

PROFORMA OF SCHEDULES**SCHEDULE 'A'**Schedule of quantities (as per PWD-3) as per schedule of work attached on **Page 129 to 134****SCHEDULE 'B'****Schedule of materials to be issued to the contractor:-**

S. No.	Description of item	Quantity	Rates in figures & words at which the material will be charged to the contractor	Place of issue
1	2	3	4	5
		As per Part 'A' of NIT		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
		As per Part 'A' of NIT	NIL

SCHEDULE 'D'**Extra schedule for specific requirements/document for the work, if any: As per Part 'A' of NIT****SCHEDULE 'E'**

Reference to General Conditions of contract	: As per Part 'A' of NIT.
Name of Work	C/o Boundary wall with main gate at Campus of NFSU at Atal Nagar Nava Raipur (C.G.).
Estimated cost of work	: Rs.2,43,687/- (Electrical & Mechanical Work)
(i) Earnest Money	: As per Part 'A' of NIT
(ii) Performance Guarantee	: As per Part 'A' of NIT
iii) Security deposit	: As per Part 'A' of NIT

SCHEDULE 'F'**GENERAL RULES & DIRECTIONS :****Officer inviting tender : As per Part-A of NIT**

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with **As per Part-A of NIT**

CORRECTION	NIL	INSERTION	NIL
CUTTING	NIL	OVERWRITING	NIL
		AE(E)	EE(C)

- Clauses 12.2 & 12.3.** :
- Definitions** :
- 2(v) Engineer -in- Charge** : **The Executive Engineer (E), CPWD, Raipur or his successor.**
- 2(viii) Accepting Authority** : **Chief Engineer, CPWD, Raipur or his successor.**
- 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**
- 2(xii) Department** : **CPWD**

9(ii) Standard CPWD Contract Form : **As per Part 'A ' of NIT**

Clause 1

(i) Time allowed for submission of Performance Guarantee from the date of issue of letter of acceptances : **As per Part 'A ' of NIT**

(ii) Maximum allowable extension beyond the period provided in (i) above : **As per Part 'A ' of NIT**

Clause 2

Authority for fixing compensation under clause 2 : **As per Part 'A ' of NIT**

Clause 2A

Whether Clause 2A shall be applicable : **As per Part 'A ' of NIT**

Clause 5

Number of days from the date of issue of letter of acceptance for reckoning date of start : **As per Part 'A ' of NIT**

TABLE OF MILESTONE (S)

Electrical & Mechanical Services

Sub Work-Pdg. Electrical& Mechanical Services

S. No.	Description of milestone (Physical)	Time allowed in days (from date of start) along with progress of civil works.	Amount to be withheld in case of non-achievement of milestone (% of tendered amount of respective Electrical component)
As per Part-A of NIT			

Time allowed for execution of work : **As per Part 'A ' of NIT**

Authority to decision

(i) Extension of time : **As per Part 'A ' of NIT**

CORRECTION	NIL	INSERTION	NIL	
CUTTING	NIL	OVERWRITING	NIL	AE(E) EE(C)

(ii) Rescheduling of mile stones : As per Part 'A' of NIT

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

: As per Part – 'A' of NIT

Clause 10A

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

1.LT/HT Megger 2. Earth Tester 3. Tongue Tester
4. Lux meter 5. Multi meter. 5. Screw Gauge 6.
Vernier Caliper

Clause 10B (ii)

Whether Clause 10 B (ii) shall be applicable : As per Part 'A' of NIT

Clause 10C

Component of labour expressed as percent
of value of work

: As per Part 'A' of NIT

Clause 10CA

S. Nos.	Material covered under this clause	Nearest Materials (other than cement, reinforcement bars and the structural steel) for which All India Wholesale Price Index to be followed	Base price of all materials covered under clause 10 CA*
As per Part 'A' of NIT			

Clause 10 CC

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

: As per Part 'A' of NIT

Schedule of component of other Materials, Labour, POL etc. for price escalation. Component of civil (except materials covered under clause 10CA) /Electrical construction Materials expressed as percentage of total value of work.

: As per Part 'A' of NIT

Clause 11

Specifications to be followed for execution of work :

1. CPWD General Specifications for Electrical Works, Part I Internal – 2023
2. CPWD General Specifications for Electrical Works, Part II External – 2023

Clause 12

Type of Work:

As per Part 'A' of NIT

12.2. & 12.3

Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building work

: As per Part 'A' of NIT

12.5

Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work

: As per Part 'A' of NIT

CORRECTION	NIL	INSERTION	NIL
CUTTING	NIL	OVERWRITING	NIL
AE(E)		EE(C)	

Clause 16

Competent Authority for deciding reduced rates : **Chief Engineer, CPWD, Raipur or his successor.**

Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site : **1. Screw Gauge 2. Vernier Caliper 3. Chase cutting machine 4. Conduit bending machine & crimping tool. 5. Welding Machine 6. Assorted sizes of Ladder.**

Clause 25

Constitution of Dispute Redressal Committee (DRC): As per Part 'A' of NIT

Clause 31/31A: As per Part 'A' of NIT

Clause 32 (i)

Requirement of Technical staff and recovery Rate: -

S. No	Minimum Qualification	Number	Minimum experience (years)	Designation	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36 (i)	
					Figures	Words
As per Part 'A ' of NIT						

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

Clause 42 : As per Part 'A' of NIT

RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION: -

S. Nos.	Description	Rates in figures and words at which recovery shall be made from the contractor	
		Excess beyond permissible variation	Less use beyond permissible variation
As per Part 'A ' of NIT			

ELIGIBILITY CRITERIA FOR MINOR COMPONENTS (E&M)

1. The successful bidder should either himself meet the eligibility conditions for the respective E&M components or otherwise he will have to associate with agencies, fulfilling the eligibility requirements and hence consent letter from at least **One** eligible Associate Agency of the respective components of E&M work shall also be submitted as per attached **Proforma**. The successful bidder shall thoroughly check whether the agency with whom association is proposed meet the eligibility or not before submitting the consent letter.
2. In case the main contractor is himself eligible (as per eligibility criteria) for executing any specific minor component and intends doing the job himself, he may not be required to associate with another agency for that minor component of work. In such cases the main contractor also has to submit the documents as per eligibility criteria mentioned for associated agency of individual E&M component.
3. Main agency shall have to submit credentials of the proposed associated agencies for verification and approval of the department in pro-forma at '**Form-H**' and Consent letter as per '**Form-G**'. After approval of agency by the Engineer-in-charge of minor component, the main contractor submit MOU with each of the associated agency in pro-forma at '**Form-I**' within 30 days from the date of issue of award letter.
4. The main contractor has to submit the following documents for association of electrical contractor within one month of award of work or 15 days before start of electrical related work whichever is earlier.
 - (i) In support of the eligibility conditions of the proposed associated electrical contractor, copy of their registration documents, Electrical Contractor's License, PAN Card, GST Registration duly attested by the applicants (Main Contractor) shall be submitted to the **EE, Raipur**, who will submit these documents to the **Executive Engineer (Electrical), CPWD, Raipur**, for deciding the eligibility within seven days of receipt of the same. Each such electrical contractor will certify that they are not debarred as on the day of association with the main contractor. Proposal for associating agency for minor components of work shall be submitted in Form- "H" of this tender document from each associate independently for all electrical and mechanical components.
 - (ii) After approval of the associate contractor, the main contractor will submit separate MOU signed with each of associate contractor associated with the main contractor. The MOU in the enclosed form shall be signed by both the parties' i.e. main contractor as 1st party and associated electrical contractor as 2nd party, independently for all electrical and mechanical components.
5. In the event of the concerned associated contractor not performing satisfactorily or failure of associate contractor to complete the E&M work, the main contractor, on written directions of the department, shall remove the Associate contractor deployed on the work and shall submit name of new associate who fulfil the conditions mentioned in NIT to execute the left-over work without any loss of time or variation in cost to the department. Such associates shall also give an undertaking along with the main tenderer that both of them shall stand guarantee for which payment has been released by the Department in part for any equipment supplied for the work, during the currency of the earlier Associate contractor and paid partly by the Department. Also, if any such material becomes redundant/ not in a position to be installed and commissioned and put to beneficial use due to change in agency for execution of E&M work, the main contractor shall be liable for replacement of the equipment(s) at no cost to Department. No change of Electrical Contractor will be allowed without prior approval of the Engineer-in-charge of the work.

6. All technical discussions shall be attended by the associate agencies and the main agency. Commercial/Technical submissions for the electrical works shall be signed and submitted by the associate agencies along with the main agency.
7. The main contractor shall be entirely responsible and answerable for all the works done by his associated electrical agencies regarding their quality, adherence to the laid down specification, terms and conditions, warranty/guarantee etc and he shall be liable to bear any compensation that may be levied by the department under any of the clauses of the agreement. In respect of all Sub-Works of E&M works i.e. **C/o Boundary wall with main gate at Campus of NFSU at Atal Nagar Nava Raipur (C.G.).**
8. The materials and equipment shall be procured only from the original equipment manufacturers/ authorized dealers of OEM. The contractor shall submit all documentary details in fulfilment of this conditions regarding procurement of materials including relevant test certificates.
9. Executive Engineer (E) shall be the Engineer-in-charge as far as electrical and mechanical works are concerned. Separate tender schedule abbreviated CPWD-7 and Special Conditions for Electrical Work are appended with this tender. It will be obligatory on the part of the contractor/ tenderer to sign the tender documents for all the component parts.
10. The main contractor shall be responsible and liable for proper and complete execution of the Electrical and mechanical work and ensure coordination and completion of both civil and electrical work.
11. The main contractor, who is not having desired experience as per eligibility criteria has to enter into agreement with eligible contractors associated by him for executing of minor components. Copy of such agreement shall be submitted to **Executive Engineer (E)** in charge of minor component as well as Engineer-in-charge of major component.
12. The associate contractor shall attend the inspection of the work by the Engineer –in-charge of E&M works as and when required.
13. No change of Electrical Contractor will be allowed without prior approval.
14. For components of E & M works, the eligibility criteria will be as detailed below.

Sr. No.	Component E&M works	Estimated Cost in Rs.	Eligibility of the Associate Contractor for association
SH-I, II, III, IV, V, VI, VII, VIII, IX, XIX, XXI & XXII	Wiring, Fans & LED fitting, MCD & DB's, Earthing, Lightening conductor, LT Panel, cable laying, Fire Extinguisher, Street lighting etc.	Rs. 2,43,687.00	Contractor enlisted in CPWD in composite category and appropriate class having valid electrical license. Or Specialized firms who have satisfactorily completed the Internal Electrical Installation work during the last 7 year ending previous day of the last day of submission of tender as mentioned below. In case of private works the same shall be supported by TDS certificate for the work under consideration along with the document of having satisfactory completed above work to the satisfaction engineer – in- charge.

NOTE: -

1. Components of work executed other than those included in definition of similar work shall be deducted while calculating cost of similar work. Bidder shall submit abstract of cost of work in support of this.
2. For the purpose, "Cost of work" shall mean gross value of the completed work including the cost of material supplied by the Government/ client, but excluding those supplied free of cost. This should be certified by an officer not below the rank of Executive Engineer/ project manager or equivalent.
3. The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, except sub head-I calculated from the date of completion to previous day of last date of submission of tenders.
4. For Sub head at Sr. No. Sub Work above the composite contractor shall have to associate other agencies for execution of each of the work, which fulfills the eligibility criteria as cited above for these works duly taking prior approval from the department. However, the Composite category contractor/successful bidder shall also be eligible to carry out himself/herself any or all of these works without associating any specialized agency provided:
 - a) He fulfills the prescribed eligibility criteria respectively for these works.
 - or**
 - b) He directly procures the equipment of approved make from manufacturers and get them installed from authorized agency/service provider of the manufacturers or specialized agencies as per criteria mentioned in NIT.

Eligibility criteria of each such agency to be associated is stipulated above.

The composite contractor and the associated specialized agencies shall give required affidavit to confirm their association as Proforma "H" given in part "C" in the tender documents.

Tender accepting authority may approve change of Sub-Agency in case it is required during the currency of the contract.

The main contractor has to submit consent letters as per Form-G, given in Part C of the tender document at least one eligible associate agency of the respective component of E&M work for each of the component of E&M works by clearly indicating the component of work within 30 days of award of work OR 15 days before start of minor component of work whichever is earlier.

The main contractor will submit MOU signed with eligible registered composite contractor of CPWD or Specialized agency. The MOU in the enclosed Form- "I" shall be signed by both the parties' i.e. main contractor as 1st party and associated electrical contractor as 2nd party, independently for each of the sub-work **C/o Boundary wall with main gate at Campus of NFSU at Atal Nagar Nava Raipur (C.G.)**.

If the main contractor fails to associate agency for execution of minor components of work within 30 days of award of work OR 15 days before start of minor components of work whichever is earlier or furnishes incomplete details or furnishes details of ineligible agencies even after the tenderer is given due opportunity, the entire scope of such component of work shall be withdrawn from the tender and the same shall be got executed by the Engineer-in- charge at the risk and cost of the main contractor.

- (i) Verifiable completion certificates of the work, registration/ approval documents as the case may be, duly attested by the applicant shall be submitted within 30 days of award of work OR before start of minor component of work whichever is earlier. Valid Electrical Contractor's license, as the case may be, duly attested by the applicant shall also be submitted within 30 days of award of work OR before start of minor component of work whichever is earlier.
- (ii) Self-attested GST registration documents in respect of the associated agencies shall be submitted within 30 days of award of work or 15 days before start of minor component of work whichever is earlier.

Executive Engineer (E)

CORRECTION	NIL	INSERTION	NIL	
CUTTING	NIL	OVERWRITING	NIL	AE(E) EE(C)

FORM -G

**CONSENT LETTER FROM ELIGIBLE ASSOCIATE AGENCY OF
MINOR COMPONENT OF WORK**

Name of Work: C/o Boundary wall with main gate at Campus of NFSU at Atal Nagar Nava Raipur (C.G.).

I/ We hereby give my consent to associate with M/s
for executing the minor component of work of (Mention sub-works)

1. I/We will execute the work as per specifications and conditions of the agreement and as per direction of the Engineer –in-charge for the corresponding minor work till the completion of the work.
2. I/We will be responsible for necessary action to handover the installation and for rectification of defects and repair during the defeat liability / warranty period.
3. Also I/We will employ full time technically qualified Engineer/ Supervisor for the minor component of the work as specified in clause 32 for the work. I/We will attend inspection of officers of the department as and when required.

Date:

Signature with date of Major Contractor

Signature with date of Associate/ Minor Contractor

Contractor

Contractor

Address

Address

1. Witness with address
(From major component contractor side)
2. Witness with address
(From minor component contractor side)

FORM-H**PROPOSAL FOR ASSOCIATING WITH ELIGIBLE AGENCIES FOR
MINOR COMPONENTS OF WORK**

I/We hereby propose the following agencies as per mentioned against each for executing corresponding minor components of work. Their consent letter are also attached.

Sr. No.	Name of Associated Contractor	Category and class of registration	Enlistment copy/ completion Certificates attached	Monetary Limit of work	Validity of registration	Consent letter attached. (Yes/No)
1.						
2.						
3.						
4.						
5.						

Note: Self Attested photocopies of enlistment order, valid electrical contractors license, annual pre-qualification order, work experience certificates of each agency for each component of E&M work shall be submitted.

Signature of contractor

MEMORANDUM OF UNDERSTANDING (M.O.U.)**Rs. 100/- non-judicial stamp****(to be submitted for each and every E&M component)**

1. M/s. (Name of the firm with full address)

Enlistment Status

Valid Upto:

(Henceforth called the main Contractor)

And

2. M/s. (Name of the firm with full address)

Enlistment Status

Valid Upto:

(Henceforth called Associated Electrical Contractor or Electrical Contractor)

For the execution of Electrical work, **C/o Boundary wall with main gate at Campus of NFSU at Atal Nagar Nava Raipur (C.G.).**

We state that M.O.U. between us will be treated as an agreement and has legality as per Indian Contract Act (amended upto date) and the department (CPWD) can enforce all the terms and conditions of the agreement for execution of above work as per the schedule of work, specifications, term & conditions of the tender. 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 Engineer –in-charge. Any of us may appeal against the mediation to the Chief Engineer, CPWD, Nagpur. His decision shall be final and binding on both of us.

We have agreed as under:

1. The electrical contractor will execute all electrical works in the wholesome manner as per terms and conditions of the agreement.
2. The electrical contractor shall be liable for disciplinary action if he fails to discharge the action(s) and other legal action as per agreement.
3. All the machinery and equipment, tools and tackles required for execution of the electrical works, as per agreement, shall be the responsibility of the electrical contractor.
4. The site staff required for the electrical work shall be arranged by the electrical contractor or by the main contractor as per terms and conditions of the agreement.
5. Site order book maintained for the said work shall be signed by the main contractor as well as by the Engineer of the Association Contractor and by Associated Contractor himself.
6. All the correspondence regarding execution of the electrical work shall be done by the department with the Associated Contractor 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 contractor shall be responsible. The action clauses 2 and 3 shall be initiated and taken against the main contractor.

SIGNATURE OF MAIN CONTRACTOR

Date:

Place:

1. Witness with address

(From major component contractor side)

SIGNATURE OF ASSOCIATED
ELECTRICAL CONTRACTOR

Date:

Place:

2. Witness with address

(From minor component contractor side)

COMMON CONDITIONS FOR ALL MINOR COMPONENTS PART 'C'

The specifications given below pertain to the entire electrical and mechanical works to be carried out
Name of Work: C/o Boundary wall with main gate at Campus of NFSU at Atal Nagar Nava Raipur (C.G.).

The main agency either shall have valid electrical license or obtain the same at time of execution of electrical work otherwise he has to associate with agency having valid electrical license. The associated agency shall be of the appropriate class eligible to bid for each minor component individually as per the eligible criteria given.

1. The manufacturer's guarantee/warranty for all the electrical installations shall be for minimum period of 12 months except for LED fittings for which the warranty is for Five years, from the date of taking over of the completed work by the department. Necessary documents of handing / taking over of the work will be duly signed by the three parties namely EE (E) or his representative AE/JE, the main contractor and the associate contractor(s).
2. The equipment 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 made 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. The firm shall be required to attend the breakdown calls as and when required and also ensure timely periodical checks for Electrical and Mechanical works executed as per CPWD Specifications and standard trade practices
3. The defect liability period for the entire work is one year, except for LED fittings. The warranty for LED fittings including driver is 5(Five) years. **Before completion of defect liability period of one year for the entire work, the main contractor has to submit Security Deposit of 5% of the price quoted by him for SITC of LED fittings for the remaining 4 years warranty period in acceptable form i.e. FDR/Bank guarantee/DD to the concerned Executive Engineer (E). The Security Deposit deducted from the bills of contractor shall be refunded to the main contractor only after submission of Security Deposit for LED fittings to Executive Engineer (E), failing which this Security Deposit towards LED fittings at 5% of the price quoted by them for LED fittings shall be deducted from Security Deposit for total work and balance amount will be refunded only after completion of defect liability period of one year. The LED Security Deposit will be released after completion of warranty period of 5 years.**
4. Panel drawings with details shall be got approved from the Engineer-in-charge before fabrication.
5. 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 equipment 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. Nothing extra on account of same shall be paid.
6. **DATA MANUAL AND DRAWINGS TO BE FURNISHED BY THE TENDERER:**

The successful tenderer would be required to submit the following as per 'Milestone' for approval before commencement of installation:

- i. Technical literature / catalogue / brochures of all equipment to Engineer –In-Charge. Only after approval, tenderer should place order for equipment and bring it to site.
- ii. All general arrangement drawings.
- iii. Complete layout dimensions for every unit/group of units with dimensions required for erection purposes.
- iv. Any other drawing/information not specifically/mentioned above but deemed to be necessary for the job by the contractor.

CORRECTION	NIL	INSERTION	NIL		
CUTTING	NIL	OVERWRITING	NIL	AE(E)	EE(C)

- v. Layout plan.

7. INSPECTION AND TESTING:

- a) Copies of all documents of routine and type test certificates of the equipment, carried out at the manufacturer's premises shall be furnished to the Engineer-in-Charge.
- b) After completion of the work in all respect the contractor shall offer the installation for testing and commissioning.

8. STATUTORY APPROVALS:

All mandatory statutory approvals/certificates/license/permissions from commencement to commissioning of E & M components shall be obtained by the Contractor from the local body authorities, Chief Fire Officer, Central Electricity Authority etc. as required. However, the Department shall pay necessary fees in connection with these approvals, if any

The contractor shall submit the completion plan separately in triplicate coloured print with two sets of soft copies in compact disc/pen drive in AutoCAD / revit software

The successful contractor shall prepare a list of equipment and materials selected from the approved list, proposed to be used by him for execution of the contract. Before placing orders on suppliers or delivering the equipment and materials at site, the Contractor shall obtain approval from Engineer-in-Charge, whose choice will be final and binding on the Contractor.

Any Equipment or materials not specified under here but required for execution of the work shall be as per Technical specification, of the best quality, with ISI wherever applicable and from a reputed manufacturer and shall be got approved by the Engineer-in-Charge before placing order for delivery of item at site.

9. Data and Programme to be furnished by the tenderers:

The Contractor shall prepare the programme chart for the execution of the work showing clearly all activities from the start of work to the completion required for the completion of the work within the stipulated period and submit the same to the Engineer-in-Charge within fifteen days after the issue of letter for commencement of the work. The Contractor shall also submit monthly programme and progress reports and update / re-schedule the same every month. These shall be submitted by the contractor in soft copy also besides forwarding hard copy of the same.

10. Order of Preference:

Should there be any difference or discrepancy between the description of items as given in the Schedule of Quantities, technical specifications for individual items of work (including additional and commercial conditions) and IS Codes etc., the following order of preference shall be followed:

- a) Schedule of quantities
- b) Commercial and Additional conditions for this work
- c) Drawings.
- d) General Conditions of Contract for CPWD Works.
- e) CPWD General Specifications of corresponding component.
- f) Relevant IS or any other International code in case IS code is not available

- A reference made to any Indian Standard Specifications in these documents, shall imply reference to the latest version of that standard, including such revisions/amendments as issued by the Bureau of Indian Standards up to last date of submission of tenders. The contractor shall keep at his own cost all such publications of relevant Indian Standards applicable to the work at site.
- The main agency shall be responsible for all acts of omissions and submissions of the electrical contractor or sub-contractor engaged by him, even with approval of department.

CORRECTION	NIL	INSERTION	NIL	
CUTTING	NIL	OVERWRITING	NIL	AE(E) EE(C)

In the In the event of the concerned E&M agency not performing satisfactorily or failure of associate/sub-contractor to complete the E&M work, the main contractor on the written direction of the department, shall remove the Associate/sub-contractor deployed on the work and shall submit name of new associate who fulfil the conditions mentioned in NIT to execute the leftover work without any loss of time or variation in cost to the department in this regard. Such associates shall also enter into agreement / contract with the main contractor and shall meet all the guarantee for the equipment already supplied for which payment has been released by the Department in part or full

- If any equipment supplied for the work, during the currency of the earlier associate / sub contractor and paid in part or full by the department, becomes redundant or not in a position to be installed and commissioned and put to beneficial use, the main contractor shall be liable for replacement of such equipment(s) at no cost to department. Prior approval of Engineer-in-charge is required for change in associated contractor.
- The main contractor shall not indulge in procurement of items and getting the work done on labour contract with the associate electrical contractor. The whole E&M component shall be executed by the eligible associate electrical contractor on a turnkey basis i.e. procurement of material, engaging labour, execution, testing & commissioning etc. The associate electrical contractor shall submit the completion certificate of E&M work executed by him along with necessary test reports, guarantee bond/certificate, completion plan etc.
- The main contractor shall be responsible and liable for proper and complete execution of all components of work. Main contractor is also responsible to ensure coordination among various associates / sub-contractor to complete the whole scope of work.
- The associate or sub-contractor shall attend the inspection of the work by the Engineer-in Charge of E&M works as and when required.
- Approval of the Engineer-in-charge shall be taken well in advance for all the materials to be supplied and used in all the works by the contractor.

11. Works to be done by the contractor:

Unless and otherwise mentioned in the tender documents, the following works shall be done by the contractor, and therefore their cost shall be deemed to be included in their tendered cost: -

- (i) Foundations for equipment and components where required, including foundations bolts.
- (ii) Cutting and making good all damages caused during installation and restoring the same to their original finish.
- (iii) Sealing of all floor openings provided by him for pipes and cables, from fire safety point of view, after laying of the same.
- (iv) Painting at site of all exposed metal surfaces of the installation other than pre-painted items like fittings, fans, switchgear/distribution gear items, cubical switchboard etc. Damages to finished surfaces of these items while handling and erection, shall however be rectified to the satisfaction of the Engineer-in-Charge.
- (v) Testing and commissioning of completed installation.

12. Storage and Custody of Material.

The contractor has to make his own arrangements for the storage of the material at site & necessary watch and ward of the same till handing over of the complete work to the department. No extra claim for this will be entertained

13. Electric Power Supply and Water Supply:

Power and water supply shall be arranged by the contractor for the execution of the work.

14. Tools for handling and Erecting:

All tools and tackles required for handling of equipment and materials at site of work as well as for their assembly and erection and also necessary test instruments shall be the responsibility of the contractor.

15. Payment Terms:

Payment shall be made as per the relevant clauses of form PWD 7/8 forming part of the tender documents.

16. SECURITY DEPOSIT

A sum @2.5% of the gross amount of the bill shall be deducted from each running bill of the contractor, till the sum along with the sum already deposited as earnest money amounts to security deposit @ 2.5% of the tendered amount of the work. Such deductions shall be made unless the contractor has deposited the amount of security at the rate mentioned in cash or Government securities or Fixed Deposit Receipts. This is in addition to the performance guarantee that the contractor is required to deposit.

Security deposit shall be released only after the completion of the whole agreement.

Running payment for Electrical/Mechanical components shall be made by the EE (E) directly to the main Contractor. The main contractor shall make the payment to associated Contractor within 15 days of receipt of each running account payment. In case of failure of above, action will be taken as per GCC.

17. Co-ordination with other agencies:

The work will be carried out in close coordination with the building work and other agencies, so as the work of other agencies are not hindered. Conduits will be laid in the slab within the specified time and it will have to be ensured that the casting of slabs is not delayed for want of laying of conduits. The conduits will also be laid in walls before the Plaster work is undertaken so as to avoid breaking cutting of plaster while making chase for laying of conduits subsequently. The contractor will have to employ adequate labour for carrying out the work. No claim regarding the idle labour for any reason will be entertained by the Department. The main contractor shall be responsible for coordinating the activities of all works and essential progress of works as per milestone and laid down programme.

18. Care of buildings:

Care shall be taken by the contractor to avoid damage to the building during execution of his part of the work. 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 costs, all unwanted and waste materials arising out of his work, from the site.

CORRECTION	NIL	INSERTION	NIL		
CUTTING	NIL	OVERWRITING	NIL	AE(E)	EE(C)

19. Structural Alterations to Buildings:

- a. No structural member in the building shall be damaged/altered, without prior approval from the competent authority through the Engineer-in-charge.
- b. Structural provisions like openings, cutouts, if any, provided by the department for the work, shall be used. If any modifications or fresh provisions are required, such contingent works shall be carried out by the contractor at his cost after approval of the engineer-in-charge.
- c. All such openings in floors provided by the department shall be closed by the contractor after installing the cables/conduits/rising mains etc. as the case may be, by any suitable means as approved by the Engineer-in-charge without any extra payment.
- d. All chases required in connection with the electrical works shall be provided and filled by the contractor at his own cost to the original architectural finish of the buildings.

20. Addition to an installation:

Any addition, temporary or permanent, to the existing electrical installation shall not be made without a properly worked out scheme/design by a qualified Electrical Engineer to ensure that such addition does not lead to overloading, safety violation of the existing system.

21. Drawings:

The work shall be carried out in accordance with the drawings and the tender documents and also in accordance with modification thereto from time to time as approved by the Engineer-in charge.

- a. All wiring diagrams shall be deemed to be 'Drawings' within the meaning of the term as used in Clause 11 of the conditions of contract (PWD 7 or PWD 8). They shall indicate the main switch board, the distribution boards (with circuit numbers controlled by them), the runs of various mains and sub mains and the position of all points with their controls.
 - b. All circuits shall be indicated and numbered in the wiring diagram and the points shall be given the same number as the circuit to which they are electrically connected.
 - c. After award of the work, the firm will be required to submit the drawings for the proposed work including layout plan, conduit routes etc. Work will be carried out as per the approved drawings.
22. The contractor shall take all safety precautions to avoid accidents by exhibiting caution boards, red flags, red lights and by providing necessary barriers and all other measures required from time to time. The contractor shall be responsible for all damages and accidents due to negligence on his part.
23. The contractor shall give due notices to Municipality, Police and/or other authorities that may be required under the law/rules under force and obtain all requisite permissions/licenses for temporary obstructions/enclosures and pay all charges which may be leviable on account of his execution of the work under the agreement. Nothing extra shall be payable on this account.
24. All tools, plant and machinery provided by the contractor shall, when brought at the site, be deemed to be exclusively intended for the construction and completion of this work and the contractor shall not remove the same or any part thereof (save for the purpose of moving it from one part of the site to another) without the consent of the Engineer-in-charge.

25. All materials shall be got checked & approved by the Engineer-in-charge on receipt of the same at site before use in the work. The rejected material is to be removed from the site immediately.
26. No foreign exchange shall be made available by the department for the purchase of equipment, plants, machinery, materials of any kind or any other items required to be carried out in execution of work.
27. The contractor shall give the Engineer-in-charge in every fortnight, a progress report of the work done during the previous fortnight and the targets for the next fortnight. The progress of work will be reviewed periodically by the Engineer-in-Charge with the contractor and shortfalls, if any, sorted out. The contractor shall thereupon take such action as may be necessary to bring back his work to schedule without any additional cost to the department.
28. It shall be responsibility of the main contractor to sort out any dispute involved with the associated contractor without any time and cost overrun to the department. The main contractor shall be solely responsible for settling the dispute/litigation arising out of his agreement with the associate contractor. The contractor shall ensure that the work shall not suffer on this account.
29. The contractor will have to ensure that the skilled labour i.e., wireman etc., engaged in the execution of the work must possess valid electrical license, otherwise he will not be permitted to execute the work.
30. The associate contractors executing the electrical works must possess the valid electrical contractor license otherwise they will not be permitted to execute the electrical works.
31. The contractor shall be responsible for removal of all defects in the work during the defect liability/guarantee/warranty period. The department shall carry out routine maintenance only. However, if any failure is noticed during this period which is attributable to poor quality of material and bad workmanship, the contractor will be required to rectify the same at his own cost, failure of which the department will be at liberty to get the defects rectified at the risk & cost of the contractor. The contractor will also be required to carry out his own inspection/testing during the guarantee/warranty period and attend to any defect taking place during this period.
32. Material required for the work shall be brought at site at the appropriate time keeping in view the requirement of material depending on progress of the work.

33. For Specialized E&M Original Works and other original E&M Works:

The successful tenderer is to submit, along with the proposal for approval of make for specialized work after the acceptance of tender, an undertaking from the OEM regarding:

- (a) Authorization certificate.
- (b) The OEM is unconditionally support the lowest tenderer technically throughout the execution of contract as well as for Maintenance/ Comprehensive Maintenance Contract for the useful life of the system, and OEM is provide all the spares required for healthy functioning of the equipment for at least seven years from the date of supply of equipment

34. BYE-LAWS AND REGULATIONS

The work shall be carried out to the satisfaction of the Owner's site representative and in accordance with the Specifications, Regulations of the Electric Supply Authority, Indian Electricity Rules and Regulations, latest Indian Standards and as per the requirements of the Chief Fire Officer.

35. SHOP DRAWINGS

- i. All the shop drawings shall be prepared on computer through AutoCAD System based on Architectural Drawings, site measurements and Interior Designer's Drawings. Within eight weeks of the approval of the associate, contractor shall furnish, for the approval of the engineer-in-charge, two set of detailed shop drawings of all equipment and materials including layouts for all conduit layouts, distribution panels, and any other requirement to be fabricated or purchased by the contractor.
- ii. These shop drawings shall contain all information required to complete the Project as per specifications and as required by the engineer-in-charge. These drawings shall contain details of construction, size, arrangement, operating clearances, performance characteristics and capacity of all items of equipment, also the details of all related items of work by other contractors. Each shop drawing shall contain tabulation of all measurable items of equipment/ materials/ works and progressive cumulative totals from other related drawings to arrive at a variation-in-quantity statement at the completion of all shop drawings. Each item of equipment/material proposed shall be a standard catalogue product of an established manufacturer strictly from the list of approved manufacturers attached in these minor components. When the engineer-in-charge makes any amendments in the above drawings, the contractor shall supply two fresh sets of drawings with the amendments duly incorporated along with check print, for approval. The contractor shall submit further six sets of shop drawings to the engineer-in-charge. No material or equipment may be delivered or installed at the job site until the contractor has in his possession, the approved shop drawing for the particular material/equipment/ installation.
- iii. Shop drawings shall be submitted for approval sufficiently in advance of planned delivery and installation of any material to allow engineer-in-charge ample time for scrutiny. No claims for extension of time shall be entertained because of any delay in the work due to his failure to produce shop drawings at the right time, in accordance with the approved programme.
- iv. Manufacturers' drawings, catalogues, pamphlets and other documents submitted for approval shall be in four sets. Each item in each set shall be properly labelled, indicating the specific services for which material or equipment is to be used, giving reference to the governing section and clause number and clearly identifying in ink the items and the operating characteristics. Data of general nature shall not be accepted.
- v. Samples of all materials like conduits, accessories, switches, wires, control cables etc shall be submitted to the engineer-in-charge prior to procurement. These shall be submitted in two sets for approval and retention by engineer-in-charge and shall be retained for reference and verification till the completion of the Project.
- vi. Approval of shop drawings shall not be considered as a guarantee of measurements or of building dimensions. Where drawings are approved, said approval does not mean that the drawings supersede the contract requirements, nor does it in any way relieve the contractor of the responsibility or requirement to furnish material and perform work as required by the contract.
- vii. Where the contractor proposes to use an item of equipment, other than that specified or detailed on the drawings, which requires any redesign of the structure, partitions, foundation, wiring or any other part of the mechanical, electrical or architectural layouts; all such re-design, and all new drawings and detailing required therefore,

shall be prepared by the contractor at his own expense and gotten approved by the engineer-in-charge.

- viii. The contractor shall prepare composite working drawings and sections at a suitable scale, not less than 1:50, clearly showing how his work is to be installed in relation to the work of other trades. If the Contractor installs his work before coordinating with other trades, or so as to cause any interference with work of other trades, he shall make all the necessary changes without extra cost to the engineer-in-charge.
- ix. Within four weeks of approval of all the relevant shop drawings, the contractor shall submit four copies of a comprehensive variation in quantity statement, and itemized price list of recommended (by manufacturers) imported and local spare parts and tools, covering all equipment and materials in this contract.

36. ACCESSIBILITY

The Contractor shall verify the sufficiency of the size of the shaft openings, clearances in wall cavities and suspended ceilings for proper installation of his conduit's cables, cable trays, panels etc. His failure to communicate insufficiency of any of the above shall constitute his acceptance of sufficiency of the same. The Contractor shall locate all equipment which must be serviced, operated or maintained in fully accessible positions. The exact location and size of all access panels, required for each concealed control damper, valve or other devices requiring attendance, shall be finalized and communicated in sufficient time, to be provided in the normal course of work. Failing this, the Contractor shall make all the necessary repairs and changes at his own expense. Access panel shall be standardized for each piece of equipment / device / accessory and shall be clearly nomenclature / marked.

37. MATERIALS AND EQUIPMENT

All materials and equipment shall confirm to the relevant Indian Standards and shall be of the approved make and design. Makes shall be strictly in conformity with list of approved manufacturers attached in these minor components. The Contractor shall be responsible for the safe custody of all materials and shall insure them against theft or damage in handling or storage etc. A list of items of materials and equipment, together with a sample of each shall be submitted to the Owner's site representative within 15 days of the award of the contract.

The quantity of material in the BOQ is indicative. Contractor has to assess the actual requirement of material at site before placing the order, keeping in view the drawing and site requirement from the shortest route. No claim for payment for unused excess material shall be entertained.

38. COMPLETION CERTIFICATE

On completion of the electrical installation a certificate shall be furnished by the Contractor countersigned by the licensed supervisor, under whose direct supervision the installation was carried out. This certificate shall be in the prescribed form as required by the local, state/central govt./ municipal / fire authorities concerned.

39. COMPLETION DRAWINGS

Upon completion of the work and before issuance of certificate of virtual completion the contractor shall submit to the engineer-in-charge four set of layout drawings in progressive manner for individual systems drawn at approved scale indicating the complete wiring system as installed. Drawing shall be prepared on AUTO-CAD (latest version). Along with

CORRECTION	NIL	INSERTION	NIL	
CUTTING	NIL	OVERWRITING	NIL	AE(E) EE(C)

the hard copies, the contractor shall submit copies of all drawings on CD and one set of all drawings on RTF shall also be submitted. These drawings must provide:

- a. Single line distribution diagram including submain circuit wiring etc.
- b. Location of all DB's, switch board, panels etc.
- c. Any other relevant drawing.

40. OPERATING INSTRUCTION & MAINTENANCE MANUAL

Upon completion and commissioning of part Electrical system the contractor shall submit a draft copy of comprehensive operating instructions, maintenance schedule and log sheets for all systems and equipment included in this contract. This shall be supplementary to manufacturer's operating and maintenance manuals. Upon approval of the draft, the contractor shall submit four (4) complete bound sets of typewritten operating instructions and maintenance manuals. These manuals shall also include basis of design, detailed technical data for each piece of equipment as installed, spare parts manual and recommended spares for 4-year period of maintenance of each equipment.

41. ON SITE TRAINING

Upon completion of all work and all tests, the Contractor shall furnish necessary operators, labour and helpers for operating the entire installation for a period of thirty (30) working days of ten (10) hours each, to enable the engineer-in-charge and his duly authorized representatives to get acquainted with the operation of the system. During this period, the contractor shall train the engineer-in-charge's personnel in the operation, adjustment and maintenance of all equipment installed.

42. MAINTENANCE DURING DEFECTS LIABILITY PERIOD

Complaints

- The Contractor shall receive calls for any and all problems experienced in the operation of the system under this contract, attend to these within 24 hours of receiving the complaints and shall take steps to immediately correct any deficiencies that may exist.

Repairs

- All equipment that requires repairing shall be immediately serviced and repaired. Since the period of Mechanical Maintenance runs concurrently with the defect's liability period, all replacement parts and labour shall be supplied promptly free-of-charge to the engineer-in-charge.

43. METHOD OF MEASUREMENT

The works shall be measured in accordance with relevant IS codes notwithstanding any general or local custom except where otherwise specifically described or prescribed in the contract.

44. DEMONSTRATION TO ENGINEER-IN-CHARGE:

At completion, devices subject to manual operation shall be operated at least five times in presence of engineer-in-charge's site representative to demonstrate satisfactory operation.

45. PREPARATION AND APPROVAL OF DRAWING

On award of the work, the contractor has to prepare working drawings and submit to the Engineer-in-Charge for approval. This drawing shall be prepared after considering all the

CORRECTION	NIL	INSERTION	NIL	
CUTTING	NIL	OVERWRITING	NIL	AE(E) EE(C)

services, viz. conduits, HVAC ducts, horticulture, plumbing etc. The work is to be executed as per approved drawings.

46. The associate shall attend the inspection of the work by the Engineer-in-Charge as and when required.

47. **The rates quoted shall be inclusive of all taxes and duties, no extra shall be paid on this account.**

48. **INSURANCE AND STORAGE:**

- All consignments are to be duly insured upto the destination from warehouse at the cost of the contractor. The insurance covers shall be valid till the equipment is handed over duly installed, tested and commissioned

**EXECUTIVE ENGINEER (E)
CPWD, RAIPUR**

COMMERCIAL & TECHNICAL CONDITIONS FOR E&M WORKS
(For Internal & External Work)

1. SCOPE OF WORK:

The specifications given below pertain to the entire electrical and mechanical works to be carried out for **C/o Boundary wall with main gate at Campus of NFSU at Atal Nagar Nava Raipur (C.G.)**. The work shall be carried out as per CPWD General Specifications for Electrical Works, Part-I: Internal, 2023 and Part-II, External-2023, amended up to the last date of submission of tender. The soft copy of this specification is available at the link: http://cpwd.gov.in/Documents/CPWD_Publication.aspx

2. Conformity to IE act, IE Rules, and standards:

All electrical works shall be carried out in accordance with the provisions of Indian Electricity Act, 1910 and Indian Electricity Rules, 1956 amended up to the last date of submission of tender unless specified otherwise. List of rules of particular importance to electrical installations under these General Specifications for internal works is given for reference.

3. General:

3.1 The Department shall not issue any T & P and nothing extra shall be paid on account of this.

3.2 Guarantee & Defect Liability Period

All the equipment shall be guaranteed for a period of 12 months from the date of taking over the installation by the department against unsatisfactory performance and / or break down due to defective design, workmanship of material. The equipment 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.

The tenderer shall guarantee among other things, the following vis-à-vis specifications.

- a) Quality, strength and performance of the materials used.
- b) Satisfactory operation during the maintenance period.
- c) Ceiling fans, Exhaust fans shall be guaranteed for 1(one) Year including lamps.
- d) LED fittings, as a whole including driver shall guaranteed for 5 years.
- e) In case of discontinuation of model and non-availability of spares, the Agency will replace the fittings with equivalent/ high end model in case of manufacturing defect during the warranty period of 5 years.

4. Payments terms:

On account payments for part work (after stipulated and statutory deductions) shall be payable as assessed by the Engineer – in-charge for the items in the Contract. The percentage for wiring items is cumulative of quoted rates

- i) 40% after laying of conduit.
- ii) 80% after drawing of wires and fixing of modular accessories.
- iii) 95% after testing, commissioning.
- iv) 100% after handing over.
- v) **For fittings:** 70% after supply of fittings with duly supported with the proper challan from the authorized dealer.
- vi) 95% after installation, testing, commissioning.
- vii) 100% after handing over.

5. General Conditions

- 5.1. The main contractor shall be responsible for coordinating the activities of all works and will ensure progress of works as per laid down programme.
- 5.2. The main contractor and / or his Associated electrical Contractor or his representative is bound to sign the site order book as and when required by the Engineer-in-charge and will comply with the remarks therein.
- 5.3. The contractor shall make his own arrangement at his own cost for electrical / General Tools and plants required for the work.
- 5.4. The connections, inter-connections, earthing and loop earthing shall be done by the contractor her ever required to be done for energization of the installation and nothing extra shall be paid on this account.
- 5.5. The contractor must be able to work on concrete slabs / walls as and when required and in complete coordination with the civil works. Cutting of chases in the plastered wall shall in no case be allowed. The contractor shall fix conduits and boxes in the walls soon after the brick work is completed and finish the chase to rough surface with proper cement sand mixture. Only in exceptional cases e.g. Where cutting of plastered surface cannot be avoided it will be contractor's responsibility to ensure that plastering is done to match the original finish at no extra cost.
- 5.6. The contractor shall remove all the debris due to the electrical works from the site as soon as the work is completed.
- 5.7. The wiring and conduit route shall be marked by the contractor in the drawing first, and shall be got approved from the Engineer-in-charge.
- 5.8. Some light points in lobby / corridors/ stair case/ lift shaft etc. are group controlled which will be measured as per Items mentioned under C-I.
- 5.9. The rupturing capacity of the MCB's shall be 10 KA. The MCB's shall have ISI mark. Quantities of MCBs of different rating of 6 amps to 32 amps shall be brought in consultation with the Engineer-in-Charge, as per loading of circuits.
- 5.10. All the MCCBs shall be rated for $I_{cs}=100\% I_{cu}$
- 5.11. The copper wire to be used on this work shall be FRLS type and ISI marked.
- 5.12. The make of switch boxes shall be the same as that of switches. Only the required knockouts of the switch boxes are to be removed for terminating the conduit pipes with glands / check nuts.
- 5.13. Make of MCB/MCCB shall be the same as the make of MCB DB.
- 5.14. All the switch boxes, MCBDBs are to be covered with plastic sheet / petroleum gelly when installed in brick work till the plastering / painting is done to avoid sticking of cement plaster/ splashes of the paint. Cement plaster / paint is to be cleaned immediately after plaster to avoid rusting of switch boxes and MCB DBs. The plastic sheet is to be removed at the time of handing over.
- 5.15. The Electrical works shall be carried out by the contractor, side by side with the progress of the civil works.
- 5.16. The Contractor shall furnish documentary proof like delivery challans of purchasing Wires, Modular switches & accessories, MCBs, MCBDB, Fittings, accessories and other items from the manufacturers or their authorized dealers to the satisfaction of the Engineer-in-charge.
- 5.17. All GI conduits accessories shall be of the same make as conduits. The Conduits shall be terminated at switch boxes/metallic junction boxes with suitable glands/check nuts.
- 5.18. Cutting of brick walls shall be with chase cutting machine only. All repairs and patch works shall be neatly carried out to match the original finish and to the entire satisfaction of the Engineer in Charge.
- 5.19. All the sub main and circuit wiring includes loose wire for connections inside switch boxes and MCB DBs. No payment for these loose wires shall be made. However, wires within the cubicle panel will be measured and paid under relevant item of work.
- 5.20. All the circuits / sub-main wiring are to be suitably numbered with stickers / marker pen at LT panel, MCBDBs, switch boards (on backside of cover plate) for ease of maintenance. Nothing shall be paid extra on this account.
- 5.21. The contractor shall submit the completion plan separately in triplicate on blue print/ computer plotted with one set on tracing "Cloth" as per Clause-8 of the contract within 30 days of the completion of work. In case, the contractor fails to submit the plan, he shall be

- liable to pay a sum equivalent to 0.1% of tendered value of the work subject to a ceiling of Rs. 20,000.00.
- 5.22 To facilitate drawing of wires, 18 SWG GI fish wire shall be provided along with laying of recessed conduit for which no extra payment shall be made. Conduits laid for other services, like fire alarm, PA etc., where wiring is not done along with IEI works, fish wire shall be invariably drawn.
 - 5.23 The connection between incoming switch / isolator and bus bar shall be made with suitable size of thimble and cable at no extra cost.
 - 5.24 Copper conductor of insulated cables of size 1.5 Sq.mm and above shall be stranded and terminals provided with crimped lugs.
 - 5.25 All MS junction box cover should be of phenolic laminated / good quality plastic sheet of thickness not less than 3mm and for which nothing extra shall be paid on the account.
 - 5.26 All sub-main wiring shall be terminated in the main board with suitable copper lugs and thimbles for which nothing extra will be paid on this account.
 - 5.27 All hardware items such as screws, thimbles, GI wire etc. which are essentially required for completing an item as per specifications will be deemed to be included in the item even when the same have not been specifically mentioned.
 - 5.28 All hardware items such as nuts/ bolts/ screws/ washers etc. to be used in work shall be zinc/ cadmium plated iron.
 - 5.29 Any conduit which is not be wired by the contractor shall be provided with GI fish wire for wiring by some other agency subsequently. Nothing extra shall be paid for the same.
 - 5.30 While laying conduit, suitable size junction boxes shall be provided for pulling the wire as per the decision of the E-in-C.
 - 5.31 Materials to be used in work are to be ISI marked. The make of the materials has been indicated in the list of acceptable makes. No other makes will be acceptable. The materials to be used in the work shall be got approved by the Engineer in Charge / his representative before its use at site. The E-in-C shall reserve the right to instruct the contractor to remove the material which, in his opinion, is not acceptable.
 - 5.32 Where switches/ sockets/ regulator/ telephone/ TV / internet outlets are to be provided, the same shall be of only one make.
 - 5.33 While laying conduits for fire alarm system, sufficient junction outlets are to be provided as per the direction of the Engineer-in-Charge for detectors as required, for which no extra payment shall be made.
 - 5.34 Wherever light fittings are proposed to be provided on the false ceiling, the respective light / fan point wiring will have to be brought up to the terminal of the light fittings / fans by the contractor. Flexible metal conduits shall be used for drawing wires from steel conduits on ceiling to fittings on false ceiling and nothing extra shall be paid to the contractor for the same.
 - 5.35 In case the same item appears more than once in the schedule of work under the same sub head or among the different subhead of works, the lowest rate quoted for that item shall be taken for other items also.
 - 5.36 The modular size of boxes for point wiring is to be increased by 2 modules for accommodating fan regulator wherever required. Nothing extra shall be paid for this increase in size.
 - 5.37 The main agency has to submit a security deposit towards warrantee of 5 years for LED fittings of 5% of the rates quoted by him for LED fittings in acceptable form (FDR/DD/BG) with **EE(E), Raipur** before expiry of defect liability period of one year, otherwise, the same will be deducted from the Security Deposit for the whole work before releasing the same. This Security Deposit against LED fittings will be released after expiry of 5 years of warrantee period.

ANNEXURE – X**UNDERTAKING LETTER FROM MANUFACTURERS OF LED FITTINGS****We hereby agree that**

1. All the LED fittings supplied by us are guaranteed for five years including drivers from the date of handing over.
2. In case of discontinuation of model and non-availability of spares, we will replace the fittings with equivalent/ high end model in case of manufacturing defect during the warranty period of 5 years.

For M/S,

.....

(Authorized signatory of manufacturer of LED
luminaire)

Counter Signature,

Major contractor

LIST OF PREFERRED MAKES

The following Makes of material are preferred for use in above work. The material shall be confirming to relevant IS specification and same shall bear ISI marking, wherever available. If any Make stated below does not comply with the technical specification given in the tender then such a Make will not be acceptable.

SUB WORK-I: INTERNAL ELECTRIFICATION AND STREET LIGHT

S.No	Description	Makes
1.	FRLS Copper Conductor PVC Insulated Wires	AKG / Havells/Polycab/Banton Cable/ KEI
2.	Steel / MS Conduit and accessoires(ISI marked)	BEC / NIC / AKG/ Steel Kraft/ RMCON
3.	PVC Conduit and accessoires (ISI marked)	BEC / AKG/ Precision / Polycab
4.	GI Pipe/ MS Pipe (ISI marked)	TATA / Jindal (Hissar) / Sail
5.	Modular type switch, socket & Boxes, plate & Accessories	Legrand(Myrus)/Honeywell(ORNA)/Schneider (Unica Pure)/ Havells(Morano)/
6.	Lugs and Gland	Commet/Dowells/Jainson/ HAX/3M
7.	ELCB/ RCCB /MCB DB / MCB'S	Legrand(Ekinox3)/Siemens(Betgaurd) /Lauritz Knudsen(AU)/ Schneider (Acti9)
8.	MCCB (Ics=100%Icu)	Legrand(DPX3)/Siemens(3VA)/Lauritz Knudsen (D Sine)/ Schneider(NSX)
9.	Industrial Sockets & Plugs	Legrand / Siemens /Lauritz Knudsen / Schneider/ ABB
10.	DWC/ HDPE Pipe	Rex / Duraline/ Dutron/Jain/Ketron/ Sintex/
11.	Cable Junction Box	Sintex/ Rex / Duraline/ Dutron/Jain/Ketron
12.	XLPE /PVC Insulated PVC Sheated Armoured /Unarmoured / Aluminum / Copper Conductor/ UG Cable of 1.1 KV Grade.	AKG / Havell / Polycab / Bonton Cable/ KEI
13.	LT Power cable	AKG / Havell / Polycab / Bonton Cable/ KEI
14.	LED fittings and accessories	Make: Phillips/ Wipro/ Havells/ Jaquar
15.	1200 mm/1400 mm ceiling fan BEE Star (BLDC)	Havells / Usha/ Atomberg / Bajaj/ Orient/ Crompton
16.	Fresh Air / Exhaust Fan	Havells / Usha / Bajaj/ Orient/ Crompton