



NEWTOWN KOLKATA DEVELOPMENT AUTHORITY
(A Statutory Authority under Government of West Bengal)
3333, Major Arterial Road . DG Block, Action Area-ID . Kolkata -700156
Ph. No. (033)2324-2138 Email Id: sadhanmajumdar1960@gmail.com

Memo No: 9865/EE(E)/NKDA/Elect/2023-24

Date: 30.10.2023

NOTICE INVITING e-QUOTATION

Notice Inviting e-Quotation No. 51/EE(E)/NKDA/2023-24 (2nd Call)

Executive Engineer (E), New Town Kolkata Development Authority invites quoted rate e-quotation from resourceful, reliable, bonafide manufacturer/ dealer or distributor/traders & Industrial under taking organization etc. Who has tender specific authorization for the work detailed below:

1. (Submission of Bid through online)

1 Name Of Work	Supply, delivery, installation testing commissioning, and repairing of Solar light fittings at the different green verge of AA-I & AA-II at Newtown, under NKDA.
2 Eligibility Of The Bidder	Bonafide, resourceful and reliable Electrical contractor.
3 Estimated Amount Put to Tender	Agency has to Quote
4 Earnest Money To Be Deposited through Online.	Earnest money Rs. 35,000.00/ (Rupees Thirty Five Thousand) only to submit through Online payments/RTGS/NEFT from ICICI Bank. In favor of "Newtown Kolkata Development Authority" payable at Kolkata
5 Time Period of Completion of Work	184 days
6 Bid opening place (Technical & Financial)	Office of the Executive Engineer[E], NKDA

2. Eligibility criterion for participation in the Tender:

a. Intending Tenderer: -

- (a) shall have satisfactorily completed during the last 5(five) years from the date of issue of this Notice at least onework of similar nature inclusive of similar items of work having a minimum value equal to Rs. 7,00,000.00, or
- (b) shall have satisfactorily completed during the last 5(five) years from the date of issue of this Notice at least twoworksof similar nature of work inclusive of similar items of work each of which having a minimum value equal to Rs. 5,30,000.00, or
- (c) shall produce credential of one single running work of similar nature inclusive of similar items of work which has been satisfactorily completed up to the extent of Rs. 14,00,000.00 and the value of such executed part is not less thanthe desired value as at (ii)/(a) above, provided that the credential certificate clearly states that the work is in progress satisfactorily and also that no penal action has been initiated against the executing agency, i.e., the instant bidder, under the authority of State/ Central Govt. State/ Central Govt. undertaking/ Statutory Bodies constituted under the statute of the Central / State Govt.

DATA SHEET of the item for which rate has been quoted is to be uploaded (Scan). Materials are to be delivered at site.

N.B.: - Completion certificate should contain a) Name of work, (b) Name of Client, (c) Amount put to tender, (d) Schedule month and year of commencement and completion as per work order (e) actual month and year of completion. f) Total Bill amount containing with work order copy with schedule.

b. The prospective bidders must have Valid up to date clearance of Income Tax return / Pan Card/ Trade licenses./ P.T. (Deposit Challan)/ Professional Tax Clearance Certificate/ Valid 15-digit Goods and Services Taxpayer Identification Number (GSTIN) under GST Act, 2017 / Electrical Supervisors' Certificate of Competency in parts 1,2,4,7A&11 or Equivalent National Supervisors' Certificate of Competency/ Electrical Contractor's License / Voter ID Card for self-identification and Income Tax Acknowledgement Receipt for latest assessment year.

c. The contractors who have been delisted of debarred by any government department shall not be eligible in any way.

3.IMPORTANT DATE AND TIME SCHEDULE:

Sl.	PARTICULARS	DATE & TIME
1	Date of uploading (Publishing) of N.I.Q. Documents (Online)	30.10.2023
2	Documents download start date (Online)	30.10.2023 from 06:55 P.M.
3	Documents download end date (Online)	09.11.2023 up to 06:55 P.M
4	Bid proposal submission start date (Online)	30.10.2023 from 06:55 P.M.
5	Bid proposal Submission end date (Online)	08.11.2023 up to 05:00 P.M
6	Bid opening date for Technical Proposals (Online)	10.11.2023 at 05:05 P.M.
7	Date of uploading list for Technically Qualified Bidder (Online)	Would be intimated later on.
8	Date of opening of Financial Proposal (Online)	Would be intimated later on.
9	Date of uploading of list of bidders along with their rates through (Online), also if necessary for further negotiation through offline for final rate.	Would be intimated later on.

4. **Rate should quoted incl. All taxes and GST. The lowest value offered in totality will be the lowest bidder.**

5. For e-Filing, the intending bidder may download the tender document from the website <http://wbtenders.gov.in> directly with the help of Digital Signature Certificate, free of cost. **EMD (Earnest Money Deposit) @ 2% of the quoted amount**, should be remitted through online in favor of the "New Town Kolkata Development Authority." payable at Kolkata & same may be documented through e-Filing (Details of which has been narrated in "Instruction to Bidders").

6. Earnest Money: Earnest money of **Rs. 35,000/-** only each respectively to submit in the form of ICICI Bank online/ RTGS/NEFT from scheduled Bank, in favor of "**Newtown Kolkata Development Authority**" payable at Kolkata balance amount covering 2% of the quoted amount to be submitted in bank draft / pay order at the time of making agreement by the successful tenderer.

7. The FINANCIAL OFFER of the prospective Bidder will be considered only if the Bidder qualifies in the Technical Bid. The decision of the EXECUTIVE ENGINEER[E], NKDA will be final and binding on all concerned and no challenge against such decision will be entertained. The Name of Qualified Bidders will be displayed in the website on the scheduled date and time as specified above.
8. Bids shall remain valid for a period not less than 180 (One hundred eighty) days after the dead line date for Financial Bid submission.
9. The Bidder, at his own responsibility and risk is encouraged to visit and examine the site of works and its Surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for the work as mentioned in the Notice Inviting Tender, before submitting offer with full satisfaction. The cost of visiting the site shall be at his own expense.
10. Technical Bid and Financial Bid both will be submitted concurrently duly digitally signed in the Website <http://wbtenders.gov.in> within the time as specified above.
11. The intending Bidders should clearly understand that whatever may be the outcome of the present invitation of Bids, no cost of Bidding shall be reimbursable by the Department. THE EXECUTIVE ENGINEER[E], NKDA reserves the right to reject any or all the application(s) for purchasing Bid Documents and/or to accept or reject any or all the offer(s) without assigning any reason whatsoever and is not liable for any cost that might have been incurred by any Tenderer at the stage of Bidding.
12. The Earnest Money of all the unsuccessful Tenderers deposited in favor of the "Newtown Kolkata Development Authority" along with the Tenders will be refunded through online after completion of the tender process.
13. The **intending tenderers are required to quote the rate online only. No offline tender will be entertained.**
14. **Bidder** shall have to comply with the provisions of (a) the contract labour (Regulation Abolition) Act. 1970 (b), Apprentice Act. 1961 and (c) minimum wages Act. 1948 of the notification thereof or any other laws relating there to and the rules made and order issued there under from time to time.
15. During the scrutiny, if it comes to the notice to the tender inviting authority that the credential(s) and/or any other paper(s) has/have been of any bidder found incorrect/manufactured/ fabricated, that bidder will not be allowed to participate in the tender and that application will be rejected outright. THE EXECUTIVE ENGINEER[E]. reserves the right to cancel the Tender due to unavoidable circumstances and no claim in this respect will be entertained.

PROCEDURE FOR SUSPENSION AND DEBARMENT OF SUPPLIERS, CONTRACTORS AND CONSULTANTS

1. SCOPE

The procedure as laid down in subsequent paragraphs shall govern the suspension / debarment of suppliers, contractors and consultants ("contractors" for brevity) involved in government procurement for offenses or violations committed during competitive bidding and contract implementation, for the works under Public Works Department, Government of West Bengal.

2. PROHIBITION / ON SUSPENDED DEBARRED PERSONS/ENTITIES TO PARTICIPATE IN THE BIDDING OF GOVERNMENT PROJECTS/CONTRACTS OF THE DEPARTMENT.

A person/entity that is suspended / debarred by a procuring entity shall not be allowed to participate in any procurement process under Public Works Department during the period of suspension / debarment unless the same has been revoked.

A joint venture or consortium which is suspended / debarred or which has suspended / debarred member/s and/or partner/s as well as a person/entity who is a member of a suspended / debarred joint venture or consortium shall, likewise, not be allowed to participate in any procurement process under Public Works Department during the period of suspension / debarment unless the same has been revoked. Up-to-date declaration to be given that the firm has not been debarred through Notary.

(The same must be invariably mentioned in procurement notice.)

3. DEFINITION OF TERMS: -

3.1 Bidder: - A Person /Contractor /Agency /Joint Venture /Consortium/ Corporation participating in the procurement process and/or a Person /Contractor /Agency /Joint Venture /Consortium/ Corporation having an agreement/contract for any procurement with the department shall be referred as bidder.

3.2 Contract implementation: - A process of undertaking a project in accordance with the contract documents.

3.3 Debarment: - An administrative penalty, in addition to the contract provision, disqualifying a bidder from participating in any procurement process under Public Works Department, Government of West Bengal/any other Government Organization for a given period.

3.4 Debarred Bidder: - A Bidder who was disqualified by the competent authority of the Public Works Department, Government of West Bengal/any other Government Organization.

3.5 Offence: - A violation or breach of a law, regulation, laid down procedure, etc.

3.6 Procurement: - It is the act of buying goods, services or works from an external source. It is favorable that the goods, services or works are appropriate and that they are procured at the best possible cost to meet the needs of the acquirer in terms of quality and quantity, time, and location.

3.7 Procuring Entity / Authority: - The officer authorized by NKDA, for procurement.

3.8 Suspension: - Temporary disqualification of a bidder from participating in the procurement process of NKDA for a period of 6(six) months when an offence is made out against a bidder.

4. GROUNDS FOR SUSPENSION AND DEBARMENT

4.1. Submission of eligibility requirements containing false information or falsified documents.

4.2. Submission of Bids that contain false information or falsified documents, or the concealment of such information in the Bids in order to influence the outcome of eligibility screening or any other stage of the bidding process.

4.3. Unauthorized use of one's name/digital signature certificate for purpose of bidding process.

4.4. Any documented unsolicited attempt by a bidder to unduly influence the outcome of the bidding in his favor.

4.5. Refusal or failure to post a self-declaration to the effect of any previous debarment imposed by any other department of State Government and / or Central Government.

4.6. All other acts that tend to defeat the purpose of the competitive bidding such as lodging false complain about any bidder, lodging false complain about any officer duly authorized by the department, restraining any interested bidder to participate in the bidding process, etc.

4.7. Assignment and subcontracting of the contract or any part thereof without prior written approval of the procuring entity.

4.8. Whenever adverse reports related to adverse performance, misbehavior, direct or indirect involvement in threatening, making false complaints etc damaging the reputation of the department or any other type complaint considered fit by the competent authority of the department, are received from more than one officer or at more than one occasion from individual officer.

4.9. Refusal or failure to post the required performance security / earnest money within the prescribed time without justifiable cause.

4.10. Failure in deployment of technical personnel, engineers and / or work supervisor having requisite license/ supervisor certificate of competency as specified in the Contract.

4.11. Refusal to accept an award after issuance of "letter of acceptance" or enter into contract with the government without justifiable cause.

4.12. Failure of the contractor, due solely to his fault or negligence, to mobilize and start work or performance within the specified period as mentioned in the "Letter of Acceptance", "Letter of Acceptance cum Work Order", "Work Order", "Notice to Proceed", "Award of Contract", etc.

4.13. Failure by the contractor to fully and faithfully comply with its contractual obligations without valid cause, or failure by the contractor to comply with any written lawful instruction of the procuring entity or its representative(s) pursuant to the implementation of the contract.

4.14. For the procurement of consultancy service/ contracts, poor performance by the consultant of his services arising from his fault or negligence. Any of the following acts by the consultant shall be construed as poor performance.

i. Non deployment of competent technical personnel, competent engineers and or work supervisors;

ii. Non deployment of committed equipment, facilities, support staff and manpower; and

iii. Defective design resulting in substantial corrective works in design and/or construction;

iv. Failure to deliver critical outputs due to consultant's fault or negligence; and

v. Specifying materials which are inappropriate and substandard or way above acceptable standards leading to high procurement cost.

vi. Allowing defective workmanship or works by the contractor being supervised by the consultant.

4.15. For the procurement of goods, unsatisfactory progress in the delivery of the goods by the manufacturer, supplier or distributor arising from his fault or negligence and/or unsatisfactory or inferior quality of goods, vis a vis as laid down in the contract.

4.16. Willful or deliberate abandonment or non-performance of the project or contract by the contractor resulting to substantial breach thereof without lawful and/or just cause.

5. CATEGORY OF OFFENSE: -

5.1. First degree of offense: - Si. No. 4.1 to 4.16 to be considered as first degree of offense.

5.2. Second degree of offence: - Any one of the offences as mentioned under 5.1 above, committed by a particular bidder/contractor/supplier by more than one occasions, be considered as second degree of offense.

In addition to the penalty of suspension / debarment, the bid security I earnest money posted by the concerned bidder or prospective bidder shall also be forfeited.

(The same must be invariably part of the process of evaluation of bids.)

6. PENALTY FOR OFFENSE: -

6.1. For committing Degree of offense: - Disqualifying a bidder from participating in any procurement process under NKDA up to 2(two) years.

6.2. For committing Degree of offense: - Disqualifying a bidder from participating in any procurement process under NKDA for a period of 3(three) years.

18. Before issuance of the WORK ORDER, the tender inviting authority may verify the credential(s) and/or other document(s) of the lowest tenderer, if found necessary. After verification, if it is found that the document(s) submitted by the lowest tenderer is/are either manufactured or false, the work order will not be issued in favor of the said Tenderer.

19. If any discrepancy arises between two similar clauses on different notifications, the clause as stated in later notification will supersede former one in following sequence: -

a. Form No. 2911, b. NIT, c. Special terms & Conditioned. Technical bid, e. Financial bid

20. If the dates fall on holidays or on days of bandh or natural calamity, the dates defer to next working days.

21. All tenderers are requested to be present online during opening of tenders positively. In no case his/their absence will stand against holding the same.

22. In case of inadvertent typographical mistake found in the specific price schedule of rates, the same will be treated to be so corrected as to conform with the prevailing relevant schedule of rates and / or technically sanctioned estimate.

23. The intending tenderer is required to quote the rate **inclusive of all taxes and duties in figures as well as in words.**

24. Conditional / incomplete tender will not be entertained.

25. The accepting authority reserves the right to reject any or all the tenders without assigning any reason whatsoever and he will not be bound to accept either the lowest tender or any of the tenders.

26. Issuance of work order as well as payment will depend on availability of fund and no claim what so ever will be entertained for delay of Issuance of work order as well as payment, if any. Intending tenderers may consider these criteria quoting their rates.

27. If any tenderer withdraws his offer before acceptance or refuse within a reasonable time without giving any satisfactory explanation for such withdrawals, he shall be disqualified for submitting tender to NKDA for minimum period of 1(one) year.

28. Clause-25 of the conditions of contract of the West Bengal Form No. 2911 may be treated to be omitted and there is no provision for arbitration for resolution of disputes that may arise out of the contracts to be entered into by the Department with the contractors for the purpose of carrying out execution of public works as per G.O No. 558/SPW dated 13-12-2011 of P.W.D.

29. Successful tenderers will be required to observe the following conditions strictly:

a) Employees' Provident Fund and Miscellaneous Provisions Act, 1952 and Employees State Insurance Act, 1948 should be strictly adhered to wherever such Acts become applicable.

b) Minimum wages to the workers shall be paid according to the rates notified and/or revised by the State Government from time to time under the Minimum Wages Act, 1948 in respect of scheduled employments, within the specified time as per law. Payment of bonus, wherever applicable, has to be made.

30. Guiding schedule of rates: As per PWD (electrical schedule of works). The term "GS" in the BOQ means "Schedule of Rates for Electrical Works, Govt. of West Bengal, Public Works Department, 2017"

31. Where an individual person holds a digital certificate in his own name duly issued to him against the company or the firm of which he happens to be a director or partner, such individual person shall while uploading any tender for and on behalf of such company or firm, invariably upload a copy of registered power of attorney showing clear authorization in his favor by the rest of the directors of such company or the partners of such firm to upload such tender. The power of attorney shall have to be registered in accordance with the provisions of the Registration Act, 1908.

32. The successful bidder has to execute an agreement in West Bengal Form No. 2911 before final acceptance of the work.

33. The successful bidder will be liable to abide by the clause laid in Order No. 177-CRC/2M-57/2008 dated 12.07.2012 of secretary to the Govt. of West Bengal & Order No. 177/1(15)-CRC/2M-47/2008 dated 12.07.2012 of Technical Secretary, Public Works Department.

34. Any intending bidders who have failed to execute more than one works contract under NKDA and was terminated by any sub rule under clause 3 of Tender Form No. 2911 or terminated under any clause of Standard Bidding Document by the Engineer-in-charge/Employer during last 3(three) years will not be eligible to participate in any bid under any Directorate under NKDA for another 2(two) years from the date of imposition of last termination notice by the Engineer-in-charge/Employer.

35. INSTRUCTION TO BIDDERS

1. General guidance for e-Tendering Instructions/ Guidelines for tenders for electronic submission of the tenders have been annexed for assisting the contractors to participate in e-Tendering.

2. Registration of Contractor

Any contractor willing to take part in the process of e-Tendering will have to be enrolled & registered with the Government e-Procurement system, through logging on to <https://etender.wb.nic.in> (the web portal of public works department) the contractor is to click on the link for e-Tendering site as given on the web portal.

3. Digital Signature certificate (DSC)

Each contractor is required to obtain Digital Signature Certificate (DSC) for submission of tenders, from the approved service provider of the National Information Centre (NIC) on payment of requisite amount details are available at the Web Site stated in Clause 2 of Guideline to Tenderer DSC is given as a USB e-Token.

a. The contractor can search & download NIT & Tender Documents electronically from computer once he logs on to the website mentioned in Clause 2 using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.

b. A prospective bidder shall be allowed to participate in the job either in the capacity of individual or as a partner of a firm. If found to have applied severally in a single job all his applications will be rejected for that job.

4. Submission of Tenders.

General process of submission, Tenders are to be submitted through online to the website stated in Cl.2 in two folders at a time for each work, one in Technical Proposal & the other is Financial Proposal before the prescribed date & time using the Digital Signature Certificate (DSC). The documents are to be uploaded virus scanned copy duly Digitally Signed. The documents will get encrypted (transformed into non readable formats).

A. Technical proposal:

The Technical proposal should contain scanned copies of the following further two covers (folders).

A-1 Statutory Cover Containing

1. Demand Draft/ Bankers Cheque towards cost of tender documents/ original documents as prescribed in the NIT, against work in favor of NKDA.
2. Earnest money (EMD) as prescribed in the NIT against the work in favor of the Executive Engineer[E], NKDA (online)
3. Tender form No. 2911 & NIT with all agenda & corrigendum (download & upload the same Digitally Signed, quoting rate will only be encrypted in the B.O.Q. under Financial Bid. In case quoting any rate in 2911 the tender liable to summarily rejected).
4. Special Terms, condition & specification of works.

A-2. Non statutory Cover Containing

1. Pan Card
2. Valid up to date clearance of Income Tax return.
3. Professional Tax Clearance Certificate.
4. Income Tax Acknowledgement Receipt for latest assessment year.
5. Voter ID Card for self-identification to be accompanied with the Technical Bid documents.
6. Valid 15-digit Goods and Services Taxpayer Identification Number (GSTIN) under GST Act, 2017.
7. Registration Certificate under Company Act. (If any).
8. Electrical Supervisors' Certificate of Competency in parts 1,2,4,7A&11, or Equivalent National Supervisors' Certificate of Competency/ Electrical Contractor's License.
9. Electrical Contractor's License.
10. Registered Deed of partnership Firm/ Article of Association & Memorandum Power of Attorney (For Partnership Firm/ Private Limited Company, if any)
11. Up to date Trade License.
12. Certificate of Registration" from the respective Assistant Registrar of Co – operative Societies & Clearance Certificate for the Current Year issued by the Assistant Register of Co-Op(S) (ARCS) (for Regd. Unemployed Engineers Co – Operative Society Ltd.)
13. Separate AFFIDAVIT – „Y“ declaration has to be uploaded for this particular NIQ. Format attach herewith.
14. Certificate of Debarment.
15. Retention money towards Security deposit @10% on gross payment 8% (Eight percent) of the value of the work shall be deducted from the running account bill and 2% for EMD as per prevailing order. No interest will be paid on Security Deposit.

B. Financial proposal

a. The financial proposal should contain the following documents in one cover (folder) i.e., Bill of quantities (BOQ). The contractor is to quote the rate online through computer in the space marked for quoting rate in the BOQ.

b. Only downloaded copies of the above documents are to be uploaded virus scanned & Digitally Signed by the contractor.

1. PENALTY FOR SUPPRESSION / DISTORTION OF FACT.

Submission of false document by tenderer is strictly prohibited & if found action may be referred to the appropriate authority for prosecution as per relevant IT Act with forfeiture of earnest money forthwith.

2. REJECTION OF BID

The Employer (tender accepting authority) reserves the right to accept or reject any Bid and to cancel the Bidding processes and reject all Bids at any time prior to the award of Contract without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the ground for Employer's (tender accepting authority) action.

3. AWARD OF CONTRACT

The Bidder whose Bid has been accepted will be notified by the Tender Inviting & Accepting Authority through acceptance letter/ Letter of Acceptance. The Letter of Acceptance will constitute the formation of the Contract. The Agreement in W.B.F.No.-2911 will incorporate all necessary documents e.g. N.I.T., all addenda-corrigendum, special terms & condition, Schedule of works (B.O.Q.) and the same will be constituted between the Ten.

Executive Engineer (E)**New Town Kolkata Development Authority****Memo No: 9865/1(7)/EE(E)/NKDA/Elect/2023-24****Date: 30.10.2023**Copy forwarded for information to: -

1. The Chief Executive Officer, New Town Kolkata Development Authority.
2. The Chief Engineer, New Town Kolkata Development Authority.
3. The Finance Officer, New Town Kolkata Development Authority.
4. The Assistant Engineer (E), New Town Kolkata Development Authority.
5. The Sr. Accountant / Cashier, New Town Kolkata Development Authority.
6. P.A to the Chairman, New Town Kolkata Development Authority.
7. Official Website of New Town Kolkata Development Authority (www.nkdamar.org)

Executive Engineer (E)**New Town Kolkata Development Authority**

AFFIDAVIT - "Y"

(To be furnished in Non-judicial Stamp Paper of appropriate value duly notarized)

1. I, the undersigned, do certify that all the statements made in the attached documents for the work""(Name of work, tender of which invited) are true and correct. In case of any information submitted proved to be false or concealed, the application may be rejected and no objection / claim will be raised by the undersigned.
2. The undersigned also hereby certifies that neither our firm.nor any of constituent partner had been debarred to participate in tender by any Government Department during the last 05 (Five) years prior to the date of this NIT.
3. The undersigned would authorize and request any Bank, person, Firm or Corporation to furnish pertinent information as deemed necessary and / or as requested by the Department to verify this statement.
4. The undersigned understand that further qualifying information may be requested and agrees to furnish any such information at the request of the department.
5. Certified that, I have applied in the tender in the capacity of individual / as a partner of a firm &i have not applied severally for the same job.

Signed by an authorized officer of the firm

Title of the Officer Name of Firm with Seal

TECHNICAL SPECIFICATION

12 W WHITE-LED BASED SOLAR STREET LIGHTING SYSTEM

Sr. No	Components	Specification for Solar Street light fitting
1.	PV module	75 Wp under STC
2.	Battery	Minimum 12.8V, 30 AH capacity Lithium Ferro Phosphate battery.
3.	Light Source	<p>White Light Emitting Diode (W-LED)</p> <p>12 Watt, W-LED luminaire, dispersed beam, soothing to eyes with the use of proper optics and diffuser.</p> <p>LED Chip should be compliance to IES: LM-80 (Approved Method for Measuring Lumen Maintenance of LED Light Sources and LED lumen depreciation time to L70). Test report for same should be submitted.</p>
4.	Light Out put	<p>The luminaire must use high efficacy W-LED with minimum 135 lumens per watt (and UV free). [A certificate to be submitted by the System supplier to the Test Lab during certification]</p> <p>For single light level:</p> <p>Minimum 24 Lux when measured at a point 4 meters below the light. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred.</p> <p>For Multiple Light levels:</p> <p>The luminaire should have two levels of light to take care of different lighting needs during the night. Minimum 24 Lux when measured at a point 4 meters below the light (at "High" illumination level). The illumination Should be uniform without dark bands or abrupt variations. Minimum 12 Lux at lower illumination level. (Higher light output will be preferred)</p> <p>The luminaire shall be tested for Electrical, Photometry and Color parameters as per IES LM-79:2008 or IS: 16106:2012 for following performance parameters like:</p> <ol style="list-style-type: none"> 1) Total luminous flux: $\geq 1500\text{lm}$. 2) Luminous efficacy (i.e. system efficacy): $\geq 125\text{lm/W}$. <p>Color Temperature: Between 5500 K to 6500K.</p>

5	Mounting of light	Pole height 5 m above the ground level. Luminaire shall be at least 4.5 m above the ground level. Foundation details of the 5 meter octagonal pole are attached sheet, Base plate-200X200X12mm, Thickness: 3 mm, top dia-70 mm & bottom dia 130mm, Hot dip Galvanizing I minimum 80 mm
6	Electronics Efficiency	Overall total Efficiency of the Electronics should be Minimum 90%
7	Duty Cycle	Dusk to dawn: First 4 Hours full light (Min. 24 Lux), rest of the time at lower light (50%, Min. 12 Lux) level. (Higher light output will be preferred)
8	Autonomy	3 days or Minimum 36 operating hours per permissible discharge with fully charged Lithium-Ferro Phosphate Battery.
9	Ingress Protection - IP	Optical and Control gear compartment - IP 65 / IP 66
10	Impact resistance of casing	≥ IK 08
11	Radiated Emission Test	As per CISPR-15
12	ESD (Electro Static Discharge) and Radiated susceptibility test	As per IEC 61547

TECHNICAL DETAILS:**PV MODULE**

- i. Indigenously manufactured PV module should be used.
- ii. The PV module should have crystalline silicon solar cells and must have a certificate of testing conforming to IEC 61215 Edition II / BIS 14286 from an NABL or IECQ accredited Laboratory.
- iii. The power output of the module under STC should be a minimum of 75Wp.
- iv. The module efficiency should not be less than 14%.
- v. The terminal box on the module should have a provision for opening it for replacing the cable, if required.
- vi. There should be a Name Plate fixed inside the module which will give:
 - a. Name of the Manufacturer or Distinctive Logo.
 - b. Model Number
 - c. Serial Number
 - d. Year of manufacture
- vii. A distinctive serial number starting with NSM will be engraved on the frame of the module or screen printed on the tedlar sheet of the module.

BATTERY

- i. Minimum 12.8V, 30 AH capacity Lithium Ferro Phosphate Battery.
- ii. Battery pack should have proper 'Battery management System' (BMS) for cell balancing, over charge and over temperature protection.
- iii. Battery should conform to the latest BIS/ International standards.

LIGHT SOURCE

- i. The light source will be a white LED type.
- ii. The color temperature of white LED used in the system should be in the range of 5500°K-6500°K.
- iii. W-LEDs should not emit ultraviolet light.
- iv. The light output from the white LED light source should be constant throughout the duty cycle.
- v. The lamps should be housed in an assembly suitable for outdoor use.
- vi. The temperature of heat sink should not increase more than 20°C above ambient temperature during the dusk to dawn operation.

ELECTRONICS

- i. The total electronic efficiency should be at least 90%.
- ii. Charge controller should be MPPT Type.
- iii. Electronics should operate at an appropriate voltage suitable for proper charging of the battery.
- iv. No Load current consumption should be less than 20mA.
- v. The PV module itself should be used to sense the ambient light level for switching ON and OFF the lamp.
- vi. The PCB containing the electronics should be capable of solder free installation and replacement.
- vii. Necessary lengths of wires/cables, switches suitable for DC use and fuses should be provided.

ELECTRONIC PROTECTIONS

- i. Adequate protection is to be incorporated under "No Load" conditions e.g. when the lamp is removed and the system is switched 'ON'.
- ii. The system should have protection against battery overcharge and deep discharge conditions.
- iii. The System should have protection against short circuit conditions.
- iv. Protection for reverse flow of current through the PV module(s) should be provided.
- v. Adequate protection should be provided against battery reverse polarity.
- vi. Load reconnect should be provided at 80% of the battery capacity status.

MECHANICAL COMPONENTS

- I. A corrosion resistant metallic frame structure should be fixed on the pole to hold the SPV module.
- II. The frame structure should have provision so that the module can be oriented at the suitable tilt angle.
- III. Pole should be Hot dip galvanized pipe as per IS1161 & IS4736 i.e., ClassB.
- IV. Pole height 5 m above the ground level. Luminaire shall be at least 4.5 m above the ground level. Foundation details of the 5 meter octagonal pole are attached sheet, Base plate-200X200X12mm, Thickness : 3 mm, top dia-70 mm & bottom dia 130mm, Hot dip Galvanizing I minimum 80 mm
- V. The pole should have the provision to hold the luminaire.
- VI. The battery shall be either included in the luminaire enclosure, which should be water proof (IP 65) and corrosion resistant or outside the luminaire enclosure in a vented, acid proof and corrosion resistant, hot dip galvanized metallic box (IP 65) with anti-theft locking arrangement for outdoor use.

INDICATORS

- The system should have two indicators, green and red. The green indicator should indicate the charging under progress and should glow only when the charging is taking place. It should stop glowing when the battery is fully charged.

- Red indicator should indicate the battery "Load Cut Off" condition.

QUALITY AND WARRANTY

- i. The street lighting system (including the battery) will be warranted for a period of five years from the date of supply.
- ii. The PV module(s) will be warranted for a minimum period of 25 years from the date of supply. The PV modules must be warranted for their output peak watt capacity, which should not be less than 90% at the end of Ten (10) years and 80% at the end of Twenty five (25) years.
- iii. The Warranty Card to be supplied with the system must contain the details of the system.

OPERATION and MAINTENANCE MANUAL

An Operation, Instruction and Maintenance Manual, in English and the local language, should be provided with the Solar Street Lighting System. The following minimum details must be provided in the Manual:

- Basic principles of Photovoltaic.
- A small write-up (with a block diagram) on Solar Street Lighting System - its components, PV module, battery, electronics and luminaire and expected performance.
- Type, Model number, Voltage & capacity of the battery, used in the system.
- The make, model number, country of origin and technical characteristics (including IESNA LM-80 report) of W-LEDs used in the lighting system.
- About Charging and Significance of indicators.
- Clear instructions about erection of pole and mounting of PV module (s) and lamp housing assembly on the pole.
- Clear instructions on regular maintenance and troubleshooting of the Solar Street Lighting System.
- DO's and DONT's.

Name and address of the contact person for repair and maintenance, in case of non-functionality of the solar street lighting system.

List of BIS standards applicable for components of Solar PV Applications

Sl. No. (1)	Product (2)	Indian Standard Number (3)	Title of Indian Standard (4)
1.	Crystalline Silicon Terrestrial Photovoltaic (PV) modules (Si waferbased)	IS 14286	Crystalline Silicon Terrestrial Photovoltaic (PV) modules - Design Qualification And Type Approval
2.	Thin Film Terrestrial Photovoltaic (PV) Modules (a-Si, CiGs and CdTe)	IS 16077	Thin-Film Terrestrial Photovoltaic (PV) Modules - Design Qualification and Type Approval
3.	PV Module (Si wafer and Thin film)	IS/ IEC 61730 (Part 1) IS/ IEC 61730 (Part 2)	Photovoltaic (PV) Module Safety Qualification Part 1 Requirements for Construction

			Photovoltaic (PV) Module Safety Qualification Part 2 Requirements for Testing
4.	Power converters for use in photovoltaic power system	IS 16221 (Part 1)	Safety of Power Converters for use in Photovoltaic Power Systems Part1- General Requirements
		IS 16221 (Part 2)	Safety of Power Converters for Use in Photovoltaic Power Systems Part2- Particular Requirements for Inverters
5.	Storage batteries	IS 16270	Secondary Cells and Batteries for Solar Photovoltaic Application General- Requirements and Methods of Test
			IS 16046
6.	LED Lights & Luminaires	IS16101	General Lighting - LEDs and LED modules – Terms and Definitions
		IS16102	Self-Ballasted LED Lamps for General Lighting Services
		IS16103	Led Modules for General Lighting Luminaires Performance
		IS16107	



Executive Engineer (E)
New Town Kolkata Development Authority