



**MAHARASHTRA GRAMIN BANK**  
**HEAD OFFICE: CIDCO, AURANGABAD (M.S.)**

**TENDER FOR**

**DESIGN, ENGINEERING, MANUFACTURING, FABRICATION, SUPPLY, INSTALLATION, TESTING, COMMISSIONING, FOLLOW-UP, GENERATION METER AND NET METER, APPROVAL, SANCTION, TESTING, INSTALLATION AND CONNECTIVITY TO GRID, ON TURNKEY BASIS FOR CAPACITY OF 50 KWp (STRUCTURE - 4 MTR ELEVATED STRUCTURE) GRID CONNECTED ROOFTOP SOLAR PHOTOVOLTAIC POWER GENERATION PLANT AT MAHARASHTRA GRAMIN BANK, PROPOSED HEAD OFFICE BUILDING, PLOT NO 42, CIDCO, WALUJ MAHANAGAR, GOLWADI, AURANGABAD (MS)**

**TENDER DOCUMENT**

**Maharashtra Gramin Bank, Head Office Building**

**SITE ADDRESS:- Plot No. 42, Growth Center of Nagar-IV in CIDCO Waluj Mahanagar, Aurangabad, GUT. No.33(Part), Village-Golwadi, Tahsil & Dist – Aurangabad, Maharaashtra (MS)**

**LAST DATE FOR SUBMISSION OF TENDERS: 05.11.2020 (4.00 p.m./16.00 Hrs.)**

**AT**  
**HEAD OFFICE, 35, “JIVANSHREE, SECTOR ‘G’, TOWN CENTRE,**  
**CIDCO, AURANGABAD-431 003**

**TOTAL NO. OF PAGES = 83 NOS.**  
**Including 03 No. of Drawings**

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**MAHARASHTRA GRAMIN BANK**

(A Scheduled Bank established by Govt. of India.)  
Sponsor Bank : Bank of Maharashtra

# **SECTION-I**

# **BID INVITATION**

## SECTION-I

### ➤ BID INVITATION

#### **1. BRIEF DESCRIPTION OF THE BIDDING PROCESS**

**The Chairman, Head Office, 35, “Jivanshree, Sector ‘G’, Town Centre, CIDCO, Aurangabad-431 003**

Invites eligible bidder to submit a bid in accordance with the provisions of this Tender Document, for MGB Head Office (HO) New Building on Plot No. 42, Growth Center of Nagar-IV in CIDCO Waluj Mahanagar, Aurangabad, GUT. No.33(Part), Village-Golwadi, Tahsil & Dist – Aurangabad, Maharaashtra (MS). In this Tender Document, the term "Bidder", which expression shall, unless repugnant to the context, include all parties who have submitted bids in response to this Tender Document within the stipulated time frame for submission.

- The Bidders shall submit the bids in two parts by following tendering process described in bidding documents. First part comprises of the **technical bid** and the second part comprise of the **financial bid** in accordance with this Tender Document.
- In terms of the Tender Document, a Bidder will be required to deposit non- refundable Tender document fee, along with its tender, and the refundable Earnest Money Deposit (EMD).
- Chairman/ his authorized representative will open the technical bid of the Bidder. The financial bid will be opened of those bidders only, who are qualified in technical bid.

#### **2. BIDDING INFORMATION**

1	Date of sale of Tender document	09/10/2020 to 04/11/2020 during working days and office hours only.
2	Last date and Time of submission of Bids	05/11/2020 at 16:00 hours
3	Date & Time of opening of Technical Bid and price bid	05/11/2020 at 16:30 hours

**SUMMARY OF TENDER**

1. Name of the organization Offering Contract : MAHARASHTRA GRAMIN BANK, HEAD OFFICE, 35, "JIVANSHREE, SECTOR 'G', TOWN CENTRE, CIDCO, AURANGABAD PIN- 431 003
2. Consultants : ASHISH S. NASHINE ARCHITECT, INTERIOR DESIGNER & APPROVED VALUER, 49, CENTRAL BAZAR ROAD, BAJAJ NAGAR, NAGPUR-440010
3. Site Address : Plot No. 42, Situated in Growth Center of Nagar-IV in CIDCO Waluj Mahanagar, Aurangabad, GUT. No.33(Part), Village- Golwadi, Tahsil & Dist –Aurangabad, Maharaashtra (MS)
4. Scope of Work : DESIGN, ENGINEERING, MANUFACTURING, FABRICATION, SUPPLY, INSTALLATION, TESTING, COMMISSIONING, FOLLOW-UP, GENERATION METER AND NET METER, APPROVAL, SANCTION, TESTING, INSTALLATION AND CONNECTIVITY TO GRID, ON **TURNKEY BASIS** FOR CAPACITY OF **50 KWp (STRUCTURE - 4 Mtr ELEVATED STRUCTURE)** GRID CONNECTED ROOFTOP SOLAR PHOTOVOLTAIC POWER GENERATION PLANT (M.S).
5. Name of the Contractor/Tenderer : -----  
-----  
-----
6. Address of the Contractor /Tenderer : -----  
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-----
7. Period of Completion : 60 Days from the date of work order/ handing over of site
8. Cost of Bank Tender Form : Demand Draft/Pay order of **Rs. 3,000/- (Rupees Three Thousand Only)** in the name of "**Maharashtra Gramin Bank**" payable at **Aurangabad** which is non-refundable; **In Envelope No 1.**
9. Earnest Money Deposit : **Rs. 32,000/- (Rupees Thirty Two Thousand Only)** from any Nationalized Bank/ Scheduled Bank in the name of "Maharashtra Gramin Bank", payable @ Aurangabad towards Earnest money deposit. **No cheques shall be accepted; In Envelope No 1.**
10. Retention Money : 10% As per Tender conditions
11. Defects Liability Period : Five Years from the date of Virtual Completion certificate from Bank's Architect.

12. Insurance to be undertaken by the : 125% of Contract Value Contractor  
(Contractor's all risk policy)
13. Liquidated damages : 1% of the Contract amount shown in the  
tender per week subject to max. 10% of the  
contract value or actual final bill value.
14. Value of Interim Bill : Rs. 15 Lakhs. for  
Minimum amount of work done and as per  
terms of payment of tender Page No. 26
15. Date of Commencement : 7 days from the date of acceptance letter or  
handing over of site.
16. Period of Final Measurement : One Months from the date of Virtual  
Completion.
17. Initial Security Deposit : 2% of the Accepted Value of the Tender.
18. Total Security Deposit : As per Tender condition 10% of the total final  
Bill value / contract value
19. Refund of initial Security Deposit : 20% each of the Security Deposit (10% of the  
Comprising of EMD & Retention amount. total final bill Value as Security Deposit) shall  
be released after completion of each year for  
five years from the date of completion certificate  
from the Architect,  
DLP : 5 Years as per the mandatory Norms by  
NMRE
20. Period for Honoring Certificate : 1. 15 Days for R.A. Bills  
2. The final bill will be submitted by the  
Contractor within Fifteen days of the date  
fixed for completion work and the Bill shall  
be Certified within one month from the date of  
receipt of final bill & the period of honoring  
the same shall be one month, provided the  
bills are submitted with all prerequisite  
documents/test reports etc. prescribed in the  
tender.

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Signature of Contractor/Tenderer.

**Date:**

**The date & time of opening of Price Bid will be announced later.**

If any technical difficulties arise while filling up tender, please contact The Chairman/ his authorized representative, Maharashtra Gramin Bank, Head Office HEAD OFFICE, 35, "JIVANSHREE, SECTOR 'G', TOWN CENTRE, CIDCO, AURANGABAD PIN- 431 003 / Consulting Architect

- It is compulsory to pay tender document fee, EMD by Demand Draft/Pay order in the name of "**Maharashtra Gramin Bank**" payable at **Aurangabad**





**MAHARASHTRA GRAMIN BANK**

(A Scheduled Bank established by Govt. of India.)  
Sponsor Bank : Bank of Maharashtra

**SECTION-II**  
**INFORMATION AND**  
**INSTRUCTION TO BIDDERS**

## SECTION-II

### ➤ INFORMATION AND INSTRUCTION TO BIDDERS

The Chairman, Maharashtra Gramin Bank, Head Office, 35, "JIVANSHREE, SECTOR 'G', TOWN CENTRE, CIDCO, AURANGABAD PIN- 431 003 invites bids from eligible bidders for "works" include **Design, Engineering, Manufacturing, Fabrication, Supply, Installation, Testing, Commissioning and legal sanctioning from all concerned departments, follow-up, generation meter and net meter, approval, sanction, testing, installation and connectivity to grid, on turnkey basis for Capacity of 50 KWp (4 MTR ELEVATED) Grid Connected Rooftop Solar Photovoltaic Power Generation Plant at Maharashtra Gramin Bank, Head Office New Building** on plot no. 42, CIDCO Waluj Mahanagar, Golwadi, Aurnagabad (MS) (Herein after referred to as the contract of works) and as described in the tender document on "**Turnkey Contracts**".

#### 1. SCOPE OF CONTRACT

The Scope of contract is as below:

- **Design, Engineering, Manufacturing, Fabrication, Supply, Installation, Testing, Commissioning and legal sanctioning from all concerned departments, follow-up, Generation meter and Net meter, approval, sanction, testing, installation and connectivity to grid, on turnkey basis, for Capacity of 50 KWp (4 MTR ELEVATED) Grid Connected Rooftop Solar Photovoltaic Power Generation Plant at Maharashtra Gramin Bank, Head Office New Building** on plot no. 42, CIDCO Waluj Mahanagar, Golwadi, Aurnagabad (MS) Under Net Metering on "**Turnkey**" **Contract Basis** and as described in the Tender Document.
- Free replacement of defective components of systems within warranty period of respective parts of the system after commissioning for efficient running of the Grid-connected Solar Photovoltaic Power Generation Plants.
- Successful Bidder(s) will be responsible to register these projects by operation and maintenance as per management arrangements and rules, regulations and modalities as per MNRE and as established by **MGBHOA** and mutually agreed between MGBHOA and the contractor for effective implementation of the project.



- The Works are to be carried out at Maharashtra Gramin Bank, Head Office **New Building** on plot no. 42, CIDCO Waluj Mahanagar, Golwadi, Aurnagabad in the State of Maharashtra. **Bidder can quote only after the site visit and Submit Site Visit format duly signed by the Bidder in Envelope No.1**
- The successful Bidder will be required to complete the works within the stipulated time as specified in the tender document. The bidder shall ensure that Solar Photovoltaic Power Plants should be installed and commissioned at site within **02 months** from the date of receipt of work order.
- Selected bidder is bound to operate and maintain the system as per the rules and regulations and modalities as prescribed by MNRE and MGBHOA for effective functioning of the project.
- **Bids shall be complete and cover all Works described in the tender. However if any item of works required for completing the projects shall be deemed to be included in bidder's scope irrespective of whether it is specifically mentioned or not in the tender document.**
- Selected Bidder is bound to carry out all the procedure related to installation of Generation and Net Meter on the site of the project.
- **Bidder should obtain all statutory permissions from statutory bodies & competent authorities wherever required for execution of works.**
- **Bidder shall quote for the complete systems.** Partial bids or bids which do not cover the entire scope of the project will be treated as incomplete and **not responsive to the terms and conditions of tender are liable to be rejected.**

**Manner of Submission of Tender:**

**The tenders to be submitted in two separate Sealed Envelopes as below:**

Envelope No.1

**2. ELIGIBILITY**

The bidder shall provide sufficient documentary evidences to satisfy the following conditions.

- Shall manufacture/supply the material (module, inverter, wires/cables, structure etc) only as per the standards mention in tender document.
- The Bidder should have installed & commissioned at least **one Single Project of Capacity of 50 KWp or two works of Capacity of 40 KWp** Grid-connected roof top net metering systems. The list of projects commissioned has to be submitted along with the tender. The copy of the Commissioning certificate and Work order / Contract / Agreement / from Government/Semi Government / PSU shall be submitted without which the tender shall not be considered & **outrightly rejected**.
- Manufacturer of SPV Modules or System Integrator shall provide the test certificate of SPV Modules issued by MNRE or its authorized test centers.

**For submission of the bid (Grid connected), bidder must have to fulfill following criteria.**

- Must have field service setup to provide good after sale services including necessary repair and maintenance in the state of Maharashtra, to carry out repair/replacement work within 48 hours from the time of reporting the fault as and when required over the period of 5 years i.e. CMC period.
- The Bidder must have Registered Office/ Branch office, service network in Jurisdiction of Aurangabad. Accordingly, bidder has to submit the details thereof.
- The Bidder has provided after sale services for the works done by him during last three years.
- Bidder must submit the address, company personnel details of registered office within periphery of Aurangabad which will be responsible for conducting O&M within the CMC period.
- **Will not be having Joint venture.**
- **Must have turnover of minimum 100 Lacs during last three years.**



- ITR returns of last 3 financial years including Balance Sheet, Profit and Loss A/C etc for last Three years to be submitted in Envelop No 1
- All above criteria shall be strictly followed. **Bidder should quote only if he is eligible / Firms shall quote only if they are eligible**

### **3. STANDARDS AND CERTIFICATES**

- The goods supplied and works executed under this contract shall confirm to the standards mentioned in the technical specification and where no applicable standard is mentioned, the latest version of **Indian Standard Institution** or Bureau of Indian Specification shall be applicable.
- The Bidder shall submit all the valid test certificates and reports of the system components following the latest MNRE Guidelines and the same components shall be supplied for which the test reports/ certificates are submitted.
- **The manufacturer should submit test certificate of Module.**
- **For Grid connected solar PV System i.e. system of 50 kW at Maharashtra Gramin Bank, Head Office Building, the manufacturer has to give the guaranteed average generation i.e. to generate 4 units per day per kW .The evaluation of monthly guaranteed generation for Solar PV System must be equal to 4 units \* 365 days \* 50 KW = 73, 000 units/Year. The undertaking in the aforesaid subject matter shall be submitted on stamp paper of Rs. 500/- in Envelop No 1 (Technical Bid) as per the format enclosed in the tender without which the tender shall be outrightly rejected.**

### **4. INSTRUCTIONS**

- Bidder shall Submit Information, Experience Certificates, Test Reports and other such relevant document's specified in the list of other important documents.



- The bidder should visit the site & carry out the survey and Submit the certificate indicating that the survey is carried out by the bidder as per **Appendix - IV**. The tender submitted without site visit report will be rejected out rightly.
- The technical proposals confirming to eligibility criteria and found satisfactory will be taken up for detailed technical evaluation. A technical evaluation committee shall evaluate the Bids submitted by bidders for detailed scrutiny. During evaluation of the technical bids, MGBHOA may at its discretion ask the bidders for clarification of their bid.
- In case bidder does not fulfill the technical bid the financial bid shall not be opened & he shall be disqualified from further bidding process.
- Price Proposals of bidders qualifying above conditions shall be subsequently opened. **The time and date of the opening of the Price bid shall be intimated by mail of individual/ firms by MGBHOA.**
- The price bid may be opened in presence of the all technically qualified bidders.
- **Bids submitted without EMD will be rejected.** Bidder would need to Submit the required documents in envelope no 1 only.
- The Bidder shall Submit copies of
  - Goods & Service Tax (GST) registration Certificate
  - PAN Card
  - Income Tax Returns of previous three assessment years including the audited balance sheet to confirm the turnover of the bidder.
- Office of Chairman, MGBHOA, Aurangabad reserves the right
  - To reject or accept any or all tenders without assigning any reasons thereof.
  - The work order is not transferable. Subletting is not allowed.

MGBHOA will not entertain any claim at any stage of successful bidder on the plea that the bidder was not having sufficiently acquainted himself to the site conditions.

#### **5. COST OF BIDDING**

The bidder shall bear all costs associated with the preparation and submission of bid and MGBHOA will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

#### **6. LANGUAGE OF BID**

All documents, drawings, instructions, design data, calculations, operation, maintenance and safety manuals, reports, labels and any other data shall be in English Language. The contract agreement and all correspondence between the MGBHOA and the bidder shall be in English language. Supporting documents and printed literature furnished by the bidder if provided in another language it shall be accompanied by an accurate translation of the relevant passages in the English language duly authenticated and certified by the bidder. Supporting materials, which are not translated into English, may not be considered. For the purpose of interpretation and evaluation of the Application, the English language translation shall prevail.

#### **7. DOCUMENTS COMPRISING THE BID**

The Bid prepared by the Bidder shall be submitted in Two parts Viz. **Technical bids (Envelop No 1)** and **Financial bids (Envelop No 2)** comprising the following components.



### **Part I - Technical Bid: (Envelop No 1)**

Bidder shall submit relevant certificates to fulfill the eligibility criteria prescribed in the tender document along with following documents/information.

- Bidder's Information Sheet
- Annual Turnover
- Self Certification of No Barr/non failure/blacklisted
- Details of Registered Office/ Branch Office in jurisdiction of Aurangabad Division.
- Installation and Performance Credentials
- Experience for installation and commissioning of SPV power plants.
- Experience/set-up of after sales service
- Sheet of physical technical specifications and description of actual materials which are to be used in installation of project
- Undertaking of Guaranteed Generation Certificate on Rs. 500 stamp paper.
- Standards maintained for various components to be used in the project
- Safety consideration for system protection
- Warranty certification of equipments/ components
- Site Visit format duly signed by beneficiary and MGBHOA authority.
- If the firm is a partnership firm, attested copy of registered partnership deed registered with office of sub-registrar along with certificate of registration (form 'H' under rule 17) under partnership Act, 1932.
- Attested copy of Registered general power of Attorney registered in the office of sub-registrar in case of partnership firm, who is authorised signatory on behalf of the partnership firm & its partners.
- Attested copies of **Memorandum of Association** & Certified copy of Resolution in case of any Private Limited/Public Limited Companies.
- **Copy of GOODS & SERVICE TAX CERTIFICATE (GST) shall be enclosed.**
- **Copies of PAN card, Adhar card as Applicable shall be enclosed.**

The Bidder is expected to verify all instructions, forms, terms and specifications in the Tender Document. Failure to furnish all information required in the tender document will be at the Bidder's risk and may result in rejection of the bid.





## **Part II - Financial bid: (Envelop No 2)**

Financial Bid shall contain:

- The bidder should quote the price on “turnkey basis contract” in the **specific format enclosed** with the tender, no changes shall be made in the format of tender.
- **The price quoted in the bid will be inclusive of all taxes, duties, insurance and all incidental charges for successful design, supply, fabrication, installation, commissioning along with comprehensive maintenance of Solar PV Power Plants, including the structural steel frame work as per drawing enclosed @ 4.00 mt. level & this structural work shall be followed strictly as per drawing enclosed.**
- Prices shall be quoted in Indian Rupees only.
- In no circumstances, escalation in the prices will be entertained.
- Financial Bid Submitted with an adjustable price quotation will be treated as non responsive and will be rejected.
- Any Bid not in accordance with above clauses of this Section will be rejected.

### **8. EARNEST MONEY DEPOSIT (EMD), SECURITY DEPOSIT (SD) & FORFEITING OF EMD:**

#### **A) EARNEST MONEY DEPOSIT (EMD):**

The Earnest Money Deposit for this project of **Rs. 32,000/- (Rupees Thirty Two Thousand Only)** should be enclosed in envelope no 1. **Tender without Earnest Money Deposit will be outrightly rejected.** No interest shall be payable on the amount of Earnest Money. It shall be retained by MGBHOA. EMD shall be returned to unsuccessful Bidders after acceptance of work order by successful Bidder and EMD of successful Bidder shall be returned after submission of security deposit / shall be adjusted towards security deposit.

**Note: - The tenders are to be submitted in two separate sealed envelopes as mentioned above, however if the two separate sealed envelopes are put in one common sealed cover, the contractor shall mention over the common sealed cover that envelope no. 1 & envelope no.2 are inside the common sealed cover. While opening if it is found that the two separate sealed envelopes are not inside the common sealed cover the tender shall be outrightly rejected.**

**FORFEITING OF EMD:**

The EMD paid or submitted by the Bidder shall be forfeited if:

- a. The Bidder withdraws his tender before finalization of work order.
- b. The Bidder does not accept work order.
- c. The Bidder violates any of the terms and conditions of tender.
- d. The Bidder fails to deposit requisite Security deposit.
- e. The Bidder fails / refuses to execute the contract, in this case MGBHOA shall have full right to claim damages thereof in addition to the forfeiture of EMD.

**B) SECURITY DEPOSIT (SD):**

- a. The security deposit at **10%** of the total contract value on work order will be deducted from every bill payable to the Bidder under this contract up to extent of Contract Value of the Work Order.
- b. Failure to comply with the terms of security deposit shall result into cancellation of work order without any further reference to the Bidder and the EMD shall be forfeited.
- c. The security deposit shall be liable to be forfeited wholly or partly at the sole discretion of the MGBHOA, if the Bidder either fails to execute the work of above projects or fails to fulfill the contractual obligations or fails to settle in full his dues to the MGBHOA.
- d. In case of premature termination of the contract, the security deposit will be forfeited and the MGBHOA will be at liberty to recover the losses



suffered by it & if additional cost is to be paid, the same shall be recovered from the Bidder.

- e. The MGBHOA is empowered to recover from the security deposit for any sum due and for any other sum that may be fixed by the MGBHOA as being the amount or loss or losses or damages suffered by it due to delay in performance and / or non-performance and / or partial performance of any of the conditions of the contract and / or non-performance of guarantee obligations.
- f. The security deposit shall be released to the Bidder only after contract is completed to the satisfaction of the MGBHOA and in the following manner :

20% each of the Security Deposit (10% of the total final bill Value as Security Deposit) shall be released after completion of each year for five years from the date of completion certificate from the Architect, DLP : 5 Years as per the mandatory Norms by NMRE

## **9. PRICE VARIATION**

Under any circumstances & for any reasons, escalation in the contract value will not be considered by MGBHOA.

## **10. JURISDICTION**

In case of any dispute, in the documentation and during implementation, commissioning, completion and CMC period, all the matter will be resolved under AURANGABAD Jurisdiction only.

## **11. TIME FRAME**

The time frame for the completion of work is **02 months** from the date of issue of work order.

## **12. PERIOD OF VALIDITY OF BID**

- Bids shall remain valid for **90 days** after the date of opening of Technical Bid. A Bid valid for a shorter period shall be rejected by MGBHOA as non-responsive.



- In exceptional circumstances, MGBHOA may solicit the Bidder's consent to extend the period of validity. The request and the responses thereto shall be made in writing. The EMD provided shall also be suitably extended. A Bidder granting the request will not be required nor permitted to modify its bid.

### **13. DEADLINE FOR SUBMISSION OF BIDS**

- Bids must be Submitted by the bidder not later than the time and date specified in the invitation for Bids.
- The MGBHOA may, at the discretion, extend this deadline for submission of bids by issuing an addendum, in which case all rights and obligations of MGBHOA and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

### **14. CLARIFICATION OF BIDS**

During evaluation of Bids, MGBHOA may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing and no change in prices or substances of the Bid shall be sought, offered or permitted.

### **15. PRELIMINARY EXAMINATION**

- The MGBHOA will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.
- Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between words and figures, the lower of the two will prevail. If the Bidder does not accept the correction of errors, its bid will be rejected.



- The Bidder is required to carefully examine the Technical Specification, terms and Conditions of Contract, and other details relating to supplies as given in the Bid Document.
- The Bidder shall be deemed to have examined the bid document including the agreement/ contract to have obtained information on all matters whatsoever that might affect to execute the project activity and to have satisfied himself as to the adequacy of his bid. The bidder shall be deemed to have known the scope, nature and magnitude of the supplies and the requirements of material and labour involved etc. and as to all supplies he has to complete in accordance with the Bid document.
- Bidder is advised to submit the bid on the basis of conditions stipulated in the Bid Document.
- **Bidder's standard terms and conditions if any will not be considered. The cancellation / alteration / amendment / modification in Bid documents shall not be accepted by MGBHOA.**
- Bid not submitted as per the instructions to bidders is liable to be rejected. Bid shall confirm in all respects with requirements and conditions referred in this bid document.

## **16. ACCEPTANCE OR REJECTION OF BIDS**

- MGBHOA reserves the right to accept or reject any bid or all the bids and to annul the bidding process and reject all bids at any time prior to award of contract, without thereby incurring any liability or any obligation to inform the affected bidder or bidders of the grounds for the said action.
- Any Bid with incomplete information is liable for rejection.
- For each category of pre-qualification criteria, the documentary evidence is to be produced duly attested by the authorized representative of the bidder and serially numbered. If the documentary proof is not submitted for any/all criteria the Bid is liable for rejection.
- If any information given by the bidder is found to be false/ fictitious, the Bidder will be debarred for 3 years from participating in any other tenders of MGBHOA and will be black listed.

## **17. CRITERIA FOR BIDS EVALAUTION**

### **Step 1: Test of Responsiveness**

- Prior to evaluation of Bids, MGBHOA shall determine whether each Bid is responsive to the requirements of the tender document. A Bid shall be considered responsive only if all documents as outlined in the tender document for two stage bid process are submitted as per the pre-defined format.
- The MGBHOA reserves the right to reject any Bid which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertained by the MGBHOA in respect of such Bid.

### **Step 2: Bid Evaluation**

Bid evaluation will be carried out considering the information furnished by Bidders as per the Tender documents. Based on technical/ qualifying criteria successful bidders will be short listed.

#### **Technical Evaluation**

- Only Technical Proposals conforming to minimum eligibility criteria and found to be responsive will be taken up for detailed technical evaluation. A technical/ tender committee shall evaluate the Bids submitted by bidders for a detailed scrutiny. During evaluation of Bids, MGBHOA, may, at its discretion, ask the bidders for clarification of their Proposals. Bidder shall submit relevant certificates to fulfill the eligibility criteria prescribed in the tender document along with following documents/information.
  - Bidder's Information Sheet
  - Annual Turnover
  - Self Certification of No Barr/non failure/blacklisted
  - Details of Registered Office/ Branch Office in jurisdiction of Aurangabad Division.
  - Installation and Performance Credentials
  - Experience for installation and commissioning of SPV power plants.
  - Experience/set-up of after sales service



- Sheet of physical technical specifications and description of actual materials which are to be used in installation of project
- Undertaking of Guaranteed Generation Certificate on Rs.500/- stamp paper as per Draft enclosed
- Standards maintained for various components to be used in the project
- Safety consideration for system protection
- Warranty certification of equipments/ components
- Site visit format duly signed by beneficiary and MGBHOA authority.
- Failure to furnish all information required in the tender document will be at the Bidder's risk and may result in rejection of the bid. Rights will be reserved by MGBHOA.

### **Financial Evaluation**

The price bids of the eligible bidders will then be evaluated in the manner provided below;

- At the outset, the price bids of all the Bidders who are technically qualified in technical evaluation shall be opened as per official orders.
- The bidder's names, the Bid Prices, total amount of each bid and other details as MGBHOA may consider appropriate, will be announced and recorded by MGBHOA at the opening.
- Bidder that has quoted the lowest price (inclusive of all the taxes/duties) without breach any technical specification as per terms and condition shall be declared as the successful Bidder.
- The work orders shall be issued to the successful bidder who ever qualifies in the complete process as mentioned above.

### **18. AWARD CRITERIA AND AWARD OF CONTRACT**

MGBHOA will award the contract to the successful bidder whose bids has been determined to be substantially responsive and has been determined as the lowest evaluated bid as per the criteria mentioned above, provided further that the bidder is determined to be qualified to perform the contract



satisfactorily. The undertaking, annexure mentioned in tender document, document related to eligibility must be compulsorily submitted by the awarded bidder.

### **19. CORRUPT OR FRAUDULENT PRACTICES**

MGBHOA requires that Bidders shall observe the highest standard of ethics during the execution of contracts. In pursuance of this policy, MGBHOA Defines, for the purposes of this provision, the terms set forth as follows:

- “corrupt practice” means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and
- “fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Government, and includes collusive practice among Bidders (prior to or after tender submission) designed to establish tender prices at artificial non- competitive levels and to deprive the Government of the benefits of free and open competition;
- will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;
- will declare a firm ineligible for a period of 3 years, if it at any time it determines that the firm has engaged in corrupt or fraudulent practices in competing for awarded work at Government financed contract, or in executing, a contract.

### **20. CONDITIONS FOR ISSUING WORK ORDER TO LOWEST BIDDER**

- If declared L1, as per financial bid evaluation, the bidder has to submit description and physical specification of materials in detail which will be used in project along with a letter of undertaking on the letter head of bidder’s company mentioning similar material (with same specification and description) will be used/replicated at all awarded project sites.
- An undertaking by the bidder on Rs.500/- stamp paper mentioning his establishment of required service stations near the project sites within





jurisdiction of Aurangabad division, names of his site engineer/ manager & their contact phone numbers, also contact number & address of local personnel of the company who is responsible for carrying out maintenance of the project for the warranty period.

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

**With every installment of payment to be made to the Bidder, a portion @ 10% of Work Order will be deducted from each Bill towards security deposit of the work.**

- **Release of 50% of total project cost:**

It will be released after supply of complete material at site, as per Bill of Material mentioned elsewhere in this tender document duly certified by Bidder, Officer of the Chairman office of MGBHOA, along with following documents:

- **Release of 20% of total project cost:**

- This portion will be released upon successful installation & commissioning of the system as per technical specification mentioned herein.
- System Photograph accompanying MGBHOA official taken during joint inspection.
- Warranty/Guaranty Certificate of materials used in project.
- Serial Wise Test Reports of Panel comprising I-V curve and detail parameters of each panel.
- Test Report of inverter (if applicable)
- Duly signed "Affidavit" for system guarantee as given in the tender. MGBHOA official at their discretion can ask bidder to submit document other than above mentioned, failing to submit the required and above mentioned document, MGBHOA will have the rights to hold the payment for 20% of total project.

- **Release of 30% of total project cost:**

It shall be released on submission of following documents:

- Commissioning of Net Meter Connection with DISCOM. The Bidder should inspect and confirm the requirement of Net Meter Sanction & connectivity in respect with the concerned DISCOM office. It is the



responsibility of the Bidder to follow up the sanction & connection process with DISCOM.

- Commissioning of Grid Connected Rooftop SPV Power Generation System after installation & commissioning of Net Meter at site. The Bidder has to ensure import & export of energy after such installation and commissioning.
  - The Bidder will train at least two persons from MGBHOA for operation & maintenance of the system. The training should be given at such level so that any fault/defect arising out of system should be notified to the Bidder immediately upon findings by these personals. MGBHOA will hold the release of final payment if the Bidder fails to train the personals.
  - After completion of one year period from the date of installation of the project, total generated units will be counted and if those units are found less, necessary penalty as mentioned above will be levied. The penalty amount will be deducted from the security deposit of the Bidder with MGBHOA. However if the generated units are above than expected yearly average (minimum 4.2 units/KWH) from SPV power plant in a year, then, in such case, no additional amount will be paid to the Bidder by MGBHOA.
- **Deduction:-**
    - The TDS at the source will be deducted as per the Govt. rule and regulations.
    - MGBHOA will issue necessary certificates of TDS deduction

## **22. TIME FRAME:**

The time frame for the completion of work is **02 months** from the date of issue of work order.

Bidder should follow the project timelines and also bound to complete the progress of project work as per given below mile stones or else he will be liable for Penalty against incomplete milestone.



<b>Sr. No.</b>	<b>Milestone</b>	<b>Work Status</b>
1	In 30 days	> 50% Completion of work
2	In 45 days	>80% Completion of work
3	In 02 months	100% Commissioning and Acceptance of Solar power projects

### **23. TIME EXTENSION**

- Only 15 days extension will be given in extreme condition the rights of decision for granting time extension will be reserved by MGBHOA. For further extension of time penalty of 1% of total project cost per week will be levied on the awarded bidder.
- From date of issue of work order, every 15 day's report of work progression needs to be submitted to MGBHOA. The review of work progression will be taken and necessary alteration can be suggested, delay in work progression or failure to fulfill required alteration may lead to cancellation of work order. The rights for decision will be reserved by MGBHOA.

### **24. PENALTY CLAUSE**

If the systems are not installed and commissioned within the stipulated period as mentioned in the work order the Bidder shall be required to pay penalty of 1% (One percent) per week, maximum up to 10% of the total cost / actual final Bill value shall be recovered either from the amount due to the Bidder or from Security Deposit.

If Successful bidder is not able to complete the project in due time the same shall be got done through other contractor and the Successful bidder has to bear all the cost incurred against the balance work left by him for the completion of project.



**MAHARASHTRA GRAMIN BANK**

(A Scheduled Bank established by Govt. of India.)  
Sponsor Bank : Bank of Maharashtra

**SECTION – III**  
**GENERAL CONDITIONS OF**  
**CONTRACT**



### **SECTION – III**

#### **➤ GENERAL CONDITIONS OF CONTRACT (GCC)**

##### **1. GENERAL TERMS AND CONDITIONS**

The following are the General Terms and Conditions of Contract for Supply, Installation and commissioning of SPV Power Plant, as per the specifications given in the document.

- a) Bidder shall be responsible for any damage occurred, if any, at the site during the execution of work.
- b) The Bidder should provide appropriate tools and equipment's to the workmen and ensure that those are in proper working condition and the workmen use the appropriate tools and take precaution "PLEASE NOTE THAT ANY ACCIDENT TO THE WORK MEN / PUBLIC / ANIMALS / PROPERTY BOTH MOVABLE AND IMMOVABLE SHALL BE ENTIRE AND SOLE RESPONSIBILITY OF THE BIDDER AND ANY PROCEEDING ARISING OUT OF THE SAME SHALL BE AT THE BIDDER'S RISK AND COST, MAHARSHTRA GRAMIN BANK, HEAD OFFICE, AURANGABAD (MGBHOA) OR ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR ANY SUCH INCIDENT".
- c) Bidder should provide necessary manufacture's test certificates for materials being used for the work. Power curve of all the panels erected by manufacturers shall be provided to the office of the Chairman, MGBHOA Aurangabad.
- d) The selected Bidder is bound to work on the guideline provided by MGBHOA from time to time. Guidelines if issued in future by MGBHOA, the changes proposed will also be applicable without augmentation in project cost till the completion of contract period.
- e) The Bidder shall carry out the work strictly according to the specifications as per given in Section-IV and complete the work within stipulated time.
- f) It is the responsibility of Bidder to submit the reports for systems installed & commissioned and certificates for undertaking the



responsibility of maintenance of the systems to MGBHOA. Bidder shall also impart training to the user for regular Operation & Maintenance of the systems and certificate in this respect should be submitted.

- g) Bidders should give Guarantee against any manufacturing defects from the date of commissioning back to back as per the manufacturer's policy for the respective component of the system. For any manufacturing defects, supplier shall replace defective parts at free of cost during the Warranty period and shall keep the system functional.
- h) MGBHOA officials will do inspection as and when necessary, during the execution of work and thereafter subsequent to installation and commissioning of the work for the purpose of issuing final completion certificate.
- i) In the event of any discrepancy observed in specifications, the specifications given by MGBHOA will be final. In the event of dispute arising any time, related to this work and document, decision of the Chairman, MGBHOA, Aurangabad or his nominee shall be final.
- j) MGBHOA at its discretion may visit supplier's factory for testing / inspection at any time during the period of supply and installation of the systems.
- k) MGBHOA will not pay any interest on any amount, due to the Bidders.
- l) During the inspection, if any deviations in Technical Specifications are observed, MGBHOA reserves right to test any solar module / system at any authorized test center of MNRE. Bidder shall provide the facilities for getting the sample tested & the supplier shall bear the cost for the same.
- m) If the supplier fails to complete the work or partially completes it then, MGBHOA reserve right to cancel the work order and get it done from other supplier and any loss due to this shall be recovered either from any amount due to the supplier or from their Security Deposit.



- n) At the time of inspection of MGBHOA, manufacturer or supplier has to submit the I.V. curves and test reports of supplied PV modules to respective officer.
- o) The Wiring must be carried out in casing-capping / conduit which ever are suitable as per site condition.
- p) It will be responsibility of the Bidder for procurement and installation of Net Meter in the system.
- q) It will be responsibility of the bidder to provide required WIFI system through any network for real time monitoring of the system using internet and downloading of data for initial 6 month period, later the bidder/supplier may handover the WIFI system to the beneficiary for its maintenance.
- r) It will be responsibility of the Bidder to ensure the satisfactory performance of the system.
- s) The Bidder shall provide the display board of size 3ft x 3ft that gives detailed information of system along with the contact details of manufacturer.
- t) The Bidder shall comply with the provision of contract labour (Regulation and Abolition) Act 1970, minimum wages Act 1948, payment of the wages Act 1963 Workmen's Compensation Act 1961, the contract labour (Regulation and Abolition) Act 1979 and all other related Acts and any modification thereof or any law relating thereto and rules made there under from time to time.
- u) If previous performance of any Bidder found unsatisfactory, he will be disqualified.
- v) If any information / confirmation on any point of these tender conditions are required Bidder may contact / write to office of the Chairman, MGBHOA, 35, "JIVANSHREE, SECTOR 'G', TOWN CENTRE, CIDCO, AURANGABAD-431003 giving tender reference no. etc.
- w) In the event of dispute during installation & commissioning of the systems related to the work and documents, decision of the Chairman, MGBHOA shall be final.





- x) The Chairman, MGBHOA, Aurangabad reserves the rights to distribute the work among the Bidders who are eligible and have submitted the offers.
- y) Once the Bidder submit his offer and subsequently if not interested to work, in such case MGBHOA will forfeit his EMD amount.
- z) At the time of placing work order and during the implementation MGBHOA can revise the technical terms and conditions if revised by MNRE, which will be binding on the Bidder.
- aa) The Chairman, MGBHOA, reserves the right to select L2 Bidder i.e. second lowest Bidder to complete the work, if L1 i.e. lowest Bidder fails to fulfill tender conditions or fails to complete the work.
- bb) It is binding on the successful Bidder to submit original certificates, documents required by MGBHOA.
- cc) The responsibility of electrical works, safety precautions and safety parameters of the project will be of awarded bidder which must as per standards specified.

## **2. COMMUNICATIONS**

- Wherever provision is made for the giving or issue of any notice, instruction, consent, approval, certificate or determination by any person, unless otherwise specified such communication shall be in writing and shall not be unreasonably withheld or delayed.
- Project review coordination meetings between MGBHOA's Representative and Contractor shall be conducted on a regular basis or as and when required by the MGBHOA, at locations decided by the MGBHOA, for Contractor's progress and plans for completing the remaining Works, to deal with matters affecting the progress of the Works, and to decide on responsibility for actions required to be taken. Decisions taken and instructions issued during the coordination meetings, as recorded in the Minutes, shall have the same force and effect as if they were written communications issued in this accordance.

### **3. MANNER OF EXECUTION**

Execution of work shall be carried out in the approved manner as outlined in the technical specifications or where not outlined, in accordance with relevant MNRE / MGBHOA / BIS / Indian Standard Specifications, to the reasonable satisfaction of The Employer.

- The Contractor/Agency should successfully complete the project within timeframe set out by the employer and mutually agreed between Contractor / Agency and Employer.
- MGBHOA shall not be responsible for any loss or damage of any material when installing SPV power plants.
- Undertake necessary activities during the warranty period as set out in this Contract.

### **4. APPLICATION**

These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the contract.

### **5. STANDARDS**

The design, engineering, manufacture, supply, installation, testing and performance of the equipment shall be in accordance with latest appropriate IEC/ Indian Standards and as detailed in the Technical specifications Section as per the MNRE / MGBHOA requirements of the bid document and Annexure- A. The goods supplied under this contract shall confirm to the Standards mentioned, where appropriate Standards and Codes are not available, other suitable standards and codes as approved by the authoritative Indian Standards shall be used.

### **6. INSPECTION**

- The projects will be inspected for quality at any time during commissioning or after the completion of the project by office of Chairman, MGBHOA, Aurangabad.



- Bidder shall inform MGBHOA, in writing when any portion of the work is ready for inspection giving sufficient notice to enable MGBHOA to depute officials to inspect the same without affecting the further progress of the work. The work shall not be considered in accordance with the terms of the contract until the competent person from MGBHOA certifies in writing to that effect.
- Bidder shall carry for verification of panel details, kit for testing earthing, meter for measuring structure's angle, multi meter etc.
- Bidder has to strictly follow the specifications given in the work order while carrying out the execution of work. During inspection if it is found that Bidder has deviated from the specifications, Bidder has to do the alteration / modification / reconstructions as per the given specifications at his own cost & risk.

## **7. TRANSPORTATION**

Where the Contractor/Agency is required under the contract to transport the goods to specified locations defined as Project sites, transport to such places including insurance, as shall be specified in the contract, shall be arranged by the Contractor / Agency, and the contract price shall include transportation costs.

## **8. ASSIGNMENT**

The Contractor / Agency shall not assign, in whole or in part to any third party, its obligations to perform under the contract, except with MGBHOA's prior written consent.

## **9. SUB-CONTRACTS**

Subcontract is strictly prohibited.

## **10. TERMINATION FOR DEFAULT**

MGBHOA without prejudice to any other remedy for breach of contract, by written notice of default sent to the Contractor/ Agency, terminate the contract in whole or part:



- If the Contractor / Agency fails to deliver any or all the goods within the period(s) or within any extension thereof granted by the MGBHOA or If the Contractor / Agency, in the judgment of MGBHOA has engaged in corrupt or fraudulent practices in competing for or in executing the contract.
- In the event MGBHOA terminates the contract in whole or in part, MGBHOA may procure, upon such terms and in such manner as it deems. Appropriate goods or services similar to those undelivered and the Contractor / Agency shall be liable to MGBHOA for any excess costs for such similar goods or services. However, the Contractor / Agency shall continue the performance of the contract to the extent not terminated.

## **11. APPLICABLE LAW**

The contract shall be interpreted in accordance with the laws of the Union of India.

## **12. NOTICES**

Any notice given by one party to the other pursuant to this contract shall be sent to other party in writing or by cable, telex or facsimile and confirmed in writing to the other party's address specified. A notice shall be effective when delivered or on the notice's effective date, whichever is later.

## **13. PACKING**

- The Bidder shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the contract.
- The packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures during transit and open storage.
- Packing case size and weights shall take into consideration, where appropriate, the remoteness of the goods final destination and the absence of heavy handlings facilities at all points in transit.
- The packing, marking and documentation within and outside the item shall comply strictly with such special requirements as shall be provided for in the contract including additional requirements, if any and in any subsequent instructions ordered by the MGBHOA.

## **14. DANGER PLATES**

The bidder shall provide Danger Notice Plates at project site of 200 mm X 150 mm made of mild steel sheet, minimum 2 mm thick and vitreous enamelled white on both sides and with inscription in signal red colour on front side as required. The inscription shall be in English and local language.



## **15. INSURANCE**

- The Bidder shall be responsible and take an Insurance Policy for transit-cum- storage-cum-erection for all the materials to cover all risks and liabilities for supply of materials on site basis, storage of materials at site, erection, testing and commissioning. The bidder shall also take appropriate insurance during O&M period, if required.
- The Bidder shall also take insurance for Third Party Liability covering loss of human life, engineers and workmen and also covering the risks of damage to the third party/ material/ equipment/ properties during execution of the Contract. Before commencement of the work, the Bidder will ensure that all its employees and representatives are covered by suitable insurance against any damage, loss, injury or death arising out of the execution of the work or in carrying out the Contract. Liquidation, Death, Bankruptcy etc., shall be the responsibility of bidder.
- The bidder shall provide insurance coverage ex-factory until commissioning and acceptance for replacement or repair of any part of the consignment due to damage or loss.

## **16. WARRANTIES AND GUARANTEES**

The Bidder shall warrant that the goods supplied under this contract are new, unused, of the most recent or latest technology and incorporate all recent improvements in design and materials. The bidder shall provide warrantee covering the rectification of any and all defects in the design of equipment, materials and workmanship including spare parts for a period of 5 years from the date of commissioning of project. The successful bidder has to transfer all the Guarantees/ Warrantees of the different components to the Owner of the project. The responsibility of operation of Warrantee and Guarantee clauses and Claims/ Settlement of issues arising out of said clauses shall be joint responsibility of the Successful bidder and the owner of the project and MGBHOA will not be responsible in any way for any claims whatsoever on account of the above.



**Undertaking**  
**(On Rs.500/- Stamp Paper)**

I/We \_\_\_\_\_, Aged - \_\_\_\_\_, Years, Occupation. - \_\_\_\_\_ -  
\_\_\_\_\_, Address- \_\_\_\_\_ the (authorized signatory) of M/s  
\_\_\_\_\_ (Company) hereby state that, I/we/my/our company is  
intending to participate for tender of Design, Fabrication, Supply,  
Installation, Testing, Commissioning of Capacity of 50 KWp (4 MTR  
ELEVATED) Grid-Connected solar PV power plant under roof-top net  
metering at Maharashtra Gramin Bank, Head Office Building, MGBHOA,  
Golwadi Dist. Aurangabad in the state of Maharashtra.

Whereas \_\_\_\_\_ ( Name of Tenderer) I/we have  
agreed to undertake to Grid connected solar PV System i.e. system of 50 kW  
for Maharashtra Gramin Bank, give the guarantee for average generation i.e.  
to generate minimum 4 units per day per kW .The evaluation of monthly  
guaranteed generation for Solar PV System shall be equal to 4 units \* 365  
days \* 50 KW = 73, 000 units/Year.

I have read all the terms & conditions mentioned in the Tender  
document of the MGBHOA. I hereby further undertake and declare that  
all the terms & conditions mentioned in each and every page of the said  
tender document along with the clarifications released, if any, are  
binding on me / my company and I am fully aware that, in case of  
breach of any term or condition of the said Tender document, I am/my  
company is liable to be disqualified from the said tender process.

Sign:

Name of authorized Signatory: Name of Company with Stamp:

**(To be submitted on Rs. 500/- stamp paper)**

**Affidavit**

I/we ..... (Name) has done the project of..... KW for..... (Beneficiary

Name), Tender No ..... hereby declare that the above mentioned project is commissioned by abiding following:

- The standards and norms set by Ministry of New and Renewable Energy (MNRE) is maintained while installation of project.
- All electrical norms are followed, electrical safety measures are taken in consideration and the project is electrically safe.
- The mechanical safety norms while designing and installation of structure are strictly followed. The hot dip structure is tested, approved from engineer and is capable of bearing the load of solar panels, withstand natural parameters (wind, rain) over the duration of project life.
- The roof of the building is capable of bearing the load of hot dip galvanized structure (except otherwise mentioned) and solar panel over the period of project life.
- In case of any mishap from the solar project with the parameter mentioned above, I will be responsible. I hereby undertake for the above.

Sign of Project Developer / Tenderer: .....

Stamp: .....

Sign:

MGBHOA Official Sign:

Office Stamp:





**MAHARASHTRA GRAMIN BANK**

(A Scheduled Bank established by Govt. of India.)  
Sponsor Bank : Bank of Maharashtra

# **SECTION – IV**

# **TECHNICAL SPECIFICATION**

## **SECTION-IV**

### **➤ TECHNICAL SPECIFICATION**

#### **Technical Specification of SPV Power Plant for Capacity of 50 KWp (4 MTR ELEVATED) Grid Connected Rooftop Solar Photovoltaic Power Generation Plant at Maharashtra Gramin Bank, Head Office Building**

#### **DEFINITION**

A Grid Tied Solar Rooftop Photo Voltaic (SPV) power plant consists of SPV array, Module Mounting Structure, Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker (MPPT), Inverter, and Controls & Protections, interconnect cables and switches. PV Array is mounted on a suitable structure. Grid tied SPV system is without battery and should be designed with necessary features to supplement the grid power during day time. Components and parts used in the SPV power plants including the PV modules, metallic structures, cables, junction box, switches, PCUs etc., should conform to the BIS or IEC or international specifications, wherever such specifications are available and applicable.

#### **General System**

1. The operating life of the plants shall be minimum 25 years.
2. The plant shall feed AC power to the Low Tension (LT) / High Tension (HT) distribution grid power supply through adjacent substation.
3. The plants shall monitor solar generated energy using plant DC / AC energy meter/Bidirectional energy meter independent of load energy monitoring. Remote monitoring facility must be made available.
4. The plant shall consist of PV array, fixed PV array support structure, String/Array combiner boxes, DC cabling, DC distribution box, Inverter, AC cabling, AC distribution box, Generation AC energy meter and Net meter, Earthling, Lightning Arrestor. All other parts mentioned.
5. The individual Solar PV array shall be installed on existing roof top of the building using **fixed PV array support structure.**



6. The individual string / array combiner boxes and DC cabling shall be installed on roof top of the building.
7. The inverter shall be installed in the control room / open space provided in the building.
8. The DC and AC distribution boxes, DC and AC cabling, energy meters shall be installed in the control room / open space provided in (or near) the building.

### **PV Array**

The total solar PV array capacity should not be less than Capacity of 50 KWp at Maharashtra Gramin Bank, Head Office Building, Golwadi, Dist. Aurangabad comprise of solar polycrystalline modules with minimum capacity of 300Wp and above wattage. Module capacity less than minimum 300Wp should not be supplied. The module type must be qualified as per IEC 61215 latest edition for polycrystalline silicon or IEC 61646 for other latest technology. SPV module conversion efficiency should be equal to or greater than 16% under STC. Modules must qualify to IEC 61730 Part I and II for safety qualification testing. Certificate for module qualification from IEC or equivalent should be Submitted. Self undertaking must be submitted from manufacturer/ supplier that the modules being supplied are as per above.

1. The PV modules used should be made in India.
- 2. The PV modules make must be preferred**
  - a) Renewsys**
  - b) Goldi Green**
  - c) JJ PV Solar**
  - d) Waaree**
3. The peak power rating of the Solar PV array under Standard Temperature Conditions (STC) shall be equal to the peak power rating of the plant.
4. The PV array shall consist of framed poly-crystalline.
5. Individual PV modules rating (For 50 Kwp) should be of minimum 300 Wp at STC.
6. The rated maximum power rating of PV modules should have positive tolerance in range of 0 to +3%. And negative temperature co-efficient of power for PV modules should be less than or equal to 0.45% per degree C. The peak power point voltage and the peak-power point current of any



- supplied module and / or any module string (series connected modules) shall not vary more than 3 (three) percent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
7. A suitable number of Solar PV modules shall be connected in a series string. A suitable number of series strings shall be connected in parallel to formulate a series parallel array.
  8. The PV Array shall be designed to match the inverter input specifications.
  9. The module shall be provided with junction box with provision of min. 4 Nos. of by-pass diodes and external MC4 type or equivalent plug-in connectors. The junction box should have hinged, weatherproof lid with captive screws and cable gland entry points & should be IP 65 rated.
  10. The front surface of the module shall consist of impact resistant, low iron and high transmission toughened glass.
  11. Each PV module manufactured in India must have RF identification tag (RFID) compatible with MNRE requirements. (Traceability requirement)
  12. Necessary I-V curves at 25<sup>0</sup>C, 45<sup>0</sup>C, 60<sup>0</sup>C and at NOC are required to be furnished. Offers to provide PV module warranty of 25 years with not more than 20% degradation in performance/output over 25 years.
  - 13. The PV module must have 10 years free replacement guarantee against material defect or craftsmanship.**
  14. Name of the manufacturer of PV module; month and year of manufacture; I-V curve, wattage, Im, Vm, FF for the module; unique serial no & model no; date & year of obtaining IEC PV module qualification certificate are required to be furnished.

**Warranties:**

**Material Warranty:**

- i. Material Warranty is defined as: The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than 10 years from the date of sale to MGBHOA
- ii. Defects and/or failures due to manufacturing
- iii. Defects and/or failures due to quality of materials



- iv. Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s).

**Performance Warranty:**

The predicted electrical degradation of power generated not exceeding 20% of the minimum rated power over the 25 year period and not more than 10% after ten years period of the full rated original output.

**Inverter/PCU**

- 15. The PCU required shall be of Capacity not less than 25 KW x 2 Nos. for Maharashtra Gramin Bank, Head Office Building, Golwadi, Dist. Aurangabad to convey DC power produced by SPV modules into AC power and adjust the voltage & frequency levels to meet the local grid conditions. The use of String Inverters of Capacity of 25 KW x 2 Nos. must be preferred. The PV modules make must be preferred**

- a) Rishabh
- b) K-solare
- c) ABB
- d) Delta

**Common Technical Specification**

**Control Type:** Voltage source, microprocessor assisted, output regulation.

**Output voltage:** 3 phase, 415 V AC (+12.5%, -20% V AC)

**Frequency:** 50 Hz (+3 Hz, -3 Hz)

**Continuous rating:** Capacity of not less than 25 KW x 2 Nos. for Maharashtra Gramin Bank, Head Office Building, Golwadi, Dist. Aurangabad with net metering/off Import/Export meters

**Normal Power:** 50 KW Maharashtra Gramin Bank, Head Office Building, Golwadi, Dist. Aurangabad

**Total Harmonic Distortion:** less than 3%

**Operating temperature Range:** 0 to 55 deg C

**Humidity:** 95 % Non-condensing

**Housing cabinet:** PCU to be housed in suitable switch cabinet, IP-65(Minimum) for outdoor

**PCU efficiency:** 98% and above at full load.

**PF:** > 0.9



**Other important Features/Protections of PCU:**

1. Mains (Grid) over-under voltage and frequency protection.
2. Over load capacity (for 10 sec) should be 200% of continuous rating.
3. The PCU shall be self commuted and shall utilize a circuit topology and components suitable for meeting the specifications listed above at high conversion efficiency and with high reliability.
4. The PCU shall be provided with MPPT (Maximum Power Point Tracing) features, so that maximum possible power can be obtained from the PV module.
5. Full proof protection against grid islanding which ensures that the PV power and the grid power get disconnected immediately in the event of grid failure.
6. The power conditioning units / inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068- 2(1,2,14,30) /Equivalent BIS Std.
7. The charge controller (if any) / MPPT units environmental testing should qualify IEC 60068-2(1, 2, 14, 30)/Equivalent BIS std. The junction boxes/ enclosures should be IP 65(for outdoor)/ IP 54 (indoor) and as per IEC 529 specifications.
8. The PCU / inverters should be tested from the MNRE approved test centres / NABL / BIS / IEC accredited testing- calibration laboratories.
9. The PCU shall be capable of operating in parallel with the grid utility service and shall be capable of interrupting line-to-line fault currents and line-to-ground fault currents.
- 10.The PCU shall be able to withstand an unbalanced output load to the extent of 50%.
- 11.The PCU shall go to the shut down/standby mode with its contacts open under the following conditions before attempting and automatic restart after an appropriate time delay in insufficient solar power output.
- 12.(a) Utility-Grid Over or Under Voltage



The PCU shall restart after an over or under voltage shutdown when the utility grid voltage has returned to within limits for a minimum of two minutes.

(b) Utility-Grid Over or Under Frequency

The PCU shall restart after an over or under frequency shutdown when the utility grid voltage has returned to the within limits for minimum of two minutes.

(c) The PCU shall not produce Electromagnetic interference (EMI) which may cause malfunctioning of electronic and electrical instruments including communication equipment, which are located within the facility in which the PCU is housed.

13. Communication Modbus protocol with LAN / WAN options along with remote access facility with latest monitoring systems.

14. The sine wave output of the inverter shall be suitable for connecting to 415V, 3 phase AC LT voltage grid.

15. The inverter shall incorporate transformer isolated output (transformer-less inverters shall be used with suitable external transformers), grid islanding protection disconnection of grid & PV power in case of failure of Grid supply suitable DC / AC fuses / circuit breakers and voltage surge protection. Fuses used in the DC circuit shall be DC rated.

16. The inverter shall have internal protection against any sustained faults and/or lightning in DC and mains AC grid circuits.

17. The kVA ratings of inverter should be chosen as per the PV system wattage.

18. The output power factor should be of suitable range to supply or sink reactive power.

19. Inverter shall provide panel for display of PV array DC voltage, current and power, AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and) and frequency. Remote monitoring of inverter parameters should also be available.

20. The inverter shall include adequate internal cooling arrangements (exhaust fan and ducting) for operation in a non-AC environment.



**Factory Testing:**

1. The PCU shall be tested to demonstrate operation of its control system and the ability to be automatically synchronized and connected in parallel with a utility service, prior to its shipment.
2. Operation of all controls, protective and instrumentation circuits shall be demonstrated by direct test if feasible or by simulation operation conditions for all parameters that cannot be directly tested.
3. Special attention shall be given to demonstration of utility service interface protection circuits and functions, including calibration and functional trip tests of faults and isolation protection equipment.
4. Operation of start up, disconnect and shutdown controls shall also be tested and demonstrate. Stable operation of the PCU and response to control signals shall also be tested and demonstrated.
5. Factory testing shall not only be limited to measurement of phase currents, efficiencies, harmonic content and power factor, but shall also include all other necessary tests/simulation required and requested by the Purchasers Engineers. Tests may be performed at 25%, 30%, 75% & 100% of the rated nominal power.
6. A Factory Test Report (FTR) shall be supplied with the unit after all tests. The FTR shall include detailed description of all parameters tested qualified and warranted.

**PROTECTIONS:****LIGHTNING PROTECTION**

The SPV power plants shall be provided with lightning & over voltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc the entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. The protection against induced high-voltages shall be provided by the use of metal oxide





varistors (MOVs) and suitable earthing such that induced transients find an alternate route to earth.

### **SURGE PROTECTION**

Internal surge protection shall consist of three MOV type surge-arrestors connected from +ve and -ve terminals to earth (via Y arrangement)

### **Earthing**

1. PV array, DC equipment, Inverter, AC equipment and distribution wiring shall be earthed as per IS: 3043 - 1987.
2. Equipment grounding (Earthing) shall connect all non-current carrying metal receptacles, electrical boxes, appliance frames, chassis and PV panel mounting structures in one long run. The grounding wire should not be switched, fused or interrupted.
3. The complete earthing system shall be electrically connected to provide return to earth from all equipment independent of mechanical connection.
4. The equipment grounding wire shall be connected to PV power plant.
5. Earthing system design should be as per the standard practices.

### **CABLES & WIRES**

Cabling in the yard and control room: Cabling in the yard shall be carried out as per IE Rules. All other cabling above ground should be suitably mounted on cable trays with proper covers.

- Wires: Only FRLS copper wires of appropriate size and of reputed make shall have to be used.
- Cables Ends: All connections are to be made through suitable cable/lug/terminals; crimped properly & with use of Cable Glands.
- Cable Marking: All cable/wires are to be marked in proper manner by good quality ferule or by other means so that the cable can be easily identified. Any change in cabling schedule/sizes if desired by the bidder/supplier be got approved after citing appropriate reasons, All cable schedules/layout drawings have to be got approved from the purchaser prior to installation. All cable tests and measurement methods should confirm to IEC 60189.



## **Electrical Safety, Earthing Protection Electrical Safety**

- Internal Faults: In built protection for internal faults including excess temperature, commutation failure and overload and cooling fan failure (if fitted) is obligatory.
- Over Voltage Protection: Over Voltage Protection against atmospheric lightning discharge to the PV array is required. Protection is to be provided against voltage fluctuations and internal faults in the power conditioner, operational errors and switching transients.
- Cabling practice: Cable connections must be made using PVC Cu cables, as per BIS standards. All cable connections must be made using suitable terminations for effective contact. The PVC Cu cables must be run in GL trays with covers for protection.
- Fast acting semiconductor type current limiting fuses at the main bus bar to protect from the grid short circuit contribution.
- The PCU shall include an easily accessible emergency OFF button located at an appropriate position on the unit.
- The PCU shall include ground lugs for equipment and PV array grounding.
- All exposed surfaces of ferrous parts shall be thoroughly cleaned, primed, and painted or otherwise suitably protected to survive a nominal 30 years design life of the unit.
- The PCU enclosure shall be weatherproof and capable of surviving climatic changes and should keep the PCU intact under all conditions in the room where it will be housed. The INVERTER shall be located indoor and should be either wall / pad mounted. Moisture condensation and entry of rodents and insects shall be prevented in the PCU enclosure.
- In the design and fabrication of the PCU the site temperature (5° to 55°C), incident sunlight and the effect of ambient temperature on component life shall be considered carefully. Similar consideration shall be given to the heat sinking and thermal for blocking diodes and similar components.

## **EARTHING PROTECTION**

Each array structure of the PV yard should be grounded properly. In addition the lightning arrester/masts should also be provided inside the array field.



Provision should be kept for shorting and grounding of the PV array at the time of maintenance work. All metal casing/shielding of the plant should be thoroughly grounded in accordance with Indian electricity Act. /IE Rules. Earth resistance should be tested in presence of the representative of NRHM after earthing by calibrated earth tester. PCU ACDB & DCDB should be earthed properly.

Danger boards should be provided as and where necessary as per IE Act/IE rules as amended up to date. Three signage shall be provided one each at battery –cum- control room, solar array area and main entry from administrative block and also provided line diagram of project in control room.

### **Balance of Systems (BoS)**

1. String / Array combiner boxes shall incorporate DC string circuit breakers, DC array disconnect switch, lightning and over voltage protectors, any other protection equipment, screw type terminal strips and strain-relief cable glands.
2. All DC and AC cables shall be terminated using suitable crimped cable lugs/sockets and screw type terminal strips. No soldered cable termination shall be accepted.
3. Only terminal cable joints shall be accepted. No cable joint to join two cable ends shall be accepted.
4. String/Array combiner boxes shall be secured onto walls or metal structures erected separately on the terrace.
5. Conduits / concealed cable trays shall be provided for all DC cabling on the Roof top. Conduits / concealed cable trays shall be adequately secured onto the roof top / wall.
6. The AC cable type shall be PVC / XLPE insulated, suitably armoured, 1100V grade multi-stranded copper conductor. Appropriate colour coding shall be used.



7. For the DC cabling, XLPE or, XLPO insulated and sheathed, UV-stabilized single core multi-stranded flexible copper cables shall be used; Multi-core cables shall not be used.
8. The DC and AC cables of adequate electrical voltage and current ratings shall be also rated for 'in conduit wet and outdoor use'. Conduit should be UV stabilized, preferably the UPVC water supply pipe.
9. The total DC cable losses shall be maximum of 2% of the plant rated DC capacity over the specified ambient temperature range.
10. The DC and AC cable size shall be selected to maintain losses within specified limits over the entire lengths of the cables.
11. DC cables from array combiner box on the rooftop to DC distribution box in the control room and DC/ AC cabling between inverter and distribution boxes shall be laid inside cable duct where available or secured with conduits/concealed cable trays where duct is not available.
12. The DC and AC distribution boxes shall be wall mounted inside control room/open space.
13. DC distribution box shall incorporate DC disconnect switch, lightning surge protectors, any other protection equipment, screw type terminal strips and strain- relief cable glands.
14. AC distribution box shall incorporate AC circuit breaker, surge voltage protectors, any other protection equipment, plant energy meter, screw type terminal strips and strain-relief cable glands.
15. The total AC cable losses shall be maximum of 1% of the plant AC output over the specified ambient temperature range.
16. All cable conduits shall be GI/HDPE type.
17. All cable trays shall be powder coated steel or GI or equivalent.

### **Civil**

1. For structural purpose, the panels plus support system that works as a distortion- free integral structural unit.
2. Elevated on Rooftop for 04 Meter internal space as per structural design & drawing.



3. 25 mm square pipe with 2 mm thickness with 80 to 120 micron hot dipped galvanised for SPV Module frame. 100 mm, 2 mm thick square pipe for elevation of SPV Module with frame. 225 mm x 225 mm, 5 mm thick base plate for grouting at the bottom of 100 mm Square pipe. Appropriate thickness and size galvanized fasteners/nut-bolts.
4. Walkway for cleaning of SPV Module to be provided 01 feet width with 25 mm square pipe having 5 mm thick flat on every 100 mm distance for required length.
5. Tilt angle for SPV Module should be 15 Degree, slope facing South direction.
6. PV array shall be installed in the space free from any obstruction and / or shadow.
7. Drainage and roof treatment should not affected by the installation.
8. Adequate spacing shall be provided between two panel frames and rows of panels to facilitate personnel protection ease of installation, replacement, cleaning of panels and electrical maintenance.
9. The panel assembly should have pedestal supports. Each pedestal is made of cement concrete. Each pedestal can transmit at most 200 kg load on roof. The plan dimension of pedestal does not exceed 450mm x 450 mm, and height does not exceed 300mm.
10. Ample clearance shall be provided in the layout of the inverter and DC / AC distribution boxes for adequate cooling and ease of maintenance.
11. The supplier shall specify installation details of the PV Panel assembly with appropriate diagrams and drawings. Such details shall include, but not limited to, the following;
  - a) Determination of true south at the site;
  - b) Array tilt angle to the horizontal, with permitted tolerance;
  - c) Details with drawings for fixing the modules;
  - d) Details with drawings of fixing the junction/terminal boxes;
  - e) Interconnection details inside the junction/terminal boxes;
  - f) Structure installation as per structural details and drawings;
  - g) Electrical grounding (earthing);
  - h) Inter-panel / Inter-row distances with allowed tolerances; and



i) Safety precautions to be taken.

The array structure shall support SPV modules at a given orientation and absorb and transfer the mechanical loads to the roof top columns properly. All nuts and bolts shall be of very good quality stainless steel. The panel support and panel-to- support connection both must be designed by vendor to withstand adequately high wind forces. Civil Works permission does not guarantee safety against flying/falling panels in the event of a storm or any other accident.

### **Mechanical**

1. Each panel assembly shall incorporated one bird repellent spike at a level higher than the panel upper edge. The location of the spike should be selected for minimum shadow effect.
2. Support structure of panel assembly shall be fabricated using corrosion resistant GI (Hot dip Galvanized).
3. Array support structure welded joints and fasteners shall be adequately treated to resist corrosion.
4. The support structure shall be free from corrosion when installed.
5. PV modules shall be secured to support structure using screw fasteners and/or metal clamps. Screw fasteners shall use existing mounting holes provided by module manufacturer. No additional holes shall be drilled on module frames. Module fasteners / clamps shall be adequately treated to resist corrosion.
6. The support structure shall withstand wind loading of up to 150 km/hr.
7. Adequate spacing shall be provided between any two modules secured on panel assembly for improved wind resistance.
8. The structure shall be designed to withstand operating environmental conditions for a period of minimum 25 years.
9. It is required to design the grid structure (on which PV module will be installed) in such a way that all loads are transferred to the existing columns of the buildings. Such grid design should be presented to MGBHOA, which will be certified by structural engineers.





10. The panel assembly structure should be installed in a manner to leave sufficient space for repair and maintenance aspects of the roof tops, particularly for leakages.
11. Installation of panel assembly should not tamper with the water proofing of roofs.

### **ARRAY STRUCTURE**

- a) Hot dip galvanized (minimum of 100 Microns) MS mounting structures may be used for mounting the modules / panels / arrays. Each structure should have angle of inclination as per the site conditions to take maximum insolation. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.
- b) The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed.
- c) The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.
- d) Structural material shall be (Hot dip galvanized 100 micron) corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts.
- e) The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels
- f) The bidder need to supply suitable structures based on the quality of roof and considering the load bearing capacity of the roof / civil structures of the proposed building.

**Electrical:**

1. LT distribution grid specifications 415V +/- 5%, 50Hz and frequency variation as per IE rules.
2. The output of the inverter shall be fed into 415V, 3 phase AC LT grid supplied.
3. The inverter output shall be connected to LT line prior to the LT/DG changeover switch. The mandatory islanding protection provided by inverter shall isolate the Solar PV power plant.
4. The time of day (TOD) 3 phase, digital AC load energy meter shall be installed in the Main Distribution Box to monitor energy drawn by building load and in the AC distribution box to monitor energy generated by Solar PV power plant.
5. The energy meters shall be provided with communication interface and necessary data cables for remote monitoring.

**Operating Environment**

1. Temperature: 5 to 55 Deg. C.
2. Relative Humidity : 100% @ 40 Deg. C
3. Precipitation : 2.46 mm per day (Annual average)
4. Clearness Index : 0.62 (Annual average)
5. Wind Speed: up to 150 km/hr.
6. Corrosion : high
7. Dust : moderate to high
8. Bird Interference : high
9. Bird Droppings : frequent and large

**CONNECTIVITY**

The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the Distribution Code/Supply Code of the State and amended from time to time. Following criteria have been suggested for selection of voltage level in the distribution system for Ready reference of the solar suppliers.





<b>Plant Capacity</b>	<b>Connecting voltage</b>
Capacity of 50 KWp at Maharashtra Gramin Bank, Head Office Building, Golwadi, Dist. Aurangabad	230V/ 440V

Utilities may have voltage levels other than above; DISCOMS may be consulted before Finalization of the voltage level and specification is made accordingly.

### **Testing, Certification and Approval Schedule**

All components, sub-assemblies and system test parameters shall be verified on site to ensure they meet the specifications.

### **Plant Power Performance Ratio Testing**

The successful bidder shall be required to meet minimum guaranteed generation with Performance Ratio (PR) at the time of commissioning and related Capacity Utilization Factor (CUF) as per the GHI levels of the location during the O&M period. PR should be shown minimum of 75% at the time of inspection for initial commissioning acceptance to qualify for release of applicable incentive. Minimum CUF of 15% should be maintained for a period of 5 years. Correction shall be applied based on available solar radiation.

### **Plant Energy Performance Ratio Testing**

The overall energy performance ratio of the system shall exceed 75%. (Sum total of the system energy losses shall not exceed 25%). For global solar insolation in the Plane of Array (PoA) of 5 kWh/ m<sup>2</sup> (5 Peak Sun Hours) for the day. Capacity of 50 KWp PV power plant AC energy output shall be minimum of **210 kWh** (50 kW x 0.75 x 5 hrs.) for the day at Maharashtra Gramin Bank, Head Office Building, Golwadi, Dist. Aurangabad.

### **COMPREHENSIVE MAINTENANCE CONTRACT (CMC)**

- (i) The complete Solar PV Power Plants must be guaranteed against any manufacturing / design/ installation defects for a minimum period of 5 years.



- (ii) PV modules used in Solar PV Power Plants must be guaranteed for their output peak watt capacity, which should not be less than 90% at the end of 12 years and 80% at the end of 25 years.
- (iii) During the CMC period, MNRE / MGBHOA / users will have all the rights to cross check the performance of the Solar PV Power Plants. MGBHOA may carry out the frequent inspections of the Solar PV Power Plants installed and randomly pick up its components to get them tested at Govt. / MNRE approved any test centre. If during such tests any part is not found as per the specified technical parameters, MGBHOA will take the necessary action. The decision of MGBHOA in this regard will be final and binding on the bidder.

### **Warranties and Guarantees**

1. Solar Modules: Workmanship/ product replacement for 10 years.
2. Solar Modules: 90% power output for 10 years & 80% power output for 25 years.
3. Inverter: Workmanship/product replacement for 5 years, service for 25 years
4. Power Evacuation and Metering Equipment: Workmanship/product replacement for 10 years, service for 25 years
5. BoS: Parts and Workmanship for 10 years, service for 25 years.
6. Power Plant Installation : Workmanship for 10 years, service for 25 years
7. PV Array Installation : Structural for 25 years
8. Power plant power performance ratio-min 75%
9. Power plant energy performance ratio-min. 75%

### **Standards and Compliance**

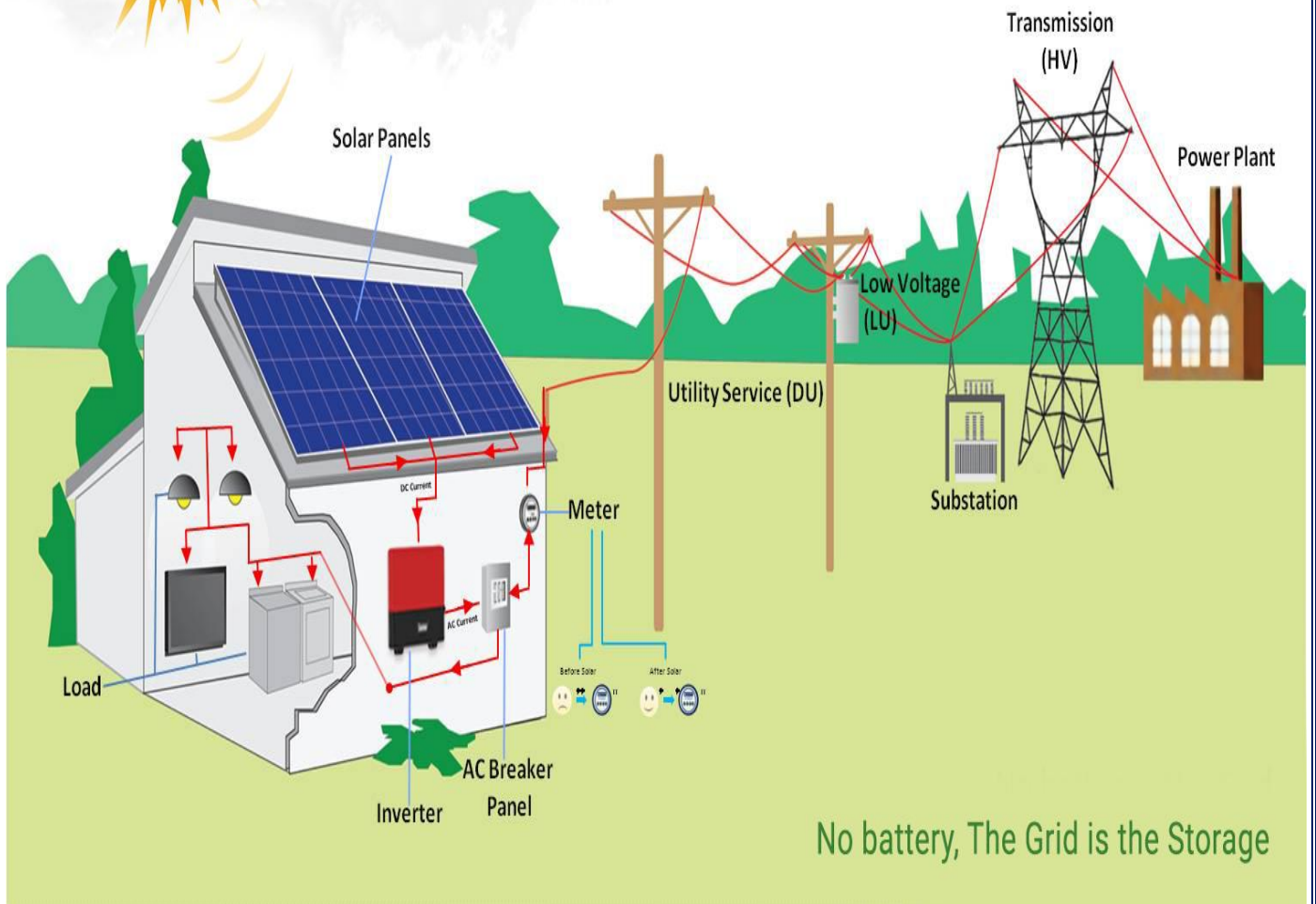
1. IEC 60364-7-712: Electrical Installations of Buildings: Requirements for Solar PV power supply systems.
2. IEC 61727 or similar: Utility Interface Standard for PV power plants > 10 kW.
3. IEC 62103, 62109 and 62040 (UL 1741): Safety of Static Inverters – Mechanical and Electrical safety aspects.



4. IEC 62116: Testing procedure of Islanding Prevention Methods for Utility-Interactive PV Inverters.
5. PV Modules : IEC 61730- Safety qualification testing, IEC 61701 – Operation in corrosive atmosphere
6. IEC 61215 : Crystalline Silicon PV Modules qualification
7. String/array junction boxes : IP65, Protection Class II, IEC 60439-1, 3.
8. Surge Protection Devices: Type 2, DC 1000V rated.
9. PV module / string / string combiner box interconnects: MC4 compatible. DC 1000V rated.
10. The central inverter shall be rated for IP54.
11. The DC/AC distribution boxes shall be rated IP54.
12. All DC and AC cables, conduits, cable trays, hardware: relevant IS.
13. Earthing System: relevant IS.
14. PV array support structure: relevant IS.
15. Quality Certification, Standards and Testing for Grid-Connected Rooftop Solar PV Systems/ Power Plants should be maintained as per Annexure- A.



## GRID CONNECTED ROOFTOP SOLAR POWER PLANT





**MAHARASHTRA GRAMIN BANK**

(A Scheduled Bank established by Govt. of India.)  
Sponsor Bank : Bank of Maharashtra

# **APPENDIX**

**APPENDIX- I (A)**

**Bidder's Information Sheet**

Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

Sr. No.	Particulars	
1.	Name & Mailing Address of firm	
2.	Contact Person Name, Designation & Contact No.	
3.	E-mail Address for correspondence	
4.	Firm Website Address	
5.	Firm Status (Private / PSU / Incorporate / Proprietor)	
6.	Establish Year of firm	
7.	PAN/ TAN No.	
8.	Firm Registration No / ROC	
9.	GST No.	
10.	Turnover 2016-17, 2017-18 & 2018-19 (in Crores Rs.)	
11.	Company Profile (<100 words)	
12.	Skilled manpower	
13.	Experience in SPV Power Plant (<100 words)	
14.	Experience in other solar projects (<100 words)	
15.	Solar related Product Range	
16.	Experience in Guarantee, Maintenance & After Sales Services (Years)	
17.	Accreditation	
18.	List of ISI, ISO, Other cert.	



19.	Technical specification for solar photovoltaic cell / panel / module-make	
20.	Technical specification for Battery-optional –quantity and make	
21.	Technical specification for Junction boxes- quantity and make	
22.	Technical specification for Inverter / Controller -quantity and make	
23.	Technical specification for Cables-quantity and make	
24.	Other Technical specification, if any	
25.	Has any Govt. / Under - taking ever debarred the company / firm from executing any work?	
26.	Special Remarks, if any	
27.	Attached are copies of the necessary original documents.	
I.		
II.		
III.		

It is certified that the information provided above is true to the best of my knowledge and belief. If any information found to be concealed, suppressed or incorrect at later date, our tender shall be liable to be rejected and our company may be debarred from executing any business with MGBHOA.

Date:

Signature of Bidder

Name:

Designation:



**APPENDIX- I (B)**

**Annual Turnover**

Each Bidder must fill in this form including private/public limited company.

<b>Annual Turnover Data for last 3 Years (FY 2016-17, 2017-18 &amp; 2018-19)</b>	
<b>Year</b>	<b>Rs in Lac</b>
2016-17	
2017-18	
2018-19	
<b>Total</b>	

The information supplied should be the Annual Turnover of the Bidder in terms of the amounts billed to clients for each year for work in progress or completed.

Signature of Applicant /  
Tendered

Certified by Applicant's  
Auditor  
(Affix Stamp)



**APPENDIX- II**

**FORM OF PERFORMANCE BANK GUARANTEE**

**To: Maharashtra Gramin Bank, Head Office Building, at waluaj Golwadi, Aurangabad**

*Represented by*

**Chairman**

Maharashtra Gramin Bank, Head Office Building, 35, "Jivanshree, Sector 'G', Town Centre, CIDCO, Aurangabad-431 003

**WHEREAS** \_\_\_\_\_ *[name and address of Contractor]* (hereinafter called "the **Contractor**") has undertaken, in pursuance of **Work Order No. \_\_\_\_\_ Tender No.....**

**for works** \_\_\_\_\_, dated \_\_\_\_\_ 2020 to design, manufacture, supply, installation, testing and commissioning with five years comprehensive maintenance contract of Grid Connected Capacity of 50 KWp SPV power plant at Maharashtra Gramin Bank, Head Office Building, Golwadi, Dist. Aurangabad in the state of Maharashtra. (hereinafter referred to as the contract of works) and as described in the Bidding Data in Maharashtra State for works under single point responsibility "**Turnkey Contracts**" basis (hereinafter called "the **Contract**");

**AND WHEREAS** it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract;

**AND WHEREAS** we have agreed to give the Contractor such a Bank Guarantee;

**NOW THEREFORE** we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of \_\_\_\_\_ *[amount of Guarantee]*  
\_\_\_\_\_ *[in words]*, and we undertake to pay you, through our branch office at \_\_\_\_\_ upon your first written demand and without cavil or argument, any sum or sums



within the limits of \_\_\_\_\_ [*amount of Guarantee*]  
as aforesaid without your needing to prove or to show grounds or  
reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt  
from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other  
modification of the terms of the Contract or of the Works to be performed  
there under or of any of the Contract documents which may be made  
between you and the Contractor shall in any way release us from any  
liability under this guarantee, and we hereby waive notice of any such  
change, addition or modification.

This guarantee shall be valid until the date of completion of the  
defects liability period, with a claim period of further one month.

Yours truly,

Signature and seal of the

Guarantor:

Name of Bank/Financial Institution:

Address:

Date:



**APPENDIX- III**  
**EXPERIENCE FOR SUPPLY AND COMMISSIONING OF**  
**SOLAR POWER PLANTS**

<b>Sr. No.</b>	<b>Name of Project</b>	<b>Plant Capacity</b>	<b>Year of Work</b>	<b>Current Status of Project / Client's Certificate</b>

\*Self attested copy of work order attached herewith

Signature of Bidder

Name of Bidder

Designation

Date

**APPENDIX- IV**

**SITE VISIT REPORT LETTER**

(To be submitted on letterhead of bidder)

Date: \_\_\_\_\_

To,  
Chairman,

Maharashtra Gramin Bank, Head Office Building, 35, "Jivanshree,  
Sector 'G', Town Centre, CIDCO, Aurangabad-431 003.

Sub. : Site Visit Report for installation of Capacity of 50 KWp (4 MTR  
ELEVATED) Grid Connected SPV power plant at Maharashtra Gramin  
Bank, Head Office New Building, Plot No. 42, Growth Center of Nagar-  
IV in CIDCO Waluj Mahanagar, Aurangabad, GUT. No.33(Part), Village-  
Golwadi, Tahsil & Dist -Aurangabad, Maharaashtra (MS)

Ref.: MGBHOA's Tender dated. -----

Sir,

This has reference to above referred tender of electrification of  
Maharashtra Gramin Bank, Head Office Building, Golwadi, Aurangabad  
(Maharashtra) to be electrified through Solar Power. I / We hereby declare  
that we have visited site.

I / We made ourselves acquainted with site conditions, approach to site,  
requirement of land, soil conditions, availability of water, requirement of  
tender conditions etc.

I / We verified all details required to execute the projects. I / We have  
no problems in undertaking the projects and complete them in the given  
time period.

Thanking you

Yours faithfully,

**Signature of Beneficiary authorities,**

**Seal:.....**

(Signature of Bidder) Name of Bidder -----

Designation -----

Seal:

**Signature MGBHOA authorities.**

**Seal:.....**



**MAHARASHTRA GRAMIN BANK**

(A Scheduled Bank established by Govt. of India.)  
Sponsor Bank : Bank of Maharashtra

# **ANNEXURE**

**Annexure- A**

**QUALITY CERTIFICATION, STANDARDS AND TESTING FOR GRID-CONNECTED ROOFTOP SOLAR PV SYSTEMS/ POWER PLANTS**

Quality certification and standards for grid-connected rooftop solar PV systems are essential for the successful mass-scale implementation of this technology. It is also imperative to put in place an efficient and rigorous monitoring mechanism, adherence to these standards. Hence, all components of grid-connected rooftop solar PV system/ plant must conform to the relevant standards and certifications given below:

<b>Solar PV Modules/Panels</b>	
IEC 61215/ IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
IEC 61701	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
IEC 61853- Part 1 /IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating –: Irradiance and temperature performance measurements, and power rating
IEC 62716	Photovoltaic (PV) Modules – Ammonia (NH <sub>3</sub> ) Corrosion Testing (As per the site condition like dairies, toilets)
IEC 61730-1,2	Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing
<b>Solar PV Inverters</b>	
IEC 62109-1, IEC 62109-2	Safety of power converters for use in photovoltaic power systems – Part 1: General requirements, and Safety of power converters for use in photovoltaic power systems Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting)
IEC/IS 61683 (as applicable)	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)



IEC 62116/ UL1741/ IEE 1547 (as applicable)	Utility-interconnected Photovoltaic Inverters – Test Procedure of Islanding Prevention Measures
IEC 60255-27	Measuring relays and protection equipment – Part 27: Product safety requirements
IEC 60068- 2 /IEC 62093 (as applicable)	Environmental Testing of PV System – Power Conditioners and Inverters
<b>Fuses</b>	
IS/IEC 60947(Part 1, 2 & 3), EN50521	General safety requirements for connectors, switches, circuit breakers (AC/DC): a) Low-voltage Switchgear and Control-gear, Part 1: General rules b) Low-Voltage Switchgear and Control-gear, Part 2: Circuit Breakers c) Low-voltage switchgear and Control-gear, Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units d) EN 50521: Connectors for photovoltaic systems – Safety requirements and tests
IEC 60269-6	Low-voltage fuses - Part 6: Supplementary requirements for fuse- links for the protection of solar photovoltaic energy systems
<b>Surge Arrestors</b>	
BFC 17 -102: 2011	Lightening Protection Standard
IEC 60364-5-53/ IS 15086-5 (SPD)	Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control
IEC 61643- 11: 2011	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods

<b>Cables</b>	
IEC 60227 /IS694, IEC 60502 /IS1554 (Part 1 & 2) / IEC 69947 (as applicable)	General test and measuring method for PVC (Polyvinyl chloride) insulated cables (for working voltages up to and including 1100 V, and UV resistant for outdoor installation)
BS EN 50618	Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables
<b>Earthing /Lightning</b>	
IEC 62561 Series (Chemical earthing) (as applicable)	IEC 62561-1 Lightning protection system components (LPSC) - Part 1: Requirements for connection components IEC 62561-2 Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes IEC 62561-7 Lightning protection system components (LPSC) - Part 7: Requirements for earthing enhancing compounds
<b>Junction Boxes</b>	
IEC 60529	Junction boxes and solar panel terminal boxes shall be of the thermo-plastic type with IP 65 protection for outdoor use, and IP 54 protection for indoor use
<b>Energy Meter</b>	
IS 16444 or as specified by the DISCOMs	A.C. Static direct connected watt-hour Smart Meter Class 1 and 2 — Specification (with Import & Export/Net energy measurements)
<b>Solar PV Roof Mounting Structure</b>	
IS 2062/ IS 4759	Material for the structure mounting

**Note-** Equivalent standards may be used for different system components of the plants.





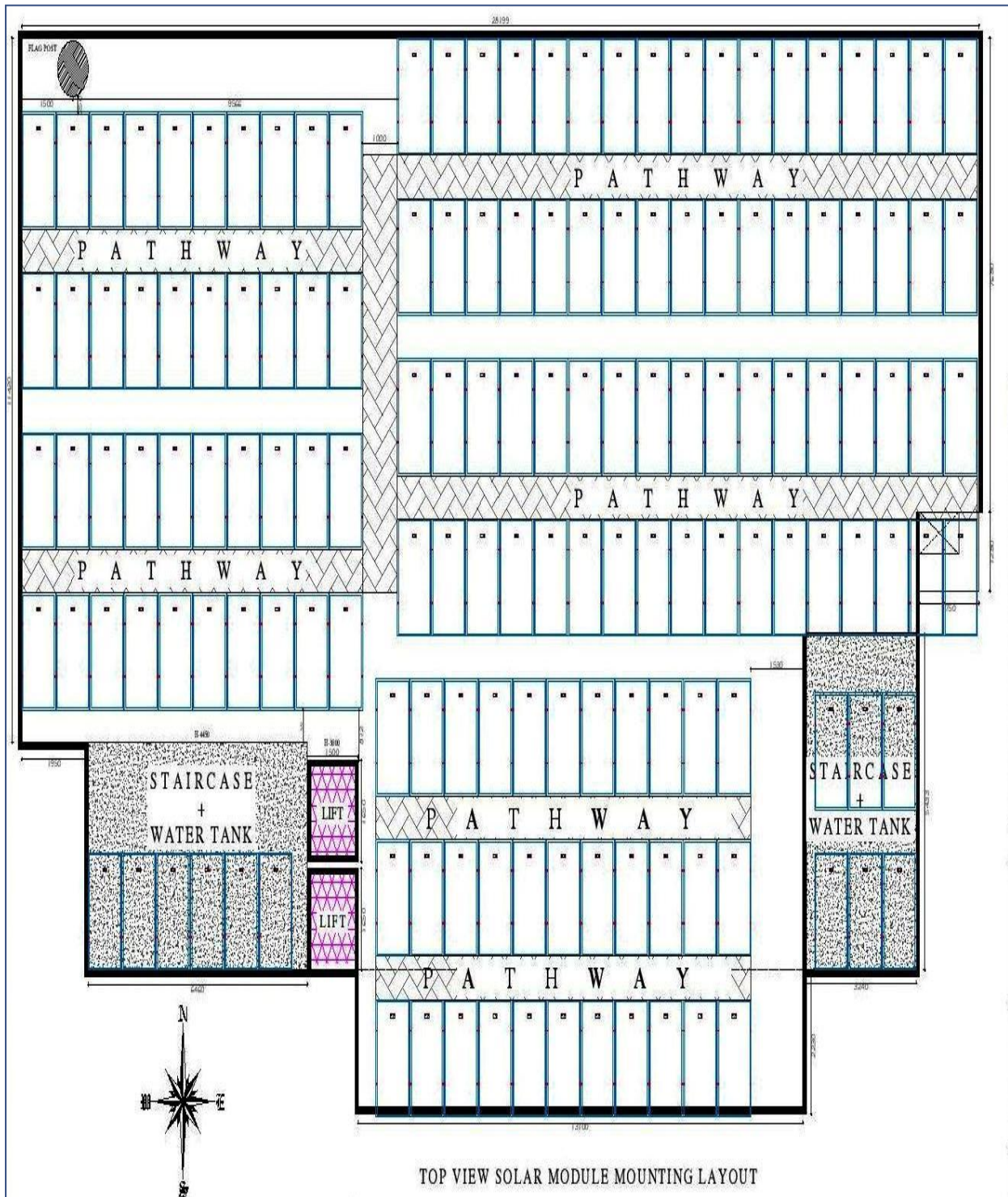
**ANNEXURE - B**

**CHECK LIST**

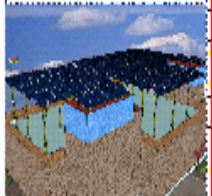
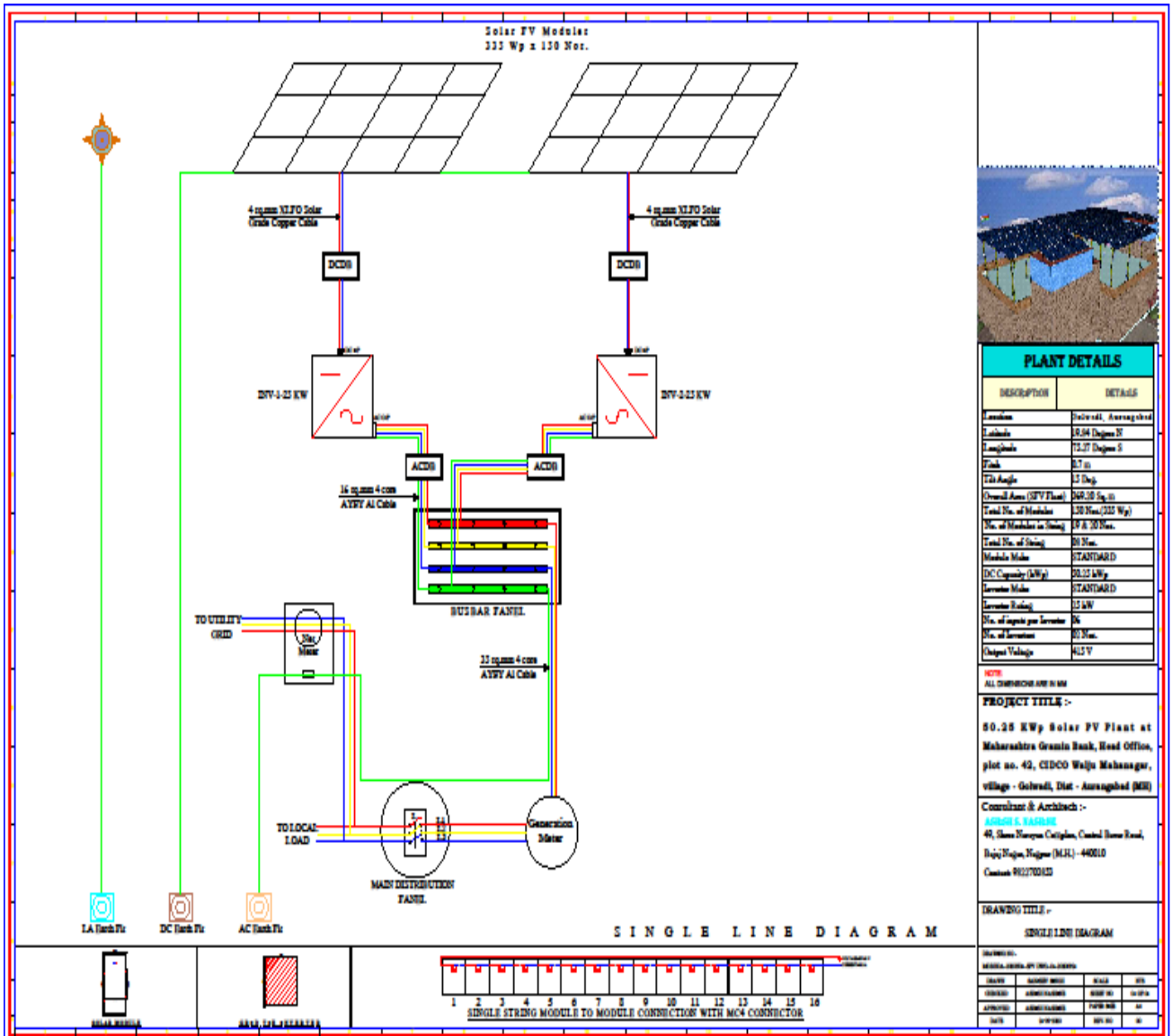
**All the necessary Documents / Certificates should be Submitted as in proper sequence as mentioned below:**

1. Original tender document duly signed and stamped on each page or Undertaking (Rs.500/-) and declaration that all the terms & conditions mentioned in each and every page of the said tender document with further clarifications released if any are acceptable.
2. EMD and Tender document fee (It is compulsory to pay tender document fee, EMD online).
3. Name of authorized person (power of attorney) for submitting the document.
4. Name of the Banker.
5. Copy of the recently paid Income Tax Challan/Return, Latest CA certified balance sheet of last three years, PAN number, registration certificates of GST, professional tax etc. (Self Attested)
6. Information on Infrastructure for maintenance work.
7. Registration Certificate of the firm.
8. Bidder's Information Sheet **Appendix-I (A)**.
9. Annual Turnover **Appendix-I (B)**.
10. Experience for supply and commissioning of Solar Power Plants **Appendix-III** (along with the self attested copies of work order).
11. Site visit Report for the location, **Appendix-IV**.
12. Commitment in respect of generation separate for Grid connected solar power plants in the prescribed format given the tender.

If any of the documents is not Submitted in envelope no 1, the tender will be rejected.



TOP VIEW SOLAR MODULE MOUNTING LAYOUT



**PLANT DETAILS**

DESCRIPTION	DETAILS
Location	Talwadi, Aurangabad
Latitude	19.04 Degree N
Longitude	75.77 Degree E
Peak	27 m
Tilt Angle	27 Deg.
Ground Area (SPV Panel)	249.30 Sq. m
Total No. of Modules	150 Nos. (335 Wp)
No. of Modules in String	10 Nos.
Total No. of String	15 Nos.
Module Make	STANDARD
DC Capacity (kWp)	50.25 kWp
Inverter Make	STANDARD
Inverter Rating	25 kW
No. of Inverter per Inverter	2
No. of Inverter	25 Nos.
Output Voltage	415 V

**NOTE**  
ALL DIMENSIONS ARE IN MM

**PROJECT TITLE :-**  
50.25 kWp Solar PV Plant at Maharashtra Gramin Bank, Head Office, plot no. 42, CIDCO Walje Mahanagar, Village - Gohradi, Dist - Aurangabad (MS)

**Consultant & Architect :-**  
SUNSHINE ENGINEERS  
42, Shree Narayan Complex, Central Bus Stand, Rajy Nagar, Nagpur (M.S.) - 440010  
Contact: 9822702023

**DRAWING TITLE :-**  
SINGLE LINE DIAGRAM

NO.	DATE	BY	CHKD
01	10/01/2023	...	...
02	10/01/2023	...	...
03	10/01/2023	...	...

**MANDATORY STRUCTURAL WORK OF STEEL COLUMNS AND TRUSSES** (AT 4.00 MTS. LEVEL FROM ROOF TOP)

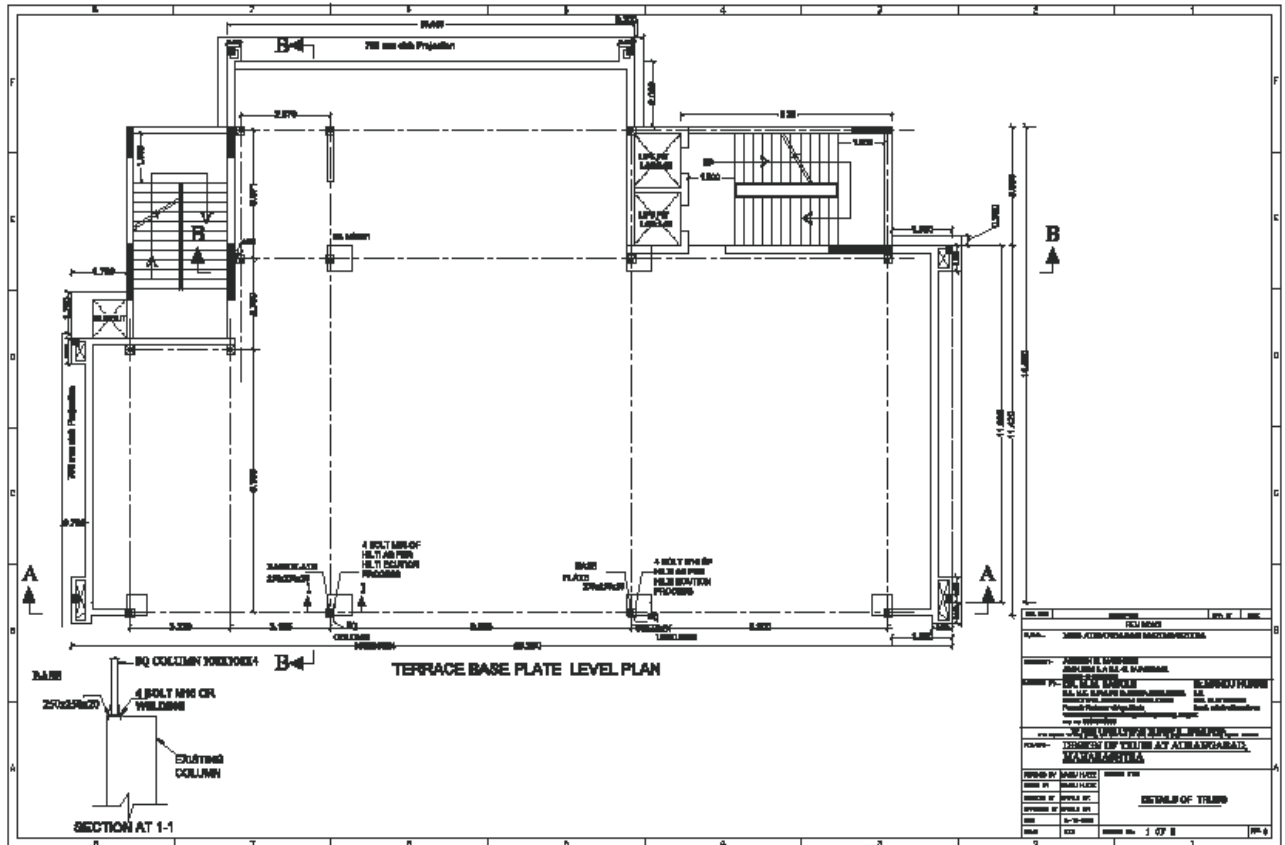
Providing and fixing structural Trusses as per Structural design and drawing Top @ 4.00Mtrs level and as directed strictly as per the details provided in the drawing (Plans and Sanctions) enclosed :

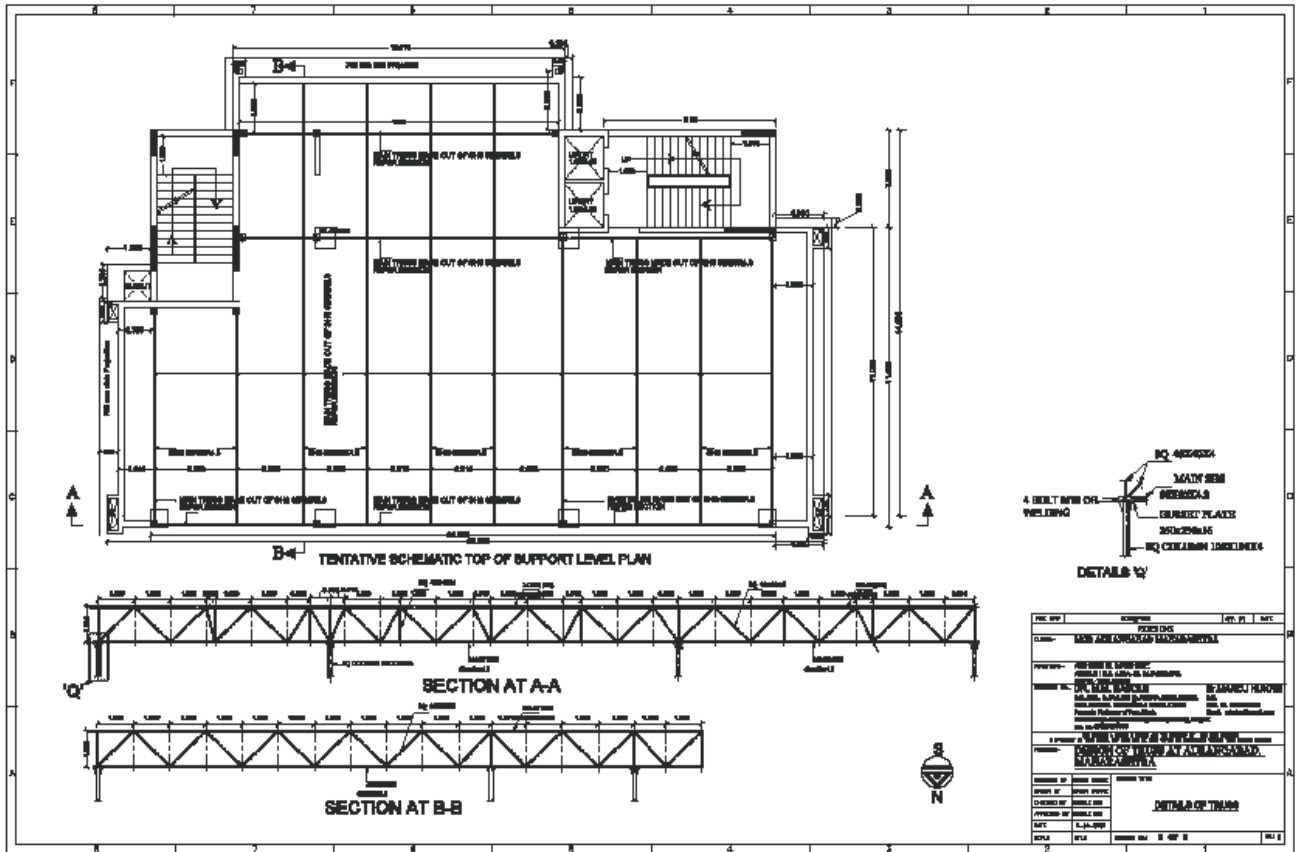
The work includes:

providing fixing structural trusses and Structural steel Columns/Stanchions as per the specifications mentioned in the drawing for square hollow sections (SHS), Base plates for steel columns fixed with HILTI BOLTS & as per the execution process of HILTI company. The dimension of SHS in Trusses and for columns, Base plate Dimensions and thickness, Bolt sizes etc. are to be followed strictly as per drawing. All SHS Material shall be TATA/Jindal make with ISI marking over it. The work is to be executed on terrace of 4<sup>th</sup> floor Roof Slab (parking+upper 4 floors). i.e. @ a height of 21.10Mts (approx) and the tenderer shall **include** all leads and lifts, including lifting the material @ site; if trusses are Manufactured off-Site then charges for lifting with crane or any other alternative method shall be **included** in the Rates/Price quoted on **Turnkey Basis for providing solar system. No additional Charges shall be paid in this regard.**

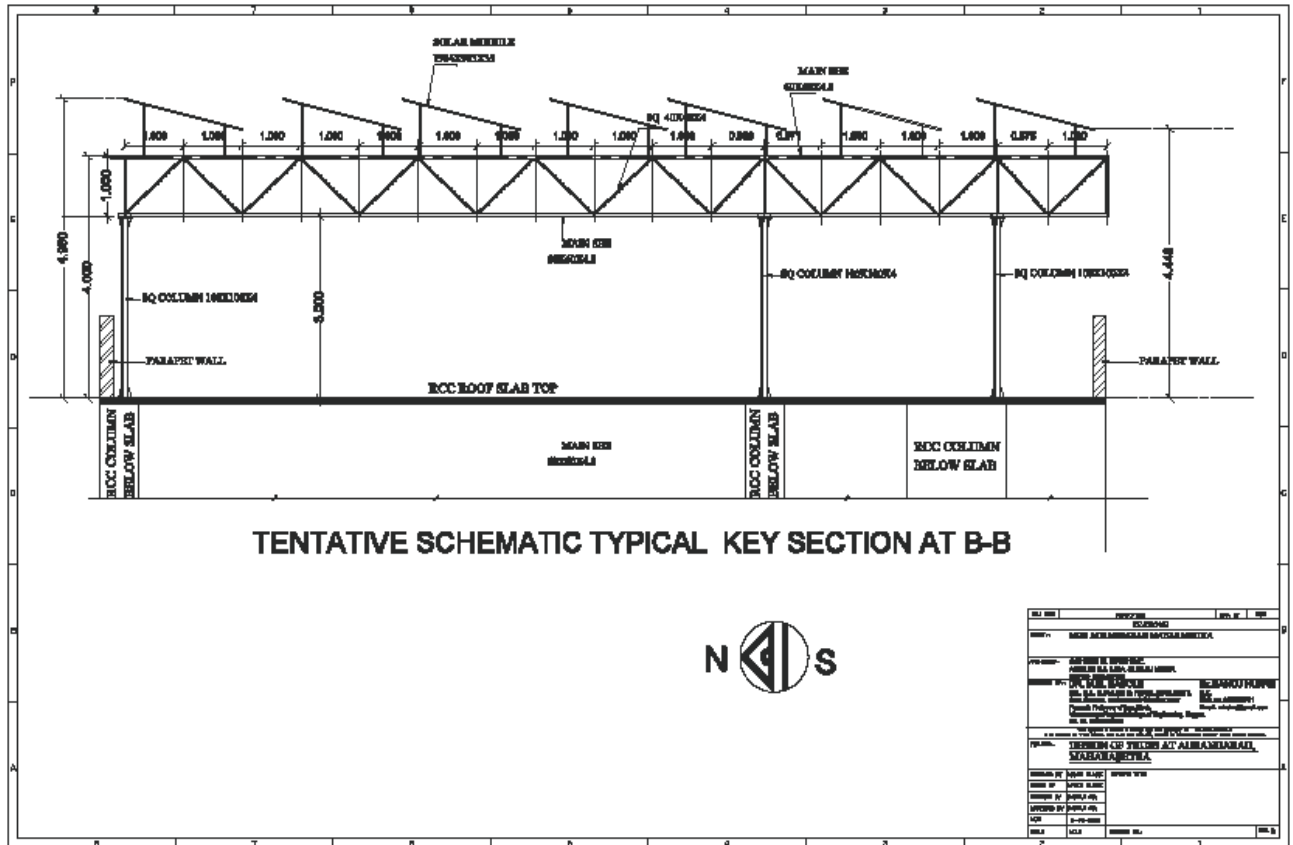
The steel Structure work Shall be painted with good quality Epoxy paint (Asian/Shalimar/ Berger Paints) in two or more coats over Naked steel surface with priming coat of Epoxy primer only. No other primer shall be used. Before painting the structure an inspection shall be carried out with consulting Architect Brands/ material to be approved before application. The thinner to be used shall also be epoxy thinner only. The rates of epoxy painting are to be included in the price of **'Turnkey basis Contract'. No additional Charges shall be paid in this regard.**

**SCHEMATIC TENTATIVE PRELIMINARY PLANS AND SECTIONAL DRAWINGS FOR STEEL STRUCTURAL WORKS ENCLOSED.**









NO. OF	SECTION	NO. OF	NO.
SECTION			
NAME OF THE PROJECT			
PROJECT NO.			
DATE OF PREPARATION			
DRAWN BY			
CHECKED BY			
APPROVED BY			
SCALE			
DATE			

**DESIGN, ENGINEERING, MANUFACTURING, FABRICATION, SUPPLY, INSTALLATION, TESTING, COMMISSIONING, FOLLOW-UP, GENERATION METER AND NET METER, APPROVAL, SANCTION, TESTING, INSTALLATION AND CONNECTIVITY TO GRID, ON TURNKEY BASIS FOR CAPACITY OF 50 KWP (STRUCTURE - 4 MTR ELEVATED STRUCTURE) GRID CONNECTED ROOFTOP SOLAR PHOTOVOLTAIC POWER GENERATION PLANT AT MAHARASHTRA GRAMIN BANK, PROPOSED HEAD OFFICE BUILDING, PLOT NO 42, CIDCO, WALUJ MAHANAGAR, GOLWADI, AURANGABAD (MS)**

**PRICE BID / FINANCIAL BID**

SR.NO.	ITEM	AMOUNT IN RS.
1	TOTAL AMOUNT OF SOLAR POWER GENERATION SYSTEMS ON “Turnkey basis” including structural work of Trusses etc. complete	
2	ADD GST @ 8.90%	
	Total Amount (I)	

**ROUTINE ANNUAL MAINTAINANCE CHARGES (AMC) FOR FIVE YEAR**

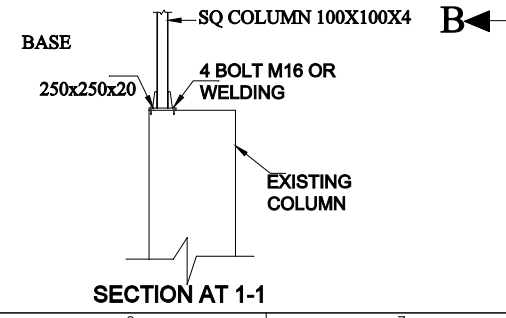
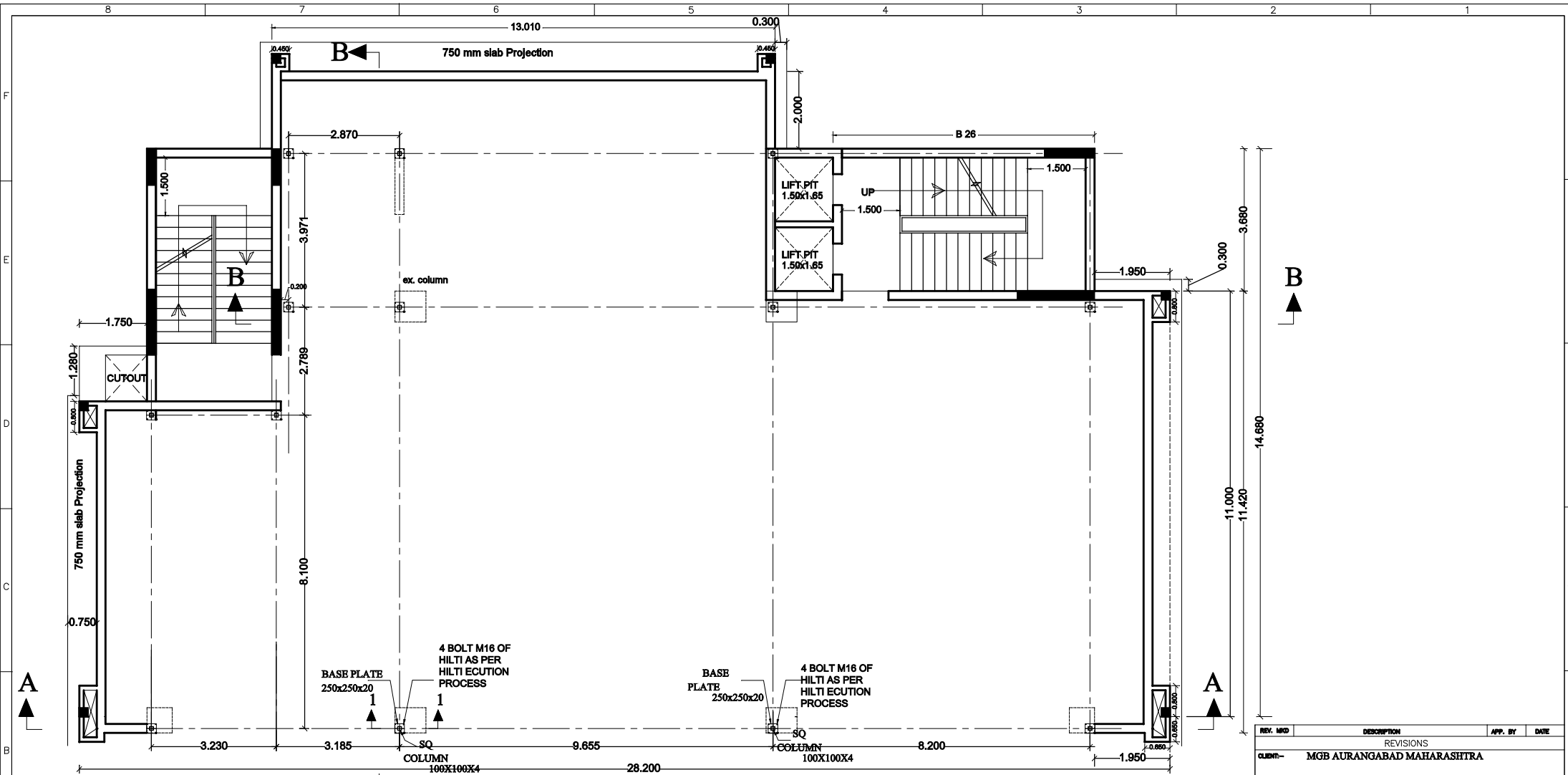
SR.NO.	ITEM	AMOUNT IN RS.
1	1 YEAR	
2	2 YEAR	
3	3 YEAR	
4	4 YEAR	
5	5 YEAR	
6	ADD GST @ 18%	
	Total Amount (II)	
	GRAND TOTAL ( I+II )	

**Rupees** \_\_\_\_\_

Signature of Contractor/  
Tenderer with seal

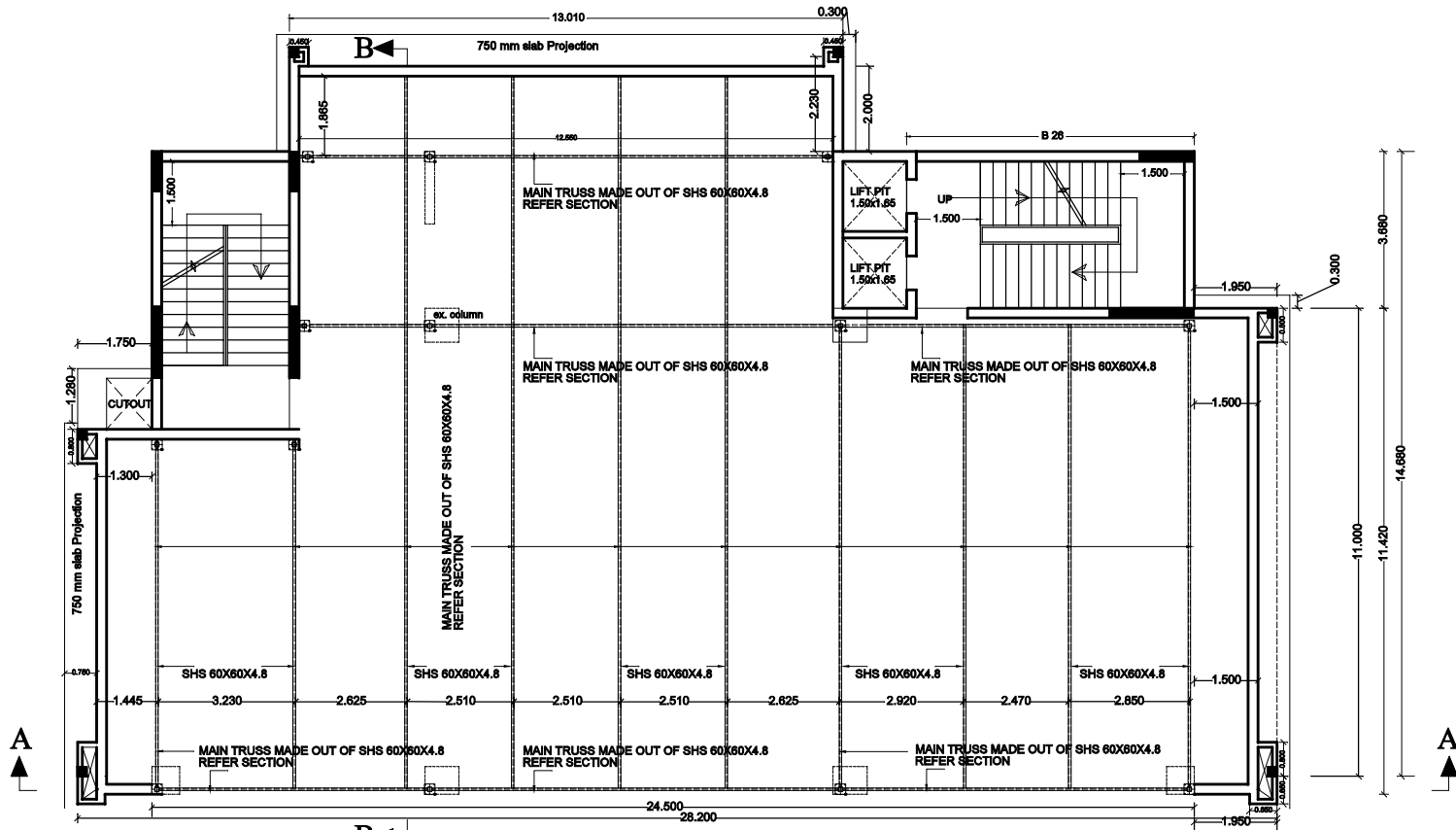
Chairman  
Maharashtra Gramin Bank  
Head office, Aurangabad M.S.)



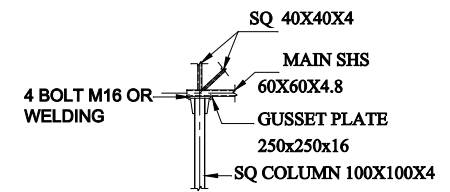


TERRACE BASE PLATE LEVEL PLAN

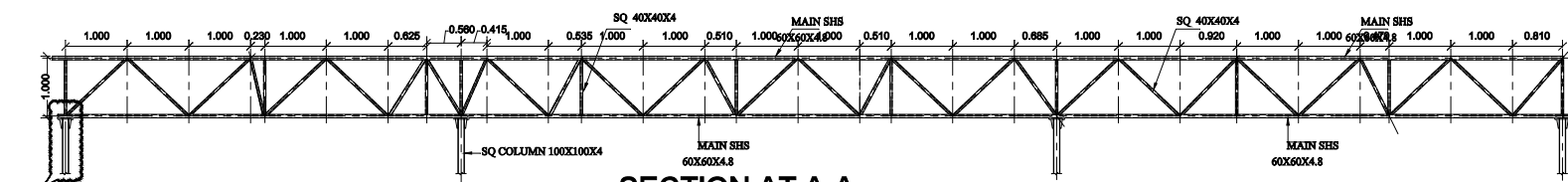
REV. NO.	DESCRIPTION	APP. BY	DATE
REVISIONS			
CLIENT-- MGB AURANGABAD MAHARASHTRA			
ARCHITECT-- ASHISH S. NASHINE ARCH. M I C A, A 11 A, 48, BALAJI NAGAR, NAGPUR - 10 NO. 2291676			
DESIGNED BY-- DR. M.M. BASOLE B.E., M.E., D. PHIL. FIE (I), FIMWA, MIRC, MISTE, STRUCTURAL ENGINEER & CONSULTANT Formerly Professor of App. Mech. Vivekananda Regional College of Engineering, Nagpur. MO. NO. 09822170050		E. MANOJ HUKRE B.E. MO. NO. 9176833761 Email. mhukre@gmail.com	
PROJECT-- DESIGN OF TRUSS AT AURANGABAD, MAHARASHTRA			
DESIGNED BY MANOJ HUKRE		DRAWING TITLE:	
DRAWN BY MANOJ HUKRE		<b>DETAILS OF TRUSS</b>	
CHECKED BY BASOLE SIR			
APPROVED BY BASOLE SIR			
DATE 8-10-2020		DRAWING NO.: 1 OF 2	
SCALE N.T.S		REV. 0	



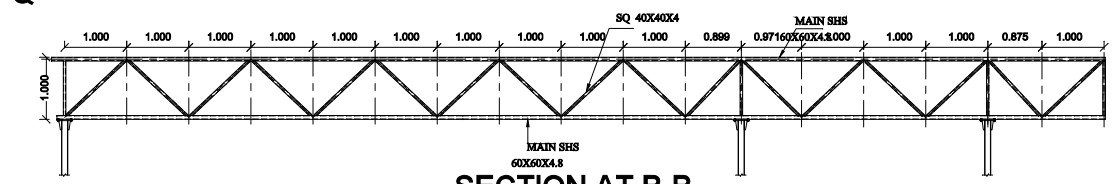
TENTATIVE SCHEMATIC TOP OF SUPPORT LEVEL PLAN



DETAILS 'Q'



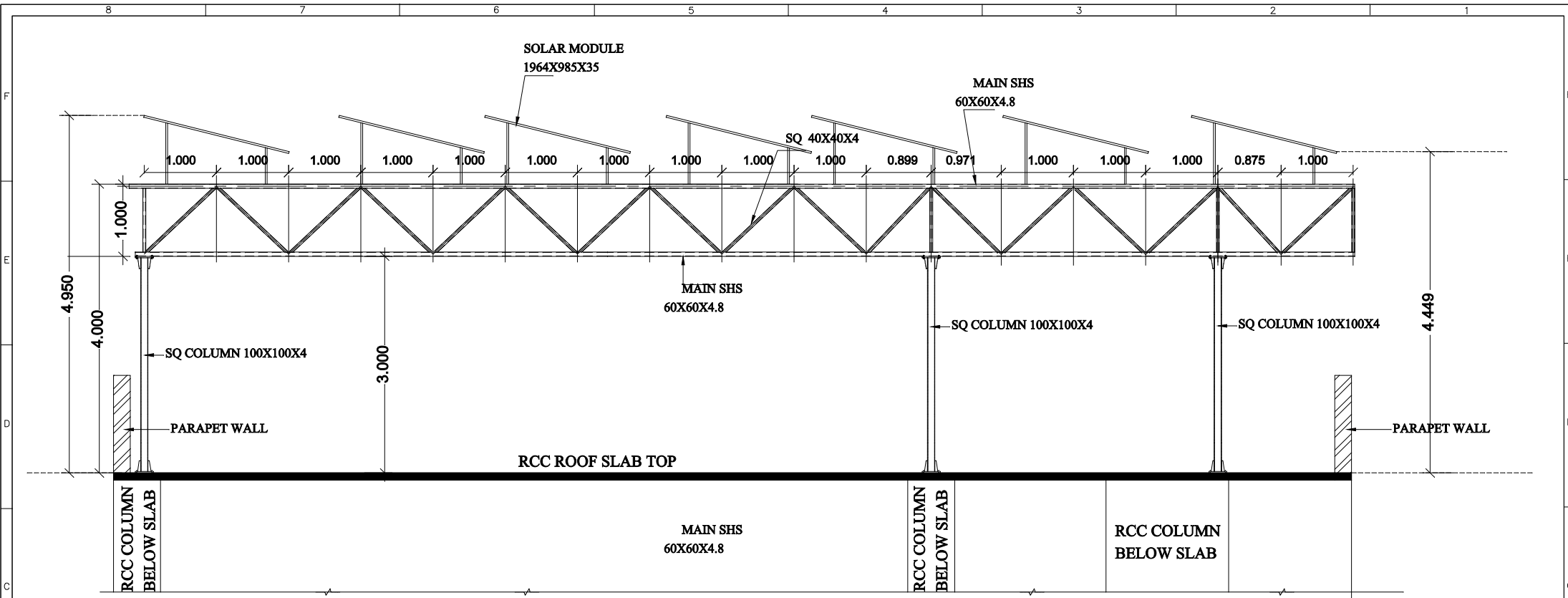
SECTION AT A-A



SECTION AT B-B



REV. NO.	DESCRIPTION	APP. BY	DATE
REVISIONS			
CURT-	MGB AURANGABAD MAHARASHTRA		
ARCHIT-	ASHISH S. NASHINE ARCH. MICA, A11A, 49, BAJAJ NAGAR, NAGPUR - 461002		
DESIGNED BY-	DR. M.M. BASOLE B.E., M.E., D. PHD, FIE (I), FIVWA, MIRC, MISTE, STRUCTURAL ENGINEER & CONSULTANT Formerly Professor of App. Mech. Vivekanandya Regional College of Engineering, Nagpur. MO. NO. 9822178000	Er. MANOJ HUKRE B.E. MO. NO. 9176833761 Email: mhukre@gmail.com	
IT IS SUBMITTED TO THEIR RECORD AND MUST NOT BE LENT, COPIED OR REPRODUCED WITHOUT THEIR WRITTEN CONSENT.			
PROJECT-	DESIGN OF TRUSS AT AURANGABAD, MAHARASHTRA		
DESIGNED BY	MANOJ HUKRE	DRAWING TITLE	
DRAWN BY	MANOJ HUKRE		
CHECKED BY	BSHOLE SIR		
APPROVED BY	BSHOLE SIR		
DATE	5-10-2020		
SCALE	N.T.S	DRAWING NO.:	2 OF 2
			REV. 0



# TENTATIVE SCHEMATIC TYPICAL KEY SECTION AT B-B



REV. NO.	DESCRIPTION	APP. BY	DATE
REVISIONS			
CLIENT--	MGB AURANGABAD MAHARASHTRA		
ARCHITECT--	ASHISH S. NASHINE ARCH. M I C A, A 11 A, 48, BAJAJ NAGAR, NAGPUR - 461009		
DESIGNED BY--	DR. M.M. BASOLE B.E., M.E., D. PHIL. FIE (I), FIMWA, MIRC, MISTE, STRUCTURAL ENGINEER & CONSULTANT Formerly Professor of App. Mech. Vivekananda Regional College of Engineering, Nagpur. Pho. no. 08623170000		DR. MANOJ HUKRE B.E. Mob. no. 9176833751 Email. mhukre@gmail.com
THIS DRAWING & DESIGN IT COVERS ARE THE PROPERTY OF DR. M.M. BASOLE IT IS SUBJECT TO THEIR RECALL AND MUST NOT BE LENT, COPIED OR REPRODUCED WITHOUT THEIR WRITTEN CONSENT.			
PROJECT--	DESIGN OF TRUSS AT AURANGABAD, MAHARASHTRA		
DESIGNED BY	MANOJ HUKRE	DRAWING TITLE:	
DRAWN BY	MANOJ HUKRE		
CHECKED BY	BASOLE SIR		
APPROVED BY	BASOLE SIR		
DATE	5-10-2020		
SCALE	N.T.S	DRAWING NO.:	REV. 0