

**NOTICE INVITING E-TENDER (NIT)**

S. No.	Events	Date and time
1	Notice Inviting BID (NIT) No.	17/IITPKD/EWD/2026-27/111
2	Name of work	Construction of Permanent campus for IIT Palakkad under Phase B, SH: SITC of <b>1252 kWp</b> Solar Generation system including Solar PV Panel, Inverter and connection, supporting structures etc. at Sahyadri and Nila campus
3	Date of Publication	16-06-2026
4	Date / Time of closing	08-07-2026, 1100 hrs
5	Opening of Technical cum Eligibility Bids	08-07-2026, 1130 hrs
6	Estimated Cost put to bid	Rs. 5,83,44,000/-
7	Earnest Money Deposit (EMD)	Rs.11,66,880/-
8	Stipulated date of completion	180 Days

Engineering works Division  
Indian Institute of Technology Palakkad  
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Indian Institute of Technology Palakkad (hereinafter called "IITPKD") invites ONLINE item rate Bids (Cover-1: Eligibility cum technical Bid, Cover-2: Financial Bid) from approved and eligible contractors who satisfy the eligibility criteria given in Annexure I for the following work. Interested bidders may submit their bids ONLINE at <https://mhrd.ewizard.in>

1.	Name of Work	Construction of Permanent campus for IIT Palakkad under Phase B, SH: SITC of <b>1252 kWp</b> Solar Generation system including Solar PV Panel, Inverter and connection, supporting structures etc. at Sahyadri and Nila campus
2.	Estimate Cost put to Tender	Rs. 5,83,44,000/-
3.	Earnest Money Deposit (EMD)	Rs. 11,66,880/- Bids without paying the EMD in gateway of E-Wizard portal shall be DISQUALIFIED
4.	Period of completion	180 days
5.	Validity of the tender	75 days from the date of opening of eligibility bid.
6.	Last Date for Submission of e-Tender	08-07-2026, 1100 hrs
7.	Date of Opening of the Eligibility document	08-07-2026, 1130 hrs
8.	Date of opening of the financial bid	Will be intimated later to eligible bidders through online in E- Wizard portal

#### DEFINITION

Officer inviting tender : Chairperson, EWD

Accepting authority : Chairperson, EWD

Time allowed for submission of Performance security : 10 days

Maximum allowable extension with late fee at the rate of 0.1% of PS per day beyond the period of 10 days - 5 days.

No of days from the date of issue of letter of acceptance for recurring date of start : 7 days

## **1.GENERAL**

- 1.1 Indian Institute of Technology Palakkad (hereinafter called "IITPKD") invites Item rate tenders under two-bid System. The bid document consists of a schedule of quantities of various items to be executed, terms and conditions of the contract and other necessary documents can be seen and downloaded from <https://mhrd.ewizard.in/>
- 1.2 The bids will be opened by the competent authority of IIT Palakkad on behalf of the IIT Palakkad through E- wizard portal.
- 1.3 The bids shall be submitted online in E- Wizard Portal <https://mhrd.ewizard.in/>
- 1.4 The responsibility of submission of the bids on or before the last date shall rest with the tenderer.
- 1.5 Canvassing whether directly or indirectly, in connection with bids is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.
- 1.6 The bidder shall bear all costs associated with the preparation and submission of his bid and IITPKD shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tender process.
- 1.7 IITPKD will respond to any request for clarification or modification of the Tender Document that is received up to FIVE (05) days prior to the deadline for submission of bids prescribed by IITPKD. For this purpose, the prospective bidder(s) requiring clarification in the Tender Document shall notify IITPKD in writing at the address mentioned. Any such clarification, together with all details on which the clarification had been sought, will be published on the E-Wizard website.
- 1.8 Except for any such clarification by the Institute, which is expressly stated to be an addendum/Corrigendum to the tender document issued by the Chairperson, EWD, IIT Palakkad, no written or oral communication, presentation, or explanation by any other employee of any of the Sections/Departments of the Institute, shall be taken to bind or fetter the Institute.

### **1.9 EARNEST MONEY DEPOSIT (EMD)**

- i. The bidder shall furnish EMD of Rs. 11,66,880/- through an online payment gateway in the E-Wizard.
- ii. Bids without paying the EMD in gateway of E- Wizard portal shall be DISQUALIFIED.
- iii. EMD of the successful bidder shall be returned on receipt of the prescribed Performance Security and after signing of the contract agreement.
- iv. EMD of the unsuccessful bidders will be returned to them at the earliest after expiry of the final bid validity and latest by the 30th day after the award of the contract.
- v. 100% EMD shall be forfeited
  - a. if the bidder withdraws his bid after opening of the bid during the period of validity of the tender.
  - b. if the successful bidder refuses or neglects to execute the contract or fails to furnish the required Performance Security within the time frame specified by the Institute.
  - c. if the successful bidder fails to execute the Contract on specified timeline
- vi. MSME firms registered in NSIC under PP policy are not exempted from payment of EMD for

this work.

## **2. ADDENDUM / CORRIGENDUM IN THE TENDER DOCUMENT**

- 2.1. At any time prior to the deadline for submission of bids, IITPKD may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Tender Document by way of amendment(s)/ Corrigendum
- 2.2. Addendum/Corrigendum will be intimated through the E- Wizard portal and the bidders shall ensure that the addendums are carried out in the bid before submission. The addendums will not be published in newspapers. Bidders should regularly visit the E-Wizard portal to keep themselves updated.
- 2.3. No extension in the bid due date/ time shall be considered on account of delay in submission of bid.

## **3. COMPOSITION OF THE TENDER DOCUMENT**

- 3.1 The Tender Document comprises of:
  - (a) Eligibility Criteria (Annexure-I)
  - (b) Documents to be uploaded (Annexure II)
  - (c) Format of Performance Security (Annexure-III)
  - (d) Fall clause notice certificate (Annexure IV)
  - (e) Letter of Transmittal (Annexure - V)
  - (f) Declaration for Not Blacklisted / debarred (Annexure VI)
  - (g) Additional Conditions & Technical Specifications (Annexure - VII)
  - (h) List of Preferred makes (Annexure - VIII)
  - (i) Drawings(Annexure - IX)
  - (j) Schedule of Quantity (Annexure - X)
  - (k) Financial bid (Cover 2)

The bidder shall not make or cause to be made any alteration, erasure or obliteration to the text of the Tender Document.

## **4. LANGUAGE/FORMAT/SIGNING OF THE BID**

- 4.1. The bid prepared by the Bidder and all correspondence and documents related to the tender exchanged by the Bidder and IITPKD shall be in English and the Contract shall be construed and interpreted in accordance with that language. If any of the brochures, leaflets or communication is prepared in any language other than English, a translation of such document, correspondence or communication shall also be provided at the cost and risk of the bidder. The translation so provided shall prevail in matters of interpretation. The bidder, with respect to such documents, correspondence and communications, shall bear the costs and risks of such translation.
  - 4.2. The bid shall not contain any internalizations, erasures, overwriting, except to correct errors made by the bidder, in which case the person or persons signing the bid shall initial such corrections with date.
5. Bids submitted in any mode other than ONLINE will be rejected outright. No prices should be included in the technical bid. Financial Bid should be filled as per the financial bid document.

## **6. ITEM RATE CONTRACT**

Prices of the items shall be quoted in Indian Rupees. If the rate of any item kept blank, the rate quoted will be taken zero and such item shall be executed at free of the cost.

## **7. CONFORMITY OF THE TENDER DOCUMENT**

The bid document consisting of specifications, the schedule of quantities of various items to be executed and the terms and conditions of the contract and other necessary documents can be seen in the tender document.

## **8. PERIOD OF VALIDITY OF BIDS**

Bids shall remain valid for a period of 75 (Seventy Five) days after the date of deadline for submission of bids prescribed by the Institute.

## **9. MODIFICATION AND WITHDRAWAL OF BIDS**

The bidders may modify or withdraw the bid after submission only through ONLINE mode, within the period of deadline for submission of bids. No bids can be modified subsequent to the deadline for submission of Bids. No bids can be withdrawn in the interval between the bid submission deadline and the expiration of the bid validity period.

## **10. OPENING AND EXAMINATION OF BIDS**

10.1. The Eligibility cum technical bids (Cover 1) will be opened on the prescribed date and time as mentioned in the Bid document in ONLINE mode.

10.2. The Institute will evaluate the cover 1 for the eligibility criteria. Those bids, who satisfy the eligibility criteria will be considered for opening their financial bids. Those bids which are found to be either non-responsive, not satisfying the eligibility criteria will not be considered for opening their financial bids and will be rejected.

10.3. The date of opening of financial bid (cover 2) will be intimated later to the eligible bidders through E- wizard portal.

## **11. CLARIFICATION OF BIDS**

During the bid evaluation, the Institute may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be through ONLINE mode ONLY and no change in the price or substance of the bid shall be sought, offered or permitted.

## **12. AWARD CRITERIA**

The competent authority on behalf of the IIT Palakkad does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without assigning any reason. All bids in which any of the prescribed conditions is not full fill including that of conditional rebate is put forth by the bidders shall be summarily rejected. The competent authority on behalf of the IIT Palakkad reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform at the rates quoted.

## **13. INSTITUTE RIGHT TO ACCEPT/REJECT BIDS**

The Institute reserves the right to accept or reject any bid or to annul the bidding process and reject all bids at any time prior to Contract award, without thereby incurring any liability to the Bidders.

## **14. AWARD OF WORK/PURCHASE ORDER**

Prior to the expiration of the period of bid validity, the institute will issue the Work Order to the successful Bidder in writing. The Work order will form part of the Contract.

#### **15. CONTRACT AGREEMENT**

On receipt of work Order from the Chairperson (EWD), the successful bidder shall sign with the date on each page of the work order and return it to the Chairperson EWD, along with the Performance Security. Copy of Work Order duly signed by the successful Bidder on each page shall constitute the Contract Agreement.

#### **16. PERFORMANCE SECURITY**

Within 10 (TEN) DAYS of receipt of notification of award from the Chairperson EWD, the successful Bidder shall furnish the performance security equal to 5% of ECPT or bid amount whichever is higher. The Performance Security shall be valid all along the contract period and shall extend up to sixty (60) days after the date of completion of work accepted by the Engineer in Charge.

The performance security shall be a bank guarantee (in the format as provided in (in the format as provided in Annexure- IV of the bidding documents) issued by any Scheduled Bank in India acceptable to the Purchaser or a Demand Draft favoring, INDIAN INSTITUTE OF TECHNOLOGY PALAKKAD payable at PALAKKAD. The performance security shall be returned to the contractor not later than fifteen (15) days after the record of completion certificate by the Engineer in Charge.

**16.1 SECURITY DEPOSIT** : 2.5% of tendered value. The contractor whose tender is accepted will also be required to permit the Institute to deduct by way of Security Deposit for the fulfillment of his contract, an amount equal to 2.5% of the tendered value of the work. The Security deposit at the rate of 2.5% of the Gross amount of each running bill and final bill till this some deducted will amount to Security deposit at the rate of 2.5% of the tendered amount of work. Such deductions will be made at the rates mentioned above in the form of Fixed Deposit Receipt / E- Bank Guarantee of Bank. In case a fixed deposit receipt of any Bank is furnished by the contractor to the Institute as part of the security deposit and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Government to make good the deficit.

#### **16.2 CONTRACTOR LIABLE FOR DAMAGES, DEFECTS DURING DEFECT LIABILITY PERIOD (12 MONTHS)**

If the contractor or his working people or servants shall break, deface, injure or destroy any part of building in which they may be working, or any building, road, road kerb, fence, enclosure, water pipe, cables, drains, electric or telephone post or wires, trees, grass or grassland, or cultivated ground contiguous to the premises on which the work or any part is being executed, or if any damage shall happen to the work while in progress, from any cause whatever or if any defect, shrinkage or other faults appear in the work within twelve months (six months in the case of work costing Rs. Ten lakhs and below except road work) after a certificate final or otherwise of its completion shall have been given by the Engineer in- Charge as aforesaid arising out of defect or improper materials or workmanship the contractor shall upon receipt of a notice in writing on that behalf make the same good at his own expense or in default the Engineer-in-Charge cause the same to be made good by other workmen and deduct the expense from any sums that may be due or at any time thereafter may become due to the contractor, or from his security deposit or the

proceeds of sale thereof or of a sufficient portion thereof. The security deposit of the contractor shall not be refunded before the expiry of twelve months (six months in the case of work costing Rs. Ten lakhs and below except road work) after the issue of the certificate final or otherwise, of completion of work, or till the final bill has been prepared and passed whichever is later. Provided that in the case of road work, if in the opinion of the Engineer-in-Charge, half of the security deposit is sufficient, to meet all liabilities of the contractor under this contract, half of the security deposit will be refundable after six months and the remaining half after twelve months of the issue of the said certificate of completion or till the final bill has been prepared and passed whichever is later. The SD shall be retained till the defect liability period.

#### **17. CONTRACT DOCUMENTS**

All documents forming part of the Contract (and all parts of these documents) are intended to be correlative, complementary and mutually explanatory. The Contract shall be read as a whole. The order of precedence of the Contract documents shall be as follows:

1. Contract Agreement
2. All other Forms
3. Bid documents

#### **18. AMENDMENT TO CONTRACT**

No amendment or other variation of the Contract shall be effective unless it is in writing, is dated, expressly refers to the Contract and is signed by a duly authorized representative of each party to the Contract.

#### **19. CONTRACTORS RESPONSIBILITIES**

The Contractor's obligations involve:

The work shall be executed as per Schedule of quantity / CPWD specifications and as per direction of Engineer /officer in charge of IIT Palakkad.

The contractors are advised to make site visits before participating in the tender. No such escalation claims will be entertained once taken up the work for any items mentioned in the schedule of quantity.

The supplying materials related to work completion, necessary transportation permits should be taken care of by the contractor. The work to be completed by the contractor at site including loading unloading transportation, handling & rehandling and required manpower charges etc.

#### **20. TIME ALLOWED FOR CARRYING OUT THE WORK**

The time allowed for carrying out the work will be **180 days** from the date of start. The date of start shall commence from the 7th day of issue of work order / Award Letter. The agency shall complete the work within the period specified in the tender document and sign the work order or within the period mutually agreed between Institute and Contractor.

#### **21. TERMS OF PAYMENT**

No Advance payment will be made. Running account shall be made by EWD as per the Execution of items in the BOQ. Gross work to be done together with net payment /adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment - Rs. 25 Lakhs

The final bill shall be submitted by the contractor in the same manner as specified in interim bills within three months of physical completion of the work or within one month of the date of the final certificate of completion furnished by the Engineer-in-Charge whichever is earlier.

No further claims shall be made by the contractor after submission of the final bill and these shall be deemed to have been waived and extinguished. Payments of those items of the bill in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by Engineer-in-Charge, will, as far as possible be made within the period specified here in under, the period being reckoned from the date of receipt of the bill by the Engineer-in- Charge, complete with account of materials issued by the Department and dismantled materials.

(a) If the Tendered value of work is up to 1 Crore : 2 months

(b) If the Tendered value of work is more than Rs 1 Crore and up to Rs. 10 Crore : 3 months

## **22. TAXES AND DUTIES**

22.1 The Contractor should ensure payment of all taxes, GST, levies and charges assessed by all municipal, state or national government authorities, in connection with the Goods and Services supplied under the Contract. Nothing extra shall be paid on any account. Rates quoted shall be inclusive of all taxes and duties.

22.2 GST, Building and other Construction Workers Welfare Cess or any other tax, levy or Cess in respect of input for or output by this contract shall be payable by the contractor and Government shall not entertain any claim whatsoever in this respect. The contractor shall deposit royalty and obtain necessary permits for supply of the red bajri, stone, kankar, etc. from local authorities. If pursuant to or under any law, notification or order any royalty, cess or the like becomes payable by the Institute and does not any time become payable by the contractor to the State Government, Local authorities in respect of any material used by the contractor in the works, then in such a case, it shall be lawful to the Institute and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from dues of the contractor.

## **23.ASSIGNMENT**

The agency shall not assign to any third party of the awarded Contract or any part thereof without the prior written consent of the Institute

## **24. GOVERNING LAW**

The Contract shall be governed by and interpreted in accordance with the laws of India.

## **25. ACCEPTING AUTHORITY**

The accepting authority - Chairperson, EWD

- (I) Estimated cost of work : Rs. 5,83,44,000/-
- (II) Earnest Money : Rs. 11,66,880/-
- (III) Performance Guarantee : 5% of value
- (IV) Security Deposit : 2.5% of tendered value

## **26. GENERAL RULES & DIRECTIONS:**

Officer inviting tender	CHAIRPERSON (EWD), ENGINEERING WORKS DIVISION
Engineer-in-Charge	Project Engineer (Electrical)

Accepting Authority	Chairperson(EWD) with approval of Director, IIT Palakkad
Percentage on cost of materials and Labour to cover all overheads and profits	15%
Standard Schedule of Rates	Delhi Schedule of Rates 2025 with up to date correction slips.
Authority for fixing liquidated damages	Chairperson, EWD
Specifications to be followed for execution of work	C.P.W.D Specification 2023 internal, external and relevant IS Code with uptodate correction slip.

## GENERAL TERMS AND CONDITIONS

### 1. TIME AND EXTENSION FOR DELAY

The time allowed for execution of the Works shall be **180 days** or the extended time in accordance with these conditions given below shall be the essence of the Contract. The execution of the work shall commence from such time period as mentioned in the Bid or from the date of handing over of the site, notified by the Engineer-in-Charge, whichever is later. If the Contractor commits default in commencing the execution of the work as aforesaid, the performance guarantee shall be forfeited by the Engineer in Charge and shall be absolutely at the disposal of the Institute without prejudice to any other right or remedy available in law.

### 2. WHEN CONTRACT CAN BE DETERMINED

Subject to other provisions contained in this clause, the Engineer-in-Charge may, without prejudice to any other rights or remedy against the contractor in respect of any delay, not following safety norms , inferior workmanship, any claims for damages and/or any other provisions of this contract or otherwise, and whether the date of completion has or has not elapsed, by notice in writing absolutely determine the contract in any of the following cases:

i) If the contractor having been given by the Engineer-in-Charge a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in an inefficient or otherwise improper or un-workman like manner shall omit to comply with the requirement of such notice for a period of seven days thereafter.

(ii) If the contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence and continues to do so after a notice in writing of seven days from the Engineer-in-Charge.

(iii) If the contractor fails to complete the work or section of work with individual date of completion on or before the stipulated or justified extended date, on or before such date of completion; and the Engineer in Charge without any prejudice to any other right or remedy under any other provision in the contract has given further reasonable time in a notice given in writing in that behalf as either mutually agreed or in absence of such mutual agreement by his own assessment making such time essence of contract and in the opinion of

Engineer-in-Charge the contractor will be unable to complete the same or does not complete the same within the period specified.

(iv) If the contractor persistently neglects to carry out his obligations under the contract and/ or commits default in complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge.

(v) If the contractor shall offer or give or agree to give to any person in Government service or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract for Government.

(vi) If the contractor shall enter into a contract with Government in connection with which commission has been paid or agreed to be paid by him or to his knowledge, unless the particulars of any such commission and the terms of payment thereof have been previously disclosed in writing to the Engineer-in-Charge.

(vii) If the contractor had secured the contract with the Government as a result of wrong tendering or other non-bonafide methods of competitive tendering or committed a breach of Integrity Agreement.

(viii) If the contractor being an individual, or if a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors.

(ix) If the contractor being a company shall pass a resolution or the court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the court or the creditor to appoint a receiver or a manager or which entitle the court to make a winding up order.

(x) If the contractor shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days.

(xi) If the contractor assigns (excluding part(s) of work assigned to other agency(s) by the contractor as per terms of contract), transfers, sublets (engagement of labor on a piece-work basis or of labor with materials not to be incorporated in the work, shall not be deemed to be subletting) or otherwise parts with or attempts to assign, transfer, sublet or otherwise parts with the entire works or any portion thereof without the prior written approval of the Engineer-in-Charge. When the contractor has made himself liable for action under any of the cases aforesaid, the Engineer-in-Charge on behalf of the President of India shall have powers:

(a) To determine the contract as aforesaid so far as performance of work by the Contractor is concerned (of which determination notice in writing to the contractor

under the hand of the Engineer-in-Charge shall be conclusive evidence). Upon such determination, Security Deposit already recovered, Security deposit payable and Performance Guarantee under the contract shall be liable to be forfeited and shall be absolutely at the disposal of the Government

(b) After giving notice to the contractor to measure up the work of the contractor and to take such whole, or the balance or part thereof, as shall be un-executed out of his hands and to give it to another contractor to complete the work. The contractor, whose contract is determined as above, shall not be allowed to participate in the tendering process for the balance work including any new items needed to complete the work. In the event of above courses being adopted by the Engineer-in-Charge, the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer-in-Charge has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

### **3. WORK TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATIONS, DRAWINGS, ORDERS ETC.**

The contractor shall execute the whole and every part of the work in the most substantial and workmanlike manner both as regards materials and otherwise in every respect in strict accordance with the specifications. The contractor shall also conform exactly, fully and faithfully to the design, drawings and instructions in writing in respect of the work signed by the Engineer-in-Charge and the contractor shall be furnished free of charge one copy of the contract documents together with specifications, designs, drawings and instructions as are not included in the standard specifications of Central Public Works Department specified in Bid or in any Bureau of Indian Standard or any other, published standard or code or, Schedule of Rates or any other printed publication referred to elsewhere in the contract.

The contractor shall comply with the provisions of the contract and with the care and diligence execute and maintain the works and provide all labor and materials, tools and plants including for measurements and supervision of all works, structural plans and other things of temporary or permanent nature required for such execution and maintenance in so far as the necessity for providing these, is specified or is reasonably inferred from the contract. The Contractor shall take full responsibility for adequacy, suitability and safety of all the works and methods of construction.

### **4.DEVIATIONS/ VARIATIONS EXTENT AND PRICING**

The Engineer-in-Charge shall have power

- (i) to make alteration in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and
- (ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any

instructions given to him in writing signed by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main work except as hereinafter provided.

4.1 In the case of extra item(s) (items that are completely new, and are in addition to the items contained in the contract), the contractor may within fifteen days of receipt of order or occurrence of the item(s) submit market rate claim rates, supported by proper analysis which shall include invoices, vouchers etc. and Manufacturer's specification for the work failing which the rate approved later by the Engineer- in-charge shall be binding and the Engineer-in-Charge shall within prescribed time limit of the receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined, failing which it will be deemed to have been approved.

4.2 In the case of contract items which exceed the limits laid down in bid, the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities, the Engineer-in-Charge shall within prescribed time limit of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates (as per invoice, vouchers from the manufacturers or suppliers submitted by the agency and duly verified by Engineer in Charge or his representative) and the contractor shall be paid in accordance with the rates so determined. The prescribed time limit for finalizing rates for Extra Item(s) and Deviated Quantities of contract items is within 45 days after submission of proposal by the contractor without observation of the Engineer-in-Charge.

## **5. CARRYING OUT PART WORK AT RISK & COST OF CONTRACTOR**

If contractor:

(i) At any time makes default during currency of work or does not execute any part of the work with due diligence and continues to do so even after a notice in writing of 7 working days in this respect from the Engineer-in-Charge; or

(ii) Commits default in complying with any of the terms and conditions of the contract and does not remedy it or takes effective steps to remedy it within 7 working days even after a notice in writing is given in that behalf by the Engineer-in-Charge; or Fails to complete the work(s) or items of work with individual dates of completion, on or before the date(s) so determined, and does not complete them within the period specified in the notice given in writing in that behalf by the Engineer-in-Charge.

(iii) The Engineer- in-Charge without invoking action under Clause no.1 may, without prejudice to any other right or remedy against the contractor which have either accrued or accrue thereafter

to Government, by a notice in writing to take the part work / part incomplete work of any item(s) out of his hands and shall have powers to :

(a) Take possession of the site and any materials, constructional plant, implements, stores, etc., thereon; and/or

(b) Carry out the part work / part incomplete work of any item(s) by any means at the risk and cost of the contractor.

(iv) The Engineer-in-Charge shall determine the amount, if any, is recoverable from the contractor for completion of the part work/ part incomplete work of any item(s) taken out of his hands and execute at the risk and cost of the contractor, the liability of contractor on account of loss or damage suffered by Government because of action under this clause shall not exceed 10% of the tendered value of the work.

In determining the amount, credit shall be given to the contractor with the value of work done in all respect in the same manner and at the same rate as if it had been carried out by the original contractor under the terms of his contract, the value of contractor's materials taken over and incorporated in the work and use of plant and machinery belonging to the contractor.

(v) The certificate of the Engineer-in-Charge as to the value of work done shall be final and conclusive against the contractor provided that action under this clause shall only be taken after giving notice in writing to the contractor. Provided also that if the expenses incurred by the department are less than the amount payable to the contractor at his agreement rates, the difference shall not be payable to the contractor.

(vi) Any excess expenditure incurred or to be incurred by Government in completing the part work/ part incomplete work of any item(s) or the excess loss of damages suffered or may be suffered by Government as aforesaid after allowing such credit shall without prejudice to any other right or remedy available to Government in law or per as agreement be recovered from any money due to the contractor on any account, and if such money is insufficient, the contractor shall be called upon in writing and shall be liable to pay the same within 30 days.

(vii) If the contractor fails to pay the required sum within the aforesaid period of 30 days, the Engineer-in-Charge shall have the right to sell any or all of the contractors' unused materials, constructional plant, implements, temporary building at site etc. and adjust the proceeds of sale thereof towards the dues recoverable from the contractor under the contract and thereafter there remains any balance outstanding, it shall be recovered in accordance with the provisions of the contract.

(viii) In the event of above course being adopted by the Engineer-in-Charge, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advance on any account or with a view to the execution of the work or the performance of the contract

**6. REQUIREMENT OF TECHNICAL REPRESENTATIVE(S) AND RECOVERY RATE**

Sl No.	Requirement of Technical staff	Minimum experience in Year	Designation/Experience	Rate at which recovery shall be made from the contractor in the event of
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	Qualification	Number(of major + minor component)			not fulfilling provision of providing technical representative	
					Figures	Words
1	Graduate Engineer Or Diploma Engineer	1	2  Or  5 respectively	Project Manager cum Planning/ quality/ Site/billing Engineer	Rs. 15000/- pm per person	Rupees fifteen Thousand only per month per person

The Retired Engineer/Asst. Engineers who are holding Diploma may be treated at par with Graduate Engineers for the operation of the Clause. Diploma holder with minimum 10 year relevant experience with a reputed construction company can be treated at par with Graduate Engineers subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.

#### **7. UNFILTERED WATER SUPPLY**

The contractor(s) shall make his/their own arrangements for water required for the work and nothing extra will be paid for the same. This will be subject to the following conditions. (i) That the water used by the contractor(s) shall be fit for construction purposes to the satisfaction of the Engineer-in-Charge.

#### **8. HIRE OF PLANT & MACHINERY**

The contractor shall arrange at his own expense all tools, plant, machinery and equipment (hereinafter referred to as T&P) required for execution of the work.

**ELIGIBILITY CRITERIA FOR BIDDERS**

Only those bidders fulfilling any of the following eligibility are eligible.

1. The agency should have satisfactorily completed the works as mentioned below during the last five years ending previous day of last date of submission of bid:

THREE similar completed works each costing not less than the amount equal to  
Rs. 2.33 Crore

(OR)

TWO similar completed works each costing not less than the amount equal to  
Rs.3.5 Crore

(OR)

ONE similar completed works each costing not less than the amount equal to  
Rs.4.67 Crore

“Cost of work” for this clause shall mean completed cost of work as mentioned in the final bill including internal electrical works, if any, carried out under single contract including cost of materials, if any, supplied by clients. However, the cost of materials issued free of cost shall not be considered for calculating the cost of work. The value of executed works shall be brought to current costing level by enhancing the actual value of work at a simple rate of 7% per annum, calculated from the date of completion to the last date of receipt of applications for bids. “Similar work” for this clause means "SITC of grid type solar power plant of capacity not less than 1MWp.”

The following documents need to be uploaded (Cover 1) for proof of satisfying the above eligibility conditions.

1. Copy of Work order / Performance report as a proof for Sl no. 1
2. Work completion certificate / Performance report of similar works issued by the Executive Engineer or equivalent rank for sl no.1

**LIST OF DOCUMENTS TO BE SCANNED AND UPLOADED WITH IN THE PERIOD OF BID SUBMISSION**

1. Information related to the agency/bidder such as photocopies of the Registration/PAN/GST/TIN shall be furnished.
2. GST registration Certificate of the Kerala State if already obtained by the bidder.
3. If the bidder has not obtained GST registration of Kerala State as required by GST Authorities, then in such a case the bidder shall scan and upload the following undertaking along with other bid documents.  
“If work is awarded to me, I/We shall obtain GST registration certificate of the Kerala State, within one month from the date of receipt of award letter or before release of any payment by IITPKD, whichever is earlier, failing which I/We shall be responsible for any delay in payments which will be due towards me/us on a/c of the work executed and/or for any action taken by IITPKD or GST Department in this regard”.
4. The bidder must also have a service center in Karnataka/Tamil Nadu/ Telangana/ Andhra Pradesh or Kerala. Certificate of registration for the centers to be provided.
5. Letter of Transmittal. (ANNEXURE V)
6. Digitally signed tender documents should be uploaded in Cover One.
7. Has the firm ever been debarred/blacklisted by any Govt. Organization/Dept.? If ‘yes’ the details thereof (Please upload supporting document). Is any person working with the applicant a near relative of the Employees of IIT Palakkad? If yes, give details (Separate declaration to be uploaded along with tender document in Annexure VI).

**FORM OF PERFORMANCE SECURITY BANK GUARANTEE BOND**

In consideration of the Indian Institute of Technology Palakkad (hereinafter called "IIT Palakkad") having offered to accept the terms and conditions of the proposed agreement between.....and..... (hereinafter called "the said contractors") for the work .....(hereinafter called "the said agreement") having agreed to production of a irrevocable Bank Guarantee for Rs.....( Rupees.....only) as a security /guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement.

1. We..... (Hereinafter referred to as "the

(Indicate the name of the Bank)

Bank") hereby undertake to pay to the IIT Palakkad an amount not exceeding Rs..... (Rupees.....only) on demand by the IIT Palakkad.

2. We .....(Indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this Guarantee without any demure, merely on a demand from the IIT Palakkad stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractors. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs..... (Rupees.....only).

3. We, the said Bank further undertake to pay to the IIT Palakkad any money so demanded notwithstanding any dispute or disputes raised by the contractors in any suit or proceeding pending before any Court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractors shall have no claim against us for making such payment.

4. We.....(indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the IIT Palakkad under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Engineer-in-Charge on behalf of the government certified that the terms and conditions of the said agreement have been fully and properly carried out by the said contractors and accordingly discharges this guarantee.

5. We .....(Indicate the name of the Bank) further agree with the Government that the IIT Palakkad shall have the fullest liberty without our consent and without effecting in any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractors from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractors and to for-bear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said contractors or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision have effect of so relieving us.
  
6. This guarantee will not be discharged due to the change in the constitution of the Bank or the contractor(s).
  
7. We ..... (Indicate the name of the Bank) lastly undertake not to revoke this guarantee except with the previous consent of the Government in writing.
  
8. This guarantee shall be valid up to \_\_\_\_\_ unless extended on demand by IIT Palakkad. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) and unless a claim in writing is lodged with within six months of the date of expiry or the extended date of expiry of this guarantee all our liabilities under this guarantee shall stand discharged.

\_\_\_\_\_ day of

Dated the \_\_\_\_\_ for

(Indicate the name of Bank).

**FALL CLAUSE NOTICE CERTIFICATE**

(To Be Submitted Only Through Online Mode in Appropriate Format)

This is to certify that we have offered the maximum possible discount to you in our Quotation No. dated (Please do not reveal the prices here, which will lead to outright rejection of your bid). The prices charged for the Stores supplied under tender should under no event be higher than lowest prices at which the party sells the items of identical description to any other Govt. organization/PSU"s/Central Govt./State Govt. Autonomous bodies/Central/state Universities/Central/State Educational Institutions, failing which the "FALL CLAUSE" will be applicable. The institute will look into a reasonable past period to ensure this. In case, if the price charged by our firm is found to be more, IIT Palakkad will have the right to recover the excess charged amount from the subsequent/unpaid bill of the Contractor.

**Note:**

This letter of authority should be on the letterhead of the quoting firm and should be signed by a Competent Authority and having the power of attorney.

**LETTER OF TRANSMITTAL**

(To be duly filled, signed, scanned and uploaded along with e-cover 1 by the tenderer)

Tender no. 17/IITPKD/EWD/2026-27/111

To  
The Chairperson, EWD  
IIT Palakkad  
Sir,

Having examined the details given in notice inviting qualification application and tender and the qualification documents for the above work, I / We hereby submit the application for eligibility and the tender (financial bid) for the work duly filled in.

1. I / We hereby certify that all the statements made, and information supplied in the enclosed forms and accompanying statements are true and correct.
2. I/ We have furnished all information and details necessary for deciding our eligibility to be qualified for taking part in the tendering process for the work. We have no further information to supply.
3. I / We submit the requisite certificate as per Annexure II and authorize the Chairperson EWD to approach the Department concerned to confirm the correctness of the certificate. We also authorize the Chairperson, EWD to approach individuals, firms and corporations to verify our competence and general reputation.
4. I / We submit the following certificates in support of our suitability, technical know-how and capability for having successfully completed following works.

Name of work

Certificate from

5. I / We certify that the tender documents uploaded is the exact replica of the document published by the IITPKD and no alterations and additions have been made by me/us in the e-tender document.
6. I am / We are aware that the Financial bid submitted by me/us will not be opened if I/We do not become eligible after evaluation of my/our application for eligibility.
7. I / We certify that the proof of payment of EMD in the E-wizard portal and uploaded while submitting the e- Wizard.
8. I / we agree that the eligibility criteria submissions will become part of the contract.

**Seal of the Applicant**

**Date of submission**

**Signature(s) of the applicants**

**FORMAT OF UNDERTAKING, TO BE FURNISHED ON COMPANY LETTER HEAD WITH REGARD TO  
BLACKLISTING/ NON- DEBARMENT, BY ORGANISATION**

UNDERTAKING REGARDING BLACKLISTING / NON – DEBARMENT

We hereby confirm and declare that we, M/s -----, is not blacklisted/  
De-registered/ debarred by any Government department/ Public Sector Undertaking/ Private Sector/ or  
any other agency for which we have Executed/ Undertaken the works/ Services

For -----

Authorized Signatory

Date:

**ADDITIONAL CONDITIONS AND TECHNICAL SPECIFICATIONS.****1.0 General**

This specification covers manufacture, testing and factory inspection to be utmost necessary before dispatch, delivery at site, all preparatory work, assembly and installation, commissioning putting into operation of E & M installations.

1. Location: Work shall be carried out at IIT Palakkad, Permanent Campus. The work shall be executed as per CPWD General Specifications for Electrical Works Part-I (internal) 2023, Part-II (external) 2023, and Part-IV (sub-station) 2013 as amended up to date, relevant I.E. Rules, BIS/IES and for Civil works Specifications 2019 Volume I and Volume II as per directions of Engineer- in-charge. These additional specifications/conditions are to be read in conjunction with above and in case of variations, specifications given in these additional conditions shall apply.
2. The tenderer should in his own interest visit the site and get familiarized with the site conditions before tendering.
3. No T&P shall be issued by the Department and nothing extra shall be paid on account of this.
4. The firms shall be responsible for providing the system fulfilling the specifications, capacity and all other related requirements of system ensuring compatibility between different items of work.
5. The firm shall be required to supply all the quantity of each items of same make (among the list of approved makes) wherever available to ensure compatibility, proper matching and ease of maintenance.
6. Department reserves the right to accept the upgraded version of various items, if there is technological advancement with reference to these makes/models. The decision of department in this reference shall be final and binding on the firms.

**2.0 Rates**

1. The rates quoted by the tenderer, shall be firm and inclusive of all taxes including GST, labour cess, and other duties & levies etc., and all charges for packing forwarding, insurance, freight and delivery, installation, testing, commissioning etc at site including temporary construction of storage, risks, over head charges, general liabilities/obligations and clearance from Local bodies. **However, the fee for the Local Body inspections shall be reimbursed by the department.**
2. Some restrictions may be imposed by the Client on the working and/or movement of labour, materials etc. on account of security reasons. The contractor shall be bound to follow such restrictions/ instructions and nothing extra shall be payable on this account. No claim for idle labour shall be entertained.
3. The contractor has to carry out Operation & Maintenance of the Solar Photovoltaic power generation system by deputing man power for checking, fault finding & maintenance of the system for satisfactorily operation as per manufacturer's standards, recording the various electrical parameters

in log book, watch & ward for the system for a period of 3 months from the date of completion/handing over. During this period it is the responsibility of the engineer to train the engineers/technicians of EWD. During the 1 year defect liability period and 5 years maintenance period quarterly visit by Engineer for checking the healthiness of the system i/c repair/replacement of the defective part or to attend the major complaint whenever informed by the Department. **Supply of spare parts is not in the scope of the work and will be supplied by Institute at free of cost.**

### **3.0 Storage and Custody of Materials**

For storage of sundry materials and erection of equipments, the agency has to make its own arrangements. No separate storage accommodation shall be provided by the department. Watch and ward of the stores and their safe custody shall be the responsibility of the contractor till the final taking over of the installation by the department.

### **4.0 Care of the Building**

Care shall be taken by the contractor while handling and installing the various equipments and components of the work to avoid damage to the building. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove at his cost all unwanted and waste materials arising out of the installation from the site of work.

### **5.0 Guarantee Certificate**

5 years manufacturer's guarantee of free repair/replacement for inverters and solar panels shall be submitted by the agency along with supply of items.

### **6.0 Test Certificate**

Test certificate from the manufacturer of the panels and inverters shall be submitted along with the supply of items.

### **7.0 Power Supply and water supply**

Required power and water supply can be taken from the existing system with prior approval from the Institute.

### **8.0 Compliance with Regulations and Indian Standards**

1. All works shall be carried out in accordance with relevant regulation, both statutory and those specified by the Indian standards related to the works covered by this specification. In particular, the equipment and installation shall comply with the following:
  - a. Factories Act
  - b. Indian Electricity Rules
  - c. BIS & other standards as applicable
  - d. Workmen's compensation Act
  - e. Statutory norms prescribed by local bodies, Power supply co.,etc
  - f. Solar panels shall be in compliance with DCR (Domestic Content Requirement).

### **9.0 As built drawings and documentation:**

- a. The agency shall submit as-built drawings and copies of catalogues, data sheets, guarantee certificates etc. in a booklet. Three copies of the same shall be submitted along with the handing

over note for finalizing the bill. The manufacturer's maintenance manual available for inverters shall be submitted.

**10.0 Standards to be followed:**

- PV Modules: IS 14286 2010 / IEC 61215:2005/ IEC61730-I:2004, IS/IEC 61730-2:2004
- PCUs: IEC 61683, IEC 62109-1,IEC 62109-2, IEC61000-6-2, IEC 61000-6-4, IEC 62116 IEC60068-2,
- Charge Controller/MPPT Units: IEC 62093/ IEC 60068-2
- Cables: EN 50618 & IEC 60228 (DC), IS 7098 (AC)

## 1 TECHNICAL SPECIFICATION - 600Wp Solar Panel

Category	Parameter	Specification
Basic Details	Type	Dual Glass TOPCON
	Power Output Range	600-620 Wp
	Cells	Half-cut cell
	Junction Box	IP68 Rated
	Cables	4 mm <sup>2</sup> , Length as per configuration
	Connector Type	MC4 compatible
Electrical Characteristics	Power (Pmax)	600 – 620 Wp
	Voltage at Pmax (Vmp)	39.0 – 41.40V
	Current at Pmax (Imp)	10.69 – 14.99 A
	Open Circuit Voltage (Voc)	47.8 – 50.2 V
	Short Circuit Current (Isc)	11.18 – 15.91 A
Operating Conditions	Operating Temperature	-40 °C to +85 °C
	Max. System Voltage	1500 V DC
	Maximum Series Fuse Rating	35 A
	Power Tolerance	0 ~ +5 W

## 2 TECHNICAL SPECIFICATION -NOT LESS THAN 100KW INVERTER

Category	Parameter	Specification
Basic Details	Rated AC Output Power	100 kW
	Technology	Transformerless
	No. of MPPTs	8
	No. of Strings per MPPT	2
DC (Input)	Max. PV Input Voltage	1100 V
	Rated PV Input Voltage	585 V

	MPPT Voltage Range	160–1000 V
	Start-Up Voltage	250 V
	Max. Input Current	8 X 26 A = 208 A
	Max. Short-Circuit Current	8 X 40A = 320 A
AC (Output)	Rated Grid Frequency	50 / 60 Hz
	Max. Output Current	158.8A
	Power Factor	>0.99 (0.8 leading–lagging)
	THD	< 3%
Protection	DC Reverse Polarity	Yes
	Short Circuit	Yes
	Surge Protection	Yes
	Grid Monitoring	Yes
	PID Recovery	Yes
	DC Switch	Yes
	String Monitoring	Yes
General Data	Cooling	Air cooling
	Degree of Protection	IP66
	Temperature Range	-30°C ~ +60°C
Communication / Display	Display	LED indicator + Bluetooth + APP
	Communication	RS485

### 3 TECHNICAL SPECIFICATION - NOT LESS THAN 75KW INVERTER

Category	Parameter	Specification
Basic Details	Rated AC Output Power	75 kW
	Technology	Transformerless
	No. of MPPTs	8
	No. of Strings per MPPT	2
DC (Input)	Max. PV Input Voltage	1100 V

	Rated PV Input Voltage	600 V
	MPPT Voltage Range	160–1000 V
	Start-Up Voltage	200 V
	Max. Input Current	8 X 30 A = 240 A
	Max. Short-Circuit Current	8 X 40A = 320 A
AC (Output)	Rated Grid Frequency	50 / 60 Hz
	Max. Output Current	108.7A
	Power Factor	>0.99 (0.8 leading–lagging)
	THD	< 3%
Protection	DC Reverse Polarity	Yes
	Short Circuit	Yes
	Surge Protection	Yes
	Grid Monitoring	Yes
	PID Recovery	Yes
	DC Switch	Yes
	String Monitoring	Yes
General Data	Cooling	Air cooling
	Degree of Protection	IP66
	Temperature Range	-30°C ~ +60°C
Communication / Display	Display	LED indicator + Bluetooth + APP
	Communication	RS485

#### 4 TECHNICAL SPECIFICATION -NOT LESS THAN 50KW INVERTER

Category	Parameter	Specification
Basic Details	Rated AC Output Power	50 kW
	Technology	Transformerless
	No. of MPPTs	5
	No. of Strings per MPPT	2

DC (Input)	Max. PV Input Voltage	1100 V
	Rated PV Input Voltage	600 V
	MPPT Voltage Range	180–1000 V
	Start-Up Voltage	195 V
	Max. Input Current	5 X 32 A = 160 A
	Max. Short-Circuit Current	5 X 40A = 200 A
AC (Output)	Rated Grid Frequency	50 / 60 Hz
	Max. Output Current	83.6A
	Power Factor	>0.99 (0.8 leading–lagging)
	THD	< 3%
Protection	DC Reverse Polarity	Yes
	Short Circuit	Yes
	Surge Protection	Yes
	Grid Monitoring	Yes
	PID Recovery	Yes
	DC Switch	Yes
	String Monitoring	Yes
General Data	Cooling	Air cooling
	Degree of Protection	IP66
	Temperature Range	-30°C ~ +60°C
Communication / Display	Display	LCD
	Communication	RS485

#### 5 TECHNICAL SPECIFICATION - NOT LESS THAN 30KW INVERTER

Category	Parameter	Specification
Basic Details	Rated AC Output Power	30 kW
	Technology	Transformerless
	No. of MPPTs	3

	No. of Strings per MPPT	2
DC (Input)	Max. PV Input Voltage	1100 V
	Rated PV Input Voltage	600 V
	MPPT Voltage Range	200–1000 V
	Start-Up Voltage	200 V
	Max. Input Current	3 X 30A = 90 A
	Max. Short-Circuit Current	3 X 40A = 120 A
AC (Output)	Rated Grid Frequency	50 / 60 Hz
	Max. Output Current	50.2A
	Power Factor	>0.99 (0.8 leading–lagging)
	THD	< 3%
Protection	DC Reverse Polarity	Yes
	Short Circuit	Yes
	Surge Protection	Yes
	Grid Monitoring	Yes
	PID Recovery	Yes
	DC Switch	Yes
	String Monitoring	Yes
General Data	Cooling	Forced air cooling
	Degree of Protection	IP66
	Temperature Range	-30°C ~ +60°C
Communication / Display	Display	LCD
	Communication	RS485

#### 6 TECHNICAL SPECIFICATION - NOT LESS THAN 25KW INVERTER

Category	Parameter	Specification
Basic Details	Rated AC Output Power	25 kW
	Technology	Transformerless

	No. of MPPTs	3
	No. of Strings per MPPT	2
DC (Input)	Max. PV Input Voltage	1100 V
	Rated PV Input Voltage	600 V
	MPPT Voltage Range	200–1000 V
	Start-Up Voltage	180 V
	Max. Input Current	3 X 32A = 96 A
	Max. Short-Circuit Current	3 X 40A = 120 A
AC (Output)	Rated Grid Frequency	50 / 60 Hz
	Max. Output Current	41.8A
	Power Factor	>0.99 (0.8 leading–lagging)
	THD	< 3%
Protection	DC Reverse Polarity	Yes
	Short Circuit	Yes
	Surge Protection	Yes
	Grid Monitoring	Yes
	PID Recovery	Yes
	DC Switch	Yes
	String Monitoring	Yes
General Data	Cooling	Forced air cooling
	Degree of Protection	IP66
	Temperature Range	-30°C ~ +60°C
Communication / Display	Display	LCD
	Communication	RS485

#### 7 TECHNICAL SPECIFICATION - NOT LESS THAN 15KW INVERTER

Category	Parameter	Specification
Basic Details	Rated AC Output Power	15 kW

	Technology	Transformerless
	No. of MPPTs	2
	No. of Strings per MPPT	2
DC (Input)	Max. PV Input Voltage	1100 V
	Rated PV Input Voltage	600 V
	MPPT Voltage Range	160–1000 V
	Start-Up Voltage	180 V
	Max. Input Current	2 X 32A = 64 A
	Max. Short-Circuit Current	2 X 40A = 80 A
AC (Output)	Rated Grid Frequency	50 / 60 Hz
	Max. Output Current	23.8A
	Power Factor	>0.99 (0.8 leading–lagging)
	THD	< 3%
Protection	DC Reverse Polarity	Yes
	Short Circuit	Yes
	Surge Protection	Yes
	Grid Monitoring	Yes
	PID Recovery	Yes
	DC Switch	Yes
	String Monitoring	Yes
General Data	Cooling	Air cooling
	Degree of Protection	IP66
	Temperature Range	-30°C ~ +60°C
Communication / Display	Display	LCD
	Communication	RS485

#### 8 TECHNICAL SPECIFICATION -NOT LESS THAN 12KW INVERTER

Category	Parameter	Specification
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Basic Details	Rated AC Output Power	12 kW
	Technology	Transformerless
	No. of MPPTs	2
	No. of Strings per MPPT	2
DC (Input)	Max. PV Input Voltage	1100 V
	Rated PV Input Voltage	600 V
	MPPT Voltage Range	160–1000 V
	Start-Up Voltage	180 V
	Max. Input Current	2 X 32A = 64 A
	Max. Short-Circuit Current	2 X 40A = 80 A
AC (Output)	Rated Grid Frequency	50 / 60 Hz
	Max. Output Current	23.8A
	Power Factor	>0.99 (0.8 leading–lagging)
	THD	< 3%
Protection	DC Reverse Polarity	Yes
	Short Circuit	Yes
	Surge Protection	Yes
	Grid Monitoring	Yes
	PID Recovery	Yes
	DC Switch	Yes
	String Monitoring	Yes
General Data	Cooling	Air cooling
	Degree of Protection	IP66
	Temperature Range	-30°C ~ +60°C
Communication / Display	Display	LCD
	Communication	RS485

## 9 TECHNICAL SPECIFICATION - NOT LESS THAN 10KW INVERTER

Category	Parameter	Specification
Basic Details	Rated AC Output Power	10 kW
	Technology	Transformerless
	No. of MPPTs	2
	No. of Strings per MPPT	1
DC (Input)	Max. PV Input Voltage	1100 V
	Rated PV Input Voltage	600 V
	MPPT Voltage Range	160–1000 V
	Start-Up Voltage	180 V
	Max. Input Current	2 X 16A = 32 A
	Max. Short-Circuit Current	2 X 20A = 40 A
AC (Output)	Rated Grid Frequency	50 / 60 Hz
	Max. Output Current	15.9A
	Power Factor	>0.99 (0.8 leading–lagging)
	THD	< 3%
Protection	DC Reverse Polarity	Yes
	Short Circuit	Yes
	Surge Protection	Yes
	Grid Monitoring	Yes
	PID Recovery	Yes
	DC Switch	Yes
	String Monitoring	Yes
General Data	Cooling	Air cooling
	Degree of Protection	IP66
	Temperature Range	-30°C ~ +60°C
Communication / Display	Display	LCD
	Communication	RS485



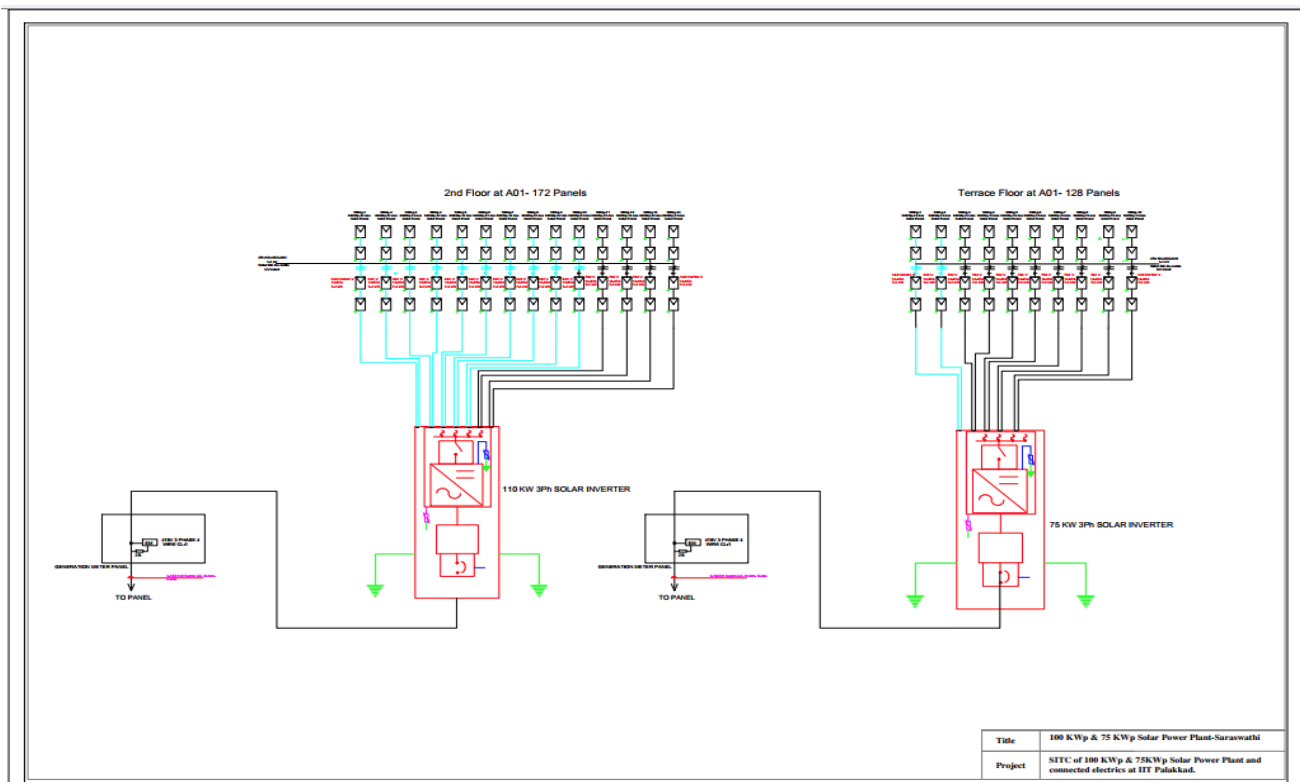
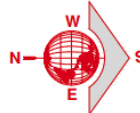
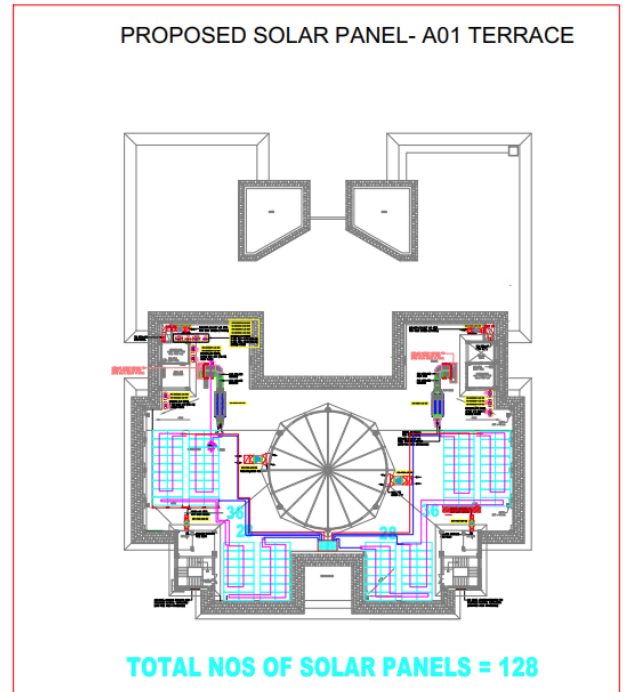
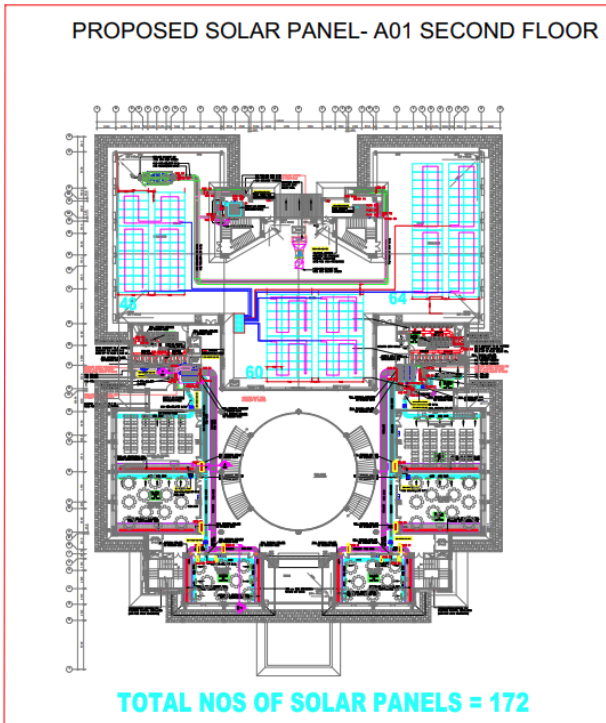
## LIST OF PREFERRED MAKES

S. NO.	MATERIAL	PREFERRED MAKE
1	PV Solar panel	Adani/Waaree/TATA/Vikram/BHEL/BEL/Saatvik/Renewsys/Reliance
2	3 Phase Inverter	Sungrow/Solis/Fimer(ABB)
3	PVC insulated FRLS copper wires i/c Control cables	Finolex/ KEI/Havells/Unistar
4	XLPE insulated PVC sheathed Al, Cu & Control Cables	Universal / RPG Cables / Finolex / CCI/Havells
5	MCCB	Legrand -DX3 / Schneider -ACTI9 / Siemens 5SX4 / L&T – d sine
6	MCB	Legrand DX3 / Schneider ACTI9 / Siemens 5SX4
7	DB/ ELCB/ RCBO	Legrand Ekinox3 / Schneider ACTI9 /Siemens Betagard
8	Ammeter/ Voltmeter/MF Meter/Energy Meter/Intelligent Meter	AE/ MECO/ L & T/ (Only Digital type to be used)
9	Selector Switch	BCH/Rishabh/Conserve/Kaycee
10	Multifunction Meter/ Load managers	Schneider/Siemens/Legrand/Secure
11	LED Indication Lights	Schneider/L&T/Legrand/ BCH
12	Push Buttons	L&T / Siemens / BCH
13	Connector and Terminal Block	Elmex/ Connectwel/ Essen
14	Double compression Cable Gland	Peeco/ Commet/ Gripwell / Dowells
25	Lugs and Thimbles	Dowells/ Multi/ Capital

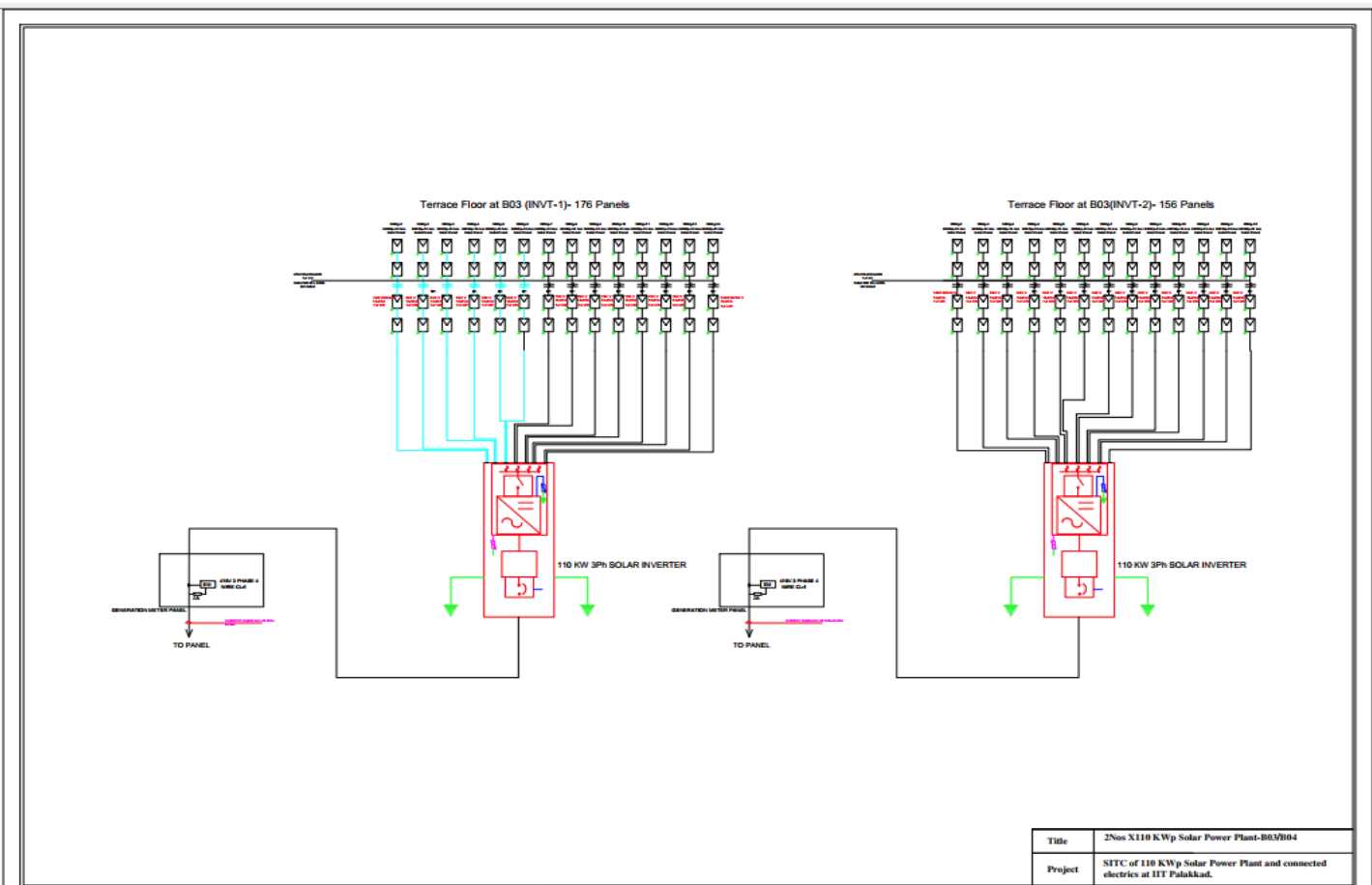
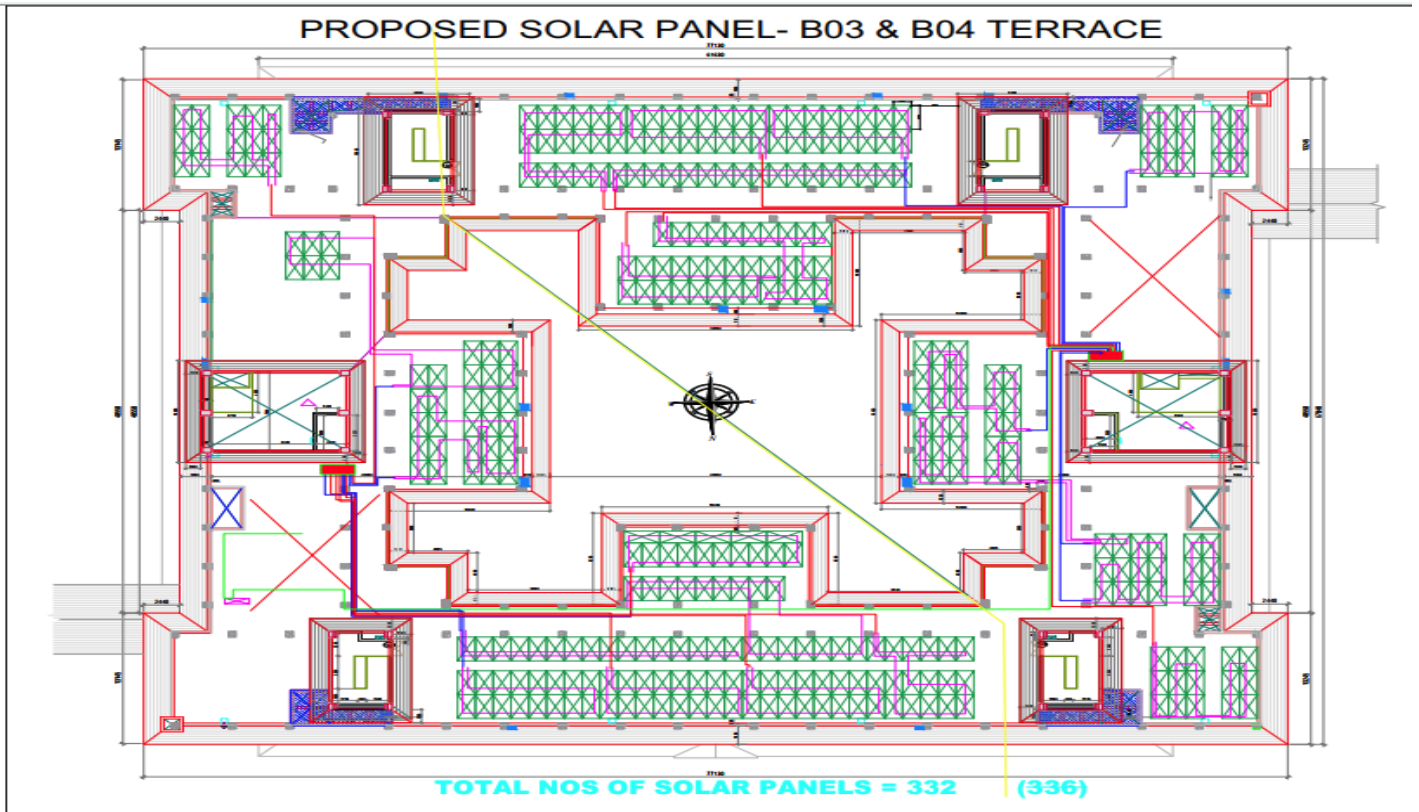
16	Panel Board / Feeder Pillar	Tricolite Electric Industries (Pvt.)Ltd./ Advance Panel and Switchgears Pvt.Ltd./ Adlec Mundka/ Neptune/ Power Control Equipments/ Load Controls /Leela Electric/Tech7
17	Meter Board and Meters for KSEB	Resitech/ Intrans or approved make of KSEB
18	CPVC pipe	SUPREME/ASHIRWAD/ASTRAL /FINOLEX INDUSTRIES
19	Hot Dip Galvanised Cable Tray	Profab Engineer/ MEM/Rico/Slottco/ Steelways/ BEC / Fixotech/OBO
20	GI pipe ISI marked	TATA / JINDAL HISAR / SURYA PRAKASH/ APL Apolo
21	Epoxy Paints	Asian Paints/ Berger / MRF
22	All other items not covered above	As per approval of the Engineer-in-charge.

DRAWINGS

1. Saraswathi Block (A01)

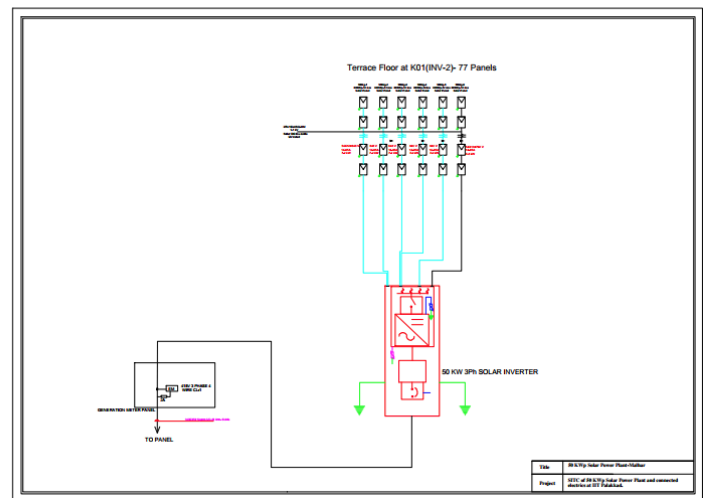
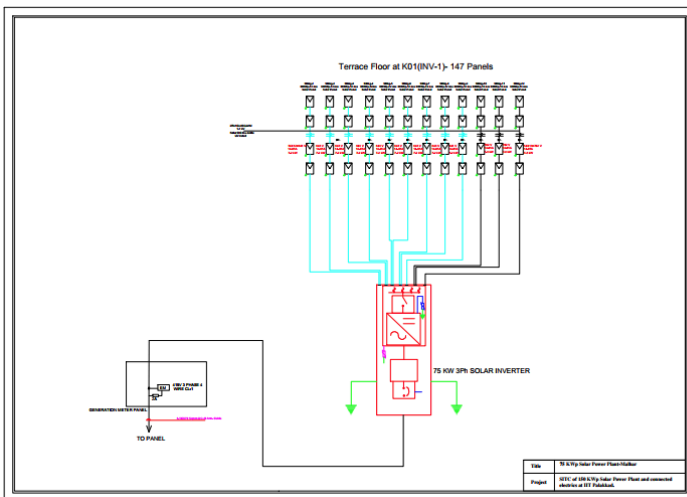
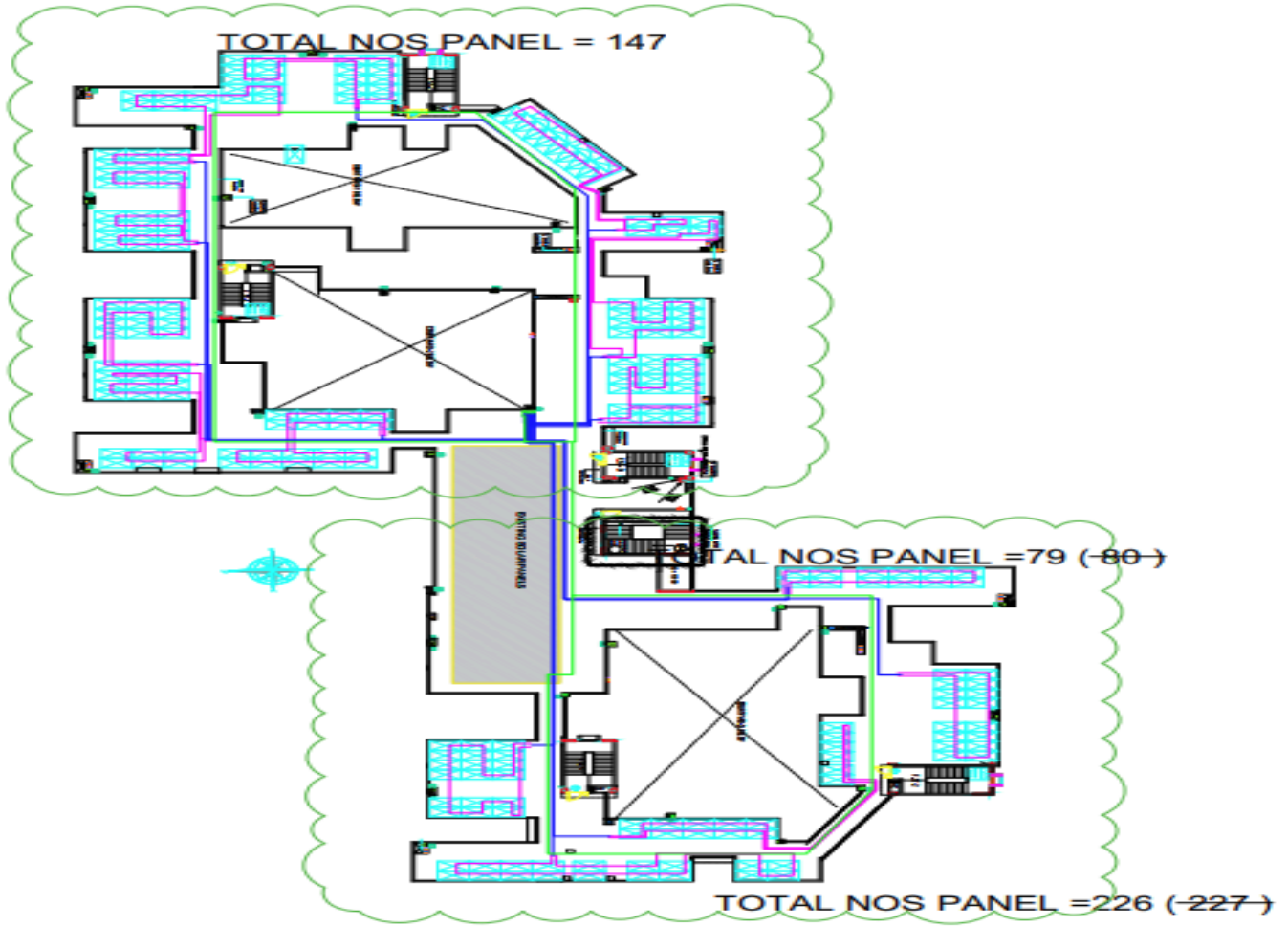


## 2. Department Block (B03/B04)



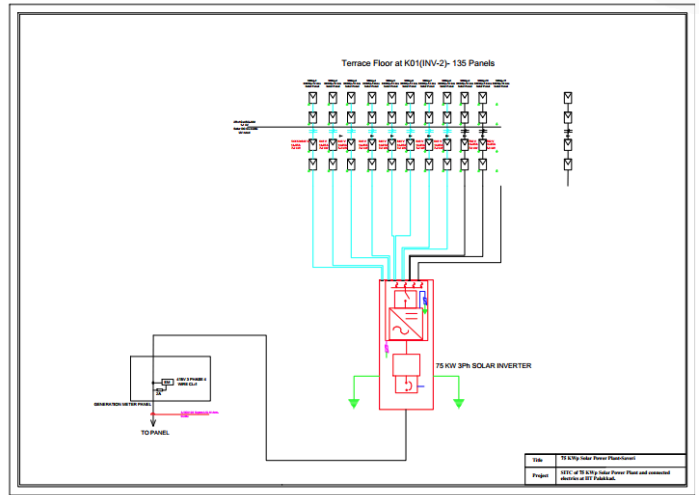
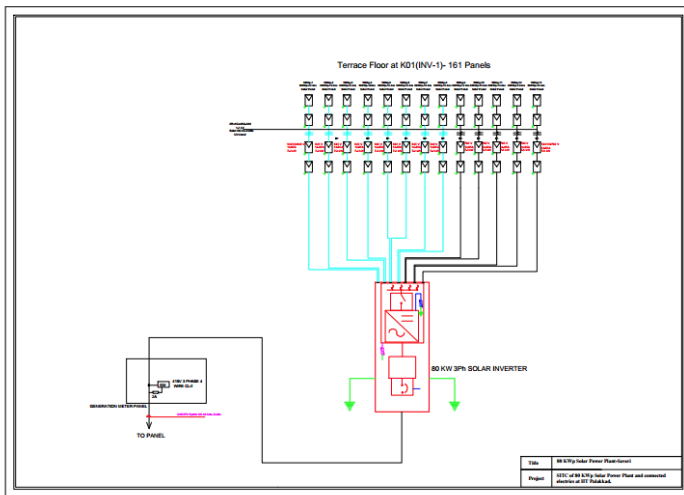
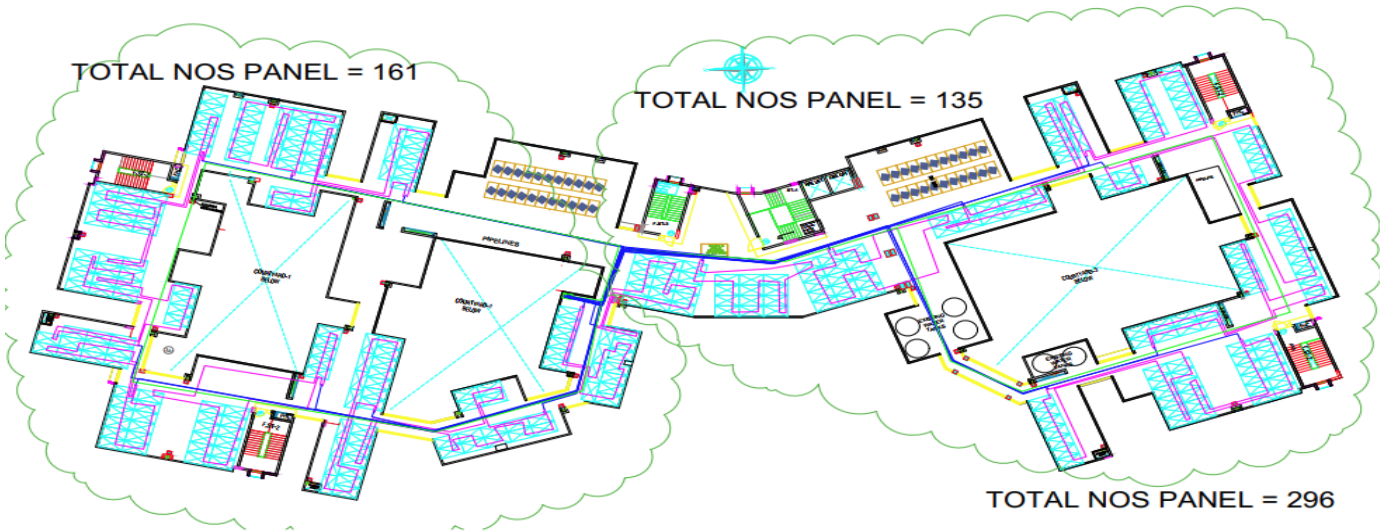
3. Hostel Block (Malhar Block-K01)

PROPOSED SOLAR PANEL- K01 BUILDING

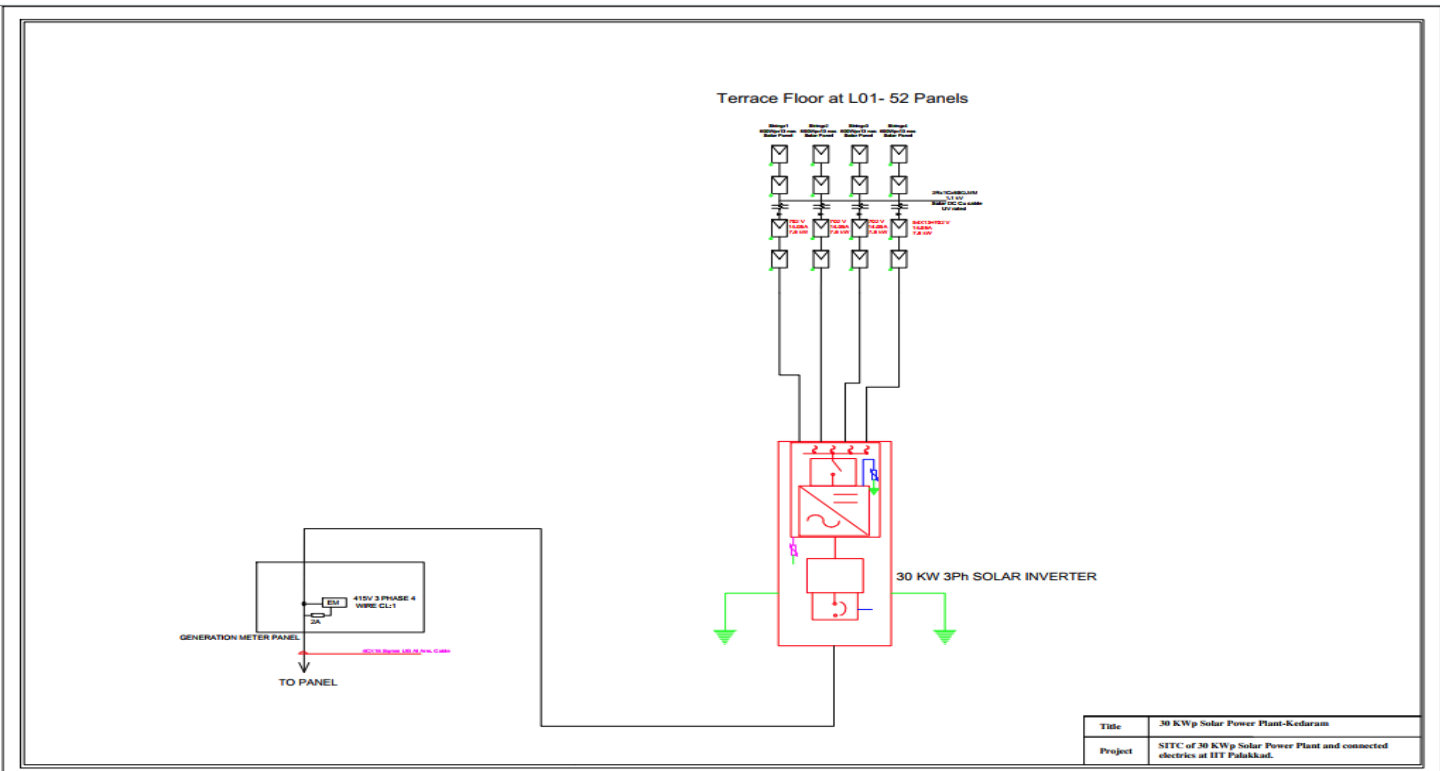
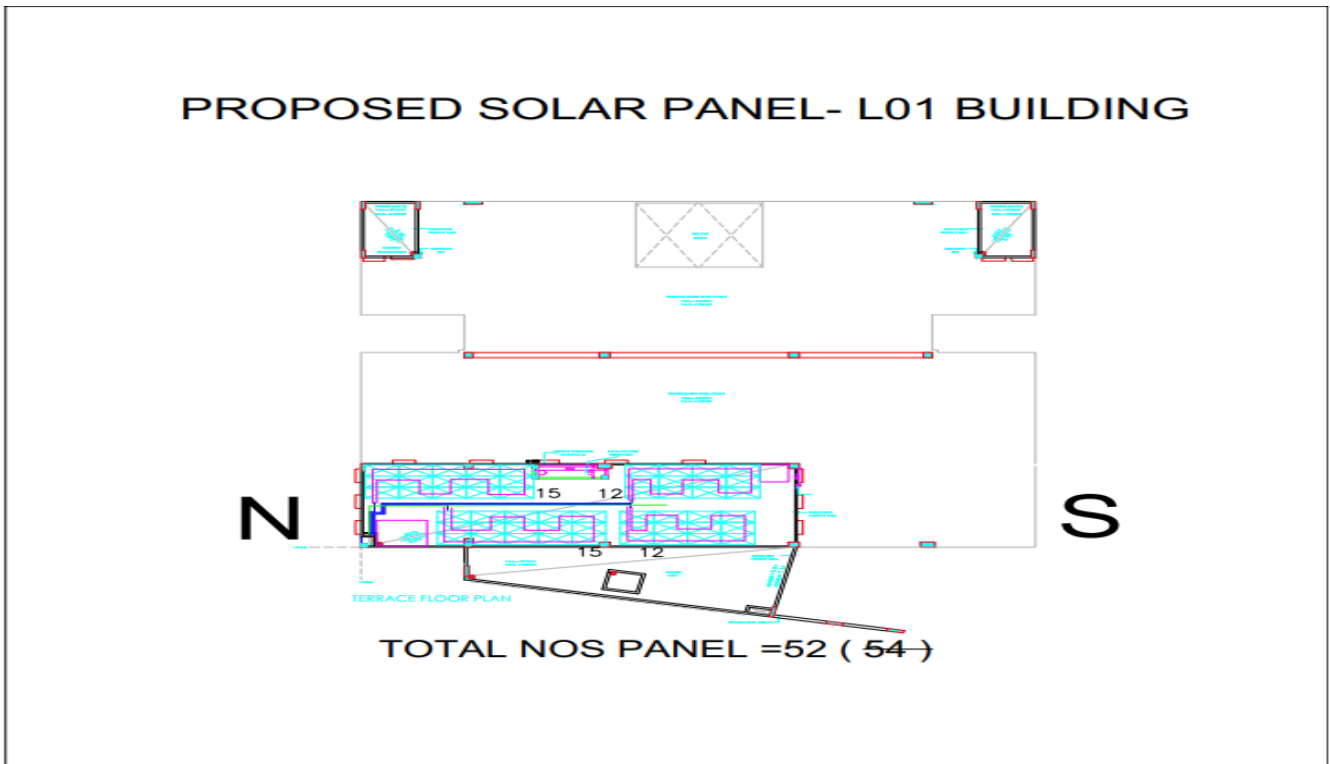


4. Hostel Building (Saveri Block-K02)

PROPOSED SOLAR PANEL- K02 BUILDING

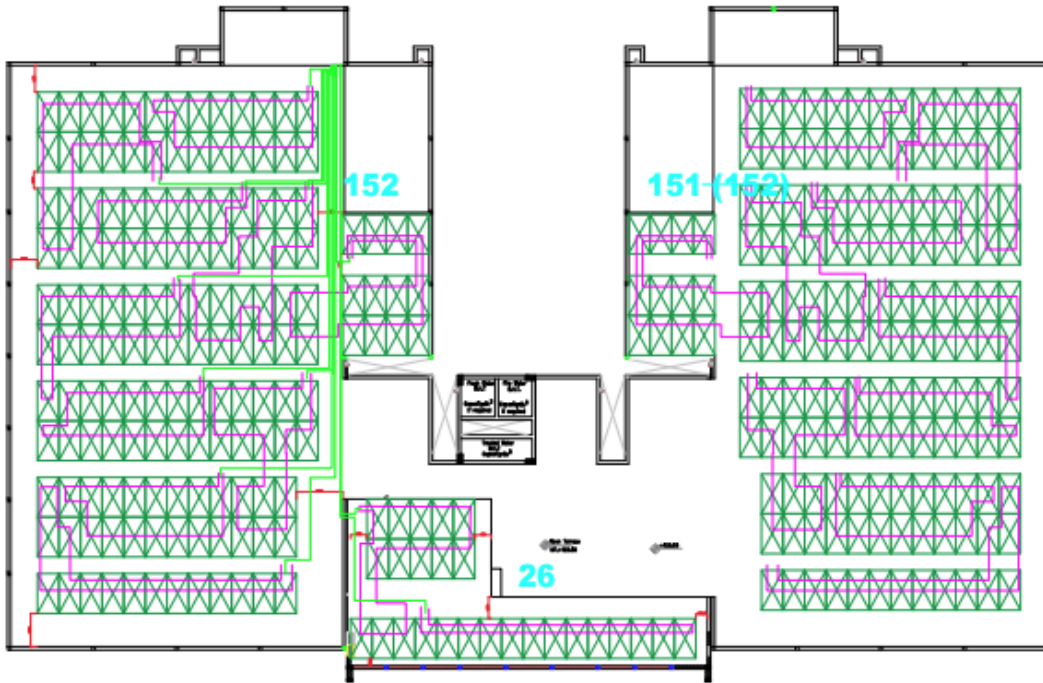


5. Dining Building (Kedaram Block-L01)

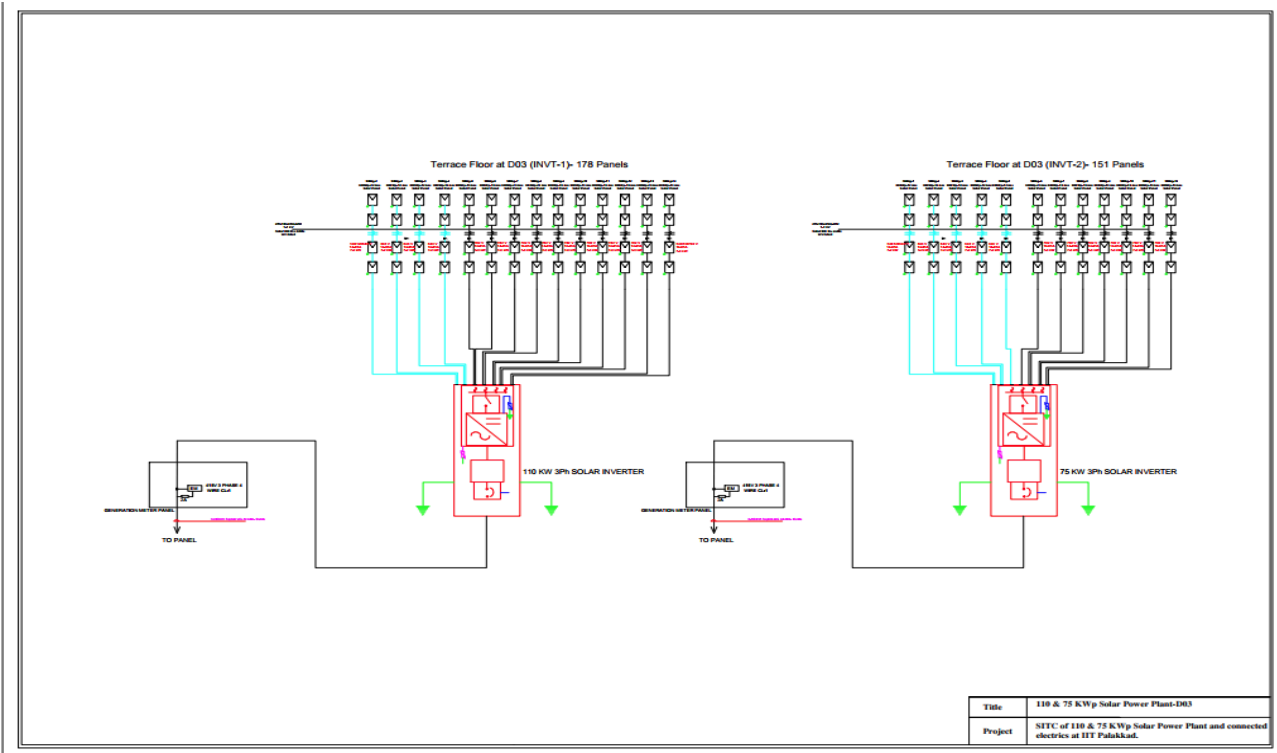


6. Abdul Kalam Building (D03)

**PROPOSED SOLAR PANELS - D03 BUILDING**



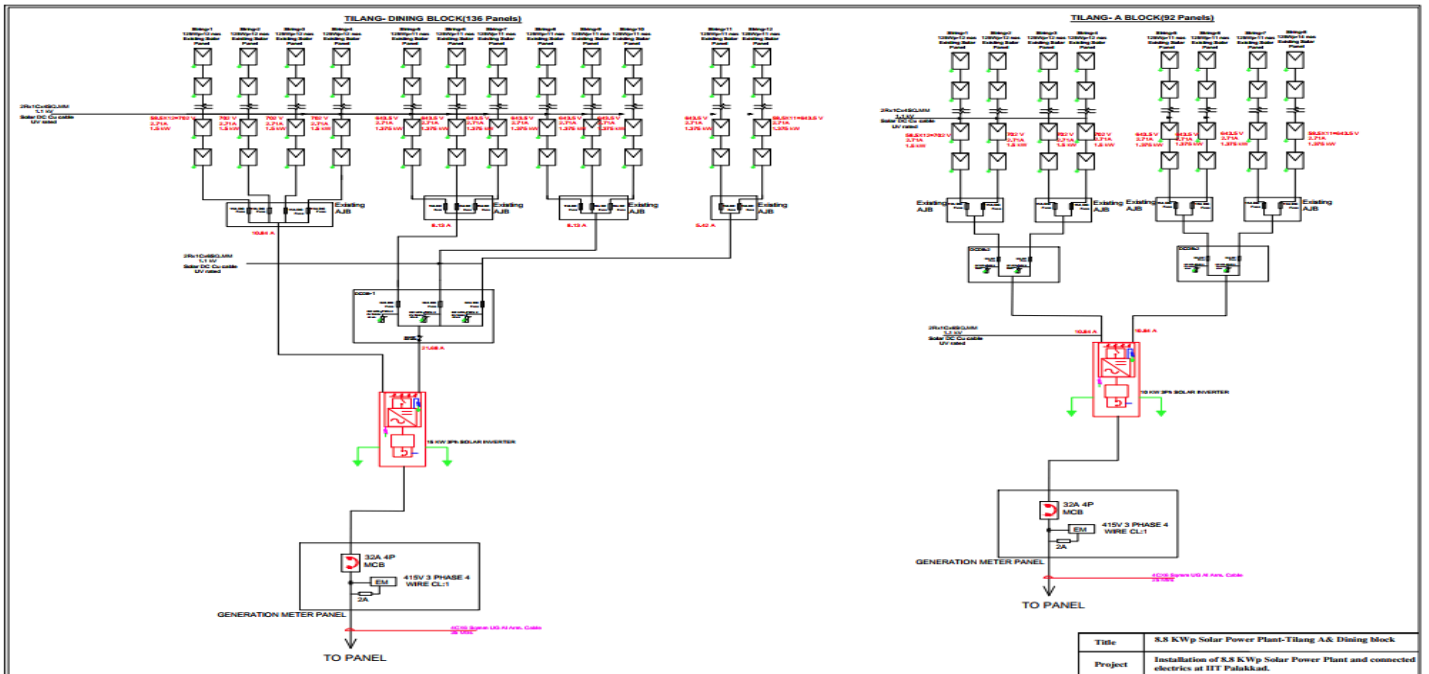
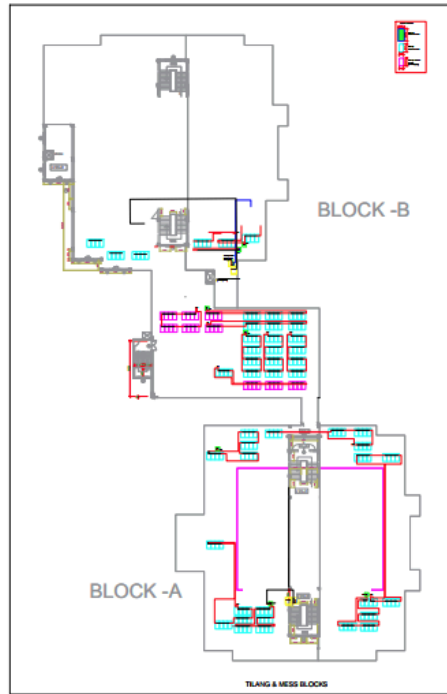
**TOTAL NOS OF SOLAR PANELS = 329 (330)**



Title	110 & 75 KWp Solar Power Plant-D03
Project	SITC of 110 & 75 KWp Solar Power Plant and connected electric at IIT Palakkad.

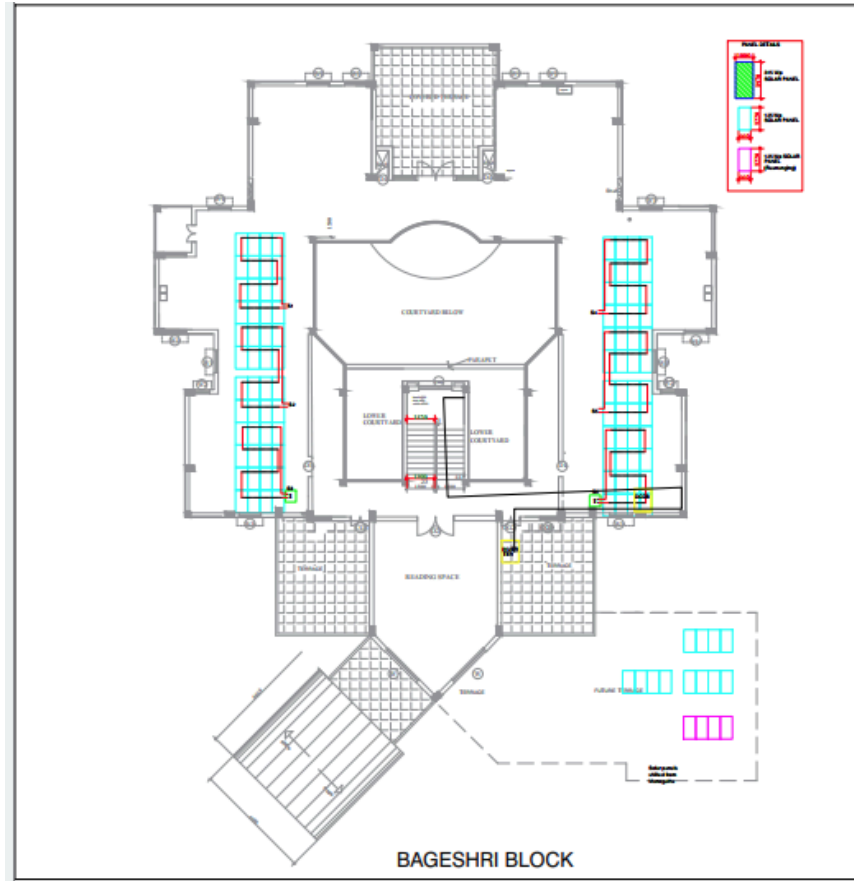
7. Tilang Block (Nila campus)

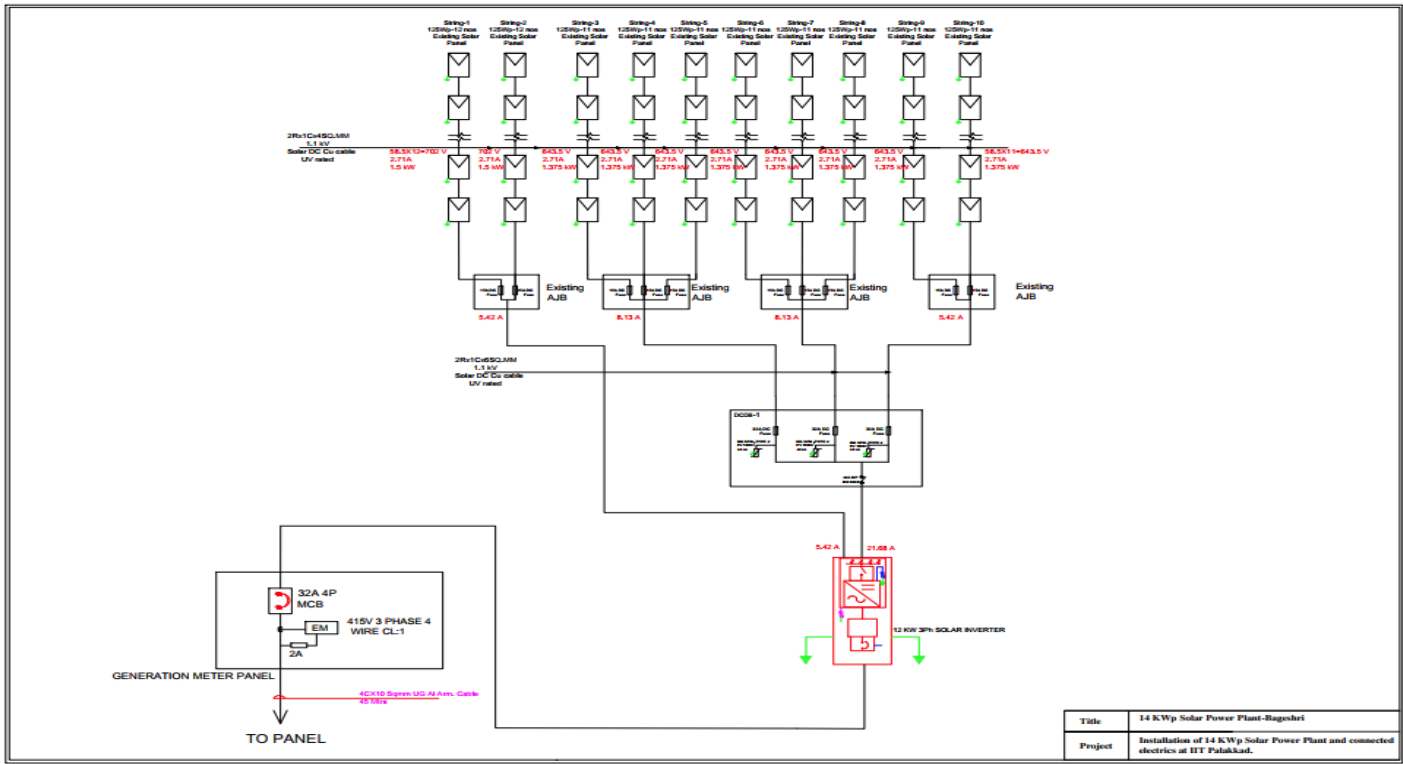
# TILANG



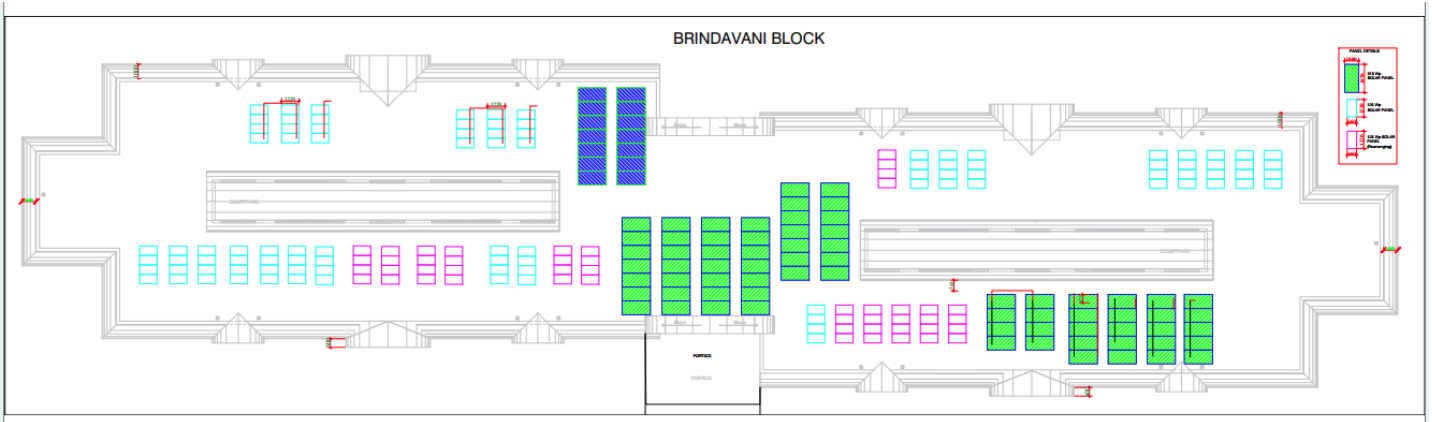


8. Bageshri Block (Nila campus)





### 9. Brindavani Block (Nila campus)





**SCHEDULE OF QUANTITY**

**Name of Work : Construction of Permanent campus for IIT Palakkad under Phase B, SH: SITC of 1252 kWp Solar Generation system including Solar PV Panel, Inverter and connection, supporting structures etc. at Sahyadri and Nila campus.**

Item No:	Description of Item	Quantity	Unit	Rate (Rs)	Amount (Rs)
1	Supply, installation, testing, and commissioning of multi-MPPT string inverter for 1000Vdc system with IP65 protection as per attached technical specification.				
1.1	Not less than 100 KW, 3 Phase inverter	6	Each		
1.2	Not less than 75 KW, 3 Phase inverter	5	Each		
1.3	Not less than 50 KW, 3 Phase inverter	1	Each		
1.4	Not less than 30 KW, 3 Phase inverter	1	Each		
2	Supply, installation, testing, and commissioning of weatherproof, dust-proof, and UV-resistant enclosure with IP65 protection 16 way Array Junction Box (AJB) suitable for connecting solar panel cables, . The AJB shall be equipped with DC fuses for each positive and negative input, DC SPD (Type 2, PV 1000V, 40kA) for surge protection each string, and 25A DC MCB for output isolation and protection. All terminations, interconnections, and copper cabling with proper lugs and ferrules, ensuring safe and reliable operation. The work shall be completed in all respects as per site requirements complete as required.	7	Job		
3	Supply, installation, testing, and commissioning of weatherproof, dust-proof, and UV-resistant enclosure with IP65 protection 14 way Array Junction Box (AJB) suitable for connecting solar panel cables, . The AJB shall be equipped with DC fuses for each positive and negative input, DC SPD (Type 2, PV 1000V, 40kA) for surge protection each string, and 25A DC MCB for output isolation and protection. All terminations, interconnections, and copper cabling with proper lugs and ferrules, ensuring safe and reliable operation. The work shall be completed in all respects as per site requirements complete as required.	3	Job		
4	Supply, installation, testing, and commissioning of weatherproof, dust-proof, and UV-resistant enclosure with IP65 protection 12 way Array Junction Box (AJB) suitable for connecting solar panel cables, . The AJB shall be equipped with DC fuses for each positive and negative input, DC SPD (Type 2, PV 1000V, 40kA) for surge protection each string, and 25A DC MCB for	1	Job		

	output isolation and protection. All terminations, interconnections, and copper cabling with proper lugs and ferrules, ensuring safe and reliable operation. The work shall be completed in all respects as per site requirements complete as required.				
5	Supply, installation, testing, and commissioning of weatherproof, dust-proof, and UV-resistant enclosure with IP65 protection 8 way Array Junction Box (AJB) suitable for connecting solar panel cables . The AJB shall be equipped with DC fuses for each positive and negative input, DC SPD (Type 2, PV 1000V, 40kA) for surge protection each string, and 25A DC MCB for output isolation and protection. All terminations, interconnections, and copper cabling with proper lugs and ferrules, ensuring safe and reliable operation. The work shall be completed in all respects as per site requirements complete as required.	1	Job		
6	Supply, installation, testing, and commissioning of weatherproof, dust-proof, and UV-resistant enclosure with IP65 protection 6 way Array Junction Box (AJB) suitable for connecting solar panel cables, . The AJB shall be equipped with DC fuses for each positive and negative input, DC SPD (Type 2, PV 1000V, 40kA) for surge protection each string, and 25A DC MCB for output isolation and protection. All terminations, interconnections, and copper cabling with proper lugs and ferrules, ensuring safe and reliable operation. The work shall be completed in all respects as per site requirements complete as required.	1	Job		
7	Supply and Laying of following size 1100 volt copper conductor multi strand XLPE/PVC insulated and UV stabilized PVC sheathed solar cable i/c connection (MC4 connector) and as per specification complete in all respect as per site requirement, as required.				
7.1	1CX4 Sqmm unarmored stranded copper conductor DC cable	5700	Metre		
7.2	1CX6 Sqmm unarmored stranded copper conductor DC cable	7400	Metre		
8	Providing and fixing 32mm dia Unplasticized Polyvinyl Chloride (UPVC) pipes ( Grade - SCHD-40), having thermal stability for hot weather conditions, including all UPVC plain fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings without UPVC solvent cement for solar cable laying in terrace floor as per direction of Engineer in Charge.	2300	Metre		
9	SITC of energy meters for solar energy generation with suitable ratio of CT and 63A FP MCCB with metallic	1	Job		

	encloser in the building in every building/inverter(Dining Block (L01) of Sahyadri campus) housed in a suitable size of syntex transparent enclosure with lockable arrangement for outdoor/indoor installation.				
10	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, necessary accessories like bend, tee and reducer etc, floor standing with G.I. suspenders including G.I. bolts and nuts, etc. complete as required.				
10.1	300 mm width X 50 mm depth X 1.6 mm thickness	550	Metre		
10.2	100 mm width X 50 mm depth X 1.6 mm thickness	275	Metre		
11	Providing and fixing of lightning conductor finial, made of 25 mm dia 300 mm long, G.I. tube, having single prong at top, with 85 mm dia 6 mm thick G.I. base plate including holes etc. complete as required.	210	Each		
12	Providing and fixing 25 mm X 6 mm copper strip on surface or in recess for connections etc. as required.	730	Metre		
13	Supplying and testing of following size one number XLPE insulated and PVC sheathed armoured aluminium conductor power cable of 1.1 kV grade conforming to IS 7098 (Part 1) 1988 as required.				
13.1	4CX16 sq. mm	10	Metre		
13.2	3.5CX50 sq. mm	70	Metre		
13.3	3.5CX70 sq. mm	140	Metre		
13.4	3.5CX95 sq. mm	250	Metre		
13.5	3.5CX120 sq. mm	160	Metre		
13.6	3.5CX185 sq. mm	450	Metre		
14	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing masonry open duct as required.				
14.1	Upto 35 sq. mm	3	Metre		
14.2	Above 95 sq. mm and upto 185 sq. mm	120	Metre		
15	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
15.1	Upto 35 sq. mm (clamped with 1mm thick saddle)	7	Metre		
15.2	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	950	Metre		
16	Supplying and making end termination with double compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
16.1	4CX16 sq. mm	2	Each		

16.2	3.5CX50 sq. mm	2	Each		
16.3	3.5CX70 sq. mm	4	Each		
16.4	3.5CX95 sq. mm	8	Each		
16.5	3.5CX120 sq. mm	4	Each		
16.6	3.5CX185 sq. mm	26	Each		
17	<p>Supplying, installation, testing &amp; commissioning of cubicle type Solar LT panel suitable for 415 V, 3 phase, 4 wire 50 Hz AC supply system having front surface area 3 sqmtr (Approx) fabricated in compartmentalized design from CRCA sheet steel (not less than) of 2 mm thick for frame work and covers, 3mm thick for gland, plates i/c cleaning &amp; finishing complete with 7 tank process for powder coating in approved shade, having horizontally extendable type TPN aluminium alloy bus bar of high conductivity, DMC/SMC bus bar supports, with short circuit withstand capacity of 21 MVA for 1 sec. bottom base channel of MS section not less than 75 mm x 50 mm x 5mm thick, fabrication shall be done in transportable sections, entire panel shall have a common copper earth bar of size 25mm x 5mm at the rear with 2 nos. earth stud, solid connections from main earth bus bar to switch gears with required size of Al. bus bars and control wiring with 1.5 sq mm. PVC insulated FRLS copper conductor S/C cable, cable alleys, cable gland plates in two half, i/c providing following switch gears:- (Note: All the MCCBs shall be with <math>I_{cs}=100\%I_{cu}</math>)</p>				
	(I) Incomer				
	a) 1 No. 400 Amp 4 pole MCCB, 25KA @ 415V with microprocessor release for overcurrent and short circuit, instantaneous and ground fault complete with extendable type rotary operating handle and spreader links on both sides complete as required..				
	(b) SITC of multi function meters with RS port, suitable ratio CTs as per KSEB specification & MCB protection:- 1 set (separate compartment)				
	(c) 3 nos phase indication LED lamps with 2 amp back up MCB for protection.				
	(II) Bus bars: Vertical & Horizontal extendable type				
	TPN aluminum bus bars of minimum of 400 Amps capacity with heat shrinkable colored sleeves and i/c DMC/SMC bus bar cross section, size supports & their spacing etc. for withstanding fault level of 21 MVA for 1 sec.				
	(III) Outgoing:				

	a)2 Nos. 200 Amp 4 pole MCCB, 25 KA @ 415V with microprocessor release for overcurrent and short circuit complete with extendable type rotary operating handle and spreader links on both sides complete as required..				
	(IV)Spare:				
	a)1 Nos. 200 Amp 4 pole MCCB, 25 KA @ 415V with microprocessor release for overcurrent and short circuit complete with extendable type rotary operating handle and spreader links on both sides complete as required..				
17.1	<b>Solar LT panel complete as per Job</b>	6	Job		
18	Supplying installation, testing and commissioning of solar panel with high module efficiency with 144X half-cut Mono crystalline Bi-facial TopCon Solar Cell etc. as per attached technical specification. The panels shall be fixed to the hat perlin by using stainless stell bolt, nut, washer etc.				
18.1	600-620Wp	1165	KWp		
19	Providing and laying in position cement concrete of specified grade including the cost of centering and shuttering - All work up to plinth level :				
19.1	1:2:4 (1 Cement : 2 coarse sand(zone-III) derived from natural sources : 4 graded stone aggregate 20 mm nominal size derived from natural sources).	35	Cum		
20	Truss work for fixing solar panel built up with Aluminium-zinc(Galvalume) Section(75X65X1.6mm Base plate, 80X40X1.6mm C purlin section for base and purlin, 90X40X0.9mm size Hat purlin for fixing of solar panel etc.), including cutting, hoisting, fixing in position, by using stainelss steel bolt, nut and washers etc. complete.	25000	Kg		
21	12 mm cement plaster of mix in CM1:4 (1 cement: 4 fine sand) , as directed by Engineer-in-Charge	500	Sqm		
22	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	75	Each		
23	Supply and fixing of shock treatement chart both in Hindi & English as required.	30	Each		
24	Supplying and fixing of 4 feet long copper bonded earth rode ect as required.	14	Each		
25	Providing and fixing 25 mm X 6 mm copper strip on surface or in recess for connections etc. as required.	490	Metre		
26	Providing and fixing 4.00 mm dia copper wire on surface or in recess for loop earthing along with existing surface/ recessed conduit/ submain wiring/ cable as required.	720	Metre		

27	Providing and fixing earth bus of 50 mm X 5 mm copper strip on surface for connections etc. as required.	11	Metre		
	<b>TOTAL-(A)</b>				
<b>B</b>	<b>SH:2 SITC of 87KW solar power generation work including inverter and connection etc. in existing solar panel in various building at Nila Campus</b>				
1	Dismantling of existing 4 numbers of 125Wp solar photovoltaic panels from the specified building, ensuring no damage to the modules, cables, and mounting structures. The panels shall then be transported and refixed at the designated building as per the layout provided. The scope includes providing and constructing new concrete foundations of size 30 cm × 60 cm × 30 cm at appropriate locations with proper curing, anchor bolts, and mounting supports to ensure structural stability. All necessary panel alignment shall be carried out in accordance with standard solar installation practices, ensuring optimal tilt, orientation, and grounding as per electrical safety norms and relevant codes. Testing and commissioning shall be performed to confirm proper functioning after installation.	38	Job		
2	Dismantling of existing 7 numbers of 315Wp solar photovoltaic panels from the specified building, ensuring no damage to the modules, cables, and mounting structures. The panels shall then be transported and refixed at the designated building as per the layout provided. The scope includes providing and constructing new concrete foundations of size 30 cm × 60 cm × 30 cm at appropriate locations with proper curing, anchor bolts, and mounting supports to ensure structural stability. All necessary panel alignment shall be carried out in accordance with standard solar installation practices, ensuring optimal tilt, orientation, and grounding as per electrical safety norms and relevant codes. Testing and commissioning shall be performed to confirm proper functioning after installation.	14	Job		
3	Providing and fixing 32mm dia Unplasticized Polyvinyl Chloride (UPVC) pipes ( Grade - SCHED-40), having thermal stability for hot weather conditions, including all UPVC plain fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings without UPVC solvent cement for solar cable laying in terrace floor as per direction of Engineer in Charge.	650	Metre		
4	Supply and Laying of following size 1100 volt copper conductor multi strand XLPE/PVC insulated and UV				

	stabilized PVC sheathed solar cable i/c connection (MC4 connector) and as per specification complete in all respect as per site requirement, as required.				
4.1	1CX4 Sqmm unarmored stranded copper conductor DC cable (From Solar panel to DCDB)	1100	Metre		
4.2	1CX6 Sqmm unarmored stranded copper conductor DC cable (From DCDB to inveter unit)	550	Metre		
5	Dismantling of all existing Array Junction Boxes (AJBs) from the designated solar PV system/site, including safe disconnection of incoming and outgoing DC cables, removal of associated mounting hardware, and ensuring no damage to cables or structures during the process; the dismantled AJBs shall be properly labeled, accounted for, and handed over in good condition to the Institute's designated store/representative ect as required.	1	Job		
6	Refixing of Array Junction Boxes (AJBs) at the specified site locations as per site conditions, including supply and installation of necessary mounting hardware, proper alignment and secure fixing on suitable structures, reconnection of incoming and outgoing DC cables with appropriate terminations complete as required.	18	Each		
7	Supply, installation, testing, and commissioning of DC Distribution Box (DCDB) suitable for connecting solar panel cables, fabricated from weatherproof, dust-proof, and UV-resistant enclosure with IP65 protection. The DCDB shall be equipped with DC fuses of appropriate rating for each input, DC SPD (Type 2, PV 1000V, 40kA) for surge protection, and following rated DC MCBs for output isolation and protection. All terminations, interconnections, and copper cabling with proper lugs and ferrules, ensuring safe and reliable operation. The work shall be completed in all respects as per site requirements complete as required.				
7.1	3-Way Connector Distribution Box (DB) shall consist of one positive way equipped with a 32A DC fuse, 32A DC MCB and DC SPD (Type 2, PV 1000V, 40kA) for protection against overcurrent and surge.	2	Each		
7.2	2-Way Connector Distribution Box (DB) shall consist of one positive way equipped with a 32A DC fuse, 32A DC MCB and DC SPD (Type 2, PV 1000V, 40kA) for protection against overcurrent and surge.	3	Each		
7.3	4-Way Connector Distribution Box (DB) shall consist of one positive way equipped with a 32A DC fuse, 32A DC MCB and DC SPD (Type 2, PV 1000V, 40kA) for protection against overcurrent and surge.	1	Each		

8	Supply, installation, testing, and commissioning of multi-MPPT string inverter for 1000Vdc system with IP65 protection as per attached technical specification.				
8.1	Not less than 25 KW, 3 Phase inverter	1	Each		
8.2	Not less than 15 KW, 3 Phase inverter	2	Each		
8.3	Not less than 12 KW, 3 Phase inverter	1	Each		
8.4	Not less than 10 KW, 3 Phase inverter	1	Each		
9	Supplying and testing of following size one number XLPE insulated and PVC sheathed armoured aluminium conductor power cable of 1.1 kV grade conforming to IS 7098 (Part 1) 1988 as required.				
9.1	4 X 16 sq. mm	185	Metre		
9.2	4 X 25 sq. mm	65	Metre		
10	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
10.1	Upto 35 sq. mm (clamped with 1mm thick saddle)	310	Metre		
11	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
11.1	Upto 35 sq. mm (clamped with 1mm thick saddle)	100	Metre		
12	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing masonry open duct as required.				
12.1	Upto 35 sq. mm	50	Metre		
13	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
13.1	4 X 16 sq. mm	18	Each		
13.2	4 X 25 sq. mm	8	No		
14	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 volts, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's (but without MCB's and incomer RCCB ) as required .				
14.1	4 way (4 + 12), Double door	1	Each		
15	Supplying and fixing of following rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
15.1	32A TP MCB	4	Each		

15.2	63A FP MCB	1	Each		
16	Supplying and fixing of 4 feet long copper bonded earth rod ect as required.	8	Each		
17	Providing and fixing 25 mm X 6 mm copper strip on surface or in recess for connections etc. as required.	400	Metre		
18	Providing and fixing 4.00 mm dia copper wire on surface or in recess for loop earthing along with existing surface/ recessed conduit/ submain wiring/ cable as required.	200	Metre		
19	Providing and fixing earth bus of 50 mm X 5 mm copper strip on surface for connections etc. as required.	8	Metre		
20	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, necessary accessories like bend, tee and reducer etc, floor standing with G.I. suspenders including G.I. bolts and nuts, etc. complete as required.				
20.1	300 mm width X 50 mm depth X 1.6 mm thickness	135	Metre		
20.2	100 mm width X 50 mm depth X 1.6 mm thickness	65	Metre		
21	SITC of Multifunction meter (MFM) with RS port for monitoring solar energy generation and 40A TPN MCB with metallic enclosure in every building/ inverter(of Nila campus)housed in a suitable size of syntex transparent enclosure with lockable arrangement for outdoor/indoor installation.	4	Job		
22	Testing and commissioning of the existing solar panels(87KWp), including thorough inspection of physical condition, cleaning of module surfaces, verification of electrical connections, polarity check, necessary parameter checking, and performance evaluation under standard operating conditions. The work shall also include functional testing of strings, verification of array output against design parameters, and ensuring proper integration with the existing system.	1	Job		
23	Removing existing metering cubicle and reinstalling the same in the nearby room etc. as required.	1	Job		
24	SITC of indoor type ABT metering cubicle with 2 nos. of ABT meter (1 main + 1 check ), 1 no. power quality meter, terminal block, cast resin CTs & PT, terminal block. bus bar, load break switch (LBS) etc as required. The panel including the items shall be as per additional	1	Job		

	conditions and KSEBL specifications.				
25	SITC of indoor type RTU panel, fire wall configuration and integration including providing license for 3 years with required rack, ethernet switches etc. as per KSEBL specifications	1	Job		
26	SITC of industrial PC(Make: Dell/Lenovo/HP) for SCADA with the following specification (Intel i5 latest gen CPU, 16 GB RAM, 512GB SSD, 1 TB HDD, RJ45 port, Windows Professional OS, MS office, 24" monitor, 65" monitor, mouse, keyboard)	1	Job		
27	SITC of Indoor Type SCADA Panel assembled with Controller, communication modules, power supply units, network components, and all necessary accessories, complete with SCADA visualization software (SCADA Console) for monitoring, control, data logging, alarm management, and report generation of connected systems. The panel shall be assembled, wired, tested, and commissioned, suitable for indoor installation, complete with all hardware, software licenses, communication cables, programming, integration, testing, and commissioning as required.	1	Job		
	<b>Annual Maintenance Contract (AMC)</b>				
28	Separate Maintenance contract agreement shall be executed after defect liability period for Annual maintenance (excluding spare parts) of the system which include routine preventive, break down maintenance, fault finding, repair, replacement of worn out items issued to the agency at free of cost etc. during the period the service person of the agency should inspect the site quarterly and as & when breakdown is reported.				
28.1	1st Year	1	Job		
28.2	2nd Year	1	Job		
28.3	3rd Year	1	Job		
28.4	4th Year	1	Job		
28.5	5th Year	1	Job		
	<b>NOTE: The work is inclusive of electrical inspectorate &amp; KSEB approval &amp; integration, total commissioning of the system. However, data cable from inverter, MFM and switches in each building, network connectivity RTU panel, BSNL connection will be done by the</b>				

	<b>Institute.</b>				
	<b>TOTAL-(B)</b>				
	<b>Grand Total (A+B) including all Taxes and Charges</b>				
	<b>Say Rs.</b>				