER ABOVE SPECS OR EQUIVALENT SUBJECT TO AVAILABLITY						

9	PUMP&CTF PANEL	PUMP ROOM BLDG	CDWP1	18.7KW	1X 3C x16SQMM	NYY	1 X 40
			CDWP2	18.7KW	1X 3C x16SQMM	NYY	1 X 40
			CDWP3	18.7KW	1X 3C x16SQMM	NYY	1 X 40
			CDWP4	18.7KW	1X 3C x16SQMM	NYY	1 X 40
			CDWP5(SB)	18.7KW	1X 3C x16SQMM	NYY	1 X 40
			CDWP6(SB)	18.7KW	1X 3C x16SQMM	NYY	1 X 40
			CT FAN 1	7.5KW	1X 3C x10 SQMM	NYY	1 X 60
			CT FAN 2	7.5KW	1X 3C x10 SQMM	NYY	1 X 60
			CT FAN 3	7.5KW	1X 3C x10 SQMM	NYY	1 X 60
			CT FAN 4	7.5KW	1X 3C x10 SQMM	NYY	1 X 60
			CT FAN 5	3.7KW	1X 3C x4 SQMM	NYY	1 X 60

			CT FAN 6	3.7KW	1X 3C x4 SQMM	NYY	1 X 60
			SUMP PUMP	2.2KW	1X 3C x4 SQMM	NYY	1 X 40
			TUBE WELL	3.7KW	1X 3C x4 SQMM	NYY	1 X 40
			FEED PUMP SORTING LINE	2.2KW	1X 3C x4 SQMM	NYY	1 X 40
			DOMESTIC W LIFTG PUMP	2.2KW	1X 3C x4 SQMM	NYY	1 X 40
			SOFTNING W PUMP	2.2KW	1X 3C x4 SQMM	NYY	1 X 40
			RAW WATER PUMP	2.2KW	1X 3C x4 SQMM	NYY	1 X 40
10	ETP DB	ETP BLDG	BLOWER(w)	2.2KW	1X 3C x4 SQMM	NYY	1 X 20
			BLOWER(SB)	2.2KW	1X 3C x4 SQMM	NYY	1 X 20
			EFFLUENT LIFT PUMP(W)	0.55KW(1PH)	1X 4C x1.5 SQMM	NYY	1 X 20
			EFFLUENT LIFT PUMP(SB)	0.55KW(1PH)	1X 4C x1.5 SQMM	NYY	1 X 20
			FILTER FEED PUMP(W)	1.5KW	1X 4C x1.5 SQMM	NYY	1 X 20
			FILTER FEED PUMP(SB)	1.5KW	1X 4C x1.5 SQMM	NYY	1 X 20
11	CA EVAP DB		STARTER PANNEL	13KW	1X 4C x10 SQMM	NYY	13 X 40
	CA EVAP DB		STARTER PANNEL	13KW	1X 4C x10 SQMM	NYY	13 X 40
	CA EVAP DB		STARTER PANNEL	13KW	1X 4C x10 SQMM	NYY	13 X 40
	CA EVAP DB		STARTER PANNEL	13KW	1X 4C x10 SQMM	NYY	13 X 40
	CA EVAP DB		STARTER PANNEL	13KW	1X 4C x10 SQMM	NYY	13 X 40
	CA EVAP DB		STARTER PANNEL	13KW	1X 4C x10 SQMM	NYY	13 X 40
12	SGL EVAP DB1		STARTER PANNEL	3.7KW	1X 4C x4 SQMM	NYY	1 X 20
			STARTER PANNEL	3.7KW	1X 4C x4 SQMM	NYY	1 X 20
			STARTER PANNEL	3.7KW	1X 4C x4 SQMM	NYY	1 X 20
13	SGLEVAP DB2		STARTER PANNEL	3.7KW	1X 4C x4 SQMM	NYY	1 X 20
			STARTER PANNEL	3.7KW	1X 4C x4 SQMM	NYY	1 X 20

14	PKG EVAP DB3		STARTER PANNEL	3.7KW	1X 4C x4 SQMM	NYY	1 X 20
			STARTER PANNEL	3.7KW	1X 4C x4 SQMM	NYY	1 X 20
			STARTER PANNEL	3.7KW	1X 4C x4 SQMM	NYY	1 X 20
			STARTER PANNEL	3.7KW	1X 4C x4 SQMM	NYY	1 X 20
15	CA STARTER		EVAPORATOR MOTORS	78X4x0.55 KW	1X4GX1.0SQMM	OLFLEX CL115CY	78X4x13
			DEFROST HEATERS	78x13KW	1X4CX6 SQMM	NYY	78X15
16	SGL STARTER		EVAPORATOR MOTORS	5X6X0.52KW	1X4GX1.0SQMM	OLFLEX CL115CY	5X6X40
17	PKG STARTER		EVAPORATOR MOTORS	5X6X0.52KW	1X4GX1.0SQMM	OLFLEX CL115CY	4X6X40
18	VENTIL DB1		FAN MOTORS	12X5KW.1PH	6X4CX1.5 SQMM	NYY	6X40
19	VENTIL DB2		FAN MOTORS	12X5KW.1PH	6X4CX1.5 SQMM	NYY	6X40
S. NO	**PANEL**	**PANEL**	**EQUIPMENT**		**CABLE SIZE**	**TYPE OF**	**CABLE**
	DESCRIPTION	**LOCATION**	**DESCRIPTION**			**CABLE**	**LENGTH**
B	CONTROL CABLING						
	ICA PANEL 1	M/C STAGE	CO2 SCRUBBER1		2X10CX1.0SQMM	OLFLEX CL100	2X15
			CO2 SCRUBBER2		2X10CX1.0SQMM	OLFLEX CL100	2X40
			N2GEN/TUBE VENTL		1X4CX1.0SQMM	OLFLEX CL100	26X1X90
	ICA PANEL 2	M/C STAGE	CO2 SCRUBBER1		2X10CX1.0SQMM	OLFLEX CL100	2X15
			CO2 SCRUBBER2		2X10CX1.0SQMM	OLFLEX CL100	2X40
			N2GEN/TUBE VENTL		1X4CX1.0SQMM	OLFLEX CL100	26X1X90
	ICA PANEL 3	M/C STAGE	CO2 SCRUBBER1		2X10CX1.0SQMM	OLFLEX CL100	2X15

			CO2 SCRUBBER2		2X10CX1.0SQMM	OLFLEX CL100	2X40
			N2GEN/TUBE VENTL		1X4CX1.0SQMM	OLFLEX CL100	26X1X90
	CO2 SCRUBBER1-6	M/C STAGE	CO2 SOLONOID		78X1X4CX1.0SQMM	OLFLEX CL100	78X45
	LOCAL PLC (CA)	M/C STAGE	SENSOR1(ON/OFF)		1X2CX1.0SQMM	UNITRONIC LIYY	78X7
			SENSOR2(DEFROST)		1X2CX1.0SQMM	UNITRONIC LIYY	78X7
			SENSOR3PRODT TEMP1)		1X2CX1.0SQMM	UNITRONIC LIYY	78X7
			SENSOR4(PRODT TEMP2)		1X2CX1.0SQMM	UNITRONIC LIYY	78X25
			SENSOR5(FREEZE ALARM)		1X2CX1.0SQMM	UNITRONIC LIYY	78X7
			REFG SOLONOID VALVE		1X2CX1.0SQMM	OLFLEX CL100	78X7
	LOCAL PLC1(SGL)	M/C STAGE	4INPUT TEMP SENSOR		4X2CX1.0SQMM	UNITRONIC LIYY	4X30
			4INPUT HUMD SENSOR		4X2CX1.0SQMM	UNITRONIC LIYY	4X30

S.No	DESCRIPTION	MAKE	QTY
1	OPERATOR PANEL(OP-3)	SIEMENS **or ISI mark**	1
2	CPU 224XP 24V DC MODULE	SIEMENS **or ISI mark**	1
3	16DI 24V DC/16DO 24V DC (EM223)	SIEMENS **or ISI mark**	1
4	POWER MONITOR EM6400	ENERCON **or ISI mark**	2
5	KILOWATT TRANSDUCER	RISHAB **or ISI mark**	2
6	24V DC POWER SUPPLY 5A	SIEMENS **or ISI mark**	2
7	PUSH BUTTON (TEST)	L&T **or ISI mark**	1
8	PUSH BUTTON (ACCEPT)	L&T **or ISI mark**	1
9	PUSH BUTTON (RESET)	L&T **or ISI mark**	2
10	MUSHROOM HEAD EM. STOP PUSH BUTTON	L&T **or ISI mark**	2
11	32A DP MCB	SCHNEIDER **or ISI mark**	1
	6A DP MCB	SCHNEIDER **or ISI mark**	3
	6A SP MCB	SCHNEIDER **or ISI mark**	5
12	5/15A SOCKET	ANCHOR **or ISI mark**	1
13	4" FAN 240V AC	REXNOLD **or ISI mark**	1
14	CFL LIGHT	PHILIPS **or ISI mark**	1
15	DOOR SWITCH	REPUTED **or ISI mark**	1
16	TERMINALS 2.5 SQMM	ELMEX **or ISI mark**	150
17	AUX.RELAY WITH 1 C/O, 24V DC ON BASE	OEN **or ISI mark**	32
18	SP 2WAY SELECTOR SWITCH	L&T (SALZER) **or ISI mark**	2

CA Equipment

1. CO2 scrubber : 6 nos. each of 600 kg capacity @ 3%
2. Monitoring and control system-CA Control Panel: 3 nos.
3. O2 & CO2 Analyzer: 3 nos.built into each for CA PLC Panel
4. Portable O2 &CO2 Analyzer: 4 no for sampling
5. Nitrogen Generator : 3 nos. each of 60 Nm3 at 98 %

Total Installed Capacity

CO2 Scrubber : 3600 kg

2 Generator 180 Nm3 / hr.

CO2 Scrubber

Technical Specification Sheet

Manufacturer	:	Storage Control Systems, Inc.USA
Type	:	Model 770SII
Working principle	:	Two Tank working principle
Kind of ventilator	:	Medium pressure: Direct Drive VFD
Rated input	:	6 kW
Rated load	:	3.1 kW
Adsorber capacity	:	600 Kg
Total Capacity	:	600 Kg x 6 nos. = 3600 kg
Amount of active carbon	:	1075 kg
Pipe diameter in adsorber	:	4"
Frame Dimensions	:	54" x 103" x 84" mm
Weight	:	3650 lbs
Moveable with fork lift truck/pallet truck	:	Yes, fork tubes on ends
Number of CO2-adsorbers to control desired CO2 level in 78 chambers	:	6 NOS.

Technical Specification Sheet
Portable Analyser

▪ Make	:	ICA UK
▪ Model	:	ICA 15
▪ O2	:	0-25%
▪ CO2	:	0-20%
▪ Resolution	:	0.1%
▪ Repeatability	:	0.2%
▪ O2 cell life	:	2 years
▪ Battery capacity	:	8hrs+ operation between charges
▪ Dimensions	:	75 x 275 x 250 mm (excluding handle).
▪ Sample flow	:	1L/min
▪ Response time	:	95% in 30 sec.
▪ Outputs	:	0-20%CO2 0-2v, 4-20mA. 0-25% O2 0-2.5v , 4-20mA
▪ CO2 sensor	:	Infra Red
▪ O2 cell	:	Electrochemical
▪ Low calibration drift		
▪ Sampling pump		
▪ Water blocking filter		

Technical Specification Sheet
Built in Analyser

- Make : ICA UK
- Model : ICA 65 2
- O2 : 0-25%
- CO2 : 0-20%
- Resolution : 0.1%
- Repeatability : 0.2%
- Response time : 95% in 30 sec.
- Outputs : 0-20%CO2 0-2v, 4-20mA.
  0-25% O2 0-2.5v , 4-20mA
- CO2 sensor : Infra Red
- O2 cell : Electrochemical

Nitrogen Generator

Technical Data Sheet

Manufacturer: MVS/ PSA – Nitrogen/ Gastek

Type PSA

Working Principle PSA

No.of Gas Generator : 3– Nos.

Nitrogen Capacity : 60 NM3/hr at 98% purity or (each)
43 NM3/hr at 99% purity

Make of Air Compressor : Atlas Copco/

Type of Air Compressor : Lubricated screw type with 3-stage filters to make air oil free

Air compressor operating pressure : 7

Compressor rated input : 22.5 KW (each)

Outlet Nitrogen temperature Ambient

Dimensions of complete gas Generator :

Equipment Description

a) There are 3-Nitrogen generators. These are parallel independent units connected to common Nitrogen storage tank.

b) Each gas generator has screw type air compressor with oil filters, Nitrogen PSA unit.One Oxygen analyzer with control panel.

c) Common Nitrogen storage tank of 10 M3 volume stores 50 NM3 gas at 5 Kg/cm2g pressure.

Air Compressor

For this PSA Nitrogen generator air compressor capacity is 170 NM3/hr. We have included maintenance free Screw type air compressor of 22 KW motor rating. Discharge pressure is 7 Kg/cm2g. It is air cooled compressor. So no cooling water is needed. In the discharge of this compressor, 3-stage filters are provided to make air oil free.

Nitrogen Storage Tank

One single common Nitrogen tank of 10 M3 volume is included in 3-Gas generators. It would store 50 NM3 gas at 5 Kg/cm2 pressure. A high and low pressure switch on this tank would Switch ON and Switch OFF Nitrogen generator as per Nitrogen demand.

Automation

The gas generator is fully automatic with audio-visual-alarm for fault indication. It takes only 5-minutes to start producing Nitrogen of required purity.

Utilities Consumptions

a) For single gas generator connected load is 22 KW for Atlas copco and 18.5 KW for Kaeser make.

b) No cooling water is required as compressors are air cooled.

Space installed:

3-Gas generators assembled on two skids and occupied following floor space :

Length	8.0 M
Width:	3.0 M
Height:	2.5 M

Accessories:

- One Air compressor with Motor, Cooler and accessories.
- Twin tower PSA unit filled with first charge of Carbon Molecular Sieves and Activated Alumina.
- Nitrogen surge vessel.
- Automatic changeover valves.
- Various Pressure indicators and switches.
- All interconnected piping within the gas generator
- Back pressure valve and 3-Way vent valve at gas generator outlet.
- Electrical control panel with audio-visual alarm system.
- Flowmeter in Nitrogen gas line after gas generator.

Makes of Items

- Air compressor : Atlas Copco
- Electric motor : Siemens.
- Carbon Molecular Sieves : Carbotech.
- Activated Alumina : Almatis – USA
- Solenoid Valves : **Rotex**/ Janatics
- Pressure Holding valve : Nirmal Instrumentation
- Rotameter : Instrumentation Engrs.
- Temperature/ Pressure Gauges : H. Guru / Fiebig /Wika
- Sequence timer : AG Electronics
- Safety valves : Tyco Sanmar

PIPING SPECIFICATIONS

1) All Air, Water and Nitrogen pipelines are of Carbon steel conforming to IS-1239, Black.
2) All flanges are of ASA-150 rating , Carbon steel plate.
3) All Pipe & Fittings are of Carbon Steel.
4) Pipeline sizes : 15 NB, 25 NB & 50 NB

AIR COMPRESSOR DATA SHEET

1)	No. of compressor provided	:	1 No. in each gas generator.
2)	Type of compressor	:	Oil lubricated, Screw type.
2)	Make	:	**Atlas Copco** - 2 nos **Kaeser** -1 no.
3)	Model	:	Atlas copco- GA 22- 7.5, Pack with PLC PLC panel and Starter Panel Kaeser – ASD32 Sigma
4)	Free Air Delivery		170 NM3/hr for each gas plant.
5)	Suction Pressure	:	Atmospheric
6)	Discharge Pressure	:	7.5 Kg/cm2g
7)	Motor Details	:	30 HP (22 KW) 2900 rpm TEFC, IP-55
8)	Motor speed	:	2900 RPM
9)	Drive	:	Built in gearbox
10)	Type of cooling	:	Air cooled compressor with fan
11)	Air outlet temp.	:	Around 45°C max.

****

DATA SHEET FOR ROTAMETER

- Make : **Instrumentation Engineers (P) Ltd**
- Type : Glass Tube, Float Type
- Application : Flow Measurement of N2 product
- Service : Nitrogen Gas
- Flow range : 8-80 NM3/hr
- Normal Op. Pressure : 5kg/cm2g
- Ma. Operating pressure : 10 Kg/cm2g
- Op. Temp. : 45° C max.
- Wetted Parts : Stainless Steel
  Process Connection : 25 NB, Flanged ASA - 150
- Quantity : 1 No. in each gas plant

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DATA SHEET OF AIR OIL FILTERS (AFTER AIR COMPRESSOR)

A) Coalescing Type Filters

Pre-Filters

1	Tag No.	PF-01, PF-02
2	Location	Before PSA – unit (After air receiver)
3	Make	Domnick – UK
4	Type	Glass Fiber , Coarse and Fine Filters

5	Filter Rating:	0.1 ppm oil - 1 No. in each gas plant
	- Coarse Filters	0.01 ppm oil - 1 No. in each gas plant
	- Fine Filters	
6	Air Flowmeter	170 m3/hr
7	Operating Pressure	7.5 kg / cm2g
8	Operating Temp.	40° C (max.)
9	Model No.:	
	- Coarse Filters	0058G-AO
	- Fine Filters	0058G-AA
1	Pressure Drop	0.1 kg / cm2 (max.)

B) Activated Carbon Oil Filter

1)	Location	:	After Coalescing Pre-Filters and before PSA-Towers.
2)	Make	:	MVS Engineering Ltd
3)	Type	:	Vessel filled with Activated Carbon granules.
4)	Filter Rating	:	To remove oil vapors down to 0.001 ppm level

Nitrogen Storage Tank

1)	No. of Tank	:	Single, common Nitrogen storage tank
2)	N2 Tank capacity	:	10 M3
3)	Storage N2 Volume	:	50 NM3 stored at 5 Kg/cm2 pressure.
4)	Tank Dimensions	:	1.8 M dia x 4 M height (Overall)

Instrumentation & Safety Interlocks

Following instrumentation is provided in the gas plant and storage tanks.

A) **Instrumentation** :

a) Pressure gauge on air compressor discharge.
b) Low pressure switch on air receiver.
c) Temperature gauge in air receiver.
d) Pressure gauge in Air receiver.
e) Automatic moisture drain trap in air receiver.
f) High water level switch in air receiver.
g) High pressure switch on air compressor discharge.
h) Pressure gauge on PSA towers.
i) Pressure gauge on Nitrogen surge vessel.

j) Automatic Back pressure control valve after surge vessel.

k) Automatic 3-way vent valve for Nitrogen venting.

l) Online Oxygen analyzer with alarm facility.

m) High pressure switch on Nitrogen storage tank.

n) Pressure gauge on Nitrogen storage tank.

B) **Electrical Safety Interlocks** :

N2 Gas generator would trip with alarm on control panel in the event of following abnormalities :

a) Air compressor trips due to any reason.

b) Low air pressure in air receiver.

c) High pressure in air receiver.

d) Low Nitrogen purity in surge vessel.

e) High pressure in Nitrogen storage tank.

Technical Specifications

Indoor Parallel-piped Semi-Hermetic Screw Compressor Rack

Model	:	BSCR3190-XM
Evaporating Temperature	:	-7 °C
Condensing Temperature	:	42 °C
Refrigerant type	:	R404A
Electricity supply type	**:**	**400/3/50**
Refrigeration capacity	:	425.688 KW
Input power	:	155.3 kW
Compressor quantity per rack	:	3
Compressor model per rack	:	HSK7461-80-40P - 2 nos. HSK5343-30-40P - 1 no.
Compressor capacity & Power Input	:	
HSK7461-80-40P		
Refrigeration Capacity	:	177.414 KW
Input Power	:	64 KW
HSK5343-30-40P		
Refrigeration Capacity	:	70.860 KW
Input Power	:	27.3 KW
Compressor type	:	Direct drive Semi Hermetic Screw Compressor, three phased motor with electronic safety - Suction and discharge Service valve
Suction line	:	- One filter with replaceable filter core per compressor - 4 Studs with Stop valves, (Standard valve size: 3-1/8")
Oil separator	:	-Oil heaters -Oil temperature control thermostat -Oil sight glasses + minimum oil level safety switch -Constant pressure regulating valve -Ball valves
Oil circuit	:	-No oil cooling -Oil filter with replaceable filter

		-Oil flow safety switch per compressor -Solenoid valve, oil sight glass per compressor
Economizer circuit for each compressor	:	- Plate heat exchanger with insulation Thermostatic expansion valve - Sight glass + solenoid valve - Solenoid valve on subcooled liquid - Ball valves
Liquid receiver	:	- 1800 litres liquid receiver - Inlet and outlet service valves - Pressure relief valve
		- Liquid level sight glasses - Low liquid level alarm switch
Liquid line	:	- Filter drier with replaceable cores - Sight glass - 4 Studs with Stop valves (Standard valve size: 2-1/8")
Control and safety	:	Common HP and LP gauges with angle valve - HP and LP automatic safety switch per compressor - Oil flow switch

Rack - Makes of Components

Item	Component	Type	Brand / Make
1	Circuit breaker	Electrical	ABB or Siemens
2	Contactor	Electrical	ABB or Siemens
3	Controller(input/output sensors)	Electrical	Danfoss or Siemens
4	Electrical Panel	Electrical	Rittal or equivalent box with IP55
5	Indicating lamp	Electrical	Wuxi ShengHua Electrical
6	Oil flow switch	Electrical	Supplied by Bitzer- Compressor Manufacturer
7	Oil line solenoid	Electrical	Danfoss or supplied by Bitzer-Compressor Manufacturer
8	Phase loss monitor	Electrical	Marathon
9	Relay	Electrical	Sky or Omron or Good sky
10	Toggle switch	Electrical	Wuxi Sheng Hua Electrical
11	Emergency stop switch	Electrical	Wuxi Sheng Hua Electrical
12	Ball valves	Mechanical	Danfoss or Henry or Mueller
13	Compressor unloading valve	Mechanical	Danfoss, supplied by Bitzer-Compressor Manufacturer
14	Discharge check valve	Mechanical	Danfoss or Hansen
15	Economizer	Mechanical	Alfa Laval supplied by Bitzer

16	Expansion valve (for economizer circuit)	Mechanical	Danfoss or Alco
17	Oil filter	Mechanical	Alco or Sporlan or Danfoss
18	Oil separator	Mechanical	Bitzer or Shanghai Teyi
19	Receiver with service valves	Mechanical	Shanghai Teyi
20	Relief valve	Mechanical	Mueller or Castel
21	Suction filter/liquid line filter	Mechanical	Alco or Danfoss or Sporlan or Superior
22	Suction line / liquid line valve	Mechanical	Danfoss or Hansen or Castel
23	Compressor	Mechanical	Bitzer

Cooling Tower – Refrigeration Rack

Make : BELL

Manufacturer : BELL COOLING TOWERS (P) LTD.

The Cooling Tower for the refrigeration Rack is Induced Draught Counter Flow cooling tower components as per the enclosed technical data sheet.

TECHNICAL DATA
Cooling Tower – 3 Compressor Rack

No. of Cooling Tower for 3 Refigeration Package	:	2 nos.
Cell Configuration	:	3 Working + 1 Standby
Specifications		
Components classification no.	:	2ID-2100
Type	:	Induced Draught Counter flow
Distribution	:	Gravity flow (static)
Wet bulb approach	:	3.7 'C
Dimensions (mm)	:	6000 x 3000 x 2440
Operating wt. (kgs)	:	4400
Fill wetted area (sq.m)	:	2752.40
Evaporation loss	:	0.69%
Drift loss	:	0.2%
Total water loss	:	0.89% (without bleed off)

Fan dia. (mm)	:	1500
No. of fans	:	2
Air flow (CFM)	:	41900 x 2
Tip velocity (m/min)	:	4523.89
Fan material & Type	:	Cast Aluminium, Axial flow
Motor HP	:	7.5 x 2
RPM	:	960
Type	:	Squirrel Cage (IP55), TEFC
Make	:	NEI/OSWAL
Tower structure & Basin	:	FIBREGLASS
Fills	:	High efficiency PVC 'Fills pack with UV stabilization
Drift Eliminators	:	PVC
Fill support	:	GALVANIZED FRAME
Bird screen	:	GALVANIZED FRAME
Distribution supports	:	GALVANIZED FRAME

TECHNICAL DATA
Cooling Tower – Airconditioing Chiller

Specifications:

Components classification no.	:	FD-2120
Type	:	Forced Draught Counter flow
Distribution	:	Gravity flow (static)
Wet bulb approach	:	3.7 'C
Dimensions (mm)	:	3000 x 3600 x 2440
Operating wt. (kgs)	:	2967
Fill wetted area (sq.m)	:	1651.44
Evaporation loss	:	0.69%
Drift loss	:	0.05%
Total water loss	:	0.75% (without bleed off)
Fan dia. (mm)	:	1000
No. of fans	:	2
Air flow (CFM)	:	25100 x 2
Tip velocity (m/min)	:	3015.93

Fan material & Type	:	Cast Aluminium, Axial flow
Motor HP	:	5.0 x 2
RPM	:	960
Type	:	Squirrel Cage (IP55), TEFC
Make	:	NEI/OSWAL
Tower structure & Basin	:	FIBREGLASS
Fills	:	High efficiency PVC 'Fills pack with UV stabilization
Make	:	BELL
Manufacturer	:	BELL COOLING TOWERS (P) LTD.

Technical Specification

Condenser Water Pump for the 3 Compressor Rack

Quantity	:	4 Nos. (3 Working + 1 Standby)

Pump Data

Make	:	Kirloskar
Model	:	DB125/32
Head	:	25 M
R P M	:	1450
Motor HP	:	25
Motor	:	TEFL, Squirrel Cage Inductor, Class F Insulation, 4 Pole, IP-55 (W), 3 HP, 415 ± 10%, 50 c/s AC as per IS-325 (ABB/CGL/KEC/SIEMENS)

Technical Specification

Condenser Water Pump –for Chiller

Quantity	:	2 Nos (1 Working + 1 Standby)

Pump Data

Make	:	Kirloskar

Model	:	DB125/32
Head	:	27 M
R P M	:	1450
Motor HP	:	**25**
Motor	:	TEFL, Squirrel Cage Inductor, Class F Insulation, 4 Pole, IP-55 (W),3HP, 415 ± 10%, 50 c/s AC as per IS-325 (ABB/CGL/KEC/SIEMENS)

Technical Specification

Chilled Water Pump –for Chiller

Total Flow Rate	:	175 TR * 3.33 GPM/Ton = 583 GPM
Quantity	:	2 Nos (1 Working + 1 Standby)

Pump Data

Make	:	Kirloskar
Model	:	DB100/40
Head	:	39 M
R P M	:	1450
Motor HP	:	40
Motor	:	TEFL, Squirrel Cage Inductor, Class F Insulation, 4 Pole, IP-55 (W),3HP, 415 ± 10%, 50 c/s AC as per IS-325 (ABB/CGL/KEC/SIEMENS)

Sorting, Grading and Packing Lines (Make-Sammo,Italy)

Sr. No	Description	Quantity
1	Apple Sorting & Refilling Lines into Bins	1 unit
2	Apple Packing in Trays/ Cartons	1 unit
3	Apple Packing Lines in Plastic Bags	1 unit
4	Apple Packing Lines in Trays covered with Film “Flow Pack”	1 unit

Apple Sorting & Refilling Lines into Bins

Fruit to be sized : Apples, (the line can work peaches, tomatoes, guava, kinno etc)
Average weight: 140 Grams
Min. Diameter 30mm.
Max. Diameter 110mm.

Field containers : Plastic or wooden boxes 15-20 Kg or similar (400x 600x 300)
Wooden or plastic bins 1200 x 1000 x 770 or similar

Feeding capacity : 10-11 Tons/hour

Grading capacity : more than 80,000 fruit/hour

LINE COMPOSITION

1) **AUTOMATIC BIN DUMPER**

The machine with 2 floors includes:

- motorized chain conveyor for 2 full bins placed in the below part

- tilting chair for gentle unloading.

- gravity conveyor in the upper part for 2 empty bins.

2) **ROLLER CONVEYOR FOR MANUAL BOXES EMPTYING mod. 800 x 3000**

Complee with receiving hopper covered with soft rubber
Speed variator

3) **CONNECTING CONVEYOR with 3 belts**

With deviator

4) **1 FEEDING BELT mod. 1.300 x 1.500**

Complete with photocell to control the stop start of the dumper

5) **1 SORTING TABLE mod. 1300 x 3.500 (useful for sorting 4000 mm)**

Overall dimensions: 1500 x 4.500 mm
Complete with:
- Rubber rollers
- speed variator;
- device for roller rotation
- platforms with ladders
- lighting
- electric installation.

6) **2 PLATFORM AND STAIRS**

7) **1 CULL COLLECTING BELT mod. 300 x 3.000**

Placed below the roller floor

8) **1 CULL COLLECTION CONVEYOR 6 belts**

overall dimensions: 1.500 x 2.500

9) 1 CONNECTING BELT mod. 1.500 x 3.000

With central division for 2nd class

10) 1 PRE ALIGNER 6 lanes

Overall dimensions: 1600 x 2500

Belt conveyor with lining system for fruits. The machine is composed by couples of belts with different speeds, placed on reduced diameter pulleys to reduce the passages

including:

- motorization with different speeds;
- electric installation.

11) ELECTRONIC GRADING MACHINE MOD. MANAGER 6 LANES, 4+1 EXIT SIZING BY COLOUR AND DIAMETER .

Grading data of 1st and 2nd quality are sent to the main grader computer for statistic

Electronic grading machine with trolleys cups in soft rubber for the grading of delicate fruits. Sized fruits are unloaded by means of motorized brushes or plastic flaps or directly to the packing bins.

Complete of:

Recycling belts.

- Feeding brush.
- Solenoids "waterproof" for trolley inclining.
- Cleaning device for trolleys.
- Frequency inverter for speed regulation.
- Unit power supply
- Pc with video, keyboard and printer.
- Electric board.

12) 4 DRY BINS FILLER WITH MOBILE ROTATING DISK

Machine for the dry automated filling of steady bins.

Including:

- rest for the correct placing of the bins;
- control board with operational PLC.

13) ELECTRIC BOARD AND PLANT

According to the international safety regulations.

Complete with:

- automatic magnetothermic cut-out switches
- automatic control equipment with stop/start control

- cables with 1,5 mm section for control equipment and 2,5 mm section for power circuits.
- galvanized steel pipelines, antiflame cables,
- copper bars, numbered clamps
- main grounding system with copper rob between each machines.

APPLE PACKING LINE IN TRAYS/CARTONS

Capacity: 10 Tons/hour

1) 1 AUTOMATIC BIN DUMPER SINGLE TYPE

The machine includes:

- tilting chair for gentle unloading. Each bin before entering in the chair is closed by a motorized belt.

2) 1 SORTING TABLE mod. 1300 x 2.500 (useful for sorting 2000 mm.)

Overall dimensions: 1500 x 2.500 mm

Complete with:

- PVC rollers
- speed variator;
- device for roller rotation
- electric installation.

3) 2 PLATFORM AND STAIRS

4) 1 CULLS COLLECTING BELT mod. 300 x 3.000

Placed below the roller floor

5) 1 BRUSHER WASHER mod. 1.300 x 26 brushes

Machine for washing, brushing and drying of the fruits.

Including:

- variator for the brushes rotation;
- motorized emptier;
- washing pipes;

- gathering tank for water;

- electric installation.

6) **1 DISTRIBUTING CONVEYOR 6 belts each**
overall dimensions: 1.500 x 7.500

7) 6 SEMIAUTOMIATIC TRY PACK FILLERS

Empty trays are fed manually on the below belt.

Complete with:

- belt conveyor coming from the grader

- belt conveyor for packing

- support for empty cartons to be filled

- electric board with pedal for packing belt control

8) 1 ELECTRIC BOARD AND PLANT

According to the international safety regulations.

Complete with:

- automatic magnetothermic cut-out switches

- automatic control equipment with stop/start control

- cables with 1,5 mm section for control equipment and 2,5 mm section for power circuits.

- galvanized steel pipelines, antiflame cables,

- copper bars, numbered clamps

- main grounding system with copper rob between each machines.

SCALES

a. 12 SCALES in Stainless steel. Max weight : 30 Kg. Floor size: 300 x 400 mm approx. Make - Avery

b. 2 SCALE . Max.Weight-1.5 Ton.

Make – Avery.

APPLE PACKING LINE IN PLASTIC BAGS

CAPACITY: more than 22 - 2Kg. plastic bags /minute

1) 1 BIN TIPPER

Gentle type

Bins are fed one by one by fork lift or trans pallets.

When the bin is inside the tilting chair it is first covered by a motorized belt than the chair starts turning.

The belt acting as a cover open step by step allowing a very gently unloading of apples

2) 1 ELEVATOR-SORTING TABLE mod. 1000 x 4000

Overall dimensions: 1300 x 4000 mm

Complete with:

- PVC rollers
- speed variator;
- device for roller rotation

3) 2 ELECTRONIC 10 CELL WEIGHING MACHINE (apples)- 10PCV-01M

The machine is fitted with the series of picking and conveyor belts for packages.

Package minimum : Kg 05

Package max : Kg 3

Installed power : 1.5 Kw

Air consumption : 130 Nl min. 6 bar

Voltage: 380V 50Hz 3ph + neutral + PE 220V 50Hz one ph + troubless ground

4) 1 AUTOMATIC BAGS FILLING MACHINE- RSFB-01

Steel painted machine for packaging goods in polyethylene bags.

This machine consists of:

- unrolling of polyethylene-bag bobbin;
- bag sawyer by belt;
- side knife for the pre-separation of the bag;
- hopper with anti-block filling bag and automatic system to arrange gently the goods into the bag;
- device closing bag by heat-welding;
- a lower conveyor for the advancement and evacuation of the bag, with bag separation system included;
- electric panel controlled by PLC.

Bobbins of 1500 bags.

Package weight: 2Kg

Installed power: 2Kw

Air consuption: 90Nl/min. 6 bar

Voltage: 380V 50Hz + neutral + PE

5) 1 ELECTRONIC PRINTER- SEB-01/8D

Industrial electronic printer for flag labels complete with dispenser (mounted on the machine board) able to print bar codes, etc. Resoluxtion 8 dots and little keyboard. The machine is fitted with label feeding and separation device.

Voltage : 220V 50Hz + troubleless ground.

Air consumption : 60Nl at first

6) 1 BELT ELEVATOR- NEXRV

Belt elevator feeding goods from the nettig machine to the working station.
Steel painted structure and PVC belt with side closing in order to protect goods from the scratching. This machine works in synchronisme with the netting machine.

Installed power : 020 Kw

Voltage : 380V 50Hz 3phs +

7) 1 SWIVELING TABLE

diameter 1300, with chipboard top covered with formica

8) 1 ELECTRIC BOARD

APPLE PACKING LINE IN TRAYS COVERED WITH FILM -" FLOW PACK " – MOD38

Capacity: more than 70 trays/minute

1) 1 BIN TIPPER

Same type of the one included in the Packing line in plastic bags

2) 1 PACKING BELT " RECYCLING TYPE " mod. 600 x 10.500 and mod. 450 x 6.000

Complete with deviators, fotocells and metal sheet for manual trays filling

Space for 6 workers

3) 1 CONNECTING BELT mod. 150 x 6000 for trays to be sent to the packing unit

4) 1 GRAVITY CONVEYOR for PACK OF EMPTY TRAYS

5) 1 " FLOW PACK " AUTOMATIC MACHINE - Tray Covered with Film

Including:

-belt conveyor 2 meters

-Tunnel

-Exit conveyor

6) 1 ROTATING TABLE mod. 1.300

7)

INSULATED PANEL
SPECIFICATION SHEET

CA Chamber Outside Wall thickness	:	140 mm
CA Chamber Inside Partition Wall thickness	:	120 mm
CA Chamber Ceiling Panel thickness	:	170 mm
Exterior Building Walls thickness	:	50 mm
Outer Skin (Body Sheet)	:	0.6 mm GI Colour coated Galvanized sheet
Inner Skin (Body Sheet)	:	0.6 mm GI Colour coated Galvanized sheet
Make	:	Kirby / Llyod

Water Treatment Plant

Flow Rate	:	12 M3/Hr
Inlet Pressure Required	:	1.5 Kg/cm2
Resin Volume	:	3250 L
Vessel Volume	:	5350 L
2 Softeners, each of 50% Capacity, to be regenerated Once daily for regeneration	:	500 Kg total

Water Treatment Plant (Filtration + Softening)

Capacity: 12 M3/Hr

Raw Water Hardness: <750ppm, Treated Water Hardness: <50ppm

Item Description	Specification	Qty
1. Multi Grade Sand Filter	MSEP Filter with 6mm shell thickness, 8mm dish thickness, 50mm Nozzle sizes complete with filtration media and frontal piping Shell Dia: 1000mm Shell Height: 1500mm Flow: 12M3/Hr.	1 No.
2. Softener	MSEP Softener with 6mm shell thickness, 8mm dish thickness, 40mm nozzles complete with resin & frontal piping Shell Dia: 1300mm Shell Height: 2000mm Flow: 6 M3/Hr	2 Nos
3. Brine Tank with Agitator	1500L HDPE Tank with motorized agitator	1 No.
4. Interconnecting Piping	50mm dia GI "B" Class pipes between the filter and softeners	1 Lot

Effluent Treatement Plant

The ETP (except submersible pumps) are mounted on a common skid of size 4.0 M length x 1.4 M Width x 2.8 M including blowers.

Item Description	Capacity 25KLD	
	Specification	Qty
1. Primary Treatment		
i. Perforated Screen	Material: SS wires on MS frame	1 No.
ii. Submersible Pumps	2M3/Hr, 6-8M head, 10mm solids handling, CI body & impeller	2 Nos (1W+1S)
iii. Piping & valves between pumps and ETP tank	GI "B" class pipes, 25mm NB. ETP is assumed to be mounted on top/ adjacent to the collection tank	1 Lot
2. Bioreactor		
i. MS tank for bio reactor and tube settler mounted on a skid	MS tank, epoxy painted from inside and enamel painted from outside.	1 Lot
ii. Media for Bio reactor tank	PVC Synthetic Media	1 Lot.
iii. Diffusers (For bioreactor and collection tank)	Fine/ coarse bubble, non clog type	1 Lot
iv. Blowers with motors	20 M3/ Hr, 4000mmWC, 1.5 Kw motor	2 Nos. (1W+1S)
v. Air distribution piping	GI B Class/ PVC	1 Lot
3. Secondary Treatment		
i. Tube Settling Media	PVC synthetic media	1 Lot
ii. Hypochlorite dosing system for disinfection of treated effluent water.	0-6 LPH diaphragm type dosing pump with 100L solution tank in HDPE	1 Lot
4. Tertiary Treatment (Optional – For Recycling treated effluent; 3M3/Hr)		
i. MGF	450mm dia x 1625mm height FRP vessel with MPV	1 No.
ii. ACF	500mm dia x 1625mm height FRP vessel with MPV	1 No.
iii. Filter Feed Pumps	3M3/Hr, 35M Head, 1 HP	2 Nos (1W+1S)
iv. Interconnecting piping	25mm Dia GI "B" Class pipes between treated effluent tank, filter feed pumps, MGF & ACF.	1 Lot
5. Electrical panel and wiring for all instruments and motors		1 Lot

FIRE PROTECTION SYSTEM

The following fire protection systems provided:
- Fire Detection & Alarm System
- Hydrant / Hose Reel System
- High Expansion Foam System

SYSTEM SPECIFICATION

Fire Detection & Alarm System

The system installed as per extant codal provisions on fire detection and alarm systems in India.
The system consist of a fire alarm control panel, mimic panel, smoke and heat detectors, manual call stations, hooters, fault isolators, sirens, and inter-connecting cables etc.Components are specified as follows:

1. **Fire Alarm Control Panel**

The fire alarm control panel is microprocessor based, of a fully addressable, analogue type, and monitors and controls all devices connected to it. The programmable functions include assignment of alarm / fault indication, location address, alarm message, alarm / output setting etc. for each addressable device connected to the system. The panel is provided with built in keyboard, printer, LCD screen, and a battery back-up of 48 hours).

2. Addressable Photoelectric Type Smoke Detector and ROR / Fixed Type Heat Detector

3. Addressable Manual Call Stations

4. Addressable Hooter

5. Cables

1. **Fire Water Storage Tank**

The fire water storage tank are made of RCC, and is positioned at ground level next to the fire pump room. The tank have a volume of 342 cubic meters. The tanks are connected to the fire pump suction header by means of a 250 NB dia. MS Black ERW pipe, 6mm thick as per IS: 3589 along with isolation valves.

2. **Fire Water Pumps**

The firewater pumps are centrifugal type in horizontal axially split construction. The pumps are directly coupled to the drive motors. The discharge capacity of the pump is 171 cubic meters per hour at 70 meter head. The material of the pump is as follows:

Casing – Cast Iron
Impeller – Bronze
Shaft – AISI 410
Shaft - Sleeve Bronze
Casing Wearing Ring – Bronze
Stuffing Box – Mechanical Seals

The drive motor is Squirrel Cage Induction in TEFC construction with IP55 rating enclosure. The motor have a rating of 75 HP and speed 1450 rpm,

3. **Pressurizing Pump (Jockey Pump)**

The jockey pumps areof centrifugal type in end suction construction. The pump are directly coupled to the drive motor. The capacity of the pump are10.2 cubic meter per hour at 80 meter head. The material of construction of the pump is as follows:

Casing – Cast Iron
Impeller – Bronze
Shaft – AISI 410
Shaft Sleeve – Bronze / AISI 410
Casing Wearing Ring – Bronze
Stuffing Box – Mechanical Seals

Hydrants Newage / Minimax 24 Nos.
Hose Reels . Newage / Minimax 10 Nos.
Hose Boxes. Fabricated 24 Nos.
Hoses . Newage 4 8 Nos.
Nozzles . Newage / Minimax 24 Nos.
Fire Extinguishers
CO2 4.5 kg type 40 Nos.

DCP 5 kg type 40 Nos.
Newage / Minimax

Expansion Foam System: Make -NEWAGE

A high expansion foam system has been provided to protect the power supply room. The System is designed and installed according to the extant codal provisions on fire detection and alarm systems in India.

The system consist of the following components:

1. Water source (drawn from the waterworks)
2. Automatic operation deluge valve.
3. Foam concentrate storage cum bladder tank and foam proportionator.
4. Foam Water solution stainless steel pipelines.
5. Hot foam generators with capacity of up to 60 cubic meter per minute.
6. Automatic detection system

The entire SYSTEM is designed and approved by M/s NEWAGE.

Laboratory

The quality of freshly harvested crops is maintained by a combination of optimal temperature, humidity and gas contents (CA). Optimal conditions tend to vary with crops from different production regions. Research on storage conditions in the laboratory will establish the optimal conditions for local produce. The laboratory is equipped with small storage rooms to investigate the influence of temperature, humidity and gas atmosphere on the quality of crops. Quality aspects to be assessed include firmness, colour, general appearance (development of disorders and decay) and chemical components.

fully equipped laboratory (NO. OF INSTRUMENTS)

Storability experiments with fruits and vegetables contain many aspects in order to draw the right conclusions.

- Desk with drawers
- Work bench
- Laboratory equipment and documentation
- Penetrometer -2 nos
- Refractometer-2 nos
- Weighting scales - 0-1000 gram- 1 no, 0-30 kg – 1 no.
- Minolta colour measurement camera
- Equipment for fruit-acid measurement
- Digital camera – sony make
- Size rings for products
- 4 handheld electronic product thermometers
- Hand held Oxygen cum CO2 Analyser
- Portable temperature measuring instrument for measuring temperature of 4 Sensors of CA Chamber
- P.C. with DeskJet printer with
- Complete set of manuals

TECHNICAL DATA SHEET EVAPORATORS

Model Number	:	CIW 43-84 Sp
Number of Units	:	78 off
Duty each Unit	:	42.0kw
Air Temp	:	On=0C and Off=-3.0C All sensible cooling
Medium	:	DX R404 a evaporating at -5C
Air Volume	:	10.8m3/s
Fans	:	4x630mm dia propeller fan running at 960rpm 3ph, 415V,50hz,0.55kw each motor,IP55.
Defrost	:	Electric in coil =13.0kw, tray =3.25kw,Fan peripheral Heater =1.4kw.
Coil Material	:	Copper tube and aluminium fins
Coil details	:	8rows deep 4 fins per inch,Tube surface=507m2.
Case work	:	White powder coated galvanised steel
O/A Dimension	:	L=5400 mm H=990 mm D=(730+250)mm approx
Internal volume	:	120 dm^3
Dry weight	:	665 kgs approx.
Manufactured	:	Star coolers & Condensers, Jalgaon, India.

TECHNICAL DATA FOR SCREW CHILLER

S. No.	Characterstics	Unit	SCREW CHILLER
1	Model		30HXC190A
2	Type		SCREW
3	Manufacturer Origin		Carrier China
4	Refrigerant		R-134a
5	Actual Capacity	TR	167
6	Machine Input Power	KW	134
7	1 KW / TR at 100% load		0.80
8	Name plate voltage	V	400
9	Electrical power frequency	Hz	50
10	Starter type		Star Delta

11	Operating weight	KG	3179
12	Compressor type		Semi Hermetic
13	No. of compressors		Two
14	Motor type		T.E.R.C
15	Motor RPM		2900
	Cooler Data		
1	Cooler type		Shell & Tube
2	Fluid type		FW
3	Chilled water in temp.	Deg C	8.6
4	Chilled water out temp.	Deg C	4
5	Water flow rate	USGPM	482
6	Fouling Factor	FPS	0.0001
7	Pressure Drop	Mtrs	6.1
	Condensor Data		
1	Condensor type		Shell & Tube
2	Fluid type		FW
3	Cooling water in temp.	Deg C	32.2
4	Cooling water out temp.	Deg C	36.4
5	Water flow rate	USGPM	645
6	Fouling Factor	FPS	0.00025
7	Pressure Drop	Mtrs	7
	Dimensions		
1	Length	Mm	3295
2	Width	Mm	980
3	Height	Mm	1950
	Refrigerant Quantity	Kg	140
	Starting Current	Amps	465
	Running Current	Amps	214

Evaporator for sorting Area

Technical Data Sheet

Model Number	:	DAS 18/66 sp
Number of Units	:	10 off
Duty each Unit	:	33 kw each
Air Temp	:	On=12C / 10C wb and Off=7.95C / 7.74 C wb
Medium	:	Chilled water entering at 4 C and leaving at 7 C flow rate = 2.61 l/s water press drop = 14 kPa
Air Volume	:	5.38 m^3 /s
Fans	:	3x500mm dia propeller fan running at 1400rpm 3ph, 415V,50Hz,0.45kw each motor,IP55.
Defrost	:	None
Coil Material	:	Copper tube and aluminium fins
Coil details	:	6rows deep 6 fins per inch,Tube surface=232.8m^2
Case work		White powder coated galvanised steel Coated aluminium casing available if required.
O/A Dimension	:	L=2972 mm Wide = 1245 mm H=600 mm appox
Internal volume	:	52 dm^3
Dry weight	:	583 kgs approx.

AIR HANDLING UNIT

Client Project	M/s NRK Refrigeration INFRACOOL GURGAON
AHU	
MAKE	ZECO
TYPE	Double skin Floor Mounted Unit
UNIT SERIAL No.	FMU-6-7/1641
MODEL/AIR QUANTITY	ZDS-200/20000 CFM-40mm wg-Static pressure
SPECIFICATIONS/TECHNICALDATA	As per Drawing No.ZAIPL-(7126-1A)ZECO enclosed
FAN	

MAKE	KRUGER
TYPE	DIDW Centrifugal Forward Curved
MODEL	FDA 800
CODE/SERIAL No.	CAA121810000/07E00706-0000
MOTOR	
MAKE	ABB
TYPE	TEFC 4Pole -3Ph-7.5kw
SERIAL No.	276986
COIL	
MAKE	ZECO
TYPE	Chilled water coil- 2Nos.
No OF ROWS/FPI	4/12
COPPER TUBE DIA	½"
PRESSURE TESTING	325 PSIG
FILTER	
TYPE	Pre-Filter
EFFICIENCY	90%Down to 10 Micron
CASING	
INNER SKIN	0.6mmGI
OUTER SKIN	0.6mm pre Coated GI
OUTER COLOUR	ORANGE
INSULATION/DENSITY	Puf/40 Kg per cubic mtr

	Equipment/ Area	Capacity	Model/ Make/Type	Quantity
1	**D.G with Alternator & canopy**	1250 KVA	KTA 50- G3	02Nos
2	**Transformers**	2500 KVA	Universal	02 Nos
3	**Servo Stabilizers**	400 KVA	Labotech	04 Nos
		250 KVA	Labotech	02 Nos
		150 KVA	Labotech	03 Nos
4	**Weighing Scale**	0.1-30 Kg	A613W/Avery India ltd	13 Nos
		1500 Kg	L115/ Avery India ltd	02 Nos
5	**Insulated Door**	----------	Crawford	12 Nos
6	**Shutter(Utility Area)**	----------	----------	01 Nos
	Shutter(near packing area ramp) with motor	1 KW	Elero	01 Nos
7	**Lab Refrigeration system**	1 Ton	CR22K6M/Copeland	02 Nos
8	**Pump Room for water supply**	3HP / 2.2 KW	Kirloskar/KD 5335++	04 Nos
		5HP / 3.7 KW	Kirloskar/KD 5538++	02 Nos
		15HP / 11 KW	Kirloskar/KI 16 0 m 15c2	02 Nos
9	**Fire hydrant pump motor**	75HP / 55 KW	Kirloskar/HX+250 MBY	01 Nos
	DG pump motor	83 Hp/ 61 KW	HA 694 TC	01 Nos
10	**Fire Foam Generator**	----------	New Age Industries	01 Nos
11	**Fire Extinguishers**			
	CO2 Cylinder(Class:B&C)	4.5kg	Safe Guard	40 Nos
	Dry Cylinders	5kg	Safe Guard	40 Nos
12	**Dock levelers (3000*2000&*500mm)**	9 Ton.	MNP Engineers	06 Nos
	Dock Cylinder	----------	----------	01 Nos
	Lip Cylinder:	----------	----------	02 Nos
	Solenoid Valve	----------	Yuken	02 Nos
	Pressure Relief valve	----------	Polyhedron	01 Nos
	Motor	----------	ABB	01 Nos
	Pump		Mico Bosh	01 Nos
	Cylinder	----------	Camora hydraulic/Enerpack	01 Nos
13	**Lighting**			
	Sorting Hall : Halogen fitting with Chock,Bulb,Igneter etc.	400watt	Philips	17 Nos
	Halogen fitting with Chock,Bulb,Igneter etc.	250watt	Philips	15 Nos
	2 tube light fitting with Chock,Bulb,Starter etc.	36watt	Philips	10 Nos
	Packing hall: 2 tube light fitting with Chock,Bulb,Starter etc.	36watt	Philips	78 Nos
	Above Packing Hall 2tube light fitting with Chock,Bulb,Starter etc.	36watt	Philips	15nos.
	CA Room:2 tube light fitting with Chock,Bulb,Starter etc.	36watt	Philips	78*2=156nos.
	Utility:HPSV light fitting with Chock,Bulb,Igniter etc.	250watt	Philips	06 nos.
	Corridor:2 tube light fitting with Chock,Bulb,Starter etc.	36watt	Philips	13+13+13+05 =44 nos
	Mezanine:2 tube light fitting with Chock,Bulb,Starter etc.	36watt	Philips	26+26+26+06 =84 nos.
	External: Hlogen light fitting with chock,bulb,Igniter etc.	400watt	Philips	22 nos.
	Office Building:T-5 Light Fitting With Chock,Bulb etc.		Philips	136+11=147nos

	Pump room:Halogon fitting with Chock,Bulb,Ineter etc.	400tt	Philips	04 nos.
	Pump roomInside;. 2 tube light fitting with Chock,Bulb,Starter etc	36watt	Philips	05 nos.
	Main Gate lighting CFL	50watt	Philips	04 nos.
14	**Air Compressor**	7.5HP	Chicago pneumatic/CPM7/FAD:CFM21.18	01nos.
15	**Exhaust Fan**	372watt	Alstom	20 nos.
16	**R.O System**	250LPH	Kemflow	01 nos.
		25LPH	Kemflow	03 nos.
17	**Humidifiers(Ultrasonic)**	25kg/h	Zen Jiang Jiaway Environment Technology Ltd.	06 nos.
	Humidifiers(Centrifugal)	2kg/h	----------	10 nos.
18	**Bore well**	7.5HP	Kirloskar	01 nos.
19	**Sewerage Pump**	3HP	Kirloskar	01 nos.
20	**Harvest pit pump**	7.5HP	Kirloskar	01 nos.
21	**Geysers**	25lts	ELPAR/closed	05nos.
22	**Copper pipe**			5000ft (aprx) inclusive of all sizes.
23	**Airconditioning chiller**	167 TR	Carrier 30HXC 190A/Screw with R134A	1 no.
24	**Refrigerant in A/c chiller**			140 kgs
25	**AirCoolingUnit for airconditioning**		Star Coolers and condensers, DAS 18/66sp,	17 nos
	ACU fans	0.45 KW	3 x 500 mm dia, in each ACU	
26	**AHU**	20,000 cfm	Zeco make, double skinned	1 no.
	Ducting of airconditioning office building	-	-	One set.
	False ceiling, diffusors	-	-	One set.
	Exhaust fans (office bldg)	-	-	6 nos
27	**CA Room Refrigeration Evaporator**	-	Star coolers and condensers, CAW43-84 sp	78 nos
28	**Computer systems**	-	Connected to different equipment	10 nos.
29	**CA door window**		SALCO/ITALY	78 nos.
30	**HT cable 11 kv (DP to meter room and meter room to Transformers)**			400 mtrs.
31	**Temp./RH indicator**			
32	**Potatoes machines**			
33	**Air Curtains**			

Anexure-IV

(Price Bid)

Chief Executive Officer,
Fresh & Healthy Enterprises Ltd.
HSIDC Industrial Estate
Rai- Sonepat(Haryana)

Sub : Submission of the documents for Operation & Maintenance of 12,000 MT Agri Logistic Centre Including Controlled Atmosphere systems, Chiller system, Custom bonded ware house and other allied equipments at FHEL, Rai, Sonipat, Haryana, Pin-131029, India.

Sir,

With reference to your tender no. FHEL/Rai/T/O&M/45533 dt.12/02/2024, we hereby quote our rates for following description:

Sr. No.	Description	Quantity	Rate in Figures per month inclusive of all, Taxes etc.	Rate in Words per month inclusive of all, Taxes etc.	Amount in Figures for 12 months inclusive of all Taxes etc.	Amount in Words for 12 months inclusive of all Taxes etc.
1.	Lumpsum rate for providing services for Operation & Maintenance of 12,000 MT Agri Logistic Centre Including Controlled Atmosphere systems, Chiller system, Custom bonded ware house and other allied equipments at FHEL, Rai, Sonipat, Haryana, Pin-131029, India.	12 months				

Yours faithfully,

(Sign and name & seal of the tenderer)

Annexure-V

PERFORMANCE SECURITY FORM

(To be stamped in accordance with the Stamp Act, if any, of the Country of the Issuing Bank)
(Please see Clause-5.0 of Section-II)

WHEREAS ..... (Name of contractor) ……
hereinafter called "the Supplier" has undertaken, in pursuance of Contract No .....dated..... for Operation & Maintenance of 12,000 MT Agri Logistic Centre Including Controlled Atmosphere systems, Chiller system, Custom bonded ware house and other allied equipments at FHEL, Rai, Sonipat, Haryana, Pin-131029, India.
(hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the Supplier shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with the Supplier's performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the contractor a Guarantee:

THEREFORE, WE hereby affirm that we are Guarantors and responsible to you, on behalf of the contractor, up to a total of Rs.…….(Rupees……..) of the Guarantee and we undertake to pay you, upon your first written demand declaring the contractor to be in default under the Contract and without cavil or argument, any sum or sums within the limit of .....….....(Amount of Guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the .....day of.....

Signature
Name
Designation with Bank's Stamp

Witness:

Date: ……..
Address ……
……

Signature :
Name :

Official Address :

Note: The stamp paper of appropriate value shall be purchased in the name of Issuing Bank.

ANNEXURE-VI

Bid security declaration

I/We hereby understand and accept that if I/we withdraw or amends impairs or derogates from the tender in any respect of modify my/our bids during the period of validity, or if I/we are awarded the contract and on being called upon to sign the contract agreement & submit the performance Security/Security deposit, fail to sign the contract agreement within & fails to submit the performance security/Security deposit before the deadline defined in the bid document/Notice inviting Tender, I/we shall be debarred for a period of 12 (twelve) months, all tenders for all kinds of procurements viz Goods, Consultancy, Work, non-consulting Service etc. issued by CONCOR published during this period. I/We also know that we shall also be debarred from participating in re-tender for that work.

For & On behalf of bidder/Contractor)

ANNEXURE-VII

INTEGRITY PACT

Fresh & Healthy Enterprises Limited (FHEL) herewith referred to as "The Principal:**……** hereinafter referred to as "The Bidder/Contractor".

Preamble

The Principal intends to award, under laid down organizational procedures, contract/s for **…….....** The Principal values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness / transparency in its relations with its Bidder(s) and / or contractor(s).

In order to achieve these goals, the Principal will appoint an Independent External Monitor (IEM), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 – Commitments of the Principal

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles.

a. No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
b. The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
c. The Principal will exclude from the process all known prejudiced persons.

(2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions.

Section 2 – Commitments of the Bidder(s) / contractor(s)

(1) The Bidder(s) / Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

a. The Bidder(s) / Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contractor to any third person any material or other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
b. The Bidder(s) / Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
c. The Bidder(s) / Contractor(s) will not commit any offence under the relevant IPC/PC Act; further the Bidder(s) / Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
d. The Bidder(s) / Contractor(s) of foreign origin shall disclose the name and address of the Agents / representatives in India, if any. Similarly the Bidder(s) / Contractor(s)of Indian

Nationality shall furnish the name and address of the foreign principles, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Supplier" shall be disclosed by the Bidder(s) / Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian agent/representative have to be in Indian Rupees only. Copy of the "Guidelines on Indian Agents of Foreign Supplier" is annexed and marked as Annexure-10.

e. The Bidder(s) / Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

(2) The Bidder(s) / Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

II Section 3 – Disqualification from tender process and exclusion from future contracts

If the Bidder(s) / Contractor(s), before award or during execution has committed a transgression through a violation of Section 2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s) / Contractor(s) from the tender process or take action as per the procedure mentioned in the "Guidelines on Banning or business dealings". Copy of the "Guidelines on Banning of business dealings" is annexed and marked as Annex.-B".

III. Section 4 – Compensation for Damages

(1) If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to take action as per Bid Security Declaration Form specified at ANNEXURE VI of this tender document.

(2) If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages of the contract value or the amount equivalent to Performance Bank Guarantee.

IV Section-5- Previous transgression

(1) The bidder declares that no previous transgressions occurred in the last 3 years with any other Company in any country conforming to the anti corruption approach or with any other Public Sector Enterprises in India that could justify his exclusion form the tender process.

(2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action can be taken as per the procedure mentioned in "Guidelines on Banning of business dealings".

Section 6- Equal treatment of all Bidders/Contractors/Subcontractor

(1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity pact, and so submit it to the Principal before contract signing.

(2) The Principal will enter into agreements with identical conditions as this one with all bidders, contractors and subcontracts.

(3) The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7–Criminal charges against violating Bidder(s) / Contractor(s) / /Subcontractor(s)

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontract which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

Section 8 – Independent External Monitor/Monitors

(1) The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parities comply with the obligations under this agreement.

(2) The Monitor is not subject to instruction by the representatives of the parties and performs his functions neutrally and independently. He reports to the Chairman of FHEL cum CMD of CONCOR.

(3) The Bidder(s)/Contractor(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The contractor will also grant the Monitor, up to his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/Contractor(s)/Subcontractor(s) with confidentiality.

(4) The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

(5) As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

(6) The monitor will submit a written report to the Chairman of FHEL cum CMD of CONCOR within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

(7) Monitor shall be entitled to compensation on the same terms as being extended to/provided to independent Directors on the FHEL Board.

(8) If the Monitor has reported to the Chairman of FHEL cum CMD of CONCOR, a substantiated suspicion of an offence under relevant IPC/PC Act, and the Chairman of FHEL cum CMD of CONCOR has not within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.

(9) The word "Monitor" would include both singular and plural.

(10) Name of IEM: - 1. Shri. Anjani Nandan Sharan (IFoS, Retd.)
2. Shri Bibhuti Bhushana Mishra (IPS, Retd.)

Section 9 – Pact Duration

This Pact begins when both parties have legally signed. It expires for the Contractor 12 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded.

If any claim is made/lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by Chairman/FHEL.

Section 10 – Other provisions

1) This agreement is subject to Indian law. Place of performance and jurisdiction is to the Registered Office of the Principal, i.e. New Delhi.
2) Changes and supplements as well as termination notice need to be made in writing. Side agreements have not been made.

3) If the Contractor is a partnership or a consortium, this agreement must be signed by all Partners or consortium members.
4) Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an Agreement to their original intentions.

(For & On behalf of the Principal) (For & On behalf of Bidder/Contractor)

Office Seal Office Seal

Place_____
Date_____

Witness 1:
Name & Address _____
_____

Witness 2:
Name & Address _____
_____
_____

Note: Contractor must submit the functioning/non-functioning report of all equipment and daily log book of the following with monthly O&M bills for releasing the payment.

1. Functioning of ETP, water softener plant, all equipments of pump house, fire installations, refrigeration motors and pumps, all transformers, all DG sets, HT and LT electrical panels and pump house panel, ACB and VCBs, all servo transformers, all power factor panels, all UPS connected with electrical installations and compressors racks, all lights inside of chamber and corridor and outside of CA plants, Metering room, All electrical panel of all 78 chambers, conditions of all dock levelers, Cooling towers
2. Contract will maintain the cannibalizations register and existing equipment/items may be change with the approval of executive of FHEL only. Certification for Cannibalizations of items must be given by O&M agency on his letter head with the O&M bill.
3. Requirement of consumables and other electrical items may be submitted to competent authority before the fifteen days for consumptions of at least three months.
4. Checking of further equipments will be done jointly with O&M agency and Executive of FHEL.
5. List in XL format may be submitted by O&M agency on daily basis for actual O2 and CO2 level of CA chambers.
6. Functioning status of data logger on daily basis may be submitted b O&M agency.
7. Physical check of 12 individual chamber panel to be done on daily basis and report to be submitted daily.
8. Physical check of all other electrical panels and equipments may also be done and submit the report.
9. Other required reports may be asked time to time by FHEL and the same may be submitted with in 2-3 hrs.
10. Cannibalization register may be maintained by O&M agency on daily basis.
11. Cleaning of all equipment may be done by O&M agency on daily basis.
12. Requirement of any items/spares & equipment may be submitted by O&M agency on quarterly basis with proper details i.e. name of items/spares with part numbers, required quantity, make of item, Name of three suppliers with telephone number and proper address.

Following work to be done by O&M agency jointly with FHEL executive on monthly basis.

SN	Description	Status on date…../…../…..
1	Numbering in all equipment	
2	Water Hardness check Register	
3	Submersible pump working/Not	
4	Functioning of Water Softener	
5	All motors of pump house working ? or not	
6	Condition of Pump house Panel working ? or not	
7	Lighting in Pump House inside and outer area	
8	25 HP motor check sound or working	
9	Any leakage in Transformer and DG Radiator	
10	Earthing of Transformer and DG sets	
11	Battery conditions of both DG set and other	
12	Lighting in DG & Transformer Area	
13	Functioning of Servo Transformers	
14	Earthing of Servo transformers	
15	Lighting in Substation Area inside	
16	functioning of Fork Lift Chargers for all 08 nos	
17	Electric Stacker (02 Nos)	
18	Electric Pallets (PPT) (02 Nos)	
19	Lighting in Back side Jina Area	
20	Lighting in back side packing area inside	
21	Lighting in back side packing area out side	
22	Light in Corridor -1, 2, 3.	
23	Lighting in Sorting hall	
24	CCTV working	
25	Packing Machine physical check (02 nos.) back side	
26	Weigh Machine 100 Kg (01), 200 Kg (01), 1000 Kg (02)	
27	Lighting in front side sorting area out side	
28	Lighting in Main Gate and admin office area	
29	Functioning of All 03 Nitrogen Plants	
30	Checking and functioning of all 04 Potatoes Machines	
31	Temp/RH Indicators in Corodor-3 at Door	

32	Data Logger functioning	
33	Lighting in all chambers	
34	All Air curtains working	
35	All Doors of chambers condition/working	
36	All refrigeration compressor (06 nos.-80TR & 03nos.-30 TR)	
37	Capacitor Bank panel functioning	
38	LT panel working	
39	HT panel functioning	
40	Cooling tower condition	
41	Cooling tower Motors (04 Nos) functioning	
42	Chiller cooling tower working	
43	ETP plant functioning	
44	Fire hydrant system functioning or not	
45	Fire hydrant DG set (01 No)	
46	Pre-Cooler status (04 Nos.)	
47	Conditioning of condenser pipe line	
48	Sorting Grading Machine (01 Nos)	
49	Packing Machine (02 Nos.)	
50	Wax Machine (01 No)	
51	Dock leveller (3+3=6 no)	
52	UPS 2 KVA (05 Nos) and others	

Working status of **date…../…../…..**

SN	Refrigeration Pump-1, 2, 3, 4 (Left To Right)	Remarks
1	Is there any replenish of Grease	
2	Oil Level	
3	Mounting Loose or Not	
4	Noise and vibration	
5	Electrical Connection condition	
6	Leakage water through stuffing box (if required replace seal)	
7	Coupling between Motor/Pump	
8	Alignment status	
9	Condition of Rubber (in between Motor & Pump)	
10	Any damage of Pump body	
11	Any other requirement	

Daily Set and Present Temp. of Chambers at FHEL, Rai, Sonipat,
Date……..

Chamber	Set Temp.	6AM	,10 AM	,14 PM	,18 PM	,22 PM	,02 AM
1							
2							
3							
4							
5							
6							
7							
8							
9							
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11							
12							
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18							
19							
20							
21							
22							
23							
24							
25							
26							

Set and present Temp. of Chambers at FHEL, Rai, Sonipat, Date…….

Chamber	Set Temp.	6AM	,10 AM	,14 PM	,18 PM	,22 PM	,02 AM
27							
28							
29							
30							
31							
32							
33							
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49							
50							
51							
52							

Set and present Temp. of Chambers at FHEL, Rai, Sonipat, Date…….

Chamber	Set Temp.	6AM	,10 AM	,14 PM	,18 PM	,22 PM	,02 AM
53							
54							
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78							

Status of daily working of DG sets, Transformers, Compressors, Pumps & Motors at FHEL Dt…….	
DG-1 HMR	
DG-2 HMR	
Transformer-1	
Transformer-2	
Rack-1	
80 TR-1	
80 TR-2	
30 TR-1	
Rack-2	
80 TR-1	
80 TR-2	
30 TR-1	
Rack-3	
80 TR-1	
80 TR-2	
30 TR-1	
Condition of Cooling Tower No.-1	
Motor-1 of cooling tower-1	
Motor-2 of cooling tower-1	
Condition of Cooling Tower No.-2	
Motor-1 of cooling tower-2	
Motor-2 of cooling tower-2	
Condenser water pump no.-1	
Condenser water pump no.-2	
Condenser water pump no.-3	
Condenser water pump no.-4	
Capacitor Bank-1	
Capacitor Bank-2	
Servo Transformers 01 to 09	

Oil Level to be checked on every Monday of the following,		**Date …….**
SN	**Description**	**Status**
1	DG-1 Oil level	
2	DG-2 Oil level	
3	DG-1 Coolant Level	
4	DG-2 Coolant Level	
5	Transformer-1 Oil Level	
6	Transformer-2 Oil Level	
7	Oil level in Chicago Air Compressor	
8	Oil level in Refrigeration compressors Rack-1 (30 TR)	
9	Oil level in Refrigeration compressors Rack-1 (80 TR) Inner	
10	Oil level in Refrigeration compressors Rack-1 (80 TR) Outer	
11	Oil level in Refrigeration compressors Rack-2 (30 TR)	
12	Oil level in Refrigeration compressors Rack-2 (80 TR) Inner	
13	Oil level in Refrigeration compressors Rack-2 (80 TR) Outer	
14	Oil level in Refrigeration compressors Rack-3 (30 TR)	
15	Oil level in Refrigeration compressors Rack-3 (80 TR) Inner	
16	Oil level in Refrigeration compressors Rack-3 (80 TR) Outer	
17	Oil level in Refrigeration Pump-1 (Left to Right)	
18	Oil level in Refrigeration Pump-2 (Left to Right)	
19	Oil level in Refrigeration Pump-3 (Left to Right)	
20	Oil level in Refrigeration Pump-4 (Left to Right)	
21	Oil level in Servo Transformer, 400 KVA (**Rack-1**)	
22	Oil level in Servo Transformer, 400 KVA (**Rack-2**)	
23	Oil level in Servo Transformer, 400 KVA (**Rack-3**)	
24	Oil level in Servo Transformer, 400 KVA (**Chiller, Sorting, Packing m/c**)	
25	Oil level in Servo Transformer, 250 KVA (**Pump House**)	
26	Oil level in Servo Transformer, 250 KVA (**Fire system**)	
27	Oil level in Servo Transformer, 150 KVA (**Packing Area & Doc leveller**)	
28	Oil level in Servo Transformer, 150 KVA (**Lighting**)	
29	Oil level in Servo Transformer, 150 KVA (**Admin Block**)	
30	Oil level in Refrigeration Rack-1	
31	Oil level in Refrigeration Rack-2	
32	Oil level in Refrigeration Rack-3	