

NAME OF WORK: - Regarding Green and Eco-friendly building by installation of Solar Panels on the roof top of the building at DIET, Rajinder Nagar.

NIT NO.:- 07/EE(E)/ PWD EMD South West/2024-25

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Certified that this NIT Contains 54 pages marked 1 to 54

Sr. Draftsman (E)
PWD EMD SW

Assistant Engineer (E) P
PWD EMD SW

Executive Engineer (E)
PWD EMD SW

NOTICE INVITING TENDER

N.I.T.No :-	:	07/EE(E)/ PWD EMD South West/2024-25
Name of Work	:	Regarding Green and Eco-friendly building by installation of Solar Panels on the roof top of the building at DIET, Rajinder Nagar.
Estimated Cost	:	Rs. 61,06,000/-
Earnest Money	:	Rs. 1,22,120/-
Security Deposit	:	2.5% of tendered value
Performance Guarantee	:	5% of Tender Amount
Time Allowed	:	90 days

CERTIFIED THAT THIS NIT CONTAINS 54 PAGES (SERIAL NO 1 TO 54)

NIT Amounting to Rs. 61,06,000/- (Rs. Sixty one lacs six thousand only) is hereby approved.

Sr. Draftsman (E)
PWD EMD SW

Assistant Engineer (E) P
PWD EMD SW

Executive Engineer (E)
PWD EMD SW

CPWD-6 FOR E-TENDERING

The Executive Engineer (E) PWD Elect. Div. South-West, Brar Square Near Delhi Cantt. Metro Station Gate No. 1 New Delhi-110010 (email :cecpwddelhim152@gmail.com) on behalf of the President of India invites ONLINE PERCENTAGE RATE BID

From

- i) CPWD enlisted contractors of appropriate class in Building & Road / composite category

OR

- ii) Non CPWD Contractor those of appropriate list of MES, BSNL, Railway and other state Govt. Departments dealing with buildings and other specialized agencies who satisfy the criteria of execution for similar works. Joint ventures are not accepted.
- a) Should have satisfactorily completed the works as mentioned below during the last seven years **ending last day of month previous to the one in which tenders are invited.**
- i) THREE similar works each of value not less than **Rs. 24.42 lacs** or TWO similar works each of value not less than **Rs. 36.63 lacs** or ONE similar work of value not less than **Rs. 48.84 lacs** of the estimate cost put to bid

Similar work means “SITC of Solar Photovoltaic Power Generation System”

- 1.1 The work is estimated to cost Rs. **61,06,000/-**This estimate, however, is given merely as a rough guide.

- 1.1.1 The authority competent to approve NIT for combined cost and belonging to the major discipline will consolidate NITs for calling the bids. He will also nominate Division which will deal with all matter relating to the invitation of bids.

For composite bid, besides indicating the combined estimated cost put to bid, should clearly indicate the estimated cost of each component separately. The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.

- 1.2 Intending bidders is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having satisfactorily completed similar works of magnitude specified below :

Criteria of eligibility for submission of bid documents

To become eligible for issue of bid, the bidders shall have to furnish an affidavit on stamp paper as under:-

- 1.2.1 I/We undertake and confirm that eligible similar works(s) has/have not been got executed through another contractor on back-to-back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred for tendering in CPWD and PWD in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee (Scanned copy to be uploaded at the time of submission of bid).

2. Agreement shall be drawn with the successful bidders on prescribed Form No. CPWD 7 which is available as a Govt. of India Publication and also available on website <https://govtprocurement.delhi.gov.in> at Bidders shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.

3. The time allowed for carrying out the work will be **90 Days** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
4. The site for the work is available.

OR

The site for the work shall be made available in parts as specified below

-
- ii) The architectural and structural drawing for the work is available
or
The architectural and structural drawings shall be made available in phased manner, as per requirement of the same as per approved programme of completion submitted by the contractor after award of work.
 5. The bid document consisting of the eligibility criteria, technical bid & the price bid i/c plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contractor Form can be seen on website <https://govt.procurement.delhi.gov.in>.
 6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.
 7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.
 8. When bids are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.
 9. Earnest Money of **Rs. 1,22,120/-** in the form of Treasury Challan or Demand Draft or Pay Order or Banker's Cheque or Deposit at call receipt or Fixed Deposit receipt (drawn in favour of **Executive Engineer (Electrical), PWD, EMD M-152, New Delhi**) shall be scanned and uploaded to the e-tendering website by the bidder within the period of bid submission. The Original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, PWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE/AE) shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT.

A part of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs. 20 lac, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any schedule bank having validity for six months or more from the last date of receipt of bids which is also to be scanned and uploaded by the intending bidder.

Copy of certificate of work experience and other documents as specified in the eligibility bid document shall be scanned and uploaded to the e-Tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified shall have to be submitted by the lowest bidder only along with physical EMD of the scanned copy of EMD uploaded within a week physically in the office of tender opening authority. Online bid documents submitted by intending bidder shall be opened only of those bidder, whose original EMD deposited with any division of CPWD and other documents scanned and uploaded are found in order.

- 9A. The Contractor registered prior to 01.04.2015 on e-tendering portal of CPWD shall have to deposit tender processing fee at existing rates, or they have option to switch over to new registration system without tender processing fee any time.
- The bid submitted shall be opened at 03:60 on.*.....
10. The bid submitted shall become invalid and e-Tender processing fee shall not be refunded if:
- (i) The bidder is found ineligible.
 - (ii) **The bidder does not deposit original EMD with division office of any Executive Engineer, PWD (The EMD document shall only be issued from the place in which the office of receiving division office is situated.)**
 - (iii) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the bidder in the office of bid opening authority.
 - (iv) If a tenderer quotes NIL rates against each item in item rate tender, or does not quote any percentage above/below on the total amount of the tender or any section/ sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered a lowest tenderer.
11. The contractor whose bid is accepted will be required to furnish **performance guarantee of 5% (Five Percent)** of the bid amount within the period specified in Schedule F. This guarantee shall be in the form of cash (in case guarantee amount is less than Rs. 10000/-) or Deposit at Call receipt of any scheduled bank/Banker's cheque of any scheduled bank/Demand Draft of any scheduled bank/Pay order of any Scheduled Bank of any scheduled bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or FDR or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F', including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited alongwith bid shall be returned after receiving the aforesaid performance guarantee. The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses/ registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including Provident Fund Cost No. If applicable and also ensure the compliance of aforesaid provisions by the sub contractors, if any engaged by the contractor for the said work within the period specified in Schedule F.
12. **Description of the work is as follows:**
Regarding Green and Eco-friendly building by installation of Solar Panels on the roof top of the building at DIET, Rajinder Nagar.
 Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidders shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidders implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.

13. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.
14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.
15. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.
16. **The contractor shall not be permitted to bid for works in the PWD Circle (Division in case of contractors of Horticulture/Nursery category) responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the Central Public Works Department or in the Ministry of Urban Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.**
17. No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.
18. **The bid for the works shall remain open for acceptance for a period of **Thirty (60) days from the date of opening of technical bid in case bids are invited on 2 or 3 bid system. Further****
 - i) if any tenderer withdraws his tenders or makes any modifications in the terms & conditions of the tender which is not acceptable to the department within 7 days after opening of tender (excluding date of opening of tender) then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely.
 - ii) After 7 days of opening of tender the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely.
 - iii) The bidders shall not be allowed to participate in the rebidding process of work.
19. This notice inviting Bid shall form a part of the contract document. The successful bidders/contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-
 - (a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
 - (b) **Standard C.P.W.D. Form 7** or other Standard C.P.W.D. Form as applicable.

20. For Composite Bids

- 20.1.1 ~~The Executive Engineer in charge of the major component will call bids for the composite work. The cost of bid document and Earnest Money will be fixed with respect to the combined estimated cost put to tender for the composite bid.~~
- 20.1.2 ~~The bid document will include following three components:~~
- ~~**Part A:** CPWD 6, CPWD 7/8 including schedule A to F for the major component of the work, Standard General Conditions of Contract for CPWD 2014 as amended/ modified up to~~
- ~~**Part B:** General / specific conditions, specifications and schedule of quantities applicable to major component of the work.~~
- ~~**Part C:** Schedule A to F for minor component of the work (competent authority under clause 2 and clause 5 shall be same authority as mentioned in schedule A to F for major components), General/specific conditions, specifications and schedule of quantities applicable to minor component(s) of the work.~~
- 20.1.3 ~~The bidders must associate himself, with agencies as per NIT conditions~~
- 20.1.4 ~~The eligible bidders shall quote rates for all items of major component as well as for all items of minor components of work.~~
- 20.1.5 ~~After acceptance of the bid by competent authority, the EE in charge of major component of the work shall issue letter of award on behalf of the President of India. After the work is awarded, the main contractor will have to enter into one agreement with EE incharge of major component and has also to sign two or more copies of agreement depending upon number of EE's/DDH incharge of minor components. One such signed set of agreement shall be handed over to EE/DDH incharge of minor component(s). EE of major component will operate **Part A** and **Part B** of the agreement. EE/DDH incharge of minor component(s) shall operate **Part C** alongwith **Part A** of the agreement.~~
- 20.1.6 ~~Entire work under the scope of composite bid including major and all minor components shall be executed under one agreement.~~
- 20.1.7 ~~Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of works.~~
- 20.1.8 ~~The main contractor has to associate agencies for specialized component(s) conforming to eligibility criteria as defined in the bid document and has to submit detail of such agency(s) to Engineer in charge of relevant component(s) within prescribed time. Name of the agency(s) to be associated shall be approved by Engineer in charge of relevant component(s).~~
- 20.1.9 ~~In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer in charge of relevant specialized component(s).~~
- ~~The new agency/agencies shall also have to satisfy the laid down eligibility criteria. In case Engineer in charge is not satisfied with the performance of any agency, he can direct the contractor to change the agency executing such items of work and this shall be binding on the contractor.~~
- 20.1.10 ~~The main contractor has to enter into MoU with agency(s) associated by him. Copy of such MoU shall be submitted to EE/ DDH in charge of each relevant component as well as to EE incharge of major component. In case of change of associate contractor, the main agency(s) has to enter into MoU/agreement with the new contractor associated by him.~~

- ~~20.1.11~~ Running payment for the major component shall be made by EE of major discipline to the main contractor. Running payment for minor components shall be made by the Engineer in charge of the discipline of minor component directly to the main contractor.
- ~~20.1.12A.~~ The composite work shall be treated as complete when all the components of the work are complete. The completion certificate of the composite work shall be recorded by Engineer in charge of major component after record of completion certificate of all other components.
- ~~20.1.12B.~~ Final bill of whole work shall be finalized and paid by the EE of major component. Engineer(s) in charge of minor component(s) will prepare and pass the final bill for their component of work and pass on the same to the EE of major component for including in the final bill for composite contract.
- 21 Integrity Pact : The contractor shall download the Integrity Pact, which is a part of tender documents, affix his signature in the presence of a witness and upload the same while submitting online bids for all works of estimated cost put to tender equal or more than the threshold value given in Schedule F. In the event of his failure to sign and upload the Integrity Pact along with other bid documents, his bid shall be rejected.

कार्यपालक अभियंता (वै)
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GOVERNMENT OF NCT, DELHI
PUBLIC WORKS DEPARTMENT
INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING FORMING PART OF
BID DOCUMENT
(Applicable for inviting open bids)

The Executive Engineer (E) PWD Elect. Div. South-West, Brar Square Near Delhi Cantt. Metro Station Gate No. 1 New Delhi-110010 (email : eeepwddelhim152@gmail.com) on behalf of the President of India invites ONLINE PERCENTAGE RATE BID

From

- i) CPWD enlisted contractors of appropriate class in Building & Road / composite category

OR

- ii) Non CPWD Contractor those of appropriate list of MES, BSNL, Railway and other state Govt. Departments dealing with buildings and other specialized agencies who satisfy the criteria of execution for similar works. Joint ventures are not accepted.

S.No.	NIT No.	Name of work & Location	Estimated Cost put to bid	Earnest Money	Stipulated Period of Completion of work	Last date & time of submission of bid, copy of receipt of deposition of original EMD and other documents as specified in the NIT	Time & date of opening of technical bid
1	2	3	4	5	6	7	8
1	07/EE (E)/PWD EMD South West / 2024-25	As below	Rs 61,06,000/-	Rs. 1,22,120/-	90 Days	03-06-2024 Upto 3.00 PM	03-06-2024 at 3.30 PM

Name of work **Regarding Green and Eco-friendly building by installation of Solar Panels on the roof top of the building at DIET, Rajinder Nagar.**

- a) Should have satisfactorily completed the works as mentioned below during the last seven years **ending last day of month previous to the one in which tenders are invited.**
- i) THREE similar works each of value not less than **Rs. 24.42 lacs** or TWO similar works each of value not less than **Rs. 36.63 lacs** or ONE similar work of value not less than **Rs. 48.84 lacs** of the estimate cost put to bid

Similar work means “SITC of Solar Photovoltaic Power Generation System”

The value of executed work shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the **last day of month previous to the one in which tenders are invited.**

Completion certificates of similar works issued by an officer not below the rank of Executive Engineer in case of Govt./ PSU work and Regional Manager/ General Manager in case of Private work.

- (b) Should have had average annual financial turnover of **Rs 30.53 lacs** on construction works during the last three years ending 31st March, 2023 (scanned copy of Certificate from CA to be uploaded).
 - (c) Should not have incurred any loss (profit after tax should be positive) in more than two years during the last five years ending 31st March, 2023
 - (d) Solvency of the amount equal to 40% of the estimated cost put to tender i.e. of **Rs 24.42 lacs**
Or
Net worth Certificate of minimum 10% of the estimated cost put to tender issued by certified Chartered Accountant
2. The intending bidder must read the terms and conditions carefully. He should submit his bid only if he consider himself eligible and he is in possession of all the documents required.
 3. Information and Instructions for bidders posted on website shall form of bid document.
 4. The bid document consisting of the eligibility criteria, technical bid & the price bid i/c plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen in the on website <https://govt.procurement.delhi.gov.in> at ID No. **2024_PWD_ _1**.
 5. But the tender can only be submitted after **depositing of original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, PWD within the period of bid submission. (The EMD document shall only be issued from the place in which the office of receiving division office is situated)** and uploading the mandatory scanned documents such as Demand Draft or Pay order or Banker's Cheque or Deposit at call Receipt or Fixed Deposit Receipts and Bank Guarantee of any Scheduled Bank towards EMD in favour of **"Executive Engineer (Electrical), PWD, EMD M-152, New Delhi, as mentioned in NIT, receipt for deposition of original EMD to division office of any Executive Engineer, PWD** and other documents as specified.
 6. Those contractors not registered on the website mentioned above, are required to get registered before hand. If needed they can be imparted training on online bidding process as per details available on the website.
 7. The intending bidder must have valid class-III **digital signature** to submit the bid.
 8. On opening date, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
 9. Contractor can upload documents in the form of **JPG** format and **PDF** format.
 10. **Certificate of Financial Turn Over:** At the time of submission of bid, contractor has to upload Affidavit/Certificate from CA mentioning Financial Turnover on construction work of last 5 years or for the period as specified in the bid document and further details if required may be asked from the contractor after opening of technical bids. **There is no need to upload entire voluminous balance sheet.**
 11. Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures appears in pink colour and the moment rate is entered, it turns sky blue.

However, if a tenderer quotes nil rates against each item in each item rate tender or does not any percentage above or below on the total amount of tender or any section/ sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.

12. The eligibility Bid shall be opened first on due date and time as mentioned above. The time and date of opening of financial bid of contractors qualifying the eligibility bid shall be communicated to them at a later date.
13. SC/ST contractors enlisted under class V category are exempted from processing fee payable to ITI.

List of Documents to be scanned and uploaded within the period of bid submission failing which the bids shall be rejected :

- i) Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (for balance amount as prescribed) from any of the Commercial Banks EMD. Annexure-I
- ii) Receipt of original EMD with division office of any Executive Engineer, PWD as per Annexure-II
- iii) Financial information – Form 'A' (only for non cpwd/specialized firms)
- iv) Banker's certificate from a scheduled bank on letter head of bank addressed to tendering authority Form 'B' or Form for Certificate of Networth from Chartered Accountant Form B1 (only for non cpwd/specialized firms)
- v) Details of all works of similar class completed during the Last seven years **ending last day of month previous to the one in which tenders are invited** – Form 'C' (only for non cpwd/specialized firms)
- vi) Assessment of Quality for completed works Form D (only for non cpwd/specialized firms)
- vii) Enlistment order of contractor in CPWD (only for CPWD registered contractor)
- viii) GST Registration Certificate, if already obtained by the bidder and acknowledgement of upto date return filed OR

If the bidder has not obtained GST registration as applicable, then he shall scan and upload following undertaking along with the documents

"If work is awarded to me, I/we shall obtain GST registration certificate, as applicable, within one month from the date of receipt of award letter or before release of any payment by CPWD, whichever is earlier, failing which I/we shall be responsible for any delay in payments which will be due towards me/ us on account of the work executed and /or for any action taken by CPWD or GST department in this regard".

- ix) Valid Electrical license issued by competent authority OR

The contractor shall be allowed to participate in the tender with an Undertaking that they will either obtained valid electrical license & submitted before date of Start of electrical work or associate with contractor who having valid electrical license of eligible class and fulfil the criteria. The associated agency engaged by main agency should be approved by competent authority of PWD.

- x) Registration in EPFO and ESIC or undertaking

Note -1 : The lowest tenderer (in case of CPWD registered contractor) must have to enter into MoU with the specialized firm.

NOTE 2 : The lowest tenderer have to submit the following undertaking for Solar Photovoltaic Power Plant from manufacturer/OEM of Solar Photovoltaic Power Plant as per acceptable makes of NIT along with the performance guarantee after acceptance of tender

- a) Original Authorization certificate from Manufacturer/OEM REIL / BHEL / BEL / CEL / REC / SOLON / VIKRAM / ABB of Solar System Equipment

- b) The OEM shall unconditionally support the lowest tenderer technically throughout the execution of contractor as well as for maintenance/comprehensive maintenance contract for the useful life of the system and
- c) OEM Provide all the spares required for healthy functioning of the equipment for at least Seven years from the date of supply of equipment.

Note -2 : In case of non-submission of above undertaking from OEM along with the performance guarantee, the EMD 100% will be forfeited in Govt. account and process of cancellation of his registration will also be initiated.

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लोक निर्माण विभाग
वैद्युत अनुरक्षण मंडल, दक्षिण-पश्चिम

सं० 54 (07)/लो० नि० वि० वै अनु मं०द०प०/

दिनांक

प्रतिलिपि :-

1. अधीक्षण अभियंता लो० नि० वि० परि० (दक्षिण-पश्चिम) बी-6, एन० सी० सी० भवन, सफदरजंग एन्क्लेव नई दिल्ली ।
2. सहायक अभियंता (वै)/ उम-3 लो० नि० वि० वै० अनु० मं० द०प०/एम-1521 नई दिल्ली ।
3. नक्शा शाखा/ लो० नि० वि० वै० अनु० मं० द०प० नई दिल्ली ।
4. करार के लिए

कार्यपालक अभियंता (वै)

FORM 'A'**FINANCIAL INFORMATION**

- I) Financial Analysis – Details to be furnished duly supported by figures in balance sheet/ profit & loss account for the last five years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax Department (Copies to be attached).

Years

Financial year	2018-19	2019-20	2020-21	2021-22	2022-23
(i) Gross Annual turnover					
(ii) Profit/Loss (standalone finance statement and consolidated financial statement both)					

- II. Financial arrangements for carrying out the proposed work.

Signature of Chartered Accountant with Seal

Signature of Bidder(s).

FORM "B"

FORM OF BANKERS' CERTIFICATE FROM A SCHEDULED BANK

This is to certify that to the best of our knowledge and information that M/s./Sh
having marginally
 noted address,a
 customer of our bank are/is respectable and can be treated as good for any engagement upto a limit of
 Rs.....
 Rupees.....
). This certificate is issued without any guarantee or responsibility on the bank or
 any of the officers.

(Signature) For the Bank

NOTE:

1. Bankers certificates should be on letter head of the Bank, addressed to tendering authority.
2. In case of partnership firm, certificate should include names of all partners as recorded with the Bank.

FORM "B1"**FORM FOR CERTIFICATE OF NET WORTH FROM CHARTERED ACCOUNTANT**

This is to certify that as per the audited balance sheet and profit & loss account during the financial year the Net Worth of M/s (Name & Registered Address of individual /firm/Company), as on (the relevant date) is Rs..... After considering all liabilities. It is further certified that the Net Worth of the company has not eroded by more than 60% in the last three years ending on (the relevant date)".

Signature of Chartered Accountant

Name of Chartered Accountant

Membership No. of ICAI

Date and Seal

FORM 'C'
DETAILS OF ELIGIBLE SIMILAR NATURE OF WORKS COMPLETED
DURING THE LAST SEVEN YEARS ENDING PREVIOUS DAY OF LAST
DATE OF SUBMISSION OF TENDERS

S. No	Name of work/project and location	Owner of sponsoring organization	Cost of work in crores of rupees	Date of commencement as per contract	Stipulated date of completion	Actual date of completion	Litigation/arbitration cases pending /in progress with details*	Name and address /telephone number of officer to whom reference may be made	Whether the work was done on back to back basis Yes/No
1	2	3	4	5	6	7	8	9	10

* Indicate gross amount claimed and amount awarded by the Arbitrator.

Signature of Bidder(s)

Note: The agency should give list of only those eligible works which are of '**SIMILAR NATURE**'.

Form "D"**PERFORMANCE REPORT OF WORKS REFERRED TO IN FORM 'C'**

1.	Name of work/Project & Location	
2.	Agreement No.	
3.	Estimated Cost	
4 (a)	Tendered Cost	
4 (b)	Value of work done	
5.	Date of Start	
6.	Date of Completion	
i)	Stipulated Date of Completion	
ii)	Actual Date of Completion	
7.	Compensation for delay	
i)	Whether case of levy of compensation for delay has been decided or not	Yes/ No
ii)	If decided, amount compensation levied for delayed completion, if any.	
8.	Performance Report :	
i)	Quality of work	Outstanding/Very Good/ Good/ Poor
ii)	Financial Soundness	Outstanding/Very Good/ Good/ Poor
iii)	Technical Proficiency	Outstanding/Very Good/ Good/ Poor
iv)	Resourcefulness	Outstanding/Very Good/ Good/ Poor
v)	General Behaviour	Outstanding/Very Good/ Good/ Poor

Date

Executive Engineer or equivalent with
stamp

Eligibility criteria for Specialized Agencies

1. The main contractor shall have to associate other specialized agency(s) (Joint ventures are not accepted) for execution of each of these specialized work(s), who fulfils the eligibility criteria as defined below, within 07 days of issue of letter of intent and also after taking prior approval from the Engineer-in-charge.
2. The main contractor shall submit the similar work experience/documents from specialized agencies whom he intend to associate in respect of experience of having satisfactory completed similar works as defined below during the last Seven years ending last date of the month previous to the one in which tenders are invited.

S.No.	Specialized Work(s)/ item of work(s)	Estimated Cost	Eligibility criteria for Associated/ specialized agency to be
1	SITC of Solar System Equipment	Rs. 61,06,000/-	<p>THREE similar works each of value not less than Rs. 24.42 lacs or</p> <p>TWO similar works each of value not less than Rs. 36.63 lacs or</p> <p>ONE similar work of value not less than Rs. 48.84 lacs of the estimate cost put to bid</p> <p>Similar work means “SITC of Solar Photovoltaic Power Generation System”</p>

3. The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from **last day of month previous to the one in which tenders are invited.**
4. However the Main Contractor shall also be eligible to carry out himself any or all of the above specialized works without associating any specialized agency provided they fulfils the prescribed eligibility criteria for each of the above specialized work(s).
5. The main contractor shall have to submit credential such as self attested copies of Certificates of Work Experience/Completion issued by client department in form –‘D’ clearly indicating 1. Name of work 2. Scope of Work 3. Agreement No. 4. Estimated Cost 5. Tendered Cost 6. Final Value of Work Done. 7. Date of Start. 8. Stipulated date of Completion 9. Actual date of completion 10. Nature of the Work/Rating of Transformers & D.G. sets etc. (In case some of above said details are not mentioned in the Completion certificate, the firm shall attach proof in support of above details), self-attested copy of valid Electrical contractor license, GST registration of the proposed associated specialized agencies for verification (if required) and for approval of the department as per eligibility requirement mentioned above in **FORM-I** within 07(seven) days from date of issue of Letter of Intent (LOI). Main contractor shall also be required to furnish either copy of applicable licenses/registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board of proposed associated specialized agencies along with above documents.
7. Consent letter of such selected associated specialized agencies for association shall also be enclosed in the prescribed format as per **FORM-II** along with documents mentioned at Sl. No-6.
8. If the main contractor fails to submit all the documents of the proposed associated specialized agency(s) as mentioned at Sl. No. 6&7 above, within 07 (Seven) days from date of issue of Letter of Intent, then action shall be taken as per the procedure under Clause-3 of GCC of the agreement.

9. After approval of associated specialized agencies by Engineer-in-charge of respective components, the main contractor will submit MoU signed with the Associated Specialized Agency as per FORM-III in shape of affidavit stamp paper duly attested by notary in original within 5 (Five) Days after issue of approval letter (for Associate Specialized Agency). The MoU shall be signed by both the parties" i.e. Main Contractor as 1st party and Associated Specialized Agency as 2nd party, independently for all specialized work(s) and verified by Engineer –in-Charge of respective components.
10. All technical discussions during currency of contract shall be attended by the Associated Specialized Agencies and the Main Contractor. Commercial/Technical submissions for the specialized work(s) shall be signed and submitted by the Associate Specialized Agencies along with the Main Contractor.
11. The Associated Specialized Agencies and the Main Contractor shall attend the site during inspection of the work by the Engineer-in-Charge or higher authority.
12. The Main Contractor shall be entirely responsible and answerable for all the works done by his Associated Specialized Agency regarding their quality, adherence to the laid down specification, terms and conditions, warranty/guarantee etc. as per the agreement and he shall be liable to bear any compensation that may be levied by the department under any of the clauses of the agreement.
13. In the event of the concerned Associated Specialized Agency not performing satisfactorily or failure to complete the specialized works(s), the Main Contractor on written directions of the Engineer-in-charge, shall remove the Associated Specialized Agency deployed on the work and shall submit name of new associated specialized Agency as per eligibility criteria mentioned in the NIT to execute the left over specialized work(s) without any loss of time after completion of all formalities mentioned as above in S. No. 2, 6 & 7.
14. Also if Main Contractor wants to change the Associated Specialized Agency during the currency of the contract he shall submit name of new Associated Specialized Agency as per eligibility criteria mentioned in the NIT to execute the left over specialized work(s) after completion of all formalities mentioned as above in S. No. 2, 6 & 7.
15. The Main Contractor shall be responsible and liable for proper and complete execution of the all works including specialized work(s) and ensure coordination and completion of all associated specialized works.
16. Running payment for the work shall be made to the Main Contractor. In case Main Contractor fails to make the payment to the Associated Specialized Agency(s) by him within 15 days of receipt of each running account payment then on the written complaint of any Associated Specialized Agency(s) for such work, Engineer-in-Charge shall serve the show cause notice to Main Contractor and after considering the reply of the same he may make the payment directly to the concerned Associated Specialized Agency(s) for the work as per the terms & conditions of the agreement/MoU drawn between Main Contractor and Associated Specialized Agency(s) fixed by him, if reply of main contractor either not received or found unsatisfactory. Such payment made to the Associated Specialized Agency(s) shall be recovered by Engineer-in-Charge from the next RA/final bill due to Main Contractor as the case may be.

FORM –I
PROPOSAL FOR ELIGIBLE ASSOCIATING AGENCIES FOR
SPECIALIZED WORK(S)

To

The Executive Engineer (Elect.)
 South West Electrical Division (M-152)
 PWD (GNCTD)
 Brar Square
 New Delhi

I/we hereby propose the following agencies to be associated as per mentioned against each for executing corresponding specialized work(s). Their consent letter are also attached as per FORM-II

Sl. No.	Name of Associated Specialized Agency	Category and class of CPWD registration /Enlistment(if any)	Registration /Enlistment/copy/ completion certificates attached	Validity of registration /Enlistment	Value of Gross Work Done of Specialized work	Experience Certificate attached (Yes/No)	Consent letter attached (Yes/No)
Specialized Work I (Solar System Equipment)							
1							

Signature of Main Contractor

**CONSENT LETTER FROM ELIGIBLE ASSOCIATE AGENCY OF
SPECIALIZED WORK(S)**

Name of work : Regarding Green and Eco friendly building by installation fo Solar Panels on the roof top of the building at DIET, Rajinder Nagar.

1. I / We hereby give my consent to associate with M/s, for executing the work of..... (Mention specialized work (s)).
2. I / We will execute the work as per specifications and conditions of the agreement and as per directions of the Engineer-in-Charge for the corresponding specialized work(s) till the completion ofthe work.
3. I / We will be responsible for necessary action to handover of the installations and for rectification ofdefects and repair during the maintenance / warranty period.
4. Also I / We will employ full time technically qualified Engineer / supervisor for the specialized work(s) component of the work as required for the work and list of same shall be made available toEngineer-in-Charge. I / We will attend inspection of officers of the department as and when required.

Date:

Signature with date of Main Agency/Contractor

Signature with date of Associate
Specialized Agency

Address :

Address :

1. Witness with address
(From Main Contractor side)
2. Witness with address
(From Associated Agency side)

Form-III**MEMORANDUM OF UNDERSTANDING [M.O.U] BETWEEN**

- 1] M/S [Name of the firm with full address]
 Enlistment Status
 Valid Upto:
 [Henceforth called the main contractor]
 And
- 2] M/S [Name of the firm with full address]
 Enlistment Status
 Valid Upto:
 [Henceforth, called Associated Contractor]

NAME OF WORK: Regarding Green and Eco friendly building by installation of Solar Panels on the roof top of the building at DIET, Rajinder Nagar.

[Electrical Component only] as per schedule, specifications, terms and conditions of the tender.

We state that M.O.U. between us will be treated as an agreement and has legality as per Indian Contract Act (amended up to date) and the department (PWD) can enforce all the terms and conditions of the agreement for execution of the above work. Both of us shall be responsible for the execution of work as per the agreement to the extent of this MOU allows. Both the parties shall be paid consequent to the execution as per agreement to the extent this MOU permits.

We have agreed as under :

- 1- The associated contractor shall be liable for disciplinary action if he failed to discharge the action(s) and other legal action as per agreement besides forfeiture of the security deposit.
- 2- All the material, machinery and equipment's, tools and tackles required for execution of the electrical works as per agreement shall be the responsibility of the associated contractor.
- 3- The site staff required for the electrical work shall be arranged by the associated contractor as per terms and conditions of the agreement.

SIGNATURE OF MAIN CONTRACTOR

SIGNATURE OF ASSOCIATED CONTRACTOR

DATE

DATE

PLACE

PLACE

COUNTER SIGN EXECUTIVE ENGINEER (E)

CONDITIONS FOR ENGAGEMENT OF ASSOCIATED ELECTRICAL AGENCIES:

The lowest tenderer have to submit electrical contractor license after of award of work if he himself eligible for carrying internal EI work and if not he has to submit the following documents for association of electrical contractors for internal EI work and specialized E&M Works.

1. The contractor, if required should submit the willingness from an eligible electrical contractors/specialized agency to get associated with the applicant for execution of the electrical component/specialised of works as per the conditions set out in the MOU to be signed between the contractor and the associated eligible electrical contractor/ specialized agency.
2. In support of the eligibility conditions of the proposed associated electrical contractor/associated agency, copy of their registration documents if applicable, Electrical Contractor's License, Goods and Service Tax (GST) documents duly attested by the applicants (Contractor) shall be submitted to the Engineer-in-Charge of major component who will submit these documents to the Engineer-in-Charge of minor component for deciding the eligibility within three days of receipt of the same.
3. The contractor will submit MOU signed with eligible electrical contractor/specialized agency meeting the eligibility criteria same as specified for specialized works. The MOU in the enclosed form shall be signed by both the parties i.e. contractor as 1st party and associated specialised contractor as 2nd party. The contractor shall be responsible for all the works executed by associated contractor.
4. In the event of the concerned E&M agency not performing satisfactorily or failure of associate to complete the E&M work, the contractor on the written direction of the department, shall remove the Associate deployed on the work and shall submit name of new associate who fulfill the conditions mentioned in NIT to execute the leftover work without any loss of time or variation in cost to the department in this regard. Contractor shall meet all the guarantee for the equipment already supplied for which payment has been released by the Deptt. in part. If any equipment supplied for the work, during the currency of the earlier Associate and paid partly by the Deptt. , becomes redundant /not in a position to be installed and commissioned and put to beneficial use due to change in agency for execution of E&M work, the contractor shall be liable for replacement of the equipment(s) at no cost to Department. No change of Associate Electrical Contractor /Specialized Agency will be allowed without prior approval of the Engineer in charge
5. The contractor/ specialized agency shall be responsible and liable for proper and complete execution of the Electrical work and ensure coordination and completion of both civil and electrical work.
6. The associate contractor/specialized agency along with contractor shall attend the inspection of the work by the Engineer-in-Charge of E&M works as and when required.
7. The associate or contractor/specialized agency shall sign a tripartite Agreement/Contract along with the main tenderer and the departmental officer, for technical compliance of specification, guarantee etc
8. The associate or contractor/ specialized agency shall attend the inspection of the work by the Engineer-in-Charge of E&M works as and when required.

On non-judicial stamp paper of minimum Rs. 100

(Guarantee offered by Bank to CPWD in connection with the execution of contracts

Form of Bank Guarantee for Earnest Money Deposit/ Performance Guarantee/ Security Deposit/ Mobilization Advance

1. Whereas the Executive Engineer (E), PWD EMD South West on behalf of the President of India (hereinafter call “The Government”) has invited bids under..... /EE (E)/PWD EMD South West/ 2023-24, ,,dated for (Name of work)..... The Government has further agreed to accept irrevocable Bank Guarantee of Rs. (Rupees.....only) valid upto (date)*.....a Earnest Money Deposit from(name and address of contractor)..... (hereinafter called “the contractor”) for compliance of his obligations in accordance with the terms and conditions of the said NIT.

OR**

- Whereas the Executive Engineer (E), PWD EMD South West on behalf of the President of India (hereinafter call “The Government”) has entered into an agreement bearing number..... /EE (E)/ PWD EMD South West/21-22,with(name and address of contractor)..... for execution of work(name of work) The Government has further agreed to accept an irrevocable Bank Guarantee for Rs. (Rupees..... only) valid upto (Date) as PERFORMANCE Guarantee/ Security Deposit/ / Mobilization Advance from the said contractor for compliance of his obligations in accordance with the terms and conditions of the agreement. (hereinafter called “the contractor”) for compliance of his obligations in accordance with the terms and conditions of the said NIT.
2. We (indicate the name of the bank) (herein after referred to a “the Bank”), hereby undertake to pay to the Government an amount not exceeding Rs. (Rupees..... only) on demand by the Government within 10 days of the demand.
 3. We, (indicate the name of the bank) do hereby undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.(Rupees.....only).
 4. We (indicate the name of the Bank)..... Further undertake to pay the Government any money o demanded notwithstanding any dispute or disputes raised by the contractor in any suit or proceeding pending before any Court or Tribunal, our liability under this Bank Guarantee being absolute and unequivocal. The payment so made by us under the Bank Guarantee shall be a valid discharge of our liability for payment there under and the contractor shall have no claim against us for making such payment.

5. We, (indicate the name of the Bank)....., further undertake to pay the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said contractor or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said Contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision have effect of so relieving us.
6. We(indicate the name of the Bank).....further agree that the Government at its option shall be entitled to enforce this Guarantee against the Bank as a Principal debtor at the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the Government may have in relation to the Contractor's liabilities.
7. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.
8. We, (indicate the name of the Bank)..... Undertake not to revoke this guarantee except with the consent of the Government in writing.
9. The Bank Guarantee shall be valid upto unless extended on demand by the Government. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs..... (Rupees..... only) and unless a claim in writing is lodged with us within the date of expiry or extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

DATE

WITNESSES.....

1. Signature
Name and address
Authorized signatory
Name
Designation
Staff code no.
Bank seal
2. Signature
Name and address

* Date to be worked out on the basis of validity period of 120 days for two/three bid system from the date of submission of tender.

** In paragraph 1, strike out the portion not applicable. Bank Guarantee will be made either for earnest money or for performance guarantee/ security deposit/ mobilization advance, as the case may be.

Receipt of deposition of original EMD	
(Receipt No...../ Date.....)	
1. Name of work	: Regarding Green and Eco-friendly building by installation of Solar Panels on the roof top of the building at DIET, Rajinder Nagar.
2. NIT No.	: 07/EE (E)/PWD EMD South West/2024-25
3. Estimated Cost	: Rs. 61,06,000/-
4. Amount of Earnest Money deposit	: Rs. 1,22,120/-
5. Late date of submission of bid	: 03-06-2024
6. ID No.	: 2024_PWD_
1. Name of contractor	:
2. Mobile Number	:
3. Form of EMD	:
4. EMD in favour of	: Executive Engineer (E) PWD EMD M-152, New Delhi
5. Amount of Earnest Money Deposit	:
6. Date of submission of EMD	:
<div style="border: 1px solid black; width: 300px; height: 50px; margin: 0 auto;"></div>	
Signature, Name and Designation of EMD receiving officer (EE/AE(P)/ AAO) alongwith office stamp	

CPWD-7**GOVERNMENT OF NCT, DELHI
PUBLIC WORKS DEPARTMENT
PERCENTAGE RATE TENDER**

- (A) Tender for the **Regarding Green and Eco-friendly building by installation of Solar Panels on the roof top of the building at DIET, Rajinder Nagar.**
work of:
- (i) To be uploaded by 15:00 hours on *..... at website https://govt_procurement.delhi.gov.in.
- (ii) Eligibility bid to be opened in presence of tenderers who may be present at 15:60 hours on in the office of The **Executive Engineer (Electrical), PWD, EMD M-152, Brar Square, Near Delhi Cantt. Metro Station, New Delhi,**

TENDER

I/We have read and examined the notice inviting tender, schedule, A, B, C, D, E & F Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, clauses of contract, Special conditions, Schedule of Rate & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for the President of India within the time specified in Schedule 'F' viz., schedule of quantities and in accordance in all respect with the specifications, designs, drawing and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respect of accordance with, such conditions so far as applicable.

We agree to keep the tender open for **Thirty (30) days** from the due date of its opening and not to make any modification in its terms and conditions.

A sum of **Rs. 1,22,120/-** is hereby forwarded in cash/receipt treasury challan/deposit at call receipt of a scheduled bank/fixed deposit receipt of scheduled bank/demand draft of a scheduled bank/bank guarantee issued by a scheduled bank as earnest money.

A copy of earnest money in receipt treasury challan/deposit at call receipt of a scheduled bank/fixed deposit receipt of scheduled bank/demand draft of a scheduled bank/bank guarantee issued by a scheduled bank is scanned and uploaded (**strike out as the case may be**). If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that the said President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that President of India or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely. The said Performance Guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

Further, I/We agree that in case of forfeiture of Earnest Money or Performance Guarantee as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of

Department, then I/We shall be debarred for tendering in CPWD/PWD, Delhi in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

I/We hereby declare that I/We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived therefrom to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

Dated

Signature of Contractor

Witness:

Postal Address

Address:

Occupation:

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the President of India for a sum of

(Rupees.....).

The letters referred to below shall form part of this contract agreement:

- (a)
- (b)
- (c)

For & on behalf of President of India

Signature

Dated:

Designation

SCHEDULES**SCHEDULE 'A'**

Schedule of Quantities :- As per separate sheets attached

SCHEDULE 'B'

Schedule of materials to be issued to the contractor.

Sl. No.	Description of Item	Quantity	Rates in figures & words at which the material will be charged to the contractor	Place of Issue
1	2	3	4	5
Nil				

SCHEDULE 'C'

Tools and Plants to be hired to the contractor

S.No	Description	Hire charges per day	Place of issue
1	2	3	4
Nil			

SCHEDULE 'D'

Extra schedule for specific requirements/documents for the work, if any. NIL

SCHEDULE 'E'

Reference to General conditions of contract :- GCC for CPWD Works 2023 Construction Works amended upto date and modified upto last date of receipt of bids

Name of Work: Regarding Green and Eco-friendly building by installation of Solar Panels on the roof top of the building at DIET, Rajinder Nagar.

- i) Estimate cost of Work : Rs. 61,06,000/-
- ii) Earnest Money : **Rs. 1,22,120/-**
- iii) Performance Guarantee : 5% of the tendered value
- iv) Security Deposit : **2.5% of tendered value**

SCHEDULE 'F'**GENERAL RULES AND DIRECTIONS:**

Officer Inviting Tender

Executive Engineer (E)
PWD Elect. Div. South-West
Brar Square New Delhi

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3.

See below

Definitions:

2 (i) Engineer-in-Charge

Executive Engineer (E)
PWD Elect. Div. South-West
Brar Square New Delhi

2(ii) Accepting Authority

Executive Engineer (E)
PWD Elect. Div. South-West
Brar Square New Delhi

2(iii) Percentage on cost of materials and labour to cover all overheads and profits.

15%

2(iv) Standard Schedule of Rates

DSR-2019 (Solar Photovoltaic Power Plant)/DSR 2022/Market Rate

2(v) Department

PWD (NCTD)

9(vi) Standard CPWD contract Form

CPWD form 7, as modified & corrected upto last date of receipt of bids

Clause 1

i) Time allowed for submission of Performance Guarantee from the date of issue of tender of acceptance, in days

7 Days

ii) Maximum allowable extension **with late fee @ 0.1% per day of Performance Guarantee amount** beyond the period provided in (i) above

3 Days

Clause 2

Authority for fixing compensation under clause 2.

Superintending Engineer
PWD Circle. South-West

Clause 2A

Whether Clause 2A shall be applicable

Not applicable**Clause 5**

Number of days from the date of issue of letter of acceptance for reckoning date of start

10 Days

Clause 5.2 Nature of hindrance

Physical

Table of Mile Stone (s)

SN	Description of Milestone (Physical)	Time Allowed in days (from date of start)	Amount to be with-held in case of non achievement of milestone
1.	Submission of drawing & approval of sample of materials	20 Days	1%
2.	Supply of materials at site	40 Days	1%
3.	Installation of Solar System equipment	70 Days	1%
4.	Testing & commissioning	80 Days	1%
5.	Handing over of work	90 Days	1%

Time allowed for execution of work

:

90 days**Clause 5.4**

Authority to decide :.

i	Extension of time	:	Executive Engineer (E) PWD EMD South West, Brar Square, New Delhi.
ii	Rescheduling of mile stones	:	Superintending Engineer (E) PWD Circle South West, NCC Bldg., Safdarjang Enclave, New Delhi.
i	Shifting of date of start in case of delay in handing over of site	:	Executive Engineer (E) PWD EMD South West, Brar Square, New Delhi.

Schedule of handing over of sites

Part	Portion of site	Description	Time period for handing over reckoned from date of issue of letter of intent.
Part-A	Portion without any hindrance	----	----
Part-B	Portions with encumbrances	----	----
Part-C	Portions dependent on work of other agencies	----	----

Schedule of issue of Designs

Part	Portion of Design	Description	Time period for issue of design reckoned from date of issue of tenders.
Part-A	----	----	----
Part-B	----	----	----
Part-C	----	----	----

Proforma of Schedules**Clause 5.4****Schedule of rate of recovery for delay in submission of the modified programme in terms of delay**

S.No.	Contract Value	Recovery Rs.
i.	Less than or equal to Rs.1 Crore	----
ii.	More than Rs.1 Crore but less than or equal to Rs.5 Crore	----
iii.	More than Rs.5 Crore but less than or equal to Rs.20 Crore	----
iv.	More than Rs.20 Crore	----

Clause 6 A

Applicable

Clause 7

Gross work to be done together : Rs. 15.26 lacs
with net payment/adjustment of
advances for material collected, if
any, since the last such payment for
being eligible to interim payment

Clause 7A

: Applicable

No Running Account Bill shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are submitted by the contractor to the Engineer-in-charge.

Clause 10A

List of testing equipment to be provided by the contractor at site lab. N.A

1. 2. 3.
4. 5. 6.

Clause 10B(ii)

Whether Clause 10 B (ii) shall be applicable No

Clause 10C

Component of labour expressed as percent of value of work N.A.

Clause 10CA

S.N.	Material covered under this clause	Nearest Materials (other than cement, reinforcement bars and the structural steel) for which All India Wholesale Price Index to be followed	Base Price of all Materials covered under clause 10 CA
		N. A.	

Clause 10CC

Clause 10CC to be applicable in contracts with stipulated period of Completion exceeding the period shown in next column N.A.

Schedule of component of other Material, Labour, POL etc. for price escalation.

Component of civil (except materials covered under clause 10CA) / Electrical construction Materials expressed as percent of total value of work Xm % N.A.

Component of Labour :
Expressed as percent of total value of work Y % N.A.Component of P.O.L
Expressed as percent of total value of work Z % N.A.

Clause 11

Specifications to be followed for execution of work Attached in the bid documents and CPWD General Specification for EI works 2023 (Part-I Internal), and 2023 (Part-II External), with up to date amendment.

Clause 12

Deviation/ variations extent and pricing as applicable to PWD, GNCTD for Construction works (as amended vide no. Pr CE (M & F)/E in C (PWD)/7111/dspwd2/49-52 dt. 10-01-2024

The completion cost shall, in no case, exceed 1.25 times the contract amount for Construction works

12.2 & 12.3	Deviation limit beyond which clause 12.2 & 12.3 shall apply for building work	100%
12.5	Deviation limit beyond which clause 12.2 & 12.3 shall apply for foundation work (except earth work)	100%
	Deviation Limit for items in earth work subhead of DSR or related items	100%
a)	All Construction Works	100%

Clause 16

Competent Authority for deciding reduced rates. **Superintending Engineer
PWD Circle. South-West**

Clause-18 List of mandatory M/c, tools T&P as required for completion of work.

Clause-25

- | | | | |
|------|---------------------------------|---|--|
| i) | Conciliator | : | SDG/ ADG |
| ii) | Arbitrator Appointing Authority | : | Chief Engineer/Superintending Engineer |
| iii) | Place of arbitration | : | New Delhi |

Clause 32

Sl.No.	Minimum Qualification of Technical Representative	Discipline	Designation (Principal Technical/ Technical representative)	Minimum Experience	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36 (i)	
						Figures	Words
1	Graduate Engineer or Diploma Engineer	Elect.	Project Manager cum planning/ quality/Site/ billing Engineer	2 or 5 respectively	1	15000/- per month per person	Fifteen thousand

Assistant Engineers retired from Government service that are holding Diploma will be treated at par with Graduate Engineers. Assistant Engineers retired from Government service that are holding Diploma will be treated at par with Graduate Engineers.

Diploma holder with minimum 10 year relevant experience with a reputed construction co. can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of the requirement of degree engineers.

Clause 38

- i) (a) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates _____ printed by CPWD. Not applicable
- ii) Variations permissible on theoretical quantities
- a) Cement for works with estimated cost put to tender not more than Rs. 5 lacs. Not applicable
- for works with estimated cost put to tender more than Rs. 5 lacs. Not applicable
- (b) Bitument for all works Not applicable
- c) Steel Reinforcement and structural steel sections for each diameter, section and category. Not applicable
- d) All other materials. Nil

RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION

Sl. No.	Description of Item	Rates in figures and words at which recovery shall be made from the contractor.	
		Excess beyond permissible variation	Less use beyond permissible variation
1.	Cement	Not applicable	
2.	Steel reinforcement		
3.	Structural Sections		
4.	Bitumen issued free		
5.	Bitumen issued at stipulated fixed price		

Executive Engineer (E)
PWD Elect. Div. South-West
Brar Square New Delhi

Performa 'B'

UNDEDRTAKING CERTIFICATE FROM CONCERNED CONTRACTOR HAVING VALID ELECTRICAL LICENSE OF ELEGIBLE CLASS

Name of Work:- **Regarding Green and Eco friendly building by installation of Solar Panels on the roof top of the building at DIET, Rajinder Nagar.**

I hereby give my undertaking that I have to obtain the Electrical license before the work or to associate for the work concerned contractor having valid electrical license of eligible class for the above mentioned work.

I will execute the work as per specifications and conditions of the agreement and per direction of the Engineer-in-charge.

Also I will employ full time technically qualified supervisor as required for the work. I will attend inspection of officers of the department as and when required.

Date.

Signature of Main Contractor

COMMERCIAL & ADDITIONAL CONDITIONS

1.0. GENERAL

- 1.1 This specification covers manufacturer, testing as may be necessary before dispatch, delivery at site, all preparatory work, assembly and installation, final testing, commissioning, putting into operation & maintenance of plant for one year including one year guarantee period complete with for the following work.
- 1.2 **Name of Works: Regarding Green and Eco friendly building by installation of Solar Panels on the roof top of the building at DIET, Rajinder Nagar.**
- 1.3 The work shall be executed as per General Specification for EI works 2023 (Part-I Internal) and 2023 (Part-II External), as amended up to date, relevant IE rules, relevant IS and as per directions of Engineer-in-Charge. These additional specifications & conditions are to be read in conjunction with above and in case of variations, specifications given in the Additional Specifications & Conditions shall apply. However, nothing extra shall be paid on account of these as the same are to be read along with schedule of quantities for the work.

2.0 LOCATION

The work to be executed at **DIET Rajender Nagar.**

The contractor is advised to visit the site before submission of their tender and ensure that equipment being offered by them shall be accommodated in the space available. No T & P shall be issued by department and nothing extra shall be paid on this account.

3. SUBMISSION AND OPENING OF TENDERS:

- 3.1 The tender shall be submitted electronically on the website <http://delhi.govtprocurement.com>
- 3.2 The tenderer's are advised not to deviate from the technical specifications / items, commercial terms and conditions of NIT like terms of payment, guarantee, arbitration clause, escalation.

4.0 Type of Contract.

The work to be awarded by this tender shall be treated as indivisible works contract.

- 4.1 Tenderers should visit the site before quoting for the job.
- 4.2 The tender in original as issued by the department duly filled in by the tenderer through e-tendering. The rate quoted shall be inclusive of taxes, duties, etc. Firms should clearly note that price bids with any condition including that of conditional rebates shall be rejected forthwith.
- 4.3 In case it is found that the Bid of a tender is not in line with NIT specifications, requirements and / or contains many deviations, the department reserves the right to reject the tender of such firm(s) without making any reference.
- 4.4 In the Price Bid, there shall be no conditions whatsoever. In case any tenderer mentions any condition including conditional rebate in their price part, tender shall be rejected forthwith. The tenderer will not be allowed to withdraw or modify any condition at a time after the technical bids have been accepted and the decision to open the price has been taken by the department.
- 4.5 The department reserves the right to reject any or all the price bids and call for fresh prices / tenders as the case may be without assigning any reason.
- 4.6 The department reserves the right to award the work in full or parts dividing amongst tenderers as found suitable by the competent authority.

5.0. Running in Period, Guarantee and Payment Terms.

5.1 Running in Period & Date of Acceptance.

After the installation work has been completed by the contractor, he will conduct tests and make adjustments as may be necessary to satisfy himself that the plant is capable of continuous running. There after he will offer to the department a running-in period of 7 days subject to a minimum aggregate of 120 hrs. at his cost. All the equipment shall be run by rotation. The equipment will be operated and a log book of all parameters will be maintained during this the period. The contractor will be free to carry out necessary adjustment during this period without stopping the plant. The equipment will be said to have successfully completed the running-in-period, if no break down or abnormal/unsatisfactory operation of any machinery occurs during this period. After this the equipment will be made available for beneficial use.

After the equipment has operated without any major breakdown/trouble for the above specified running-in-period it shall be taken over by the department subject to guarantee clause mentioned below. This date of taking over of equipment after trouble free operation during the running-in-period shall be the date of acceptance.

- 5.1.2 Any loss of refrigerant or oil during the running in period shall be made good by the contractor free of charge.
- 5.1.1 Capacity test chiller and other major equipment may be carried out as and when outside conditions become stabilized.
- 5.1.2 Seasonal testing may be carried out as & when outside conditions become suitable.

5.2 Guarantee.

- 5.2.1 The contractor shall guarantee the complete system to maintain the specified conditions under all conditions of ambience and internal loads. Also the inlet/outlet temperatures at the specified flow of water in the chiller unit shall be guaranteed.
- 5.2.2 All equipment shall be guaranteed for a period of 12 months from the date of acceptance and taking over of the installation by the Department against unsatisfactory performance and/or breakdown due to defective design, material, manufacture, workmanship or installation. The equipment or component or any part thereof so found defective during the guarantee period shall be repaired or replaced free of cost to the satisfaction of the Engineer-in-Charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk & cost of the contractor. The decision of Engineer-in-charge in this regard shall be final.
- 5.2.3 Any leakage of refrigerant and/or oil due to defective design, manufacture, workmanship or installation during the guarantee period shall be made good by the contractor free of charge.

5.3 Payment Terms.

- 5.3.1 The following percentage of contract rates shall be payable against the stages of work shown herein.

	Stage of Work	Payment Percentage
(i)	After initial inspection (Whenever Specified) & delivery at site in good condition on pro-rata basis (Payment against each item to be made if material against this items is supplied in full)	60%
(ii)	On completion of pro-rata installation.	20%
(iii)	On successful testing & commissioning of complete system	20%

- 5.4 When the first major seasonal test cannot be carried out on commissioning of the installation due to any reason not attributable to the contractor, the installation will be handed over to the Department for beneficial use after completion of successful running in test of 7 days subject to a

minimum aggregate of 120 hours as per paras 3.1 above. The balance payment shall be released to the contractor on his furnishing a bank guarantee shall be valid for a period of 6 months. However it will be extended till the successful completion of the major seasonal test. This bank guarantee shall be independent of the one, if furnished for performance guarantee.

5.5 The summer or Monsoon Test shall be considered major seasonal tests for the purpose of the above payment terms.

5.6 The following shall be considered major seasonal test for the purpose of the above payment terms:

a. Air-conditioning system : Summer /Monsoon/Winter

6.0 Security Deposit

Security Deposit shall be deducted from each running bill and the final bill to the extent of 2.5% of the gross amount payable subject to a maximum limit of 2.5% of the tendered value of work. The earnest money deposit shall be adjusted against this security deposit.

7.0 Performance Guarantee

The successful tenderer shall submit an irrevocable performance guarantee of 5% of the tendered amount in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement within 15 days of issue of letter of intent. This guarantee shall be in the form of government securities or fixed deposit receipts or guarantee bonds of any scheduled bank or the State Bank of India in the specified format. The performance guarantee shall be initially valid up to the stipulated date of completion plus 60 days beyond. This bank guarantee shall be kept valid till the recording of completion certificate for the work by the competent authority.

8.0 Fixing of Milestone.

As per schedule 'F' OF TENDER FORM 8 the milestones are to be followed.

9.0 Rates.

9.1 The rates quoted by the tenderer shall be firm and inclusive of all taxes (including works contract tax), duties and levies and all charges for packing, forwarding, insurance, freight and delivery, installation, testing, commissioning etc. site including temporary constructional storage, risks over head charges general liabilities/obligations and clearance from concerned authorities. However, the fee of these inspections shall be borne by the department on production of supporting document.

9.2 Octroi duty shall be paid separately but octroi exemption certificate can be furnished by the department on demand. However, the department is not liable to reimburse the octroi duty in case exemption certificates are not honoured by the concerned authorities.

9.3 Deduction of taxes at source

The rates tendered should be inclusive all taxes and duties. Deduction of contract tax and labour cess at source shall be made while releasing payment through running/final bills at the rate as applicable. A certificate specifying the rate and amount of deduction shall however be issued. No Form-D, 31/32 (Road Permit) shall be issued by the department. The road permit shall be arranged by the tenderer on his own without any extra cost.

10.0 Tender Evaluation

Tender evaluation will be decided on the basis of the lowest price quoted by any of the firm for all sub heads.

The performance Guarantee shall be valid up to 6 months beyond the date of completion of work recorded & approval by the competent authority. The performance guarantee shall be released after the completion certificate recorded is issued by superintending engineer / project manager.

The security deposit shall be kept for a period of 1 year. The same shall be refunded after the guarantee period of one year provided the performance workmanship is satisfactory & wear & tear is normal to be evaluated by competent authority. However any damage to equipment beyond guarantee period as given by the manufacturer shall be paid by the department if the maintaining agency is not found responsible for the same.

Final bill shall be paid after satisfactory completion is recorded by the competent authority. The security Deposit will be released as started above.

Any damage due to sub-standard work or negligence etc. what so ever will be liable to be adjusted against security Deposit.

11.0 **Completion Period.**

The completion period of Two Months indicated in the tender documents is for the entire work of planning, designing, supplying, installation, testing, commissioning and handing over of the entire system to the satisfaction of the Engineer-in-Charge.

12.0 **Power Supply.**

12.1 Power Supply shall be provided if available by the dept. for installation at site, otherwise the contractor shall make his own arrangement. The termination switch Gear be provided by the Contractor. Further extension if required shall be also done by the Contractor.

12.2 The power supply for testing and commissioning of the complete installation shall be made available by the Department free of charge to the contractor. For this purpose, the power supply shall be given at the main incomer units of the main electrical panel rough U. G. Cable, or bus trunking arrangement However the power supply for testing or individual component during installation is the scope of contractor.

12.3 All further power distribution to the various equipment as indicated in scope of work shall be done by the contractor.

12.4 The contractor shall not use the power supply for any other purpose than that for which it is intended for. No major fabrication work shall be done at site. Power shall be used only for welding/cutting works etc. required for execution of work. The power supply shall be disconnected in case of such default.

13.0 **After award of work.**

The successful tenderer would be required to submit the drawing as per Pare 1.18.2 of CPWD Specification HVAC Works below schedule within 10 days of award of work for approval before commencement of installation.

The successful tenderer shall furnish well in advance three copies of detailed instructions and manuals of manufacturers for all items of equipment regarding installation, adjustments operation and maintenance i/c preventive maintenance & trouble shooting together with all the relevant data sheets, spare parts catalogue and workshop procedure for repairs, assembly and adjustment etc. all in triplicate.

14.0 **Extent of work.**

14.1 The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and such tests and adjustments and commissioning as may be

required by the department. The term complete installation shall not only mean major items of the plant and equipment covered by specifications but all incidental sundry components necessary for complete execution and satisfactory performance of installation with all layout charts whether or not those have been mentioned in details in the tender with document in connection with this contract.

- 14.2 Minor building works necessary for installation of equipment, foundation, making of opening in floors and restoring to their original condition, finish and necessary grouting etc. as required.
- 14.3 Operation & maintenance (Routine & Preventive) for one year from date of completion.
- 14.4 The work is turnkey Project. Any item required for completion of project but left inadvertently shall be executed with in the quoted rates.

15.0 Inspection and testing:

Initial inspection at work and final inspection and testing at site shall be carried out as per chapter 17 of CPWD General Specification of HVAC work 2004 as amended to date

If desired, the department shall be free to carry out any Sample Test of the material like GSS sheet etc at the approved lab as decided by the department. The material should conform to the relevant BIS. The Contractor should submit the Sample of all such material in advance so that it should not create any hindrance in the progress of work.

16.0 Validity.

Tenders shall be valid for acceptance for a period of **30 Days** from the date of opening of price bid.

17.0 Compliance with Regulations and Indian Standards, Indemnity & Insurance.

17.1 Conformity with statutory Acts, Rules, Standards and Codes.

- i) All components shall conform to relevant Indian Standard Specifications, wherever existing, amended to date.
- ii) All electrical works shall be carried out in accordance with relevant regulation, both statutory & those specified by the provisions of Indian Electricity Act, 2003 and Indian Electricity Rules, 1956 amended up to date. They shall also conform to CPWD General Specifications for Electrical Works, Part-I: Internal, 2023 and Part-II: External, 2023 and Part IV (Sub-Station) 2013 and HVAC 2017 as amended to date.

17.2 Safety Codes and Labour Regulations.

- i) All relevant safety procedures outlined in the safety codes as specified in CPWD Specification for HVAC Work & Other CPWD Specification shall be complied with.
- ii) In respect of all labour employed directly or indirectly on the work for the performance of the air conditioning contractor's part of the work, the contractor at his own expense, will arrange for the safety provisions as per the statutory provisions, B.I.S. recommendations, factory act, workman's compensation act, CPWD code and instructions issued from time to time. Failure to provide such safety requirements would make the tenderer liable for penalty of Rs.200/- for each violation. In addition the Engineer- in-Charge, shall be at liberty to make arrangements and provide facilities as aforesaid to recover the cost from the contractor.
- iv) The contractor shall provide necessary barriers, warning signals and others safety measures while laying pipe lines, ducts etc. or wherever necessary so as to avoid accident. He shall also indemnify CPWD against claims for compensation arising out of negligence in this respect. Contractor shall be liable, in accordance with the Indian Law and regulations for any accident occurring due to any cause. The department shall not be responsible for any accident occurred or damage incurred or claims arising there from during the execution of work. The contractor shall

also provide all insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the contractor due to the above provisions thereof.

18. Mobilization Advance

No mobilization advance shall be paid.

19.0 Verification of correctness of Equipment at Destination.

The contractor shall have to produce all the relevant records to certify that the genuine equipment from the manufacturers has been supplied and erected.

20.0 The contractor shall provide all equipment, instruments, labour and such other assistance required by the Engineer-in-Charge for measurement of the works, materials etc.

21.0 Storage of materials/Equipment

Plant Room/Air handling unit room, if ready can be used for storage of materials/equipment brought to site by the contractors. Watch and ward of the same shall be the contractor's responsibility. In case the plant room space is not readily available, it shall be contractor's responsibility to make his own temporary structure at site with approved location from the department at his own cost.

22.0 Works to be done by the contractor.

This shall be conforming to Para 1.3 of CPWD General Specification for HVAC Work 2004. All chilled/condenser water pipes in AC plant room shall be floor supported and other places in accordance with the CPWD specification/Direction of Engineer-in-Charge.

23.0 Order of Preference

In case of any contradiction in conditions, nomenclature or any other parameter, the following order of preference shall be observed.

- 23.1** Schedule of quantities.
- 23.2** Technical/ Commercial terms and conditions.
- 23.3** CPWD specifications
- 23.4** Any other standard.

24. Contractors shall have to submit the proof of material purchased by them i.e. Challan / Bill for the genuineness of material. However Bill / Challan shall not be prior to date of opening of tender.

Sr. Draftsman (E)
PWD EMD SW

Assistant Engineer (E) P
PWD EMD SW

Executive Engineer (E)
PWD EMD SW

**TECHNICAL SPECIFICATIONS & CONDITIONS FOR
ROOF TOP SOLAR POWER PLANT**

1. SOLAR/ PV SYSTEM

1.1 Solar Photovoltaic Module

Standard

Solar Photovoltaic Modules shall conform to UL/ CE/ IEC/ IS specifications necessary certification from the reputed laboratory shall be provided by bidder.

Electrical Features

Solar Photovoltaic module array shall consist of high efficiency Solar Modules utilizing Crystalline Silicon Solar Photovoltaic cells. Solar Photovoltaic module shall be minimum 330Wp. crystalline high power cells are used in the Solar Photovoltaic module. Solar module shall be laminated using lamination technology using established polymer (EVA) and Tedlar/ Polyester laminate.

All materials used must have a proven history of reliable and stable operation in external outdoor applications. Solar modules are designed to operate and perform in relative humidity up to 100% with temperatures between -10 Deg C and +85 Deg C and with stand gust up to 200km/h from back side of the panel.

The module frame must be made of corrosion resistant materials, which is electrolytically compatible with the structural material used for mounting the module.

Module Junction box (weather resistant) shall be designed for long life out door operation in harsh environment.

The solar modules shall have suitable encapsulation and sealing arrangements to protect the silicon cells from the environment. The arrangement and the material of encapsulation is compatible with the thermal expansion properties of the Silicon cells and the module framing arrangement/ material. The encapsulation arrangement ensures complete moisture proofing during life of the solar modules.

Each module must have low iron tempered glass front for strength and superior light transmission. It also must have back sheet for environment protection against moisture and high voltage electrical insulation. The fill factor of modules is not less than 0.70 or above 70%.

The peak power point voltage and the peak power plant current of any supplied module and / or any module string (Series connected module) shall be not more than 3% from the respective arithmetic mean for all modules and / or for all modules string as the case may be.

Note: *I-V curve of each PV module with Sl Nos. should be submitted along with Modules.*

Mechanical Features

Solar Photovoltaic Module shall be made of toughened, low iron content, high transmissivity front glass. Anodized Aluminum Frame shall be provide around the module. The module shall be encapsulated with Ethyl Vinyl Acetate (EVA). Silicon edge sealant shall be provided around laminate. The back surface shall be Tedlar/

Polyester trilaminate. ABS plastic terminal box shall be provided for the module output termination with gasket to prevent water moisture the module shall be Resistant to water, abrasion, hail impact, humidity & other environment factor for the worst situation at site. Bypass diode arrangement shall be provided.

1.2 Data Sheet For The Solar PV Module Shall Be Furnished By Vender

i.	PV Module Manufacturer name & Country	
ii.	PV Module type	
iii.	No. of PV cells per Module	
iv.	Mounting arrangement for Solar module	
v.	Solar module frame material	
vi.	Module Overall dimensions (mm)	
vii.	Cable gland at module Junction Box	
viii.	Weather resistant HDPE junction Box (IP65)	
ix.	Max. Temperature rise of solar cells under severe working conditions over Max. Ambient Temp.	
x.	Nominal voltage	
xi.	Operating voltage of solar module (nom)	
xii.	Peak power voltage (Vmp) at standard test conditions	
xiii.	Peak Power current (Imp) at standard test conditions	
xiv.	Open circuit voltage (Voc) at standard test conditions	
xv.	Short circuit current (Isc)	
xvi.	Weight of each module	
xvii.	Standards/ Approvals from International Agencies	
xviii.	Cell Type	
xix.	Cell Size (mm)	
xx.	No. of cells (Matrix)	
xxi.	Weight (Approx.) Kg	
xxii.	Maximum Wind Resistance (m/s)	
xxii.	Maximum Hail Diameter @80Km/h (mm)	

1.3 Module Mounting Structure

Structure shall support SPV modules at a given orientation, absorb and transfer the mechanical loads to the roof properly. There shall be no requirement of welding or complex machinery at site. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from SPV panels & shall withstand heavy winds. The supplier/ manufacturer shall specify installation details of the PV modules and the support structures with appropriate diagrams and drawings.

Module mounting structure shall be made up of **aluminium**. Super structure shall be designed & fabricated according to site condition.

Support structure design and foundation or fixation mounting arrangements should withstand minimum horizontal wind speed of 200kms/ hr (Designed value shall be greater than 200kms/ hr). All fasteners shall be of Stainless steel - SS 303.

1.4 Junction Boxes

The junction boxes shall be dust free, vermin and waterproof and made of FRP/ Thermo Plastic with IP65 protection. The terminals shall be connected to copper bus bar arrangement of proper sizes. The junction boxes shall have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming and out going cables. Suitable markings shall be provided on the bus bar for easy identification and cable ferrules shall be fitted at the cable termination points for identification.

The junction boxes shall have suitable arrangement for the following:

- Combine groups of modules into independent charging sub-arrays that shall be wired to the controller.
- Provide arrangement for disconnection for each of the groups.
- Provide a test point for each sub-group for quick fault location.
- To provide group array isolation.
- The rating of the JB's shall be suitable with adequate safety factor to interconnect the Solar PV array.
- Metal oxide arrestors shall be provided inside the Array Junction Boxes.

1.5 Power Conditioning Unit (PCU)

Solar array shall produce DC energy output and supplied to the DC bus for inverting to AC voltage. Maximum Peak Power Tracking (MPPT) (The efficiency of PCU shall not be less than 98% & shall be designed to meet the Solar PV Array capacity control) will extract maximum energy from solar array and provides 415VAC +/-5% 50HZ, to synchronize with local utility grid. PCU should have 150 % Over load capacity for 60sec. Output wave shape shall be sine wave with < 3% total harmonic distortion (THD). Additionally, it will provide protection features such as, over current, short circuit, over temperature as a minimum. PCU shall be of very high quality having high efficiency and shall be capable of running load in isolated mode. The PCU should be completely compatible with the SPV array voltage and grid supply voltage. The PCU shall be string type inverters to reduce the DC power losses & can have the flexibility to increase the capacity of the plant. The PCU shall be designed for continuous, reliable power supply as per specifications. The PCU shall have internal protection arrangement against any sustained fault. The dimension, weight, foundation details etc. of the PCU shall be clearly indicated in the detailed technical specification. It has user friendly LCD display for programming and view on line parameters. Unit shall be IP-65/67

1.6 Reference Data Sheet For Power Conditioning Unit Vendor To Submit Their DataSheet.

S. No.	Typical Electrical Parameters	Unit	
1.	Nominal Power at STC, Pmax	W	
2.	Power tolerance at STC (min/ max)	%	
3.	Voltage at Pmax, Vmp	V	
4.	Current at Pmax, Imp	A	
5.	Open circuit voltage, Voc	V	
6.	Short Circuit Current, Isc	A	
7.	Norninal Operating Solar Cell temperature (NOCT)	Deg C	
8.	Maximum System voltage	V DC	
9.	Temp. Coefficient of Pmax	%/ K	
10.	Temp. Coefficient of Voc	%/ K	
11.	Temp. Coefficient of Isc	%/ K	
12.	IP protection Level		
13.	Absolute Maximum Ratings		
14.	Operating Temperature	Deg C	
15.	Storage Temperature	Deg C	
16.	Mechanical Parameters		

1.7 Data Monitoring of Power Plant

The performance and generation data is recorded using a data logger. The Monitoring system shall comprise of the following main components:

- PCU logs the inverter performance data and transmits the same to the Data logger.
- Data logger gathers information and monitors the performance of the inverter. It also supports measurements from the external sensors. The data can be acquired remotely via a modem.
- PC Data logging software enables automatic long-term storage of measured data from PV-Plant. It allows visualization, monitoring, commissioning and service of the installation
- Communication interface the entire system can be operated and monitored via several interfaces (RS232/ RS485/ MPI/ Profibus/ Telephone modem/ Ethernet), in addition to the information indicated on the operator panel. Further information can also be acquired remotely through the interfaces mentioned above.

1.8 Cables and Accessories

- 1.8.1 All the cables shall be supplied conforming to IS 694 & shall be of 650 V/ 1.1 kV grade as per interconnections, array to junction boxes, junction boxes to DCDB, DCDB to PCU etc shall be so selected to keep the voltage drop and losses to the minimum.
- 1.8.2 Bidders are required to mention each size of cables used and should consider their resistance/ impedance in the design optimization. Such calculation should be submitted along with the bid.
- 1.8.3 The contractor shall supply all installation accessories, which are required to install and successfully commission the power plant.
- 1.8.4 Cables of appropriate size to be used in the system shall have the following characteristics: i. Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards ii. Temp. Range: -10degC to +80degC. iii. Voltage rating 660/1000V iv. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation v. Flexible vi. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use. vii. Cable Routing/ Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified. viii. The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25years. ix. The ratings given are approximate. Bidder to indicate size and length as per system design requirement. All the cables required for the plant provided by the bidder. Any change in cabling sizes if desired by the bidder/approved after citing appropriate reasons. All cable schedules/layout drawings approved prior to installation. x. Multi Strand, Annealed high conductivity Aluminumconductor PVC type 'A' pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as

specified below: BoS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V ,UV resistant for outdoor installation IS /IEC 69947. xi. The size of each type of DC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1%. xii. The size of each type of AC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 2 %.

1.9 Earthing and Protection

The array structure of the PV yard shall be grounded properly using adequate number of earthing kits. All metal casing/ shielding of the plant shall be thoroughly grounded to ensure safety of the power plant. Earthing shall be in line with IE rules. Detailed specifications have been provided in the Earthing section.

1.10 Bill of Materials

1.10.1 Complete Bill of Materials inclusive of Solar PV Modules, array Junction box, main junction box, cables, PCU, Module mounting structures, etc shall be provided along with the offer. The numbers of each component proposed for supply shall be clearly specified.

- a. Solar Array Capacity-
- b. Module mounting clamps/ structure-
- c. Power Conditioning Unit-
- d. Data Logging system-
- e. Junction Boxes-
- f. Cable & Earthing material-
- g. Distribution Panels

1.10.2 The items not listed in BOM but required for successful installation/ commissioning of SPV Power plant shall also be considered to be part of the supply scope without any extra cost to the owner.

1.11 Spare Parts

Bidder shall mention recommended spares and also furnish details for spare parts for at least 3-5 years of their nearest service center.

1.12 Type Test

Type testing certification should be produced at the time of delivery or earlier. Type test certification should be dated not earlier than 1 year.

1.13 Installation and Commissioning

1.13.1 Detailed project execution program shall be submitted along with the offer. The bidder will be responsible for arranging all tools & plants for installation and commissioning the complete system.

1.13.2 The bidder will also submit the erection, testing & commissioning procedure for approval

to the owner. These procedures will form integral part of the acceptance report for successful erection and commissioning the system. These reports will be prepared and signed by the bidder or his representative & the officials of the Purchaser concerned with project.

1.14 Support/ Training

The contractor must agree to provide complete support as per site requirement (single point of contact regarding for entire solutions). Contractor shall provide the onsite 3 day basic operation & maintenance training to owner's staff in 2 schedules.

Contractor shall provide the operations and maintenance staff for first month in two shifts at site. The O&M staff provided for first month at site should be able to take care the fault finding and repair system to maintain the desired level of uptime of solar solutions at site.

Sr. Draftsman (E)
PWD EMD SW

Assistant Engineer (E) P
PWD EMD SW

Executive Engineer (E)
PWD EMD SW

List of Acceptable makes for various Electrical Items

Name of work : **Regarding Green and Eco-friendly building by installation of Solar Panels on the roof top of the building at DIET, Rajinder Nagar.**

Sl.	Details of Materials/ Equipment	Manufacturer's Name
1	MCB/ Isolator/Industrial plug Socket/ RCBO's	Schneider Electric ACTI-9(N)/ Legrand (DX3)/ Hager/ L&T (Exora)/ABB(SB200M) / Seimens (Betaguard)
2	MCBDB & Loose Wire Box	Schneider Electric/ Legrand/ L&T/ ABB / Siemens
3	MCCB/ RCCB/ACB	Schneider Electric/ Legrand/ L&T/ ABB / Siemens
4	Change Over Switch	L&T/ Havells/ HPL/ Hager/Indo Asian/ ABB
5	FRLS PVC insulated copper conductor single core cable for wiring. (ISI marked)	RR Kabel/ KEI/ Havells/ Polycab/Grandlay
6	Armoured/ Unarmoured Telephone cable, Coaxial Cable, XLPE Insulated PVC Sheathed Alum., Copper Conductor Armored Cable of 1.1KV Grade	Delton/ RR Kabel/ Havells/KEI/Polycab
7	MS Conduit (ISI marked) with heavy duty MS conduit pipe accessories	BEC/NIC/AKG/RMCON (Note: The make of accessories shall be same that of conduit pipe and will comply to IS/14768 part 2 2003)
8	PVC conduit (ISI marked) with heavy duty PVC conduit pipe accessories	AKG/ Norpack/BEC/Polypack/Precision/Anchor (Note: The make of accessories shall be same that of conduit pipe
9	Modular switches, socket/ telephone socket/ cable TV socket/ data outlet socket/ fan regulator/ GI boxes etc (Wiring accessories)/ regulators etc.	Legrand (Arteor)/ Schneider electric (Livia)/ Wipro (North West- PLATIA)/ Hager (Insyta)/ABB(Concept BS)
10	Selector Switch & Toggle Switch	Salzer (L&T)/ Siemens/ Kaycee/Reshabh/ABB
11	Ammeter/Voltmeter/Multifunction meter	AE/ABB/L&T/ Siemens/ Schneider
12	PVC Trunking	MK/ Schneider Electric/ Legrand
13	GI Pipe	Tata/ Jindal / Prakash Surya/Sail
14	Paints	ICI/ Asian/ Berger/Nerolac
15	Terminal Blocks & Connectors	Elmax/Wago/Hensel/Connectwell
16	Phenolic Laminated Sheet/ Bakelite sheet	Hylam/ Formica (P-I Grade)/ Mylam/Greenlam
17	Cat-6 Cable, Wires & Fiber optic cable	Amp, Avaya/ Beldon/ Legrand/ Molex/ Schneider/ Comscope/ Bonton
18	Solar Power Generation System	REIL / BHEL / BEL / CEL / REC / SOLON / VIKRAM / ABB
19	Junction Box	VNT/ Sun Garner/OEM of Sun Module
20	SPV Inverter	Sunglow/ Delta/SMA/ABB/ Havells
21	Module Mounting Structure	As per MNRE/Manufacturers Standard

22	LT panel/ Meter Panel Board/ Outdoor Feeder Pillar/APFC panels / Bus ducts	Tricolite Electrical Industries/ Control & Switchgears Pvt. Ltd./ Sterling & Wilson/ MILESTONE/ Adlec Control System Pvt. Ltd./ Advance Panels & Switchgears Pvt. Ltd./ Indo Asian /Associated Switchgears & Projects Ltd/Control well switch gear/Ambit switch gear/SPC/Precision System control/ Pristine/Allied Engineers-Lucknow/ Havells / Indo Asian/R.P.Controls
23	Power Contactor	ABB/Siemens/Schneider/L&T
24	Timer Switch	Schneider/ABB/Siemens/L&T
25	Any other item	As per approval of Engineer-in-charge

Note: **The firm has to ensure that equipment manufacturer comes under definition of local manufacturers as per Govt. of India, Policy of Public Procurement (Preference to make in India) order, 2017 (PPM-MII order 2017) issued by Department of Industrial Policy and Promotion. Only products conforming to above policy shall be allowed to be used in the work.**

Sr. Draftsman (E)
PWD EMD SW

Assistant Engineer (E) P
PWD EMD SW

Executive Engineer (E)
PWD EMD SW

Schedule of work					
Name of work : Regarding Green and Eco friendly building by installation of Solar Panels on the roof top of the building at DIET, Rajinder Nagar.					
S.N.	Description of Item	Qty.	Unit	Rate	Amount
1	<p>Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic Power Plant conforming to MNRE specifications as amended, consisting of Mono/Poly Crystalline silicon solar cells, net metering facility, necessary protections, earthing mounted on Aluminium/ GI structure of suitable strength with following components complete as required:-</p> <p>a) Solar Photovoltaic Module of capacity 330 Wp or above, manufactured in India, conforming to IS 14286/IEC 61215, IS/IEC 61730-Part-1, IS/IEC 61730-Part-2. Solar Photovoltaic Module conversion efficiency shall not be less than 16.5%. PV modules used in solar power plants/ systems must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.</p> <p>b) Power Conditioning Unit (PCU) of 350-800 V DC Input voltage range and 400 V AC, three phase, 4 wire, 50Hz +/- 2.5 Hz, output voltage suitable to generate AC Power with efficiency not less than 97%, total harmonic distortion less than 3% and suitable for ambient temperature from 0 to 50 degree C. The PCU shall adjust the voltage and frequency level to suit the Grid Voltage Frequency.</p> <p>c) Data Monitoring System complete with accessories.</p> <p>d) Fixing of Array junction box & Main junction box with IP 65 protection and termination arrangement for incoming and outgoing cable along with glands, lugs and other accessories etc. as required.</p> <p>e) Lightning and surge voltage protection.</p> <p>f) Connections & Interconnections by supplying & fixing required size XLPE insulated copper conductor 1.1 kV grade armoured power and control cables between solar modules, main power cable to grid supply PCU unit along with supplying & fixing of necessary channel/ conduit lugs and other accessories etc. as required.</p>	100	Kwp	61060.00	6106000.00
	Total Rs				6106000.00

Sr. Draftsman (E)
PWD EMD SW

Assistant Engineer (E) P
PWD EMD SW

Executive Engineer (E)
PWD EMD SW

Sr. Draft Man

AE(E) P

CORRECTION-----NIL-----
DELETION-----NIL-----
INSERTION-----NIL-----