

CENTRAL PUBLIC WORKS DEPARTMENT

कार्य का नाम:— 1) Construction of Office cum Residence for Subsidiary Intelligence Bureau (SIB) at Plot No. 12, PSP Area Sector-22, Rohini, New Delhi (SH: SITC of Solar PV Power System).

2) Providing and Installation IP based CCTV Camera system with equipments in SIB Rohini Sector 22, Rohini, New Delhi (SH: SITC of CCTV System).

NIT No.:51/EE(E)/DED-81/2026-27

विषय सूची (INDEX)

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प्रमाणित किया जाता है कि इस निविदा में कुल 1 से 61 पृष्ठ हैं।

Certified that this N.I.T. contains 1 to 61 pages.

“NIT approved for Rs. 13,81,744/- (Rupees Thirteen Lacs Eighty-One Thousand & Seven Hundred Forty-Four Only)”

Assistant Engineer (E) P
DED-81, C.P.W.D

Executive Engineer (E)
DED-81, C.P.W.D

**INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR E-TENDERING FORMING
PART OF BIDDOCUMENT AND TO BE POSTED ON WEBSITE**

The Executive Engineer (E), DED-81, CPWD, Block No. 13, CGO Complex, Lodhi Road, New Delhi. Ph No. 011-24367152, (E-mail:- deleeced3.cpwd@nic.in), on behalf of the President of India invites online percentage rate bids from approved and eligible contractors of CPWD and those of appropriate list of Registered contractor in CPWD in appropriate class of **Buildings & Roads category / the specialized agencies who have carried out the similar work “SITC of on-grid Solar Photovoltaic Power Plant”** in single bid system for the following work:-

S. No.	NIT No.	Name of work & Location	Estimated cost put to bid	Earnest Money	Stipulated Period of Completion of work (in months)	Pre bid conference	Last date of online submission of bid, copy of receipt of deposition of original EMD and other documents as specified in the bid document.	Time and Date of opening of Price Bid
1	2	3	4	5	6	7	8	9
1	51/EE(E)/DED-81/2026-27	1) Construction of Office cum Residence for Subsidiary Intelligence Bureau (SIB) at Plot No. 12, PSP Area Sector-22, Rohini, New Delhi (SH: SITC of Solar PV Power System). 2) Providing and Installation IP based CCTV Camera system with equipments in SIB Rohini Sector 22, Rohini, New Delhi (SH: SITC of CCTV System).	Rs. 13,81,744/-	Rs. 27,635/-	02 Months	03-08-2026 at 15:00 hrs	06-08-2026 Upto 15:00 hrs	06-08-2026 at 15:30 hrs

1. The successful bidder shall have to produce the completion of work of similar nature or associate specialized agency(s) for execution of the following specialized work(s) as per eligibility criteria defined in **SPECIAL CONDITIONS FOR ASSOCIATION OF SPECIALIZED AGENCIES.**

a) SITC of on-grid Solar Photovoltaic Power Plant.

b) SITC of CCTV System.

- The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
- The tender document consisting of 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 from website <https://etender.cpwd.gov.in> or <https://cpwd.gov.in> free of cost.
- But the bid can only be submitted after deposition of original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission and

uploading the mandatory scanned documents such as **Insurance surety Bonds, Account Payee Demand Draft or Bankers Cheque or Fixed Deposit Receipt or / and Bank guarantee issued by any commercial bank towards EMD in favour of Executive Engineer(Elect.), ECD-III, CPWD, CGO Complex, Lodhi Road, New Delhi,** receipt for deposition of original EMD to division office of any Executive Engineer (including NIT issuing EE), CPWD and other documents as specified.

Note: - EMD shall be made/ issued only from the account of the bidder/tenderer submitting the bid/tender. EMD made/issued from the account other than that of the bidder/tenderer submitting the bid, shall not be accepted.

5. Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online bidding process as per details available on the website.
6. The intending bidder must have valid class-III digital signature certificate with encryption key (combo type) to perform any operations/transactions on the e-tendering portal / website and the bidder should download and install the eMsigner on their system as per instruction available on download section of <https://etender.cpwd.gov.in>.
7. On opening date, the contractor can login and see the bid opening process. After opening of bids, he will receive the competitor bid sheets.
8. Contractor can upload documents in the form of JPG format and PDF format.
9. Contractor must ensure to quote rate in the prescribed column(s) meant for quoting rate in figures appears in pink colour and the moment rate is entered, it turns sky blue.
10. In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as “0”. Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as “0” (ZERO).
However, 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 as lowest tenderer.
- ~~11. When bids are invited in two 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.~~
12. Copy of enlistment order and other documents as specified in the tender documents for eligibility shall be scanned and uploaded to the e-tendering website within the period of bid submission. However, certified copy of all scanned and uploaded document as specified intender document shall be submitted by the lowest bidder within a week physically in the office tender opening authority.

13. If any information furnished by the applicant is found incorrect at a later stage, he shall be liable to be debarred from tendering/taking up of work in CPWD. The department reserves the right to verify the particulars furnished by the applicant independently.
14. All cess/duties/taxes as applicable on the date of receipt of tender shall be borne by the contractor. The contractor shall quote his rate considering all such cess/duties/taxes. Contractor must have GST registration for becoming eligible to participate in tender.
15. The bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tender. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent upon any misunderstanding or otherwise shall be allowed.
16. The bidders who propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, which contain any other conditions of any sort including conditional rebate will be summarily rejected.
17. The tenderer should read all the instructions, terms & conditions, contract clauses, nomenclature of items, specifications etc. contained in the tender document very carefully, before quoting the rates.
18. The tenderer should also read the **General Condition of Contract for maintenance works 2023 (Amended up to date of receipt of tender)** published by the DG(W) CPWD, Nirman Bhawan, New Delhi which will be part of the agreement with up to date of amendments i.e. up to date of receipt of tender.
19. The contractor shall quote his rates keeping in mind the specifications, terms & conditions, additional and special conditions etc. and nothing shall be payable extra whatsoever unless otherwise specified.
20. The contractor has to follow standard operating procedures and guidelines for construction & maintenance site for covid-19 outbreak issued vide OM No.2/9/2020-WII/DG/169 dated 05.05.2020 available on CPWD website along with all existing guidelines whenever required. It will also form as a part of the agreement.
21. **Any suggestions/clarification regarding NIT will be addressed during Pre Bid meeting to be held on 03-08-2026 at 15.00 hrs in the office of Executive Engineer (E) DED-81, CPWD, Block No.13 Ground Floor, CGO Complex, Lodhi Road, New Delhi-110003.**

Assistant Engineer (E)-P
DED-81 CPWD,

Executive Engineer (E)
DED-81 CPWD,

List of Documents to be scanned and uploaded within the period of bid submission:

- (i) Insurance surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank guarantee from any of the Commercial Banks against EMD in favour of **Executive Engineer (Elect.), ECD-III, CPWD, CGO Complex, New Delhi. (Validity period of EMD should be 90 days from the last date of submission of bid)**
Note: - EMD shall be made/ issued only from the account of the bidder/tenderer submitting the bid/tender. EMD made/issued from the account other than that of the bidder/tenderer submitting the bid, shall not be accepted.
- (ii) Copy of receipt for deposition of original EMD issued from Division office only from any Executive Engineer, CPWD (In Enclosed Performa)
- (iii) Enlistment Order of the Contractor. **(Not applicable for specialized agencies)**

OR

Copy of Certificates of Work Experience/Completion certificate certified by an officer not below the rank of Executive Engineer/Project Manager or equivalent, clearly indicating. Name of work, b) Scope of Work, c) Agreement No., d) Estimated Cost, e) Tendered Cost, f) Final Value of Work Done, g) Date of Start, h) Stipulated date of Completion, i) Actual date of completion, j) Nature of the Work 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) etc. BOQ of the final bill should also be uploaded. **(Not applicable for approved and eligible contractors of CPWD in appropriate class of Buildings & Roads category)**

- (iv) GST Registration Certificate, if already obtained by the bidder.

Or

If the bidder has not obtained GST registration as applicable, then he shall scan and upload following undertaking on a Non Judicial Stamp Paper of Rs.100/-, duly notarized, along with bid 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". Copy of Valid Electrical Contractor License or undertaking that "I/We will either obtain valid electrical license at the time of execution of electrical work or associate contractor having valid electrical license of appropriate class."

- (v) The intending bidder shall upload an undertaking that **"I/We shall submit the documents of Associated specialized Agencies/ OEM of the equipment as per the eligibility criteria mentioned in the special conditions of NIT for association of specialized agencies along with performance guarantee, failing which department may reject my/our tender & may forfeit the deposited EMD absolutely & debar me/us from re-tendering for this work"**.
- (vi) Copy of Valid Electrical Contractor License or undertaking that **"I/We will either obtain valid electrical license at the time of execution of electrical work or associate contractor having valid electrical license of appropriate class."**
- (vii) Certificate of ERP Training of enlisted contractor or his authorized representative as per DG/Enlist. Rules-2023/10 Dated 22.04.2024 for compulsory ERP training through any of the CPWD Regional Training institutes (RTIs) at Delhi, Mumbai, Chennai and Kolkata, National CPWD Academy (NCA) Ghaziabad, Training arranged by Graduates of ERP "Train the Trainers Programme" conducted by NCA, Ghaziabad or through any other special training arranged by ERP unit at of CPWD. Certificate should be issued through LMS (Learning Management System) in e-Nirmit.
- (viii) Email & mobile no. of the firm/ agency on the letter head of firm/ agency (For making correspondence).

NOTE: Please note that EMD should be in favour of EXECUTIVE ENGINEER (E), ECD-III, CPWD, NEW DELHI.

**Assistant Engineer (E)-P
DED-81 CPWD,**

**Executive Engineer (E)
DED-81 CPWD,**

1. The Engineer-in-Charge/DDH of any divisions/projects of CPWD or any other officer designated by CPWD Directorate from time to time, are authorized to receive the EMDs. These authorities should receive the original EMD for their tenders or tenders of any other division/projects
2. The NIT approving authority/ Tender inviting authority at the time of issue of NIT also fills and upload the following prescribed format of receipt of deposition of original EMD along with NIT

RECEIPT OF DEPOSITION OF ORIGINAL EMD

Receipt of deposition of original EMD (Receipt No. Date...)		
1.	Name of Work	1) Construction of Office cum Residence for Subsidiary Intelligence Bureau (SIB) at Plot No. 12, PSP Area Sector-22, Rohini, New Delhi (SH: SITC of Solar PV Power System). 2) Providing and Installation IP based CCTV Camera system with equipments in SIB Rohini Sector 22, Rohini, New Delhi (SH: SITC of CCTV System).
2.	NIT No.	51/EE(E)/DED-81/2026-27
3.	Estimated Cost	Rs.13,81,744/-
4.	Amount of Earnest Money Deposit	Rs. 27,635/- (to be refunded after receiving the Performance Guarantee)
5.	Last date of submission of bid	06-08-2026 upto 15:00 hrs
(*To be filled by Tender inviting authority/NIT approving authority at the time of issue of NIT and uploaded along with NIT)		
1.	Name of Contractor	
2.	Form of EMD	
3.	Amount of Earnest Money Deposited	
4.	Date of submission of EMD	
5.	Signature of EMD receiving Officer: Name and Designation of EMD receiving Officer: Office Stamp:	

Name and Designation of EMD Receiving officer
(EE/AE(P)/AAO) Along with office stamp

3. The Authority receiving EMD in original form examines the EMD deposited by the bidder and issues receipt of deposition of earnest money to the agency in a given format uploaded by tender inviting authority. **The receipt can also be issued by any subordinate gazette authority as authorized by the EE/AAO/AE(E)P.**
4. The authority receiving original EMD also intimates tender inviting authority about deposition of EMD by the agency by email/fax/telephonically.
5. The original EMD receiving authority releases the EMD to unsuccessful bidders after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier, after verification from the e-tendering portal that the particular contractor is not L-1 tenderer and work is awarded.
6. The tender inviting authority calls for original EMD of the L-1 tenderer from EMD receiving authority immediately

CPWD-6 FOR e-TENDERING

~~Item rate/Percentage rate bids are invited on behalf of President of India from approved and eligible contractors of CPWD and those of appropriate list of **Registered contractor in CPWD in appropriate class of Buildings & Roads category** in single bid system and those of appropriate list of M.E.S, BSNL, Railways and State P.W.D. (B&R) or State Govt.'s Department~~

~~(Strike~~

~~out as the case may be) dealing with building and roads, if there is no state PWD (B&R) for the work of: -~~

- ~~1) Construction of Office cum Residence for Subsidiary Intelligence Bureau (SIB) at Plot No. 12, PSP Area Sector-22, Rohini, New Delhi (SH: SITC of Solar PV Power System).~~
- ~~2) Providing and Installation IP based CCTV Camera system with equipments in SIB Rohini Sector 22, Rohini, New Delhi (SH: SITC of CCTV System). ”~~

The enlistment of the contractors should be valid on the last date of submission of tenders.

In case only the last date of submission of tender is extended, the enlistment of contractor should be valid on the original date of submission of bids.

The work is estimated to cost Rs. 13,81,744/- This estimate, however, is given merely as a rough guide.

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

~~For Building & Roads category tender, besides indicating the combined estimated cost put to tender, should clearly indicates the estimated cost of each component separately. The eligibility of renderer will correspond to ` the combined estimated cost of different components put to tender.~~

~~Intending tender 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:- -N.A.-~~

~~Criteria of eligibility for submission of tender documents~~

~~**Conditions for Non-CPWD contractors only, if tenders are also open to non-CPWD contractors. For works estimated cost up to Rs. 15 Crore (the figure of Rs. 15 Crore may be modified as per tendering limit of CPWD class I contractors of respective discipline such as Electrical, Horticulture and Furniture etc. as the case may be)**~~

~~Three similar works each of value not less than Rsor two similar work each of value not less than Rs. or one similar work of value not less than Rs.~~

~~(all figures rounded to nearest Rs.10 lac) in last 7 years ending last day of the month previous to the one in which the tenders are invited.~~

Note :-

~~For works costing above Rs. 3 Crore but up to Rs. 15 Crore, (the figure of Rs.3 Crore and Rs. 15 Crore may be modified as per tendering limit of CPWD CPWD 6 for e-tendering modified up to 26.08.10 class II and CPWD Class I contractors respectively of respective discipline such as Electrical, Horticulture and Furniture etc. as the case may be) when tenders are open to non CPWD contractors also, then class II contractors of CPWD shall also be eligible if they satisfy the eligibility criteria specified in 1.2.1 above. -N.A.-~~

Criteria of eligibility for CPWD as well as non-CPWD contractors.

For works estimated to cost above Rs. 30 Crore.

~~Three similar works each of value not less than Rs.....or two similar work each of value not less than Rs. or one similar work of value not less than Rs. (all figures rounded to nearest Rs.10 lac) in last 7 years ending last day of the month previous to the one in which the tenders are invited.~~

~~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 the date of completion to the last date of submission of tender.~~

To become eligible for issue of tender, the tender shall have to furnish an affidavit as under:-

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 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)

When tenders are invited from non CPWD contractors and CPWD class II contractors, it will be mandatory for non CPWD contractors and CPWD class-II contractors to upload the work experience certificate(s) and the affidavit as per the provisions of clause 1.2.2.

1. Agreement shall be drawn with the successful tenderer on prescribed Form No. CPWD 7 (or other Standard Form as mentioned) which is available as a Govt. of India Publication. Tender shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.

2. The time allowed for carrying out the work will be **02 Months** 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 tender documents.

3. The site for the work is available.

OR

The site for the work shall be made available in parts as specified below: - **-N.A.-**

5 The tender document consisting of 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 Contract Form can be seen from website <https://etender.cpwd.gov.in> or <https://cpwd.gov.in> free of cost.

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 tender 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 tender 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 in the form of 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 (drawn in favour of **Executive Engineer (Elect.), ECD-III, CPWD, CGO Complex, Lodhi Road, New Delhi-110003**) shall be scanned and uploaded to the e-tendering website within the period of bid submission.

The original EMD should be deposited either in any Office of CPWD (upto division office) within the period of bid submission. The EMD receiving Executive Engineer/Assistant Engineer/AAO 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 including e- Bank Guarantee of any Commercial bank having validity for a period of 90 days for single bid works and 180 days for two bid system or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders..

The earnest money given by all the tenderers except the lowest tenderer shall be refunded immediately after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier. However, in case of two/ three bid system, earnest money deposit of bidders unsuccessful during technical bid evaluation etc. should be returned within 30 days of declaration of result of technical bid evaluation.

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

9A. The bid submitted shall be opened on **06-08-2026 at 15:30 hrs.**

10. The bid submitted shall become invalid if:

- i) The bidder is found ineligible.
- ii) The bidder does not upload scanned copies of all the documents stipulated in the bid document.
- 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 **lowest bidder** in the office of tender 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 as lowest tenderer.

11. The contractor, whose bid is accepted, will be required to furnish performance guarantee at 5% (Five Percent) of the tendered amount as mentioned in Schedule “E” and within the period specified in Schedule F. This guarantee shall be in the form of insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt or Bank Guarantee from any of the Commercial Banks 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, then EMD submitted shall be forfeited automatically without any notice to the contractor. The Earnest Money deposited along with the 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 Code 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 and Programme Chart (Time and Progress) within the period specified in Schedule F.**

12. Intending Tenders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders 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 tender. A tender 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 tender 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 tender by a tender 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 tender and reserves to itself the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the tender shall be summarily rejected.

14. Canvassing whether directly or indirectly, in connection with tender is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to 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 tender and the tender shall be bound to perform the same at the rate quoted.

16. The contractor shall not be permitted to tender for works in the CPWD 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 previous 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 tender or engagement in the contractor's service.

18. The bid for the works shall remain open for acceptance for a period of **Thirty (30) days from the date of opening of bids.**

i) If any tenderer withdraws his tender within 7 days after last date and time (24 hours basis) of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of earnest money absolutely irrespective of letter of acceptance for the work is issued or not.

ii) If any tenderer withdraws his tender after expiry of 7 days after last date and time (24 hours basis) of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work issued or not.

iii) Withdrawal of the tender, by the tenderer shall only be made through e-tender portal. Any other method i.e. through letter / email etc. shall not be considered. The tender inviting authority gets intimation through SMS and email in this regard.

iv) If contractor fails to furnish the prescribed performance guarantee within the prescribed period, the earnest money is absolutely forfeited to the President automatically without any notice.

v) In case of forfeiture of earnest money as prescribed in Para (i) to (iv) above, the bidder shall not be allowed to participate in the re-tendering process of the work.

19. This notice inviting Tender shall form a part of the contract document. The successful tender/contractor, on acceptance of his tender 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 Tender, all the documents including additional conditions, specifications and drawings, if any, forming part of the tender as uploaded at the time of invitation of tender 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 mentioned

**Assistant Engineer(E)-P
DED-81 CPWD,
CGO Complex, New Delhi**

**Executive Engineer(E)
DED-81 CPWD,
CGO Complex, New Delhi**

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 & 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 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 there from 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
Postal Address.....
Telephone No.....

Witness:.....
Address:.....
Occupation:.....

FAX.....
E-MAIL.....

ACCEPTANCE

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

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

For & on behalf of President of India

Executive Engineer
(E)DED-81, CPWD,
CGO Complex, New Delhi

Dated:
.....

SCHEDULES

SCHEDULE 'A'

Schedule of quantities (enclosed)

As per Schedule of work attached.

SCHEDULE 'B'

Schedule of materials to be issued to the contractor:

S.No.	Description of item	Qty.	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 / : NIL
documents for the work, if any.

SCHEDULE 'E'

Reference to General Conditions of contract	:	General conditions of contract for Maintenance Work-2023 with amendment issued up to date of submission of tender.
Name of work	:	1) Construction of Office cum Residence for Subsidiary Intelligence Bureau (SIB) at Plot No. 12, PSP Area Sector-22, Rohini, New Delhi (SH: SITC of Solar PV Power System). 2) Providing and Installation IP based CCTV Camera system with equipments in SIB Rohini Sector 22, Rohini, New Delhi (SH: SITC of CCTV System).
Estimated cost of work	:	Rs. 13,81,744/-
(i) Earnest money	:	Rs. 27,635/-
(ii) Performance Guarantee	:	a) 5% of Tendered Value OR Estimated Cost Put to Tender (ECPT), whichever is higher. b) Where the tendered amount is less than Eighty Percent (80%) of the Estimated Cost Put to Tender (ECPT), the Performance Guarantee, in addition to the requirement under (a) above, shall be increased by an amount equal to the difference between eighty percent (80%) of the ECPT and the tendered amount.
(iii) Security deposit	:	2.5% of tendered value

SCHEDULE 'F': -**General Rules & Directions: -****Latest GCC provisions**

Officer inviting tender:	:	Executive Engineer (E), DED-81, CPWD, CGO Complex, 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 Clause-12 below

Definitions:

2 (v) Engineer-in-Charge	:	Executive Engineer, DED-81, CPWD, CGO Complex, New Delhi.
2 (viii) Accepting Authority	:	Executive Engineer, DED-81, CPWD, CGO Complex, New Delhi.
2 (x) Percentage on cost of materials and labour to cover all overheads and profits.	:	15%
2 (xi) Standard schedule of Rates	:	DSR E&M 2025 with amendments and up to date corrections, Market rate, Minimum wages as per Govt. of Delhi or Central Government.
2 (xii) Department	:	CPWD
9 (ii) Standard CPWD contract form	:	GCC 2023 (Construction Work) for CPWD works as amended/ modified up to submission of the tender.

Clause 1

Time allowed for submission of Performance Guarantee, Programme Chart (Time and Progress) and applicable labour license, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance.	:	07 days
Maximum allowable extension with late fee 0.1% per day of Performance Guarantee amount beyond the period provided in (i) above.	:	03 days on written request of contractor stating the reason of delay in procuring performance guarantee to the satisfaction of Engineer-in-Charge.

Clause 2

Authority for fixing compensation under clause – 2	:	Superintending Engineer, DC-8, CPWD, IP Bhawan, New Delhi.
--	---	--

Clause 2A

Whether Clause 2A shall be applicable : No

Clause 5

Number of days from the date of issue of letter : **10 Days**
of acceptance for reckoning date of start.

MILE STONE (S) AS PER TABLE GIVEN BELOW**Table of Milestone (s)**

S.No.	Description of Milestone (Physical)	Time allowed in days (from date of start)	% Amount of tendered cost to be with-held in case of non- achievement of milestone
NOT APPLICABLE			

Time allowed for execution of work	:	02 Months
------------------------------------	---	------------------

Authority to decide:

1. Authority to convey the decision of shifting of milestone and extension of time	:	Engineer-in-charge
2. Rescheduling of mile stones and extension of time	:	Superintending Engineer, DC-8, CPWD, IP Bhawan, New Delhi
3. Shifting of date of start in case of delay in handing over of site	:	Superintending Engineer, DC-8, CPWD, IP Bhawan, New Delhi

Clause 5/5A Applicable : **Clause 5 Applicable**

Clause 6, -

(Whether Clause 6 shall be applicable Electronic Measurement Book (EMB) through CPWD ERP portal – **Yes**

Clause 7: -

Gross work to be done together with net payment/adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment.	:	05 Lakhs or mutually agreed
Clause 7 A:-Whether Clause 7A shall be applicable.	:	Yes

Clause 10A: -

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

As per requirement at site & as per Direction of Engineer-in-Charge.

Clause 10 – B(i): -

Whether clause 10-B(ii) shall be applicable :

No

Clause 10C – Payment on Account of increase in Price/Wages due to Statutory Order(s):

Applicable

Clause 10 CA	Materials covered under this clause	Nearest material (other than cement, reinforcement bars and structural steel) for which All India Wholesale price index to be followed	Base price of all the materials covered under clause 10CA
Not Applicable			

Clause 10CC: -

Clause 10CC to be applicable in contracts with stipulated period of completion exceeding the period shown in next column. :

-Not Applicable--

Schedule of component of other Materials,

Labour, POL etc. for price escalation.

Component of civil (Except materials covered under clause 10 CA)/ Electrical construction materials expressed as percent of total value of work.	Xm	Not Applicable
Component of labour expressed as percent of total value of work.	Y	
Component of POL expressed as percent of total value of work.	Z	

Clause 11	
Specifications to be followed for execution of work	
ELECTRICAL WORKS:	a) CPWD General Specifications for Electrical work Part-I Internal -2023, amended up to date.
	b) CPWD General Specifications for Electrical work Part-II External -2023, amended up to date.
	c) CPWD General Specifications for Electrical work Part-III-Lift & Escalators- 2003, Part-IV Sub Station– 2013, Part V Wet Riser & Sprinkler Systems– 2020, Part VI Fire Detection and Alarm System– 2018, Part VII D.G. Sets - 2013, Part VIII Gas Based Fire Extinguishing System 2013, General Specifications for Heating, Ventilation & Air-Conditioning (HVAC)– 2024 amended up to date..

Clause 12

Type of Work	Construction Work
Authority to decide deviation up to 1.50 times Tendered amount.	Superintending Engineer DC-8, CPWD, New Delhi or successor thereof. The completion cost shall in no case exceed 1.5 times of the contract amount. The completion cost includes Gross amount of the work done, amount of extra items, deviation and escalation amount administrable as per terms and conditions of agreement etc.
Authority to decide deviation upto 1.25 times of the tendered amount.	Engineering – in – charge
Authority to decide deviation beyond 1.5 and upto 2.0 times of the tendered amount.	Not applicable
Deviation limit beyond which clause 12.2 & 12.3 shall apply for building work / foundation work.	All deviated quantities shall be paid on agreement rates.
Deviation limit for individual items	No limit

Clause 16 :-

Competent Authority for deciding reduced rates

**Superintending Engineer, DC-8, CPWD, IP
Bhawan, New Delhi.**

Clause 18 :-

1. Electrically operated chase cutting machine
2. Electrically operated core cutting machine
3. Megger
4. Tong tester
5. Any other machinery, tools and plants as per requirement at site.

Clause 19C :- Authority to decide penalty for each default

As per Engineer-in-Charge

Clause 19D:-Authority to decide penalty for each default

As per Engineer-in-Charge

Clause 19G: Authority to decide penalty for each default

As per Engineer-in-Charge

Clause 19K: Authority to decide penalty for each default

As per Engineer-in-Charge

Clause 25 :

Constitution of Dispute Redressal Committee (DRC)	
For all claims in dispute	
1. Conciliator	ADG(Delhi)
2. Arbitrator Appointing Authority	SE, DC-8, CPWD, New Delhi
3. Place of Arbitration	New Delhi.

Clause 32 :-

“Requirement of Technical Representative (s) and Recovery Rates”

S. No.	Minimum Qualification of Technical Representative	Discipline	Design. (Pr. Tech. / Tech. Representative)	Minimum Experience	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 32	
						Figures (in Rs.)	Words
1.	Graduate Engineer OR Diploma Engineer	Electrical/ Mechanical	Project Manager cum Planning/ quality/site/ billing Engineer	2 OR 5 respectively	1	Rs. 15000/- Per Month Per Person	Rs. Fifteen Thousand Only

Assistant Engineers retired from Government services 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 requirement of degree engineers.

Clause 38 :-

- (i) (a) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of N.A printed by CPWD with upto date correction slips.
- (ii) Variations permissible on theoretical quantities:

a) Cement for works with estimated cost put to tender not more than Rs. 5 lakhs		N/A
for works with estimated cost put to tender more than Rs 5 lakh		N/A
b) Bitumen for all works.		N/A
c) Steel Reinforcement and structural steel sections for each diameter, section and category.		N/A
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 the permissible variation
-----NIL-----			

**Assistant Engineer (E)-P
DED-81 CPWD,
CGO Complex, New Delhi**

**Executive Engineer(E)
DED-81 CPWD,
CGO Complex, New Delhi**

**On Non-Judicial Stamp Paper Of Minimum
Rs. 100(CPWD, OM No. DG/CON/311 dated
20.10.2020)**

(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), DED-81, CGO Complex, New Delhi-110003. on behalf of the President of India (hereinafter called "The Government") has invited bids under(NIT Number).....dated.....for.....(Name of work : “
1) Construction of Office cum Residence for Subsidiary Intelligence Bureau (SIB) at Plot No. 12, PSP Area Sector-22, Rohini, New Delhi (SH: SITC of Solar PV Power System). 2) Providing and Installation IP based CCTV Camera system with equipments in SIB Rohini Sector 22, Rohini, New Delhi (SH: SITC of CCTV System). ” The Govt. has further agreed to accept irrevocable Bank Guarantee for Rs.
(Rs..... only) valid upto.....(date)*.....as Earnest Money Deposit
from.....(name and address of the 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), DED-81, CPWD, CGO Complex, New Delhi** on behalf of the President of India (hereinafter called "The Government") has entered into an agreement bearing number.....with.....(name and address of the contractor).....(hereinafter called “the contractor”) for execution of work... (Name of work:
1) Construction of Office cum Residence for Subsidiary Intelligence Bureau (SIB) at Plot No. 12, PSP Area Sector-22, Rohini, New Delhi (SH: SITC of Solar PV Power System). 2) Providing and Installation IP based CCTV Camera system with equipments in SIB Rohini Sector 22, Rohini, New Delhi (SH: SITC of CCTV System). 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.
2. We,(indicate the name of the bank)... (herein after referred to as “the Bank”), hereby undertake to pay to the Govt. an amount not exceeding Rs..... (Rsonly) on demand by the Govt. within 10 days of the demand.
3. We,(indicate the name of the bank)... do here by undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Govt. stating that the amount claimed is reqd. 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 Govt. any money so 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 this 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 agree that the Govt. shall have the fullest liberty without our consent and without affecting in any manner our obligation here under 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 Govt. against the said contractor and 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 Govt. or any indulgence by the Govt. 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 Govt. as 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 Govt. 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 Govt. in writing.
9. This Bank Guarantee shall be valid upto.....unless extended on demand by the Govt. 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

WITNESS

Signature....

Name and Address

Authorized signatory

Name

Design

ation

Staff

Code

No.

Bank

Seal

Signature....

Name and Address

*Date to be worked out on the basis of validity period of 90 days where only financial bids are invited and 180 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.

(CPWD, OM No.DG/SOP/14 dated 20.10.2020)

(Proforma for encashment of BG to be issued 14 days before its expiry)

भारत सरकार
केन्द्रीय लोक निर्माण विभाग
दि.वै.मं-81, सीजीओ कॉम्प्लेक्स,
नई दिल्ली

To,
The Manager

...(Name & Address of Bank)... ..

.....

.....

Subject : Request for encashment of Bank Guarantee number.....dated..... for
Rs.....valid up to.....
towards earnest money deposit/performance guarantee/security deposit/mobilization advance (As
applicable)Name of Contractor:

Dear Sir,

The above mentioned Bank Guarantee numberdated..... is valid up to..... In
terms of
paragraph 2 of the said Bank Guarantee, the Govt. of India hereby demands a sum of
Rs.....(Rupees..... only) payable under this Bank Guarantee since this amount is required to meet the
recoveries due from.....(name of the contractor)..... The amount shall be paid latest by (give
date).....by transfer to account number.....

The aforesaid Bank Guarantee is being sent to you through.....(name and designation)..... along
with this letter.

Enclosure : Bank Guarantee

Yours faithfully,
Executive Engineer (E)
DED-81, CPWD
CGO Complex, New Delhi

Copy to:.....(Name & address of the
contractor).....

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

Name of work: **1) Construction of Office cum Residence for Subsidiary Intelligence Bureau (SIB) at Plot No. 12, PSP Area Sector-22, Rohini, New Delhi (SH: SITC of Solar PV Power System).**

2) Providing and Installation IP based CCTV Camera system with equipments in SIB Rohini Sector 22, Rohini, New Delhi (SH: SITC of CCTV System).

1. I / We hereby give my consent to associate with M/s,
for executing the of 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 of the work.
3. I / We will be responsible for necessary action to handover the installations and for
rectification of defects 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 to Engineer-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-II**PROPOSAL FOR ELIGIBLE ASSOCIATING AGENCIES FOR SPECIALIZED WORK(S)**

I/we hereby propose the following agencies to be associated as per mentioned against each for executing corresponding specialized work(s).

Their consent letters are also attached as per FORM-I

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)
Sub Work – I							
1							
2							
3							
Sub Work – II							
1							
2							
3							

Signature of Main Contractor

FORM-III**MEMORANDUM OF UNDERSTANDING [MoU] BETWEEN MAIN CONTRACTOR AND ASSOCIATED SPECIALIZED AGENCY**

1] M/S [Name of the firm/agency with full address]Enlistment Status
Valid Up to:
[Hence forth called the main contractor]

And

2]M/S [Name of the firm/agency with full address]Enlistment Status
Valid Up to:
[Hence forth, called Associated Agency]

For the execution of specialized work(s) as per schedule, specifications, terms and conditions of the agreement.

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 [CPWD] 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 this MOU allows. Both the parties shall be paid consequent to the execution as per agreement to the extent this MOU permits. In case of any dispute, either of us will go for mediation by the EE(E), DED-81, CPWD, New Delhi. Any of us may appeal against the mediation to the ADG(D), CPWD, Nirman Bhawan, New Delhi. His decision shall be final and binding on both of us.

We have agreed as under:

- 1] The associated agency will execute all electrical work in the wholesome manner as per terms and conditions of the agreement and as per the direction of the Engineer-in-charge.
- 2] That the Associated agency has gone through the contract and has understood the scope of work required for the purpose of executing electrical work.
- 3] All the machinery and equipment's, tools and plants, special T&P required for execution of the specialized work(s)as per agreement, shall be the responsibility of the associated agency.
- 4] The site staff required for the electrical work(s) shall be arranged by the associated agency as per terms and conditions of the agreement.
- 5] Site order book maintained for the said work shall be signed by the authorized representative of main contractor as well as Associated Agency.
- 6] All the correspondence regarding execution of the electrical work(s) shall be done by the Department with the Associated agency with a copy to the main contractor. In case of non-compliance of the provisions of agreement, the main contractor, as well as the associated agency shall be responsible. The action under clauses 2 and 3 shall be initiated and taken against the main contractor.

SIGNATURE OF MAIN CONTRACTOR

SIGNATURE OF ASSOCIATED AGENCY.

Date:
Place:

Date:
Place:

WILLINGNESS CERTIFICATE

I will execute the work as per specifications and conditions for the agreement and as per direction of the Engineer-in-charge. Also, I will deploy full time technically qualified supervisor for the works. I will attend inspection of officers of the department as and when required.

“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 contracts in future forever.”

“I have also read the complete tender conditions and I am aware that PART-A of this tender document is applicable to me also”

Date :

Signature of Associated Specialized Agency

SPECIAL CONDITIONS FOR ASSOCIATION OF SPECIALIZED AGENCIES

- It should be noted that only the associated agencies engaged by the contractor for specialized services shall disbursed the payment of salaries, EPFO, ESIC and other relevant documents of the workers deployed by it and only the documents submitted by the associated agencies for payment of salary and ESIC & EPFO shall be accepted. The main contractor shall in no way be concerned with the payment and other remuneration of the workers of the specialized / Associated agencies.

1. The main contractor shall have to associate other agency(s) (Joint ventures are not accepted) for execution of each of the these specialized work(s), who fulfils the eligibility criteria as defined below:-

S.No	Component of E&M works	Estimated cost	Eligibility criteria
1	SITC of Solar Photovoltaic Power Generation system	Rs. 8,54,324 /-	Three similar works each of value not less than Rs. 3,41,730/- (i/e 40% of the Estimated Cost) OR Two similar works each of value not less than Rs. 5,12,594/- (i/e 60% of the Estimated Cost) OR One similar works each of value not less than Rs.6,83,459/- (i/e 80% of the Estimated Cost) Similar Work: SITC of Solar Photovoltaic Power Generation system of minimum 264 Wp.
2	SITC of CCTV	Rs. 5,27,420/-	Three similar works each of value not less than Rs. 2,10,968/- (40% of the Estimated cost) OR Two similar works each of value not less than Rs. 3,16,452/- (60% of the Estimated cost) OR One similar works each of value not less than Rs. 4,21,936/- (80% of the Estimated cost) Similar Work: SITC of CCTV.

Note:-

- 1) 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 the date of completion to previous day of last date of submission of tenders.
- 2) Should have satisfactorily completed the works as mentioned below during the last Seven years ending last day of the month previous to the one in which tenders are invited.
- 3) However, the composite category contractor may also be eligible to carry out himself /herself any or all of the above specialized works mentioned only without associating any specialized agency provided: -
- 4) The main agency fulfils the prescribed eligibility criteria respectively for the above specialized work(s).
- 5) The intending bidder shall upload an undertaking that “I/We shall submit the documents of Associated specialized Agencies/ OEM of the equipment as per the eligibility criteria mentioned in the special conditions of NIT for association of specialized agencies along with performance guarantee, failing which department may reject my/our tender & may forfeit the deposited EMD absolutely & debar me/us from re-tendering for this work”.
- 6) The main contractor shall have to submit documents of proposed associated specialized agencies for above specialized works such as (i) Self attested copies of Certificates of Work Experience/Completion certified by an officer not below the rank of Executive Engineer/Project Manager or equivalent, clearly indicating. a) Name of

work, b) Scope of Work, c) Agreement No., d) Estimated Cost, e) Tendered Cost, f) Final Value of Work Done, g) Date of Start, h) Stipulated date of Completion, i) Actual date of completion, j) Nature of the Work etc. (In case some of above said details are not mentioned in the Completion certificate, the firm shall attach sample proof in support of above details), (ii) Self attested copy of valid Electrical contractor license (if applicable), (iii) GST registration for approval of the department **as per eligibility requirement mentioned in above** along with the performance guarantee after the acceptance of tender.

- 7) Original consent letter of such selected associated specialized agencies for association shall also be enclosed in the prescribed format as per FORM-I along with documents.
- 8) The main contractor has to submit all the requisite documents with regard to specialized agencies to be associated as per NIT. If the main contractor fails to submit **all these documents** of the proposed associated specialized agencies as mentioned above, along with the performance guarantee after the acceptance of tender, department may forfeit the deposited EMD absolutely without any further notice & debar the contractor from re-tendering for this work.
- 9) After approval of associated specialized agencies by Engineer-in-charge, the main contractor will submit MOU(s) signed with the associated specialized agency as per FORM-III the shape of affidavit on stamp paper duly attested by notary in original **within 7 (Seven) Days** after issue of approval letter (for associate specialized agency). The MOU(s) 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). In case the main contractor fails to submit required MOU(s) within above prescribed period, the department may forfeit the deposited Performance Guarantee absolutely without any further notice & debar the contractor from re-tendering for this work.
- 10) All technical discussions during currency of the 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 in the NIT.
- 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 per eligibility criteria mentioned in the NIT to execute the leftover specialized work(s) after completion of all formalities mentioned in the NIT.
- 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 agencies.
- 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 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/M.O.U. drawn between main contractor and associated specialized agency 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.

GENERAL TERMS AND CONDITIONS

General

1.1 The copy of CPWD General Specifications are readily available in CPWD website www.cpwd.gov.in under the link publication.

1.2 Location:

Work shall be carried out at **SIB, Rohini, New Delhi**. The contractor is advised to visit the site of work to have an idea of the execution of the work; failure to do so shall not absolve their responsibility to do the work as specified in agreement.

1.3 The work shall be executed as per CPWD General Specifications for Electrical works part-I (Internal) 2023, Part-II (External) 2023, as amended upto date, relevant I.E. Rules, industry standards, BIS/IES 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 these additional conditions shall apply. However, nothing extra shall be paid on account of these Specific conditions, as the same are to be read along with schedule of works for the work.

1.4 The tenderer should in his own interest visit the site and get familiarize with the site conditions before tendering.

1.5 No T&P shall be issued by the Department and nothing extra shall be paid on account of this.

2.0 Commercial Conditions

2.1 Type of contract

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

3.0 Terms of payment

1.1 On account payments for part work (after stipulated and statutory deductions) as assessed by the Engineer-in-charge for the applicable items in the Contract shall be payable at part rates not exceeding the percentage indicated against the stages of work.

S.N	Stage of work	Percentage of Rate on Tendered Amount
a	Supply of material at site in good condition along with manufacture's test reports. (except exclusive supply item)	60%
b	On completion of installation in all respect.	15%
c.	Testing, Commissioning & handing over to the department.	15%
	Taking permission from Electricity Department, & functioning of net metering	10%

For other items, the part rates will be decided by the Engineer-In-Charge of the work and shall be binding on the contractor.

3.2 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 amount of 2.5% of the tendered value. The security deposit shall be released on the expiry of guarantee period of 12 Months stipulated in the contract. Bank

guarantee will not be accepted as security deposit.

3.3 **Performance Guarantee**

The successful tenderer shall submit an irrevocable performance guarantee of 5% of the tendered amount in addition to the other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement within 15 days of issued of letter of acceptance of tender. This guarantee shall be in the form of Demand draft / pay order or irrevocable bank guarantee bond of any scheduled bank or the State Bank of India in the specified format or in the form of Government security, fixed deposit receipt pledged in favour of Executive Engineer or as specified in the letter of acceptance of tender. The performance guarantee shall be initially valid up 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.

3.4 Income Tax, labour cess & other statutory deductions etc shall be made at source as per the prevalent laws. The deductions of Security Deposit, Income-Tax, Works Contract Tax etc shall be done after calculation of the above due payments as per clauses 3.1 to 3.3 and net payment shall be reduced accordingly.

4.0 **Rates**

4.1 The rates quoted by the tenderer, shall be firm and inclusive of all taxes including GST and all charges for packing forwarding, insurance, freight and delivery, installation, testing, commissioning etc at site including temporary construction of storage, risks, overhead charges, general liabilities/obligations and clearance from Local Body. However, the fee for the Local Body inspections shall be borne by the department.

4.2 The department will not issue Octroi exemption certificate.

5.0 **Completeness of Tender**

All sundry equipment, fittings, unit assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections and all other items which are useful and necessary for efficient assembly and installation of wall fan and components of the work shall be deemed to have been included in the tender irrespective of the fact whether such items are specifically mentioned in the tender documents or not.

6.0 **Storage and Custody of Materials**

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

7.0 **Care of the Building**

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

8.0 **Completion Period**

The completion period indicated in the tender documents is for the entire work of planning, designing, approval of drawings etc arrangement of materials & equipments, delivery at site including transportation, installation, testing, commissioning and handing over the entire system to the satisfaction of the Engineer-in-charge.

9.0 **Guarantee**

9.1 All equipments shall be Guaranteed/ Warranted period as per mentioned in Schedule of work from the date of taking over the installation by the department, against unsatisfactory performance and /or break down due to defective design, workmanship or material. The equipments or components, or any part thereof, so found defective during guarantee period shall be forthwith 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 and cost of the contractor. The decision of the Engineer-in-charge in this regard shall be final & binding on the contractor.

9.2 The tender shall guarantee among other things, the following: -

- a) Quality, strength and performance of the materials used as per manufacturers standards.
- b) Safe mechanical and electrical stress on all parts under all specified conditions of operation.

10.0 Power Supply

(A) Maintenance/Revenue work (i/c Repair/ Renovation/ Up-gradation/ Retrofitting work): -

- (i) Unless otherwise specified, 3 phase, 415 volts, 50 Hz AC power Supply (5 KW load) shall be provided by the department to the contractor at one point for execution of work at site. Termination switchgear and extension cable, however, shall be arranged/provided by the contractor. Further extension, if required, shall be carried out by the contractor himself.
- (ii) (a) For this purpose, the power supply shall be given at the main incomer unit of the electrical panel to be provided by the contractor. The termination of this feeder in the main incomer unit shall be the responsibility of the contractor and nothing extra shall be paid on this account.
- (b) Unless otherwise specified in the contract, further power distribution to the various equipment shall be done by the contractor.
- (c) Where the power supply has to be arranged by the Department at more than one point as per the terms of the contract, the termination of all such power feeders in the incomer of respective control panels to be provided by the contractor shall be the responsibility of the contractor and nothing extra shall be paid on this account.
- (d) The contractor shall use the power supply only for the bonafide use of the work. No work shall be done at site with the supplied power which is not required for execution of work or which pertains to work to be carried out for some other agreement/site or labour camp/office setup etc. The power supply shall be disconnected in case of such default and the contractor shall then have to arrange the required power supply at his cost. Further, if such incidence of use of electricity for other work or other agreement or labour/office setup or In case, any complaint regarding theft/misuse of electricity is found electricity charges @0.5% of Tendered amount or Rs10,000/- per occasion whichever is higher shall be recovered from contractors bill. A written complaint of client department along with its vetting/clarification by officer of CPWD of minimum rank of AE shall constitute a definite and sufficient proof for the alleged theft/misuse and recovery shall be made accordingly which should be non negotiable & non refundable and no claim in this regard, whatsoever, shall be entertained.
- (e) For use of electricity provided by department as mentioned above, following rates shall be recovered from contractors bills:-
 - (i) For Renovation/Maintenance/Upgradation/Retrofitting work: - 0.15% of Gross work done
 - (ii) For Manpower or Outsourcing work having labour component more than 90%, No electricity charges shall be recovered.
 - (iii) For Works involving steel fabrication / steel work component more than 50% of ECPT: - 01% of Gross work done

(B) Construction/Original work:-

For Construction & maintenance works pertaining to clients, Contractor shall submit undertaking for use of electricity either through his own source (local authority or DG set supply) or through Metered connection provided by client department (In case agreed by client department). The same undertaking shall be submitted along with PG otherwise it shall be presumed that contractor intends to use Client's electricity without meter and in such case 0.10 % of Gross work done shall be recovered from contractor's bill.

Further, if any incidence of use of electricity for other work or other agreement or labour/office setup or in case, any complaint regarding theft/misuse of electricity is found electricity charges @0.5% of Tendered amount or Rs25,000/- per occasion whichever is higher shall be recovered from contractors bill. A written complaint of client department along with its vetting/clarification by officer of CPWD of minimum rank of AE shall constitute a definite and sufficient proof for the alleged theft/misuse and recovery shall be made accordingly which should be

non-negotiable & non-refundable and no claim in this regard, whatsoever, shall be entertained.

In any case, electricity connection at one point shall be provided by client/department, if available and agreed by client department. However, contractor shall be responsible for arranging power supply and there shall be no obligation from department to make available power supply for execution of work and while quoting, contractor has to keep in mind that power and water has to be arranged by contractor himself at his own cost and included in the quoted rates. No hindrance on account of non-availability of power supply from client department or CPWD shall be considered and contractor shall be responsible for any delay in work on account of above.

11.0 **Water Supply**

Arrangement of Water supply for testing & for successful installation & completion of the system shall be in the scope of successful firm without any extra cost.

12.0 **Acceptable Makes of Various Equipments**

The List of acceptable makes of various equipments/components/accessories have been indicated in "NIT". The tenderer shall work out the cost of the offer on basis of acceptable makes along with other terms & conditions of contract. Alternate makes are not acceptable. The items which are covered or not covered in the approved list of make in the contract, contractor shall submit for approval by Engineer-in-charge. Only makes approved in writing by Engineer-in-Charge shall be used at site. Any material brought at site without prior approval of Engineer-in-charge may be rejected, even if the make is available in NIT and contractor shall be responsible for any such rejection of material.

i. Contractor shall get approval of Makes & Models of material before their use at site. The technical specifications / catalogue shall also be submitted along with submission for approval. In case unapproved material is found to be used /installed at site or kept at site store for installation, department shall not only confiscate such material but also be at liberty to recover cost for removal of material from site from contractors bill.

ii. **For each item to be used at site, contractor shall submit model number for each item for approval by Engineer-in-charge.** Only approved make & model/material shall be used at site. Any material found at site which has not been approved can be rejected and shall not be paid. Contractor will be solely responsible for non-payment due to use of non-approved material. The submission for material approval shall be minimum two weeks before its use at site.

13.0 The successful tenderer should furnish well in advance three copies of detailed instructions and manuals of manufacturers for all items of equipments regarding installation, adjustments operation and maintenance including preventive maintenance & trouble shooting together with all the relevant data sheets, spare parts catalogue 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 equipments 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 documents in connection with this contract as this is a turnkey job. The quoted rates shall be deemed to be inclusive of all kind of leads, lifts, clearing of site/jungle and nothing extra shall be paid, whatsoever on such account

14.2 In addition to supply, installation, testing and commissioning of complete installation, following works shall be deemed to be included within the scope of work to be executed by the tenderer as this is a turnkey job.

- a) Minor building works necessary for installation of equipments, foundation, making of opening in walls or in floors and restoring them to their original condition / finish and necessary grouting etc. as required.
- b) All supports for rising mains, cables and MS channels for erection of panels &etc as are necessary.
- d) Getting Local Body inspection done & obtaining approval for energizing the installation if

required. However, necessary fees for inspection shall be borne by the Department.

- e) Arrangement of electric supply (Single / Three phase) and water supply for execution and successful commissioning of the system.
- f) Small wiring, inter-connection etc. inclusive of all materials and accessories, necessary to comply with the regulations as well as proper and trouble free operation of the equipment.
- g) Closing of the cable entry points in sub-station against seepage of water, rodents etc.
- h) Tools and tackles required for handling and installation.
- i) Necessary testing equipments for commissioning.
- j) Watch and Ward of materials and/or installation and equipments till their handling over to the department.
- k) All minor building works, such as equipments foundation if required cutting and making good holes, grouting of channels belts as required. Cutting and making good damages etc.
- l) Provision of supports/clamps for equipments, cables etc. wherever required.

15.0 **Works to be done by the Department**

Unless otherwise mentioned in the tender specifications the following works shall carried out by the department.

- i) To make the site available for the work. The contractor should select such equipment for installation as can be properly installed in the spaces shown in specification drawings. While no guarantee can be given minor modification required by the contractor if mentioned in the tender or intimated immediately after the receipt of tender shall be carried out if structurally possible.

16.0 **Exclusion and work to be done by other agencies:**

The following shall be excluded from the scope of the work:

- a) Major dismantling of any existing building work.

17.0 **Inspection and Testing**

- 17.1 All the tests certificates of the equipments are required to submit along with delivery of material.
- 17.2 Copies of all documents of routine and type test certificates of the equipment,/cable carried out at the manufacturers premises shall be furnished to the Engineer-in-charge and consignee.
- 17.3 After completion of the work in all respects the contractor shall offer the installation for testing and operation.

18.0 **Validity**

Tenders shall be valid for acceptance for a period of 30 days from the date of opening.

19.0 **Compliance with Regulations and Indian Standards**

- 19.1 All works shall be carried out in accordance with relevant regulation, both statutory and those specified by the Indian standards related to the works covered by this specification. In particular, the equipment and installation will comply with the following:

- i) Factories Act
- ii) Indian Electricity Rules
- iii) BIS & other standards as applicable
- iv) Workmen's compensation Act
- v) Statutory norms prescribed by local bodies, Power supply co. etc.

- 19.2 Nothing in this specification shall be construed to relieve the successful tenderer of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with currently applicable statutory regulations and safety codes.

- 19.3 Successful tenderer shall arrange for compliance with statutory provisions of safety regulations and departmental requirements of safety codes in respect of labour employed on the work by the tenderer. Failure to provide such safety requirement would make the tenderer liable for penalty of Rs. 500/- for each default. In addition, the department will be at liberty to make arrangement for the safety requirements at the cost of tenderer and recover the cost thereof from him.

20.0 **Indemnity**

The successful tenderer shall at all times indemnify the department, consequent on this works contract. The successful tenderer shall be liable, in accordance with the Indian Law and Regulations for any accident occurring due to any cause and the contractor shall be responsible for any accident or damage incurred or claims arising there from during the period of erection, construction and putting into operation the equipments and ancillary equipment under the supervision of the successful tenderer in so far as the latter is responsible. The successful tenderer shall also provide all insurance including their party insurance as may be necessary to cover the risk. No extra payment would be made to the successful tenderer on account of the above.

21.0 **Erection Tools**

No tools and tackles either for unloading or for shifting the equipments for erection purposes would be made available by the department. The successful tenderer shall make his own arrangement for all these facilities.

22.0 **Cooperation with other agencies**

The successful tenderer shall co-ordinate with other contractors and agencies engaged in the construction of buildings, if any, and exchange freely all technical information so as to make the execution of this work/contract smooth. No remuneration should be claimed from the department for such technical cooperation. If any unreasonable hindrance is caused to other agencies and any completed portion of the work has to be dismantled and re-done for want of cooperation and coordination by the tenderer during the course of work, such expenditure incurred will be recovered from the successful tenderer if the restoration work to the original condition or specification of the dismantled portion of the work was not undertaken by the tenderer himself.

23.0 The work will be carried out with least disturbance during shifting & shut down taken in consultation with the client department.

24.0 **Verification of correctness of equipment at Destination**

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

25.0 **Painting**

This shall include cost of painting of the entire installation.

26.0 **Maintenance**

26.1 Sufficient trained and experienced staff shall be made available to meet any exigency of work during the guarantee period of 1 year from the handing over of the installation.

27.0 **Interpreting specifications**

In the case of discrepancy between the schedule of Items, the specification and/ or the drawings, the following order of preference shall be observed:-

- (a) Schedule of Work.
- (b) Specific Conditions.
- (c) General Terms and Condition.
- (d) Drawings.
- (e) CPWD Specifications.
- (f) NBC – 2016
- (g) Indian Standard Specifications of B.I.S.

However, the order of preference provided is in general and in case of contradiction or otherwise, higher of specifications available in above documents/acts/codes shall be followed. Contractor is advised to quote the rates accordingly keeping in mind that highest of specification available shall be adopted.

- ~~28.0 General Terms & Condition, Special conditions & additional condition mentioned in part B of NIT (i.e. Civil Component of work) shall also be applicable for part C of NIT as well (Not applicable for Electrical exclusive contracts).~~
- 29.0 Excavation shall include hard rock excavation as well and nothing extra shall be paid on this account.
- 30.0 In case cable is laid at depth less than as mentioned in NIT/CPWD specifications recovery at Rs. 15 per 10 cm depth /meter of cable length shall be recovered from bill. This shall also be applicable for GI pipe work, DWC pipe work, Earthing work as well.
- 31.0 Challan & Test Certificate for all items amounting more than Rs. 50,000/- shall be submitted along with running bill in case both Challan & Test certificated are not submitted R.A. bill shall not be considered & contractor shall be responsible for any delay in payment.
- 32.0 Contractor shall submit cable route plan for approval before start of cable work. In case drawings for area /layout are not available with department these drawings shall be prepared by contractor at his on cost. For the purpose of assessment of work contractor is advised to visit the site to get familiar with site conditions before quoting his rates
- 33.0 All cabling & street light work shall be carried out as per CPWD specifications (External) 1995. Contractor shall obtain written clearance from JE/AE in charge of work before refilling the excavated trenches, otherwise it shall be presumed that contractor has not excavated required depth and item/component of item for excavation and refilling for trenches shall not be paid and contractor shall be responsible for such nonpayment.
- 34.0 Contractor shall be fully responsible for shifting of services encountered at site like electrical lines/power cables/ telephone, TV, data cables/electric poles/light poles/feeder pillar (whether energized or not)/dismantling and handing over such material to department. For shifting of such services including dismantling of such material required for smooth working at site, nothing extra shall be paid. Contractor is advised to visit site before quoting his rates.
- 35.0 Measurements shall be recorded for all measurements and levels of work done in the shape of electronic measurement book through CPWD ERP module as per CPWD OFFICE MEMORANDEM NO. DG/CON-Maintenance- 2020/338, dated 13/04/2023) instructions and details.”
- 36.0 It is clarified that being occupied building site will be made available in phases/parts only. The work may also be required to be executed during odd hours/night shift/holidays for which nothing extra shall be paid.
- 37.0 The agency will prepare and submit all drawings sub head wise related to the E&M services as per site requirement for obtaining approval of the Engineering – in – charge or his authorized representative. Nothing extra shall be paid on this account.**

TECHNICAL SPECIFICATIONS FOR WORK

1. GENERAL SCHEME & SCOPE

- 1.1 This document contains the requirement of Solar Photo Voltaic (SPV) power supply Grid Tied System for general light load. The light loads are to be used for illumination of the building. Suitable size of solar photovoltaic system is to be installed at each location and has to be feed the electric load of all the locations. The power conditioning unit (PCU) shall be Grid Tied, i.e. with a priority for use of Solar power for light load and if the solar power becomes inadequate due to sun outage or the fault in solar generation system then Main/grid supply shall be used for light load.
- 1.2 Roof Top space is available and the same shall be used for Installation of the solar modules/arrays. The PCU shall be installed inside the premises as per the availability of space in the building/terrace.
- 1.3 The scope of work include designing and providing suitable size of Grid Tied solar power system, PCU (power conditioning unit), all measuring devices, indication devices, protection Devices switching devices with all necessary wiring, cabling mounting structure on ground and any other item needed for proper functioning and protection of system from external/internal causes & from all kind of surges etc. the system be designed with sound engineering and state of the art manner.
- 1.4 The cost of GI structure including RCC/ CC foundation of required strength for installation of Solar PV Panel is included in the schedule of work item no. 1. Nothing extra shall be paid on this account.
- 1.5 Supplying & laying of suitable size copper conductor armoured control and power cable from SPV modules, main power cable to PCU units etc. i/c S&F of PVC channel steel conduit, earthing etc. are in the scope of work, nothing extra shall be paid on this account.

2. DEFINITION

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

3. GRID TIED SPV POWER SUPPLY SYSTEM:

Grid tie solar inverters are suited for outdoor use and the ideal solution for small commercial building and other application. The inverters provide a wide maximum point power tracking (MPPT) voltage range on EU efficiency of 97%.

4. SITE LAYOUT DESIGN:

The contractor will submit his layout design for SPV module including its structure details to Engineer in charge for approval prior before start of work. The contractor should visit the site before quoting the tender to have idea of the site related preparation to be included in their offer.

(A) SPV MODULE/ARRAY:

Solar Photo Voltaic Generating Sources: SPV generating sources constituted of following building blocks:

SPV Module: SPV Module is the basic building block of the SPV power supply, which consists of a number of Solar cells (a Semiconductor Devices which when exposed to sunlight produces DC electricity) connected in series and hermetically sealed with a toughened and highly transparent front

glass cover. These modules are connected in series and parallel to get the desired power and voltage. The Rated DC current of One module shall be 330WP or higher.

SPV Panel: SPV Modules of same rating are connected in series to form a SPV panel to get the desired voltage.

SPV Array: A number of panels are connected in parallel to get the desired power. This Whole combination is called an array. The SPV array is so designed that, it provides simultaneously meets the load demand, when sufficient Sunshine is available.

Design Features: The mechanical design and construction of SPV modules, panels and mounting structure shall be inherently robust and rigid under all conditions of operation, adjustment, storage and transport. Sharp edges shall be avoided.

(B) SOLAR PHOTOVOLTAIC MODULES:

- (i) The efficiency of the PV modules should be minimum 20%.
- (ii) Test Certificate issued by one of the IEC authorized test centers.
- (iii) Modules of any type mono/poly crystalline film can be used
- (iv) The module type must be qualified as per IEC 61215 latest edition. Modules must qualify to IEC 61730 Part I and II for construction and safety qualification testing. Certificate for module qualification from IEC or equivalent to be submitted as part of the bid offer.
- (v) The total solar PV array capacity should not be less than allocated capacity (kWp) and should comprise of solar crystalline modules of minimum 330Wp and above wattage.
- (vi) Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.
- (vii) The module frame shall be made of corrosion resistant materials having anodized aluminum or as per manufacturer standard.
- (viii) The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power and design shall be submitted to Engineer-in-charge.
- (ix) Other general requirement for the PV modules and subsystems shall be the Following:
 - (a) The rated output power of any supplied module shall have tolerance of $\pm 3\%$.
 - (b) The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two) per cent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
 - (c) The module shall be provided with a junction box with weather proof lid of sealed type and IP-65 rated.
- (x) **Warranties: The PV Modules must be warranted for output wattage, which should not be less than 90% at the end of 10 years and not less than 80% at the end of 25 years. Certificate required from OEM**

6. SPV MODULES

- (a) SPV Modules to be supplied should have minimum declared output of 330 Wp or higher. Number of Modules to be supplied shall be worked out accordingly. Test reports of the modules should be submitted with the technical bid.
- (b) Stabilized output of the Solar PV Array for the Power Plant should not be less than Calculated Kwp under standard Test Condition. Modules for Power Plant shall be made of poly or mono-crystalline Silicon Solar cells.
- (c) Peak power point voltage and the peak power point current of any supplied module and/or any module string (series connected module) shall not be more than 3% from the respective arithmetic means for all modules and/or for all module strings, as the case may be.

- (d) Except otherwise specified, the front module surface shall consist of impact resistant, low iron and high transmission glass.
- (e) The module frame shall be made of aluminum or corrosion resistant material, which shall be electrically compatible with the structural material used for mounting the modules.

7. SOLAR PV MODULE (ELECTRICAL FEATURES)

- (i) Crystalline high power cells shall be used in the Solar Photovoltaic module. Solar Module shall be laminated using laminating technology using established polymer (EVA) and Tedlar/ Polyester laminate. The solar modules shall have suitable encapsulation and sealing arrangement to protect the silicon cells from the environment. The arrangement and the material of encapsulation shall be compatible with thermal expansion properties of the Silicon cells of the module framing arrangement/ material. The encapsulation arrangement shall ensure complete moisture proofing during life of solar modules.
- (ii) SPV Module conversion efficiency should be >20.00% Module shall be made of high transmissivity glass front surface giving high encapsulation gain.
- (iii) All materials used shall be having a proven history of reliable and stable operation in external outdoor/indoor applications
- (iv) Module rating is considered under standard test conditions, however Solar modules shall be designed to operate and perform in relative humidity up to 100% with temperature between -10 Deg C and +85 Deg C and with stand gusts up to 150Km/h from back side of the panel. The Geological data of Chandigarh can be referred for design to meet optimum generation.
- (v) Sample modules and production processes employed in the manufacture of the offered module shall be in accordance with the requirement of IEC 61730 with appropriate certificate.

8. SOLAR PV MODULE (MECHANICAL FEATURES)

Solar pv module design shall conform to following Mechanical requirement

- Toughened, low iron content,
- High transmissivity front glass.
- Anodized Aluminum Frame.
- Ethyl vinyl Acetate (EVA) encapsulant.
- Silicon edge sealant around laminate.
- Tedlar/ Polyester trilaminate back surface
- Weatherproof DC rated MC connections easier and secure, not allowing for any loose connections Resistant to water, abrasion, hail impact, humidity & other environment factor for the worst situation at site.

9. JUNCTION BOXES (JBs):

- a) The junction boxes are to be provided in the PV array for termination of connecting cables. The J. Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminum /cast aluminum alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.
- b) Copper bus bars/terminal blocks should be housed in the junction box with suitable termination threads Conforming to IP65 standard and IEC 62208. Hinged door should be used with EPDM rubber gasket to prevent water entry.
- c) Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) / surge arrestors and suitable Reverse Blocking Diodes etc. The Junction Boxes shall have suitable arrangement for monitoring and disconnection for each of the groups.

10. PV ARRAY CONFIGURATION

- i) The Solar array shall be configured in multiple No. of sub- arrays, providing optimum DC power. The bidder shall submit their own design indicating configuration of PCU and respective sub arrays.
- ii) The PV modules should be mounted on aluminum structures GI/ MS powder coated of adequate strength and appropriate design as per IS code 875 Part-III& guidelines issued by MNRE, GOI. If the wind speed for area under the zone of site location comes to less than 150 km per hour then in that case the contractor should design the structure of modules to withstand the wind speed of minimum 150 Km per Hour.
- iii) The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels
- iv) Regarding civil structures the bidder needs to take care of the load bearing capacity of the ground and to arrange suitable structures based on the quality of ground. The total load of the structure (when installed with PV modules) on the ground should be less than 60 kg/m². Suitable civil work for installation of the structure is to be done by the supplier. Civil Structure should be Neat & Clean, with proper alignment and round in shape with emphasis on proper grouting.

11. MODULE MOUNTING STRUCTURE

The mounting structure would be designed to sustain wind loading based on wind pressure design as per IS code 875 Part-III& guidelines issued by MNRE, GOI and shall be protected by using Eco friendly anticorrosion on structure. The entire structure including array will be earthed to an independent pit with redundant paths. Mounting Structures with fixed/adjustable tilt has been proposed. The Hardware shall be made of SS material or as per manufacturer standard.

- a) The structure design shall be appropriate and innovative and must follow the existing structure and profile
- b) Design drawing with material selected shall be submitted for prior approval of engineer in-charge.
- c) The structure shall be designed to allow easy replacement of any module.
- d) The structure shall be designed for simple mechanical and electrical installation. It shall support SPV module at a given orientation, absorb and transfer the mechanical loads to the roof properly.
- e) The array structure shall be so designed that it will occupy minimum space without sacrificing the output from SPV panels at the same time.
- f) Nut & bolts supporting structure including module Mounting Structures shall have to be adequately protected with atmosphere and weather prevailing in the area; Nut bolts should be especially in SS material.
- g) The bidder/manufacturer shall specify installation details of the PV modules and the support structures with appropriate diagrams and drawings.
- h) The drawings along with detailed design shall be submitted in four sets to the engineer- in-charge for approval before starting the execution of work. The work will be carried out as per designs approved by the engineer in-charge.

12. POWER CONDITIONING UNIT (PCU)

Power Conditioning Unit (PCU) is critical equipment in Grid Connect SPV Power Plant. This equipment converts DC power generated by SPV array, into single phase/three phase medium voltage AC to be connected to Grid. It also provides necessary protections for Grid Synchronization and Data Logging/Monitoring. The DC energy, thus produced has to be utilized to maximum and supplied to the DC bus for inverting to AC voltage with the help of Power Conditioning Unit using its MPPT (The efficiency of MPPT shall not be less than 94% & shall be designed to meet the Solar PV Array capacity control) to extract maximum energy from solar array and provides 415V AC, 3-ph 50Hz to synchronize with local grid.

- The PCU shall have protection features such as, over current, short circuit, over temperature to name a few.
- The PCU shall be of very high quality having high efficiency (>92%) and shall be capable of running in isolated mode.
- The PCU should be designed to be completely compatible with the SPV array voltage and grid supply voltage.
- The PCU should 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 should have user friendly LCD display for programming and view on line parameters such as DC power input, DC input voltage, DC current, AC power output, AC voltage and AC current and Power factor.
- The PCU shall have arrangement for adjusting DC input current and should trip against sustainable fault downstream and shall not start till the fault is rectified.

The Grid connect PCU shall be sourced from internationally reputed firms, which will incorporate latest Technological advances to provide highly reliable and efficient energy conversion from DC to AC. The PCU incorporates a new system design which uses multiple power stacks which work in tandem. The PCU should be Three phase static solid state type power conditioning units/string invertors suitability connected & synchronized to give three phase supply output. Both AC & DC lines shall have suitable fuses/MCBs and contactors to allow safe start up and shut down of the system. Fuses/MCBs used in the DC circuit should be DC rated. The PCU shall have provision for input and output isolation. Each solid-state electronic device shall have to be protected to ensure long life of the inverter as well as smooth functioning of the inverter.

AC side

Nominal AC power	As per Manufacturer design
Output AC Voltage	230V/ 415V with a variation + 10% at nominal voltage
Frequency	50 c/s (Hz) + 5%
Total Harmonic Distortion	<3%
Under frequency protection	Yes
Under Voltage Protection	Yes

DC Side:

PV Power	As per Manufacturer design
Maximum DC Voltage	As per Manufacturer design
MPPT voltage range	As per Manufacturer design
Maximum DC Current	As per string rating
DC over voltage protection	Yes
DC Voltage ripple	<3%
Minimum Efficiency (CE)	>95%
Ambient temperature range	0-50°C
Humidity (non condensing)	30-95%
Degree of protection	IP21 for internal units and IP 66 for outdoor units
Dimensions approx (HXWXD)	As per Manufacturer design
Weight	As per Manufacturer design
Recommended LCD Display on Front Panel	Accurate displays on the front panel:
	DC input voltage
	DC current

	AC Voltage (all 3 phases, in case of 3 phase)
	AC current (all 3 phases in case of 3 phase)
	Ambient temperature
	Instantaneous & cumulative output power
	Daily DC energy produced
	Battery Voltage (in case of Hybrid PCU)
Communication interface	RS485/ RS232 PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array to the power conditioning unit/inverter should also be DG set interactive
Power Factor	> 0.95
Test Certificates	The PCU/ inverters should be tested from the MNRE approved test centres / NABL /BIS /IEC accredited testing-calibration laboratories. In case of imported power conditioning units, these should be approved by international test houses

13. INTEGRATION OF PV POWER WITH GRID:

- As the proposed solar plant is without battery bank (i.e. with string inverter), the existing uni-directional meter of the user shall be installed for gross metering of solar generation while a Bi-directional meter shall be installed for net-metering purpose or conditions pertaining to Net Metering Policy of PSPCL (Punjab).
- CEA guideline 2013 for interconnecting solar power with Grid shall be followed.
- Certification of Islanding protection in the inverter/PCU from the manufacturer of the equipment shall be mandatory. This shall be arranged by the supplier from the manufacturer.
- Verification report/test report shall be issued by the DISCOM or their authorized agency.

14. DATA MONITORING OF POWER PLANT:

- PCU to log the inverter performance data and transmits the same to the Data logger.
- Data logger shall then gather information and monitor the performance of the inverter. It shall also supports measurements from the external sensors. The data can be acquired remotely via modem.

15. LIGHTNING & OVER VOLTAGE PROTECTION

The SPV Power plant should be provided with Lightning and surge voltage protection connected to proper earth mats.

The Lightning Conductors shall be made as per applicable Indian Standards in order to protect the entire Array Yard/Shed from Lightning stroke. Necessary concrete foundation for holding the lightning conductor in position to be made after giving due consideration to maximum wind speed and maintenance requirement at site in future.

The lightning conductor shall be earthed through flats and connected to the Earth mats as per applicable Indian Standards with earth pits. Each Lightning Conductor shall be fitted with individual earth pit as per required Standards including accessories, and providing masonry enclosure with cast iron cover plate having locking arrangement, watering pipe using charcoal or coke and salt as per required provisions of IS.

The bidder shall ensure adequate lightning protection to provide an acceptable degree of protection as per IS for the array Yard/Shed. If necessary more numbers of Lightning conductors may be provided.

Conductor as per requirements of IS Standards.

All Building earth conductor shall be interconnected through the concept of “Earth Mats” for interconnection with separate earth pits.

For each earth pit, necessary Test Point shall have to be provided.

16. a) EARTHING SYSTEM

i) Earthing Protection: Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987. In addition the lightning arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of Department as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly. Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

ii) 2 Nos. GI strip of size 25mm x 5mm shall be supplied and fixed as per CPWD specification for earth bus of the sub-station to connect the system within the quoted rates. Nothing extra shall be paid on this account.

b) AC Distribution Box (ACDB)

i) All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.

ii) The change-over switches, cabling work, Manual isolation of Inverters/Grid should be undertaken by the bidder as part of the project within quoted rates.

c) DATA ACQUISITION SYSTEM / PLANT MONITORING (for 500kWp and above)

i) PV array energy production: Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated by the PV system shall be provided.

ii) All instantaneous data shall be shown on the computer screen.

iii) The bidder must take approval/NOC from the Concerned DISCOM for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network and submit the same to PMB before commissioning of SPV plant. Nothing extra shall be paid on this account.

d) PRIORITY FOR POWER CONSUMPTION:

i) Regarding the generated power consumption, in case of string inverter, priority need to give for internal consumption first and thereafter any excess power can be exported to grid.

e) Grid Islanding:

i) In the event of a power failure on the electric grid, it is required that any independent power-producing inverters attached to the grid turn off in a short period of time. This prevents the DC-to-AC inverters from continuing to feed power into small sections of the grid, known as “islands.”

Powered islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The ground mounted PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.

ii) A manual disconnect pole isolation switch beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked, if required, by the utility personnel.

17. LIGHTNING AND OVER VOLTAGE PROTECTION:

There shall be the required number of suitable lightning arrestors installed in the array field. Suitable earthing such that induced transients find an alternate route to earth. Protection shall meet the safety rules as per Indian Electricity Act. All building earth conductors shall be interconnected through the

concept of earth mats for interconnection with separate earth pits. For each earth pits necessary test points shall have to be provided.

18.DANGER BOARDS:

Danger boards should be provided as and where necessary as per IE Act./IE rules as amended up to date.

19.STANDARDS FOR SOLAR PHOTOVOLTAIC (PV) POWER PLANTS/ SYSTEMS

A. PV MODULES:

The PV modules must conform to the latest edition of any of the following IEC/equivalent BIS standards for PV module design qualification and type approval:

Crystalline Silicon Terrestrial PV modules : IEC 61215/ISI 14286

Thin Film Terrestrial PV modules : IEC 61646

Concentrator PV Modules & Assemblies : IEC 62108

In addition, the modules must conform to IEC 61730 Part1-requirements for construction & Part2 – requirements for testing, for safety qualification.

PV modules to be used in a highly corrosive atmosphere (coastal areas, etc.) must quality. Salt Mist Corrosion Testing as per IEC 61701.

B. BALANCE OF SYSTEM (BoS) ITEMS/COMPONENTS:

The BoS items/components of the SPV power plants/systems deployed under the mission must conform to the latest edition of IEC/equivalent BIS standards as specified below:

BoS Item/ component	Applicable IEC/equivalent BIS standard	
	Standard Description	Standard Number
Power conditioner/ Inverters*	Efficiency Measurements Environmental Testing	EN61000–6-3 EN 50178
MPPT units*	Design Qualification Environmental Testing	EN 50178 UL 1741 CSA 107.1
Cables	General test and measuring methods PVC insulated cables for working voltage upto and including 1100 V-Do-UV resistant for outdoor installation	IEC 60189 IS 694 / IS 1554 IS/IEC 69947
Switches/Circuit Breakers/Connectors	General Requirements Connectors - Safety	IS/IEC 60947 part I,II & III EN 50521
Junction Boxes/ Enclosures	General Requirements	IP 65 (for outdoor)/IP 21 (for indoor) IEC 62208
SPV System Design	PV Stand-alone Systems Design verification	IEC 61215 IEC 61730 IEC 61701

Installation Practices	Electrical installation of buildings requirements for SPV power supply systems	IEC 61730
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*Must additionally conform to the relevant national/international electrical safety standards.

20. No extra payment shall be made for:

Connection with 4 x 10 sq.mm. copper conductor XLPE insulated UG cable or as recommended by OEM upto 35-meter laying in existing DWC pipe/ surface/ underground as per direction of Engineer-in-charge use for inverter to ACDB and ACDB to net metering system.

For DC cable connection with minimum 4 sq.mm. PVC insulated multi core copper conductor / wire for Solar Panel.

21. Contractor shall have to take necessary permission from the Electricity Department and take electric connection with metering equipment from the local electricity company for which no extra payment shall be made.

SPECIFIC TERMS & CONDITIONS

A- FOR CCTV CAMERAS SYSTEM

1. This specification covers installation, testing as may be necessary before dispatch, delivery at site, all preparatory work, assembly and installation, commissioning putting into operation of CCTV Surveillance system.
2. The work shall be executed as per CPWD General Specifications for Electrical works amended upto date & as per relevant IS and as per directions of Engineer-in-charge.
3. The tenderer should in his own interest visit the site and familiarizes himself with the site conditions before tendering.
4. No T&P shall be issued by the department and nothing extra shall be paid on account of this.
5. Item must be complete with all equipments and required accessories along with necessary power systems, connectors, plugs, sockets and hardware/software as required for complete installation of the system under this contract and present scope of work and nothing extra shall be payable on this account.
6. The firm should visit the site before quoting their rates so as to satisfy themselves with all site working conditions, cable routes etc.
7. All software & hardware should be in upgraded version.
8. Any damage done to the building/false ceiling/Exhibits is to be made good by the contractor with no extra cost by department.
9. For storage of material, the agency has to make his own arrangement. No separate storage accommodation shall be provided by the department. Watch and ward of the stores and their safe custody shall be the responsibility of the contractor till the final taking over of the installation by the department.
10. The Firm shall ensure adequate and prompt after sales service in the form of maintenance, spares and personnel are available at site of work during the guarantee period to minimize the breakdown period. The firm shall also ensure that in the event of any breakdown of the system, that area is made operational within 24 hrs. Otherwise a penalty as deemed reasonable by Engineer-in-charge shall be recovered from the firm (which will be minimum Rs 1000/- per day).
11. **DOCUMENT TO BE FURNISHED ON COMPLETION OF INSTALLATION**
Three sets of the following shall be furnished to the department by the contractor on completion of work:
 - a) Completion drawings
 - b) Manufacturer's technical catalogues of all equipments and accessories.
 - c) Operation and maintenance manual of all major equipments detailing all adjustment, operation and maintenance procedure.
12. Contractor shall get approval of Scheme for CCTV work before commencement of work.
Following details shall be included in scheme :-
 - a. Location of cameras
 - b. location of Racks, switches etc
 - c. Cabling layout from camera till control room.
 - d. Technical specifications/catalogue of each component.
13. CCTV system to be supplied and installed with all software, hardware like sealing joint, connectors (all type LC/SC/GBIC, RJ45 etc), patch cords etc. are deemed to be included in scope of work and nothing extra shall be paid on this account. Contractor is required to work out his costing accordingly.

GUIDELINES FOR THE CCTV INSTALLATION

1. There should not be any provision of onboard feed storage in camera, and if there be any (like micro-SD), it has to be disabled.
2. Provision of feed storage of all CCTV cameras has to be of minimum 30 days (24X7).
3. The camera must not have any audio support (i.e. no audio recording and no microphone, speaker support). Both microphone and speaker in camera has to be disabled.
4. CCTV cameras, NVR, switches etc. should be compatible with each other.
5. CCTV camera should be STQC certified as per Govt. of India guidelines on safety & security standards.

Assistant Engineer (E)-P
DED-81, CPWD

Executive Engineer (E)
DED-81, CPWD

LIST OF PREFERRED MAKES OF MATERIALS
(FOR E & M WORKS)

Specification/brands names of materials (Refer materials, whichever are applicable for the scope of work) and finishes approved by the **Engineer-in-Charge** are listed below. However approved equivalent materials and finishes of any other specialized firms may be used, in case it is established that the brands specified below are not available in the market and subject to approval of the alternate brand by the **Engineer-in-Charge**, (See also conditions of contract)

S.No.	Details of Materials/Equipment	Manufacturer's name/make
Solar Plant & EI Installation		
1	Solar Photovoltaic Power Plant	Tata Power Solar / Inter Solar / REIL/ BHEL/BEL/ Havells / REC/ EMMVEE/ Waaree Energies/ Vikram Solar/ Manufacturers approved by Ministry of New & Renewable energy
2	MCB, Isolator, Industrial Plug Socket, RCCB, RCBO's.	Schneider Electric ACTI-9/ Legrand(DX3)/ L&T(Exora)/Siemens(Betagard)/ABB(SB200M).
2	MCBDB & Loose Wire Box.	Legrand/L&T/Schneider/ABB(Elegance)/Siemens
3	Change Over Switch.	L&T/Havells/HPL/C&S/Legrand/ABB
4	Automatic Transfer switch(ATS)	Cummins/Asco/Russelectric/ABB/L&T/GE
5	FRLS PVC insulated copper conductor single core cable for wiring (ISI marked).	Finolex/RR Kabel/KEI/Polycab/Lapp/Havells/ Pi Square/ Rallison
6	Armoured/Unarmoured telephone cable and Co-axial cable	Delton/Finolex/RR Kabel/Bonton/ Polycab/ Lapp/ Pi Square / Rallison
7	MS Conduit (ISI Marked) with Heavy Duty MS conduit pipe Accessories.	BEC/NIC/AKG/RMCON/Steel Kraits Note:- All Ms conduit pipe accessories will be same make as that of conduit pipe and will comply to IS/4768 part 2 2003
8	PVC conduit (ISI Marked) with heavy duty PVC conduit pipe accessories	AKG/Norpack/BEC/Precision/Finolex/Astral /Polycab
9	Modular switch, socket/Telephone socket/cable TV socket/Data outlet socket/fan Regulator/GI Boxes and cover plate, blanking plate, Modular MCB etc.	Legrand (Arteor)/Schneider Electric (Zencelo)/MK (Blenze plus)/Havells(Crabtree- Athena)/Honeywell (Citric)/ABB(TVISHA)
10	HDPE Pipe (ISI marked)	REX/Tirupati/CPE/Supreme/Jain Irrigation/ Duraline
11	PVC Trunking	MK/Legrand/ Schneider/Hager
12	GI pipe	Tata/Jindal(Hissar)/Prakash Surya
12	Synthetic enamel paint	ICI Dulux/Asian/Nerolac/Berger
13	Terminal Blocks and Connectors	Elmex/Wago/Hensel/Connectwell/Essen/L&T
14	Phenolic Laminated Sheet/Bakelite Sheet	Hylam/Formica/Greenlam
15	Cat-6 Cable/Wire & Fiber Optic Cable	Amp/Avaya/Belden/Legrand/Delton/Molex/ Pi Square// Rallison
16	XLPE insulated PVC sheathed Al./Copper Conductor Armoured/ Unarmoured cable of 1.1 KV grade.	Finolex/ RR Kabel/Universal/ Polycab/ Nicco/ KEI/Havells/ Pi Square
17	GI/Copper Strip and Earthing material	Bharti/Indiana/Slotco

18	Chemical Earthing	JMV LPS Ltd./Pragati Electrocom/Ecosafe/Duval Messien (Terec)
19	Occupancy Sensor/Lighting Control System	Philips/Schneider/Legrand/Siemens
20	LED fittings i/c flood light	Philips/ Lighting Technology/Disano/Regent/Wipro/Havells/Orient
21	Cable Trays Its Accessories	Bec /Rmcon / Indiana /Pilco/Mem
22	Timer Switch & 3 Pole Contractor	L&T/ ABB / Legrand /Siemens
23	Thermoplastic Polycarbonate Junction Box	Hensel /Rittal/ Siemens
24	UPVC Trunking and accessories	Legrand / Honeywell / OBO/AKG
25	Ceiling Fan/ Exhaust Fan/ Wall Fan/ Ventilation Fan	Usha/Crompton/Orient/Havells/Atomberg
26	Lead acid Battery	Exide/Amara Raja/ HBL/Pulse /Amco / Panasonic
25	Ceiling Fan/ Exhaust Fan/ Wall Fan/ Ventilation Fan	Usha/Crompton/Orient/Havells/Atomberg
26	Lead acid Battery	Exide/Amara Raja/ HBL/Pulse /Amco / Panasonic
27	Axial flow/Centrifugal Fan	Kruger/Greenheck/Wolter/Nicotra/Systemair/ Comefri
28	Electric Motor	ABB / Siemens / Kirloskar / Grundfos / NGEF / Crompton Greaves/Havells
29	Cat-6 Information Outlet / Fiber equipment/ Cat- 6/6A UTP cable/ Cat 6/6A Jack Panel/ CAT 6/6A patch cords	3C3/Legrand/D Link/Molex/Systimax/ Polycab/ Nexans// Rallison/ Derwiser/Molex / Siemon/ Systimax
30	RJ-45 Connector for Cat-6/6A	3C3/Legrand/D Link/Molex/Systimax/ Polycab
31	Equipment Rack	Derwiser/MTS/Rittal/APC/APW
32	Any other item	To be approved by Engineer-in-Charge
CCTV Make		
1.	Face Plate	Derwiser/Molex /Siemon/Systimax
2.	Networking rack	MTS /Rittal /APC /APW / Derwiser/Legrand
3.	LED Display	Panasonic/ Sony/ Samsung / LG
4.	Core LAN Switch	Cisco /Juniper /Arista / Allied Telesis/Extreme/Nexus
5.	Distribution LAN Switch	Cisco /Juniper/ Arista / Allied Telesis/Extreme/ Nexus
6.	Access LAN Switch	Cisco / Juniper /Arista /Allied Telesis /Extreme/ Nexus
7.	Firewall/Router	Cisco/ Juniper / Arista /Fortinet / Paul Alto/ Nexus
8.	Works station	HP/Dell/Lenovo
9.	CCTV Camara & NVR	STQC Approved Camera.

Note: 1. Only applicable items as per requirement of the tender.

2. Department reserves the right to reject any material used without Prior approval from Engineer-in-Charge. No payment shall be made for such rejected material.
3. Public Procurement (Preference to Make in India) order 2017 issued by competent authority of Government of India shall be implemented during selection of materials and execution of work accordingly. Any Manufacturer if not included in the approved make list, may be considered by the Engineer-in-Charge provided such manufacturers comply the above policy along with their product meeting the specifications and other details of the required item.
4. For each item to be used at site, contractor shall submit model number for each item of make & model for approval by Engineer-in-charge.
5. Material specified in the list of Preferred makes shall be got approved by Engineer-in-charge before use in the work. Decision of Engineer-in-charge shall be final in this regard.
6. Materials not specified in the list of preferred makes shall be got approved from Engineer-in-charge before use on work.

Assistant Engineer (E)-P
DED-81, CPWD

Executive Engineer (E)
DED-81, CPWD

SCHEDULE OF WORK

**Name of work:- 1) Construction of Office cum Residence for Subsidiary Intelligence Bureau (SIB) at Plot No. 12, PSP Area Sector-22, Rohini, New Delhi (SH: SITC of Solar PV Power System).
2) Providing and Installation IP based CCTV Camera system with equipments in SIB Rohini Sector 22, Rohini, New Delhi (SH: SITC of CCTV System).**

S.No.	Item	Qty	Rate	Unit	Amount
1	SH:-1 (SOLAR PV POWER SYSTEM)				
	Supplying Installation, Testing and Commissioning of on-grid Solar Photovoltaic Power Plant conforming to various applicable standards BIS, IEC, MNRE guidelines, the Central Electricity Authority Regulations and CPWD Specifications as amended up to date, consisting of Mono/Poly Crystalline silicon solar cells module, net metering facility, necessary control, protections, earthing, cabling, mounting structure, junction boxes, power conditioning units, Real time online web interfaced Data Monitoring System, Distribution panels, grid connecting arrangement, conduits, pipes, cable trays and other accessories etc. as required.				
	a) High Energy Efficiency 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 23% at STC with temperature coefficient of Pmax better than -0.30% per 0C. 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. Solar Modules shall be designed to operate in relative humidity upto 100% with temperature between -10 0C and +85 0C. Further, each PV module used in any solar power project must have Radio frequency identification tag with information such as name of manufacturer, month and year of manufacturing, country of origin (separately for Solar cell and module), I-V curve, Unique Serial No and Model No of the module, Wattage, Im, Vm and FF, name of test lab issuing IEC certificate.				

	b)Power Conditioning Unit (PCU) of 350-800 V DC Input voltage range and 415 V AC, three phase, 4 wire, 50Hz +/- 2.5 Hz, output voltage suitable to generate AC with a variation of 10% at nominal voltage. Power with efficiency not less than 97%, total harmonic distortion less than 3% and suitable for ambient temperature from 0 to 50 0C, Minimum IP-65 for outdoor and Minimum IP 21 for indoor, Built-in meter and data logger, MPPT, switching devices IGBT/MOSFETs and controller Microprocessor /DSP. PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown. The PCU shall be able to withstand unbalanced load conforming to IEC standard with shutdown/standby mode. It must be provided with grid islanding along with manual disconnect pole isolation switch besides automatic disconnection. Minimum protections: Mains Under / Over Voltage, Over current, Over/Under grid frequency, Over temperature, Surge voltage induced at output due to external source, Short-circuit, Lightning, Anti Islanding (for grid synch. Mode) and other protections as per applicable standards. LCD/LED display of minimum parameters: DC input voltage, DC current, AC Voltage and current (all 3 phases, in case of 3 phase), Instantaneous & cumulative AC output power, Daily DC energy produced and other parameters applicable standard. Communication interface RS 485 / RS 232.				
	c) Module mounting structure: The roof top solar plant generation units shall be installed by using supporting Aluminium/Galvanized MS structure (mass of zinc coating shall be as per IS4759) having minimum head room clearance of 2.4 meter above the terrace level /ground level. The mounting structure would be designed to sustain wind load and seismic parameter of the site of installation. All the structure shall be design as per applicable BIS code and the material shall also confirm the applicable BIS Code. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. The suitable arrangements for maintenance and cleaning shall be provided.				
	d) Real time online web interfaced Data Monitoring System complete with accessories for various parameters such as Solar Irradiance, temperature, AC Output Voltage and current, Output Power, Power Time disabled, Time Idle, Power produced and other parameters as per standard practices.				

	e) 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. Each junction box shall be made of GRP/FRP/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement with High quality Suitable capacity Metal Oxide Varistors(MOVs) (semiconductor diode with resistant applied voltage)/ surge arrestors and suitable Reverse Blocking Diodes, isolation switches isolate the DC input to Inverter, copper bus bar etc.				
	f) Lightning, surge voltage protection, earthing protection and grid islanding.				
	g) Cables: Connections & Interconnections by required size IR/UV protected XLPE insulated copper conductor 1.1 kV grade armored power and control cables(ISI Marked) along with supplying & fixing of necessary channel/conduit, GI cable trays, supports, lugs, thimble and other accessories etc. as required.				
	h) DC Distribution Board And AC Distribution Panel Board: IP65, free standing, metal cladded, having copper bus bar, having required protection and control gears, connection-interconnection, etc. as required.	15	54280	Per kwp	814200
2	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc. direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required.				
	a) 90 mm dia (OD-90 mm & ID-76 mm nominal)	30	336	Mtr.	10080
3	Supplying of one number PVC/XLPE insulated and PVC sheathed/XLPE aluminum conductor power cable 1.1 KV grade of following size etc as required.				
	a) 3.5 x 70 sqmm	30	843	Mtr.	25290
4	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
	a) Above 35 sq. mm and upto 95 sq. mm	30	72	Mtr.	2160
5	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
	a) Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	10	151	Mtr.	1510

6	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
	a) 3½ X 70 sq. mm (38mm)	2	542	Each	1084
	Total SH-I Rs				854324.00
	SH-II CCTV SYSTEMS				
1	8 MP IP IR Outdoor Bullet Camera Supplying Installation Testing and Commissioning of 8 MP IP IR Outdoor Bullet Camera having following specifications and features etc :- 1) Type of Camera: Outdoor Bullet Camera 2) Image Sensor: 1/2.8" or better progressive Scan CMOS get color image even at night condition 3) Signal System: PAL/NTSC 4) Minimum Illumination: 0.006 Lux@ F1.4, AGC ON, 0 lux with IR or better 5) Imaging: 1/3s to 1/30000s, Auto Gain Control , White Balance- Auto, Back Light Compensation, Multi zone Privacy Masking, HLC, Digital Watermarking. 6) On Screen Display: Camera should display Camera title, Date & Time in live & recorded video both. 7) Signal to Noise Ratio: > 50 dB 8) Day & Night: True Day & Night High Performance Mechanical IR cut filter with auto switch, IR Source- Inbuilt Smart IR LED's with effective distance upto 50 Mtrs integrated IR and 30 meter for colour view in night 9) Video Compression (Minimum): H.265 or better, H.264, Audio:- G.711U/A, G.711Mu, G.726, AAC, G.723 10) Wide Dynamic Range: WDR (120dB or more) 11) Digital Noise Reduction: DNR (2D/3D) On/Off 12) Streaming: Triple streaming, configurable 13) Video Streaming & Frame Rates: Triple streaming , configurable Main stream: 8MP (3840 × 2160)@20 fps, Sub streams: 4MP @25/30 fps & D1@25/30 fps; 14) Image Setting: Rotate Mode, saturation, brightness, contrast, sharpness adjustable through client software or web browser				

15) Profile Management: User configuration import, export 16) Security: User Authentication, Digital Water Marking 17) Onboard Storage; Camera should support built-in Micro SD/SDHC/SDXC Card slot upto 512 GB. It should be supplied with minimum 128GB memory Card. 18) Recording Management: Format SD, overwrite, storage management, video to NAS device, 19) Edge Analytics: Tripwire, Intrusion, Motion Detection 20) Alarm Trigger: Motion/tampering detection; network disconnection detection; IP conflict detection; memory card state detection; memory space detection 21) Alarm Support: It should have 1/1 Alarm In/ Out Port 22) Audio Support: It should have 1x Built-In Mic and 1/1 Audio In/ Out Port for external Mic. and Speaker (As per site requirement) with G.711U/A/ G.711Mu/ AAC/ G.726 audio compression 23) Network Protocol: SFTP, IPv6, IPv4, DNS, RTCP, NTP, RTP, HTTP, HTTPS, SNMP TCP/IP, PPPoE, NFS, UDP, ICMP, SSL, DHCP, SMTP, RTSPS, unicast, 24) User Access: Minimum 08 Users 25) System Capability: ONVIF Profile S, G & T. CCTV Camera OEM should be fulltime member of ONVIF and quoted models should be listed on ONVIF official website (All the certifications & Credentials should be valid on the date of technical evaluation). 26) VMS: Camera shall support open source VMS 27) Cyber Security: trusted boot, AES 256-bit Encryption, Configuration encryption, trusted execution, Digest, security logs, account lockout, video encryption, IP/MAC filtering, HTTPS, trusted upgrade.				
28) Ethernet: 1 RJ 45 10/100 Ethernet port 29) Power Input: The camera should support simultaneous dual power input—12 VDC (via power adapter) and PoE—to ensure continuous operation in the event of a failure in one power source. 30) Power Requirement: 12VDC/24VDC/PoE (802.3af)/ePoE 31) Enclosure: IP67 weather proof, IK10 32) Operating Condition: Ambient Temperature:- (-)05°C to 50°C, humidity 95% (max) (non-condensing)				

	33) IR life: 40000 hours or higher 34) Video Bit rate: 32 KBPS - 8 MBPS or better 35) Standards: BIS with ER, STQC Certified, CE, FCC and RoHS				
	(a) 8 MP (3840 × 2160) or better IP IR 2.8/ 3.6/6/8/12 mm fixed lens	8	19435	Each	155480
2	Network Video Recorder (NVR) Supplying Installation Testing and Commissioning of following Channel Network Video Recorder (NVR) with camera licenses to record for all channels having specifications and features etc as mentioned below : 1) Network Video Recorder Embedded/ Installed OS (Linux) along with Camera Licenses for number of channels of NVR to record per NVR and to provide a live view, storage and simultaneously Multi-channel playback of all IP, IR camera or more and must be ONVIF with minimum support of 256Mbps incoming Bandwidth. 2) NVR should support H.265 or better, H.264, MJPEG, MPEG4 support 3) Must support 1 channel Input, 1 channel Output, RCA for Two-way Talk 4) Intelligent auto power on when power resumes after power outage. 5) Storage: It should support minimum 2 SATA Slots with 20TB capacity/ Slot. 6) Connectivity Interface : 1 Nos. x 10/100/1000 Mbps Ethernet Ports, 1x RS485, 1x RS232 7) Backup Interface : Its should have 2 Nosx USB port (1x USB3.0, 1xUSB2.0) 8) Video Output Ports: 1x HDMI and 1 VGA 9) Alarm Ports: It should have 4/1 Ch In/ Out ports to connect various type of external sensors and output devices like hooter/ Siren etc.				

10) Email & SMS Alert options: Option for SMS/Email Alerts to minimum 5 designated mobile number for power failure, HDD failure, vandalism, tampering, network disconnection and panic 11) Web & Mobile Application: Web, Mobile app (For iPhone, iPad, Android Phone) for alerts and viewing. 12) Protocols: HTTP, HTTPS, TCP/IP, IPv4, UDP, NTP, DHCP, DNS, SMTP, UPnP, DDNS, AlarmServer, IP Search, Multicast, Auto Registration, ONVIF (Profile T, Profile S, Profile G), CGI, SDK and OEM Cloud for remote monitoring without any public IP need. 13) Standards: CE, FCC, RoHS and BIS Certified 14) Power Supply : Should support 12VDC, 4Amp or AC100-240V, 50/60Hz Power supply. 15) Operating Condition : Ambient Temperature (-5°C to 50°C), humidity 90% (max) (non-condensing) 16) The VMS, NVR application shall support all the features & functionalities of the offered cameras. 17) VMS should consist of Base license and Channel Licenses. VMS should be provided with camera Licenses , with no dependency of VMS licenses by binding with the MAC address of the cameras to achieve the functionality. 18) The NVR OEM shall be responsible for providing a mobile application compatible with both Android and iOS devices, enabling remote monitoring and playback of cameras/NVR footage 19) The OEM must provide its own DDNS server hosted in India, eliminating the need for a public IP address for remote monitoring over the Internet. 20) Must support Resolution: 7680x4320 (8K), 3840*2160, 1920×1080, 1280×1024, 1280×720, 1024×768				
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	21) Must support recording resolution upto 32MP 22) Must support Continuous, Alarm, Motion, Instant, Panic Recording Mode 23) When alarm recording is enabled and an event occurs, you can click the alarm icon on monitoring page to view the alert details. The snapshot function is supported on monitoring and playback page 24) The Network Video Recorder (NVR) shall be configured to send email whenever a system message is created or an alarm event occurs. The email server shall be a valid SMTP server. Each recipient email address shall be configured to receive any combination of critical, warning, or informational messages or alarm notifications. When an alarm occurs, the email message includes the NVR name, time of alarm and a list of camera that is configured to record upon alarm 25) It should support Network Support: HTTP, TCP/IP, SMTP, DHCP, DNS, DDNS, FTP, NTP, UPnP, Multi IP Setting. Convert multiple recording files to one avi/MP4 file. 26) General AI Based Search: Search Pictures by channel, time, event type, target classification (Fall Detection, People Approach Detection, People No. Exception Detection, People Staying Detection, Violence Detection.				
	27) Alarm Notifications based on: Motion detection, video tampering, video loss, scene changing, PIR alarm, Camera external alarm, Face detection, face recognition, perimeter protection (intrusion and tripwire), ANPR, people counting, stereo analysis, crowd distribution, heat map, Disk Full, Storage Error, IP Conflict and abnormal behavior of fan 28) Alarm Notification should be linked with Recording, snapshots, Camera external alarm output, buzzer, logs, presets and email. 29) Built-In Artificial Intelligence: NVR should have built-in AI :- - 2 Channel face detection and recognition, - Minimum 4 Channel perimeter protection, - Minimum 8 Channel Smart Motion Detection 30) Face Recognition Database Capacity: It should support total Blacklist and Whitelist capacity of Minimum 20,000 Faces or more with Face Detection speed of 12 face images/sec. 31) Face & Human Attributes Search: Search Pictures/ Video by Gender, age group, glasses, expressions, face mask, beard, Top color, top type, hat, bag, age, gender and umbrella. 32) ANPR Capability: It should support ANPR Camera with License plate, plate color, vehicle body, vehicle model, vehicle logo, calling, seatbelt, vehicle registration location etc vehicle attributes.				

	33) Alarm Notifications based on: Motion detection, video tampering, video loss, scene changing, PIR alarm, Camera external alarm, Face detection, face recognition, perimeter protection (intrusion and tripwire), ANPR, people counting, stereo analysis, crowd distribution, heat map, Disk Full, Storage Error, IP Conflict and abnormal behavior of fan, cybersecurity exception 34) Alarm Notification should be linked with Recording, snapshots, Camera external alarm output, buzzer, logs, presets and email. 35) General AI Based Search: Search Pictures by channel, time, event type, target classification (Fall Detection, People Approach Detection, People No. Exception Detection, People Staying Detection, Violence Detection. 36) Smart playback function: Should support smart search for the selected area in the video and smart playback to improve the playback efficiency 37) VCA (Video Content Analytic): Should support multiple video contented analytics based on camera analytics				
(a)	16 Channel Network Video Recorder (NVR) having display split :- Main screen: 1/4/8/9/16, 2nd screen: 1/4/8/9/16	1	12799	Each	12799
3	Supplying, installation, Testing and commissioning of following capacity 8 port Layer 2 indoor Network Switch having features and specifications etc. as mentioned here under: Minimum 8 X RJ-45 Gigabit Ethernet Ports and additional 2 X 1G SFP Ports with non blocking architecture by having Switching capacity of minimum 20Gbps and packet forwarding rate of 14Mpps or higher, 8K MAC table. Internal dual AC Power supply with operating temperature of -5 0C to +50 0C. Jumbo frame: 10KB or higher, IGMP Snooping, IGMP snooping querier and support for IGMP Snooping Fast Leave, Should create 250 or more MLD groups, MLD Snooping, Per VLAN MLD Snooping C MLD Snooping Fast Leave, STP, RSTP, MSTP, Loopback detection, Multicast filtering, VLAN Tagging, QOS: 8 Que per port, WRR, IPv4/IPv6 Interface : minimum 100 IPv4 static route entries and minimum 50 IPv6 static route entries, 700 Access Control entries, SSH CSSL for IPv4 and IPv6, 802.1x, ARP Spoofing, DHCP Snooping and server screening, IP+MAC+Port Binding, Per Port Bandwidth Control, 802.1X Authentication (Supports local/RADIUS database, Port-based Access Control and EAP, OTP, TLS, TTLS, PEAP Support) Cable Diagnostic feature, LLDP, LLDP-MED, Sntp/NTP, RMON, SNMP v1,v2c, v3 and SNMP Traps. Certifications: UL, CE, FCC, RoHS, MTCTE, OEM/Product must be on Trusted Telecom Portal of Department of Telecommunication, Government of India etc. complete as required.				

(a)	8 port PoE Layer 2 Network Switch with PoE Support of 130W or higher with each copper port supporting 802.3at PoE+.	2	35091	Each	70182
4	Supplying, Installation, Testing and Commissioning following capacity Surveillance grade Hard Disk with upto 256MB/s Transfer Rate, 256 MB Cache, 7200 RPM Disk Speed, 3.5-inch form factor, SATA Interface, BSMI, ICES-003/NNB-003, CE, FCC, KC, Maghreb, RCM, UKCA, VCCI, CB-Scheme, TUV, UL Certifications.				
(a)	10TB (Terabytes)	2	24798	Each	49596
5	Supplying, Installation, Testing and Commissioning of following size LED display (LED monitor) industrial grade with 3840x2160 resolution or better, USB playback, Bluetooth and miracast connectivity, 4X HDMI 2.0, DP 1.2, HDR 10/10+, brightness: 500-nits or better, Video wall mode should be available, contrast ratio: 1200:1, OPS slot, viewing angle (H/V): 170°/ 170°, response time less than 12ms, Display control shall be on monitor screen and programmable with remote (remote shall be supplied with system), Key Board, Optical Mouse, etc. as required.				
(a)	42 inch or larger	1	51459	Each	51459
6	Supplying, drawing, Testing and commissioning of Cat6A UTP 4 pair, 23 AWG solid copper cable in existing conduit/ on surface, U/FTP, LSZH, Non-Plenum, Horizontal (solid) Cable suitable for high-speed data networking application supporting upto 10Gbps over a 100 meter channel. The 4 Unshielded Twisted Pairs (UTP) cable with color coded insulation for easy identification should have FLAME PROPERTIES i.e. Flammability Test - IEC 60332-1, Smoke Density - IEC 61034, LSZH standards compliance: ANSI/TIA-568 C.2, ISO/IEC 11801, IEEE 802.3an, RoHS. Delay Skew should be < 45NS. The outer Cable Diameter should be 7.5 + 2 mm. Cable should have been tested and verified by UL/ ETL etc. complete as required.				
(a)	1 Run of cable	400	74	P/mtr	29600
7	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
(a)	20 mm	400	151	P/mtr	60400
8	Supplying and fixing Outdoor Pole/ Wall mount 6U Rack, IP55, Front Door with Filter, Louver & Unique key Lock. 3 Socket PDU 5Amp - 1 No. Self-adhesive thermal foam from inside. Hood For Air Inlet at front side. 1U Cantilever Tray 250mm Depth, Gasket. etc complete as required.	1	22228	Each	22228

9	Supplying Installation Testing and Commissioning of 24 port Cat6 Patch Panel loaded. Must be of 1U height with clear label holders and white label with the panel. 24 Ports Cat-6 Patch Panel should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D etc. complete as required.	2	5278	Each	10556
10	Supplying, Installation, Testing and commissioning of following CAT6 Patch Cord should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D etc. complete as required.				
(a)	Copper Patch Cords of length 1m (3ft)	2	151	Each	302
11	Supplying, Installation, Testing and commissioning of RJ45 Connector for CAT 6/6A Cables. RJ45 modular plug supports 4 twisted pairs, 8 positions, 8 connectors. Housing: PC, UL94V-2, transparent color, Use for 24- 26 AWG stranded wires etc. complete as required.	10	9	Each	90
12	Supplying, Installation, Testing & Commissioning of Flood Light, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: Input voltage: 140-270 Volt AC, frequency 50/60 hz, Operating temp range -5 0C to 50 0C, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2, P. F. ≥ 0.95, IP-66, IK-10, CRI >70, under voltage and over voltage protection, EMI-EMC as per CISPR -15, lenses for beam angle 30 deg-120deg as per the application and the project requirement., suitable tilt able fitting, life time (LED, Driver & electrical circuitry) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K / 6500°K (As per ANSI Bin) , SDCM(Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c external connections with 1.5 sq mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output. LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in- Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C). LED Flood Light, powder coated pressure die cast aluminium (System lumen efficacy ≥105 <120lm/Watt).				
(a)	150 Watt	8	3166	Each	25328
13	Supplying and fixing of 3 core 1.5 sq.mm screened unarmoured PVC insulated and PVC sheathed copper conductor cable, 1100 Volt grade complete etc. as	200	197	mtr	39400

	required.as per IS:694-2010				
	Total SH-II Rs				527420
	G. Total Rs				1381744.00

Assistant Engineer (E)-P
DED-81 CPWD

Executive Engineer (E)
DED-81 CPWD

FINANCIAL BID
(Performa for Quoting the Rates)

CENTRAL PUBLIC WORKS DEPARTMENT					
NIT No: 51/EE(E)/DED-81/2026-27					
NAME OF WORK: - 1) Construction of Office cum Residence for Subsidiary Intelligence Bureau (SIB) at Plot No. 12, PSP Area Sector-22, Rohini, New Delhi (SH: SITC of Solar PV Power System). 2) Providing and Installation IP based CCTV Camera system with equipments in SIB Rohini Sector 22, Rohini, New Delhi (SH: SITC of CCTV System).					
SCHEDULE OF QUANTITY					
S. No.	Name of Components	Estimated Cost	Percentage above or below the Estimated Cost	%age in Figures	Total Cost
1.	Electrical works	Rs. 13,81,744/-			
	Total	Rs. 13,81,744/-			

Contractor