E-TENDER DOCUMENTS

PRE-QUALIFICATION BID

Name of work:		**Providing street light in village Chhapraula (Khera Dharampura Mazra) balance work, Greater Noida**
Estimated Cost	:	Rs. 6.30 Lacs
Cost of Tender	:	Rs. 590/- with G.S.T. (Rupees five hundred ninety only with G.S.T.) (through IndusCollect website: https://induscollect.indusind.com/pay/index.php only)
Earnest Money	:	Rs. 13,000/- (through IndusCollect website: https://induscollect.indusind.com/pay/index.php only)
Time of Completion	:	Three months
Defects liability period	:	Two years
Validity of Tender	:	Ninety Days
Date of release of E-Tender	:	14.02.2019
Date & time of Closing of E-tender	:	21.02.2019 (5:00 PM)
Date & time of Opening of E-Tender Prequalification Bid	:	25.02.2019 (11.00 AM)
Date & time of opening of E-Tender Price Bid	:	This information shall be displayed on the website after three working days of opening of prequalification bid.
Bank A/C details for	:	**For Tender Fee & EMD:** Visit IndusCollect website: https://induscollect.indusind.com/pay/index.php

PRE-QUALIFICATION BID

INDEX

INSTRUCTIONS TO BIDDERS/TENDERERS

(A) The tenderer shall bear all costs associated with the preparation and submission of it's e-bid and U.P. Electronics Corporation Ltd, Lucknow Greater Noida Authority hereinafter referred to as the "Department ", will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the e- bid process.

This tender document is available on the web site http://etender.up.nic.in and on Greater Noida Authority website www.greaternoidaauthority.in at E-link and Corporation's website www.uplc.in to enable the tenderers to view, download the e-bid document and submit e-bids online up to the last date and time mentioned in e-tender notice/e-tender document. The tenderer's shall have to pay e-tender document fee of **Rs. 590.00 with G.S.T. (Rupees five hundred ninety with G.S.T.)** through IndusCollect website: https://induscollect.indusind.com/pay/index.php only payable in favour of Greater Noida Industrial Development Authority. The scanned copy of Challan generated on Payment Portal must be enclosed along with the e-bid. This e-tender document fee will be non-refundable. Bid without tender fee in the prescribe form will not be accepted.

(B) AMENDMENT E-BID DOCUMENT :

At any time prior to the deadline for submission of e-bid, the department may, for any reason, whether at its on in iterative or in response to a clarification requested by a prospective tenderer, modify the e-bid document by amendments. Such amendments shall be uploaded on the e-procurement website http://etender.up.nic.in, Greater Noida Authority web site at E-link and Corporation's website www.uplc.in through corrigendum and form an integral part of e-bid document. The relevant clauses of the e-bid document shall be treated as amended accordingly.

It shall be the sole responsibility of the prospective tenderer to check the web site http//etender.up.nic.in or corporation's website www.uplc.in from time to time for any amendment in the e-tender documents. In case of failure to get the amendments, if any the department shall not be responsible for it.
In order to allow prospective e-tenders a reasonable time to take the amendment into account in preparing their e-bids, the department, at the discretion, may extend the deadline for the submission of e-bids. Such extensions shall be uploaded on the e-procurement websitehttp://etender.up.nic.in, and Corporation's website www.uplc.in

(C) PREPARATION OF E-BID:

1. Language of e-bid

The e-bid prepared by the tenderer, as well as all correspondence and documents relating to the e-bid exchanged by the tenderer and the department shall be written either in English or Hindi language. The correspondence and documents in Hindi must be accompanied by embedded/separate Hindi font files. Only English numerals shall be used in the e-bid.

2. Documents constituting the e-bid

The e-bid prepared by the tenderer shall comprise the following components:

a) Technical e-bid-Technical e-bid will comprise of :

i) Fee details-It will consist of the cost of tender document and prescribed earnest money in prescribed form.

ii) Qualification Details- Includes copies of required documents in PDF format justifying that the tenderer is qualified to perform the contract if his/her bid is accepted and the tenderer has financial & technical capability necessary to perform the contract and meets the criteria outlined in the Qualification requirement and technical specification and fulfill all the conditions of the contract.

b) Financial e-bid–Financial e-bid will comprise of:

i) Price Schedule/BOQ- Includes price schedule/BOQ in XLS format to be filled in after downloading from the e-procurement website for this e-tender.

3. E-bid form

The tenderer shall complete the e-bid form and the appropriate price schedule/BOQ furnished in the e-bid document.

4. E-bid currencies

Prices shall be quoted in Indian Rupees only.

5. Documents establishing tenderer's Qualification

i) The tenderer shall furnish, as part of its technical e-bid, documents establishing the tenderer's qualification to perform the contract if its e-bid is accepted. The documentary evidence should be submitted by the tenderer electronically in the PDF format.

ii) The documentary evidence of tenderer's qualification to perform the contract if its e-bid is accepted shall be as per qualification requirements specified in e-tender document.

6. E-bid Security/ Earnest money deposit (EMD)

i) The tenderer shall furnish, as part of its e-bid, an e-bid security/EMD of **Rs. 13,000.00 (Rupees thirteen thousand only)** in form of IndusCollect website: https://induscollect.indusind.com/pay/index.php only payable in favor of Greater Noida Industrial Development Authority. The scanned copy of Challan generated on Payment Portal must be enclosed along with the e-bid.

ii) Any e-bid not secured in accordance with above shall be treated as non-responsive and rejected by the department.

iii) Unsuccessful tenderer's e-bid EMD will be returned promptly as possible after opening of the Price Bid.

iv) The successful tenderer's e-bid EMD will be converted into security upon the tenderer signing the contract.

v) The e-bid security may be forfeited:

a) If tenderer (i) withdraws its e-bid during the period of e-bid validity specified by the tenderer on the e- bid form: or (ii) does not accept the correction of errors or (iii) modifies its e-bid price during the period of e-bid validity specified by the tenderer on the form.

b) In case of a successful tenderer, if the tenderer fails to sign the contract with the department.

7. Period of validity of e-bid

i) e-bid shall remain valid for 90 days after the date of e-bid opening prescribed by the department. An e-bid valid for a shorter period shall be rejected by the department as non-responsive.

ii) In exceptional circumstances, the department may solicit the tenderer's consent to an extension of the period of e-bid validity. The request and the response thereto shall be in writing. A tenderer may refuse the request without forfeiting its e-bid security .A tenderer granting the request will not be required nor permitted to modify its e-bid.

8. Formats and Signing of e-Bid.

i) The tenderer shall prepare one electronic copy of the technical e-bid and financial e-bid separately.

ii) The e-bid document shall be digitally signed, at the time of uploading, by the tenderer or a person or persons duly authorized to bind the tenderer to the contract. The later authorization shall be indicated by a scanned copy of written power-of attorney accompanying the e-bid. All the pages/documents of the e-bid that are to be uploaded shall be digitally signed by the person authorized to sign the e-bid.

9. Submission of e-bid

The bid submission module of e-procurement website http://etender.up.nic.in enables the tenderers to submit the e-bid online in response to this e-tender published by the department. Bid submission can be done only from the bid submission start date and time till the bid submission end date and time given in the e-tender. Tenderers should start the bid submission process well in advance so that they can submit their e-bid in time. The tenderer should submit their e-bid considering the server time displayed in the e- procurement website. This server time is the time by which the e-bid submission activity will be allowed till the permissible time on the last/end date of submission indicated in the e-tender schedule. Once the e-bid submission date and time is over, the tenderers cannot submit their e-bid. For delay in submission of e-bid due to any reasons, the tenderers shall only be held responsible.

The tenderers have to follow the following instructions for submission of their e-bid:

i) For participating in e-bid through the e-tendering system it is necessary for the tenderers to be the registered users of the e-procurement website http://etender.up. nic.in. The tenderers must obtain a user login Id and password by registering themselves with U.P. Electronics Corporation Ltd., Luck now if they have not done so previously for registration.

ii) In addition to the normal registration, the tenderer has to register with his/her digital signature certificate (DSC) in the e-tendering system and subsequently he/she will be allowed to carry out his/her e-bid submission activities. Registering the digital signature certificate (DSC) is a one-time activity. Before proceeding to register his/her DSC, the tenderer should fist log on to the e-tendering system using the user login option on the home page with the login Id and password with which he/she has registered.

For successful registration of DSC on e-procurement website http://etender.up.nic.in the tenderer must ensure that he/she should possess class-2/class-3 DSC issued by any certifying authorities approved by controller of certifying authorities, Government of India, as the e-procurement website http://etender.up.nic.in is presently accepting DSC issued by these authorities only. The tenderer can obtain user login Id and perform DSC registration exercise above even before e-bid submission date starts. The department shall not be held responsible if the tenderer tries to submit his/her e-bid at the moment before end date of submission but could not submit due to DSC registration problem.

iii) The tenderer can search for active tenders through “search active tenders” link, select a tender in which he/she is interested in and then move it to ‘My Tenders’ folder using the options available in the e-bid submission menu. After selecting and the tender, for which the tenderer intends to e-bid, from “My tenders” folder, the tenderer can place his/her e-bid by clicking “pay offline” option available at the end of the view tender details form,. Before this, the tenderer should download the e-tender document and price schedule/bill of quantity (BOQ) and study them carefully. The tenderer should keep all the documents ready as per the requirements of e-tender document in the PDF format except the price schedule /bill of quantity (BOQ) which should be in the XLS format (excel sheet).

iv) After clicking the 'pay offline' option, the tenderer will be redirected to terms and conditions page. The tenderer should read the terms & condition before proceeding to fill in the tender fee and EMD offline payment details. After entering and saving the tender fee and EMD details form so that "bid document preparation and submission " window appears to upload the documents as per technical (fee details, qualification details, e-bid form and technical specification details) and financial (e-bid form and price schedule/BOQ) schedules/packets given in the tender details. The details of the Payment of Tender Fee & EMD made on IndusCollect website: https://induscollect.indusind.com/pay/index.php should tally with the details available in the scanned copy and the date entered during e-bid submission time otherwise the e-bid submitted will not be accepted.

v) Next the tenderer should upload the technical e-bid documents for fee details (e-tender fee and EMD), Qualification details. Before uploading, the tenderer has to select the relevant digital signature certificate. He may be prompted to enter the digital signature certificate password, if necessary. For uploading, the tenderer should click “browse” button against each document label in technical and financial schedules/packets and then upload the relevant PDF/XLS files already prepared and stored in the tenderer’s computer. The required documents for each document label of technical (fee details, qualification details, e-bid form and technical specification details) and financial (e-bid form and price schedule/BOQ) schedules/packets can be clubbed together to make single different files for each label.

vi) The tenderer should click “Encrypt” next for successfully encrypting and uploading of required documents. during the above process, the e-bid document are digitally signed using the DSC of the tenderer and then the documents are encrypted/locked electronically with the DSC’s of the bid openers to ensure that the e-bid documents are protected, stored and opened by concerned bid openers only.

vii) After successful submission of e-bid document, a page giving the summary of e-bid submission will be displayed confirming end of e-bid submission process. The tenderer can take a printout of the bid summary using the “print” option available in the window as an acknowledgement for future reference.

viii) Department reserves the right to cancel any or all e-bids without assigning any reason.

10. Deadline for submission of e-bid

E-Bid must be submitted by the tenderer at e-procurement website http://etender.up.nic.in not later than the time specified on the prescribed date (as the server time displayed in the e-procurement website).The department may, at its discretion, extend this deadline for submission of e-bid by amending the e-bid document, in which case all rights and obligations of the department and tenderers previously subject to the deadline will thereafter be subject to the deadline as extended.

11. Late e-bid

The server time indicated in the bid management window on the e- procurement websitehttp://etender.up.nic.in will be the time by which the e-bid submission activity will be allowed till the permissible date and time scheduled in the e-tender. Once the e-bid submission date and time is over, the tenderer cannot submit his/her e-bid. Tenderer has to start the bid submission well in advance so that the submission process passes off smoothly. The tenderer will only be held responsible if his/her e-bid is not submitted in time due to any of his/her problems/faults, for whatsoever reason, during e-bid submission process.

12. Withdrawal and resubmission of e-bid

i) At any point of time, a tenderer can withdraw his/her e-bid submitted online before the bid submission end date and time. For withdrawing the tenderer should first log in using his/her login id and password and subsequently by his/her digital signature certificate on the e-procurement website http://etender.up.nic.in. The tenderer should then select “My bids” option in the bid submission menu. The page listing all the bids submitted by the tenderer will be displayed. Click “View” to see the details of the bid to be withdrawn. After selecting the “bid withdrawal” option the tenderer has to click “Yes” to the message “Do you want to withdraw this bid?” displayed in the bid information window for the selected bid. The tenderer also has to enter the bid withdrawing reasons and upload the letter giving the reasons for withdrawing before clicking the “Submit” button. The tenderer has to confirm again by pressing “OK” button before finally withdrawing his/her selected e-bid.

ii) No e-bid may be withdrawn in the interval between the deadline for submission of e-bids and the expiration of period of e- bid validity. Withdrawal of an e-bid during this interval may result in the tenderer’s forfeited of his/her e-bid security.

iii) The tenderer can re-submit his/her e-bid as when required till the e-bid submission end date and time. The e-bid submitted earlier will be replaced by the new one. The payment made by the tenderer earlier will be used for revised e-bid and the new e-bid submission summary generated after the successful submission of the revised e-bid will considered for evaluation purposes. For resubmission, the tenderer should first log in using his/her login Id and password and subsequently by his/her digital signature certificate on the e-procurement website http://etender.up.nic.in. The tenderer should then select “My bids” option in the bid submission menu. The page listing all the bids submitted by the tenderer will be displayed. Click “View” to see the detail of the e-bid to be resubmitted. After selecting the “bid resubmission” option, click “Encrypt & upload” to upload the revised e-bids documents.

iv) The tenderer can submit their revised e-bids as many times as possible by uploading their e-bid documents within the scheduled date & time for submission of e-bids.

v) No e-bid can be resubmitted subsequently after the deadline for submission of e-bids.

13. Opening of e-bid by the Department

i) The department will open all technical e-bids, in the presence of tenderer`s representatives who choose to attend at 11:00 AM on the prescribed date of opening at System cell office Plot No.-1, Sector K.P.-IV, Greater Noida. The tenderer's representatives who are present shall sign a register evidencing their attendance. In the event of the specified date e-bid opening being declared a holiday for the department, the e –bids shall be opened at the appointed time and place on the next working day. The tenderer who is participating in e-bid should ensure that the Tender Fee and EMD must be submitted in the prescribed account (IndusCollect website: https://induscollect.indusind.com/pay/index.php) of GNIDA within the duration (strictly within opening & closing date and time of individual e-bid) of the work as mentioned in tender notice, otherwise, in any case, bid shall be rejected.

ii) The tenderers names and the presence or absence of requisite e-bid security and such other details as the department at its discretion may consider appropriate, will be announced at the opening. The names of such tenderers not meeting the technical specifications and qualification requirement shall be notified subsequently.

iii) The department will prepare minutes of e-bid opening.

14. Clarification of e-Bid

During evaluation of e-bid, the department may, at its discretion, ask the tenderer for a clarification of his/her e-bid. The request for clarification shall be in writing.

(D) EVALUATION OF E-BID AND EVALUATION CRITERIA:

15. The department will examine the e-bid to determine they are complete, whether they meet all the conditions of the contract, whether required e-tender fee, e-bid security and other required documents have been furnished, whether the documents have been properly digitally signed, and whether the e-bids are generally in order. Any e-bid or e-bids not fulfilling requirements shall reject.

16. Contacting the department

i) No tenderer shall contact the department on any matter relating to his/her e-bid, from the time of the e-bid opening to the time the contract is awarded. If the tenderer wishes to bring additional information to the notice of the department, he/she can so in writing.

ii) Any effort by a tenderer to influence the department in its decisions on e-bid evaluation, e- bid comparison or contract award may result in rejection of the tenderer’s e-bid.

iii) In the event of any information furnished by the agency is found false or fabricated the minimum punishment shall be debarred /blacklisting from Greater Noida works and legal proceeding can also be initiated.

(E) AWARD OF CONTRACT:

17. AWARD CRITERIA

The department will award the contract to the lowest evaluated successful tenderer whose bid has been determined to be responsive to all the conditions of the contract and meeting the technical specification and qualification requirement of the bidding document.

18. Department's right to accept any e-bid and to reject any or all e-bids.

The department reserves the right to accept or reject any e-bid, and annul the e-bid process and reject all e-bids at any time prior to contract award, without thereby incurring any liability to the affected tenderer or tenderers.

19. Notification of award

i) Prior to the expiration of the period of e-bid validity, the department will notify the successful tenderer in writing by letter/e-mail/fax, that its e-bid has been accepted.

ii) The notification of award will constitute the formation of the contract.

20. Signing of contract

At the same time as the department notifies the successful tenderer that its e-bid has been accepted, the successful tenderer shall have to sign the contract agreement with relevant document as mentioned in above Clause 7. The agreement draft along with other related terms and conditions will be same as furnished in e-tender. Any refusal will not be allowed. The bidders need not to download and submit in hard copies of these documents.

21. For the visiting contractors of this tender document

i) The contractors/firm/bidders who are interested to participate in tender are requested to get them registered and get their signature digitalized with UP Electronics Corporation, 10, Ashok Marg, Lucknow by depositing prescribed fee. However they shall be required to get their application forwarded from G.M. (Proj.), Greater Noida whose office is situated at Plot No.-1 Sector K.P.-IV, Greater Noida. The agencies/contractors registered shall be allowed to participate only in e-tenders floated after their registration.

ii) The other important information are being mentioned below at a glance for the e-tenderers:-

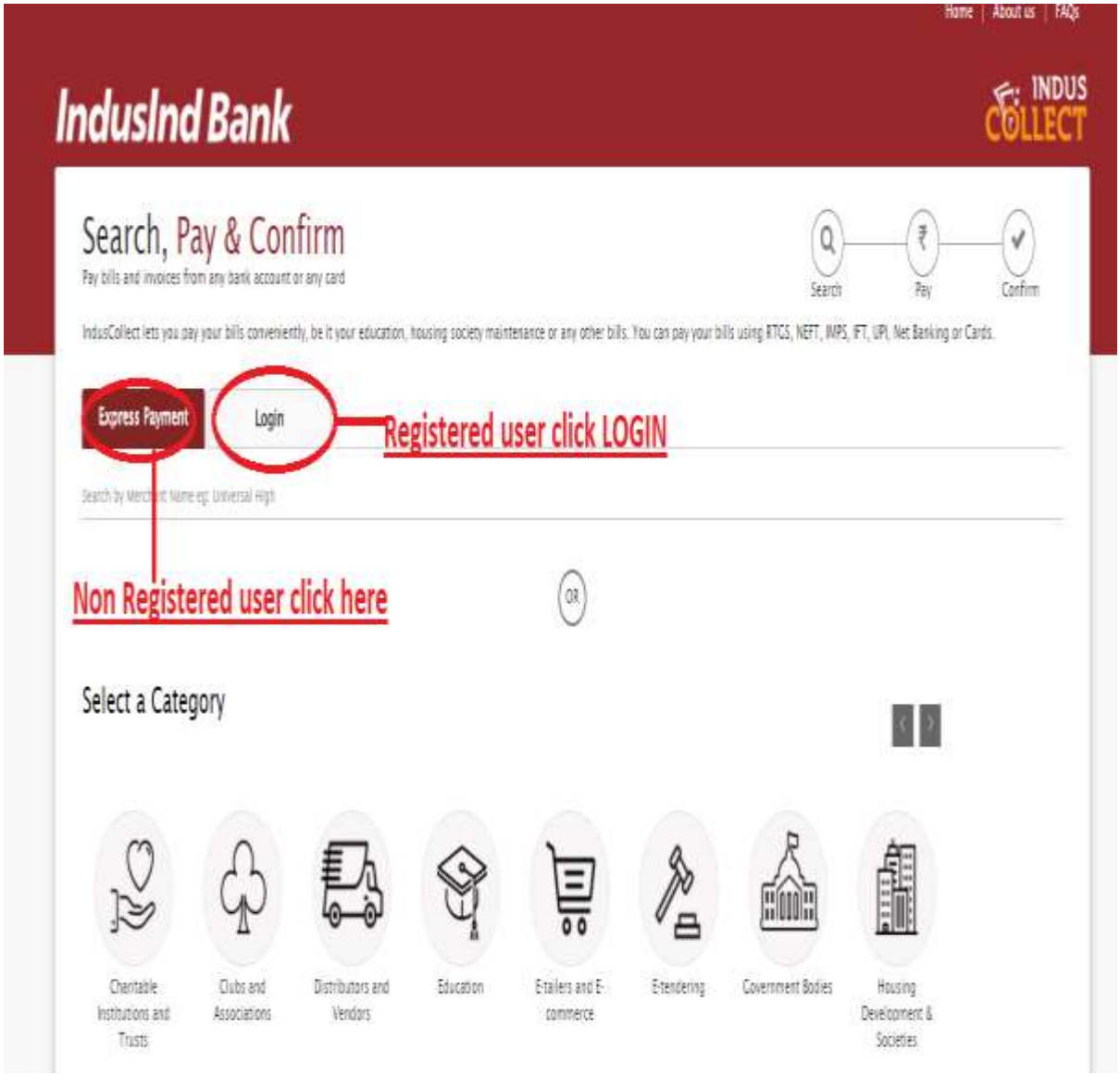
iii)	Date of release E-tender	:	14.02.2019
iv)	Date of opening E-tender	:	25.02.2019 AT 11:00 AM
v)	Cost of tender document	:	Rs. 590.00 with G.S.T.
vi)	Earnest money	:	Rs. 13,000/-
vii)	Validity period	:	90 days.
viii)	Time of completion of work	:	Three months

ix) The tender is percentage rate tender only.

Instructions for bidder to do payment

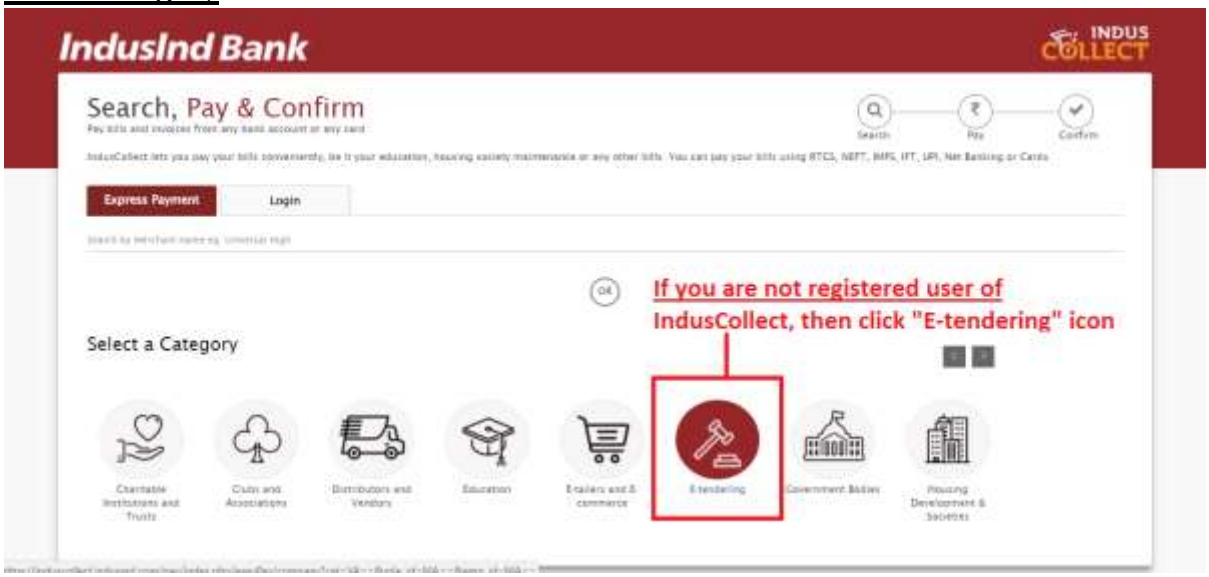
1. Visit IndusCollect website: https://induscollect.indusind.com/pay/index.php

2. If you are a registered user of IndusCollect, then login click on LOGIN tab. If you are not registered user of IndusCollect then click on Express Payment tab.



3. Flow for Non Registered users of IndusCollect:

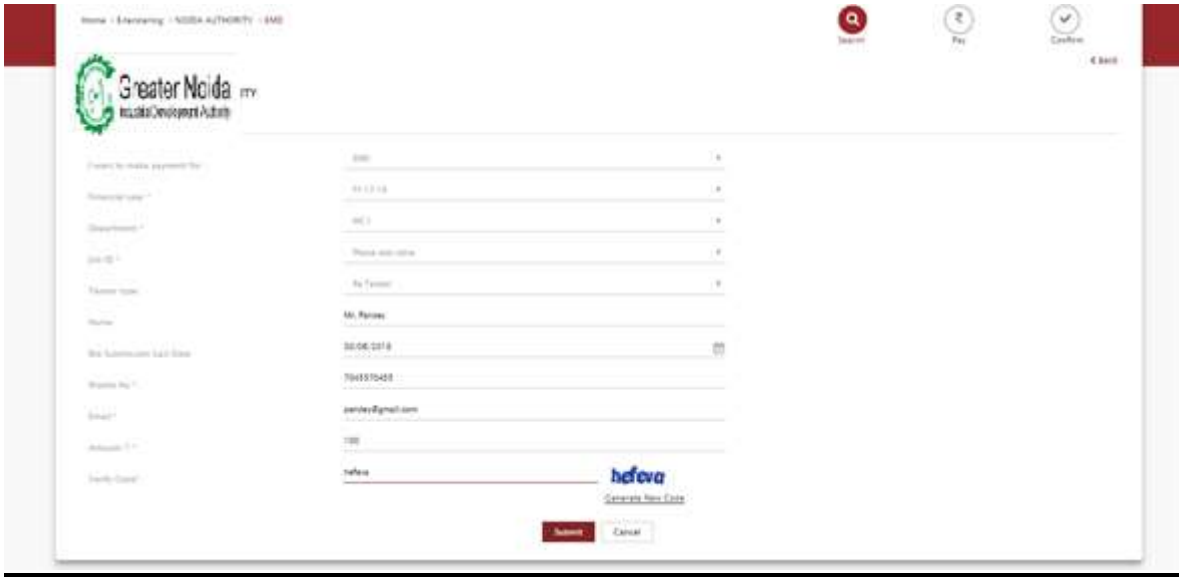
a. Select Category



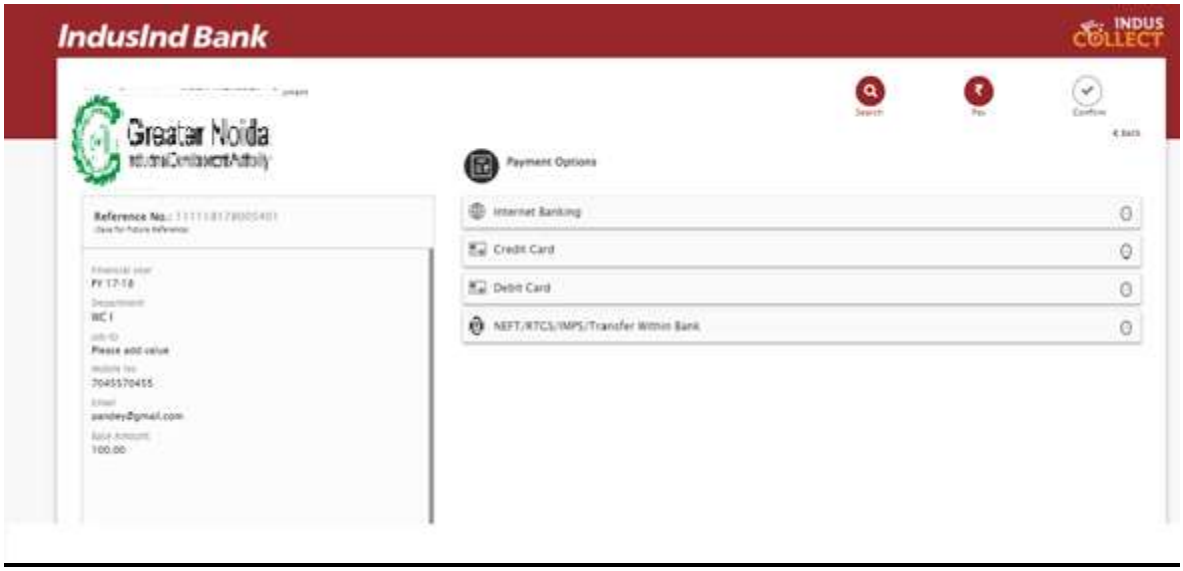
b. Select Greater Noida Authority:

c. Select type of payment:

d. Enter Data & Click Submit:

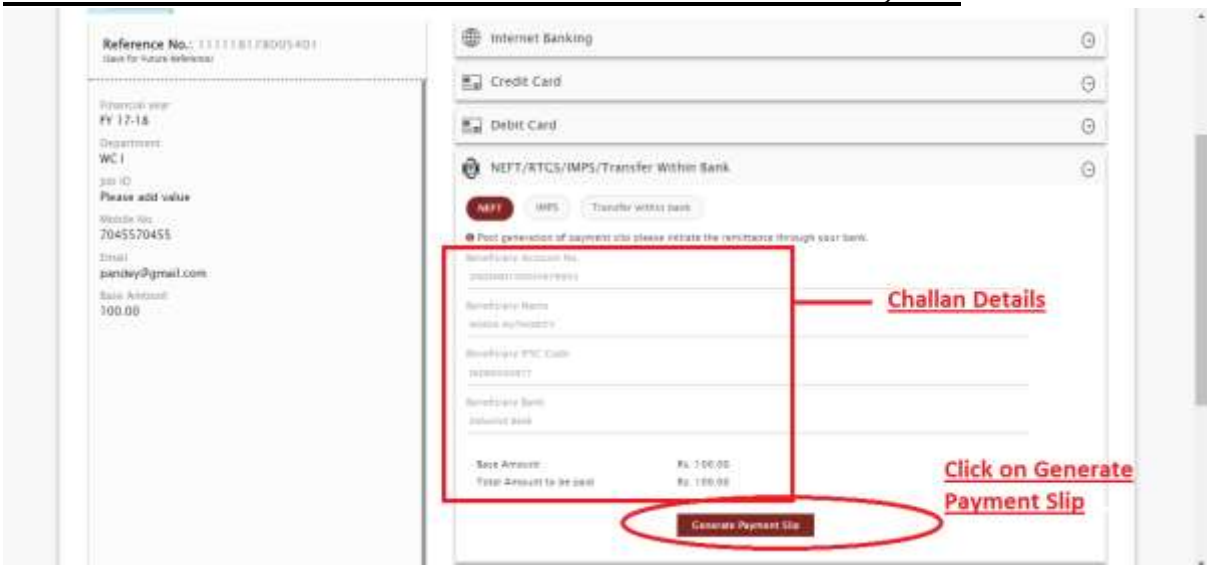


e. Select the payment mode:



f. If user clicks “Internet Banking” or “Credit Card” or “Debit Card”, then user will be redirected to Payment Gateway page. User has to enter authority details.

g. **<u>If user selects NEFT or RTGS or IMPS or Transfer within Bank, then</u>**

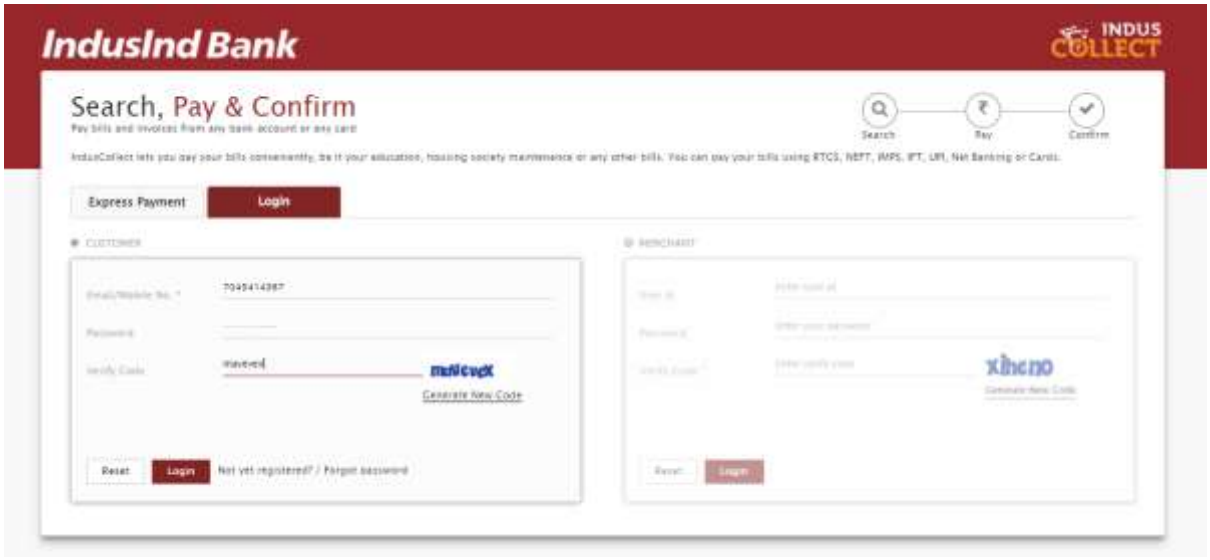


i. User has to click on Generate Payment Slip to generate challan. It will have beneficiary account number and IFSC code.

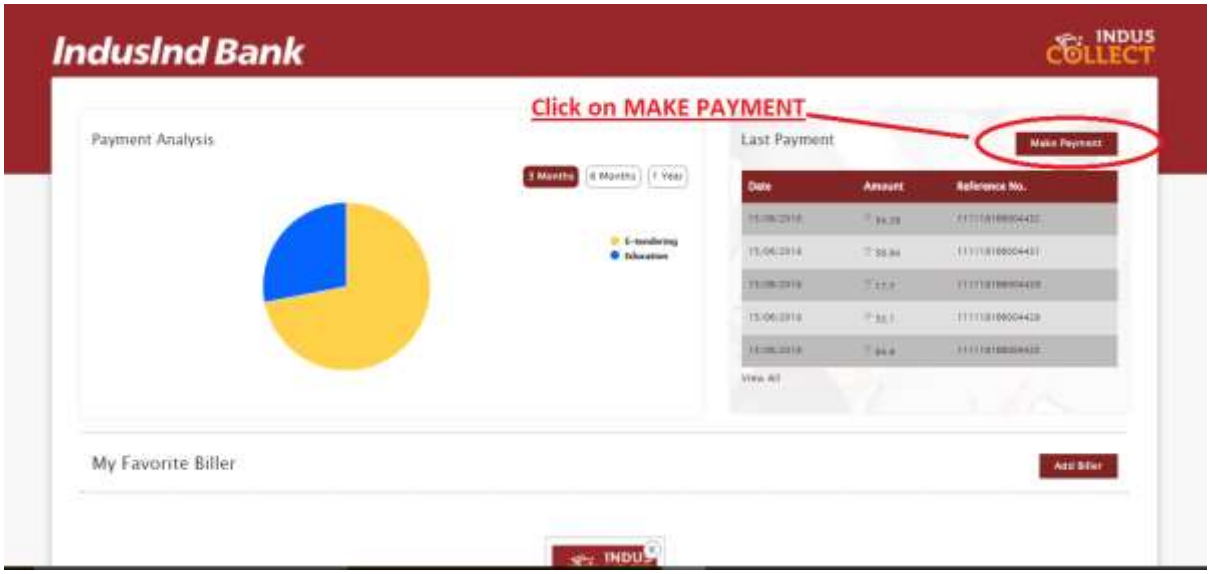
ii. User will then login to their own bank's Netbanking or mobile app.
iii. User will add beneficiary basis the details on Challan.
iv. User will then make the payment to beneficiary

4. **<u>Flow for Registered users of IndusCollect:</u>**

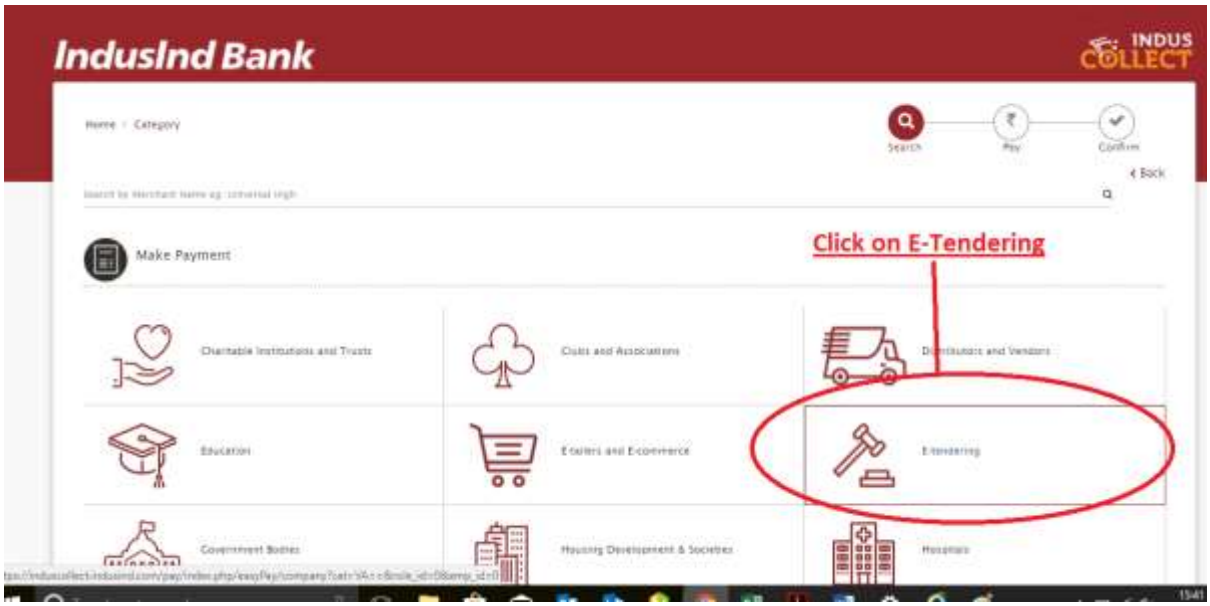
a. **Login to IndusCollect**



b. **Click on MAKE PAYMENT**

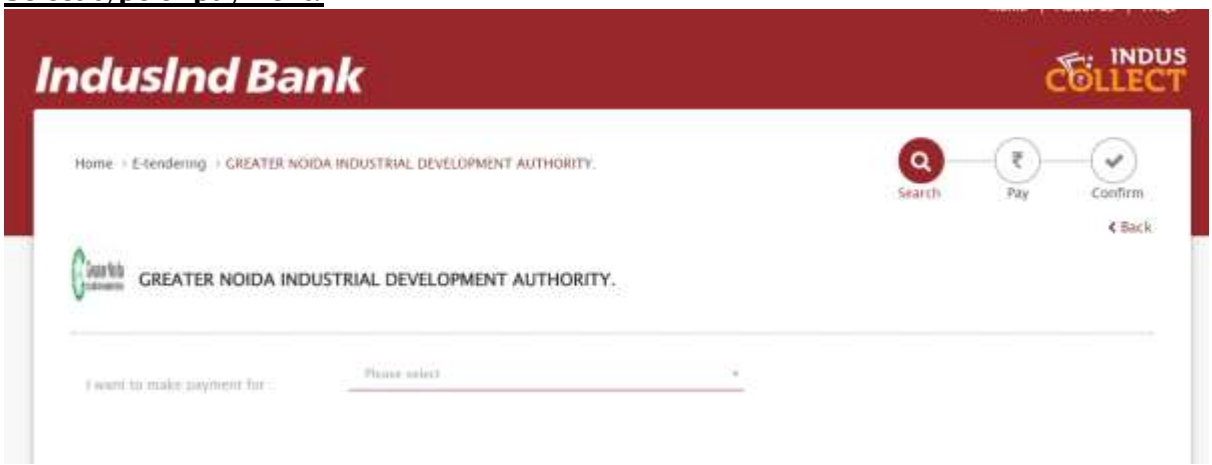


c. Select Category

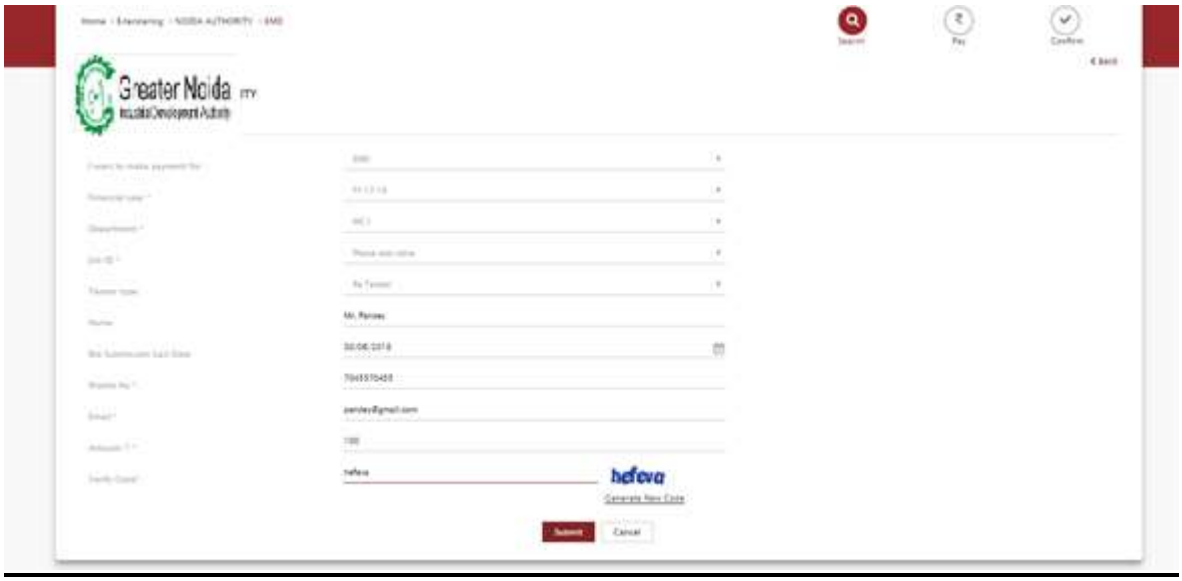


d. Select NOIDA AUTHORITY:

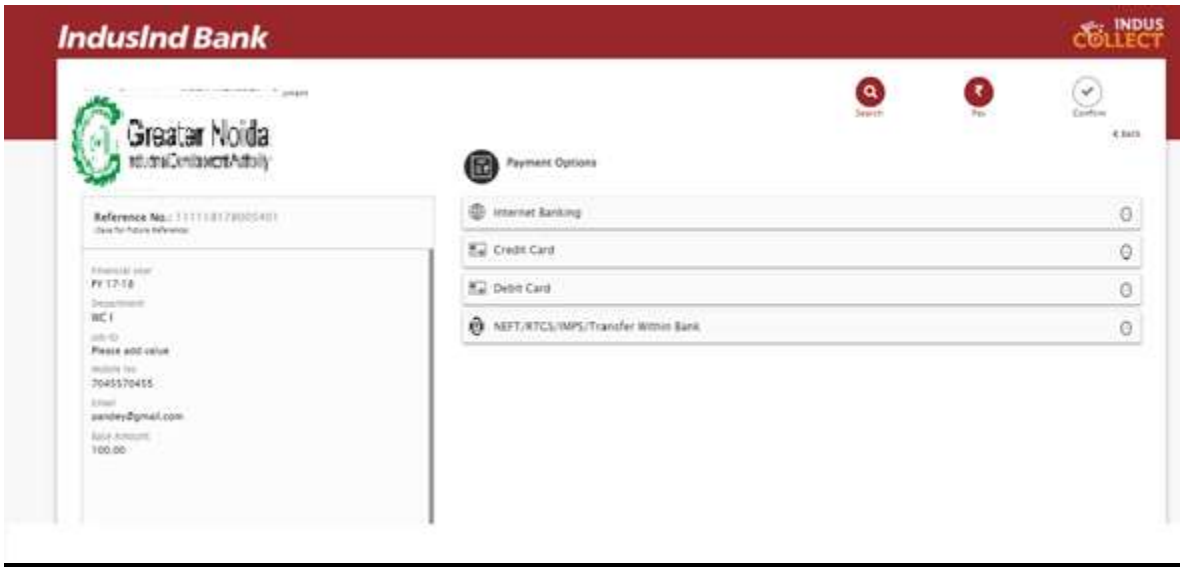
e. Select type of payment:



f. Enter Data & Click Submit:



g. Select the payment mode:



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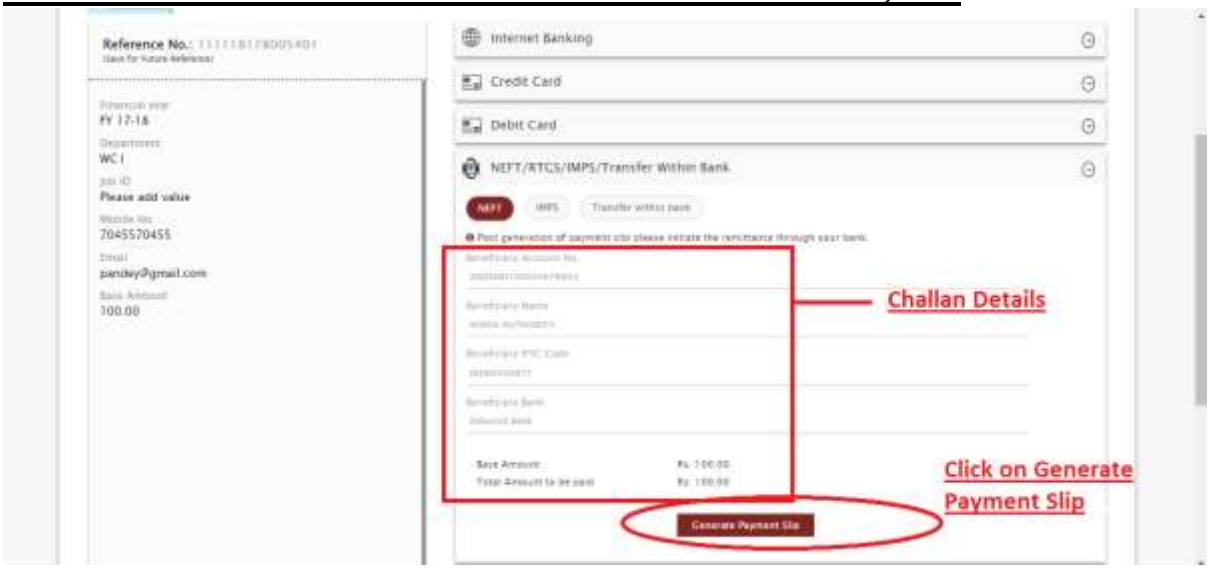

i. User has to click on Generate Payment Slip to generate challan. It will have beneficiary account number and IFSC code.

ii. User will then login to their own bank's Netbanking or mobile app.
iii. User will add beneficiary basis the details on Challan.
iv. User will then make the payment to beneficiary

LIST OF DOCUMENT TO BE SUBMITTED ONLINE:

i) Copy of Earnest money in Technical envelope and tender fee deposited of prescribed Amount through IndusCollect website: https://induscollect.indusind.com/pay/index.php only.

ii) Non Judicial Stamp paper of Rs. 100/- (Rupees One hundred only) of U.P. along with Rs. 1/- revenue stamp.

iii) All the tenders shall abide by special conditions and general conditions of contract as application to the agreements of the Greater Noida Industrial Development Authority. These condition can be seen in the office of the under designed on any working day.

iv) The tenderer should submit the G.S.T. registration certificate or have to submit the registration certificate in G.S.T. before award of work.

v) EPF & ESI registration copy of the company/firm.

vi) Aadhaar Card scan copy to be uploaded by the owner of the firm.

vii) Affidavit for relatives not working in Greater Noida Industrial Development Authority on Rs. 100/- Stamp paper (Appendix-E).

viii) Attested copy of 'A' Class Electrical Licence from Government of U.P. valid upto date.

Note:

For LED light fixtures bidder has to provide LM-79 and LM-80 report while supplying of fittings in each lot fixture one piece will be sent to NABL/UL Certified Lab for testing at the Contractor cost. Similarly as per above Solar panel to will be sent for lab testing randomly.

SENIOR MANAGER
(E&M-1) GNIDA

APPENDIX 'E'

शपथ–पत्र

(रुपये 100/– के स्टॉम्प पेपर पर)

मैं..... उम्र..... पुत्र श्री.....निवासी.....
आधार कार्ड संख्या.....व पैनकार्ड संख्या..... जो.....
..... (फर्म का नाम) का प्रोपराटर/पार्टनर/डायरेक्टर हूँ, शपथपूर्वक यह कथन करता हूँ कि मेरा कोई सगा सम्बन्धी/नजदीकी रिश्तेदार/ब्लड रिलेशन {Hindu succession act के सेक्शन–8 के अन्तर्गत Class-II द्वारा परिभाषित एवं कर्मचारी/अधिकारी स्वयं के अथवा पत्नी/पति के दादा–दादी, माता–पिता, भाई–भाभी, बहन–जीजा (Vice-Versa), चाचा–चाची, ताऊ–तायी, मामा–मामी, बुआ–फूफा, मौसा–मौसी तथा उनके पुत्र एवं पुत्री} का कोई व्यक्ति ग्रेटर नौएडा औद्योगिक विकास प्राधिकरण में स्थाई/अस्थाई/दैनिक वेतन/मानवशक्ति आपूर्तिदाता के माध्यम से किसी भी पद पर कार्यरत नहीं है।

उपर्युक्त सूचना मेरे द्वारा निजी ज्ञान एवं वास्तविकता के आधार पर दी जा रही है। यदि उक्त शपथ पत्र दाखिल करने के बाद भविष्य में कभी भी इस प्रकार का तथ्य संज्ञान में आता है कि मेरे द्वारा उपलब्ध करायी गयी सूचना/शपथ गलत है और कोई व्यक्ति उक्त प्रकार से ग्रेटर नौएडा प्राधिकरण में कार्य करता हुआ पाया जाता है तो मेरे सारे अवार्ड निरस्त करके मेरी कार्यदायी संस्था को काली सूची में डालते हुए आई.पी.सी. की सुसंगत धारा में प्राथमिकी दर्ज कराते हुए मेरे विरुद्ध विंधि की परिधि में कठोरतम कार्यवाही की जाए, जिस पर मुझे अथवा मेरे परिवार को कभी भी कोई आपत्ति नहीं होगी।

शपथकर्ता

(फर्म का नाम)

मोबाइल नं0 .....

ग्रेटर नौएडा औद्योगिक विकास प्राधिकरण

प्लॉट नं0–1 सैक्टर के0पी0–4, ग्रेटर नोएडा सिटी, गौतमबुद्ध नगर–201308, उ0प्र0

वेबसाइट: www.greaternoidaauthority.in

ई–निविदा आमंत्रण सूचना

पत्रांक: जी0एम0/प्रोजेक्ट/2019/438 दिनांक 04 फरवरी 2019

निम्नलिखित कार्यों हेतु ग्रेटर नोएडा औद्योगिक विकास प्राधिकरण इच्छुक ठेकेदारों/फर्मो से ई–निविदायें आमंत्रित करता है। ई–प्रीक्योरमेंट सोल्यूशन द्वारा निविदायें द्वस्तरीय पद्धति से की जायेगी:–

क्र0 सं0.	कार्य का नाम/वर्क सर्किल	अनुमानित लागत निविदा प्रपत्र का मूल्य (अप्रतिदेय)/ धरोहर राशि /कार्य पूर्ण करने की अवधि	ई–निविदा जारी करने की तिथि	ई–निविदा प्राप्ति की अन्तिम तिथि तथा समय	ई–निविदा के प्री–क्वालीफिकेशन बिड खोलने की तिथि तथा समय	ई–निविदा की प्राइस बिड खोलने की तिथि तथा समय
01.	सेक्टर–36 के गेट नं0 1 एवं 4 पर आर0सी0सी0 पोस्ट लगाने एवं बारबेड वायर फेन्सिगं का कार्य। (वर्क सर्किल–5)	रू0 2.03 लाख रू0 590(GST सहित) रू0 5000.00 02 माह	14.02.2019	21.02.2019 05.00 सायं	25.02.2019 11.00 पूर्वान्ह	इसकी सूचना वेबसाइट पर प्री–क्वालीफिकेशन बिड खुलने के 3 कार्य दिवस उपरान्त देखी जा सकती है।
02.	ग्राम चिपियाना खुर्द के खसरा सं0 115 में विस्थापित लोगों को 60 मी0 से जोड़ने वाली सड़क पर स्ट्रीट लाईट फिटिगं का कार्य। (वर्क सर्किल ईएन्डएम–1)	रू0 3.40 लाख रू0 590(GST सहित) रू0 7000.00 03 माह	14.02.2019	21.02.2019 05.00 सायं	25.02.2019 11.00 पूर्वान्ह	तदैव
03.	ग्राम चूहडपुर खादर के प्रस्तावित सामुदायिक केन्द्र के स्ट्रेक्चरल डिजाइन एवं सलाहकार नियुक्त कराने का कार्य। (वर्क सर्किल–1)	रू0 4.13 लाख रू0 590(GST सहित) रू0 9000.00 03 माह	14.02.2019	21.02.2019 05.00 सायं	25.02.2019 11.00 पूर्वान्ह	तदैव
04.	ग्राम हल्दौनी में स्ट्रीट लाईट फिटिगं का कार्य। (वर्क सर्किल ईएन्डएम–1)	रू0 4.23 लाख रू0 590(GST सहित) रू0 9000.00 03 माह	14.02.2019	21.02.2019 05.00 सायं	25.02.2019 11.00 पूर्वान्ह	तदैव
05.	सेक्टर ईकोटैक–11 में अस्थाई कार्यालय का निर्माण कार्य। (वर्क सर्किल–1)	रू0 4.29 लाख रू0 590(GST सहित) रू0 9000.00 03 माह	14.02.2019	21.02.2019 05.00 सायं	25.02.2019 11.00 पूर्वान्ह	तदैव
06.	शहीद विजय सिंह पथिक स्पोर्टस कॉम्पलेक्स में स्ट्रीट लाईट की स्ट्रेन्थनिंग का कार्य। (वर्क सर्किल ईएन्डएम–3)	रू0 04.81 लाख रू0 500.00+GST रू0 10,000.00 01 माह	14.02.2019	21.02.2019 05.00 सायं	25.02.2019 11.00 पूर्वान्ह	तदैव
07.	ग्राम छपरोला (खेरा धर्मपुरा माजरा) में स्ट्रीट लाईट फिटिगं का अवशेष कार्य। (वर्क सर्किल ईएन्डएम–1)	रू0 6.30 लाख रू0 590(GST सहित) रू0 13,000.00 03 माह	14.02.2019	21.02.2019 05.00 सायं	25.02.2019 11.00 पूर्वान्ह	तदैव
08.	सेक्टर– के0पी0–3 में आई0.आई0.एम0.टी0 कॉलेज से भूखण्ड संख्या–7 एवं 17/2 तक 11 के.वी.लाईन डालने का कार्य। (वर्क सर्किल–7)	रू0 6.13 लाख रू0 590(GST सहित) रू0 14,000.00 02 माह	14.02.2019	21.02.2019 05.00 सायं	25.02.2019 11.00 पूर्वान्ह	तदैव
09.	सैक्टर गामा–1 के सामुदायिक केन्द्र की रंगाई, पुताई एवं मरम्मत का कार्य। (वर्क सर्किल–8)	रू0 8.76 लाख रू0 590(GST सहित) रू0 18,000.00 02 माह	14.02.2019	21.02.2019 05.00 सायं	25.02.2019 11.00 पूर्वान्ह	तदैव
10.	सैक्टर गामा–2 के सामुदायिक केन्द्र की रंगाई, पुताई एवं मरम्मत का कार्य। (वर्क सर्किल–8)	रू0 9.37 लाख रू0 590(GST सहित) रू0 20,000.00 03 माह	14.02.2019	21.02.2019 05.00 सायं	25.02.2019 11.00 पूर्वान्ह	तदैव

11.	सैक्टर डेल्टा–3 में टी–पॉइन्ट से 0.4 कि0मी0 तक 60 मी0 चौडी सडक पर स्ट्रीट लाइट का कार्य। (वर्क सर्किल–7)	रू0 9.99 लाख रू0 590(GST सहित) रू0 20,000.00 02 माह	14.02.2019	21.02.2019 05.00 साय	25.02.2019 11.00 पूर्वान्ह	तदैव
12.	ग्रेटर नोएडा के विभिन्न स्थानों पर रैटरो रिफलैक्टिव साईनेज बौर्ड लगाने का कार्य। (वर्क सर्किल–3)	रू0 9.64 लाख रू0 590(GST सहित) रू0 20,000.00 03 माह	14.02.2019	21.02.2019 05.00 साय	25.02.2019 11.00 पूर्वान्ह	तदैव

नोट :–

1. निविदा शुल्क एव धरोहर धनराशि **https://induscollect.indusind.com/pay/index.php only) पोर्टल** में ही जमा करायी जायेगी।
2. निविदा खोलने की तिथि को अवकाश होने की दशा में, निविदायें अगले कार्यदिवस में खोली जायेगी
3. किसी भी निविदा अथवा समस्त निविदाओं को बिना कारण बताये निरस्त करने का अधिकार ग्रेटर नोएडा प्राधिकरण के पास सुरक्षित है।
4. निविदा अवार्ड होने से पूर्व फर्म का जी.एस.टी पंजीकरण होना अनिवार्य होगा।

महाप्रबंधक (परियोजना)

प्रतिलिपि:– निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु।

क. महाप्रबंधक (वित्त)
ख. महाप्रबंधक / उप महाप्रबंधक (परि0)
ग. समस्त वरिष्ठ प्रबंधक (वर्क सर्किल / तकनीकी / टेन्डर सेल)
घ. प्रबंधक (सिस्टम)
च. पुलिस निरीक्षक

महाप्रबंधक (परियोजना)

ग्रेटर नौएडा औद्योगिक विकास प्राधिकरण

प्लॉट नं0–1 सैक्टर के0पी0–4,ग्रेटर नोएडा सिटी, गौतमबुद्व नगर–201308, उ0प्र0
वेबसाइट: www.greaternoidaauthority.in

पत्रांक: म0 प्रबन्धक / परि0 / 2019 / 438ए

दिनांक 04 / 02 / 2019

ई–निविदा आमंत्रण सूचना

महाप्रबन्धक (परियोजना), ग्रेटर नोएडा औद्योगिक विकास प्राधिकरण द्वारा मुख्य कार्यपालक अधिकारी, ग्रेटर नोएडा की ओर से ई–निविदा आमंत्रण सूचना संख्या– म0प्रबन्धक / परि0 / 2019 / 438 दिनांक 04 / 02 / 2019 के माध्यम से उल्लेखित कम संख्या–01 से 12 के कार्यों की ई–निविदाये आमन्त्रित की जाती है। समस्त नियम व शर्तें ग्रेटर नोएडा प्राधिकरण की वेबसाइट: www.greaternoidaauthority.in पर ई–निविदा लिंक एवं **ई–पोर्टल** https://etender.up.nic.in पर उपलब्ध है किसी परिवर्तन, संशोधन व अतिरिक्त सूचनाओं के लिए उक्त वेबसाईटें देखते रहें ।

महाप्रबंधक (परियोजना)

SPECIAL CONDITIONS

GENERAL

1. These special conditions shall be read in conjunction with the General Conditions of the contract. Where the provisions of these Special Conditions are at variance with the provisions of the General Conditions of the contract the provisions of these special Conditions shall take precedence.

2. The Contractor/Bidder is expected to be well conversant with the conditions of GPW Form 9 as applicable to Greater Noida Works (General conditions of the contract) which shall be the part of the agreement.

3. The Tenderers/Bidders are advised to see carefully the site of work and structural/architectural drawings etc. before actually submitting their tender. The structural/architectural drawings for the work **Providing street light in village Chhapraula (Khera Dharampura Mazra) balance work, Greater Noida** under the scope of this tender can be seen in the office of the Senior Manager (E&M-1) Greater Noida Industrial Development Authority Plot No.-1, Sector K.P.-IV, Greater Noida, (U.P.) on any working day between 11.00 A.M. to 4.00 P.M.

TENDERERS TO ENSURE AND NOTE

4. The tenderer should insure that the entire required document is uploaded in PDF form in Technical bid and the Tender Fee & EMD must be submitted on IndusCollect website: https://induscollect.indusind.com/pay/index.php GNIDA within the duration (strictly within date and time of opening & closing of individual e-bid) of the work as mentioned in tender notice, otherwise, in any case, bid shall be rejected.

5. Any tenderer not fulfilling all the conditions is likely to be rejected

6. No refund of the cost of tender is claimable for tenders not accepted or for tenders not submitted.

7. Contractor has to sign the agreement after submission of stamp paper within ten days from the date of award of the work in case of delay on the part of the Contractor beyond ten days, a penalty of Rs. 1000/- per day will be imposed and shall be recoverable from Contractor which will be deducted from any dues of Contractor.

EARNEST MONEY AND SECURITY DEPOSIT

8. If the Contractor withdraws his offer/tender, or modifies his offer/tender, after submission of tender and before acceptance of the tender, his entire earnest money will be forfeited By the authority.

9. Earnest Money deposit shall be as mentioned in the tender document and the Security Money shall be 5% of the Actual cost of the work the E.M.D. would be converted into Security amount in respect of successful tenderer. For the balance verified by the issuing bank could be called for. Payment could be released to the contractor only after the Bank Guarantee is got duly verified by the issuing bank. The bank Guarantee would have to be got renewed, well before its date of expiry by Finance Department or PMC, as the case may be.

10. The earnest money deposited by unsuccessful Tenderer shall be refunded after opening Pre-qualification/Technical Bid. After opening the price bid, the Earnest Money of other than 1st Lowest tenderer shall be refunded.

11. After the acceptance of the tender, the earnest money of the successful Contractors shall be converted into the security deposit.

12. The security deposit corresponding to all work (Except Multi storeyed Apartment) shall be released in phase manners described below:-

    (a) 50% after expiry of twelve months from the actual date of completion or date of payment of the final bill (whichever is later) in full only if no imperfections become apparent in the work during defect liability period of twelve months.

    (b) Balance 50% after twenty four months from the actual date of completion or date of payment of the final bill (whichever is later) in the work during defect liability period of twenty four months and the security against this work shall be refunded only after the network/infrastructure developed is successfully handed over to the distribution licensee in GNIDA.

REGARDING MATERIALS

13. All the materials for the works shall be arranged by the contractor at his own cost.

14. All the material collected by the contractor during execution of work or otherwise shall be properly stacked & arranged as directed by the Engineer-in-charge

15. Contractor shall have to make their own arrangement for water & electricity at the site of work. The water should be fit for drinking in case the authority supplies the water, the Contractor shall have to pay charges at rate fixed by Authority.

16. GNIDA shall give necessary recommendation letter to the concerned authority for giving water and power connection to the Contractor. However any delay in getting water or power connection shall not entitle the Contractor for any compensation or extension in completion period.

17. The stone ballast & grit will be blue textured and free of soft pieces the gauge of the ballast shall be as per detailed latest specifications of CPWD.

18. The contractor is to stack the metal at the road berms first according to the size of complete with stack number as decided by the E/I and no metal shall be stacked on road embankment. The metal shall be allowed to spread for consolidation only after recording of measurements and taken into road metal account register.

19. A deduction @ 7.5% shall be made from stack measurements of stone metal to arrive at net quantity for the purpose of payment.

20. Cement and steel shall have to be arranged by the contractor only from the approved manufacture/re-rollers who hold ISI license only Cement and steel should be ISI marked and to the entire satisfaction of the E/I.

21. With each lot of material arranged by the Contractor for construction work he shall produce proper receipt of purchase from the manufacturer/re-roller.

22. The Contractor has to arrange the test certificates of each lot from an approved test laboratory. Engineer-in-Charge, Greater Noida shall have the right to take sample for testing as per CPWD/ISI norms or as decided by the Engineer in Charge and get it tested. The Contractor shall bear all charges of sampling, carriage and testing etc.

23. The cement shall be stored at site of work as per B/S requirement and shall be kept under double lock & key system by the Contractor at his own cost.

24. The Contractor in a register at site shall keep complete accounting of material purchased and consumed. All Register at site shall have machine numbered pages.

25. The Contractor shall provide at his own cost proper storage facility for the materials brought by him to prevent any loss, damage or deterioration of the same.

26. The contractor shall confine his equipment storage of materials operation of his works & people to the limits as directed by the E/I and shall not unnecessary spread over the premises with his materials and hutment.

27. The Contractor shall make arrangement for watch and ward of the material at his own cost.

28. All the materials and workmanship shall be as per specifications described in the contract and in cases not covered in the contract these shall be in accordance with the E/I instructions and shall be subjected from time to time to the tests as the E/I may direct at places of manufacture at the work site or in the Greater Noida Laboratory or any recognizing Laboratory in or out side Greater Noida Contractor shall provide conveyances labour and material required for examining, measuring and testing of the work and quality of materials used Contractor shall supply sample of the materials get them approved before using in the work. The cost of such conveyance, labour and materials provided for testing purpose, testing charges and for examining the work and for proper completion of the same shall be borne by the contractor and no extra payment shall be made for the same.

    The Authority may establish a field laboratory to carry out day to day tests of all materials and works. The Contractor shall arrange at his own cost to make available all materials etc. for carrying out the tests and pay for the tests at rates fixed by the Authority.

29. Samples makes of materials/equipments (electrical) and item of work shall have to be got approved by the Contractor from E/I before execution.

30. The contractor shall ensure to consume the materials within its expiry date. The material if consumed after the expiry date the affected work will have to be dismantled or the recovery shall be made by the Authority at the rate of double the cost of work in which such materials consumed.

LABOUR REGULATIONS

31. The Contractor will have to follows all existing rules and regulations of the Govt. and labour department regarding the labour employed by him without entitling him for any extra claim on this account.

32. The Contractor shall be responsible for the damage(s) done to any property or injury to any person whatsoever caused by him or any body in his employment or caused in consequence of his work. He will indemnify and keep the Govt. indemnified against claims demands proceedings charges,

cost charges and expenses whatsoever in respect of or in relation to any such injuries or damages. The Contractor shall take a necessary precautions for the safety of his employees on the work and shall comply with all applicable provision of safety laws and building codes to prevent accident or injuries to persons on the work.

EXECUTION OF WORK

33. All drawings and designs will be supplied according to the necessity of the particular work and the contractor will not have any claim for compensation in case of late supply of necessary design drawings.

34. For carrying out the work the contractor shall be provided with one set of working drawings. Additional copies if required will be supplied to him on payment of additional charges as decided by Engineer-in-Charge.

35. The Contractor shall be wholly responsible for setting out the works and for the corrections of the positions levels dimensions & alignment according to the plan/drawing including all necessary instruments pegs poles, pillars etc. and other material required for the purpose to the satisfaction of E/I.

36. The work shall be executed as per program drawn by contractor and approved by the E/I. If part of the site is not available due to any reason the program of the Contractor shall be modified to suit the available site and the Contractor shall have no claim for any extra compensation on this account. If the contractor dose not gives the programme for execution of work at the time of signing of agreement, the E/I will give his own programme, and PERT CHART which will be binding on contractor and shall become part of the agreement.

The contractor will be required to give his fortnightly progress as per said PERT CHART. The progress on PERT/BAR CHART shall be attached to the bills submitted by the contractor duly signed by him on monthly basis which will be verified by E/I. The contractor will be required to furnish weekly category wise labour report also.

37. If the Engineer-in-Charge, Greater Noida shall find that the work progress is slow, and feels that the work will not be completed in the time specified, then the Engineer-in-Charge, Greater Noida, shall order the Contractor to work day and nights, and/or on holidays and the Contractor shall obey these orders without objection or request for compensation. No compensation whatsoever shall be paid on this account.

38. In the event of working at night, the Contractor shall provide sufficient lighting, safety arrangements for working staff to the satisfaction of the Engineer-in-charge/ Greater Noida. Any order or approval issued under this Clause by the Engineer-in-charge/Greater Noida shall not relieve the Contractor from or diminish his obligations under the contract.

CONTRACTORS SUPERVISORY STAFF

39. Within fifteen days of the registration of the contract bound the Contractor shall have to notify in writing the names of his two authorized Representatives. One of them will always be available at the site of work to receive technical orders & the other for instruction for issue of material sand other miscellaneous works. The Contractor shall be fully responsible for the orders received by his representative or the materials received by his representatives 10.

40. The Contractor shall provide sufficient supervision to the work using the skill & attention. He shall deploy following experienced engineer on the work throughout its completion.

Works costing upto Rs. 10 Lacs	One Diploma Engineer

The Engineers deployed by contractor shall be got approved in writing from the Engineer in charge (whose approval at any time can be withdrawn) for supervision of the work and to receive directions & instructions of the work from E/I on behalf of contractor. The supervisory staff of the contractor shall not be changed without obtaining the approval of E/I. In the event of non presence of these Engineers, Authority will deduct @ Rs. 10000/- PM per graduate Engineer & @ Rs. 6000/- PM per Diploma Engineer which will be non refundable. The decision of Sr. Manager in regards to presence and/or absence of such engineer from the work shall be final & binding upon the contractor. The contractor will have to remove any person employed on the work if ordered by the E/I for any reason.

41. If the contractor does not use at site the T & P as mentioned in the Appendix "D" the same shall be arranged by the authority and the necessary deductions for the rental of machinery and T&P shall be made from contractors bills or penalty as deemed fit shall be imposed for which no claim shall be entertained.

WORK TO BE DONE AS PER SPECIFICATIONS

42. The specifications to be follows for the execution of the works shall be:

a) The latest MOST/CPWD specifications for works.

b) Relevant ISI standard for work not covered by the above.

c) Material bearing ISI Mark shall be given first preference for use in works. For all articles without ISI marks the quality shall be judged by the relevant ISI specifications.

43. The Bill of Quantities is to be read in conjunction with the Form of tender drawings conditions of contract specifications as these documents are jointly explanatory and descriptive of the works included in contract. In case of conflict amongst description of the items(s) specifications conditions and drawings, the following order of precedence shall be followed.

i) Provisions as per description of items(s)

ii) Provisions in special conditions of contract.

iii) Provisions in specifications.

iv) Provisions in drawings.

v) In absence of above the decision of Engineer-in-Charge shall be final & binding.

INSPECTION OF WORK

44. All works under or in course of execution or executed in pursuance of the contact shall at all times be open to the inspection and supervision of the E/l and other Authority Officials at all times during the usual working hours At all other times, if notice for the inspection of site by the E/l or any other official is given to the Contractor should either himself be present to receive orders and instructions or a responsible authorised agent be present for that purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the Contractor himself. The Contractor shall also provide all facilities necessary for inspection of the work by the E/l or other officials for which no payment shall be made to the Contractor.

The Engineer-in-Charge/ Greater Noida shall have the right to inspect the work and related documents either through their authorised officers or any agencies appointed for such purpose as and when the need is felt in order to assess the work progress, the quality of material used in the construction and satisfaction execution of the work the contractor shall subject themselves to such inspection and shall carry out the instructions issued in pursuance of the above inspections.

45. A SITE ORDER BOOK shall be maintained at the site of the work in which instructions shall be given to the Contractor as and when necessary. These orders shall have to be signed and compiled with by the Contractor or in his absence by his authorised representative or agent & in such case it will be presumed the same have been conveyed to him in time.

VARIATIONS

46. The quantities given in the bill of quantities are approximate & are liable to variation upto 25% on either side without entitling the Contractor to any compensation or extra rate.

RATES

47. In giving their rates the Tenders should take into account all fluctuations of the market, as no claim shall be entertained on this account during the acceptance of the tender and currency of the contract.

48. The tendered rates shall be for all completed items of the work & shall include all quarrying royalties, testing, screening, tools and plants, railway freight, carriage of materials to site, stacking & removal charge of any rejected materials also including G.S.T. and all other taxes in-force time to time as per Govt. Orders.

49. Tendered rates are inclusive of all taxes and levies payable under the respective statutes. However pursuant to the constitution (Forty Sixth Amendment) Act. 1982 if any further tax or levy is imposed by Statutes, after the date of receipt of tenders, and the Contractors thereupon necessarily and properly pays such taxes/levies, the Contractor shall be reimbursed the amount so paid provided such payment, if any, is not in the opinion of General Manager (Proj.) (whose decision shall be final and binding) attributable to delay in executing of work within the control of the Contractor.
    i) The Contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allows inspection of the same by a duly authorized representative of Government and further shall furnish such other information/documents as the Engineer-in-charge may require.
    ii) The contractor shall within a period of 30 days of imposition of any further tax or levy. Pursuant to the constitution (Forty Six - Amendment) Act 1982 gives a written notice thereof to the Engineer-in-Charges may require.
    iii) No escalation on any account shall be paid.

50. Rates quoted shall be considered to be for all height unless specified other wise.

PAYMENT

51. The Contractor shall submit monthly running bills to the Greater Noida for the work completed by him during the month. The Engineer-in-charge/Greater Noida shall check the bill and 75% payment shall be made for the certified amount within 15 days of submission of bill, balance amount due against this bill shall be released after the same is cleared by the Greater Noida authority. Security deposit shall be deducted @ 5% from each bill unit the amount of security deposit recovered reaches the total figure outlined in Clause 1 of GPW Form 9. The certificate of the Engineer-in-Charge/Greater Noida regarding the sum payable against bills shall be final and conclusive.

52. Any claim during the period of contract will be submitted in writing within the currency of the contract bond failing which the claim shall not be entertained.

53. The Contractor shall sign "No claim certificate" on running bills and in case of any claims or extra item he must mention the item and rate and Qty. specifically otherwise no claim shall be entertained later on. Payment of claim shall only be made as within decided by the competent authority in Greater Noida.

54. G.S.T. with surcharge shall be deducted on the gross amount of the work done for all the payments made to the Contractor according to the provision of G.S.T. Act modified from time to time.

55. The Contractor shall submit a certificate along with each bill that full labour payment has been made by the Contractor till the end of the preceding month.

56. The provision of an item in the bill of quantities will not entitle payment for the same in case it forms part of any other item as per specifications, Special Conditions of contract through the same may have not been specifically described in the description of the item(s).

57. The Contractor shall have to sign FARKHATI at the time of final bill.

SECURED ADVANCE

58. Secured Advance on Materials

The Contractor on signing an indenture in the form to be specified by the Engineer-in-Charge/Greater Noida may be allowed "Secured Advance" on the security on materials to the extent of 75% of the estimated value of major materials which in the opinion of the Engineer-in-Charge are non perishable and are in accordance with the contract and which have been brought on the site in connection therewith and are adequately stored and/or protected against damage by weather or other causes but which have not at the time of advance been incorporated in the works. When materials on account of which an advance has been made under this sub-Clause are incorporated in the works, the amount of such advance shall be deducted from the last payment made under any of the Clauses of this contract.

ABNORMALLY HIGH/LOW RATES

59. In the case of abnormally low rated items, the minimum quantity stipulated in the agreement must be executed and no reduction in quantity shall be allowed without prior approval of the competent authority.

60. **THEORETICAL CONSUMPTION OF MATERIAL**

After the completion of the work the theoretical quantity of cement to be used on the works shall be calculated on the bases of CPWD statements showing quantities of cement to be used in different items of work provided in the Delhi schedule of rates applicable to the agreement but for the items on which DSR is not applicable the consumption of cement shall be decided the E/I of the work. Over this theoretical quantity of cement further variation on either side shall also be allowed as under:

Maximum permissible percentage	Estimated Cost put to tender
2% (Two percent)	for works more than Rs. 5.0 Lacs.
3% (Three Percent)	for works uptoRs. 5.0 Lacs.

The variations in respect of other materials shall be as per norms in CPWD works.

The cost of quantity of cement, steel, bitumen or any other material less used than the theoretical quantity allowing variation of minus side shall be recovered from the contractor at double the prevailing market rates plus the cost of cartage to site.

CO-OPERATION WITH OTHER AGENCIES

61. The contractor shall not put hindrance to any person or to other Contractors authorized by the department to carry out works of any nature entrusted to them. The Contractor shall have to allows the other party to work and adjust his work accordingly and no claim shall be entertained on this account. In case of any dispute the decision of the E/I shall be final and binding upon all the parties concerned.

62. The contractor shall do his work in such a way that the work of other Contractor is not hampered.

MISCELLANEOUS

63. The Contractor shall treat all materials obtained during dismantling of a structure, excavation of the site for a work etc. as Government's property and such materials shall be disposed of to the best advantage of Govt. according to the instructions in writing issued by the Engineer-in-Charge.

64. The normal working hours shall be from 8:30 A.M. to 5:30 P.M. and no work shall be carried out on Sunday and on gazetted holidays without specific permission of the E/I No claim whatsoever shall be entertained on this account.

65. The Contractor shall at all times keep the premises free from accumulated waste material or rubbish caused by his employees on the work and on completion of the work he shall clear away whole site of such material and fill up the borrow pits made by him. He will leave whole of the site and works clear in a workman like manner. Nothing extra shall be paid to the Contractor for this clearing up. The Contractor shall maintain and keep the area in agreed sanitary condition, which is used by men engaged in the work by him. He shall remove and clear all structures etc. which may have been set up by the Contractor for accommodating his labour on the completion of the work to the satisfaction of the Engineer-in-Charge/Greater Noida.

66. In case of any dispute the decision of General Manager (Proj.) Greater NOIDA shall be final & binding on the Contractor.

67. No claim for the interest will be entertained by the Greater Noida Authority in respect of the deposits mentioned in the contract or in respect of any money or balance which may be in their hands owing to any disputes between the Greater Noida Authority and the Contractor or in respect of any delay on the part of Greater Noida Authority in making monthly payments or otherwise.

68. The Contractor shall have to make arrangements at his own cost for temporary accommodation for the office staff and the labourer`s residence at the site of work. Suitable area of land shall be earmarked to Contractor to put the labour camp. Contractor shall however be responsible to hand over the site to Greater Noida duly cleared from all encumbrance immediately after completion of work failing which completion certificate of the contract shall not be issued.

69. Stamp duty will be paid as per rule/order.

70. All major items required for electrification works like transformers, 11 KV breakers, L.T. breakers, L.T. panel board, 33 KV cables, 11 KV cables, L.T. cables, main feeder pillars, Distribution feeder pillars, poles and conductors shall be inspected at the premises of the manufacturer by the authority representative of the GNIDA before despatch to work site. The contractor shall inform to the GNIDA in writing at least 7 days in advance regarding the readiness of material for inspection at the manufacturers premises.

71. After completion of work contractor will have to submit a set of relevant completion drawings to Authority and will have to obtain a certificate from Director Electrical Safety U.P. Govt. regarding energisation of the network developed by the contractor.

72. The security against this work shall be refunded only after the network/infrastructure developed is successfully handed over to the distribution licensee in GNIDA.

73. The contractor shall submit the securities /performance guarantee equal to 0.5% per 1% of % age rates quoted below on printed rate in tender up to 10% and further if % age rate quoted more than 10% below on printed rate the security/ performance guarantee amount shall be calculated 1% quoted rate below on NIT exceeding 10% below.

74. As per rules and regulations it is mandatory that the contractor has to accept & act in accordance with the scheme. Guidelines and implementation mechanism under building & other constructions workers (Regulation of employment & conditions of service) act 1996 and that will be stages as mentioned in the U.P. Government order.

75. आमंत्रित की जाने वाली निविदाओं में प्रतिभाग करने वाले निविदादाताओं को रु0 100/- के स्टॉम्प पेपर पर संलग्न प्रारूप (Appendix - E) के अनुसार शपथ-पत्र प्रस्तुत करना होगा कि उसका कोई सगा सम्बन्धी/नजदीकी रिश्तेदार/ब्लड रिलेशन का कोई व्यक्ति (जिसमें स्वयं के अथवा पति/पत्नी के दादा-दादी, माता-पिता, भाई-भाभी, बहन-जीजा (Vice-Versa), चाचा-चाची, ताऊ-तायी, मामा-मामी, बुआ-फूफा, मौसा-मौसी तथा उनके पुत्र एवं पुत्री सम्मिलित हैं) ग्रेटर नौएडा औद्योगिक विकास प्राधिकरण में स्थाई/अस्थाई/दैनिक वेतन/मानव शक्ति आपूर्तिदाता के माध्यम से किसी भी पद पर कार्यरत नहीं है।

SENIOR MANAGER
(E&M-1) GNIDA

G.P.W. FORM - 9

Approved by U.P. Govt. Vide D.O. No. 6628-A C-23-S.N.
Anubhag G-19, AC/1969 Dated 9.3.1972
And Also

Amended vide CE's Letter 1921/MT 62/1973 Dt. 30.3.1974

CHAPTER - VII: PART 371

GENERAL CONDITIONS OF CONTRACT

1. DEFINITIONS

1. The "Contract" means the documents forming the tender and acceptance thereof and the formal agreement executed between the **"GREATER NOIDA INDUSTRIAL DEVELOPMENT AUTHORITY" (GNIDA)** and the **"CONTRACTOR"** together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Engineer-in-charge and all these documents taken together shall be deemed to from one contract and shall be complementary to one another.

2. In the Contract the following expressions shall, unless the context otherwise requires, have the meaning herewith respectively assigned to them :-

   a) The **"WORK"** or "WORKS" shall, unless there be something either in the subject or context repugnant to such construction, shall be construed and taken to mean the work by or by virtue of the contract to be executed whether temporary or permanent and whether original, altered, substituted or additional.

   b) The **"SITE"** shall mean the land and/or the other places, on, into or through which work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract.

   c) The **"CONTRACTOR"** shall mean the "Individual" or "Firm" or "Company" whether incorporated or not, undertaking the works and shall include the legal personal representative of such individuals or the persons composing such firm or company or the successors of such firm or company and the permitted assignees of such individual or Firm or Company.

   d) The **"CEO"** shall mean the Chief Executive Officer, Greater NOIDA Industrial Development Authority, his successors or assignees.

   e) The **"ENGINEER-IN-CHARGE"** shall mean the General Manager (Proj.)/Senior Manager/The Manager as the case may be who shall supervise and be in-charge of the work and who shall sign the contract on behalf of GNIDA.

   f) **"GNIDA"** shall mean Greater Noida Industrial Development Authority (Constituted under section 3(i) of U.P. Industrial Area Development Act. 1976 (U.P.) Act. No. 6 of 1976) and having its main administrative office in Plot No.-1, Sector K.P.-IV, Greater Noida includes its Chairman/Chief Executive officer/Additional Chief Executive Officer/General Manager (Proj.) and/or any of their authorized representative and/or its successors and permitted assignees.

g) The **"TENDERED COST"** shall mean the cost of entire work as estimated on the basis of the tendered rates or rates agreed to between the parties of contract.

h) The **"DEPARTMENT"** shall mean Engineering Department of Greater Noida Industrial Development Authority.

i) The **"ESTIMATED COST"** shall mean the cost of entire work put to tender.

j) The **"MARKET RATE"** shall mean the rate as decided by the Engineer-in-charge on basis of the cost of materials and labour at site where the work is to be executed plus the profits and overheads as permitted by him.

3) The Tenderer is required to submit a non-judicial Stamp Paper of Rs. 100/- (Rupees one hundred Only) with a Rs. 1/- revenue stamp affixed there on. In case the tender is received without non-judicial stamp paper worth Rs. 100/- it will not be considered.

4) Vide G.O. No. 1916/17-8-A-32-185 dated 17.10.85 of U.P. Govt. the Tender is required to submit non-judicial stamp paper as per the direction of Greater Noida Industrial Development Authority on the full security of the bonded amount at the time of signing contract documents.

CLAUSE 1: **SECURITY DEPOSIT**

The Contractor shall permit GNIDA at the time of making any payment to him for work done under the contract to deduct at the rate of 5% (Five Percent) of gross amount of each running account bill, on account of security deposit until such deduction along with the sum already deposited as earnest money (to be adjusted in the last deduction) will amount to security deposit of 5% of the Actual of work.

Such deduction will be made and held by the GNIDA by way of security deposit unless he/they has/have deposited the amount of security at the rate mentioned above in cash or in the form of Govt. securities or Fixed Deposit receipt or Guarantee Bonds of any Scheduled Bank in India if the security is furnished in the form of Guarantee Bonds the Contractor undertakes to review and to furnish fresh guarantee to cover the period of time of extension, if any, and failure on his part to do so shall be considered as breach of contract and without prejudice to any other remedy provided in these conditions, the Engineer-in-charge shall have the right to withhold payments and deduct entire security amount from any money becoming payable to the contractor under this or any other contract with the GNIDA.

The amount of the security money shall, if not with held on account of breach of contract, be refunded after twenty four months (50% after 12 months & 50% after 24 months) of the date of completion of the work or after payment of the final bill, whichever is later provided that in case that payment of final bill is not made within twelve months of the completion of the work 75% of the amount of the security money can be refunded with the prior approval of the authority next higher to the person accepting the contract on behalf of GNIDA.

All compensation or other sum of money payable by the contractor to GNIDA under the terms of this contract may be deducted from or paid by the sale of sufficient part of his security deposit, or from the interest arising therefore or from any sums which may be due to, or may become due to contractor by GNIDA on any account whatsoever, and in the event of his security deposit being reduced by reason of any such deduction or sale as aforesaid the contractor shall within ten days thereafter make good in cash or Government securities endorsed as aforesaid, any sum or sums which may have been deducted from or raised by sale of his security deposit, or any part thereof.

CLAUSE-2 **: COMPENSATION FOR DELAY**

The time allowed for carrying out the work as entered in the tender shall be strictly observed by the contractor and shall be reckoned from the 10th day after the written order to commence work is given to the contractor. The work shall throughout the stipulated period of the contract be proceeded with all due diligence (time being deemed to be the essence of the contract on the part of Contractor) and the Contractor shall pay as compensation an amount equal to one percent of estimated cost or such smaller amount as the Greater Noida (whose decision in writing shall be final) may decide on the amount of the estimate cost of the whole work as shown in the tender for every day that the work remains uncommended after the proper date and further to ensure good progress during the execution of the work the contractor shall be bound in all cases in which time allowed for any work exceed one month to complete one eighth of the whole of the work before one fourth of the whole time allowed under the contractor has elapsed, three eighth of the work before half of the of such time has elapsed and three fourth of the work before three fourth of such time has elapsed. In the event of the Contractor failing to comply with this condition he shall be liable to pay as compensation an amount equal to one percent, or such smaller amount as the Greater Noida (whose decision in writing shall be final) may be decided on the said estimated cost of the whole work for every week that the due quantity of work remains incomplete, provided that before taking action under this Clause the officer accepting the contract on behalf of the Greater Noida, shall give a notice of 15 days in writing to the Contractor and provided always that the entire amount of compensation to be paid under the provision of this Clause shall not exceed 10% of estimated cost put to tender (to struck off, in all cases when the time allowed for completion does not exceed one month).

CLAUSE-3 **: ACTION WHEN WHOLE OF SECURITY DEPOSIT IS FORFEITED:**

The officer accepting the contract on behalf of the GNIDA or the Engineer-in-Charge shall have the power, without prejudice to his right against the contractor in any respect of any breaches of the contract and without prejudice to any rights or remedies under any of the provision of this contract or otherwise and whether the date for completion has or has not elapsed by notice in writing to determine the contract in any of the following cases.

a) If, the Contractor having been given by the Engineer-in-charge, a notice in writing (which notice under the hand of the Engineer-in-charge communicated through the Assistant Manager/Manager/Senior Manager/General Manager (Proj.) shall be conclusive evidence) to rectify, reconstruct or replace any defective work or any work damaged by any reason what-so-ever or that the work is being performed in any inefficient or otherwise improper or unworkman like manner shall omit to comply with the requirements of such notice for a period of seven days thereafter of such notice or if the contractor shall delay or suspend the execution of the work so that either in the judgment of the Engineer-in-charge (which shall be final and binding) he will be unable to secure completion of the work by the date of completion or he has already failed to complete the work by the date.

b) If the contractor being a company shall pass a resolution or the Court shall make an order that Company shall be wound up or if a Receiver or a Manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the Court or creditor to appoint a Receiver or Manager or which entitle the Court make a winding up order.

c) If the Contractor commits breach of any of the terms and conditions of this contract other than those mentioned in Sub-Clause -a above.

d) If the Contractor commits any facts mentioned in Clause -21 hereof.

2. When the Contractor has made himself liable of action under any of the cases aforesaid the officer accepting the contract on behalf of GNIDA or the Engineer-in-charge shall have powers to adopt any one or more of the following courses as he may deem best suited to the interest of the Greater Noida.

i) To determine or rescind the contract as aforesaid (of which termination or rescission notice in writing to the Contractor under the hand of the Engineer-in-charge or communicated through Manager/Sr. Manager/ General Manager (Proj.) shall be conclusive evidence) upon such determination or rescission the security deposit of Contractor shall be liable to the forfeited and shall be absolutely at the disposal of the GNIDA.

ii) To employ labour paid by the department and to supply materials to carry out the works or any part of the work debiting the Contractor with the cost of the labour and price of the materials of the amount of which cost and the price of certificate under the hand of the Engineer-in-Charge communicated through the Manager/Sr. Manager/General Manager (Proj.) shall be final and conclusive against the contractor and the crediting him with the value of the work done in all respects in the same manner and at the same manner and at the same rates as it had been carried out by the Contractor under the terms of this contract. The certificate of the Engineer-in-charge as to the value of the work done shall be final and conclusive against the Contractor, provided always that action under this sub-clause shall only be taken after giving notice in writing to the contractor provided also that if the expenses incurred by the Department are less than the amount payable to the contractor at his agreement rates, the difference shall not be paid to the contractor.

iii) After giving notice to the contractor to measure-up the work of the Contractor and to take such whole, or balance, or part thereof as shall be un-executed out of his hands and to give it to another contractor to complete in which case any expenses which may be incurred in excess of the sum which would have been paid to the original contractor if the whole work had been executed by him (of the amount of which excess the certificate in writing of the Engineer-in-charge shall be final and conclusive) shall be borne and paid by the original contractor and may be deducted from any money due to him by the GNIDA under this contract or on any other account whatsoever or from his security deposit or the proceeds of sales thereof or a sufficient part thereof as the case may be.

3. In the event of any one or more of the course mentioned in sub-clause-2 above being adopted by the Engineer-in-charge the Contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any material or entered into any engagement or made any advance on account or with a view to the execution of the work or the performance of contract and in case action is taken under any provisions aforesaid the Contractor shall not be entitled, to recover or be paid any sum for any work thereof actually performed under this contract unless and until the Engineer-in-charge has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

CLAUSE-4 : **CONTRACTOR REMAINS LIABLE TO ANY COMPENSATION EVEN IF ACTION NOT TAKEN UNDER CLAUSE-3 (POWER TO TAKE POSSESSION OF REQUIRE REMOVAL OF OR SELL CONTRACTOR'S PLANT)**

In any case in which any of the powers conferred upon the officer accepting the contract on behalf of the GNIDA or the Engineer-in-Charge by Clause-3 hereof shall have become exercisable and the same are not exercised the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such power shall not withstanding be exercisable in the event of any future case of default by the contractor for which by any clauses or clause hereof he is declared liable to pay compensation and the liability of the Contractor for past and future compensation shall remain unaffected. In the event of the Engineer-in-Charge putting in force all or any of the power vested in him under the preceding clause the Engineer-in-Charge may if he so desire take possession of all or any tools, plant, materials or stores in or upon the

works. Power to take possession of or require removal of or sell Contractor's plant at the site thereof or belonging to shall the Contractor or procured by him & intended to be used for execution of the work or any part thereof paying or allowing for the same in account at the contract rates in the case of these not being applicable at current market rates to be certified by the Engineer-in-Charge, whose certificate thereof shall be final otherwise the Engineer-in-Charge may by notice in writing to the Contractor or his clerk of the works, foreman or other authorized agent require him to remove such tools, plants, materials or stores from the premises [within a time to be specified in such notice), and in the event of the Contractor failing to comply with, any such requisition the Engineer-in-Charge may remove at Contractor's expenses or sell them by auction or private sale on the account of the Contractor and at his risk in all respects, and the certificate of the Engineer-in-Charge as to the expense of any such removal and the amount of the proceeds and expense of any sale shall be final and conclusive against the contractor.

CLAUSE 5: **EXTENSION OF TIME**

If the contractor shall desire an extension of the time for completion of the work on the grounds of his having been unavoidable hindered in its execution or any other grounds, he shall apply in writing to the Engineer-in-Charge the officer accepting the contract on behalf of the GREATER NOIDA through the Engineer-in-Charge and copy thereof is sent to the Engineer-in-Charge within 30 days of the date of the hindrance, on account of which he desire such extension as aforesaid and the office accepting the contract on behalf of the Greater Noida shall, if in his opinion (which shall be final) reasonable grounds be shown therefore authorize such extension of time if any as may, in his opinion be necessary or proper provided that the extension of time should be limited to 25% of the total period of the contract and in no case exceeding 4.5 months. The case of extension of time beyond such period shall be submitted to the authority next higher the office accepting the contract on behalf of the Greater Noida, Provided always that if the Contractor continues to perform, the work beyond and the date of completion or the right of the Greater Noida to claim compensation under Clause-2 shall not be deemed to have been waived. In case the delay is because of the lapse on the part of contractor, the time extension may be granted at the sole discretion of the sanctioning authority in the following way :-

S.No.	Work Value	Sanctioning Authority	No. of Days	
1.	Upto Rs. 25 Lacs	D.G.M. (Proj.) G.M. (Proj.) A.C.E.O./D.C.E.O.	First 30 days Next 60 days Next upto 90 days	No penalty 1% of work value 2% of work value
2.	Upto Rs. 50 Lacs	D.G.M. (Proj.) G.M. (Proj.) A.C.E.O./D.C.E.O. C.E.O.	First 30 days Next 60 days Next upto 90 days Next upto 120 days	No penalty 1% of work value 2% of work value 3% of work value
3.	Upto Rs. 200 Lacs	D.G.M. (Proj.) G.M. (Proj.) A.C.E.O./D.C.E.O. C.E.O. C.E.O.	First 30 days Next 60 days Next upto 90 days Next upto 120 days Next upto 150 days	No penalty 1% of work value 2% of work value 3% of work value 4% of work value
4.	Above Rs. 200 Lacs	D.G.M. (Proj.) G.M. (Proj.) A.C.E.O./D.C.E.O. C.E.O. C.E.O.	First 30 days Next 90 days Next upto 120 days Next upto 150 days Next upto 180 days	No penalty 1% of work value 2% of work value 3% of work value 4% of work value

Extension beyond above limits may be granted by the C.E.O. with 5% penalty.

From the payment for the work executed beyond the contract bond period, an amount equivalent to 5% of total work done shall be withheld. This withheld amount shall be released after the sanction of extension of time.

CLAUSE 6: **COMPLETION CERTIFICATE AND MEASUREMENT OF WORK DONE**

On Completion of the work the Contractor shall send a registered notice to the Engineer-in-Charge giving the date of completion and sending a copy of its to the office, accepting the contract on behalf of the GNIDA and shall request the Engineer-in-Charge to give him a certificate of completion, but no such certificate be given nor shall be work be considered to be complete until the Contractor shall have removed from the site on which work shall be executed, all scaffolding, surplus material sand rubbish and cleared off the dirt from all wood work, doors, windows, wall, floors, or other parts of any building in upon or about which the work is to be executed or of which he may have possession for the execution thereof, he had filled up the pits. If the Contractor shall fail to comply with the requirements of this Clause as to removal of scaffolding, surplus materials and rubbish & cleaning of dirt and filling of pits on or before the date fixed for completion of the work, the Engineer-in-Charge may at the expense of the Contractor remove such scaffolding material and the rubbish and dispose off the same as he thinks fit and clean of such dirt and fill the pits as aforesaid and the Contractor shall forthwith pay the amount of all expenses so incurred and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually released by the sale thereof.

On completion, the work shall be measured by the Engineer-in-Charge himself or through his subordinates whose measurement shall be binding and conclusive against the Contractor. Provided that if subsequent to the taking of measurements by the subordinate as aforesaid the Engineer-in-Charge had reason to believe that the measurements taken by his subordinates are not correct, the Engineer-in-Charge shall have the power to cancel the measurements already taken by his subordinates and acknowledged by the Contractor and to take measurements again after giving reasonable notice to the Contractor and such re-measurements shall be binding on the Contractor (Ten days will apply towards at the headquarters of Engineer-in-Charge and thirty days for works at other places delete whichever not applicable).

Within ten days of the receipt of the notice Engineer-in-Charge shall inspect the work and if there is visible no defect on the face of the work, shall give the Contractor a certificate of completion. If the Engineer-in-Charge finds that the work has been fully completed, it shall be mentioned in the certificate to be granted. If on the other hand it is found that there are certain visible defects to be removed the certificate to be granted by Engineer-in-Charge shall specifically mention the details of the visible defects along with the estimate of the cost for removing these defects. The final certificate of completion of work shall be given after the visible defects pointed out above have been removed.

CLAUSE 7: **PAYMENT ON INTERMEDIATE CERTIFICATE TO BE RELEASED AS ADVANCE.**

No payments shall be made for works estimated to cost less than rupees twenty thousands till after the whole of the works shall have been completed and a certificate of completion given. But in the case of works estimated to cost more than Rupees Twenty thousand, Contractor shall on submitting the bill thereof be entitled to receive a monthly payment proportion etc. to the part thereof then approved and passed by the Engineer-in-Charge whose certificate of such approval and passing of the sum so payable shall be final and conclusive against the Contractor. But all such intermediate payments shall be regarded as payments by way of advance against the final payments only and not as payments for work actually done and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed, or re-erected, or it shall not be considered as an admission of the due performance of the contract or any part thereof in any way in respect of the accruing of any claim nor shall it conclude, determine or affect in any way the powers of the Engineer-in-Charge under these conditions or any of them as to the settlement and adjustment of the accounts or otherwise or in any other way vary or affect the contract.

The final bill shall be submitted by the Contractor within one month of the date fixed for completion of the work or on the date of the certificates of completion furnished by the GNIDA and payment shall be made within three months of the submission of such bills, if the amount of the contract plus that of the additional items is uptoRs. 2 lacs and six months if the same exceeds Rs. 2 lac. If there shall be any dispute about any item or items of the work then the or six months or as the case may be. The Contractor shall submit a list of the disputed items within 30 days from the disallowance thereof and if he fails to do so, his claim shall be deemed to have fully waived and absolutely extinguished.

CLAUSE 8: **BILL TO BE SUBMITTED MONTHLY**

A bill shall be submitted by the Contractor each month on or before date fixed by the Engineer-in-Charge for all works executed in the previous months and the Engineer-in-Charge shall take or cause to be taken the requisite measurement for the purposes of having the same verified, and the claim as far as admissible, adjusted, if possible, before the expiry of ten days from the presentation of the bill. If the Contractor does not submit the bill within the time fixed as aforesaid the Engineer-in-Charge get the said work measured up on the presence of the Contractor whose counter signature to the measurement list will be sufficient warrant, and the Engineer-in-Charge may prepare a bill from such list which shall be binding on the Contractor in all respects.

CLAUSE 9: **CONTRACTOR TO BE GIVEN ONE WEEK TIME TO FILE OBJECTION TO THE MEASUREMENTS RECORDED BY THE DEPARTMENT**

Before taking any measurements of any work as referred to in Clauses 6.7 and 8 hereof the Engineer-in-Charge or a subordinate deputed by him shall give reasonable notice to the Contractor. If the Contractor fails to attend at the time of measurements after such notice or fails to countersign or to record the different within one week from the date of measurement in the manner required by the Engineer-in-Charge then and in any such event the measurement taken by the Engineer-in-Charge or by the subordinate deputed by him as the case may be shall notwithstanding the provision in Clause-8 be final and binding on the Contractor and the Contractor shall have no right to dispute the same.

CLAUSE 10: **BILL TO BE ON PRINTED FORM**

The contractor shall submit all bills on the printed forms to be had on applications at the office of the Engineer-in-Charge and the charges in the bills shall always be entered at the rates specified in the tender or in case of any extra work ordered in pursuance of these conditions and not mentioned or provided for in the tender at the rates there in after provided for such work.

CLAUSE 11: **STORES SUPPLIED BY GNIDA**

If the specification or estimate of work provides for the use any special description of materials to be supplied by the Engineer-in-Charge or if it required that the Contractor shall use certain stores to be provided by the Engineer-in-Charge (such materials and stores & the prices to be charged therefore as hereinafter mentioned being so far as practicable for convenience of the Contractor, but not so as in any way to control the meaning or effect of this contract, specified in the Schedule or memorandum hereto annexed) the Contractor shall be supplied with such materials and stores as are required from time to time be used by him for the purpose of the contract only, and the value of the full quantity of materials and stores so supplied at the rates specified in the said schedule or memorandum may be set off or deducted from any sums then due, or thereafter to become due to the Contractor under contract or otherwise or from the security deposit or the proceeds of sale thereof if the same is held in Government securities, the same or a sufficient portion thereof being in this case sold for the purpose. It shall be the responsibility of the Contractor to ascertain from time to time from the Engineer-in-Charge about the position for the availability of the materials as

aforementioned and any delay on the part of the Engineer-in-Charge to arrange supplies of the same shall not entitle the Contractor to any compensation but in the event of all such delays the Contractor shall be granted reasonable extension of time. All materials supplied to the Contractor are the property of the Contractor, but shall not on any account be removed from the site of the work except with the written permission of the Engineer-in-Charge or under his order shall at all times be open to inspection by the Engineer-in-Charge. Any such material unused and in perfectly good condition at the time of the incompletion or determination of the contract may, by special arrangement be taken over by GNIDA at the prevailing market rates if required for use on other works in progress provided that the price allowance shall not exceed the amount charged to the Contractor.

CLAUSE 12: **WORK TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATIONS, DRAWINGS, ORDERS ETC.**

The Contractor shall execute the whole and every part of the work in the most substantial and workmanlike manner and both as regards material and otherwise in every respect in strict accordance with the specifications. The Contractor shall also confirm exactly, fully and faithfully to the designs drawings and instructions in writing relating to the work signed by the Engineer-in-Charge and lodged in his office, and to which the Contractor shall be entitled to have access to such office for the purpose of inspecting during office hours, and the Contractor shall be furnished free of charge one copy of the specifications and of all such designs, drawings and instructions as are not included in the detailed.

CPWD specifications for buildings and roads enforced from time to time or any other printed publications on general specifications or ISI specifications referred to else where in the contract.

CLAUSE 13: **ALTERATION IN SPECIFICATIONS AND DESIGN**

The Engineer-in-Charge shall have power to make any alteration in, omissions from, additions to, or substitutions for, the original specifications, drawings, designs instructions that may appear to him to be necessary during the progress of the work and the Contractors shall carry out the work in accordance with any instructions which may be given to him in writing signed by the Engineer-in-Charge and such alterations, omissions, additions or substituted work which the Contractor may be directed to do in the manner above specified as part of the work shall be carried out by the Contractor on the same conditions in all respects in which he agreed to do the main work.

Extension of Time to Consequence of Alterations

The time for the completion of the work shall be extended in the proportion the altered additional or substituted work bears to the original contract work and the certificate of the Engineer-in-Charge shall be conclusive as to such proportion. Over and above this, a further period to the extent of 25 percent of the time so extended may be allowed to the Contractor.

The rate for such additional, altered or substituted work under this Clause shall be worked out in accordance with the following provisions in their respective order:

i) If the rates for the additional, altered or substituted works are specified in the contract for the work, the Contractor is bound to carry out the additional, altered, or substituted work at the same rates as are specified in the contract for the work.

ii) If the rate for the additional, altered or substituted works are not specifically provided in the contract for the work, the rates will be derived from the rates for similar class of work as are specified in the contract for the work.

iii) If the altered, additional or substituted work includes any work for which no rates are specified in the contract for the work nor can be derived from the similar class of work in the contract,

then such work shall be carried out at the rates entered in the DSR-2013 minus/plus percentage which the total tendered amount bears to the estimated cost of the entire work put to tender.

iv) If the rates for the altered, additional, or substituted work cannot be determined in the manner specified in such Clauses (i) to (iii) above then the rates for such work shall be worked out on the basis of the DSR specified above minus/plus the percentage with the total tendered amount bears to the estimated cost of the entire work put to tender provided always that if the rate for a particular part or parts of the item is not in the Schedule of Rates the rate for such part or parts will be determined by the officer accepting the contract on behalf of GNIDA or Engineer-in-Charge on the basis of the prevailing market rates when the work was done.

v) If the rates for the altered, additional or substituted work cannot be determined in the manner specified in Sub-Clauses (i) to (iv) above the Contractor shall within 7 days of the date of receipt of the order to carry out the work, inform the officer accepting the contract on behalf of the GNIDA or Engineer-in-Charge of the rate which is his intention to charge for such class of work supported by analysis of the rates claimed and the General Manager (Proj.) shall determine the rate or rates on the basis of the prevailing market rates and pay the Contractor accordingly. However the officer accepting the contract on behalf of the GNIDA or Engineer-in-Charge by the notice in writing will be at liberty to cancel his order to carry out such class of work and arrange to carry out in such manner as he may consider advisable but under no circumstances, the Contractor shall suspend the work on the plea of non-settlement of rates of items failing under the Clause.

CLAUSE 14: NO COMPENSATION FOR ALTERNATION OR RESTRICTION WORK TO BE CARRIED OUT.

If, at any time, after the commencement of the work the GNIDA or the General Manager (Proj.) decide to abandon or reduce the scope of works for any reason whatsoever and hence or any part of work not require the whole or any part of works as specified in the tender to be carried out, the Engineer-in-Charge shall give notice in writing of the fact to the Contractor who shall have no claim to any payment or compensation whatsoever on account of any profit or advantage, which he might have derived from the execution of the work in full, but which he did not derive in consequence of the full amount of the work not having been carried out, neither shall he have any claim for compensation by reason of any alternations have been made in the original specifications, drawings, designs and instructions which shall involve any curtailment of the work as originally contemplated nor shall he have any claim to compensation by reason of his having purchased or procured materials with a view to execution of the work or the performance of the contract. But the Engineer-in-Charge shall have the option either to take over the materials at site, of approved quality and not in excess of the requirements of the work and to pay to Contractor the actual cost thereof the amount of which cost a certificate by the Engineer-in-Charge shall be binding on the Contractor. In the event of this option not being exercised the Contractor may submit to the Engineer-in-Charge within one month of the date of the order closing down the work detailed statement of the loss that the estimates he will sustain by removing selling or otherwise disposing of the materials. The estimate will be forwarded to the General Manager (Proj.) who will decide what sum, if any, should as a matter of grace be paid to the Contractor to compensate him for the loss suffered by him and the decision of General Manager (Proj.) shall be final and binding on the Contractor.

CLAUSE 15: ACTION AND COMPENSATION PAYABLE IN CASE OF BAD WORK

If, it shall appear to the Engineer-in-Charge or his subordinate-in-Charge of the work that any work has been executed with unsound, imperfect or unskilled workmanship or with materials of any inferior description or that any material or articles provided by

him for the execution of the work are unsound or of a quality inferior to that contracted for or otherwise not in accordance with the contract, the Contractor shall on demand in writing from the Engineer-in-Charge specifying the work, materials articles complained/of not withstanding that same may have been inadvertently passed, certified and paid for forthwith rectify or remove and reconstruct the work so specified in whole or in part, as the case may require or as the case may be remove the materials at his own proper charge and cost, and in the event of his failing to do so within a period to be specified by the Engineer-in-Charge in his demand aforesaid then the Contractor shall be liable to pay compensation at the same rate as under Clause-2 of the contract for this default also, while his failure to do so shall continue, and in the case of such failure the Engineer-in-Charge may rectify or remove and re-execute the work or remove and replace with others the materials or articles complained of as the case may be at the risk and expense in all respects of the Contractor.

CLAUSE 16: ACCEPTANCE OF SUBSTANDARD WORK AND CAUSING TECHNICAL EXAMINATION OF WORK.

GNIDA shall have the right to accept at reduce rate, substandard or defective work and to cause and audit and technical examination of the works and the running and final bills of the Contractor including all supporting vouchers abstracts etc. to be made before or after the payment of the final bills and if as a result of such acceptance of substandard or defective work, audit and technical examination any sum is found to have been over paid in respect of any work done by the Contractor under the contract or any work claimed to have been done by him under the contract, but found not to have been actually executed the Contractor shall be liable to refund the amount of the over payment and that shall be lawful for GNIDA to recover the same from him in the manner prescribed in Clause (1) above or in any other manner legally permissible, and if it is found that the Contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under payment may be duly paid by GNIDA to the Contractor.

Provided that the substandard or defective work accepted is not considered to be seriously defective by the Engineer-in-Charge and the rate of the work so accepted is suitably reduced by him to compensate the GNIDA and such reduction is binding on the Contractor.

CLAUSE 17: WORK TO BE OPEN TO INSPECTION CONTRACTOR OR RESPONSIBLE AGENT TO BE PRESENT.

All works under or in the course of execution or executed in pursuance of the contract shall at all times be open to the inspection and supervision of the Engineer-in-Charge and his subordinate and the Contractor shall at all times during the usual working hours and at all other time at which reasonable notice of intention of the Engineer-in-Charge or his subordinate to visit the works shall have been given to the Contractor either himself be present to receive orders and instructions, or have a responsible agent duly accredited in writing present for that purpose (orders given to the Contractor’s agent shall be considered to have the same force as if they had been given to the Contractor himself).

Greater Noida as to any matter as to which under these conditions he is entitled to be satisfied or which he is entitled to be satisfied or which he is entitled to require together with carriage therefore to and from the work. The Contractor shall also supply without charge the requisite number of persons with the means and materials also necessary for the Purpose of setting to works and counting, weighing and assorting in the measurements or examination at any time and from time to time the work of materials. Failing his, so doing, the same may be provided by the Greater Noida at the expense of the Contractor and the expenses may be deducted from the money due to the Contractor under the contract or from his security deposit or the proceeds of sale thereof or a sufficient portion thereof.

CLAUSE 18: **NOTICE TO BE GIVEN BEFORE WORK IS COVERED UP.**

The Contractor shall give not less than five days notice in writing to the Engineer-in-Charge or his subordinate in charge of the work before covering up or otherwise placing beyond the reach of the measurement any work in order that the same may be measured and correct dimension thereof be taken before the same is so covered up or placed beyond the reach of the measurement and shall not cover up or placed beyond the reach measurement and work without the consent in writing of the Engineer-in-Charge or his subordinate-in-Charge of the work, and if any work, and shall be covered up or place beyond the reach of measurement without such notice having been given or consent obtained the same shall be uncovered at the Contractor's expense, or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.

CLAUSE 19: **CONTRACTOR LIABLE FOR DAMAGE DONE & FOR IMPERFECTIONS FOR TWENTY FOUR MONTHS/ TWO YEARS AFTER CERTIFICATES.**

If, the Contractor or his work people or servants shall break, deface, injure or destroy any part of a building, road, fence, enclosure or grass land or cultivated ground contiguous to the premises on which the work or any part thereof is being executed, or if any damage shall happen to the work while in progress from any case whatsoever, or any defect shrinkage or other faults appear if it within **TWENTY FOUR MONTHS/TWO YEARS** after a certificate final or otherwise of its completion shall have been given by the Engineer-in-Charge as aforesaid the Contractor shall make the same good at his own expense or in default the Engineer-in-Charge may cause the same to be made good by other workmen and deduct the expense of which the certificate of the Engineer-in-Charge shall be final from any sums that may then or at any time thereafter become due to the Contractor or from his security deposit or the proceeds of sale thereof a sufficient portion thereof or any other manner legally permissible.

CLAUSE 20: **CONTRACTOR TO SUPPLY PLANT LADDERS SCAFFOLDING ETC.**

The Contractor shall provide at his own cost all materials (except such special materials if any as may i accordance with the contract be supplied from the Engineer-in-Charge's stores) plant, tools, appliances, implements, ladders, cordage, tackle, scaffolding and temporary works requisite for the proper execution of the work.

CLAUSE 20(A): **DAMAGES ARISING FROM NON PROVISION OF LIGHT FENCING ETC.**

The Contractor shall also provide all necessary fencing, lights required to protect the public from accident, and shall be bound to bear the expenses of defences of every suit, action or other proceedings at law what may be brought by any person for injury sustained owing to neglect of the above precautions, and to any such person, or which may with the consent of the Contractor be paid to Compromise any claim by any such person. If any equipment is issued departmentally, rent will be recovered from the Contractor's bills at current rates fixed by the General Manager (Proj.) terms of such issue to be ascertained by the Contractor from the Engineer-in-Charge in writing in advance.

CLAUSE 21: **WORK NOT TO BE SUBLET.**

The contract shall not be assigned or sublet without the written approval of the officer accepting the contract on behalf of the GNIDA and if the Contractor shall sign to sublet his contract or attempt so to do, or become insolvent or commence any insolvency proceedings or make nay composition with his creditors or attempts so to do, or if any bribe, gratuity, gift, load perquisite, reward or advantage pecuniary or otherwise shall either directly or indirectly be given, promised or offered by the contractor or any of his servants or agents to any public office of person in the employ

of GNIDA in any way relating to his officer or employment or if any such officer or person shall become in any way directly or indirectly interested in the contract, the officer accepting the contract on behalf of the GNIDA or may thereupon by notice in writing rescind the Contract and the security deposit of the Contractor shall thereupon stand forfeited and be absolutely at the disposal of GNIDA and the same consequence shall ensure as if the contract had been rescind under Clause-3 hereof, and in addition the Contractor shall not be entitled to recover or be paid for any work thereto or actually performed under the contract.

CLAUSE 22:
The Contractor shall not for the execution of the work employ any labour under 12 years of age and within the limits of any cantonment, any female labourer. For every breach of this Clause the Contractor shall be liable to pay by way of liquidated damages such sum not exceeding fifty rupees as the Engineer-in-Charge may fix, and the Engineer-in-Charge may recover such sum by deduction from and sums which may be due or may at any time, thereafter, become due to the Contractor.

CLAUSE 23:
a) The Contractor shall pay to his labourers a fair wage and supply every labourer employed by him with a wage card on which the rate of wage, the attendance and payments will be entered.

b) The Contractor he commences work shall paste in a conspicuous place of the work a notice giving the rates of wages which shall not be less than the minimum wages applicable and where no minimum wage are applicable the ways will be such as may be certified as fair wages by the Engineer-in-Charge and shall send a copy of the notice to the Engineer-in-Charge.

CLAUSE - 24:
All statutory provisions shall bind the Contractor with regard to the period for which wages shall be paid and deduction from wages.

CLAUSE 25:
The Contractor shall comply with all labour laws as applicable at the site of the work.

CLAUSE 26:
In respect of all labour directly or indirectly employed in the works for the performance of the Contractor's part of this agreement the Contractor shall comply with or cause to be complied with all the directions issued by GNIDA from time to time for the protection of health and sanitary arrangements for workers employed by the departments for workers employed by the department and its Contractor.

CLAUSE 27: **MATERNITY BENEFIT RULES FOR FEMALE WORKERS EMPLOYED BY CONTRACTORS**
Leave and pay during leave of all labour employed by the Contractor shall be regulated as follows:

1) <u>Leave</u>
i) In case of delivery, maternity leave not exceeding 8 weeks, 4 weeks up to and including the day of delivery and 4 weeks following that day.

ii) In the case of miscarriage upto 3 weeks from the date of miscarriage. In case of delivery-leave pay during maternity leave will be at the rate of Women's average daily earning calculated on the total wages earned on the days when full time work done during a period of 3 months immediately preceding the date on which

she gives notice that the expects to be confined or at rate of seventy five praise a day which ever is greater.

iii) In the case of miscarriage leave pay the rates of average daily earning calculated on the total wages earned on the day when full time work was done during a period of three months immediately preceding the date of such miscarriage.

iv) Conditions for the grant of maternity leave: No maternity leave benefit shall be admissible to woman unless she has/shall employed for a total period not less than 6 months immediately preceding the date on which she proceeds on leave.

In the event of the Contractor committing a default or breach of any of the provisions of the GNIDA's directions to Contractor for the protection of health and sanitary arrangements for the workers or furnishing any information of health and sanitary arrangements for the workers or furnishing any information or submitting materially incorrect, the Contractor shall without prejudice to any other liability pay to GNIDA a sum not exceeding 50/- [for every default or breach and in the event of the Contractor defaulting for each day or default subject to a maximum of 5% of the tendered cost of the work. The decision of the Engineer-in-Charge shall be final and binding on the parties.

Should it appear to the Engineer-in-Charge that the Contractor is not properly observing and complying with the said directions for the protection of health and sanitary arrangements for work people employed by the Contractor (herein referred as the said directions) the Engineer-in-Charge shall have power to give notice in writing to the Contractor requiring that the said directions be complied with and the amenities prescribed there in the notice. If the Contractor fails-within the period specified in the notice to comply with and observe the said direction and to provide the amenities to the work people as aforesaid, the mentioned at the cost of the Contractor. The Contractor shall erect, make and maintain at his expense and according to approved standards all necessary huts and sanitary arrangements required for his work people on the site in connection with the execution of the work and if the same shall not have been erected or constructed, according to the approved standards the Engineer-in-Charge shall and sanitary arrangements be remodelled and/or reconstructed according to approved standards) and if the Contractor fails to remodel or reconstruct such huts and sanitary arrangements according to the approved standards within the period specified in the notice, the Engineer-in-Charge shall have the power to remodel or reconstruct such huts and sanitary arrangements according to approved standards at the cost of the Contractor.

CLAUSE 28:

The Contractor shall at his own cost provide his labour with number of huts (herein after referred to as the camp) of the following specification son a suitable plot of land to be approved by the Engineer-in-Charge.

1(a) The minimum height of each hut at the eye level shall be 7 feet and floor area to be provided will be at the rate of 30 Sq. feet for each member of the workers' family staying with the labourer.

1(b) The contract shall in addition construct suitable cooking place having a minimum area 6'x5' adjacent to the hut for each family.

1(c) The Contractor shall also construct temporary latrines and urinals for the use of the labourers, each on the scale of not less than four each per one hundred of the total strength latrines and urinals being provided separately for women.

1(d) The Contractor shall construct sufficient number of bathing and washing places one unit for every 25 persons residing in the camp. These bathing and washing places shall be suitably screened.

2(a) All the huts shall have walls of sun-dried bricks laid in mud mortar or other suitable local materials as may be approved by the Engineer-in-Charge. In case of sun dried bricks the wall should be plastered with mud gobri on both sides. The floor may be kutcha but plastered with mud gobri and shall be at least 6" above the surrounding ground. The roofs shall be laid with thatched or any other material as may be approved by the Engineer-in-Charge and the Contractor shall ensure that throughout the period of their occupation the roofs remain watertight.

2(b) The Contractor shall provide each hut with proper ventilation.

2(c) All doors windows and ventilators shall be provided with suitable leaves for security purposes.

2(d) There shall be kept an open space of at least 7 yards between the rows of huts, approval of the Engineer-in-Charge back to back construction will be allowed.

3. **Water Supply**
The Contractor shall provide adequate supply of water for the use of labourer. The provisions shall not be less than 2 gallons of pure and wholesome water per head per day for drinking purposes and 3 gallons of clean water per head for bathing and washing purposes. Where pipe water supply is available, the supply shall be at stand posts and where the supply is from wells or river, tanks that may be of metal or masonry shall be provided. The Contractor shall also, at his own cost, make arrangements for laying pipe lines for water supply to his labour camp from the existing main where available and shall pay all fees and charges therefore.

4. The site selected for the camp shall be high grounds, removed from jungle.

5. **Disposal of excreta**
The Contractor shall make necessary arrangement for the disposal of excreta from the latrines by trenching or incineration, which shall be according to the requirements laid down by the Local Health. Authorities. If trenching or incineration is not allowed, the Contractor shall make arrangement for the removal of excreta through the Municipal Committee/Authority and inform about the number of labourers employed so that arrangement may be such Committee/Authority for the removal of excreta. All charges on this account shall be borne by the Contractor and paid direct by him to municipality authority. The Contractor shall provide one sweeper for every eight seats in case of dry system.

6. **Drainage**
The Contractor shall provide efficient arrangements for draining away sullage water so as to keep the camp neat and tidy.

7. The Contractor shall make necessary arrangements keeping the camp area sufficiently lighted to avoid and ancient to the worker.

8. **Sanitation**
The Contractor shall make arrangements for conservancy and sanitation in the labour camp according to the rules of the Local Public Health and Medical Authorities.

CLAUSE 29: **SUM PAYABLE BY WAY OF COMPENSATION TO BE CONSIDERED AS REASONABLE COMPENSATION WITHOUT REFERENCE TO ACTUAL.**

All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of GREATER NOIDA without reference to the actual loss or damages sustained and whether or not any damage shall have been sustained.

CLAUSE 30: **CHANGE IN CONSTITUTION OF FIRM**

In the case of tender by partners any change that constitution of the firm shall be forthwith notified by the Contractor the Engineer-in-Charge for his information.

CLAUSE 31: **WORKS TO BE UNDER DIRECTION OF ENGINEER-IN-CHARGE**

All works to be executed under the direction and subject to the approval in all respects of the Engineer-in-Charge for the time being who shall be entitled to direct at what point or points in what manner they are to be commenced and from time to time carried on.

CLAUSE 32: **PROTESTS/DISPUTES AND ARBITRATION**

a) If the Contractor considers any work demanded of him to be outside the requirements of contract or considers any record or ruling of the Engineer-in-Charge or of his subordinates to be unfair, he shall immediately upon such work being demanded or such record or ruling being made ask in writing for written instructions or decisions, where upon he shall proceed without delay to perform the work or confirm to the procedure or ruling and within twenty days after date of receipt of the written instructions or decision he shall file a written protest with the Engineer-in-Charge stating clearly in detail the basis of his objections, Except for such protest or objections as are made on record in the manner herein specified, and within the time limit, stated, the recorded rulings instructions of decisions of the Engineer-in-Charge shall be final and conclusive. Instructions or decisions of Engineer-in-Charge contained in letters transmitting drawing to the Contractor shall be considered as written instructions or decisions subject to protest or objection as wherein provided.

b) If the Contractor is dissatisfied with the final decision of Engineer-in-Charge in pursuance of Clause 32(a) the Contractor may within twenty-eight days after receiving notice of such decision give notice in writing requiring that the matter be submitted to arbitration and furnishing detailed particulars of the dispute or difference specifying clearly the point at the issue. If the Contractor fails to give such notice within the period of Twenty days is stipulated above the decision of Engineer-in-Charge/GNIDA shall be conclusive and binding on the Contractor.

***CLAUSE 33*: ARBITRATOR**

Except where otherwise provided in the contract, all questions and disputes relating to the meaning of the specifications, designs, drawings and instructions herein before mentioned and to the quality of workmanship or materials used on the work or as to any other question claim right or rates for extra items sanctioned and decided or not by the competent authority under the conditions of this contact, designs, drawings, specifications, estimates instructions or order on these conditions or otherwise concerning the work or the executive or failure to execute the same whether arising during the progress of the work or after the person or person appointed by the Chief Executive Officer, GNIDA. It will be no objection to any such appointment that the matter to which contract relates and that in the course of his duties as GNIDA servant, he had expressed views on all or any of the matters in dispute or differences. The arbitrator to whom the matter is originally or subsequently referred being incapacitated to act the Chief Executive Officer of the GNIDA shall appoint another person to act as arbitrator in accordance with the term of contract. It is also a term of his contract that no person other than a person appointed by the Chief-Executed Officer of the GNIDA as aforesaid/shall act as arbitrator and if for any reason, that is not possible, the matter is not to be referred to the arbitration at all. The arbitrator(s) may from time to time with consent of the parties enlarge the time for making and publishing the award.

Subject as aforesaid the provisions of the Arbitration Act. 1940 or any statutory modification or re-enactment thereafter and the rules made thereunder and for the time being in force shall apply to the arbitration proceeding under this clause.

***CLAUSE 34* : ACTION WHERE NO SPECIFICATION IS GIVEN.**

In the case of any class of work for which there is no specification in the contract. Such work shall be carried out in accordance with the detailed CPWD/ISI specification/MOST specifications and in the event of there being no detailed specifications for the same work shall be carried our in all respects in accordance with the instructions and requirements of the Engineer-in-charge.

***CLAUSE 35:* CONTRACTOR'S PERCENTAGE**

The addition and deduction on account of the percentage referred to at page of the accepted tender will be calculated on the gross and not the net amounts of bills for work done.

1) In every case in which by virtue of the provisions of section 12 Sub-section(i) of the Workmen Compensation Act 1923. GNIDA is obliged to pay compensation to a workman employed by the Contractor or by any Sub-Contractor from him in the execution of the said work, GNIDA will recover from the Contractor the amount of the compensation so paid and without prejudice to the rights of

   GNIDA under section 12 Sub-section (2) of the said Act. GNIDA shall be at liberty to recover such amount or any part thereof by deducting it either from the security deposited by the Contractor to his credit under Clause (1) of these conditions or from any other some due to GNIDA from the Contractor whether under this contract or otherwise.

2. GNIDA, shall not be bound to contest any claim made against it, under section 12 sub-section (1) of the said Act except on the written request of the Contractor and upon his giving to GNIDA full security for all costs for which GNIDA might become liable in consequence of contesting the claim.

CLAUSE 36:
No bricks for use on the work shall be manufactured within the limits of a Municipality or Cantonment or Notified Area or within half a mile of the site of work. Any brick so manufactured may be rejected by the Engineer-in-charge.

CLAUSE 37:
No earth for filling or for any other purpose, shall be excavated within half a mile of the site of work except with the written permission of the Engineer-in-charge and then only on condition that the area in which such excavation is made shall be levelled and dressed by the Contractor at his own expense in accordance with the instructions of the Engineer-in-Charge and in such a manner as to prevent the formation of pools of stagnant water.

If the Contractor fails to comply with this condition, the Engineer-in-Charge may cause the ground to be levelled and dressed by other workmen and deduct expense (of which the certificate of the Engineer-in-Charge shall be final) from any sums which may be or may at any time thereafter become due to the Contractor or from his security deposit or from the proceeds of sale thereof.

CLAUSE 38:
Without prejudice to any other remedy provided by law the GNIDA shall recover all dues here from the Contractor as arrears of land revenues.

CONTRACTOR **SENIOR MNAGER**
(E&M-1) GNIDA

GENERAL

Good workmanship and approved materials are essential for the compliance of these specifications.

1. The installation shall be carried out in conformity with the requirement of the Indian Electricity Act 1910, the Indian Electricity Rules. 1956 as amended upto date, and the Regulations of the Electric Supply Authority concerned. A list of important clauses from the Indian Electricity Rules, 1956 are given in Appendix-I.
2. The work shall be done according to the specifications described below and in conformity to the latest issue of the relevant Standards Code of Practice. A list of important Codes is given in Appendix-II.
3. Only approved material shall be used. A list of approved materials has been issued separately. For items not covered in that list, the decision of the Engineer-Incharge shall be final. The 5A/6A and 15A/16A switches, sockets, ceiling roses and bell pushes etc. of I.S.I. mark approved by U.P.P.W.D. shall be used.
4. The work, in all cases, shall be started only after the samples of all materials, fittings etc., if so desired. The board will be displayed at the site till the completion of the work.
5. The work shall be carried out under the supervision of a person holding a Certificate of competency issued by the State Government for the type of works involved. The name and other particulars of the person shall be submitted to be Engineer-Incharge before the commencement of work.
6. After completion and erection, the portion of the building, road, land and other properties damaged during the erection of installation shall be repaired properly to original finish and colour by the contractor.
7. All the tests prescribed in Chapter 12 of this schedule shall be carried out in the presence of the Assistant Engineer-Incharge and test results submitted in the specified proforma given in Appendix-3. Installation with test results lower that those specified shall not be accepted. In addition to above, certificate required by Electric Supply Authority shall also be given by the Contractor.
8. After completion of work, completion certificate shall be submitted by the contractor signed by the Supervisor under whose supervision the work has been carried out in the specified proforma given in Appendix-4.
9. The contractor shall submit complete wiring diagrams of the installation in case of internal wiring works, schematic diagram of equipments and connection for substation and switch gear works and route layout plans in cases of overhead line and underground cable work on completion of the work.

   The wiring diagram shall be submitted duly shown with the T.P.N. controls, distribution boards and the branch circuits, numbered serially indicated on the diagram.

   The route layout plan shall be drawn on the site plan of the building. The marking of the underground cable shall be distinct from those of overhead lines. Different colours for different sizes of conductors shall be preferred. In case of overhead line work, the position and size of the poles, length span and size of conductors etc. shall be marked clearly on the plans. In the case of underground cable work, the number size, length of cables, position of cable joints and kiosks shall be marked clearly on the plan.

SENIOR MANAGER
(E&M-1) GNIDA

CHAPTER-I

INTERNAL ELECTRIC WIRING

1. These specifications cover the requirements for internal wiring work.

2. Definition of a point-A "Point" shall include complete wiring from branch distribution board to the outlet via the switch. The outlet shall be a ceiling rose in case of ceiling and exhaust fan point, light point for fluorescent tube fittings and pendant fittings etc. excluding rod pendant and socket outlet in case of plug points. The switch for high pressure mercury vapour lamp shall be 15A/16A A-240 V flush type in case of conduit wiring 16A-240V metal clad single pole and neutral switch in case of surface on MDFEG (Medium density exterior grade) batten and for exhaust fan, 15A single pole switch.

3. Type of wiring : The wiring shall be carried out either on batten with P.V.C. insulated and P.V.C Sheathed cable or in conduit on surface or concealed in wall with P.V.C. insulated wire.

   The wiring whether concealed or on surface, shall be easily accessible for inspection. The wiring shall be done 225 mm below the ceiling as possible and shall be straight. Open type wiring shall not be done in air conditioned space and above the false ceiling or lofts under any circumstances.

4. Layout of Wiring : The wiring shall be done on distribution system with main and branch distribution boards at convenient physical and electrical load centre and without isolated fuses.

   "Power" and "Heating" sub-circuits shall be kept separate and distinct from "Lighting" and "Fan" sub-circuits. "Lights" and "Fans" shall be wired on separate circuits.

5. The balancing of circuits in three phase installation shall be arranged before hand. Circuits of different phase of A.C. system shall be kept not less than two meters apart, or enclosed in earthed metal casing.

6. Medium pressure wiring and associated apparatus shall comply, in all respects, with the requirements of Rules 50, 51, 61 and 61A of Indian Electricity Rules, 1956.

7. Position of wiring run and points : The position of runs of wiring and the exact positions of all points and switch boxes shall be marked on the building plan or the building itself and approved by the Engineer-Incharge.

8. Voltage and Frequency of Supply : All current consuming devices shall be suitable for the voltage and frequency of the supply to which these are to be connected.

9. Cables and Flexible Cords : The conductors of cables, except flexible cables or cords, shall be of copper or aluminium as specified. The minimum cross-sectorial area of conductor for final sub-circuit and for light and fan sub-circuit shall be 1.50 sq.mm. aluminium or 1 sq.mm copper. The cross-sectional area of conductor for the wiring of high pressure mercury/sodium vapour lamp and exhaust fan shall be 2.5 sq.mm. aluminium or 1.5 sq.mm. copper. The minimum cross-sectional area of conductor for power wiring shall be 4 sq.mm. aluminium or 2.5 sq.mm. copper.

Flexible cables and cords shall have annealed tinned copper conductors. The minimum cross-sectional area of conductors of these cables shall be 0.5 sq.mm. wherever liable to be damaged, these cables shall be protected properly. Single phase appliances shall be provided with 3-crore flexible cable.

10. Rating of Lamps and Fans : As far as possible, actual current carried by any conductor should be estimated. Unless the actual value of load in known, a light point shall be rated at 100W in nonresidential buildings and 60W in residential buildings, table fans and ceiling fans at 60W 5A socket outlet at 60W and 15A power outlet at 100W. Exhaust fans shall be rated according to their capacity.

11. Looping back : The wiring shall be done in looping back system without any connector or junction box on the line. The looping back of phase or live conductor shall be done at the switch box and that of neutral at the light, fan or socket outlet. In no case, joint shall be made bare or by twisting the conductors. In through runs of cables. If the length of final sub-circuit, sub-main or main or main is more than the length of standard coil and joint becomes unavoidable, such joints shall be made by means of proper connector. No junction box shall be provided. Specific difficulties should be referred to Engineer-Incharge for decision.

12. Connection to ancillary buildings : Electrical connections such as wires, sub-mains or final sub-circuits to ancillary buildings such as out-houses, garages, etc. at a distance of not more than 3 metres and when no roadway intervenes shall be taken in one un-jointed length of earthed G.I. pipe of suitable size with exposed portion at the height of not less than 2.5 metres or by underground cables. When the distance between the buildings exceeds three metres but does not exceed 10 metres but does not exceed 10 metres or a roadway intervenes, the exposed position of the same shall be taken in weather proof cable on G.I. 8 SWG bearer wire at a height of not less than 4 metres above the ground.

13. Control at a point of commencement of supply : A circuit breaker or a linked main switch with fuse on each live conductor shall be provided at the point of entry at an accessible place, as near as practicable to the termination of service line. There shall be no break on the neutral wire except at the switch gear. No fuse shall be provided in the earthed neutral conductor. The neutral shall be distinctly marked.

14. Wooden Items : All wooden items e.g. plugs, round blocks, etc. shall be of approved M.D.F. exterior grade board except plugs, all other items shall be painted, both inside and outside with two coats of approved varnish before erection. When there is danger of attack by white ants, the portion in contact with the wall shall be painted with suitable anti-termite paint instead of varnish.

    (a) Plugs : Tapered wooden plugs for ordinary walls and ceiling shall be of well seasoned teak wood not less than 50mm long and 25mm and 20mm square on the ends. These shall be fixed in the wall to within 6.5mm of surface, with the large end inside and finally finished flush with the surface instead of teak wood plugs rawl plugs may also be used.

    (b) Blocks and Boards : The blocks and boards shall have separate front and back covers of M.D.F.E.G. board and shall be fastened to frame by means of wood screws and nailed. The frame shall have dovetail joints and not merely lapped and nailed. The thickness of the front and back covers shall not be less than 12mm. If necessary, the thickness may have to be increased so that

no portion of screws used for fastening the accessories or fittings projects in to inside of the board and damages the insulation of the conductor. The exposed end shall be rounded off chamfered or beaded as directed. The blocks and boards shall be of size suitable for mounting the number of accessories, regulators etc. thereon neatly. The depth of the boards and blocks shall not be less than 40mm. The bottom of the blocks and boards shall be kept at a height of 1.25 metres from the floor level or as directed by the Engineer-Incharge.

15. Metal Boxes : Metal boxes shall be made of cast iron boxes shall be 3mm. The sheet steel boxes shall be made of 1.5mm (16 SWG) thick mild steel sheet. These boxes shall have not less than four screwed holes for fixing the top cover and a earthing stud. These boxes shall be provided with a cover of phenolic laminated sheet, not less than 3 mm thick, fastened to the box with not less than four number brass screws and washers. These boxes shall be painted both inside and outside, with two coats of antirust paint.

16. Fixing of fittings and accessories : In casing and caping system and PVC insulated & PVC sheathed system of wiring accessories like ceiling roses, batten holders, brackets, switches, regulators, sockets outlet etc. shall be mounted or M.D.F.E.G. blocks or boards of suitable shape and size fixed to wall or ceiling, the blocks or boards shall be provided with phenolic laminated cover where flush type mounting accessories are used.

In case of conduit wiring, all accessories like switches, sockets, call bell pushes, regulators etc. shall be of piano type. These shall be mounted on phenolic laminated cover fixed on cast iron or mild steel boxes of suitable size. The accessories and regulators shall be mounted in flush type pattern or as directed by Engineer-Incharge.

17. Conduit Wiring System : This type of wiring can be used both for low voltage and medium voltage installation. Single core PVC insulated (without sheath) cable shall be used. This cable shall be drawn in heavy gauge rigid steel conduit. The conduits shall be fixed on surface, concealed (recessed) in the wall or laid in slab before concreting. All systems, other than surface conduit wiring system, shall comply with all the requirement for surface conduit wiring system described under the respective system.

i) Surface conduit wiring system : Heavy gauge rigid steel conduit, solid drawn or lap-welded, with galvanised or enamelled surface, not less than 19mm in diameter, shall be used. The gauge of conduits shall be not less than 1.5mm (16 SWG) for conduit of size upto 32mm diameter and not less than 2mm (1 SWG) for conduit of size above 32mm diameter. Only threaded type conduit accessories shall be used. Pin grip of clamp type accessories shall not be used under any circumstance. The maximum number of PVC insulated 1100 volt grade aluminium conductor cables that can be drawn in conduit shall be given in Annexure-6.

The cables of alternating current supply and direct current supply shall be bunched in separate conduits. Cables carrying direct current may be bunched in one conduit irrespective of their polarity. In case of cables carrying alternating current the outgoing and return cable shall be drawn in the same conduit.

The conduit pipe shall be joined by means of screwed sockets, couples, or accessories only. Inspection boxes and inspection type couplers shall be provided at intervals not exceeding 6 metres. Threads on the conduit pipe shall be long enough to accommodate the pipe to full threaded portion of the couplers and

accessories. No burrs or sharp edges shall be left at the curt end of the conduit pipes to avoid damages to the insulation of the conductors while pulling. The Engineer-Incharge, with a view to ensuring that the above provisions have been carried out, may require that the separate lengths of conduits etc. after they have been prepared shall be submitted for inspection before being fixed.

The layout of the conduit shall be such that condensation or sweating inside the conduit, if occurs, is drained out. In order to minimise it all outlets of the conduit system shall be ventilated, Keeping covers of the inspection boxes exposed but flushed in level.

Wiring in conduits exposed to weather shall be avoided. However, where permitted, outer surface of the conduit pipes and accessories including all bends, unions, junction boxes etc. forming part of the conduit system shall be adequately protected against rust with two coats of red-oxide before being fixed, or otherwise. NCT flow coat electrical tubings used. In all cases, the bare threaded portion of the conduit pipe shall be treated with anticorrosive preservative or covered with approved plastic compound.

The conduit pipe for each circuit shall be erected before any cable is drawn in the conduit pipes shall be fixed by heavy gauge steel saddles, secured over 12mm thick spacers of well seasoned teak wood/approved MDF, at intervals not exceeding 60cm. The spacer shall be fixed to wall plug by flat headed wood screws. A saddle shall be fixed within 10cm on both sides of couplers, bends or similar other fittings. The saddle shall be not less than 24 gauge thick for conduit pipe upto 25mm diameter and not less than 20 gauge thick for conduits of larger diameter.

When conduits have to be attached to iron or steel joints or pillars, suitable girder clips at intervals of 60cm shall be used. conduits laid along the trusses, steel joists etc. shall be secured by means of ordinary clips or girders slips, as required. Where it is not possible to drill holes in the truss members, suitable clamps with bolts and nuts shall be used. The clips shall be not less than 19mm vide and 0.90mm thick for conduit pipe upto 25mm diameter and not less than 25.4mm wide and 12.0mm thick for conduit pipe of higher size. For all sizes of clamping rod shall be 4.45mm (7 SWG diameter).

All necessary bends in the system including diversion shall be done by bending pipe, or by inserting suitable solid or inspection type normal bends elbows or similar fittings or by fixing cast iron or sheet steel inspection boxes as directed by Engineer-Incharge. Conduit fittings shall be avoided, as far as possible, on conduit system exposed to whether, where necessary, solid type fittings shall be used, radius of such bends in conduit pipes shall be not less than 7.5cm. No length of conduit shall have more than the equivalent of four quarter bends from outlet to outlet.

The conduit of each circuit or section shall be completed before conductors are drawn in. The entire conduit system shall be electrically and mechanically continuous and shall be tested for the same. The entire system shall be permanently connected to earth in general conformity to the requirement of earthing. G.I. earth continuity wire of 8 SWG size shall run along the full-length of the conduit and shall be fastened to conduit between each wire and conduit, and terminated in the M.S. box with stud. Gas or water pipes shall not be used as earthing medium. If conduit pipes are liable to mechanical damage, they shall be adequately protected. When passing through walls or floors, conduit pipes shall be continuous.

The metal ox shall be efficiently earthed with the conduit by means of approved couplers. Only a portion of the box shall be sunk in the wall, the remaining portion shall project out for entry of conduit pipe into the box. The clear depth of the box shall be not less than 6cm. Where fan regulator is also to be accommodated, the depth shall be increased to accommodate the fan regulator in flush pattern. Standard conductors shall be preferred in conduit wiring.

After completion of erection, the portion of the building damaged during the erection of the installation shall be repaired properly to meet the original finish and colour of the walls and ceiling etc.

(II) Concealed (recessed) conduit wiring system- This system of wiring shall comply with all the requirement described above under 'Surface Conduti System' an din addition, confirm to the requirements described under.

The conduit shall be fixed in position by means of M.S. hooks not more than 60cm apart by making a chase in the wall. The conduit shall be fixed so that its top is 6mm below the surface of wall. The chase shall be of ample dimension to permit the conduit to be fixed properly and shall be made neatly in the wall. The chase shall be filled up neatly after erection of conduit and finished to original finish and colour of the wall.

All curves shall be maintained by bending the conduit pipe itself with a long radius or by solid type long bends. Fixing of standard bends or elbows shall be avoided. Fish steel wire of 16 SWG size shall be provided alongwith laying of conduit to facilitate drawing of wires in the conduit.

Suitable inspection boxes shall be mounted, flush with the wall, ceiling, at suitable intervals to facilitate drawing and removal of wires. Inspection boxes shall be of cast iron or sheet steel. Suitable ventilating holes shall be provided in the covers of the inspection boxes.

The outlet boxes shall be same as for surface conduit system and shall be mounted flush with the wall/ceiling.

After completion of installation, the portion of the building damaged during erection shall be required properly to the original finish and colour of the walls and ceiling etc.

Wiring in P.V.C. conduits: The P.V.C. conduits shall be approved make & brand, I.S.I. marked of heavy duty minimum 2.00mm thick. The couplers, inspection boxes long neck, solid ends shall also be of heavy duty of P.V.C.

The system of wiring shall comply with all the requirement described above in rigid steel conduit system, and in addition confirm to the requirement described here under:

The earth continuity wire shall be P.V.C. insulated and shall be carried inside the conduit upto a size of 10 Sq.mm. If the size of earth wire is required with greater cross-section, it shall be of galvanized iron and shall be taken out side the conduit, fixed in the same manner as in case of rigid steel conduit.

Fixing of standard bends and elbows shall be avoided. Fish steel wire of 16 SWG shall be provided in the conduits laid in slabs as & when required to facilitate drawing of wires in the conduit.

Suitable inspection boxes shall be fixed and mounted flushed with wall, ceiling at suitable intervals to facilitate, drawing and removal of wires. The P.V.C. inspection boxes shall be of heavy duty and provided with brass, threaded ferrules for fixing screws for mounting covers.

18. Selection of size of conductors:

The size of the conductors of circuits shall be so selected that the drop in voltage from consumers terminals to any and every point on the installation does not exceed three per cent of the voltage at the consumers terminals when the conductors are carrying the maximum current under the normal conditions. The rating of the cable shall be the current which the circuit is designed to carry.

The current rating of the cable shall not be less than that of the fuse which protects it.

All conductors, switches and accessories shall be of size as to be capable of carrying, without their respective ratings being exceeded, the maximum current which protects it.

All conductors, switches and accessories shall be of size as to be capable of carrying, without their respective ratings being exceeded, the maximum current which will normally flow through them.

19. Capacity of sub-circuits:

Light and fans shall be wired on separate sub-circuits. Not more than a total of ten light and plug points or four to six fan points shall be provided in a sub-circuit. The load on a sub-circuit shall be restricted to 800 watts.

The power sub-circuit shall be designed according to the load requirement for the sub-circuit. In no case, more than two outlets shall be provided in a circuit.

20. Passing through walls and floors:

(I) When the conductors pass through walls, they shall be taken through one piece heavy gauge rigid steel conduit or porcelain pipe or corrugated or solid P.V.C. pipe extending through the whole thickness of the wall. The ends shall be bushed properly. The pipe shall be of adequate size so that the wires pass through in a straight line without any twist of cross in wires.

(II) When the pipe extends outside the building, the portion exposed to weather shall be well mouthed, turned downwards and properly bushed on the open ends.

21. Where owing to irregular coursing or other reasons the plugging of the walls or ceiling with wood plugs present difficulties, the MDFEG batten, metal conduit shall be attached to the wall or ceiling in a manner approved by the Engineer-Incharge.

To achieve neatness, plugging of the walls or ceiling may be done by an approved types of asbestos, metallic or fibre fixing plug having adequate strength instead of wooden plugs.

22. Fittings and accessories:

(1) Ceiling roses and similar attachments: A ceiling rose shall not embody fuse terminals as integral pat of it. A ceiling rose or similar attachments shall be used in low voltage installations only. Only one pendent shall be attached to a ceiling rose where multiple pendants are to be used, specially designed ceiling roses shall be used.

(2) Socket outlet and plugs : Every socket outlet shall be controlled by a switch which shall be on the live side of the line and shall preferably by located immediately adjacent thereto or combined therewith. A socket outlet shall not embody fuse terminal as an integral part of it but the fuse may be embodied in plug.

In an earthed system of supply, three pin type socket outlet, with the third pin connected to earth, shall be used. The connection from such outlet to any current consuming device shall be done by means of 3 core flexible cords, one end of the earthing core of which shall be connected to the earthing pin and the other to earthing point of the current consuming device. Every plug containing a fuse shall be non-reversible and shall be so arranged and connected that the fuse controls an outer phase conductor or the non-earthed conductor of the circuit.

Ordinary socket outlet shall be fixed at places away from danger of mechanical injury and at a height of not less than 1.25 metres from floor level. In case it is to be fixed at a lower height, which shall not be less than 23cm. from floor level, prior approval in writing of Engineer-Incharge shall be necessary.

Socket outlet for call bell shall be fixed as directed by the Engineer-Incharge at height of not less than 1.25 metres above floor level. To carry flexible cord from bell push to socket, concealed conduit from the outlet with a terminal box at 23cm. above floor level may be fixed in the wall.

SENIOR MANAGER
(E&M-1) GNIDA

CHAPTER-II

LAYING OF CONDUIT IN SLAB

1. If required, conduit pipes shall be laid in slab or beam alongwith reinforcement before concreting. The conduit pipes shall be laid over the bottom reinforcement the slab of beam unless required otherwise, such that the open face of the outlet box in flush with the surface of the slab or beam. The conduit pipe shall be fastened securely to the nearest reinforcement with 16 gauge steel wire. The outlet box shall be at least 63mm to 75mm deep, check nuts should be provided to prevent entry of cement concrete in conduit pipe during the concreting. The outlet box shall be filled with clay or hessian cloth so that the concrete does not fill in it. All bends shall be made by bending the conduit pipe. To facilitate drawing of wire in the conduit, 16 SWG fish steel wire shall be provided in the conduit during its erection.

   Suitable inspection boxes shall be provided with the ceiling at suitable intervals to facilitated drawing and removal of wires. Inspection boxes shall be of cast iron or sheet steel, with M.S. cover. In case of PVC conduit wiring these shall be of PVC heavy duty. Suitable ventilating holes shall be provided in the covers of the inspection boxes.

   The outlet boxes shall be same as for surface conduit system and shall be mounted flush with the ceiling.

   After completion of erection, the portion of the building damaged during erection shall be repaired properly to the original finish and colour of the walls and ceiling etc.

SENIOR MANAGER
(E&M-1) GNIDA

CHAPTER-III

1. Main switches and switch boards

(I) All main switch gears shall be metal clad and shall be installed in dry situation, as near as practicable to the point of supply.

(II) The main switch will have a fuse on each live conductor of supply mains. No fuse shall be provided in the earthed neutral. The neutral wire shall be continuous except at the linked switch gear.

(III) Main switch boards shall be installed in well ventilated rooms or cupboards or recess having locking arrangements. These boards shall not be installed in damp situations, in the vicinity of storage batteries, places exposed to chemical fumes or where inflammable or explosive dust, vapour or gas is likely to be present.

(IV) Switch boards shall not be erected above gas stoves sinks, in bathrooms, lavatories, toilets, kitchens, damp situations, places exposed to weather or within 2.5 metres of a washing unit in the washing room of laundries.

(V) Fixing of switch boards in places likely to be exposed to weather to drip or to abnormal moist atmosphere should be avoided. where it is unavoidable, the outer casing on the switch boards shall be weather proof and shall be provided with gland or bushings or adopted to receive screwed conduit according to the manner in which cables are run.

(VI) The bottom of switch board shall be more than 1.25 metres above the floor level unless the front of switch board is completely enclosed by a door or the switch boards is located in a position to which only authorised persons have access.

(VII) Equipmnets which are on the front of a switch board shall be so arranged that inadvertent personal contact with live part is avoided during the maintenance of switch gear changing of fuse or like operations.

(VIII) The switches shall be so arranged that fuses are not alive when the switch is in the OFF position.

(IX) A danger notice plate shall be provided on switch boards connected to medium voltage supply and above.

2. Main and branch distribution boards:

(I) The main and branch distribution fuse boards shall be of metal clad type. These shall be of weather proof type for exposed to weather or damp situation and flame proof type for situations exposed to explosive dust, vapour or gas.

(II) Main distribution boards shall be controlled either by a linked switch fuse or circuit breaker. Each outgoing circuit shall be provided with a fuse on the phase or live conductor.

(III) Branch distribution boards shall be controlled by a linked switch fuse or circuit breaker, each outgoing circuits of the branch distribution board shall be provided with a fuse on the phase of live conductor. The earthed neutral conductor shall be connected to a common link and be capable of being

disconnected individually for testing purpose. At least one spare circuit of the same capacity shall be provided on each distribution board.

(IV) The distribution fuse boards shall be installed as near the centre of load as possible, in dry situation and not exposed to weather.

(V) The distribution fuse boards shall be fixed on suitable stanchions or wall and shall be accessible for replacement of fuses.

(VI) When two or more distribution fuse boards are connected to different phases of medium voltage supply, these shall either be fixed 2 metres apart or interlocked or arranged so that only one can be opened at a time and the metal case is marked "DANGER" "415 Volts" or installed in a room or enclosure accessible to authorised persons only.

(VII) Triple pole distribution fuse boards shall not be used for final circuit distribution for single phase load.

3. Wiring of distribution boards:

(I) The load coming on the distribution board shall be divided as far as possible, evenly between the number of ways of the boards. One spare circuit should be left for future extension.

(II) All connections between pieces of apparatus or between apparatus and terminals on a board shall be neatly arranged in a definite sequence, following the arrangements of the apparatus mounted thereon, avoiding unnecessary crossings.

(III) Cables should be connected to terminals only by soldered lugs, crimped lugs, or clamped securely without cutting away the cable stands.

(IV) All the conductors shall be rigidly fixed in such a manner that clearance of at least 25mm is maintained between conductors of opposite polarity or phases and between the conductors and any other materials other than insulating materials.

(V) The incoming and outgoing cables shall be neatly bunched and fixed properly permitting the boards to swing back fully.

(VI) If required, pilot lamp connected through an independent switch and fuse shall be provided.

(VII) The current rating of a fuse shall not exceed the current rating of the fuse carrier or the current rating of the smallest cable in the circuit protected by the fuse.

4. Boards for mounting switch gear:

One of the following types of boards shall be used for mounting metal clad switch gear.

(I) Hinged type metal boards: These types of boards shall be used for low voltage installation for mounting metal clad switch-gear consisting of not more than one switch fuse and one single phase and neutral distribution fuse board. These boards shall consist of a box made of sheet steel not less than 3mm thick. Alternatively, a frame of angle iron of minimum size 35mm x 35mm x 6mm or channel of minimum size 35mm x 25mm x 6mm for these

boards shall be made and mild steel plate of 3mm thickness mounted on the front and 1.6mm thickness on the back. The joints shall be substantially welded. The boards shall be provided with locking arrangement and earthing stud. If so required in any work at least 6mm thick wooden board of well seasoned polished M.D.F. exteriograde board shall be provided at the back. There shall be a clearance of 30mm minimum between the front and back covers.

No apparatus shall project beyond the edge of the board. No fuse shall be mounted within 25mm of the board edge.

The boards shall be painted with synthetic enamel paint over anti-rust priming coat.

The boards shall be securely fixed to the wall by means of rag bolts or wood plugs.

(II) Hinged type wooden boards: These type of boards shall be used in case of wooden casing or MDFEGB batten system of wiring for mounting metal clad switch gear, for use on low voltage installation, consisting of not more than one switch fuse and one single phase and neutral distribution fuse boards. These boards shall consist of two halves. Both the bottom and top halves shall consist of at least 12mm thick well seasoned M.D.F. exterior grade board mounted on 25mm thick well seasoned M.D.F. exterior grades board batten by means of wood screws. The two halves shall be jointed together by means of at least two members 75mm long steel hinges on one edge and wood screws on the other so as to make a box. The box shall be provided with a earthing stud. Both the inside and outside of the box shall be painted with two coats of approved varnish irrespective of their being painted to match the surroundings. Where there is danger of attach by white ants, the portion in contact with wall shall be painted with anti-termite paint instead of varnish. No apparatus shall project beyond the edge of the board. No fuse shall be mounted within 25mm of the edge of the board. The board shall be securely fixed to the wall by means of rag bolts or wood plugs.

(III) Fixed type metal boards - This type of board shall be used for mounting a large number of switch gears and large capacity metal clad switch gear. These shall consist of angle iron or channel iron frame of suitable size fixed on the wall or on the floor and supported on the wall at the top, if necessary. A clear distance of at least one metre shall be provided in front of the switch board. If there are attachments at the back of the board the space behind the switch board shall be either less than 20mm or more than 75cm in width measured from the farthest outstanding part of any attachment or conductor. If the space behind the switch board exceeds 75cm in width, there shall be a passage way from either end of the switch board clear to a height of 1.8 metres.

The connection between the switch gear mountings and the outgoing cables upto the wall shall be enclosed in a protective pipe.

(IV) Fixed type wooden boards: This type of board shall be used for small installations connected to low voltage. These shall be made of M.D.F. exterio grade board and may be used as main boards or sub-boards. The joints shall be dovetailed.

Both, the inside and outside or boards shall be painted with two coats of approved varnish. The boards shall be securely fixed to the wall by means of rage bolts or wood plugs.

(V) For large size medium voltage installations, a drawing showing detailed dimensions, design and disposition of frame work and mountings which shall be arranged neatly systematically to arrive at the overall dimensions shall be submitted for approval of the Engineer-Incharge.

(VI) These boards may be fixed in recess at least 600mmx480mm or 480mm x 480mm provided in the wall. An R.C.C. lintel of suitable size design and strength shall be provided above the opening to support the structure above it. The recess shall be provided with a hinged panel of 18mm thick M.D.F. exterio grade board chaukhat and shall be provided with locking arrangement. The chaukhat shall be fixed to the wall with hold-fasts of suitable size. The panel and chaukhat shall be well varnished before installation irrespective of their being painted to match the surroundings.

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CHAPTER - IV

1. (I) Lighting fittings:

Lights, fans and socket outlets shall be so located as to provide maximum comfort to the occupant and to enable him to utilise the electricity in the most economical manner. Every lighting fitting shall be controlled by a switch which shall be in live conductor of the circuit. Where control of the fitting at more than one point is necessary. It shall be done by as many two way and intermediate switches as there are control points.

The pendent fittings shall be suspended with twin flexible cords. The maximum permissible weight of pendent fittings suspended from twin flexible cable shall not exceed the following limits. Fittings heavier than 3.5kg shall be suspended by chain or rigid steel pipe.

Size of twin cord in sq. mm	No. and dia in mm	Maximum permissible weight in Kg.
0.05	16/0.2	1.7
0.75	24/0.2	2.6
1.00	32/0.2	3.5

Fittings and shades of inflammable material or of celluloid shall not be used under any circumstances.

(II) Fittings wire:

These wires shall be of copper and shall be used only for internal wiring of fittings and shall be carried upto the termination of the light point.

(III) Fluorescent tube fittings:

These fittings shall be high power factor type i.e. shall consist of necessary power factor improvement capacitor. The capacitor shall be of 4 mfd for fittings suitable for single tube and 3.15 mfd. for fittings suitable for double tubes. The fittings shall be standard models complete with necessary number of tubes and not economical models. These shall be complete with all components supplied as original components with standard models and shall be assembled and wired by the manufactured at the factory. The fluorescent tube shall be of the same make as the fitting. In cases where tubes are not manufactured by the fittings manufacturers the fluorescent tube of any approved make as directed by the Engineer-Incharge shall be used.

(IV) High Pressure mercury/sodium vapour lamps:

These fittings shall be complete with necessary vapour lamp, lamp holder, fittings with reflector, condenser, choke and starter etc. of appropriate size and quality complete in all respects with electric connections.

(V) Lamp Holders:

All lamp holders shall be bayonet cap type and shall be provided with shade carrier.

(VI) Outdoor Fittings:

Fittings for external use and for use on roads shall be of a design which shall prevent the entry of moisture and insects into the fittings.

(VII) Height of fittings:

Unless desired otherwise, all wall mounting and pendent fittings inside the building shall be kept at a height of 2.5 metres above the floor level. All fittings outside the building and on roads shall be fixed at the height as directed by the Engineer Incharge.

(VIII) Wall mounting brackets shall be fixed on matching well seasoned polished M.D.F. exterio grade board blocks or boards with brass screws.

(IX) Rod Pendent fittings shall be suspended with heavy gauge rigid steel conduit pipe duly painted of appropriate size C¯ electroplated steel chains of required length as directed by the Engineer-Incharge.

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CHAPTER - V

UNDER GROUND CABLES

1. General:

These specification cover, the requirements for the selection and installation of under ground cables for low medium and high voltage applications.

2. Testing:

The cable shall be tested for continuity and insulation between conductors and conductor and earth before and after installation. Test results shall be submitted in the proforma given in Appendix 8.

3. Cable Conductor:

The cable shall have either solid or standard aluminium conductors and shall be P.V.C. insulated and P.V.C sheathed and I.S.I. certified.

The cables may be armoured or unarmoured. Unarmoured cables may be used only when the runs are short and the cables are laid in pipes or closed masonry trenched or protected and secured enclosures.

single core cables armoured with steel wire or tape shall not be used for alternating current supply.

4. Selection of cables:

The final current carrying capacity of the cable after allowing for derating, shall not be less than the current it is required to carry. The current carrying capacity of P.V.C. insulated and P.V.C. sheathed cables and the derating factors are given in Appendix 8.

The cables should be able to withstand the minimum short circuit current for the period of short circuit cables insulated with P.V.C. or any thermoplastic material should not be overloaded even for a short period.

5. Handling of Cables:

The cable should be handled carefully so as to avoid formation of kinks any injury in conductor, insulation, sheathing, armouring etc. which may result in earth fault or discontinuity of conductor or both. Damaged cables, cables with kinks and straightened kinks or with similar apparent defects shall not be installed.

The cable drums shall not be stored on water logged and lose surface. Both the ends should be sealed to prevent ingress or absorption of moisture by insulation. The cable drum shall be rested on flanges. The drums should either be rolled in the direction of arrow or mounted on cable drum wheels and pulled by means of ropes. The cable shall not be bent to a radius 0 less than 12 times the overall diameter of cable.

6. Cable Route:

The cable shall be run, far as possible paralleled to roads, footpaths or other fixed development items. Cross country runs to shorten the route length should be avoided.

The cable shall be laid away from drains, storm water drains, kerb lines, existing cables, private property etc.

The cable shall not be laid in corrosive soil.

Cables or different voltage rating shall be laid in different trenches with adequate separation. Cables of higher voltage stall be laid at a lower level than the cable of lower voltage.

The alignment of the cable route should take into consideration the interest of other authorities and also future expansion like widening of roads etc.

7. Laying of cables:

Cables shall be laid directly in ground, in pipes, in open/closed ducts or on surface as per requirement at site.

Joints in cables shall not be provided. When the distance exceeds the standard length supplied by manufacturer, kiosks shall be provided. The location of the kiosks shall be decided before laying the cables. The kiosks shall not be provided in water logged locations, carriage ways, pavements, proximity of telephone cables, gas and water mains, in accessible places, ducts, pipes, rocks etc.

8. Laying direct in ground:

This method shall be adopted where frequent excavations are not encountered and re-excavation is easily possible without affecting other services.

The cables shall be laid in reasonable straight trench such that its top is at a depth of 75cm from the ground level.

For laying single cable the trench shall be 45cm wide. For laying two or more cables in one trench, the width of the trench shall be increased so as to provide an interaxial distance of at least 30cm and end clearance of 15cm from the side walls.

The bottom of cable trench shall be levelled and cleared of all rubbish, stone and hard materials etc. and covered with 7.5cm thick layer of clean, dry sand, punned smoothly with hand throughout. The cables shall be laid on the layer of sand and covered with at least 7.5cm thick layer of clean dry sand and covered on the sides and top wit well burnt bricks to provide protection. Precast cement concrete slabs can be laid at the top of sand instead of bricks.

In case of vertical tier formation, a sand cushion, of 30cm shall be provided between each tier. In additions, a partition layer of brick shall be laid between layers.

Extra length of cable in the shape of open mouthed loop shall be left at each termination and kiosk. In the case of long runs of cable loose cables may be left at suitable intervals also.

The trench shall be back filled with soft earth, rammed solidly and dressed properly to the satisfaction of Engineer Incharge.

9. Route markers:

If desired, cable route marker marked "CABLE" shall be provided along route of the cable and location of loops. The route markers may be of 100x100x5mm G.I. plate welded or bolted on to 15mm dia M.S. rod or of 600x600x100mm block of 1:2:4 cement concrete. Plate marker should be mounted parallel to and 50cm away from the edge of the trench. The concrete marker shall be laid flat over the cable trench protecting over the surrounding surface.

10. Laying in pipes/close ducts:

In locations such as road crossings, entry to buildings, paved areas, on poles etc. the cable shall be laid in G.I., cast iron or spun reinforced concrete pipe, as specified for a single cable, the minimum diameter of the pipe shall be 100mm or double the overall diameter of cable whichever is more. Separate pipe for each cable shall be preferred.

Unless specified otherwise, the pipe shall be laid directly in ground without any be such that its top is at a depth of at least one meter from the ground level. The pipes on road crossing shall be laid on the skew.

The pipes shall be continuous and shall be cleared of debris or concrete before the cable is drawn.

If specified, manholes of adequate size shall be provided to facilitate drawing in of cables. The mouth of the pipe entering a building shall be sealed to avoid entry of the water and the pipe shall slope downwards outside.

11. Laying in open ducts:

In location such as substation, switch room, workshops, plant rooms etc., the cables shall be drawn in open ducts of suitable dimensions, with easily removal covers of cement concrete or chequered plates. The cables shall not cross each other, unless unavoidable. The cables shall have no joints or splice inside the duct. The cable shall be fixed with clamps on the wall of the duct, taken in through in duct, supported on racks in the duct or laid direct in trench over suitable spacers as directed at site. The duct may be filled with dry sand, covered with easily removable covers of cement concrete or chequered plates or finally finished in cement plaster.

12. Laying on surface:

The cables may be laid on surface in switching stations, factories, tunnels, rising mains, overhead busbars etc. The cable shall be laid in through or on bracket or fixed with mild steel clamps, such that there is no undue sag in the cable. The cable shall be laid at least 25mm clear of the wall.

In case of unarmoured cables, suitable non-corrosive packing shall be provided to prevent damage to the cable sheath.

13. Cable identification tag:

Cable identification tag:

Wherever more than one cable are existing, suitable marker tags inscribed with cable identification details shall be permanently attached to all cables in the manhole, pull pits, joints, open ducts, under ground cables etc. at suitable intervals.

14. Completion report:

After completion, test results on the prescribed proforma (Appendix-3) and cable route duly marked on the building site plan shall be submitted. The portion of the building etc. damaged during erection of installation shall be repaired properly to original finish and colour of the building etc.

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CHAPTER - VI

OVERHEAD LINES AND STREET LIGHT

1. General:

These specifications cover the requirements for installation, testing and commissioning of overhead lines for medium voltage, service lines and street lights.

2. Poles:

Overhead lines shall be supported on steel tubular poles or steel rail poles. The steel tubular poles shall be of seamless/swaged and welded type and shall be in three stepped sections. Important information about, some poles in given in Appendix-9. Steel rail poles shall be as per standard specifications of Indian Railways. Normally one sixth of the length of the pole shall be embedded in a the ground. The length of the poles shall be coated with black bituminous paint, both internally and externally. The remaining portion of the pole shall be painted with one coat of red oxide, primer on its external surface. The pole shall be complete with a cap and base plate. Steel tubular/steel rail poles shall be fixed over 15cm thick bed of 1:3:6 cement concrete irrespective of the use of base plate and shall be fixed in cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate of 40mm normal size) foundation with not less than 20cm thick layer of cement concrete all round the foundation being continued upto 30cm above ground level and tapered suitably into a collar. The excavated portion shall be filled back with earth and consolidated properly using water, if necessary. The cement concrete foundation shall be cured properly using moist gunny bags before loading the pole.

3. Cross Arms:

The cross arms shall be made of M.S. angle iron of size not less than 50mm x 50mm x 6mm thick. The length of the cross arm shall be not less than 60cm and shall have insulator pin holes so spaced as to accommodate one number insulator on either side of the pole with spacing of 45cm between the conductors. The cross arms shall be complete with pole clamp made of M.S. flat of size not less than 50mm x 6mm with necessary bolt nuts and washers. When guard wire is also carried on the cross arm, the length of the cross arm shall be increased as that the guard wire runs not less than 30cm beyond the cuter most bare conductor. The cross arms shall be painted with red oxide primer before erection and finally painted with two coats of approved paint.

4. D-Iron Clamps:

The D-clamps shall be made of M.S. flat of size not less than 50mm x 6mm and shall be complete with necessary bolts, buts and washers and insulator bolt's holes etc. The length of the clamp shall be such that the conductor is not less than 150m away from the pole. The clamps shall be painted with two coats of approved paint.

5. Insulators:

The conductors shall be supported on pins/shackle type of insulators. The insulator shall be fixed directly on clamp or on cross arm. The minimum size of shackle insulator shall be 90mm dia x 75mm high. The shackle insulators shall be complete with G.I. bolts, nuts and washers etc. The minimum size of pin insulator shall be 65mm dia x 100mm high. The pin insulator shall be complete with G.I. pin, nuts and washers etc.

6. Stay Set:

A stay set shall consist of stay rod, anchor plate, bow tightner or turn buckle, thimbles, stay wire and strain insulator, clamp etc. The stay rod shall be provided with stay grip in case turn buckle is used instead of bow tightener. The entire stay assembly shall be galvanised. The stay wire shall be 7/10 SWG G.I. wire. The anchor plate shall be of M.S. galvanised and not less than 30mm x 30mm x 6mm thick and the size of stay rod shall not be less than 1.80 metres (6 ft.) long A length of 46 cm (18") of the rod shall project above the ground level.

7. Struts:

A strut shall generally consist of a pole of the same section which it supports or slightly lighter. It shall be chamfered at the top so as to rest on the pole squarely and shall be secured by means of a through bolt, nut, check nut and washer. It shall be buried in the ground to a depth of not less than 1.2 metres (4 ft) in the same manner as the pole. At the ground level, the strut shall be at a distance of not less than 1.8 metres (6 ft.) from the pole.

8. Conductors:

Steel reinforced aluminium conductor (A.C.S.R.) shall be used for phase and neutral conductor, Important information about some common ACSR conductors is given in Appendix 10. The minimum size of ACSR conductor shall be of code name "Squirrel" No. 8 SWG G.I. wire shall be used for earth conductor. The binding of the conductors with the insulators shall be done with 12 SWG soft aluminium conductors.

The guard wire shall be of G.I. and shall have required breaking strength and current capacity to ensure rendering dead the line without risk of fusing of guard wire. It shall be connected with the earth at each point at which its electrical continuity is broken. Suitable number of guard wire shall be provided.

The conductor will be stringed properly and care will be taken to see that there are not kinks in the conductors. Joints in the conductors shall be staggered. All strands of conductors must be gripped securely when pulling the conductor. While stringing, conductors of sufficient length be kept at shackle termination for making jumpers.

The jumpers shall be so made as to prevent occurrence of fault due to wind or birds. Parallel Grove (PG) clamps may be preferred to binding of conductors at jumper location or service tops. Jumpers will normally be of the same material as the line conductor and be of adequate current carrying capacity. The binding of conductor to insulator shall be sufficiently firm and tight to ensure that no intermittent contacts develop.

NOTE:

Construction of overhead line includes cutting of branches of trees of clearing of other obstructions that may come in the way of overhead lines. This must be done with the approved of Engineer-Incharge and with the permission of owners concerned.

9. Lighting arresters:

Horn, gap type of lighting arresters will be used wherever specified. These shall be fixed with each phase at the terminals and other places where specified and mounted on poles or cross-arms as directed by the Engineer-Incharge. A short and definite air gap must be maintained between the horns. This gap shall not exceed 2 cm.

10. Earthing:

Earthing shall be provided as per Chapter-VII "Earthing". All metal supports of overhead lines and metallic fittings attached thereto shall be permanently and efficiently earthed and for this purpose, a continuous earth wire shall be connected to an earth. There shall not be less than 3 connections with the earth per Kilometre spaced at equidistance as far as possible. The lead from the earth electrode shall be suitably protected by a 15mm dia G.I. pipe up to a height of 3 meters from the ground level and bonded to the continuous earth wire. The protection pipe and earth lead shall be suitable clamped to the support.

11. Danger boards:

Dang - boards fabricated from 10 SWG M.S. sheet and marked per as I.E. Rules shall be fixed, wherever specified, at a height of 3 metres from the ground.

12. Service brackets:

Service brackets fro providing service connection shall be of G.I. pipe of 5cm diameter wall/roof type, bell mouthed with two bends and sockets, duly painted with two coats of aluminium pint, shackle insulators, earthing, clamps, angle iron strut or G.I. stay of 7/3. 14 mim size wire, (7 Nos. of 10 SWG), stay insulators and wall clamps etc. The stay shall be anchored to the building with one eye bolt. The bracket shall be not less than 4 metres long and fixed as directed by Engineer-Incharge.

13. Service lines and service fuses:

Service lines shall be tapped from overhead line at point of support only. Service fuse carriers shall be of approved make and of ample size to permit entry of the ends of service lines connected to them. They shall be fixed at the distribution line support from which the service line is lapped. The clearances required as per I.E. Rules shall be maintained.

Clearance from Building of low and medium voltage lines and service lines:

Where a low or medium voltage over head lines passes above or adjacent to or terminates on any building the following minimum clearances from any accessible point on the basis of maximum sag. shall be observed.

a) For any flat roof, open balcony, verandah roof and lean to roof.

(i) When the line passes above the building a vertical clearance of 1.5m (8 ft.) from the highest point.

(ii) When the line passes adjacent to the building a horizontal clearance of 4 ft (1.2 Mt.) from the nearest point.

b) For pitched roof.

(i) When the line passes above the building a vertical clearance of 8 Ft. immediately under the lines.

(ii) When the line passes adjacent to the building a horizontal clearance of four feet. (1.2 Mt.)

14. Painting of poles:

The painting of poles/struts including cross arms, clamps etc. will be carried out with aluminium paint. Painting hall not be done on wet surface. First of all the surface will be prepared, by removing all rust and scales by scrapping or by brushing with steel wire brushes. All dust and dirt shall be thoroughly wiped off. After this, the primer coat shall be applied with red oxide paint. When the primer coat has dried up and before any moisture, dirt, dust etc. settles down on the surface, aluminium paint shall be applied with brush and the paint shall be spread evenly and smoothly. The surface shall be given two or more coats as directed and shall finally present a uniform appearance.

15. Mode of measurement of overhead conductors and earth wire:

The weight of overhead conductor and earth wire shall be calculated by measuring the distance from centre of one pole to the centre of next pole and computing the weight of the conductor of that size and length by using standard tables 3% extra shall be allowed for wastage, sag, jointing, binding and jumpering etc.

16. Completion report:

After completion, test results on the prescribed proforma (Appendix-3) and route layout and position of poles, duly marked on the building site plan shall be submitted by the contractor. The portion of the building etc. damaged during erection of installation shall be repaired properly to original finish and colour of the building etc.

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CHAPTER - VII

EARTHING

1. General:

Earthing shall confirm to the following specifications. For other details not covered in these specifications, relevant Indian Standards shall be referred to I.S.: 3043, 1965 (Code of Practice for Earthing).

Earthing shall generally be carried out in accordance with the requirements of Indian Electricity Rules, 1956 as amended from time to time and the relevant Regulations of the Electricity Supply Authority concerned. The following clauses of the Indian Electricity Rules, 1956 are particularly applicable.

32, 51, 61, 61A, 62, 67, 69, 88 (2) and 90.

All earth connections shall be visible for inspection. All medium voltage equipments shall be earthed by two separate and distinct connection with earth through an earth electrode. In the case of high and extra high voltages the neutral pints shall be earthed by not less than two separate and distinct connections with earth each having its own electrode. Each electrode shall be provided at consumer premises and substations according to the requirement.

All materials, fittings etc. used in earthing shall confirm to the Indian Standards Specifications wherever these exist. In the case of materials for which I.S.S. do not exist, the same will be approved by the competent authority.

No earth electrode shall have a ohmic resistance greater than five ohms as measured by an approved earth testing apparatus. In rocky soils, the resistance may be upto eight ohms.

Use of plate electrode is recommended only where the current carrying capacity is prime consideration, for example, higher capacity main switches, panel boards and substations etc.

Normally, an earth electrode shall not be situated less than 1.5m away from any building. Care shall be taken that the excavations for earth electrode may not affect the column footings or foundations of the building, in such cases electrodes may be fixed further away from the building.

The location of the earth electrode will be such where the soil has reasonable chance of remaining moist as far as possible. Entrance, pavements and road ways, are to be definitely avoided for location of the earth electrode.

2. Type of earth electrodes:

a) Pipe earth electrode.
b) Plate earth electrode.

G.I. pipe or G.I. plate earth electrode shall be used except when it is unavoidable to use copper plate earth electrode due to corrosive soil conditions, for D.C. system or for large capacity sub stations.

3. Pipe earth electrode:

G.I. pipe shall be of 40mm dia 4.5 metres in length. Galvanising of the pipe shall confirm to relevant Indian Standards. The pipe shall have a clean surface, not covered by paint, enamel or poorly conducting material. The pipe shall be of one piece. G.I. pipe electrode shall be .... at the bottom and provided with holes of 12mm dia drilled and spaced 75mm from each other upto 2 metres of length from bottoms. The electrode shall be buried in the ground vertically with its top not less than 20cm below ground level. (Details shown in the drawing No. 1).

4. Plate earth electrodes:

For plate electrodes minimum dimension of the electrode shall be as under:

a) G.I. plate electrode - 600mm x 600mm x 6mm thick.
b) Copper plate electrode - 600mm x 600mm x 3mm thick.

The electrode shall be buried in ground with its face vertical and top not less than 3 metres below ground level details shown in the drawing no. 2)

5. Watering arrangement:

In the case of plate earth electrode, a watering pipe of 20mm dia of G.I. pipe shall be provided and attached to the electrode as shown in the drawing. A funnel with mesh shall be provided on the top of this pipe for watering the earth. In the case of pipe electrode a 40mm x 20mm reducer shall be used for fixing the funnel. The watering funnel attachment (in both the above cases) shall be housed in masonry enclosure not less than 300mm deep. A 300mm x 300mm cast iron cover frame with hinged cover having looking arrangement shall be suitably embedded in the masonry enclosure.

6. Artificial treatment of soil:

The electrode shall be surrounded by charcoal/coke and salt in alternate layers not less than 150mm thick as indicated in the drawing.

7. Earthing lead:

(a) Main earthing lead:

The main earthing lead shall be of G.I. wire or G.I. strip in case of G.I. plate earth electrode.

For all electrical installations, except substations and generating stations, the earthing lead shall be not less than one-half of cross-sectional area of the largest conductor to be protected. A conductor larger than 100 Sq.mm. nominal cross - sectional area (2/0 SWG) in case of copper conductor and 150 sq.mm. in case of G.I. conductor need not be used.

The minimum size of main earthing lead shall not be less than 8 SWG copper or G.I. wire, or 12 mm x 3mm copper or G.I. strip.

b) Earth continuity conductor:

The nominal cross sectional area of an earth continuity conductor not contained within a cable or flexible cord shall be 14 SWG copper or 12 SWG G.I. or 4 sqmm. aluminium wire.

In the case of plate earth electrode, the earthing lead shall be securely bolted to the plate with two G.I. bolts, nuts, check-nuts and washers. In the case of pipe earth electrode, it shall be connected by means of a through G.I. bolts, buts and washers and cable sockets as indicated in the drawing. All material used for connection the earth lead with electrode shall be G.I. in case of G.I. pipe and G.I. plate earth electrodes and tinned brass in case of copper plate electrode. The earthing lead shall be securely connected at the other end to the main board.

Loop earthing shall be provided for all mountings

8. Protection of earthing lead:

The earthing of main board and other metal-clad switches and distribution fuse boards with not less than 14 SWG copper or 12 SWG G.I. or 4 sq.mm aluminium wire lead from electrode onwards shall be suitably protected from mechanical injury by a 15mm dia G.I. pipe in case of wire and by 40mm dia G.I. pipe in case of strip. Portion of the protection pipe within ground shall be buried at least 30 cm deep and shall be increased to 60cm in case of road crossing and pavements. The portion within the building shall be recessed in walls and floors to adequate depth.

9. Completion report:

After completion of the installation the test results and completion report of the installation work shall be submitted in the form given in Appendix-3.

Protection of Buildings against Lighting:

10. General:

The protection of buildings against lighting shall generally and those of special structures like livestock in fields, structures for highly combustible materials etc. shall strictly be done in accordance with IS: 2309-1969. For the purpose of protection of buildings against lighting both the vertical and horizontal conductors may be used as air terminations depending upon the type of the building to be protected. Horizontal air terminations may be used in buildings with flat roof extending over a large area such as R.C.C. framed structure, multistoryed buildings etc. Vertical air terminations may be used in buildings heaving towers and domes etc. A system of both vertical and horizontal conductors might be necessary for protection of bigger buildings. The materials of lighting protective system shall be of copper or galvanised steel as specified.

Brief Specifications are described here below:

11. Zone of protection:

The zone of protection of a lighting conductor denotes the space within which a lighting conductor provides protection against a direct lighting stroke by diverting the stroke to itself. For a single vertical conductor, this zone is described as a cone with apex at the highest point of the conductor and with an angle, called as protective angle, between the side of the cone and the conductor, Normally, this angle may be taken to be 45 degrees.

12. Component parts and their installation:

The principal components of a lighting protective system are:

I. Air terminations.
II. Down conductors.
III. Earth terminations and testing points.
IV. Earth electrodes.

13. Air terminations:

Air termiantions may consist of a vertical conductor or a horizontal conductor, or a system of both, horizontal and vertical conductors, depending upon the type of building as mentioned above. In the case of a vertical termination, it need not have more than one point and shall project at least 30cm above the object on which it is fixed. Horizontal air terminations should be so interconnected that not part of the roof is more than 9 meters away from the nearest horizontal conductor. For a flat roof, horizontal air-terminations along the outer perimeter of the ridge, parapet etc. shall be used. The air-terminations shall be joined with each other so as to form a closed network and should cover all salient pints of the structure. The air termination should be fixed permanently so as to avoid overturning due to any reasons.

14. Down conductors:

The number and spacing of down conductors shall largely depend upon the size and shape of the building and upon aesthetic considerations. The minimum number of down conductors may, however, be decided on the following considerations:

(A) A structure having a base are not exceeding 100 sq.m. may have one down conductor only if the height of air termination provides sufficient protection. However, it is advisable to have at least two down conductors except for very small buildings.

(B) For structures having a base area exceeding 100 sq.m. the number of down conductors required should be worked out as follows:

1. One for the first 100 sq.m. plus one more for very additional 300 sq.m. or part thereof.

2. One for every 30 metres of perimeter.

The smaller of the two shall apply.

Down conductors should be distributed round the outside walls of the structure, preferably, along the corners and other projections. Lifts shafts shall not be used for fixing down conductors. The down conductors shall follow the most direct path between the air terminations and the earth terminations. sharp bends, upturns and kinks should not be provided. The down conductors should be protected against mechanical damage. Metal pipes should not be used as protection for the conductors, in buildings of cantilever construction the down conductor shall be taken straight down to ground. All metallic items extending beyond the top of the structure and running vertically through the structure should be bonded to the lighting conductor at the top and the bottom.

The lighting protection system shall have as few joints in it as possible. Where joints in the down conductor above ground level are necessary, they shall be mechanically and electrically effective. In the down conductor below ground level, there shall be 70 joints. The joints may be clamped, screwed of welded as may be necessary. External metal on or forming part of a structure may have to discharge the full lighting current, there fore, the bond to the lighting protection system shall have a cross-sections area not less than that employed for the main conductors. Bonds shall be as short as possible.

Conductors shall be securely attached to the building or other objects to be protected by fasteners which shall be substantial in construction, not subject to breakage and shall be of galvanised steel or other suitable materials to avoid corrosion. The lighting conductors shall be secured at not more than 1.20 metre apart for horizontal run and 1.00 metres for vertical run.

The shape and minimum sizes of conductors for use above ground and below ground shall be as per Appendix-11.

15. Earth termination:

Each down conductor shall have an independent earth termination. The interconnection of all the earth terminations is preferable. It should be capable of isolation for testing purpose by "Testing joints". Water pipes should be installed away from the earth terminations and should not be bonded to it. The gas pipe should in no case be bonded to the earth termination system.

The whole of the lighting protective system should have a combined resistance to earth not exceeding 10 ohms before any bonding has been effected to metal in or on a structure or to surface below ground.

16. Earth electrodes:

Earth electrodes shall be constructed and installed in accordance with IS: 3043-1966 (Code of Practice for Earthing)

G.I. plate shall be used as earth electrode except where it is unavoidable to use copper plate earth electrode due to corrosive soil conditions. When soil contains sulphur, copper electrode shall be adequately tinned.

The earth electrode should be installed at places where best contact with earth are obtainable. These should be spread out and not squeezed together.

The minimum dimensions of the electrode shall be as under:

a) G.I. plate electrode - 60 cm x 60cm x 6mm
b) Copper plate electrode - 60 cm x 60 cm x 3mm

The electrode shall be buried in ground with its face vertical and top not less than 3 metres from ground level or not less than 60cm below summer water revel whichever is more. Medium class, G.I. pipe of 20 mm diameter, with a funnel with mesh, at the top of the pipe, shall be provided from ground to electrode fro watering the earth. The watering funnel attachment shall be housed in a masonry enclosure of not less than 30cm x 30cm x 30cm size.

A cast iron frame with hinged cover having locking arrangements shall be suitably embedded in the masonry enclosure. For artificial chemical treatment of soil, the electrode shall be surrounded charcoal/coke and salt in a alternative layers to a thickness of not less than 15cm on all the sides.

The down conductor shall be securely bolted to the plate (earth electrode) with two G.I. or copper bolts, nuts, check nuts and washers. The down conductor from the electrode onwards upto the building shall be suitably protected from mechanical injury by 40mm diameter medium class G.I. pipe. The portion of the protective pipe within ground shall be buried at least 30 cm deep and shall be increased to 60cm in case of road crossing and pavements.

No earth electrode shall have greater ohmic resistance than 5 ohms as measured by an approved earth testing apparatus. In rocky soils, the resistance may be upto 8 ohms.

17. Completion report:

After completion of the installation, test results on the prescribed proforma (Appendix-3) and layout of the different components duly marked on the building plan shall be submitted. The portion of the building etc. damaged, during erection of installation shall be repaired properly to original finish and colour of the building etc.

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CHAPTER - VIII

L.T. SWITCH (PANEL) BOARDS

(i) The L.T. switch (Panel) Boards shall be factory fabricated and of the manufacturer whose panel has been approved by U.P.P.W.D.

(ii) The switch board shall be fixed such that there shall be a clear space of either less than 230mm of more than 762mm in width behind the switch board measured from the farthest outstanding part of any attachment of conductor and more than 1000mm in width in front of the switch board. There shall be a passage way from either end, both in front of or behind the switch board, clear to a height of at least 1829mm.

(iii) No apparatus shall project beyond and edge of the panel. No switch body shall be mounted within 25mm of any edge of the panel and no holes, either than meant for fixing the panel shall be drilled within 13mm of the edge of the panel.

(iv) The various live parts shall be effectively screened by barriers of non-hygroscopic, noninflammable insulating material or shall be so spaced that an arc cannot be maintained between such parts and earth.

(v) All items of switch gears shall be readily accessible and all connections, including those to instruments and apparatus, easily traceable.

(vi) The switches shall be as arranged that fuses are not “alive” when the switch is in the “OFF” position.

(vii) No fuse other than those in instruments circuit shall be fixed at the back or behind a switch board, panel or frame.

(viii) The switch board shall be painted both inside and outside with one coat of anti rust paint and two coats of approved synthetic enamel paint by spraying before erection.

(ix) When a board is connected to voltage higher then 250 V. All the terminals or leads of apparatus mounted on it shall be marked in the following colours to indicate the different poles or phases to which the apparatus or its different terminals may have been connected.

Alternating Current - Three phases - Red, Yellow and blue.
Neutral - Black

Direct Current - Two outer wire Red and Blue
Neutral - Black

(x) When there are more than one switch gear on a switch board in the building, each switch gear shall be marked permanently and clearly indicating the section of the installation controlled by it as directed by Engineer-Incharge. The main switch shall be marked as such permanently.

(xi) A Danger Notice Plate shall be provided on L.T. Switch Panel.

(xii) There shall be a booklet having internal wiring diagram showing details of the connections to facilitate in the maintenance.

(xiii) The grouting of the L.T. Switch Panel should be carried out as per direction of the Engineer Incharge considering the situation of the site.

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CHAPTER - IX

TECHNICAL SPECIFICATION FOR RISING MAINS

"Totally enclosed rising mains are with aluminium bus bars in suitable sections which are connected to make a vertical run. Each section is provided with a number of wall straps for fixing the rising mains to the wall. The trunking consists of side channels of 14 SWG M.S. sheet and front and rear covers of 16 SWG to form to totally enclosed metal clad construction.

the bus bars are of rectangular section of wrought Aluminium with a current density not exceeding 800 Amps. per square inch and are individually insulated with a non deterioration insulating material such as heat shrink sleevings so as to prevent any possibility of electrical fault due to presence of vermin. The aluminium bus bars confirm to I.S. 5082-1969 Grade - 9-1 EQP. The total run is sectionalized and each section is fitted with a thrust pad to prevent the bus bars from sliding downwards. Each section also has an expansion joint to take up expansion joint to take up expansion of that section.

Connections between each length are adequately insulated and the casing is provided with earth links between each length to provide earth continuity throughout the run of the rising mains.

Solid risers are provided wherever required for tap-off arrangements and are suitably connected to the outgoing Tap-off boxes. The top end of the Rising main is closed by a blank-end cover and it is possible to extend the mains easily at a later stage if desired.

Whenever the rising mains pass through a floor a fire proof barrier is to be provided. The sheet steel parts used in manufacture undergo a rigorous rust proofing process and receive two coats of filler oxide primer before painting.

The Rising mains are subjected to a high voltage test of 2.5 KV for one minute between each phase and between each phase and neutral.

The Rising main are suitable for 415 volts 3 Phase 50 HZ 4 wire system and have been successfully tested for a 2.5 MVA short circuit capacity at C.P.R.I. Bangalore.

The fixing of the rising main will be done by fixing the suitable size of Angle iron bracket of 50mm x 50mm x 6mm size Angle iron duly painted with synthetic enamel paint to match the colour of rising main. The grouting of the Angle iron bracket will be done as to with hold the total load of the rising main and sliding of the same down ward.

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CHAPTER - X

(A) Miniature Circuit Breakers:

The current limiting miniature circuit breakers shall be I.S.I. marked of category M 9/M3 conforming International Standards of IEC, National standard IS: 8828-1978, BS-3871 Part-I and VDE-0641 with Dinrail mounting arrangement.

(B) Distribution Boards:

Distribution boards shall be factory fabricated from C.R.C.A. sheet steel duly treated anti rust treatment and stove enamelled fitted with Din Channel, neutral link and electrolytic tin plated copper bus bar of suitable ratings and capacity.

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CHAPTER - XI

Fans:

The fans shall be suspended from hooks or shackles by means of suspension rods. Rubber insulators (shackle) shall be provided between the hooks and suspension rods. There shall be no joint in the suspension rod. The canopies on top of the suspension rod shall hide the suspension. The lead-in-wire from the ceiling rose shall be of 1.5 Sq.mm. size and shall be protected from abrasion. In case down rods are fabricated locally they shall be fabricated from B-Class G.I. pipe.

The fan blades shall be kept at least 2.75 metres above the floor unless specified otherwise.

Exhaust Fans:

The exhaust fan point shall be wired as near the place of installation as possible and shall be provided with 15-A switch. The exhaust fan shall have air displacement capacity suitable to provide the required number of air changes. if necessary, more than one exhaust fan shall be provided. The recommended air change for various services are given in Appendix-5.

The exhaust fan shall be erected so that the dirty gas shall exhaust into the atmosphere. The exhaust fans shall be located such that the complete area is properly ventilated.

The mounting ring shall be fixed by means of rage bolts grouted in the wall. A circular hole suitable to the size of the exhaust fan, shall be provided at the proper place in the wall. The hole and other items shall be neatly plastered to the original finish of the room. If desired, a suitable cylindrical of 1.5mm (16 SWG) thick mild steel drum may be grouted in the circular hole. The drum shall be painted with matching colour over a coat of red oxide primer, inner and outer surface.

The exhaust fan shall be connected to the outlet with wire of ..... mm size

TESTING OF INSTALLATION

1. General

The following tests, in sequence shall be carried out on completion and the defects revealed shall be made good:

a) Polarity test.
b) Insulation resistance test.
c) Earth continuity test.
d) Earth electrode resistance test.

Whenever any addition is made to the fixed wiring of an existing installation, both the addition and that part of the existing installation relating thereto should be tested.

2. Polarity test of non-linked single pole switch:

(i) In a two wire low voltage installation, a test shall be made to verify that all non-linked, single-pole switches have been fitted in the same conductor throughout and that such conductor has been connected to an outer or phase conductor or to the non-earthed conductor of the supply.

(ii) In a three wire or four wire installation, a test shall be made to verify that non-linked, single pole switch is fitted in a conductor connected to one of the outer or phase conductor or to the supply.

3. Insulation resistance test:

(i) The insulation resistance shall be measured by applying between earth and the whole system of conductor or any section thereof with all fuses in place and all switches closed and, except in earthed concentric wiring, all lamps in position or both poles of installation otherwise electrically connected together a D.C. voltage of not less than twice the working voltage, provided that it does not exceed 500 volts for medium voltage circuit. Where the supply is derived from three wire. A.C. or D.C. or polyphase system the neutral pole of which is connected to earth direct or through added resistance, the working voltage shall be deemed to be that which is maintained between the outer or phase conductor and the neurtal.

(ii) The insulation resistance in meg-ohms of an installation measured as in (1) shall be not less than 50 divided by the number of points on the circuit, provided that the whole installation need not be required to have insulation resistance greater than one meg-ohm.

(iii) Control rheostats, heating and power appliances and electric signs may, if desired, be disconnected from the circuit during the test, but in that even the insulation resistance between the case of frame work and all live parts of each rheostat, appliances and sign shall be not less than half of a meg-ohm.

(iv) The insulation resistance shall also be measured between all conductors connected to one pole or phase conductor of the supply and all the conductors connected to the middle wire or to the neutral or to the other pole of phase conductors of supply. Such a test shall be made after removing all metallic connections between the two poles of the installation and in these circumstances, the insulation resistance between conductors of the installation stall be not less than specified in (ii).

(v) On completion of an electric installation (or an extension to an installation) a certificate shall be furnished by the contractor, countersigned by the certified supervisor under whose direct supervision the installation was carried out. This certificate shall be in a prescribed form as required by local electric supply authority and also on form given in Appendix-3.

4. Testing of earth continuity path:

The earth continuity conductor including metal conducts and metallic envelopes of cables in all cases shall be tested for electric continuity and electrical resistance of the same along with the earthing lead but including any added resistance or earth leakage circuit-breaker measured from, the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed one ohm.

5. Earthed electrode resistance test:

The following procedure shall be adopted when it is decided to measure the resistance of an earth electrode:

1. Alternating current of a steady value shall be passed between the earth electrode X, which shall be separated from the earthing system for carrying out the test, and an auxiliary earth electrode, Y placed at such distance from X that the resistance areas of the two electrodes do not overlap.

2. A second auxiliary earth electrode, Z, made of 13mm mild steel and driven upto one meter into the ground shall then be inserted halfway between X and Y and the voltage drop between X and Y measured. The resistance of the earth electrode is then the voltage between X and Z divided by the current flowing between X and Y, provided there is no overlap of the resistance area.

3. To check, the value of the resistance, two further readings shall be taken with the second auxiliary, electrode Z, moved 5 metres further from and 5 metres nearer to X respectively. If the three results are substantially in agreement the mean of readings shall be taken as the resistance of the earth electrode X. If there is no such agreement, the tests shall be repeated with the distance between X and Y increased.

4. The test shall be made with a hand driven earth tester, comprising a direct reading ohm-meter, if there is wandering of the pointer of the instrument, the speed of the generator should be increased or decreased as required.

5. On completion of the electric installation, or of an extension to the installation, a certificate shall be furnished by the contractor countersigned by the certified supervisor under whose direct supervision installation was carried out in prescribed from Appendix-3. In addition to this test Certificate prescribed by the local electricity authorities shall also be given.

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SPECIFICATIONS

The work shall be carried out strictly in accordance with.

a) The latest UPPWD/CPWD specifications for works with correction slips upto date of receipt of tender.

b) Relevant ISI/IRC standards for work not covered under Clause (a)

c) Material bearing ISI mark shall be used in works.

d) Non ISI material may be used only after the approval of the Engineer-in-charge, in case ISI marked material is not available or other wise specified in the nomenclature of the item given in BOQ of the Tender document.

e) Major items such as poles/cables/conductors/Transformers etc. shall be inspected by the representative of Authority at the premises of manufacturer before dispatch.

f) The Copper Conductor cable will be F.R. type.

g) Before procurement of ISI/non-ISI material, samples should be get approved from Engineer-in-charge.

CONTRACTOR **SENIOR MANAGER (E&M-1) GNIDA**

LIST OF APPROVED MAKE FOR ELECTRICAL WORKS

S.No.	Item	Approved Makes
1.	Copper Conductor 660/1100 Volt Grade FR/FRLS/PVC wires ISI telephone Coaxial LAN Cable.	National, Polycab, RR Cable, Finolex, Havells
2.	Coaxial Cable	Conscope, Delton, Finolex
3.	MS Conduit	BEC, AKG, Steel Craft, Mahaveer Steel
4.	MCB/MCB-DB/Industrial Sockets and accessories	L&T (HAGER), MDS (Legrand)-Lexic MG-Multi-9
5.	RCCB	L&T (HAGER), MDS (Legrand)-Lexic MG-Multi-9
6.	Modular Switches, Sockets, Regulators, Plug tops, Boxes and all other accessories.	MDS (Legrand)-Mossaic Schenider-Opal MK-Wraparound
7.	Ceiling Fan	Orient, Usha, Crompton/Bajaj/ Havells
8.	Exhaust Fans	Almonard, Crompton, Usha, Havells
9.	Exhaust Fan Decorative type	Nutek, Almonard, Crompton, Bajaj, Usha, Havells
10.	Light Fixtures	Philips, Crompton, Bajaj, Wipro, Decone
11.	Decorative Light Fixture	Nova, Ankur, Artlite
12.	PVC conduit & accessories ISI marked	Polypack, AKG, BEC, Precision
13.	M.S. & G.I. pipe	Jindal (Hissar), Tata
14.	Lamps	Osram, Philips, Crompton, Bajaj
15.	Connector/Terminas	WIGO, Elemex, Phoenix
16.	MS/FI conduit accessories superior type as per approved samples	Sharma Sales Corpn., Super Sales Corpn.
17.	M.S. Raceways and Raceways accessories	Steways, Bharti, M.K.
18.	Telephone Tag Blocks	Krone, Puoyet
19.	Metal Clad Socket Outlets with Boxes	L&T (Hager), Siemens, MDS
20.	Under floor junction boxes and cable and cable management system	EGA (MK)
21.	Distribution Boards	Legzard, L&T, Siemens
22.	Water proof socket outlets, panel equipments, sub-station equipments, cables O/M line materials.	Clipsal Gerard

23.	APFC Relay	Beluk, L&T, ABB
24.	Capacitors	L&T Meher, Siemens (EPCOS)
25.	Instruments-Analogue	L&T Rishab AE
26.	Digital Energy Meter	Enercon, AE, L&T
27.	LT Switch board, PLC based DG logic panel and capacitor control panels and floor switch board.	Tricolite electrical industries, control and switchgear, L&T, Siemens, Advance panel and switchgear ADLEC.
28.	Programmable logic controller (PLG)	Allen, Bradley, Siemens.
29.	11000 & 1100 volts grade XLPE insulated aluminium conductor armoured cables.	NICCO, RPG, Universal, CCI, Fort-Gloster, Diamond, Havells
30.	33000 Volt grade XLPE insulated	NICCO, RPG, Universal.
31.	Main L.T. Panels/Bus Duct/DG panel/ APFC Panel/PLC Panel/C& Panel/ RTCC/MCCB Panel/UMDB/DG Auxiliary panel.	Tricolite/L&T/ Ischineider/GE Power/ ABB & Siemens/Crompton Advance panels & switchgears ADLEC.
32.	Air Circuit breaker	L&T (U-Power)/Siemens (Sentron)/ Schneider (Mastrpact-NW), Crompton, ABB
33.	Moulded Case Circuit breakers	L&T (D-Sign)/Siemens (Sentron)/ Schneider (Compact-NS)/ ABB, Crompton
34.	Fuse diconnecto switch/switch fuse units.	L&T/Siemens/GE Power
35.	HRC Fuses	L&T/Siemens/GE Power
36.	Ammeter, Voltmeter	AE/MECO/Universal/Rishab/IMP
37.	Selector Switch, Push Button Switch/Emergency Switch	Kay CEE/L&T/GE Power Control/Siemens/BCH
38.	LED Indication Lamps	AE/Easun/Kaycee/Siemens/ Vaishnov/L&T
39.	CT's & PT's	AE/KAPPA/Universal/Kaycee/ IMP/L&T/MECO/Gilbert & Maxwell.
40.	Starters	Siemens/L&T/Cutler Hammer/GE Power/ABB Schneider
41.	Single Phasing Preventor/Overload Protection Unit	L&T/GE power/Siemens.
42.	Relays	L&T/Areva/ABB/Siemens
43.	Contractors	L&T/GE Power/BCH/Siemens/ ABB/Schneider

44.	Cable Glands	Commet, HMI
45.	Cable Tray	PICCO, Venes, Rico
46.	Thimbles/Lugs	Commet, Dowells, Asiatic
47.	Conductor	Racman, Polycab, Rashtria, HAR ELEC., Laxmi
48.	Transformers (Oil Type)	BHEL, Crompton, Areva, Bharat, Bijli, ABB
49.	Transformers (Dry Type)	BHEL, Crompton, Volt AMP.
50.	Transformers Small TRF Upto 250KVA	BHEL, Crompton, Areva, Bharat, Bijli, Kanohar Vijay Makes can be used.
51.	H.T. Panel	Siemens, ABB, Areva, Crompton.
52.	Octagonal/Hexagonal GI Poles	Bajaj, B.P.
53.	Decorative Poles	Metal, Coats, Glomak
54.	HT Jointing Kits	Raychem, CCI, Denson
55.	LT Jointing Kits	M. Seal, Mahindra & Mahindra, Raychem CCI Denson
56.	PIN/Disc insulators	BHEL, Jayshree, WSI, Ovalum, Elpro
57.	Street Light Luminaries	Bajaj, Philips, Crompton
58.	TPMO/Fuse SETE	Relco, Rashria
59.	PVC pipe	Finolex, Supreme
60.	Fire Extinguishers	Zenith, Minimax, Life guard, Newage
61.	KWH, PF, Frequency meter	AE/L&T/Secure/Conserv
62.	Digital meter, Multifunction meter	Conserv/Secure/AE/L&T
63.	LED Light Fixture	Philips, Crompton, Bajaj

The above makes of materials are approved subject to their meeting the tender specifications & requirements. The contractor however shall seek approval of specific make from the Engineer-in-charge before commencing the work. The decision of the Engineer-in-charge shall be final & binding on the contractor in the respect. Makes for of any other items not covered above to be got approved from the Engineer-in-charge.