



सत्ये स्थितो धर्मः

**NATIONAL LAW UNIVERSITY, ODISHA  
KATHAJODI CAMPUS, NARAJ  
CUTTACK**

**NOTICE INVITING TENDER FOR INTERIOR & FURNISHING WORK OF  
NATIONAL LAW UNIVERSITY CAMPUS WORKS**

**NAME OF THE WORK : INTERIOR & FURNISHING WORK  
OF GIRLS HOSTEL –II FOR NATIONAL LAW UNIVERSITY ODISHA**

**PLACE OF SUBMISSION OF THE TENDER PAPER : At the office of the  
The Vice Chancellor  
National Law University Odisha .  
Kathajodi Campus, Naraj, Cuttack - 753015, ODISHA**

**ARCHITECT/PMC:  
M/S. RATH ARCHITECTONIC  
PLOT NO. 104, MADHUSUDAN NAGAR  
UNIT – 4, BHUBANESWAR-751001**

1

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PH NO.-(0674)2390940,2395340.

## INDEX

Sl.No.	Description		Page No.
1.	Index		2
2.	Tender Notice	SECTION – I	4 - 11
3.	Prequalification of Contractor	SECTION-II	13 - 17
4.	Article of agreement	SECTION-III	19 - 23
5.	Form of tender	SECTION-IV	25 - 26
6.	Appendix	SECTION-V	28 - 28
7.	General conditions of contract	SECTION-VI	30 - 45
8.	Special conditions of contract	SECTION-VII	47 - 49
9.	Letter of Acceptance	SECTION-VIII	51 - 52
10.	Performa of bank guaranty	SECTION-IX	54 - 56
11.	Form for mobilization advance	SECTION-X	58 - 64
12.	Performa of measurement book, Performa of Running bill form, And Certificate	SECTION- XI	66 - 70
13.	Memorandum for payment	SECTION-XII	72 - 73
14.	Technical specification of materials	SECTION- XIII	75 - 120
15.	Approved material list	SECTION-XIV	122 - 129
16.	Tendered Drawings	SECTION- XV	12 sheets

2

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# SECTION - I

3

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## NOTICE INVITING TENDER

National Law University Odisha invites sealed Short tender from the contractor on item rate basis for the execution of Interior & Furnishing work for Girls hostel -II of proposed National Law University Campus at Kathajodi Campus, Naraj, Cuttack-753015, Odisha. Details of Tenders are as under.

- a. Name of the work : **Interior & furnishing work, Fire fighting System, WI-Fi and LAN Networking System for the Girls Hostel-II**, National Law University, Kathajodi Campus, Naraj, Cuttack, Odisha.
- b. Time allowed for completion : Work **75 days** for the total work from the date of issue of LOI.

The completion time period towards the interior & furnishing work of Girls' hostel – II shall be 75 days from the date of LOI/ work order issued. The total interior & furnishing works divided into two parts as Part – A and Part – B.

### Part - A

4

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Ground floor, First Floor and Second floor (**Block – A & C**) to be completed and operational in all respect on or before 21 days (3 Weeks) from the issue of LOI / Work Order.

**Part - B**

Balance interior & furnishing work includes Third floor of block (A & C) and Ground, First, Second and Third floor (Block-B) to be completed and operational in all respect 54 days from date of handing over site by NLUO.

Brief division of work will be done as follows :

Note: - For detail of block of Girls Hostel-II, Please refer Tendered Drawings

(I) INTERIOR FURNISHING AND FINISHING WORK :

- c. Earnest money deposit : Rs. **5,00,000.00** (Rupees Five Lakhs only)
- d. Security deposit : 5% of the contract value
- e. Cost of tender document : Rs. 10,000.00 + 5 % Odisha VAT = Rs. 10,500.00 (Rupees ten thousand Five Hundred only) ,DD (Demand Draft) in favor of “**The Registrar, National Law University Odisha.** payable at Cuttack.
- f. Sale of Tender Document : 20.05.2017 to 01.06.2017.
- g. Last date & time of receipt of Tender : 02.06.2017 at 3:00 P.M.
- h. Pre bid meeting : 26.05.2017, at NLUO, Naraj Site at 03:30 P.M.

5

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- i. Address at which the Tenders are to be submitted : The Vice Chancellor.  
National Law University Odisha .  
Kathajodi Campus, Naraj, Cuttack-753015, ODISHA
- j. Date & time of opening of Tenders 02.06.2017 at 04:00P.M.
- k. Place of opening Tender: At the office of the  
**The Vice Chancellor**  
National Law University Odisha.  
Kathajodi Campus, Naraj, Cuttack-753015, ODISHA
- l. Validity of offer. **75 days** from the date of handing over the site.
- m. Liquidated Damages. 1% of the estimated contract value shown in the Tender per week subject to a maximum of 5% of the accepted tendered amount.

In case the date of opening of Tender is declared as a holiday , the Tenders will be opened on the next working day at the same time.

National Law University Odisha has the right to accept / reject any / all Tenders without assigning any reasons.

**For and behalf of National Law University Odisha .**

**Technical Bid Criteria**

Reputed contractor who has successfully ongoing / completed similar works may apply on or before 31.04.2017 their Tender can only be opened.

1. Basic criteria for pre-qualification of contractor:

6

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- a. Intending contractor should have minimum 7 years experience in that same field.
- b. Intending contractor should have successfully completed one similar type of works in for Government/PSUs/ CPWD/PWD (State), / Corporate reputed corporate etc. during last seven years.
- c. Intending contractor should have successfully completed similar type of works as under as on 31.04.2017 for Government/PSUs/ CPWD/PWD (State)/ reputed corporate etc. during last three years. :
  - i. One similar works costing not less than Rs.**4.20 Crores Or,**
  - ii. Two similar works each costing not less than Rs. **3.15 Crores** or more **Or,**
  - iii. Three similar work each costing less than Rs. **2.65 Crores** or more in last five years.

Similar work means:- **Interior works, furnishing, Electrical work, Fire Fighting works, LAN and Wi-Fi system.**

- d. Intending contractors/ firms should have be financial capable and should submit solvency certificate for an amount of Rs. **50.0** Lakhs from any nationalized Bank.
- e. Annual turnover of the tenderer during any of the last three financial years ( 2014-2015, 2015-2016 and 2016-2017) should be at least Rs. **5. 3 Crores** (Rupees Five Crores and Thirty Lacks Only) **Or,** the total turnover in last 3 ( 2014-2015, 2015-2016 and 2016-2017) financial years as mentioned should be minimum **10.5 Cores.** (Rupees Ten crores and Fifty Lacks only)
- f. Intending contractor must have sufficient man power with experienced personnel, technical knowhow, Technical expertise, establishment, plant/equipment to complete the project well in time.

All the prescribed formats duly filled in with all necessary particulars as required there under along with attested copies of certificates/credentials in proof of the particulars filled on shall be submitted in a sealed cover super-scribed “Prequalification of contractor for Interior furnishing and finishing work of Girls Hostel - II of NLUO Campus at Naraj” on or before 03:00 P.M on dt: 01.06.2017 at the Office of **The Vice Chancellor, National Law University Odisha, Kathajodi Campus, Naraj, Cuttack-753015, ODISHA.**

3. Selection will be made based on particulars and documents furnished by the applicant as required and satisfactory verification carried out by the PMC / NLUO. Incomplete information in the application will lead to summary rejection. If any information furnished by the applicant is found incorrect at a later stage, they shall be liable to be debarred from Tender / taking up the work. NLUO reserves the right to verify the particulars furnished by the applicant independently.
4. Issue of Tender documents to the contractor will be restricted to those considered eligible from the applicant and no further press notice in this regard will be issued. NLUO reserves the right to accept or reject any or all applications without assigning any reasons whatsoever.
5. For any other clarifications, intending agencies may contact at the office of **The Registrar, National Law University Odisha** in above mentioned address before the last date of submission during working hours as mentioned above.
6. Incomplete applications and applications not filled properly with requisite details are liable for rejection and NLUO will not entertain any further communication in such cases.
7. The NLUO reserves the right to accept or reject any or all applications without assigning any reasons whatsoever.
8. Pre-bid meeting with all contractor shall be held at NLUO site at Cuttack, on dt 26.05.2017 at 3:30 PM. at **National Law University Odisha, Kathajodi Campus, Naraj, Cuttack-753015, ODISHA** at Cuttack, wherein contractor can clarify any doubts /discrepancies in documents Tendered Drawings , and indicate only missing or any item taken extra in the description of item, Tendered Drawings or any details conveying different meaning at different places, other missing details or any missing item in Tendered Drawings / Specifications / Conditions. All queries needs to be put up in writing to the “ The Vice Chancellor, NLUO, Cuttack. No further clarifications shall be given by NLUO and contractor shall not claim any extra payment in future. Also contractor shall not be entitled for any claim on such issues at later date.

All the queries should be brought out during the Pre-bid meeting only in writing, on which the compliance to be made by NLUO against the agency quires shall be annexed as a part of tender.

All the queries shall be deliberated and corrective action if any shall be taken during the Pre- Bid meeting.

**Any addendum thus issued shall be part of the bidding documents and shall be notified in the website [www.nluo.ac.in](http://www.nluo.ac.in).**

9. No interest shall be paid on Earnest Money Deposit and Retention money or any other securities.
10. The contractor should have executed similar works as an integrated project which includes interior work along with Electrical works, firefighting system LAN and Wi-Fi system.
  11. **The contractor is to quote the rates without any taxes and duties.**
  12. **The taxes and duties will be paid extra to the agencies/contractors as per prevailing Govt. rates.**

### **TENDERS SHOULD BE SUBMITTED AS FOLLOWS :**

1. Tenders are to be submitted on the printed forms issued by NLUO. The contractor should quote the rates in figures as well as in words. Special care should be taken to write the rates in figures in such a way that interpolation is not possible. The total amount should be written both in figures and in words . In case of figures, the words . “Rs” should be written before the figure of rupees and words “p” after the decimal figures e.g. Rs. 2.15 “p” and in case of words, the word “Rupees” should precede and the word “Paise” should be written at the end, Unless the rate is in whole rupees and followed by the words “only” it should invariably be upto two decimal places . While quoting the rate in schedule of quantities , the words “Only” should be written closely following the amount and it should not be written in the next line. The amount of each item shall be worked out and the requisite total shall be given. All corrections shall be attested by the initials of the Tenderers . In case of any discrepancy / difference, the rate quoted in words in the original copy of the Tender and the amount derived there from shall prevail and be binding . If the rates in words are not written, the Tender will be rejected.
2. Tenders which should be placed in sealed cover with the name of the project and date of opening of Tenders written on the envelopes will be received by the office of the Vice Chancellor, National Law University Odisha, Kathajodi Campus, Naraj, Cuttack-753015, ODISHA Upto 02.06.2017 at 03:00 P.M. in a sealed envelope of appropriate size containing the documents as under:
3. ENVELOPE MARKED “PART-A”

Envelope marked “PART-A” shall contain the following Documents :

- a. Forwarding letter without mentioning the cost of the Tender value arrived at with quoted rates.

- b. Earnest money deposit furnished in the form of Crossed demand Draft / Banker's cheque drawn in favor of **“The Registrar, NATIONAL LAW UNIVERSITY ODISHA”** and payable at Cuttack for the amount indicated in the Tender Call Notice.
- c. Any comment which the Tenderer desires to make in the form of a statement as brief as possible and with reference to the items.
- d. Latest three years attested photocopies of upto date Income Tax and Sales tax Clearance Certificate.
- e. The term and conditions which are of commercial and technical nature if any as per the conformation in the pre bid meeting to be enclosed as annexure – “PB”
- f. Any other papers the Tenderers wishes to submit towards qualification.
- g. Class contractor submission of documents showing:
  - 1. Nature and names of the firm.
  - 2. Previous project done with documentary support.

**4. ENVELOPE MARKED “PART-B”**

Envelope marked” PART-B” shall contain the Priced Tender in duplicate –Marked “ORIGINAL” & “DUPLICATE”, on the body of the Tender paper issued Non compliance of this provision may result in rejection of the Tender .

**5. ENVELOPE MARKED “PART-C”.**

Envelope marked No-PART “A” & “B” shall be put in large envelope of adequate size marked “PART-C” which shall be properly sealed. This envelope, which shall be, endorsed on the outside face **“TENDER CALL NOTICE FOR INTERIOR AND FURNISHING WORK OF GIRLS HOSTEL-II FOR NATIONAL LAW UNIVERSITY CAMPUS WORKS AT KATHAJODI CAMPUS, NARAJ, CUTTACK-753015, ODISHA”**.

Outer envelope (Marked “PART-C”) containing the separate Tender documents as mentioned herein above shall be opened in the office of the The Vice Chancellor, National Law University Odisha , Kathajodi Campus, Naraj, Cuttack-753015, ODISHA. on 02.06.2017 at 04:00 P.M in the presence of the representatives of the PMC and of those tenderers who chose to remain present.

Envelope “PART-A” containing earnest money deposit shall be opened first and if the Earnest money deposit is not found as prescribed in the Tender the same shall be rejected and other sealed envelope will be returned unopened to the representatives of the concerned Tender if present. Then the covering letter without mentioning the Tender amount arrived from the quoted rates and other documents as specified herein above will be scrutinized and comments/conditions which has financial implication will be evaluated and the same may be discussed with the Tenderers if required so.

The date of opening of Envelope “PART-B” containing the priced Tender in original and duplicate will be intimated to the qualified bidders for attending the same with date and time by NLUO.

The acceptance of the tender will be made by the N.L.U.O., N.L.U.O will announce the name of the contractor whose Tender is accepted. No reason will be given for acceptance / rejection of the Tenders.

**The Vice Chancellor  
National Law University Odisha  
Kathajodi Campus, Naraj, Cuttack-753015, ODISHA**

# SECTION - II

12

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**ANNEXURE -I**

**PARTICULARS OF THE FORM TO BE  
FURNISHED FOR THE PURPOSE OF  
PRE-QUALIFICATION OF CONTRACTOR**

- 1) Name of the Organization :
- 2) Address :
- 3) Year of Establishment :
- 4) Status of the firm :  
(Whether Company/Firm/Proprietary) :
- 5) Name of Director/Proprietor :  
i)

13

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ii)

iii)

6) Whether registered with the register of Companies/  
Registrar of Firms. If so, mention number and date.

7) a) Name and address of Bankers.

i)

ii)

iii)

iv)

b) Enclose Solvency Certificate from the Bankers.

c) Furnish the details of NPA or dispute with Bankers, if any.

8) Whether registered for sales tax purposes. If so, mention number and date. Furnish also copies of sales tax clearance certificate.

9) Whether an assessee of Income Tax. If so, mention permanent account number.

10) Furnish copies of audited Balance Sheet and Profit & Loss Account (Audited) for the last three years i.e., as on 31.03.15, 31.03.16 & 31.03.17.

11) If you are registered in the panel of other Organizations/Statutory Bodies, such as CPWD, PWD.MES, Banks etc., furnish their names, category and date of registration.

14

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- i) ii)
- iii) iv)
- v) vi)

12) Detailed description and value of works done during last 7 years  
(As per Performa – 1 in a separate sheet)

13) Specify turnover in last 3 years. In Rs. Crores

2016-17  
2015-16  
2014-15

14) Furnish the names with address of three responsible persons who will be in a position to certify about the quality as well as past performance of your organization.

- i)
- ii)
- iii)

15) Furnish the details of the litigation, if any, with the employers.

16) Other relevant information (As per Performa – 2 & 3)

15

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It is certified that the information furnished is authentic. We understand that the Bank reserves the right to reject any or all applications without assigning any reasons thereof.

Date:

(Signature of the applicant)  
Including title & capacity  
In which application is made with seal.

Place:

**Note:** Where copies are required to be furnished these is to certified copies preferably by the concerned agencies or a Government Officer.

**Enclosure to Annexure I**

**PROFORMA – 1**

**PARTICULARS IN RESPECT OF WORKS EXECUTED DURING LAST 7 YEARS (See the note below)**

Sl No	Name of work/Project with Address	Short Description of work Executed	Name & Address of Owner	Value of Work Executed	Stipulated time of Completion With date of commencement	Actual time of Completion with date of completion	Name of Architect/ Consulting Engineer with Phone & Mobile no.
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>

16

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**Note: Attested copies of work completion certificates issued by the employer to be enclosed for verification by the NLUO/PMC.**

**Name and Signature with Seal**

**Enclosure to Annexure I**

**PROFORMA – 2**

**KEY PERSONNEL PERMANENTLY EMPLOYED.**

<b>Sl No.</b>	<b>Name</b>	<b>Designation</b>	<b>Qualification</b>	<b>Experience</b>	<b>Years With the Firm</b>	<b>Any other</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**Name and Signature with Seal**

# **SECTION - III**

18

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**Enclosure to Annexure I**

**ARTICLES OF AGREEMENT**

(Subject to Approval by NLUO )

This agreement is made on the \_\_\_\_\_ day of \_\_\_\_\_ 2017 between “NATIONAL LAW UNIVERSITY ODISHA” represented by its VICE CHANCELLOR \_\_\_\_\_ (hereinafter called “NLUO”) which expression shall include their representatives, executors, administrators and assignees of the ONE PART AND M/s \_\_\_\_\_ a Company registered under Companies Act of 1956 having its registered office at \_\_\_\_\_ represented by its \_\_\_\_\_ (herein called “-CONTRACTOR ) which expression shall include his/their heirs principle partners, executors, administrators and assignees of the OTHER PART.

19

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WHEREAS NLUO is desirous of constructing NLUO Project at Kathajodi Campus, Naraj, Cuttack-753015,, ODISHA and has caused Tendered Drawings, Specifications, terms and conditions, Description of works , etc. describing the work to be done.

AND WHEREAS the said Tendered Drawings, specifications, terms & conditions, , Description of works etc. have been signed by or on behalf of the parties here to.

AND WHEREAS THE CONTRACTOR has agreed and accepted to execute upon and subject to the conditions set forth herein and to the conditions set forth in contract conditions all of which are collectively (hereinafter referred to as “The said Conditions”), the works shown upon the said Tendered Drawings and described in the said specifications therein amounting to the sum of Rs.\_\_\_\_\_ (Rupees \_\_\_\_\_) or such other sum as shall become payable hereunder (hereinafter referred as The Said Contract Amount).

AND WHEREAS THE CONTRACTOR has deposited Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) as Earnest Money for the Proposed Interior furnishing and finishing work of NLUO, to be retained with NLUO for the due performance of this Agreement.

**NOW IT IS HEREBY AGREED AS FOLLOWS:**

1. In consideration of the lump sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) to be paid at the time and in the manner set forth in said conditions CONTRACTOR will upon and subject to the said conditions execute and complete the works shown upon the said Tendered Drawings and such further detailed Tendered Drawings as may be furnished to them by NLUO and described in the said specifications and the said Description of works including rectification of any defect therein inconformity in all respect with the provision of the contract.
2. NLUO shall pay to CONTRACTOR they said Contract amount of Rs.\_\_\_\_\_ (Rupees \_\_\_\_\_) or such other sum as shall become payable at the time and the manner hereinafter specified in the said conditions as authorized by NLUO.

3. The said Tendered Drawings, Description of works and conditions of contract and other documents herein mentioned shall form the basis of this CONTRACT , and the decision of the said NLUO as mentioned in the conditions of contract in reference to all matters of dispute as to the materials, workmanship, the intended or interpretation of the clause of this Agreement, or any other document attached hereto shall be final and binding.
  
4. The following documents shall be deemed to form and be read and constructed as an integral part of the Agreement. (Viz)
  - (i) This form of Agreement.
  - (ii) Letter of Intent \_\_\_\_\_ dt. \_\_\_\_\_
  - (iii) Tender schedule, Tender Call Notice, Form of Tender, Conditions of Contract, Specifications and Tender Tendered Drawings.
  - (iv) Following Correspondence.
    - (a) \_\_\_\_\_
    - (b) \_\_\_\_\_

and the parties hereto will respectively abide by and submit themselves to the Conditions and stipulations and perform the agreements on their parts respectively in such conditions, specifications.
  
5. NLUO AND THE CONTRACTOR bind themselves, and successors in interest, executors, administrators and assigns of administers and assigns of such other party in respect of all covenants of this Agreement.
  
6. The said contract comprise the works above mentioned and all subsidiary works connected therewith within the same site, as may be ordered to be done from time to time by the said NLUO even though such works may not be shown on the Tendered Drawings or described in the said specifications or the Description of works but may be fairly intended for Successful completion & functioning of the project. This is a fixed cost contract and no escalation is payable. Abnormal increase in the cost of materials or abnormal delay in completion of the project shall not be compensated for by escalation. It is explicitly instructed that the Interior contractor shall provide for all necessary assistances as supply of tools, machinery, materials to all and such other agencies directly engaged by NLUO in time for the execution and completion of the Works.

7. NLUO reserves to himself the right of altering the Tendered Drawings and nature of work and of adding to or omitting any items of work or of having portions of the same carried out departmentally or otherwise be carried out without prejudice to this contract and the contractor shall not be entitled to any remuneration or compensation on such work. The contractor shall not have any right to object to same.
8. The contractor shall not assign, sublet or transfer his/their interest in this agreement without the written consent of NLUO.
9. The contractor shall afford every reasonable facility to the representatives of the said NLUO for inspection, checking or otherwise to the site to enable them to find out the actual carrying out of all works in the manner laid down in the said conditions.
10. If the contractor shall fail to comply with any of his obligations hereunder or shall he wind-up or his business shall be dissolved or any receiver is appointed or any attachment is made in respect of any of his properties or the contractor shall otherwise fail or neglect to complete the said work within the stipulated period, then or on the happening of any such event the “NLUO” shall be entitled to cancel this Contract and to get the unfinished work done at the cost & risk of the contractor / by a third party & if NLUO suffers any Losses in this regard NLUO shall look to the contractor for the same viz., payment or reimbursement to such losses. The decision of the said NLUO in regard to the quantum of such losses will be final and binding on parties hereto. Upon such termination of this Contract or there shall be adjustment of any payment made to contractor by NLUO the sub - contractor / supplier shall, if required refund any such amounts to NLUO.
11. Time shall be considered as the essence of this CONTRACT and THE CONTRACTOR hereby agrees to commence the work in accordance with the said conditions and to complete the entire and all the works connected there to or as ordered from time to time within the time period stipulated herein and to execute the same diligently and consistently throughout the entire time period so specified and the contractor shall strictly adhere to the detailed programme for completion of work.
12. All disputes arising out of or in any way connected with this agreement shall be deemed to have arisen in Cuttack and only the courts of Cuttack shall have jurisdiction to determine the same.

13. All payments by NLUO under CONTRACT will be made at NLUO, Office of “The Vice Chancellor” NLUO . The contractor is required to open a Bank account in the same bank as of NLUO for timely payments.
14. The taxes and duties will be paid extra to the agencies/contractors as per prevailing govt. rates.
15. It is the responsibility of the contractor to ensure timely depositing of sales tax on work contract tax as per the prevailing rate during the tenure of contract period. The contractor shall be responsible for any delayed/partial payment of WCT, VAT, service Tax and all other taxes as required under statute and other prevailing laws.
16. Contractor shall provide the vouchers for full quantity of any of the material brought for the project whenever asked by NLUO and be inclusive of Service tax and VAT in the rates.
17. The Contractor will carry out the testing of any of the materials at his own cost from a recognized laboratory as approved by NLUO as per the relevant IS Codes before it is used in the work.
18. All parts of this contract have been read to us and fully understood by us.

As witness thereof the parties hereto have hereunto set their hands the day and year first above written.

Signed by the said NLUO: \_\_\_\_\_

In the presence of witness:

Name: \_\_\_\_\_ Name: \_\_\_\_\_

Occupation : \_\_\_\_\_ Occupation : \_\_\_\_\_

Address : \_\_\_\_\_ Address : \_\_\_\_\_

Signed by the said CONTRACTOR: \_\_\_\_\_

In the presence of witness:

Name: \_\_\_\_\_ Name: \_\_\_\_\_

Occupation : \_\_\_\_\_ Occupation : \_\_\_\_\_

Address : \_\_\_\_\_ Address : \_\_\_\_\_

# SECTION - IV

## FORM OF TENDER

To

**The Vice Chancellor**

25

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National Law University Odisha ,  
Kathajodi Campus, Naraj, Cuttack-753015,, ODISHA.

Sub : Tender for **Interior furnishing and finishing work of Girls Hostel-II** for National Law University Odisha at  
Kathajodi Campus, Naraj, Cuttack-753015, ODISHA.

Dear Sir,

I/We, have seen the site, read and examined and clearly understood the content in the following documents related to the Interior furnishing and finishing work of Girls Hostel-II for National Law University Odisha at CUTTACK, ODISHA.

- a) Tender Call Notice.
- b) Instruction to the Tenderers.
- c) Articles of Agreement.
- d) General conditions of contract.
- e) Special conditions of contract.
- f) Particulars specifications and special clauses forming part of schedule of quantities.
- g) Tendered Drawings.
- h) Modifications/Amendments to the Tender Call Notice if any.

I/We hereby Tender for execution of the works referred to in the aforesaid document upon the terms and conditions contained or referred to there in and in accordance in all respects with the specifications, designs, Tendered Drawings and other relevant details at the rates quoted in Bill of Quantity and within the period of completion as stipulated in schedule.

26

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In consideration of I/We being invited to Tender, I/We agree to keep the Tender open for acceptance for ..... months from the due date of submission thereof and not to make any modifications in its terms and conditions which are not acceptable. A sum of Rs-----  
-----is hereby forwarded in the form of demand draft No. ----- dt.-  
----- issued by -----(name of Bank) as earnest money in favor of National Law University Odisha which amount is not to bear any interest. If I/We fail to keep the Tender open as aforesaid or make any modifications in the terms and conditions of the Tender which are not acceptable to National Law University Odisha , I/We agree that National Law University Odisha shall without prejudice to any other right or remedy be at liberty to forfeit the said earnest money absolutely. Should this Tender be accepted, I/We hereby agree to abide by and fulfill all the terms and conditions and provisions of the aforesaid documents.

If after the Tender is accepted, I/We fail to commence the execution of the works as provided for in the terms and conditions of the contract. I/We agree that National Law University Odisha shall without prejudice to any of their rights and remedies, be at liberty to forfeit the said earnest money absolutely.

Witness----- signature in the capacity of -----  
date ----- Duly authorize to sign the Tender on behalf of -----  
Address-----  
-----

Time -----  
Dated-----  
Telephone No.-----.

(Seal)

Tender submitted on ----- Before ----- P.M.

# SECTION - V

28

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## APPENDIX

1. Name of work : Interior and furnishing work for the Girls Hostel-II, National Law University Campus.
2. Location : At: Kathajodi Campus, Naraj, Cuttack-753015,, ODISHA
3. Scope of work : As above and further detailed in the General Conditions of contract.
4. Defects Liability Period : 12 (Twelve) months from the date of issuing of completion certificate.
5. Date of Commencement : 3 (Three) days from the date of issue of work order or the date of handing over site, whichever is later.
6. Time allowed for completion : Work 75 days for the total work from the date of issue of LOI.
7. Liquidated damages : 1% of the estimated contract value shown in the tender per week subject to maximum of 5% of the accepted tender amount.
8. Value of works for Interim certificate: Rs. .... subject to minimum of one bill in 15days.
9. Period of honoring Certificate : a) 15 (fifteen) days for R.A. Bills from the date of receipt of certificate from the Architect.
10. Total Security Deposit : 5% of the gross value of work done & claimed in each bill provided the total security deposit i.e. ISD+ retention money shall both together not exceeding 5% of the contract value or 5% of final bill whichever is more.

29

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11.Initial Security Deposit :

1% of the accepted contract amount which includes the EMD

# SECTION - VI

30

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## **GENERAL CONDITIONS OF CONTRACT.**

### **1.0. Definitions:**

“Contract means the documents forming the tender and the acceptance there of and the formal agreement executed between National Law University Odisha (client) and the contractor, together with the documents referred therein including these conditions , the specifications, designs, Tendered Drawings & instructions issued from time to time by the Architect/ N.L.U.O and all these documents taken together shall be deemed to form one contract and shall be complementary to one another.

1.1.1. In the contract the following expression shall, unless the context otherwise requires, have the meaning hereby respectively assigned to them.

1.1 “N.L.U.O” shall mean National Law University Odisha (client) having it’s office at Kathajodi Campus, Naraj, Cuttack-753015, ODISHA. & includes the client’s representatives, successors & assigns.

1.1.1(a). “PMC/ Consultant” shall mean “M/s. RATH ARCHITECTONIC”, Plot No. 104, Madhudaan Nagar, Unit-IV, Bhubaneswar-751001.

1.1.1(b). “PMC” shall mean “M/s. RATH ARCHITECTONIC”, Plot No. 104, Madhudaan Nagar, Unit-IV, Bhubaneswar-751001.

1.1.2. “Site in charge” shall mean an Engineer appointed by the N.L.U.O/PMC as their representative to give instructions to the contractor.

1.1.3. “The Contractor” shall mean the individual or firm or company whether incorporated or not, undertaking the works and shall include legal representative of such individual.

1.1.4. ‘Engineer’ shall mean the technical representative of the Architect/consultant.

31

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- 1.1.5. 'Tendered Drawings' shall mean the Tendered Drawings prepared by the PMC and then issued by the Engineer and referred to in the specifications and any modifications of such Tendered Drawings as may be issued by the Engineer from time to time 'Contract value shall mean the value of the entire work as stipulated in the letter of acceptance of tender subject to such additions thereto or deductions there from as may be made under the provision herein after contained.
- 1.1.6. 'Specifications' shall mean the specifications referred to in the tender and any modifications thereof as may time to time be furnished or approved by the architect consultant .
- 1.1.7. "Month" means calendar month.
- 1.1.8. "Week" means seven consecutive days.
- 1.1.9. "Day" means a calendar day beginning and ending at 00Hrs and 24 Hrs respectively.

## **2.1.0 DEFECT LIABILITY PERIOD**

**2.1.1** The Defect Liability Period shall commence from the date of virtual completion as mentioned in the Certificate of Virtual Completion issued by NLUO. The duration of the Defect Liability Period shall be One year after the date of issue of virtual completion certificate by NLUO to the Contractor. i.e. 15 days after all the works as per the scope of work including completion of all Interior furnishing and finishing work s are complete.

### **3.0 i) Letter of Acceptance**

Within the validity period of the Tender the N.L.U.O shall issue a letter of acceptance either directly or through the architect by registered post or otherwise depositing at the address of the Contractor as given in the Tender to enter into a Contract for the execution of the work as per the terms of the Tender. The letter of acceptance shall constitute a binding contract between the NLUO and the contractor.

### **ii) Contract Agreement**

On receipt of intimation of the acceptance of Tender from the NLUO/ PMC the successful tenderer shall be bound to implement the contract and within fifteen days thereof he shall sign an agreement in non judicial stamp paper of appropriate value.

#### **4.0 Liquidated damages:**

If the contractor fails to maintain the progress required to complete the work and clear the site including vacating their office on or before the contracted or extended date or completion without justification in support of the cause of delay or

- a. Delay in completion.
- b. The defect which suppose to be rectified as per the advice of National Law University Odisha / Project Management Consultant within the stipulated period.
- c. Non specified material.
- d. Payment of labour & statutory uses. And he may be called upon without prejudice to any other right of remedy available under the law to the NLUO on account of such breach to pay a liquidated damages at the rate of 1% of the contract value which subject to a maximum of 2% of the contract value.

#### **5.0 PAYMENT TERMS & CONDITIONS :**

85% of the total R.A. Bill submitted shall be paid within 7 (seven) working days from the date of submission of R.A. Bills to NLUO with a condition that PMC/PD will certify to pay the amount. The balance payment deducting the necessary statutory dues shall be paid only after complete verification of Bill by Project Management Consultant & National Law University Odisha. The rest payment will be made after verification of the bill with in 15days.

#### **6.0 PERFORMANCE GUARANTEE :**

The performance guarantee is 5% of the total contract value which is submitted in form of Bank Guarantee from a Nationalized Bank. Which is valid for 12 (twelve) months beyond the completion period which will be submitted with in the 7 days from the date of agreement as per the Performa enclose.

33

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## 7.0 Settlement of disputes and Arbitration.

- h. Except where otherwise provided in the contract all questions and disputes relating to own connection with the interpretation, execution or enforcement of the contract shall be refer to arbitration, abolition and conciliation Act 1996.
- ii thing whatsoever in any way arising out of or relating to the contract, designs, Tendered Drawings, specifications, estimates, instructions orders or these conditions or otherwise concerning the work or the execution or failure to execute the same whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter.

If the contractor considers that he is entitled to any extra payment or compensation in respect of the works over and above the amounts admitted as payable by the Architect or incase the contractor wants to dispute the validity of any deductions or recoveries made or proposed to be made from the contract or raise any dispute, the contractor shall give notice in writing of his claim, or dispute to the **Vice Chancellor**, National Law University Odisha, Kathajodi Campus, Naraj, Cuttack-753015, ODISHA and endorse a copy of the same to the PMC, within 30 (thirty) days from the date of disallowance thereof or the date of deduction or recovery. The said notice shall give full particulars of the claim, grounds on which it is based and detailed calculations of the amount claimed and contractor shall not be entitled to raise any claim nor shall the N.L.U.O be any way liable in respect of any claim by the contractor unless notice of such claim shall have been given by the contractor to the **Vice Chancellor**, National Law University Odisha, Kathajodi Campus, Naraj, Cuttack-753015, ODISHA in the manner and within the time as aforesaid. The contractor shall be deemed to have waved and extinguished all his rights in respect of any claim not notified to the **Vice Chancellor**, National Law University Odisha, Kathajodi Campus, Naraj, Cuttack-753015, ODISHA in writing in the manner and within the time aforesaid.

- ii) Except where the decision has become final, binding and conclusive in terms of the contract, all disputes or differences arising out of the notified claims of the contractor as aforesaid and all claims of the N.L.U.O shall be referred for adjudication through arbitration by the Sole Arbitrator appointed by the **Vice Chancellor**, National Law University Odisha, Kathajodi Campus, Naraj,Cuttack-753015, ODISHA. It will also be no objection to any such appointment that the arbitrator so appointed is a N.L.U.O Officer and that he had to deal with the matters to which the Contract relates in the course of his

34

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duties as N.L.U.O Officer. If the arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another sole arbitrator shall be appointed in the manner aforesaid by the said, **Vice Chancellor**, National Law University Odisha, Kathajodi Campus, Naraj, Cuttack – 753015, ODISHA. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.

It is a term of this contract that the party involving arbitration shall give a list of disputes with amounts claimed in respect of each disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator.

It is also a term of this contract that no person other than a person appointed by such National Law University Odisha, Kathajodi Campus, Naraj, Cuttack – 753015, ODISHA as aforesaid should act as arbitrator.

The conciliation and arbitration shall be conducted in accordance with the provisions of the arbitration & Conciliation Act 1996 or any statutory modification or reenactment thereof and the rules made there under.

It is also a term of the contract that the arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties calling them to submit their statement of claims and counter statement of claims. The venue of the arbitration shall be such place as may be fixed by the arbitrator in his sole discretion. The fees, if any, of the arbitrator shall , if required to be paid before the award is made and published, be paid half and half by each of the parties. The cost of the reference and of the award (including the fees, if any of the arbitrator) shall be in the discretion of the arbitrator who may direct to any by whom and in what manner, such costs or any part thereof, shall be paid and fix or settle the amount of costs to be so paid.

## 8.0 INTERIM PENALTY

8.1 The time allowed for carrying out the work as entered in the tender shall be strictly observed by the Contractor and shall be deemed to be of the essence of the contract on the part of the contractor and shall be reckoned from the 3rd day after the date on which the order to commence the work is issued to the Contractor or the date of handing over of site whichever is later.

35

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- 8.2 The work shall throughout the stipulated period of the contract be proceeded with all due diligence. Before commencing the work, the Contractor shall submit a detailed programme of work prepared in accordance with the aforesaid time schedule (Bar Chart), to the PMC, Project Director for approval. Upon NLUO's acceptance of the same, the Contractor shall proceed with the work with all the diligence and regularity. The work programme shall be verified on the first working day of each month by the Project Director, and in case it is not adhered to in any item of work stated therein, or the agreed programme remains uncommented, incomplete, or delayed, the Contactor shall be liable to pay compensation for interim delay, an amount of. Rs. 10,000 per day.
- 8.3 This amount shall be recovered from each interim bill of the Contractor, the deductions thus made being refunded only upon the Contractor making good the delay to bring the work in agreement with the detailed programme of work. However, if in the opinion of the NLUO, the delay (in any particular item of work in the whole) is of a minor nature only, and occurring due to reason beyond control, the amount so being withheld may be waived by NLUO at his sole discretion. Provided always that the entire amount withheld shall stand forfeited if the entire project is not completed by the due date or extended date of completion.

## **9. Total Security Deposit**

Total Security deposit comprises of  
Earnest money deposit  
Initial Security deposit  
Retention Money.

### **a) Earnest Money Deposit.**

- a. The tenderers will submit the earnest money of Rs 5,00,000.00 (Rupees Five lakhs Only) in the form of Demand draft.
- b. EMD in any other form other than as specified above will not be accepted. Tender not accompanied by the EMD is liable to be rejected.
- c. No interest will be paid on the EMD.

36

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- d. EMD of unsuccessful tenderers will be refunded within 15 days of award of contract.
- e. EMD of successful tenderer will be retained as a part of security deposit.

**b) Initial Security Deposit (ISD)**

The amount of ISD shall be 1% of accepted value of tender including the EMD in the form of D/D drawn on any Nationalized Bank and shall be deposited within 3 (three) days from the date of acceptance of tender.

**b) Retention Money**

Besides the ISD as deposited by the contractor in the above said manner, the retention money shall be deducted from the running account bills at the rate of 5% of the gross value of work done by the contractor and claimed in each such bill provided that the total security deposit i.e. the ISD plus Retention Money both taken together shall not exceed 5% of the contract value. Provided further that in the event, the cumulative gross value of work done exceeds the accepted value of tender, total security deposit shall not exceed 5% of such gross value. 50% of the total security deposit shall be refunded to the contractor without any interest on issue of Virtual Completion certificate by the Architect/consultant. The balance 50% of the total security deposit shall be refunded to the contractor without interest within fifteen days after the end of defects liability period provided the contractor has satisfactorily attended to all defects in accordance with the conditions of contract including site clearance.

**10.0. Refund of Security Deposit.**

10.1. No interest shall be paid on the amount retained by the N.L.U.O as Security Deposit.

- 10.2. 50% of the total security deposit shall be refunded to the contractor without any interest on issue of Virtual Completion certificate by the Architect/consultant. The balance 50% of the total security deposit shall be refunded to the contractor without interest within fifteen days after the end of defects liability period provided that the contractor has satisfactorily attended to all defects in accordance with the conditions of contract including site clearance.

### **11.0 Signing of the Contract Document.**

The Successful tenderer shall be bound to implement the contract by signing an agreement and condition of contract attached herewith within 3 days from the receipt of intimation of acceptance of his tender by the N.L.U.O. However, the written acceptance of the tender by the N.L.U.O will constitute a binding agreement between the N.L.U.O and successful tenderer whether such formal agreement is subsequently entered into or not.

### **12.0 Validity of Tender.**

Tender shall remain valid and open for acceptance for a period of 75 days from the date of opening of price bid. If the tenderer withdraws his/her offer during the validity period or makes modifications in his/her original offer which are not acceptable to the N.L.U.O without prejudice to any other right or remedy the N.L.U.O shall be at liberty to forfeit the EMD.

### **13. Ownership of Tendered Drawings**

All Tendered Drawings, specifications and copies thereof furnished by the NLUO through its architects / consultants are the properties of the NATIONAL LAW UNIVERSITY, ODISHA. They are not to be used for any work.

### **14. Insurance of works**

- 14.1 Without limiting his obligations and responsibilities under the contract the contractor shall insure the insurance is being covered in the joint names of the NLUO and the contractor against all loss of damages from whatever cause arising other than the excepted risks, for which he is responsible under the terms of contract and in such a manner that the NLUO and contractor are covered for the period stipulated and are

38

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also covered during the period of maintenance for loss or damage arising for a clause, occurring prior to the commencement of the period of maintenance and for any loss or damage occasioned by the contractor in the course of any operations carried out by him for the purpose of complying with his obligations under clause.

- a) The works for the time being executed to the estimated current Contract value thereof, or such additional sum as may be specified together with the materials for incorporation in the works at their replacement value.
- b) The constructional plant and other things brought on to the site by the contractor to the replacement value of such constructional plant and other things.
- c) Such insurance shall be effected with an insurer and in terms approved by the NLUO which approval shall not be unreasonably withheld and the contractor shall whenever required produce to the PMC/ Consultant the police if insurance and the receipts for payment of the current premiums.

#### **14.2 Damage to persons and property**

The contractor shall, except if and so far as the contract provides otherwise indemnify the NLUO against all losses and claims in respect of injuries or damages to any person or material or physical damage to any property whatsoever which may arise out of or in consequence of the execution and maintenance of the works and against all claims proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto except any compensation of damages for or with respect to :

- a) The permanent use or occupation of land by or any part thereof.
- b) The right of NLUO to execute the works or any part thereof on, over, under, in or through any lands.
- c) Injuries or damages to persons or properties which are unavoidable result of the execution or maintenance of the works in accordance with the contract.

- d) Injuries or damage to persons or property resulting from any act or neglect of the NLUO their agents, employees or other contractors not being employed by the contractor or for or in respect of any claims, proceedings, damages, costs, charges and expenses in respect thereof or in relation thereto or where the injury or damage was contributed to by the contractor, his servants or agents such part of the compensation as may be just and equitable having regard to the extent of the responsibility of the NATIONAL LAW UNIVERSITY, ODISHA, employees, or agents or other contractors for the damage of injury.

## **15. Third Party Insurance**

- 15.1** Before commencing the execution of the work the contractor but without limiting his obligations and responsibilities under clauses 24.0 of GCC shall insure against his liability for any material or physical damage, loss, or injury which may occur to any property including that of NATIONAL LAW UNIVERSITY, ODISHA, or to any person, including any employee of the NATIONAL LAW UNIVERSITY, ODISHA, by or arising out of the execution of the works or in the carrying out of the contract, otherwise than due to the matters referred to in the provision to clause 24.0 thereof.

### **15.2 Minimum amount of Third Party Insurance**

Such insurance shall be effected with an insurer and in terms approved by the NLUO which approval shall not be reasonably withheld and for at least the amount stated below. The contractor shall, whenever required produce to the PMC/ Consultant the policy or policies of insurance cover and receipts for payment of the current premiums.

**The minimum insurance cover for physical property, injury, and death is Rs.5.00 lakhs per occurrence with the number of occurrences limited to four. After each occurrence contractor will pay additional premium necessary to make insurance valid for four occurrences always.**

### **15.3 Accident or Injury to workman:**

40

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The NLUO shall not be liable for in respect of any damages or compensation payable at law respect or in consequence of any accident or injury or any workmen or other person in the employment of the contractor or any sub-contractor, save and except an accident or injury resulting from any act or default of the NLUO against all such damages and compensation, save and expect as aforesaid, and against all such damages and compensation, save and except as aforesaid, and against all claims, proceedings, costs, charges and expenses whatsoever in respect thereof in relation thereto.

**15.4. Insurance against accidents etc. to workmen**

The contractor shall insure against such liability with an insurer approved by the NLUO during the whole of the time that any persons are employed by him on the work and shall, when required, produce to the PMC/ Consultant such police of insurance and receipt for payment of the current premium. Provided always that, in respect of any persons employed by any sub-contractor the contractor's obligation to insure as aforesaid under this sub-clause shall be satisfied if the sub contractor shall have insured against the liability in respect of such be persons in such manner that NLUO is indemnified under the policy but the contractor shall require

such require sub-contractor to produce to the PMC/ Consultant when such policy of insurance and the receipt for the payment of the current premium.

**15.5 Remedy on contractor's failure to insure:**

If the contractor fails to effect and keep in force the insurance referred to above or any other insurance which he may be required to effect under the terms of contract, then and in any such case the NLUO may effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount so paid by the NLUO as aforesaid from any amount due or which may become due to the contractor, or recover the same as debt from the contractor.

**15.6 Without prejudice to the others rights of the NLUO against contractors. In respect of such default, the NLUO shall be entitled to deduced from any sums payable to the contractor the amount of any damages costs, charges and other expenses paid by the NLUO and which are payable by the contractors under this clause.**

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The contractor shall upon settlement by the Insurer of any claim made against the insurer pursuant to a policy taken under this clause, proceed with due diligence to rebuild or repair the works destroyed or damaged, In this event all the monies received from the Insurer in respect of such damage shall be paid to the contractor and the Contractor shall not be entitled to any further payment in respect of the expenditure incurred for rebuilding or repairing of the materials or goods destroyed or damaged.

**16.0 Commencement of Works:**

The date of commencement of the work will be reckoned as the date of handing over site by joint signature of contractor, PMC & NLUO or three days from the date of issue of letter of acceptance of the tender by the NLUO whichever is later.

**17.0 Time for completion**

Time is essence of the contract and shall be strictly observed by the contractor. The Work shall be completed within a period of 75 calendar days from the date of commencement work. If required in the contract or as directed by the Architect/ consultant. The contractor shall complete certain portions of work before completion of the entire work. However the completion date shall be reckoned as the date by which the whole work is completed as per the terms of the contract.

**18.0. No compensation or restrictions of work**

If at any time after acceptance of the tender NLUO shall decide to abandon or reduce the scope of work for any reason whatsoever and hence not required the whole or any part of the work to be carried out. The Architect/PMC/ shall give notice in writing to that effect to the contractor and the contractor shall act accordingly. In the matter. The contractor shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the work fully but which he did not derive in consequence of the foreclosure of the whole or part of the work.

Provided that the contractor shall be paid the charges on the materials carried only actually and confide brought to the site of the work by the contractor and rendered surplus as a result of the abandonment, curtailment of the work or any portion thereof and then taken back by the contractor, provided however that the NLUO shall have in such cases the option of taking over all or any such materials at their purchase price or a local current rate whichever is less.

“In case of such stores credit shall be given to him at the rates not exceeding those at which were originally issued to the contractor after taking into consideration and deduction for claims on account of any deterioration or damage while in the custody of the contractor and in this respect the decision of PMC/ Consultant shall be final.

**19.0 Suspension of work**

- i) The contractor shall, on receipt of the order in writing of the PMC/ Consultant (whose decision shall be final and binding on the contractor) suspend the progress of works or any part thereof for such time and in such manner as PMC/ Consultant may consider necessary so; as not to cause any damage or injury to the work already done or endanger the safety thereof for any of following reasons.
  - a) On account any default on the part of the contractor, or
  - b) For proper execution of the works or part thereof for reasons other than the default of the contractor, or
  - c) for safety of the works or part thereof.

The contractor shall, during such suspension properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the PMC/ Consultant.

- ii) If the suspension is ordered for reasons b) and c) in sub – Para I) above:

The contractor shall be entitles to an extension of time equal to the period of every such suspension. No compensation whatsoever shall be paid on this account.

## **20.0 Action when the whole security deposit is forfeited**

In any case in which under any clause or clauses of this contract, the Contractor by the PMC/ Consultant shall have the power to adopt any of the following course as they may deem best suited to the interest of the NATIONAL LAW UNIVERSITY, ODISHA..

- a) To rescind the contract ( of which rescission notice in writing to the contractor by the PMC/ Consultant shall be conclusive evidence) and in which case the security deposit of the contractor shall be forfeited and be absolutely at the disposal of NATIONAL LAW UNIVERSITY, ODISHA.
- b) To employ labour paid by the NLUO and to supply materials to carry out the work, or any part of the work, debiting the contractor with the cost of the labour and materials ( the cost of such labour and materials as worked out by the PMC/ Consultant shall be final and conclusive against the contractor) and 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 if it had been carried ;out by the contractor under the terms of this contract the certificate of PMC/ Consultant as to the value of work done shall be final and conclusive against the contractor.
- c) To measure up the work of the contractor, and to take such part thereof as shall be unexecuted, 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 certificates in writing of the PMC/ Consultant shall be final and conclusive) shall be borne by original contractor and may be deducted from any money due to him by NLUO under the contract or otherwise, or from his security deposit o the proceed of sale thereof, or sufficient part thereof. In the event of any of above courses being adopted by the NLUO the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any material or entered into any engagements or make any advances on account of, or with a view to the execution of the work or the performance of the contract and in case the contract shall be rescind under the provision aforesaid, the contractor shall not be entitled to recover or to be paid any sum or any work thereto for actually performed under this contract, unless, and until the PMC/ Consultant will have 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.

44

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**20.1 SECURED ADVANCE:**

Interest free secured advance of 75% (seventy-five percent) of the purchase price of the materials required for incorporation in the permanent works and brought to site shall be paid to the contractor on all non-perishable, non-fragile and non-combustible materials as per OPWD norms, on request by the contractor and accompanied by—(i) an indemnity bond fully covering the advance and (ii) account of all such materials duly signed by him and certified by PMC in the prescribed proforma along with (iii) insurance cover for the materials against theft, fire, damages and losses of any kind, (iv) documents evidencing purchase of the said materials, and (iv) authenticated copy of Stock Register for Secured Advance maintained under .

The contractor shall make all necessary arrangements for safe storing of the said materials at the site of the work at his cost and risk in a suitable godown, constructed by him at his cost free of all expenses to NLUO, securing the said materials against any possible damages and/or losses due to sun, rain, dampness, fire, theft, etc.

Such secured advance may be paid on items of perishable and fragile nature stored at site of the work for incorporation in the permanent works by the contractor upon approval by PMC and on submission of comprehensive insurance cover for the full cost of such materials along with all other documents, as aforesaid.

No secured advance shall, however, be paid on items which, in the opinion of PMC, are high risk materials such as ordinary glass, sand, petrol, diesel, lubricant, etc.

Secured advance paid shall be recovered in full from the amount due to the contractor against next RA Bill and without prejudice to the right of NLUO to recover any unrecovered amount of this advance from the contractor from any other amount due to it or from any other source.

**21.0 NLUO has right to terminate the contract**

If the contractor being an individual or a firm commit any ‘Act of insolvency’ or shall be adjusted an insolvent or being an incorporated company shall have an order for compulsory winding up voluntarily or subject to the supervision of Govt. and of the Official Assignee of the liquidator in such acts of insolvency of winding up shall be unable within seven days after notice to him to do so, to show to the reasonable

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satisfaction of the PMC/ Consultant that he is able to carry out and fulfill the contract, and to give security therefore if so required by the PMC/ Consultant.

Or, if the contractor (whether an individual firm or incorporated company) shall suffer execution to be issued or shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the contractor.

Or, shall assign or sublet this contract without the consent in writing of the NLUO through the Architect/ consultant or shall charge or encumber this contract or any payment due to which may become due to the contractor there under :

(a) has abandoned the contract; Or

(b) has failed to commence the work, or has without any lawful excuse under these conditions suspended the progress of the works for 14 (fourteen) days after receiving from the NLUO through the Architect/ Consultant written notice to proceed, or

I has failed to proceed with the works with such diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon. Or has failed to remove materials from the site or to pull down and replace work within seven days after written notice from the NLUO through Architect/ PMC that the said materials were condemned and reject by the PMC under these conditions. Or has neglected or failed persistently to observe and perform all or any of the acts, matters or things by this contract to be observed and performed by the contractor for seven days after written notice shall have been given to the contractor to observe or perform the same or has to the detriment of good workmanship or in defiance of the NLUO's or Architect's

Consultant's instruction to the contrary subject any part of the contract. Then and in any of said cases the NLUO and or the Architect/ consultant , may not withstanding any previous waiver, after giving seven days notice in writing to the contractor determine the contract, but without thereby affecting the powers of the NLUO or the Architect/ consultant or the obligation and liabilities of the contractor the whole of which shall continue in force as fully as if the contract had not been so determined and as if the works subsequently had

been executed by or on behalf of the contractor. And further the NLUO through the Architect/ Consultant their agents or employees may enter upon and take possession of the work and all plants, tools, scaffoldings, materials, sheds, machineries lying upon the premises or on the adjoining lands or roads use the same by means of their own employees or workmen in carrying on and completing the work or by engaging any other contractor or persons to complete the work and the contractor shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other contractor or other persons employed for completing and finishing or using the materials and plants for the work.

When the works shall be completed or as soon thereafter as convenient the NLUO or the Architect/ consultant shall give a notice in writing to the contractor to remove his surplus materials and plants and should the contractor fail to do so within 14 days after receipt thereof by him the NLUO sell the same by public auction after due publication, and shall adjust the amount realized by such auction. The contractor shall have no right to question any of the act of the NLUO incidental to the sale of the materials etc.

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CONTRACTOR  
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# **SECTION - VII**

## **SPECIAL CONDITIONS OF CONTRACT**

48

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## **Scope of work**

**1.0** The scope of work is to carry out all works in connections with Construction Interior and furnishing works of National Law University Campus Works at Kathajodi Campus, Naraj, Cuttack-753015, ODISHA.

### **2.0 Address of site**

The site is located at Kathajodi Campus, Naraj, Cuttack-753015, ODISHA.

### **3.0 Dimensions and levels**

All dimensions and levels shown on the Tendered Drawing shall be verified by the contractor on the site and he will be held responsible for the accuracy and maintenance of all the dimensions and the levels. Figured dimensions are in all cases to accepted and no dimension shall be scaled. Large scale details shall take precedence over small-scale Tendered Drawings. In case of discrepancy the contractor shall ask for clarification from the PMC/ Consultant before proceeding with the work.

### **4.0 Notice of operation**

The contractor shall not carry out any important operation without the Consent in writhing from the PMC/ Consultant/NLUO

### **5.0 Approved make**

The contractor shall provide all materials from the list of approved makes and ISI marked at his own cost and also appoint the agency for the waterproofing, anti-termite, aluminium doors ,etc. and any other item as specified in the Tender . The PMC/ Consultant may approve any make / agency within the approved as given at the time of Tender list as given in the Tender after inspection of the sample / mock up. The contractor will approve the makes from PMC minimum 30 working days before executing the works.

### **6.0 Procurement of materials**

49

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The contractor shall make his own arrangements to procure all required materials and ISI marked for the work. All wastages and losses in weight shall be to the contractor account.

## **7.0 Acceptance of Tender**

The NLUO shall have the right to reject any or all Tenders without assigning any reason. They are not to bound to accept the lowest or any Tender and the Tenderer or Tenderers shall have no right to question the act of the NATIONAL LAW UNIVERSITY, ODISHA. However adequate transparency would be maintained by the NATIONAL LAW UNIVERSITY, ODISHA.

**8.0** The Bidders must send offers only in the Tender document collected from the office of NLUO accepting the term & conditions mentioned and should enclose this tender document duly signed and stamped in each page along with their offer both in figures and words along with their acceptance of the terms & conditions of NLUO otherwise the offer will be summarily rejected.

**9.0** Information regarding Tendered Drawings and designs can be obtained from office of the Architect , At – Plot No. 104, Madhusudan Nagar, Unit –IV, Bhubaneswar-751001. Ph. No. 0674-2390940,

**10.**In case of any changes in design as per the site condition the Tendered Drawing shall supersede the B.O.Q enclosed the tender.

**11.**One year AMC(Annual Maintenance Contract) shall be taken by the contractor at his own cost for **Firefighting, Water cooler, Water purifier , Furniture ,Wi-Fi system, LAN networking**. The AMC date will be considered from the date of handing over of site to NLUO.

**12.**The warranty given by the manufacturing company on any material to be used at site by the contractor shall be in the name of the “Vice Chancellor National Law University, Odisha”.

50

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- 13.**The contractor should study the Tendered Drawings properly and visit the site for analyzing the site condition before quoting the rates.
- 14.**During AMC Period , the contractor will repair the defective materials within 24 Hrs after getting complain from NLUO. If the contractor fails to repair the same then NLUO will recover 5times the amount required for repairing the material from the contractor.

# SECTION - VIII

52

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PROFORMA OF LETTER OF ACCEPTANCE OF TENDER  
**REGISTERED A.D.**

To,  
M/s .....  
.....  
.....

Dear Sirs,

**NAME OF THE WORK**

Please refer to your letter No. \_\_\_\_\_ dated \_\_\_\_\_ on the captioned subject. We are pleased to inform that your Tender for the above mentioned work has been accepted by our clients NLUO at the rates quoted by you for a total cost of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_)

In this connection, it may please be noted that the following letters will form part of the contract document:

- i) Your letter No. \_\_\_\_\_ dated \_\_\_\_\_ addressed to \_\_\_\_\_
- ii)
- iii)
- iv)

You are requested to call on us to execute the formal agreement within 05 days from the date of issue of this letter of acceptance or the date of handing over the site whichever is later.

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You are requested to submit Initial Security Deposit of Rs. \_\_\_\_\_ by means of DD drawn in favor NLUO within a period of 7 days from the date of issue of this letter.

You are also requested to start the work at once in consultation with PMC/NLUO. Work 75 days for the total work from the date of issue of LOI.

The completion time period towards the interior & furnishing work of Girls' hostel – II shall be 75 days from the date of LOI/ work order issued. The total interior & furnishing works divided into two parts as Part – A and Part – B.

**Part - A**

Ground floor, First Floor and Second floor (**Block – A & C**) to be completed and operational in all respect on or before **21 days (3 Weeks)** from the issue of LOI / Work Order.

**Part - B**

Balance interior & furnishing work includes Third floor of block (A & C) and Ground, First, Second and Third floor (Block-B) to be completed and operational in all respect **54 days** from date of handing over site by NLUO.

Please note that time will be the essence of the contract.

You are further requested to take out necessary insurance covers, indemnity bonds, labour permissions at your cost in terms and conditions of the contract.

Please acknowledge receipt of this letter.

Architects

COPY to Vice Chancellor of NLUO , for information.

Place :.....

Date :.....

# SECTION - IX

55

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**PERFORMANCE BANK GUARANTEE**

1. Whereas the NLUO and M/s .....(herein after referred to as contractor) have come to an agreement for construction of Interior Furnishing & Finishing Work of Girls Hostel-II for NLUO, vide letter no. NLUO/Wks/.....dated.....
2. And whereas, as per the terms of the contract executed the contractor is to furnish performance BG for.....(5% for contract value) valid up to Virtual Completion Certificate (12 months).

**NOW THEREFORE THESE WITNESS**

3. We (Name of the Bank ) (herein after referred to as the Bank) in consideration of NLUO, having agreed to pay the contractor at rates as provided in the agreement executed between them, hereby agree with NLUO.
4. We.....(Bank) do hereby undertake to pay the amount due and payable under this guarantee without any Demur, merely on a demand from Board, stating that the amount claimed is due by way a loss or damage caused to or would be caused to or suffered by the NLUO, by reason or any breach by the said agreement or by reason of the contractor's failure to perform the said agreement. Any such demand made on the Bank, shall be conclusive as regards the amount due and payable by the Bank, under this guarantee. However, our liability under this BG shall be restricted for any amount not exceeding value of this BG.
5. We.....(Bank) further agree that the guarantee herein contained, shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till NLUO certifies that the Terms & Condition of the said agreement has been full and properly carried out by the said contractor and accordingly discharged the guarantee. The Bank understood that the Onus of extending the validity of BG in time, as per the requirement of NLUO is with the contractor.

56

NLUO  
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6. That it will, in the event of the contractor, failing to honor any of the conditions stipulated in its agreement OR in the event of the contractor not completing the work as per specification and Tendered Drawing, or in the event of the contractor committing breach of the contract or any provision these off or in the event of the contact failing to renew this guarantee, at any time during the course of contract and settlement of account including the period covered by its extension, pay to NLUO without any Demur on mere demand by D.G. NLUO, the sum or Sums which in the opinion of the Vice Chancellor. NLUO, the contractor is liable to pay NLUO. Any such demand made on the Bank, shall be conclusive as regards, the amount due and payable by the Bank under the guarantee. However our liability under the BG shall be restricted to an amount not exceeding Rs.....
7. We.....(Bank) further agree with NLUO that the NLUO shall have the fullest liberty without effecting in any manner our obligation here under to vary any of the Terms & Condition of the said agreement or to extend time of performance by the contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the NLUO against the said contractor and to forbear or enforce any of the Terms & Condition relating to the said agreement and we shall not to the relieved from our liability by reasons of any such variation or extension, being granted to the said contractor or for any forbearance , act or omission on the part of NLUO or any indulgence by NLUO to the said contractor or by any such matter or thing, whatsoever which under law relating to sureties would but this provision have effect of so reliving us. We .....undertake not to revoke this guarantee during its currency except with the previous consent of the NLUO in writing.
8. That as to whether occasion has arisen for the demand of the amount covered by BG, the decision of Vice Chancellor, shall be final and accepted by the Bank without any reference to the contractor.
9. That this BG, shall be enforceable against the Bank as a first charge and not available to be appropriated by the Bank towards claims, if any due, to the contractor. That to give effect to the guarantee, the Vice Chancellor NLUO shall be at liability to act as, though the Bank were the principal debtors.
10. NLUO's rights to recover the said amount will not be affected or compounded due to any dispute raised by Contractor or to that any dispute is pending before any officer, Courts, Arbitrator/Umpire. This BGB shall in all respects and for all purpose be binding and operative till the validity including extended period. If required, NLUO may ask for extension of this period of BGB during its validity. In case the period of BGB is not extended by the Bank on receiving the intimation from NLUO then

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PMC  
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the letter of extension shall be treated as non-encashment of BGB and the Bank shall remit the amount to NLUO. For enforcing legal rights/remedies under this BGB the Courts of High court, Cuttack jurisdiction.

11. And that the Bank shall not revoke the BG during its currency except with the previous consent in writing of the Vice Chancellor, NLUO and agree that any change in the constitution of the said contractor or said Bank shall not discharge our liability hereunder. This BGB shall in all respect and for all-purpose be binding and operative till the validity including extended period. It shall not be necessary for the NLUO to proceed against the contractor before proceeding against the Bank and the guarantee herein contained shall be enforceable against the Bank notwithstanding any security, which the Board may have obtained from the contractor.
12. That this BG shall be enforceable against the Bank or a first charge and not available to be appropriated by the Bank towards claim, if any due to the contractor. That forgive effect for the guarantee the Vice Chancellor, NLUO shall bear liability to act as though the Bank were the principal debtors.
13. That this BG shall be in full force for a period of twelve months from \_\_\_\_\_ and it will hold goods for all demands make by Vice Chancellor, NLUO.

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CONTRACTOR  
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# SECTION - X

59

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PMC  
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**LETTER OF GUARANTEE FOR MOBILISATION ADVANCE  
(TO BE STAMPED AS A SECURITY BOND)**

The Vice Chancellor  
National Law University Odisha .  
kathajodi Campus, Naraj,  
Cuttack - 753015, ODISHA

Dear Sirs,

N.L.U.O's Proposed National Law University Campus Works at Kathajodi Campus, Naraj, Cuttack-753015,.

**WHEREAS**

(1) You have awarded a contract for civil work in respect of the construction of your N.L.U.O's own National Law University Campus Works at Kathajodi Campus, Naraj, Cuttack-753015 to our constituents \_\_\_\_\_ a Company / firm having its registered office/office at \_\_\_\_\_ (hereinafter referred to as "the Contractors", which expression shall include its successors and assigns) in terms of which the National Law University Odisha has agreed to advance to the contractors a sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) as and by way of mobilization advance in order to enable them for making arrangements for producing necessary materials for the construction work and for tools, plant, equipment, etc.

60

NLUO  
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PMC  
SIGNATURE AND SEAL

CONTRACTOR  
SIGNATURE AND SEAL

- (2) The Contractors have vide their letter dated \_\_\_\_\_ requested the National Law University Odisha to grant them a sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) as and by way of mobilization advance which the National Law University Odisha has agreed to grant subject to the terms and conditions as set out in their letter No. \_\_\_\_\_ dated \_\_\_\_\_.
- (3) One of the terms of the said letter dated \_\_\_\_\_ requires the Contractors to furnish bank guarantee satisfactory to the National Law University Odisha to secure the said advance.
- (4) It is agreed by and between the parties to the said contract that the said bank guarantee may be furnished by us.

NOW THEREFORE THIS LETTER OF GUARANTEE WITNESSES that in consideration of the National Law University Odisha on our request agreeing to advance a sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) as a and by way of mobilization advance subject to the terms and conditions as set out in the National Law University ODISHA 's letter No. \_\_\_\_\_ dated \_\_\_\_\_ addressed to the Contractor, we the (Name of bank) hereby agree and undertake to the National Law University ODISHA as follows:

- (i) that the Contractors shall duly perform and discharge their obligations under the said contract to the full satisfaction of the National Law University ODISHA and that they shall utilize the said mobilization advance exclusively for the purpose of making preliminary construction of the aforesaid project for the National Law University Odisha at Kathajodi Campus, Naraj, Cuttack-753015, and for no other purpose.
- (ii) that in case the Contractors do not repay principal amount or pay the interest on said advance on the due dates or do not present their Running Bills for payment to the National Law University Odisha so that the National Law University Odisha is not in a position to adjust the said advance from out of the bills payable to the contractors or the contractors fail to repay the said advance or pay interest thereon or any part thereof on due dates or on demand, by the National Law University Odisha or on the occurrence of any of the events specified in the said contract that may lead to the termination of the contract, we the (Name of the bank) hereby guarantee and undertake to pay to the National Law University Odisha on demand without demur the said sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) or such unadjusted portion thereof together with interest @ \_\_\_\_\_ % per annum accrued due thereon within a period of one week from the date of receipt of the demand from the National Law University Odisha .

- (iii) that any statement made by the National Law University Odisha and the amount mentioned in the demand notice given to us shall not be called in question by us and shall be a conclusive proof regarding the amount that is payable by us under this guarantee and that we shall not demand any proof thereof.
- (iv) that we will make the payment pursuant to the demand notice issued by the National Law University Odisha , notwithstanding any dispute that may exist or arise between the National Law University Odisha and the Contractors or any other person.
- (v) that this guarantee shall not be revoked by us without prior consent in writing of the National Law University Odisha .

WE HEREBY FURTHER AGREE THAT:

- (a) any forbearance, act or omission on the part of the National Law University Odisha in enforcing any of the conditions of the said contract or granting of any time or the showing of any indulgence by the National Law University Odisha to contractors in respect of the completion of the building or any other matter in connection therewith shall not discharge us in any way and our obligations under this guarantee shall be discharged only by payment in full of the sums guaranteed hereunder.
- (b) Our liability under these presents shall not exceed the sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) and interest @ \_\_\_\_\_% per annum accruing due thereon.
- (c) Our liability under this guarantee shall not be affected by any infirmity or irregularity on the part of the contractors in entering into the said contract or by the dissolution or change in the constitution of the contractor firm.
- (d) Our liability under these presents will terminate on the issue of the Virtual

Completion Certificate by the Architects/N.L.U.O pursuant to the said contract and unless a claim, suit or action is filed against us within 6 months thereafter all the rights of the National Law University Odisha against us under this guarantee shall be

forfeited and we shall be released and discharged from all our obligations and liabilities hereunder.

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PMC  
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CONTRACTOR  
SIGNATURE AND SEAL

Yours faithfully,  
For and on behalf of  
(National Law University Odisha)  
(Authorized Official)

**N.B.:** This guarantee will require stamp duty as applicable in the state, where it is executed and shall be signed by the official whose signature and authority shall be verified.

### **MOBILISATION ADVANCE**

At the request of the Contractor mobilization advance to a maximum of 10.0 % (Ten Percent) of the contract amount against Bank Guarantee from a Nationalized Bank shall be paid by NLUO . This shall be paid in two equal installments against equivalent Bank Guarantee . The First Installment of mobilization advance of 5 % ( five percent) of contract value shall be paid at the time of award of work and on certification of proper and satisfactory mobilization at site. Balance mobilization advance of 5% (five) of contracts value against Bank Guarantee bonds from Nationalized Bank shall be payable after submitting the 1<sup>st</sup> RA bill. However the first installment of mobilization advance will be released on the finalization of bar chart duly approved by NLUO and signed by the Contractor, and Project Director, receipt of certificate from Project Director and Architect/ PMC regarding satisfactory mobilization at site.

### **RECOVERY OF MOBILISATION ADVANCE**

Total mobilization advance shall be recovered from the RA bills In Pro-rata basis when the work done value reaches 15% of the contract value till the work done value reaches 85% of the contract value.

### **Certificate of Payment**

The contractor shall be entitled under the certificates to be issued by the NLUO to the contractor within 10 working days from the date of certificate to the payment from NLUO from time to time . The NLUO shall recover the statutory recoveries other dues including the retention amount from the certificate of payment.

The scrutiny committee can verify as and when required after verified by PMC.

Provided always that the issue of any certificate by the Architect/ consultant during the progress of works or completion shall not have effect as certificate of satisfaction or relive the contractor from his liability under clause.

The PMC/Consultant shall have power to withhold the certificate if the work or any part thereof is not carried out to their satisfaction.

The PMC/ Consultant may be any certificate make any correction required in previous certificate.

The NLUO shall modify the certificate of payment as issued by the Architect/ consultant from time to time while making the payment.

The contractor shall submit interim bills only after taking actual measurement and properly recorded in the measurement Book.

The contractor shall not submit interim bills when the approximate value of work done by him less than **50 lacs** and the minimum interval between two such bills shall be fifteen days.

The final bill may be submitted by contractor within a period of one month from the date of virtual completion and Architect/ Consultant shall issue the certificate of payment within a period of two months. The NLUO shall pay the amount within a period of three months from the date of issue of certificate provided there is no dispute in respect of rates and quantities.

The contractor shall submit the interim bills in the prescribed format with all details.

**CERTIFICATION OF FINAL BILL:**

The agency shall submit the following documents :

- a. As built drawings

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PMC  
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CONTRACTOR  
SIGNATURE AND SEAL

- b. Warranty, literature, test certificate and all other related document for equipment and other building materials are used before going for joint inspection and final measurement for the purpose of handing over to NLUO.

**39.0 Settlement of disputes and Arbitration.**

- i. Except where otherwise provided in the contract all questions and disputes relating to own connection with the interpretation, execution or enforcement of the contract shall be refer to arbitration, abolition and conciliation Act 1996
- ii Thing whatsoever in any way arising out of or relating to the contract, designs, Tendered Drawings, specifications, estimates, instructions orders or these conditions or otherwise concerning the work or the execution or failure to execute the same whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter.

If the contractor considers that he is entitled to any extra payment or compensation in respect of the works over and above the amounts admitted as payable by the Architect or incase the contractor wants to dispute the validity of any deductions or recoveries made or proposed to be made from the contract or raise any dispute, the contractor shall forthwith give notice in writing of his claim, or dispute to the **Vice Chancellor**, National Law University ODISHA, Kathajodi Campus, Naraj,Cuttack-753015, ODISHA and endorse a copy of the same to the Architect, within 30 (thirty) days from the date of disallowance thereof or the date of deduction or recovery. The said notice shall give full particulars of the claim, grounds on which it is based and detailed calculations of the amount claimed and contractor shall not be entitled to raise any claim nor shall the N.L.U.O be any way liable in respect of any claim by the contractor unless notice of such claim shall have been given by the contractor to the **Vice Chancellor**, National Law University ODISHA, kathajodi Campus, Naraj, Cuttack - 753015, ODISHA in the manner and within the time as aforesaid. The contractor shall be deemed to have waved and extinguished all his rights in respect of any claim not notified to the **Vice Chancellor**, National Law University ODISHA, kathajodi Campus, Naraj, Cuttack - 753015, ODISHA in writing in the manner and within the time aforesaid.

- ii) Except where the decision has become final, binding and conclusive in terms of the contract, all disputes or differences arising out of the notified claims of the contractor as aforesaid and all claims of the N.L.U.O shall be referred for adjudication through arbitration by the Sole Arbitrator appointed by the **Vice Chancellor**, National Law University ODISHA kathajodi

65

NLUO  
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PMC  
SIGNATURE AND SEAL

CONTRACTOR  
SIGNATURE AND SEAL

Campus, Naraj, Cuttack - 753015, ODISHA. It will also be no objection to any such appointment that the arbitrator so appointed is a N.L.U.O Officer and that he had to deal with the matters to which the Contract relates in the course of his duties as N.L.U.O Officer. If the arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another sole arbitrator shall be appointed in the manner aforesaid by the said, **Vice Chancellor**, National Law University Odisha, kathajodi Campus, Naraj, Cuttack - 753015, ODISHA. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.

It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator.

It is also a term of this contract that no person other than a person appointed by such National Law University Odisha, kathajodi Campus, Naraj, Cuttack - 753015, ODISHA as aforesaid should act as arbitrator.

The conciliation and arbitration shall be conducted in accordance with the provisions of the arbitration & Conciliation Act 1996 or any statutory modification or reenactment thereof and the rules made there under.

It is also a term of the contract that the arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties calling them to submit their statement of claims and counter statement of claims. The venue of the arbitration shall be such place as may be fixed by the arbitrator in his sole discretion. The fees, if any, of the arbitrator shall , if required to be paid

before the award is made and published, be paid half and half by each of the parties. The cost of the reference and of the award (including the fees, if any of the arbitrator) shall be in the discretion of the arbitrator who may direct to any by whom and in what manner, such costs or any part thereof, shall be paid and fix or settle the amount of costs to be so paid.

**NOTWITHSTANDING ANY THING CONTAINED HEREIN**

1. Our liability under the Bank Guarantee shall not exceed Rs.....(Rs.....)

66

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PMC  
SIGNATURE AND SEAL

CONTRACTOR  
SIGNATURE AND SEAL

2. This Bank Guarantee shall be extended on receipt of letter for extension without getting confirmation from the contractor.
3. We are liable to pay the guaranteed amount or any part thereof, under this BG, only if you serve upon us a written claim or demand within six months from the date of expiry of the guarantee or extended date of expiry of this guarantee, all our liability under this BG shall stand discharged.

In witness whereof, we the undersigned official of the Bank who is /are duly authorized in this behalf as per the rules of the Bank, hereby set my/our hand and seal to this .....day of .....

## **SECTION - XI**

67

NLUO  
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SIGNATURE AND SEAL

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**PROFORMA OF MEASUREMENT BOOK**

**1<sup>st</sup> page:**

NATIONAL LAW UNIVERSITY ODISHA

.....office,

Measurement Book No.

(Pages 1 to .....)

This book is issued to Shri.....

68

NLUO  
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PMC  
SIGNATURE AND SEAL

CONTRACTOR  
SIGNATURE AND SEAL

Signature of Vice Chancellor , NLUO

Certified that this book contains.....pages

Signature of the official

To whom the book is issued

**MEASUREMENT BOOK**

PAGES NOS. 1 TO .....

Item No.	Description	Measurements. No. L B D/H	Quantity	Remarks

Site Engineer NLUO .

Architect/Consultant.

Contractor

69

NLUO  
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PMC  
SIGNATURE AND SEAL

CONTRACTOR  
SIGNATURE AND SEAL

Checking/Test checking Engineer

Date of checking/Test checking

**NOTE:**

Checking and test checking pertains to items wherever initialed.

**I – RUNNING A/C BILL FORM**

i) Name of Contractor/Agency :

ii) Name of work :

iii) Sr. No. of this bill :

iv) No. and date of previous bill :

v) Reference to Agreement No. :

70

NLUO  
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PMC  
SIGNATURE AND SEAL

CONTRACTOR  
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vi) Date of written order to commerce :

vii) Date of completion as per agreement :

Sl. no.	Item Description	Unit	Rate (Rs.)	<u>As per tender</u> Qty. Amount (Rs.)
1	2	3	4	5

<u>Up to previous R/A Bill</u> Qty. Amount (Rs.)	<u>Up to date (Gross)</u> Qty. Amount (Rs.)	Present Bill Qty. Amount (Rs.)	Remark
6	7	8	9

Note: 1) If part rate is allowed for any item, it should be indicated with reasons for allowing such a rate.

2. If adhoc payment is made, it should be mentioned \_\_\_\_\_ Net value since previous \_\_\_\_\_ specifically.  
Bill

**CERTIFICATE**

The measurements on the basis of which the above entries for the Running Bill No.\_\_\_\_ were made have been taken jointly on \_\_\_\_\_ and are recorded at pages \_\_\_\_\_ to \_\_\_\_\_ of measurement book No.\_\_\_\_\_.

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71

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Signature and date of Contractor

Signature and date of PMC

Signature and date of site engineer.

The work recorded in the above-mentioned measurements has been done at the site satisfactorily as per tender Tendered Drawings, conditions and specifications.

Architect/Consultant.

Site Engineer/ N.L.U.O's Engineer

### **3 NOS OF FORMAT FOR SUBMISSION OF R.A BILL**

#### ANNEXURE – I

<b>DEVIATION APPROVAL FORMAT</b>									
<b>Name of the Project:</b>									
<b>W.O/ LOI No. &amp; Date:-</b>									
<b>Sl. No</b>	<b>DESCRIPTION OF ITEM</b>	<b>QTY AS PER BOQ</b>	<b>QTY AS EXECUTED AS ON DATE</b>	<b>DEVIATED QT</b>	<b>REASON FOR DEVIATION</b>	<b>DOCUMENTS/ CORRESPONDANCE/ DIRECTIONS APPROVAL BY PMC/NLUO</b>	<b>VERIFICATION &amp; CERTIFICATION</b>	<b>APPROVAL/SIGNATURE BY NLUO IF NOT ALREADY OBTAINED</b>	<b>REMARKS</b>

72

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**ANNEXURE – II**

<b>EXTRA ITEM APPROVAL FORMAT</b>								
<b>Name of the Project:</b>								
<b>W.O/ LOI No. &amp; Date:-</b>								
<b>Sl. No</b>	<b>DESCRIP TION OF EXTRA ITEM</b>	<b>QTY AS EXECUTED AS ON DATE</b>	<b>RATE</b>	<b>SUBMISSI ON OF RATE ANALYSI S</b>	<b>VERIFICATION AND CERTIFICATION OF RATE ANALYSIS</b>	<b>REASON FOR EXTRA ITEMS</b>	<b>APPROVAL/SIGNA TURE BY NLUO IF NOT ALREADY OBTAINEDOBTAIN ED</b>	<b>REMAR KS</b>

**ANNEXURE – III**

<b>DRAWING TRACKING FORMAT</b>								
<b>Name of the Project:</b>								
<b>W.O/ LOI No. &amp; Date:-</b>								
<b>SL. NO</b>	<b>B.O.Q. ITEM</b>	<b>QTY DEVIATIO N/EXTRA ITEM</b>	<b>REASO N FOR DEVIAT ION /EXTRA ITEM</b>	<b>G.F.C. DRAWIN G NO</b>	<b>REVISION OF DRAWING WITH DWG NO</b>	<b>REASON FOR DRAWIN G REVISION</b>	<b>APPROVAL/SIGNA TURE BY NLUO IF NOT ALREADY OBTAINED</b>	<b>REMAR KS</b>

**Note: All the running bill shall be submitted along with the formats as annexed – I, II and III duly seal and sing. NLUO forward the R.A bill to PMC for verification, PMC shall verify the R.A bills forward by NLUO. NLUO shall give technical/ administrative approval before on verify / certify format.**

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# SECTION - XII

## MEMORANDUM FOR PAYMENT

R. BILL No. \_\_\_\_\_

- |     |   |           |
|-----|---|-----------|
| 1.  | Total amount due since previous bill (D) (A+B)* | Rs. _____ |
| 2.  | <u>DEDUCTIONS:</u>                              |           |
| (i) | Secured advance paid in the previous R.A. bill  | Rs. _____ |

74

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(ii)	Retention money on value of works as per accepted tenders : upto date amount	Rs. _____
	Less : Already recovered	(-) Rs. _____
	Balance to be recovered	Rs. _____
		Rs. _____
(iii)	Mobilization advance, if any	
(a)	Outstanding amount (Principal + interest) as on date	Rs. _____
(b)	To be recovered in this bill	Rs. _____
(iv)	Any other departmental material cost to be recovered as per contract, if any	Rs. _____
(v)	Any other departmental service charges to be recovered if any, as per contract (water, power etc.) Enclose statement	Rs. _____
	Total deduction as per contractor	Rs. _____ (-)
		Rs. _____
	Net amount payable as per contract (E-F)	Rs. _____ (G)

(Rupees ..... ) in words

The bill amounting to ..... (both figures and words) has been checked after due test check of the measurement of works as required and is recommended for payment.

Dated signature of N.L.U.O's Engineer  
In charge of the project

**STATUTORY DEDUCTIONS:**

1. Total amount due (E) Rs. \_\_\_\_\_

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2. Less : Income Tax payable Rs. \_\_\_\_\_  
NET PAYABLE : Rs. \_\_\_\_\_

The figure given in the Memorandum for Payment has been verified and the bill passed for payment  
..... (words and figures).

Date : .....

\_\_\_\_\_  
Signature of NLUO Officer

# SECTION - XIII

## INTERIOR AND FURNISHING WORKS

**NOTE:** IN ALL CASES THE TENDERED DRAWINGS/DETAIL TENDERED DRAWINGS SHALL SUPERSEDE THE B.O.Q.

77

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**ALL WORKING TENDERED DRAWINGS SHALL BE SUBMITTED AT THE TIME OF EXECUTION OF WORK.**

**TECHNICAL SPECIFICATION OF MATERIALS**

1. Materials shall be of the approved quality best obtainable. A list of materials of approved brand and manufacturer is indicated in the annexure. Testing of materials of approved brand may have to be done at the decision of Architect & NLUO. In case, some reason or other materials are required to be obtained from any manufacturer other than those listed, then prior approval from Architects/NLUO will be necessary supported by relevant test certificates qualifying the required standard. Further tests as directed by the N.L.U.O/Architect's Engineer shall also be carried out by the supplier at their own cost, if required.
2. Sample of all materials shall be got approved by Employee/Architect before placing order & the approved sample shall be carefully preserved in an appropriate manner at the site office for verification from time to time.
3. For standard bought out item, the size manufactured by the firms listed shall prevail when there is discrepancy in the size mentioned in the schedule without any financial adjustment.
4. It shall be obligatory for the supplier to furnish certificate, from manufacturer or the material supplier, that the work has been carried out by using their material and as per their recommendations.

**CARPENTARY AND JOINERY WORKS**

**1.0 HARDWARE FITTING :**

The hardware fitting iron or aluminum /brass shall be obtained from approved manufacturer and invariable is ISI stamped the M.S. iron fitting are to be oxidized & aluminum fittings anodized in natural color mat satin finish even if not otherwise specified. Floor spring, SS Handle (25 x 450/200/150 ), SS 304 Mortice Lock – one side key and one side knob/Keyless, Dead lock, SS 304 Concealed tower bolt (8”), SS 304 Door stopper, Door silencer, SS 304 grade ball bearing hinge (5”), and other hardware fittings for doors shall be as provided and included for in the works and of such quantities and finishes as specified by Architect & NLUO. or as in the Tendered Drawings, mostly out of stainless steel matt finish of the best quality & make as approved by the NLUO./Architect The Hardware number, size etc. shall be as per the hardware schedules shown on Tendered Drawings and the contract documents. The hinges for the door shutters shall be out of Stainless steel matt finish , each shutter

78

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having minimum three nos. of 125 mm size with ball bearing for smooth operation. All the locks of internal doors shall be of approved brand as recommended by Architect & NLUO, tower bolts stainless steel matt finish 200 x 19mm /150 x 19mm size one each fitted to the top on the inside of the doors, 100 mm long rubber bushed door stopper with steel 25mm dia. Three anchor fastner shall be fixed to each post of the door frame . The M.S. anchor fastner shall be of 150mm as required at site and shall be fixed to the frames by means of screws and not nails . The other end of the anchor fastner shall be fixed into jambs with [1:2:4] P.C.C. of dimensions as directed. M.S. sheets shall be provided and fixed on corners with screws. Whenever asked for metal fastener or bolts as directed shall be used for rough ground, framing, hangers etc.

The rates quoted for wood and joinery work shall include the cost for all types of anchor fastner or other approved fasteners, cement grouting and fixing to frame work with screws etc all complete including materials, wastages , labour, T&P hoisting and fixing in position at all heights and depths, Supplying two coats of creosote /so lignum air seasoning of wood.

## **2.0 MS DOOR:**

Fabrication and supply of MILD STEEL DOORS with Single Leaf outer frame made of 35x35x5 mm equal M.S L angle and shutter frame made of 25 x25 x5mm equal M.S. L angle for horizontal and vertical members and the shutter frame strengthened by stiffeners of 2 Nos. Horizontal and 3 Nos. diagonal using MS flat of size 20x5mm fully covered with 18 gauge plain M.S full sheet welded with shutter frame neatly and also fixing by welding 6 Nos. of holdfasts, 1 No. of wind appliance , 2 Nos. of tower bolts,1 No of aldrop,2 Nos of handles, fixing the shutter with 6 Nos. of hinges with outer frame of the door including painting the whole unit with two coat of best quality of red oxide primer and enamel paint of approve shade.

## **3.0 FLUSH DOOR:**

Supplying and fixing BWR grade Flush Doors shutter 30 mm thick with block wood construction and ply veneering on both side conforming to IS : 2202.

(i) **32mm thick Flush Doors shutter partly glazed finished with decorative laminate :-**

The Flush Door shutter shall be finished with 1mm thick decorative laminate of approved shade (conforming to I.S : 2046-1995) on both sides including 32 X 6 mm teakwood beading all round the edges and 6mm thick glass to be inserted as per Tendered Drawing etc., all complete as per the Tendered Drawing and direction of Engineer-in-charge. Necessary groove design to be provided as per Tendered Drawing.

**(ii) 32mm thick Flush Doors shutter finished with decorative laminate :-**

The Flush Door shutter shall be finished with 1mm thick decorative laminate of approved shade (conforming to I.S : 2046-1995) on both sides including 32 X 6 mm teakwood beading all round the edges as per Tendered Drawing etc., all complete as per the Tendered Drawing and direction of Engineer-in-charge. Necessary groove design to be provided as per Tendered Drawing.

**(iii) 30mm thick Flush Doors shutter finished with enamel paint both sides :-**

The Flush Door shutter shall be finished with enamel paint both sides of approved shade (conforming to I.S : 2046-1995) on both sides including 30 X 6 mm teakwood beading all round the edges as per Tendered Drawing etc., all complete as per the Tendered Drawing and direction of Engineer-in-charge. Necessary groove design to be provided as per Tendered Drawing.

**(iv) Paneled door**

The teak wood Paneled door shall be made of 35mm thick style top bottom and medium rail ,panel of 16mm thick plank with necessary beading etc and surface shall be finished with melamine polish.

**4.0 PLYWOOD:**

Used mainly for the bodywork of furniture, shall be even or similar close grained plywood suitable for veneering, painting or bonding laminate. It will be a phenol bonded, boil water resistant and powder proof ply confirming to IS:303.

**5.0 PATCH FITTING DOOR:**

80

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Supplying and fixing of 12 mm thick approved make toughened glass with etching design fixed with help of patch fitting (spider fitting) to hold the glass as per manufacturer specification all complete as per Tendered Drawing and direction of Engineer-in-charge etc.

## **6.0 WALL CLADDING:**

Supplying and fixing of wall cladding with 12mm. ply fixed to 19mm. Block board frame of 600 x 600 mm interval surface finished with 4.0 mm thick veneer with melamine polish of approved shade and teakwood beading as per Tendered Drawing and design etc all complete as per instruction of Engineer in – charge.

Supplying and fixing of wall cladding with 12mm. ply fixed to 19mm. Block board frame of 600 x 600 mm interval surface fixed with 1mm. laminate of approved shade and teakwood beading as per Tendered Drawing and design etc as per instruction of Engineer in - charge.

## **7.0 PARTITION BOARD:**

Supplying and fixing of full height partition using Aluminum frame 50 mm x 25 mm as indicated in the Tendered Drawing ,intermediate, verticals runner/posts ,horizontal and shall be fixed to floor ,ceilings and walls etc. with suitable size of screws plugs and fixing 6 mm water proof ply on both side over the Aluminum frame work with screws at adequate interval and fixing both sides with 1 mm laminate (matt finish) of approved make and shade and 6 mm thick float glass to be fixed with teak wood beading wherever necessary including all materials ,labour and hardware as per Tendered Drawing and specification and direction of Engineer-in-charge.

Supplying and fixing of full height partition using Aluminum frame 50 mm x 25 mm as indicated in the Tendered Drawing ,intermediate, verticals runner/posts ,horizontal and shall be fixed to floor ,ceilings and walls etc. with suitable size of screws plugs and fixing 6 mm water proof ply on both side over the Aluminum frame work with screws at adequate interval and fixing both sides with 1 mm laminate (matt finish) of approved make and shade and(12 mm clear float glass for 1350 mm height and 5.5 mm clear float glass for 2100 mm height),75 mm x12 mm thick teak wood moulding(polished) on top of the partition including all materials ,labour and hardware as per Tendered Drawing and specification and direction of Engineer-in-charge.

81

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**7.0 NAME PLATE OVER BUILDING : (STAINLESS STEEL)**

Supplying and fixing of name plates over building shall be of 3d SS 304 grade letters of base height made out of SS plate at all location and height including all material, labour, T&P royalties, taxes, wastage, transportation, installation etc. all complete. The height of letter should be 900mm and width is 800mm(appx.).

Supplying and fixing of name plates over building shall be of 3d SS 304 grade letters of base height made out of SS plate at all location and height including all material, labour, T&P royalties, taxes, wastage, transportation, installation etc. all complete. The height of letter should be 600mm and width is 475mm(appx.).

**8.0 NAME PLATE OVER DOOR : (STAINLESS STEEL)**

Supplying and fixing of name plates of size 100mm x 300mm over officer's and teachers chamber door shall be of specified size as per Tendered Drawing and design made out of 316 L grade matt finish stainless steel plate with single colour embosed letters which shall be fixed to the door / partition wall using 12 mm x 25 mm stainless steel stud all complete as per direction of Engineer-in-charge. The job is comprising of all material, labour, T&P royalties, taxes, wastage, transportation, installation etc. all complete.

**9.0 NAME PLATE OVER DOOR : (ACRYLIC SHEET)**

Supplying and fixing of name plate of size 100mm x 300mm over class rooms, house keeping, toilet ,lift, etc. doors shall be of specified size as per Tendered Drawing and design made out of Acrylic sheet embosed with single colour letters which shall be fixed to the door / partition wall using 12 mm x 25 mm stainless steel stud all complete as per direction of Engineer-in-charge. The job is comprising of all material, labour, T&P royalties, taxes, wastage, transportation, installation etc. all complete.

**10.0 ROLLER BLINDS :**

82

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Supplying and fixing of roller blinds of approved colour and make at specified area made of 100% Polyester with a weight of 255g/sqm / 210g/sqm(+\_5%),fabric thickness of 0.60/0.33 mm(+\_0.05)in required width over windows. The hanging properties of blinder should be of excellent quality and of very high tearing strength with acrylic coating resistant to cracking and fraying ,conditionally cleanable with a damp cloth. The cost including of all materials, labours, T&P, taxes, royalties, transportation etc. all complete as per the direction of Engineer-in-charge.

#### **11.0 KEY HIVE :**

Supplying and fixing of KEY HIVE of size 600 mm x 450 mm made of 12mm thk plywood and finished with 1.0mm thk laminate from outside. Glass shutter with lock to be provided and inside to be finished with soft board and J hooks ( 1.5" c/c) fixed to it. The cost including of all materials, labours, T&P, taxes, royalties, transportation etc. all complete as per the direction of Engineer-in-charge.

#### **12.0 WATER COOLER SYSTEM:**

Providing and fixing of water cooler system of size 461 X461X1441 having cooling capacity 40lts/hrs, storage of 80 lts,2 taps for cold water,auto controlled temperature, Propeller type condenser Fan 230Volts avg single phase, 3m to 12m head for water,15 amps 3-pin plug for power connection, 12.7mm BSP connection for inlet of water, 25.4 and 12.7mm outlet connection for drains of approved make. The key features includes IN-SITU PUF insulation, ECO-friendly refrigerant, high efficiency heat transfer coil, Speedy drainage, stainless steel tank, trough and faucets, Adjustable parts for easy leveling, Faster cooling, Partial stainless steel(PSS),compact space saving design and food grade plastic parts.

The cost including of all materials, labours, T&P, taxes, royalties, transportation etc. all complete as per the direction of Engineer-in-charge.

#### **13.0 WATER PURIFIER SYSTEM (CAPACITY- 15Lt/Hr):**

Supplying and fixing of water purifier of approved make suitable for online purification for water cooler. The purification capacity is 15 ltr/hr with twin membrane1812. The water will be purified by RO + UF + UV + TDS Control. Wall mountable

with transparent cover for protection of parts. It shall be Equipped with hydrostatic tank. The cost shall be including of all materials, labours, T&P, taxes, royalties, transportation etc. all complete as per the direction of Engineer-in-charge.

**14. BOOK SHELVES:**

Providing and fixing of Wall hung Book shelve of size 1200 X 450X 600 made out of 19mm ply with 1 mm. laminate both side finished with 1mm laminate of approved shade, edge covered with 6mm teakwood beading/PVC edge binding fitted with hinges, S.S100mm handle including labour all complete and as per the direction of Engineer In Charge.

**14.0 STUDY TABLE(600mm x950mm x 750mm):**

Supplying and fixing of study table with 25mm thick post forming top,19 mm Block Board top, vertical and modesty with one drawer and necessary teak wood beading with melamine polish all around. The exposed surface finished with 1mm laminate and inside finished with enamel paint all complete as per detail drawing. The cost including of all materials, labours, T&P, taxes, royalties, transportation etc. all complete as per the direction of Engineer-in-charge.

**15.0 :**

Supplying of fabric upholstery, polyureathene foam for study chair having tilt tension adjustment, fixed armrest, five pronged metal pedestal etc., all complete and as per the direction of Engineer-in-charge.

**16.0 M.S BED:**

Providing and fixing of approved make single bed in rooms made up with mild steel and the cost is including of all materials, labours, T&P, taxes, royalties, transportation etc. all complete as per the direction of Engineer-in-charge. The bed sample must be approved by PMC from the make list of Tender document

## **17.0 CURTAINS:**

Supplying and fixing of window curtain of approved design properly stitched with loops and pleat to be fixed to the drapery rod of S.S finish and necessary bracket .The cost including of all materials, labours, T&P, taxes, royalties, transportation etc. all complete as per the direction of Engineer-in-charge. Cloth to be approved by PMC/NLUO.

## **18.0 WARDROBE:**

Supplying and fixing of wardrobe of size 2100 X 550 X 1000 made out of 19mm B/B both side finished with 1mm laminate of approved shade with teak wood leaping/PVC edge binding, SS hinges, SS handle on doors, oval type hanger rod, magnetic catcher, etc all complete and as per the direction of Engineer In Charge.

## **INTERNAL PAINTING WORKS**

### **1.1 TECHNICAL SPECIFICATION OF MATERIALS**

Materials shall be of the approved quality best obtainable. A list of materials of approved brand and manufacturer is indicated in the annexure. Testing of materials of approved brand may have to be done at the decision of Architect & NLUO.

1. In case, some reason or other materials are required to be obtained from any manufacturer other than those listed, then prior approval from Architects will be necessary supported by relevant test certificates qualifying the required standard. Further tests as directed by the PMC shall also be carried out by the contractor at their own cost, if required.
2. Sample of all materials shall be got approved by NLUO/Architect before placing order & the approved sample shall be carefully preserved in an appropriate manner at the site office for verification from time to time.
3. For standard bought out item, the size manufactured by the firms listed shall prevail when there is discrepancy in the size mentioned in the schedule without any financial adjustment.
4. It shall be obligatory for the contractor to furnish certificate, from manufacturer or the material supplier, that the work has been carried out by using their material and as per their recommendations.
5. No material will be supplied by NLUO only the site will be handed over to contractor for work.

85

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6. The contractor will have his own store of their risk and cost. NLUO/PMC is not responsible to any missing, thief of the item of the contractor.

## **1.2 PAINTING :**

Approved paints, shall be brought to the site of work by the Contractor in their original containers in sealed condition. The materials shall be brought in at a time in adequate quantities to suffice fro the whole work or at least a fortnight's work. The empties shall not be removed from the site of work, till the relevant item of work has been completed and permission obtained from the PMC/NLUO.

### **Acrylic Emulsion Paint**

Paint shall be of approved quality and shades Surface preparation, etc application shall be as per clause 1.4. Two coats of Acrylic emulsion paints shall be applied as per manufacturer's specification. The surface on finishing shall present a flat velvety smooth finish. The Sample must be approved by PMC.

### **Synthetic Enamel Painting**

Surface preparation shall be by hand cleaning. Primer shall be zinc chromate or zinc phosphate (pigmented in alkali or phenolic medium of approved make, of minimum 38 microns dry film thickness. The coats of synthetic enamel paint of approved make, of total 100 microns DFT shall be applied as directed by the PMC. The Sample must be approved by PMC.

### **Weather coat Painting**

Providing and applying 2 coats acrylic based weather coat paint (exterior quality) of approved make, which includes two coat of exterior putty over a coat of primer of approved brand & shade over the surfaces including preparation of surface, with cost of all materials, labour, conveyance, taxes, royalties, scaffolding, watering, curing, sundries, tools and plants, etc., as per the direction of the Engineer-in-charge.

## **1.3 COMMERCIAL WORK :**

86

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Painting shall not be started until the Consultant/ Owner has inspected the items of work to be painted, satisfied himself about their proper quality and given his approval to commence the painting work. The rooms should be thoroughly swept out and the entire building cleaned up at least one day in advance of the painting work being started. The contractor will give a letter to PMC for inspection before starting the painting work and the PMC will also approve the same by letter.

#### **1.4 PREPARATION OF SURFACE :**

##### **Preparation and application of Putty.**

Putty will be prepared as under. It shall be prepared from English whiting chalk, linseed oil, white zinc and Plaster of Paris in the prop. of 7:1:2:1. However, exact proportion shall be decided as per site condition. Water, if required, can be added as per the instructions and requirements to have proper consistency and stickiness. Putty should be smooth and free from any coarse ingredient, etc.

Application of putty should be started only after approval of surface area by the Engineer. It should be applied on the whole surface to make the surface smooth. No lumps should be allowed to dry completely.

After drying, the surface should be scraped with sand/emery paper till smooth surface is obtained.

If no proper smoothness is obtained again apply primer, putty, etc. and repeat the process as mentioned above, till the surface is perfect smooth as per instructions.

After application of first coat of putty, the surface shall be allowed to dry for 24 hours. sand papering shall then be done to give smooth surface.

Subsequent applications of putty and sand papering shall be done till the Engineer is satisfied about final surface, which should be absolutely even, leveled and smooth.

##### **Primer application**

Primer should be a chromate or zinc phosphate (pigmented in alkali or phenolic medium of approved make) or as per manufacturer's specification. These tins should be opened in presence of the Engineer. Before applying primer on the surface, its consistency must be approved by the Engineer and shall be same as specified by the manufacturer. Primer should be applied with smooth brushes on surface to cover entire surface properly. There should be no brush marks, stripes, etc. when applied on the surface. This surface should be allowed to dry at least for 24 hours before next application.

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On the surface so prepared, two coats of acrylic/synthetic enamel paint of selected shade shall be applied only after inspection by the Engineer. A horizontal and vertical travel of brush together will be considered as one coat of paint. Each coat of paint shall be applied only after inspection of Engineer. No brush marks shall be visible on the surface at the end of final coat. Final surface shall be smooth, even or roller finish and uniform in colour and texture

The surface shall be thoroughly cleaned and dusted . All rust, dirt, scales, smoke and grease shall be thoroughly removed before painting is started. The prepared surface shall have received the approval of the Consultant /Owner after inspection, before painting is commenced.

**APPLICATION :**

Before pouring into smaller container for use, the paint shall be stirred thoroughly in the containers. When applying also, the paint shall be continuously stirred in the smaller container so that its consistency is kept uniform. If for any reasons , thinning is necessary in case of ready mixed paint, the brand of thinner recommended by the manufacturer or as instructed by the Consultants/ Employer shall be used.

The painting shall be laid on evenly and smoothly by means of crossing and smoothly by means of crossing and laying off , the latter in the direction of the grain of wood. The crossing & laying of consists of covering the area over with paint, brushing the surface hard for the first time over and ten brushing alternately in opposite direction, two or three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after laying off is finished. The full process of crossing and laying off will constitute one coat. Where so stipulated the painting shall be done by spraying. Spray machine used may be (a) high pressure (small air aperture) type (b) a low pressure (large air aperture) type, depending on the nature and location of work to be carried out. Skilled and experienced workmen shall be employed for this class of work. Paints used shall be brought to the requisite consistency by adding a suitable thinner.

Spraying should be done only when dry condition prevails. Each coat shall be allowed to dry thoroughly and rubbed smooth before the next coat is applied. This should be facilitated by through ventilation. Each coat except the last coat, shall be lightly rubbed with sand paper or with pumice stone and cleaned off dust before the next coat is laid.

No left over paint shall be put back into the stock tins. When not in use the container shall be kept properly closed.

No hair marks from the brush or clogging of paint puddles in the corners of panes, angles of moldings etc., shall be left on the work.

In painting doors and windows, the putty round, the glass panes must also be painted, but care must be taken to see that no paint stains etc. are left on the glass top of shutters and surfaces in similar hidden location shall not be left out in paint.

In painting steel work, special care shall be taken while painting over bolts, nuts, rivets, overlaps etc.

The additional specifications for primer & other coats of paints shall be as according to the detailed specifications under the respective headings.

## **BRUSHES AND CONTAINERS :**

After work, the brushes shall be completely of paint and linseed oil rinsing with turpentine. A brush in which paint has dried up is ruined and shall on no account be used for painting work. The containers when not in use, shall be kept closed and free from air so that paint does thicken and also shall be kept safe from dust , When the paint has been used, the containers shall be washed with turpentine and wiped dry with soft clean cloth, so that they are clean, and can be used again.

## **2.0. FIRE EXTINGUIDHERS:**

### **2.1 ABC POWDER EXTINGUISHER – 6 Kgs:**

6 Kg capacity Fire Extinguisher Mono Ammonium Phosphate Powder 90,stored pressure type, pressure gauge, gross weight 9.4 Kg., empty weight 3.4 Kg., can height 480MM,diameter 160 MM, discharge time minimum 13 secs, controllable discharge mechanism, range minimum 4 meters, applicable on Class A,B,C and electrically started fire, A rating 4A,B rating 34B,Can construction: Deep drawn and Carbon Di Oxide Mig welded, valve construction: Forging and Machining, Internal Coating of Can: Epoxy Powder coating, External Coating of Can: Epoxy Polyster Powder coating ,External Coating of Can: Epoxy Polyster Powder Coating, Sheet metal thickness : 1.60 MM, Helium Leak Detection Tested, ISI, CE approved, 5 Years Warranty.

### **2.2 WATER CO2 TYPE FIRE EXTINGUISHER – 9Ltrs:**

9 Ltr Water type Fire Extinguisher, Stored Pressure Type, Pressure Gauge, Gross Weight 14.6 Kg, empty Weight 5.6 Kg, Can Height 611MM, Diameter 175MM, Discharge Time less than 120 Secs, Controllable discharge mechanism, Range minimum 6

Meters, applicable on Class A Fire, A Rating 13A, Can Construction : Deep drawn & CO2 Mig welded, Valve Construction : Forging & Machining, Internal Coating of Can : Epoxy Powder coating, External Coating of Can : Epoxy Polyester Powder coating, Sheet metal thickness : 2.0MM, ISI and EN Approved, Hileum Leak Detection tested, 1 Year Warranty.

**2.3 CO2 TYPE FIRE EXTINGUISHERS-4.5 Kgs:**

4.5Kg, Co2 Gas Type Fire Extinguisher, Trolley Mounted, Easy Weight Management, Used Unused Mechanism, Squeeze Grip, Gross Weight 19.1 Kg, empty Weight 14.6 Kg, Can Height 857MM, Diameter 140MM, Discharge Time less than 10 Secs, Controllable discharge mechanism, Applicable on Class B&C Fire, B Rating 21B, Can Construction : Hot Spinning / Forging, Valve Construction : Forging & Machining, Internal Coating of Can : Not Applicable, External Coating of Can : Spray Painting, Sheet metal thickness : 4.5MM, ISI Approved, 1 Year Warranty

**3.0 ESCAPE SIGNAGES:**

**3.1.** Sign boards made out of 3mm thick "Opaque" PVC foam board with computer cut, PVC non-reflective self adhesive vinyl painted foam board. Signage with the following text "IN CASE OF FIRE, USE STAIRS UNLESS INSTRUCTED OTHERWISE" of 1.25cm height letters in red with white back ground. The size of the board shall be 25cm x 30 cm and shall be fixed at the height of 2 mts. from finished floor near Manual call points.

**3.2.** Sign boards made out of 3mm thick "Opaque" PVC foam board with computer cut, PVC non-reflective self adhesive vinyl painted foam board. Floor identification signage ( i.e. GROUND FLOOR ...etc.) at each stair enclosure on every floor, indicating the floor number in words, lettering size shall be 7.5 cm with contrasting color from back ground. Size shall be 15cm x 60cm.

**3.3.** Sign boards made out of 3mm thick "Opaque" PVC foam board with computer cut, PVC non-reflective self adhesive vinyl painted foam board. Signage with the following text "FIRE EXIT" at each stair enclosure on every floor, lettering size shall be 7.5 cm with contrasting color from back ground. Size shall be 15cm x 60cm.

**3.4.** Sign boards made out of 3mm thick "Opaque" PVC foam board with computer cut, PVC non-reflective self adhesive vinyl painted foam board. Signage with the following text "FIRE EXIT" AND DIRECTION TO SHOW THE EXIT ROUTE, lettering size shall be 7.5 cm with contrasting color from back ground. Size shall be 15cm x 60cm.

**3.5.** Signage "FIRE ORDER" it should contain the following text on 3mm thick "Opaque" PVC foam board of computerized cut, PVC non-reflective self adhesive vinyl painted foam board of size 3' x 4'.

A) ALERT THE SECURITY AT SECURITY ROOM BY ACTUATING MANUAL CALL POINT LOCATED AT STRATEGIC LOCATIONS.

B) EVACUATE THE OCCUPANTS BY USING FIRE EXITS AND EMERGENCY EXITS ONLY AND ASSEMBLE AT VARIOUS ASSEMBLY POITS.

C) IF POSSIBLE TRY TO EXTINGUISH THE FIRE BY USING NEAREST / SUITABLE PORTABLE EXTINGUISHER OR WATER FROM NEAREST WET RISER.

D) BE CALM AND DO NOT GIVE ANY ROOM FROM PANIC, WALK, DO NOT RUN.

E) IF YOU ENCOUNTER SERIOUS DIFFICULTY IN EVACUATION, LIE DOWN FLAT AND TRY TO ATTRACT ATTENTION OF RESCUE TEAM.

**3.6.** ACTION BY SECURITY/RECEPTION UPON RECEIPT OF INFORMATION THROUGH FIRE ALARM OR FIRE DETECTORS OR BY USING PUBLIC ADDRESS SYSTEM.

A) ALERT THE OCCUPANTS BY USING PUBLIC ADDRESS SYSTEM.

B) INFORM FIRE CONTROL THROUGH ANY ONE OF THE FOLLOWING PHONE NUMBERS: \_\_\_\_\_ (Current phone numbers to be provided in this location by the contractor)

C) REFER EVACUATION PLAN FROM EVACUATING STANDARD PEOPLE.

D) GUIDE THE FIRE FORCE, ON THEIR ARRIVAL TO THE SEAT OF FIRE.

E) IN CASE OF THE CASUALTIES, CALL AMBULANCE BY DIALLING NUMBER: \_\_\_\_\_ (Current phone numbers to be provided in this location by the contractor).

F) FIRE FIGHTING AGENCY:

PHONE : \_\_\_\_\_ (Current phone numbers to be provided in this location by the contractor)

FAX : \_\_\_\_\_ (Current fax numbers to be provided in this location by the contractor)

**TECHINICAL SPECIFICATION FOR WI-FI SYSTEM AND LAN NETWORKING**

<p><b>Category 6 UTP Modular Jacks</b></p>	<p>UTP Jack Modules shall be Category 6. The eight position modules shall terminate unshielded twisted 4 pair, 22 – 26 AWG, 100 ohm cable and shall not require the use of a punchdown tool. Jack module shall use forward motion termination to optimize performance by maintaining cable pair geometry and eliminating conductor untwist. The termination cap shall provide strain relief on the cable jacket, ensure cable twists are maintained to within 1/8” (3.18 mm) and include a wiring scheme label. The blue module base shall signify Category 6 performance and shall include a universal label representing T568A and T568B wiring schemes. The jack modules shall be universal in design, including complying with the intermateability standard IEC 60603-7 for backward compatibility. Category 6 jack modules shall be UL and CSA approved and RoHS compliant.</p> <p>The jack modules shall be ETL verified to ANSI/TIA/EIA Category 6 and IEC/ISO 11801 Class EA channel performance. The jack modules shall be able to be re-terminated a minimum of 20 times and be available in 11 standard colors for color-coding purposes. All lots and individual jacks shall be serialized for future traceability. Tool less termination.</p>
<p><b>Category 6 UTP Patch Cords</b></p>	<p>Patch Cords shall be constructed with Category 6, 23-AWG stranded cable. Patch Cords shall be factory terminated with modular plugs featuring a one-piece, tangle-free latch design and black strain-relief boots to support easy moves, adds and changes.</p>

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	<p>Patch cords shall be wired to be compatible with both T568A and T568B wiring schemes. The patch cords shall come in standard lengths of one to 10 Mtrs. The patch cords are available in eight standard colors of White, Blue, Yellow, Green, Black, Red, Violet, and Orange.</p> <p>The patch cords shall be ETL verified ANSI/TIA/EIA Category 6A and IEC/ISO 11801 Class EA channel performance. Each patch cord shall be 100% performance tested at the factory in a channel test to the ANSI/TIA/EIA and IEC/ISO standards. All lots and individual patch cords shall be serialized for traceability.</p>	
<b>Intelligent ready 24 Port patch Panel(Unloaded)</b>	<p>The modular patch panel design shall accommodate copper RJ45 jack modules. The front of the panel shall include multi-colored LEDs located above each port that indicate the connectivity status, as well as multi-functional push buttons for diagnostic and configuration navigation. The panel shall offer a “common” method for labeling in compliance with TIA/EIA 606-A labeling standards. The modular patch panel shall be angular. Accommodates intelligent modules that mount in the rear and utilize no additional rack space (zero RU)</p>	
<b>Faceplates</b>	<p>Faceplates shall be 3 and 4 port , single gang faceplates with painted combination head screws. The faceplates shall mount to industry standard square back boxes with screw to screw dimensions of 2.28" (60.4mm). Faceplates shall be available with sloped design for improved bend radius control and dust protection. Each faceplate shall accept Jack Modules that can be individually inserted and removed as required.</p>	
<b>Category 6 UTP Cable</b>	<p>The 250 to 650Mhz tested UTP Copper Cable with shall meet or exceed both channel and component compliant standards (ANSI/EIA/TIA-568-B.2-1, IEC/ISO 11801 Class E (channel) and IEC 61156-5 (component) standards). Category 6 UTP 4-pair copper cable shall be constructed of 23 AWG conductors. The insulated conductors shall be twisted in pairs and all four pairs shall be covered by a flame retardant PVC, FEP, or PE jacket depending on cable flame rating.</p>	
	<b>Specification</b>	<b>Value</b>
	Flame Rating	<p>Riser – NEC type CMR (UL) and FT4 rated</p> <p>Plenum – NEC type CMP (UL) and FT4 rated</p>

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	Installation Tension	25 lbs. (110N) maximum
	Temperature Rating	32° to 140°F (0° to 60°C) during installation 14° to 167°F (-10° to 75°C) during operation
	<b>Mechanical Test</b>	<b>Requirement</b>
	Ultimate Breaking Strength	> 400 N (90 lb. ft.)
	Minimum Bed Radius	25.4 mm (1.0 inch)
	<b>Electrical Test</b>	<b>Requirement</b>
	DC resistance	<90.38 Ohm per 100M (328 ft.)
	DC Resistance Unbalance	<5% at 20°C per ASTM D 4566
	Mutual Capacitance	<5.6 nF per 100M (328 ft.) at 1KHz and 20°C per ASTM D 4566
	Characteristic Impedance	<5.6 nF per 100M (328 ft.) at 1 kHz and 20°C per ASTM D 4566
	Propagation Velocity	>62.1 (at 250 MHz), CMR: 70%, CMP: 72%
<b>Overhead Fiber Cable Routing Systems</b>	The overhead fiber cable routing system shall be a system of channel, fittings, and brackets designed to segregate, route, and protect fiber optic and high performance copper cabling. Channel and fittings shall be assembled using pre-assembled couplers. A selection of spillout options shall be available that easily attach using the vertical tee. Fittings maintain a minimum 2" bend radius to protect against signal loss due to excessive cable bends. Available system colors shall be yellow, orange, and black. A full complement of brackets shall be available for attaching system components to ladder rack. UL Compliant	
<b>Fiber Cable</b>	6-fiber 9µm (OS1) singlemode Out door armored cable.Used in intrabuilding backbone, building backbone, and horizontal installations for riser (OFNR), and general-purpose environments. Sheath markings provide positive identification, quality traceability, and length verification.	
	Maximum Loss	3.5db/KM @ 850nm & 1.5db/KM @ 1300nm

	Bend Radius	Installation - 96mm, Longterm - 48mm
	Tensile Load	Installation - 660N, Longterm - 200N
	Temperature	Installation/Operation: 0°C to +50°C, Storage: -40°C to +75°C
<b>Rack Mount Fiber Tray</b>	Rack mount fiber trays shall be constructed of steel material and mount to standard 19” rack rails and be RoHS compliant. Can be used as a back box for Fiber patch panels. The removable top cover provides access to connections, fibers and slack storage in rear of tray. Multiple trunk cable entry locations provided on rear and sides of enclosure. Includes fiber optic cable routing kit (grommets, cable ties, spools, strain relief bracket and ID/caution labels).	
<b>Fiber Adapter Patch Panels</b>	Fiber adapter patch panels shall be constructed of steel material and mount to standard 19” rack rails and be RoHS compliant. Used with fiber mount tray to protect fibers and terminations.	
<b>Fiber Adapter panels</b>	Fibre adapter panels snap quickly into the front of fibre optic patch panels. Fibre adapter panels contain TIA/EIA-604 FOCIS compliant duplex fibre optic adapters and exceed TIA/EIA-568-B.3 requirements. Loaded with three SC Duplex Multimode Fiber Optic Adapters (Aqua) with zirconia ceramic split sleeves.	

<b>1. Controller architecture &amp; solution features</b>	
1	Should be capable of supporting 500 or more AP’s with the offered controller without any additional hardware. Offered WLC should minimum have AP licenses from day 1 for the quantities of AP’s asked in the tender.
2	Should have minimum of 4 x 10GSFP+ Ethernet ports (with 2 x 10G-SR transceivers) and minimum 2 x 1G SFP dual-personality ports from day-1. Suitable 10G/higher interconnect cables be provided.
3	

	<p>b) Should have field replaceable cooling design.</p> <p>c) Should have suitable console port and an USB port.</p> <p>d) Should have a LCD panel for easy monitoring of the device.</p>
4	Should have capacity to handle minimum 15000 or more concurrent devices/users. Should support minimum 4K VLANs
5	Redundancy Features: Active/Standby, Active/Active and 1+N. All applicable licenses for WLAN controller should be offered accordingly.
6	Should support 802.11ac standard.
7	WLAN controller or overlay solution must support advance QoS to implement role based access for data, voice and video applications. Should also support session prioritization like Voice, Video, and Data for MS-Lync application should get different QoS.
8	Rules for access rights should be based on any combination of time, location, user identity and device identity.
9	WLAN controller or overlay solution should provide differentiated access for Guests, Staff and Students on same SSID, Guests should have restricted access like not able to telnet & SSH to servers while connecting on same SSID. Similarly other ROLE BASED ACCESS policy support should be available for differentiated access.

10	Should provide latest network authentication (WEP, WPA, and WPA2) and encryption types like DES/3DES, TKIP and AES.
11	Should support reliable fast roaming standards IEEE 802.11k/r. Should also support IP mobility as per relevant IETF RFC
12	Should support management frame protection.
13	Offered solution must support per user rate limiting control like employee should get 4Mbps and guest should get 2Mbps on same SSID.
14	<p>WLAN controller or overlay solution should support:</p> <ul style="list-style-type: none"> <li>a) Stateful L4-L7 firewall for minimum 15000 concurrent users/devices and minimum 1500K firewall sessions.</li> <li>c) Offered solution must be both user- and application-aware</li> <li>d) Must have application layer gateways (ALGs) for applications to work seamlessly across firewall boundaries.</li> <li>e) Must provide unified single-point services for authentication, encryption and security policy control.</li> </ul>

	<p>f) Must support downloadable ACLs from and integration with external RADIUS/AAA servers for campus-wide security policy control</p> <p>g) Must support 5000 SSL sessions</p> <p>h) Must have a minimum 15Gbps throughput</p>
15	Must be compliant for dynamic user and policy control on the WLAN network. Should feature suitable API/service interface for integrating 3 <sup>rd</sup> party security solutions that help remediate other network problems such as viruses, worms, spyware and intrusion
16	WIPS solution should automatically blacklist clients when it attempt any attack.
17	Solution should be able to detect Rogue AP and take corrective action to prevent the rogue AP. The system should detect and prevent an organization's wireless client connecting to rogue AP and also prevent an outside client trying to connect to organizational WLAN.
18	Solution should detect & prevent an Ad-hoc connection (i.e. clients forming a network amongst themselves without an AP) as well as windows bridge (client that is associated to AP is also connected to wired network and enabled bridging between two interfaces)
19	Solution should detect an invalid AP broadcasting organization's valid SSID and should prevent valid clients getting connected from these AP's.
20	Solution should track the location of interferer objects.

21	Solution should perform spectrum analysis to detect and classify sources of interferences. Should provide chart displays and spectrograms for real-time troubleshooting and visualization.
22	Solution should able to detect and prevent if a client use FATA-Jack 802.11 DoS tool and tries to disconnect other stations using spoofed authentication frames that contain an invalid authentication algorithm number.
23	Solution should detect and protect, if a client probe-request frame will be answered by a probe response containing a null SSID to crash or lock up the firmware of any 802.11 NIC.
24	Solution should detect and protect if a client/tool try to flood an AP with 802.11 management frames like authenticate/associate frames which are designed to fill up the association table of an AP.
25	Solution should detect and protect if a client/tool keep on sending disassociation frames to the broadcast address (FF:FF:FF:FF:FF:FF) disconnect all stations on a network for a wide spread DoS.
26	Solution should detect and protect if somebody try to spoof mac address of client or AP for unauthorized authentication.
27	Solution should detect and protect if a client/tool try de-authentication broadcast attempts to disconnect all clients in range rather than sending a spoofed de-authentication to a specific MAC address.
28	Solution should detect and protect if an attacker attempts to lure a client to a malicious AP using university SSID on fake AP in close proximity of the university premises. It should detect when the university client probes for university SSID and these malicious APs respond and invite the client to connect to them.

29	Solution should detect and protect if intruder tries sending spoofed frames to the AP on behalf of the original client to trick the AP into believing the client is asleep to buffer the AP beyond limit.
30	Should offer enhanced radio management features to avoid interference on both 2.4GHz and 5GHz bands
31	Should offer stateful 802.1x, stateful NTLM, and statefulkerberos authentication
32	Should support Wi-Fi alliance HotSpot 2.0 specifications
33	Should allow centralized management of the complete WLAN infrastructure through management and distribution of software and configurations from the master/primary WLAN controller to other controllers and access points
<b>2. Management</b>	
1	Should have Command Line Interface (Console serial port, telnet, SSHv2) support and secured Web access (https)
2	Support for SNMP v1,v2, v3
3	Should allow staged/selective firmware upgrades
4	Should have support X.509 digital certificates
5	Should have the feature to automatically send event and failure diagnostics data to OEM's for enhanced troubleshooting
<b>3. Guest management</b>	
1	Offered solution should provide customizable guest login portal (captive portal solution) for up to 5000 users
2	Offered solution should support both web-based login as well as 802.1x through this guest management feature. Full-featured enterprise/professional AAA/RADIUS solution should be part of the solution offering, if required to achieve the same.

3	Should allow multiple guest administrators for guest user account management
5	Should support guest user accounts based on scheduled expiry options

### INDOOR WIRELESS ACCESS POINT

Sr. No.	Generic Requirements
1	Indoor access point for 802.11 a/b/g/n/ac with minimum 3x3 MIMO with 3 spatial streams or more
2	Should have aggregate WLAN throughput of 1.7Gbps or higher
3	Should have one 10/100/1000 Ethernet interface.
4	Should be able to power up using standards 802.3af POE input.
5	Software-configurable dual radio configuration
6	Should be capable of performing spectrum analysis, security scanning and serving clients on the same radio.
7	Must support Proactive Key Caching and/or other methods for Fast Secure Roaming
8	Must operate as a sensor for wireless IPS
9	Must be able to be both a client-serving AP and a monitor-only AP for Intrusion Prevention services
10	Should be UL 2043 certified
11	Should have kensington lock slot, else; suitable security accessories provided along with the access point
12	Access point should have console port

101

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13	The Max transit power of the AP + Antenna should be as per WPC norms for indoor Access Points. OEM to give a undertaking letter stating that the AP will configured as per WPC guidelines for indoor AP and also submit the WPC certificate showing approval.
14	802.11 a/b/g/n/ac functionality certified by the Wi-Fi alliance
15	Shall have integrated or external Antenna. Minimum antenna gain of 5dBi for both 2.4GHz and 5GHz
16	Should be same make as Wireless Controller
17	Required mounting accessories to be supplied
18	Supported operation modes: Standalone/Autonomous, Controller managed, Air Monitor, Mesh

<b>GIGABIT LAYER-2 MANAGED PoE SWITCH</b>	
<u>SL.</u>	<u>DESCRIPTION</u>
1	The switch shall be a hardware based, reliable, purpose-built SNMP stackable managed switch with concurrent Power-over-Ethernet (PoE) support on all 24 ports and shall support RPS from day one.
2	The switch shall support both 802.3af and 802.3at PoE standards as per site requirement on each switch port and shall have a minimum PoE power budget of 370 watts. The switch shall also support enhancement of the available PoE power budget.
3	The switch shall be IPv6 phase 2 certified and shall be a complete package inclusive of hardware, software and required licenses to meet the minimum desired features from day-one.

4	The switch shall have at least 20 gigabit copper ports plus at least 4 ComboSFP ports in addition to 2 dedicated 20Gig bi-directional stacking ports.
5	The switch shall offer wirespeed non-blocking throughput of at least 88Gbps with packet forwarding of at least 65Mpps.
6	The switch shall support 16000 MAC address entries and a packet buffer of at least 2MB. The switch shall support at least 4000 VLANs.
7	The switch shall offer network resiliency features per IEEE specifications such as Spanning Tree, Rapid Spanning Tree and Multiple Spanning Tree including the mechanism to ensure normal operations without impacting network convergence time. The switch shall optionally offer resiliency technologies for ring networks such as ERPS or similar.
8	The switch shall support advanced traffic management features including flow-based bandwidth control and broadcast/multicast storm control. Also, the switch shall support egress traffic bandwidth control with minimum granularity of 64Kbps.
9	The switch shall support QoS, ACL and Security based on both IPv4 as well as IPv6 parameters. The switch shall support sFlow and/or Netflow, LLDP, and ITU-T based OAM features in addition to time based ACL.
10	The switch shall support management through Web, CLI, SNMP, Telnet, TFTP and sFlow.
11	The switch shall support multiple firmwares as well as multiple configuration.

**Technical Specification for 6 KVA UPS System**

103

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- TECHNOLOGY:**
1. True On Line DSP based UPS with double conversion technology.
  2. UPS should be capable of paralleling upto 3 units.
  3. UPS should have IGBT based rectifier and inverter
  4. Temperature compensated battery charging feature should be built-in for prolonged battery life
  5. The UPS should be compatible for single phase input

supply

<b>INPUT</b>	VOLTAGE RANGE	120-276 V , Load dependant
	FREQUENCY	50Hz +/- 10%
	POWER FACTOR	0.99 ( With p.f correction)
	CAPACITY	6KVA/4.8

KW

<b>OUTPUT</b>	VOLTAGE RANGE	220/230/240 VAC +/-2%
	HARMONIC DISTORTION	<3%(Linear

Load);

<5%(Non-Linear Load)

	FREQUENCY	+/-0.2% free run
	POWER FACTOR	0.8
	CREST FACTOR	3:1

<b>EFFICIENCY</b>	AC – AC	91%
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<b>BATTERY</b>	TYPE	Sealed, lead acid, maintenance free (SMF)
	RATED VOLTAGE	192 V
	BACKUP TIME	60 min
	TRANSFER TIME	

Zero

	AUDIBLE NOISE	<51dB
	DISPLAY	LED

<b>INTERFAVE SLOT</b>	USB & Intelligent Slot (SNMP)
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<b>PROTECTION GRADE</b>	IP 21
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<b>AUTO SHUTDOWN SOFTWARE</b>	Ups should come with Auto shutdown and monitoring software in CD media.
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104

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**CREDENTIALS**

Manufacturer Should be ISO 9001:2000 certified  
Manufacturer Should be ISO 14001certified

**TECHNICAL SPECIFICATION FOR ELECTRICAL WIRING**

**1. GENERAL REQUIREMENTS :**

The installation shall generally be carried out in conforming with the requirements of the Indian Electricity Act, 1910 as amended up to date and the Indian Electricity Rules, 1965 framed there under, the relevant regulation of the Electric Supply Authority concerned, and also with the specifications laid down in the Indian Standard I.S. 732-1963 Code of practice (revised for Electrical Wiring Installations (system voltage not exceeding 650 volts) and I.S. 2309-1962 Code of Practice for the protection of buildings and Allied Structure against Lightning and IS 3043 - Indian Code of practice for Earthling. The wiring shall also be according to the specifications of P.W.D. of the Local Government.

**2. MATERIALS :**

All materials, fittings, appliances, used in electrical installations, shall conform to Indian Standard Specifications wherever these exist. A list of approved materials is attached afterwards. Materials not included in the list shall be got approved by the Architects / Engineer-in-charge / Owner prior to actual use.

**3. MAIN SWITCH GEAR :**

Iron clad switch fuse and isolator units should conform to B.S. 861 (I.S. 2510-1954). The quick made and break mechanism shall be self interlocked with the cover. In “Off” position there must be two breaks per pole.

Main switch gear shall be properly earthed with two numbers conductors if M.V. and one number of L.V.

**4. BUSBAR CHAMBER (BBC) :**

105

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This shall be totally enclosed, metal clad type fabricated from rust proofed 14 SWG sheet steel on angle iron frame and provided with sheet or cast iron cover and undrilled detachable end plates, suitable for mounting angle iron floor stand and painted with high quality enamel paint. G.I. bolts and nuts shall be used for assembly with suitable packing materials to ensure dust proof finish. Meters shall be provided on suitable sheet steel boxes. Switch shall be provided with cable and boxes as required.

The depth of B.B.C. shall be 150 mm (minimum). Minimum clearance of phase bars to earth shall be 25 mm and between bus bars shall be minimum 32 mm.

H.C. (High Conductivity) copper bus bars properly tinned are to be rated at 1000 amps. per sq. in and aluminum bus bars (wrought aluminum alloy strip) conforming to relevant I.S. specification at 800 amps per sq. in.

Neutral Bus bars are to be rated to carry 60% of phase current. These shall be carried on glazed porcelain supports of proper dielectric and mechanical strength and shall be appropriately colour coded for identification of phase.

Lettering shall be done for identification of switches as directed. The contractor shall submit fully dimensioned Tendered Drawing of the board with the physical position of the switches and other components to the Architects for their approval before the same is fabricated.

There shall be two numbers of Earth Terminals Suitable Danger Board shall be provided.

**5. INTERCONNECTION B.B.C. & SWITCH FUSE, METERS :**

For ratings above 150 Amps these shall consist of insulated copper strips to adequate section. For ratings below 150 Amps PVC copper cable tails of appropriate size, terminating in tinned copper sockets may be used. The above are to be enclosed either in sheet metal trunking or conduits so that no part is exposed.

**6. DISTRIBUTION BOARDS :**

These totally enclosed metal clad type Distribution Boards with hinged lids shall be in accordance with I.S. 2147-1952 and 2675-1966 and B.S. 214 and shall be welded construction and fabricated from rust proofed sheet steel and finished with anticorrosive stove enamel paint and have provision for fixing on wall and having earthing terminals. Main Power DB shall be free standing floor mounting type and branch DB shall be wall mounting type.

Power Distribution Boards (400 volts TPN) shall be constructed from 14 SWG sheet steel and Branch Distribution Board (230 volts SPN from 16 SWG sheet steel).

The minimum ratings of phase and neutral bus bars shall be 67% of the total ratings of fuse ways. Above 32 Amps Neutral Busbars may be half the size of the phase Bus Bars.

The fuses shall be mounted on glazed porcelain supports of proper dielectric and mechanical strength. TPN suits should have phase separation barriers between fuse N.L.U.Os.

Cables shall be connected to a terminal by crimped lugs.

Where two or more B.D.B.'s feeding low voltage circuits are fed from different phases of a medium voltage supply there B.D.B.'s shall be installed at least two meters apart.

All three phase power distribution boards shall be properly earthed with two number 10 S.W.G. galvanized iron wires and provided with suitable Danger Boards. All SPN B.D.B.'s shall be properly earthed with one number 10 SWG galvanized iron wire each.

**Branch DB (LDB) :**

- The incomer to the LDB shall be terminated in a suitable rated TB (not directly on ELCB/MCB).
- The size of the DB shall have space for comfortable accommodate all MSBs, ELCB, TB and have space for minimum 2 no's of spare MCBs.
- All MCB shall be min 9KA rating and 'C' curve type.

**7. SWITCHES :**

All switches for lights, fans and plug points shall be Modular type switches, unless specified otherwise.

**8. CABLES AND CONDUCTORS :**

All cables shall conform to relevant Indian Standard. Conductors of all cables except for flexible cables, shall be of aluminum, unless specified otherwise. All LT cable shall be FRLS type PVC insulated and 1000 V grade.

107

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**9. FLEXIBLE CABLES :**

Conductors of flexible cables shall be of PVC insulated FRLS copper the minimum size of core acceptable is 1.5 sqm. (other than telephone cable). The maximum weight to which the following twin flexible cords may be subjected are as follows :

Twin 16 / 0.20 mm	:	3.3 Ibs (1.5 Kgs.)
Twin 23 / 0.0076 inch	:	5.0 Ibs (2.3 Kgs.)

**10. INSTALLATION OF MAIN SWITCH BOARDS, BDB'S MAINS, SUBMAINS, DISTRIBUTION WIRING TO INDIVIDUAL POINTS :**

The exact positions of all main switch boards, BDB's and all funds of mains and sub-mains, and distribution wirings to individual points including the exact position of all light fittings and switch boards shall be first marked on the buildings and shall be approved by the Engineer in charge before actual commencement of the work.

The D.B.'s shall be generally be installed at a height of 2.13 m (7 ft) from floor level.

**11. INSTALLATION OF SWITCH BOARDS :**

These shall be installed at a height of 1.3 mtrs. (4' - 3") and above the floor level.

**12. INSTALLATION OF CEILING FANS :**

Unless otherwise specified all ceiling fans shall be hung not less than 2.75 M (9 ft.) above floor. The suspension and clamp shall be painted with approved paint without involving extra cost.

**13. INSTALLATION OF FLUORESCENT/LED LIGHT FITTINGS :**

Where these are suspended from ceiling by two down rods, or fixed to ceiling / beam directly, at least one fixing to the ceiling / beam shall be made with Mechanical / Metal fasteners. Electrical drill only shall be used while making holes for the fasteners which shall be capable of sustaining at least 11 kg. of dead weight.

The down rods and accessories shall be painted with approved paint without involving extra cost.

Unless otherwise specified these should be suspended 2.60 m (8'-6") above the floor.

The Fluorescent/LED light point/ Ceiling fan point and exhaust fan point shall be terminated in a ceiling rose and at the time of equipment/ fitting installation it is to be connected with the ceiling rose. The connection (supply and erection) is in the scope of contractor installing the light/fan fittings.

**14. INSTALLATION OF EXHAUST FANS :**

Exhaust fans shall be fitted by means of rag bolts embedded in the wall. The required holes in the wall shall be made and finished neatly with cement plaster and brought to the original finish of the wall. All exhaust fan shall be fitted with GI Louvers at the outer side.

**15. INSTALLATION OF SOCKET OUTLETS :**

No socket outlet shall be provided in the bath room at the height less than 130 cms. (4'-3") from the floor.

No switches shall be provided inside the bath rooms, unless approved by the Engineer in charge.

Socket outlet at locations other than bath rooms shall be either 25 cm (10") or 130 cms (4'-3") from the floor as per the Engineer in charge.

**16. INSTALLATION OF ELECTRIC MOTORS :**

Electric Motors shall be earthed with 2 numbers of earthing in opposite side. Earth flat is to be brought near the equipment and then connected by wire rope socketed at the ends.

**17. TESTING OF INSTALLATION :**

109

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Before a completed installation or an addition to an existing installation is put into service, the following tests shall be carried out by the contractor in presence of the Engineer-in-charge.

(a) Polarity of switches :

It must be ensured by test that all single pole switches have been fitted on the live side of the circuits they control.

(b) Insulation test :

- (i) By applying a 500 volt megger between earth and the whole system of conductors or any section thereof, with all fuses in place and all switches closed, all lamps in position or both poles of installation otherwise electrically connected together. The result in megohm shall not be less than 50 divided by the number of points on the circuit, and should not be less than 1 megohm.
- (ii) Between all conductors connected to one phase and all conductors connected to the neutral or to the other phase conductors of the supply after removing all metallic connections between the two poles of the installation and switches on all switches. The insulation resistance shall be as in (I) above.

(c) Earth Continuity Test :

The earth continuity conductor including metal conduits, and metal sheaths of cables in all cases shall be tested for electrical continuity. Electrical resistance of the above along with the earthing leads cut excluding any resistance of 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.

(d) Earth Resistance Test :

To ensure effectiveness of installation earth, the value of earth resistance shall be within 5 Ohm for installation capacity upto 5 KW and one ohm for installation of higher capacity.

- 18.** The completed work will be taken over only if the result obtained in above tests are within the limits mentioned above and in accordance with I.E. Rules.

On completion of the installation work, 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 the local Electric Supply Authority.

**19. SPECIAL SPECIFICATIONS :**

- (a) Before fixing all switches, fittings etc. should be produced before Engineer in Charge and get approved.
- (b) All metal switch boards and switch / regulator boxes to be used in work shall be painted with two coats of anti rust primer (red oxide paint) prior to erection. After erection they shall be again painted with two coats of enamel paint of approved quality.
- (c) Before execution of any portion of conduit work for wiring neat proper layout should be made out by the contractor and got approved from the Engineer-in-charge. For this purpose contractor is advised to get acquainted with the layout Tendered Drawings of the Consultant / Architect.
- (d) While laying the conduits for concealed wiring in the ceiling or in the beams and columns and before casting the contractor must ensure that all the inlets and both ends of the conduits are plugged by means of dead end socket so that no foreign matter can enter the conduits and choke them.
- (e) Damage to any fitting during erection and before handing over the installation by contractor shall be set right or replaced by the contractor at his own cost.
- (f) Caution Board or proper size wherever required, shall be provided, as per I.E.E. regulations for which no extra payment will be admissible.
- (g) Any repairs done to wall etc. should match with the surrounding surface otherwise same will be got done through Building Contractor at the cost of the Electrical Contractor.
- (h) Earthing installation shall be done in the presence of Engineer-in-charge or his representative.

- (i) The installation should not be energized without adequate earthing.
- (j) The I.C. switches and Distribution Fuse Boards shall be provided with neat lettering in block letters with paint for identification of the I.C. switches and for the points connected to each fuse way of the D.B.'s for which no extra payment will be admissible.
- (k) Completion Tendered Drawings.

The contractor shall be required to submit along with Final bill, the under noted Tendered Drawings on tracing papers, along with three copies of Ammonia print each.

- (l) Plan (as per structural Tendered Drawing) of each floor (not less than 1 : 100 metric scale) showing :
  - (i) Locations of Main Switch Board, Distribution boards (with the circuit numbers controlled by them).
  - (ii) The runs of mains and sub-mains.
  - (iii) Location of lights, fans wall sockets, other power consuming devices together with type of fittings and fixtures including circuit numbers.
  - (iv) Position of lighting conductors and route of running conductor.
  - (v) Position of Earthing Stations for light and power and Lighting conductor installation.

and giving the following information's on the plans :

- (a) Name of work with job no. Accepted Tender No.
- (b) Date of completion.
- (c) Name of the place.
- (d) Name and signature of the Contractor.
- (e) Scale of Tendered Drawings.

- 2. Schematic line layout diagram of each floor showing (i) layout and connections of Main and Sub-board, B.D.B. having descriptions of the size, capacity, type and their numbers the system and the source of supply, (ii) Location, size, type, length of main and sub main cables (iii) Loading of each B.D.B indications of phases, Departmental mark in each B.D.B. and switchgear.

The Tendered Drawings shall be very neatly drawn and submitted properly without folding them.

3. Cable route should be marked on site plan with measurements from permanent structures.

## TECHNICAL SPECIFICATION FOR CONDUIT WIRING SYSTEM

### 1. **Type and size of conduit :**

All conduit pipe shall be screwed type, solid drawn or welded and with black stove enameled surface or galvanized and of thickness conforming to IS : 9537 part II of 1981 (or latest revision) in all respects. The conduits are to be free from burrs and internal roughness. No conduits less than 20 mm in dia shall be used, unless specified.

### 2. **Accessories :**

Only screwed type of accessories are to be used.

### 3. **Conduit Joints :**

The conduit shall be properly earthed. In long distance straight runs of conduit either inspection type screwed couplers are to be provided at reasonable intervals on running threads with couplers and jam nuts. Threads on conduit pipes in all cases shall be between 13 mm to 27 mm long sufficient to accommodate pipes to full threaded portion of couplers or accessories. Cut end of conduit pipes shall have no sharp edges or any burrs left to avoid damage to insulation of conductor while pulling them through such pipes.

### 4. **Protection against dampness and rust :**

In order to minimize condensation and sweating inside the tube, all outlets of pipes system shall be properly drained and ventilated, but in such a manner as to prevent entry to insects inside the conduit.

To protect against rust the outer surface of the conduit and accessories shall be painted and the bare thread portion is to be portions with anti corrosive preservative.

### 5. **Fixing of Conduits :**

114

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conduits pipes shall be fixed by heavy gauge saddles and h.w. or metal bars, secured to wall / ceiling by screws driven into wood plugs or rawl plug or phil plugs at an interval or not more than 76 cm apart for vertical run and 60 cm apart for horizontal run, but on other side of couplers or bend or similar fitting saddles shall be fixed at distance of 30 cm from the center of such fittings. The minimum thickness for saddles shall be 24 SWG, for conduits upto 25 mm dia and 20 SWG for larger sizes.

**6. Bends in conduits :**

All necessary bends in the system including diversion shall be done bending the pipes, or by inserting suitable inspection type bends, elbows or similar fittings, or by fixing cast iron inspection boxes whichever is most suitable.

**7. Outlets :**

All outlets for fittings, switches etc. shall be fixed on boxes of suitable metal for either surface mounting system or flush mounting system. In case of cast iron boxes the wall thickness shall be at least 3 mm and in case of welded mild steel sheet box of wall thickness shall not be less than 16 gauge. Except where otherwise stated 3 mm thick insulated laminated sheets shall be fixed on the front with screws. Where conduits are terminated. Special care shall be taken in employing double jamnuts, special care shall be taken in employed double jamnuts, for securely fixing conduits to outlets so as to prevent any possibility of damages to cables when drawn.

**8. Cables to be used :**

Unless stated otherwise only single core PVC insulated cables of approved manufacturers shall be used for wiring in conduit shall not be greater than maximum set out in Table II of Indian Standard (I.S. 732-1963) code or practice (revised) for electrical wiring installation (system voltage not exceeding 650 volts).

**9. Looping in system :**

Distribution wiring in conduit to light, fan plug points etc. shall be done in looping system. In this system no joints or connections shall be made anywhere of the system except at terminating points such as at terminals of switches, ceiling roses, etc. and in case of socket outlets at the socket terminals.

115

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**10. Earthing continuity wires :**

All three pin 5 Amps plug points and metallic fan regulator cover should be provided with earthing attachment by No. 14 S.W.G. wires, unless specified otherwise.

Three pin 15 Amp power plug point should be provided with earthing attachment by No. 14 SWG G.I. wire, unless specified otherwise.

For conduits and accessories for distribution wiring should be provided with earthing attachment by number 14 SWG G.I. wire, unless specified otherwise.

For looping earthing G.I. wire shall be run conduits being fixed with saddles, this wire shall not be normally visible after installation when run with the conduit. Where the wire has to be taken without the conduits this will be fixed with “U” nails at 2’-0” intervals.

**11. Painting :**

Conduit and all conduit fittings and accessories shall be painted with two coats matt paint. Painting of conduits shall be done to harmonize with colour bearing surface, i.e. wall, joints, trusses etc. after installation and as approved by the Engineer-in-charge.

**TECHNICAL SPECIFICATION FOR  
CONCEALED CONDUIT WIRING SYSTEM**

1. Concealed conduit wiring system shall comply with all requirements for surface conduit wiring system as specified above and in addition conform to the requirements specified below :

2. Making of Chase :

The chase in the wall shall be neatly made and be of ample dimensions to permit the conduit to be fixed in the manner desired.

3. Fixing of Conduit in Chase :

The conduit pipes shall be fixed by means of staples, J-Hooks or by means of saddles not more than 60 cm apart. Fixing of standard bends or elbows shall be avoided as far as pipes with a long radius which will permit easy Tendered Drawing in of conductor. All threaded joints of metallic conduits shall be treated with some approved preservative to secure protection against rust.

4. Inspection Boxes :

Suitable inspection boxes shall be provided when necessary to permit periodical inspection and to facilitate removal of wires. These shall be mounted flush with wall.

5. Types of accessories to be used :

All outlets such as switches, socket outlets, shall be flush mounting type with cast iron or M.S. boxes with a cover of approved insulating materials. The switches and other outlets shall be mounted inside such boxes as would be approved. The metal box shall be efficiently earthed with conduit by means of earthing attachment with No. 14 SWG G.I. wire, running inside the conduit.

6. Conduits :

117

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- (i) Steel-Black enameled screw type M.S. conduits with thickness conforming to IS : 9537 part II or 1981 (or latest revision)
- (ii) PVC / Polythene-Medium gauge pipes of reputed make having 3 mm wall thickness shall be used.

For roof slabs - These shall be pre-laid during casting of floor / roof slab. No. of wires drawn through the same shall not exceed the number of specified I.S. code.

For vertical drops in wall to switch boards-Minimum size shall be 13 mm bore through which not more than 2 Nos. 1/1-40 and G.I. earth wire shall be drawn.

- (iii) Maximum capacity of conduits for Tendered Drawing in of PVC insulated cables shall be as follows :

650 / 1100 V PVC Copper wire.	In 20 mm dia. Conduits.	In 25 mm dia. Conduits.
1.5 Sqm.	4 Nos.	10 Nos.
2.5 Sqm.	4 Nos.	10 Nos.
4.0 Sqm.	3 Nos.	8 Nos.
6.0 Sqm.	2 Nos.	6 Nos.
10 Sqm.	-	4 Nos.
16 Sqm.	-	2 Nos.

- 7. Fish wire - 18 SWG G.I. wire shall be used and it shall protrude the conduit ends by 9 inches.
- 8. Conduit laying in floor / roof slabs before casting :

PVC / Polythene / G.I. conduit shall be laid straight as far as practicable and properly placed including binding with the steel reinforcement rods with 22 SWG G.I. wire so that proper positions of conduits are maintained.

While laying the conduits for concealed wiring in the ceiling or in the beams and columns and before casting, the contractor shall ensure that both ends of the conduit are plugged by means of dead-end socket or otherwise so that any foreign matter cannot enter the conduit and choke them.

All precaution must be taken while laying the conduits on the slabs, R.C. walls, columns etc. and the contractor shall rectify at his own cost if any defects are found during process of Tendered Drawing cables through the concealed pre laid conduits.

Each PVC / Polythene conduit shall be provided with protruding length of not less than 9 inches on free end of the conduits.

There shall be no intermediate joints in one straight run of conduit.

All ceiling outlets shall be terminated in a round C.I. / G.I. circular box / deep box to suit standard size ceiling rose or / and rectangular C.I. / M.S. junction box or fan hook box as the case may be.

It will be mandatory for the contractor to get the layouts approved by the Engineer-in-charge / Architect when the conduits are laid and bound to steel reinforcement rods, before he can release the work for casting of floor / roof.

9. Connector Boxes, Draw-in-Boxes, junction Boxes :

These shall be constructed from 16 SWG M.S. sheet and have M.S. cover. Minimum size for connector boxes in 6" x 4" and for Draw in Boxes 4" x 4".

10. Fan Hook Boxes :

These shall be 100 mm (4") dia x 75 mm (3") deep, constructed from 16 SWG M.S. sheet, and provided with one 12 mm dia M.S. rod 300 mm (12" long).

11. Painting :

outside of wall switch boards, connector boxes and draw-in-boxes and other C.I. / M.S. accessories shall be painted with two coats of anti-rust paint in addition to other painting instruction given elsewhere.

## **TECHNICAL SPECIFICATION FOR CABLE INSTALLATIONS**

1. General :

All HV cables (up to 33 KV earthed system) shall be XLPE insulated aluminium conductor cable conforming to I.S. 692 and I.S. 7098 respectively.

All medium voltage and Low Voltage PVC insulated FRLS type and armored / unarmored cables shall conform to I.S. 1554 Part-I-1964 and of 1100 volt grade.

Old and used cables must not be used for installation. Only one make of cable shall be used. All cables brought to site must be tested and got approved by the Engineer-in-charge before these can be laid. The cables shall be dispatched to site on wooden drums with ends sealed. Exact lengths shall be determined by the Contractor after measurement at site.

The underground installation of cables shall be generally conforming to I.S. 1255-1967, Code of practice for installation and maintenance of underground cables (upto including 33 KV).

2. Laying of cables :

(a) Direct in Ground :

Trenches shall be 750 mm deep (minimum) for LT cables and 1.2 M (4'-0") deep minimum for HT Cables from ground level and trenching work shall including all pumping and bailing out water. These trenches shall be wide enough to accommodate all the cables with brick separations as per the requirements specified in the relevant I.S.

When more than one multicore cable is to be laid in the same trench, a minimum horizontal interaxial spacing between cables will be as per relevant I.S.

After excavation of the trench of proper size, the bottom of the trench shall be dressed and leveled and filled with 75 mm layer of fine sand. The cable shall then be laid with bricks on both sides of the cable continuously. After having the space within the bricks, filled and packed up to a level of 75 mm (3") above top of cable with fine sand, the top layer of bricks shall be placed side by side in continuous series as protective cover. Total No. of bricks required being 16 per metre run. The remainder of the

120

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trench shall be filled with riddles soil, well rammed and watered to a level of 75 mm (3'-0") above surrounding ground level. The ground level surface of the whole trench route shall be restored properly after completion of cable laying.

(b) Inside Building :

Cables shall be laid on walls / ceilings / structure, unless specified otherwise with M.S. brackets and suitable clamps or over claw type aluminum cleats fixed on M.S. brackets, spaced not more than 450 mm apart. G.I. Bolts of suitable sizes are to be grouted on the wall properly for fixing the brackets.

(c) Minimum bending radius permissible in 120 for MV cables and 20d for HV cables. At joints and terminations the individuals core of multicore cables should never be bent so that the radius is less than 15 times the diameters over the insulation.

No cable jointing is allowed between two terminals points.

3. Cable Jointing :

All cable joints shall be carried out by experiences and Licensed jointers under strict supervision. Electro plated brass cable glands, aluminum / tinned copper cable sockets and approved jointing materials must be used. The price for cable jointing and finishing the ends of the cable shall include all materials and shall also provide for tools and plants for the work. The cable accessories and other associated materials shall conform to Indian Standard Specification where applicable. Proper earthing of cable glands and armored shall be included in the job.

4. Testing of Cables :

All cables shall be tested for insulation resistance with megger - 5000 V constant pressure meter insulation tester for HT cables and 1000 V constant pressure megger for LV cables, before installation.

After installation and end termination, cables shall be again subjected to the above test. Insulation value for HT Cables shall not be less than 100 mega ohms and for MV Cables 1.0 mega ohm.

After laying and jointing, the HV cables shall be subjected to high voltage pressure test before commissioning the test voltage being as specified in I.S. 1225-1967 or latest.

5. Testing of Installation :

Before the completed installation is put into service or handed over to owner, the installation is to be subjected to the above tests to the satisfaction of the Engineer-in-charge. The completed work will be taken over only if the results are acceptable to the Architects / Owner.

## **TECHNICAL SPECIFICATION FOR EARTHING INSTALLATION**

The installation shall generally conform to I.S. 3043-Indian Standard Code of practice for Earthing, as amended upto date.

1. Earthing Electrode :

The earthing electrode shall be galvanized steel pipe of class B medium quality 50 mm (2") dia bore and 3.04 M (10") long. A hole shall be provided at 100 mm (4") from the top end to receive a 13 mm (1/2") dia galvanized bolt and the bottom end shall be chisel cut for easy penetration into soil.

A suitable trench shall be excavated about 0.45 M (1'-6") deep and the pipe electrode driven to an average depth of 3.35 M (11'-0") below ground level. The top end of the electrode shall be at an average depth of 3.30 M (11') below the ground surface. Alternate layers of Charcoal or Salt and coke to be provided for Electrode as per I.S. code of Practice unless specified otherwise.

One No. SWG G.I. wire (unless otherwise specified) shall be connected securely on the properly cleaned surface at the top end of pipe electrode by means of a 100 mm (4") long x 13 mm (1/2") dia G.I. bolt nut and double washers. The earth lead conductor shall be protected mechanically by means of a continuous length of G.I. pipe (Class A) having 13 mm (1/2") inside diameter upto a height of 0.60 M (2') above ground and the same shall be completely filled with bitumen compound and topped upto overflowing.

2. Masonry Inspection Pit :

The inspection pit for the earth station shall be approx 0.56 M x 0.56 M (1'-10" x 1'-10") outside dimensions and approx. 0.45 M (1'-6") deep when completed, having 5" thick cement brick work with 1<sup>st</sup> class bricks in cement mortar (6 : 1) both inside and outside plastering 19 mm (3 / 4") thick and neatly cemented 1.60 mm (1 / 16") thick, both inside, outside and top. The opening on top shall be provided with a C.I. ring with lockable cover fixed flush with ground surface.

All the excavations shall be duly back filled, dressed and rammed.

3. Locations for Earth Electrodes :

Electrodes shall be buried at least 2 M (6'-6") away from the building pole or object to be earthed. However, earthing electrodes for L.C. installations should be as close to the down conductors as possible.

Electrodes when installed in parallel, shall not be placed less than 2 M (6'-6") apart and preferably placed at distances greater than twice their lengths.

4. Earth Bus bar :

(a) Galvanized M.S. Flat :

The Bus bar shall be of suitable size and length, as specified in the Schedule of items, heavily galvanized and having adequate number of drilled and tapped holes 30 mm apart, completed with G.I. bolts, nuts, washers for securely connecting the earth leads and earth continuity conductors. The bus bar shall be fixed on wall, having clearance of 6 mm from wall with spacing insulators with at least the numbers 13 mm (1/2") G.I. rag bolts spaced about 0.46 M (1'6") apart.

(b) Copper Flats :

To be used, as specified, in the Schedule of Items, where earthing requirement are more stringent. Brass bolts, nuts washers shall be used for connections.

5. Value of Earth Resistance :

In case of installations where the load does not exceed 5 K.W. the resistance to earth shall on no account exceed 5 Ohm for other cases the resistance shall not exceed 1 ohm.

For sub-station, the value is 1 ohm.

For L.C. installations the value is 1 ohm.

# SECTION - XIV

125

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**LIST OF MATERIALS OF APPROVED BRAND AND / OR MANUFACTURERS**

<b>SL. NO</b>	<b>PRODUCTS</b>	<b>BRAND</b>	<b>GRADE</b>	<b>TECHNICAL SPECIFICATION</b>
1	PLYWOOD	HIPPO/TRUWOOD/ GREEN/CENTURY/TAJ	IS 710	Plywood should be phenol bonded with 11 layers of core veneer of gurjan timber and two layers of face veneers with thickness of 0.5mm confirming to IS 710.
2	FLUSH DOOR	HIPPO/TRUWOOD/VISHAL/ CENTURY/GREEN	IS 2202	Flush doors frames should be of pine timber without any joint and filler should be of red miranti hardwood all seasoned and chemical vacuum treated and core, face veneer bonded with phenol formaldehyde confirming to IS 2202 part I
3	LAMINATES	ROYAL TOUCH/ PINEX/MERINO	IS 2046	Laminates should be of 1mm/1.25mm thick confirming IS 2046
4	PRE LAMINATED BOARD	ACTION TESA/ NOVANPAN/BHUTAN BOARD/CROSS BAND	IS 12823	Particles should be of wood based and of uniform structure bonded with urea formaldehyde.
5	BLOCK BOARD	HIPPO/TRUWOOD/GREEN /CENTURY/TAJ	IS 1659	Frames and all the filler should be of pine wood, seasoned and chemically treated and the core veneer should be of gurjan timber and bonded with phenol formaldehyde confirming to IS 1659
6	ADHESIVES	ROYAL BOAD/FEVOCOL	IS 4835	Polyvinyl Acetate dispersion based adhesive.
7	STUDY CHAIR	GODREJ/FEATHERLITE/ER GOMAXX/GREEKEN/ERGO LIVE		Medium back, U foam base, syrenrisaion, hydraulic system
<b>SL.NO.</b>	<b>DESCRIPTION</b>		<b>MAKES</b>	
2.	ALUMINIUM DOOR FRAME		JINDAL/OEL / HINDALCO	
3.	FLOOR SPRING		DORMA/ DOORSET/LINK	
4.	SS HANDLE		GODREJ/ DOORSET/LINK/OZONE	
5.	SS 304 MORTICE LOCK		GODREJ/ DOORSET/LINK/DORMA	

6.	DEAD LOCK	GODREJ/ DOORSET/LINK
7.	SS 304 CONCEALED TOWER BOLT	GODREJ/ DOORSET/LINK/ARK/OZONE
8.	SS 304 DOORS STOPPER	SS 304 ISI MARKED
9.	DOOR SILENCER	P.V.C OF APPROVED MAKE
<b>SL.NO.</b>	<b>DESCRIPTION</b>	<b>MAKES</b>
10.	GLASS	MODIGUARD / SAINT GOBIN / AIS FLOAT
11.	SS 304 BALL BEARING HINGE	HAFLE/ DOORSET/ AKS
12.	SS SCREW	H.F. BRAND
13.	LEAPING	1 <sup>ST</sup> QUALITY TEAK WOOD
14.	FASTNER	HILTI / FISHER/ EQUIVALENT
15.	SYNTHETIC ENAMEL PAINTS	BERGER / NEROLAC / ASIAN/ICI DULUX
21.	ACRYLIC EMULSION PAINTS	BERGER / NEROLAC / ASIAN/ICI DULUX
22.	AUTO HINGES	HETICH/HAFLE/OZONE/DOORSET
23.	MAGNETIC CATCHER	GP/POWER/PALO
24.	WARDROBE LOCK	GODREJ/LINK/DOORSET
25.	S.S HANGER HOOK	HETIC/HAFLE/JAQUAR
26.	ENAMEL PAINT	ICI DULUX / BERGER / NEROLAC / ASIAN
27.	PUTTY	ASIAN/BIRLA WHITE/PERMA /ALLETK/ICI DULUX
28.	ANTI TERMITE	BIFLEX/ LENTRC/PIDLITE/SIKA
29.	W.P.C. DOOR	ALSTONE/CENTURY/SPARTA
31.	BLINDS	HUNTER DOUGLAS /MARVEL

127

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33	WATER COOLER SYSTEM	USHA/VOLTAS/EQUIVALENT
34	WATER PURIFIER SYSTEM	KENT/EUREKA FORBES/ EQUIVALENT

**NOTE:- 1. Refer B.O.Q to quote the rate.  
2.Refer Tendered Drawing and design to execute the work.**

**LIST OF APPROVED MATERIALS/FIRE FIGHTING AGENCY**

The contractor shall use materials in their works subject to inspection prior to dispatch, by owner or his authorized representative of any materials, as deemed necessary in accordance with the following list, all materials not otherwise specified shall be in accordance with the latest Indian Standard Specification or equivalent , where such exists and prior approval of NLUO / PMC. The contractor shall be bound to offer sample of materials. Which are claimed to be conforming to I.S. specifications, for testing at an approved Test Laboratory.

FIRE FIGHTING EXECUTING AGENCY : CEASEFIRE / TYCO / MX SYSTEM INTERNATIONAL (P) LTD

The executing agency should have their office and necessary infrastructure in the state of Odisha, at least for a minimum period of 10 years or above with all necessary statutory registrations. The Technicians ( Welders, Fitters & Electrical ) being deployed in the project must be trained, skillful, experienced with necessary proof / certifications and must be employed by the company directly on their payrolls with necessary statutory requirements like ESIC, PF and insurance

**APPROVED MAKE LIST OF FIRE EXTINGUISHER & ESCAPE SIGNAGES**

- |    |                                 |                       |
|----|---------------------------------|-----------------------|
| 1. | Fire Extinguisher (Powder type) | CEASEFIRE/ EQUIVALENT |
| 2. | Fire Extinguisher (Water type)  | CEASEFIRE/ EQUIVALENT |
| 3. | Fire Extinguisher (CO2 type)    | CEASEFIRE/ EQUIVALENT |
| 4. | First Aid box                   | CEASEFIRE/ EQUIVALENT |

128

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**LIST OF APPROVED MATERIALS**

The contractor shall use materials in their works subject to inspection prior to dispatch, by owner or his authorized representative of any materials, as deemed necessary in accordance with the following list, all materials not otherwise specified shall be in accordance with the latest Indian Standard Specification or equivalent , where such exists and prior approval of NLUO / PMC. The contractor shall be bound to offer sample of materials. Which are claimed to be conforming to I.S. specifications, for testing at an approved Test Laboratory.

Contractor shall purchase all materials from the makers or their authorized stockists only. Necessary documentary evidences must be produced to the Owner or their authorized representative on demand. Contractor shall be bound to supply items of any make of the items as per the choice of the Owner / PMC.

## 1. Acceptable Materials List (Internal)

## 1.1 Conduits - P.V.C.

- |    |             |   |                               |
|----|-------------|---|-------------------------------|
| a) | Make        | : | ISI Marked.                   |
| b) | Accessories | : | Same make as that of conduit. |

## 1.2 Wiring Cables - PVC Insulated Copper

- |    |               |   |  |
|----|---------------|---|--|
| a) | Make          | : | Finolex./ Havell's / Polycab/R.R Kable |
| b) | Voltage Grade | : | 1100 Volts & as per IS 694 / 1990      |

129

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### 1.3 Distribution Boards

(protect)

- a) Make : Schneider (protect) / Legrand / Havell's (crabtree)
- b) Make of MCB's : Schneider (Protect) / Legrand / Havell's (crabtree)

### 1.4 Wiring Accessories

- a) 5A / 15A switches  
sockets, antenna  
sockets & telephone  
sockets : Schneider (Opale) / Legrand /  
Havell's / Crabtree (Athena)
- b) Ceiling roses /  
Angle holders : Cona / Anchor
- c) Switch plates /  
Covers : Schneider (Opale) / Legrand /  
Havell's / Crabtree (Athena)
- (d) Switch box : Schneider (Opale) / Legrand / Havell's

### 1.5 Fitting & Fixtures :

- a) Light fittings : Havells/Philips /Goldwyn / Decolux /HYBEC
- b) Bulb : Philips / Bajaj / CG /Orpat/ Havells/HYBEC
- c) Fan : Crompton Greaves / Bajaj / USHA / Havell's
- d) Exhaust fan : Crompton Greaves / GE / Almonard / Havell's

130

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1.6 Telephone Wiring :

a) Telephone Cable : Finolex / Havell's

1.7 Conduit Pipe (PVC) : ISIMark

**EQUIPMENT SCHEDULE AND LIST OF ACCEPTABLE MATERIALS MEDIUM VOLTAGE SWITCHES GEAR AND TRANSFORMER**

1. List of Acceptable Materials

1.1. The following makes of equipment / materials shall be acceptable under this contract.

(A) Medium Voltage Switch-gear

- i) Air circuit breakers : Larsen & Toubro / Schneider
- ii) Switch-fuse units : Larsen & Toubro / G.E. / SCHNEIDER / SIEMENS
- iii) HRC fuses : G.E. / Larsen & Toubro / SIEMENS / Schneider
- iv) Change over switch : Schneider / Larsen & Toubro / G.E. /SCHNEIDER/HAVELLS
- v) M.C.C.B. : Larsen & Toubro / Schneider / G.E./LEGRAND

(B) Cables

- i) H.T. Cable : CCI / Gloster / Nicco / Universal /  
INCAB / RPG/ Havells /
- ii) L.T. Cable : POLYCAB/HAVELLS/ Gloster / NICCO / Universal / Torrent

131

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(C) Meters & Indicators

- i) Ammeter / Voltmeter /  
P.F. Meters : AEP / UE / IMP / Automatic Elect.
- ii) Kwh Meter : REMCO / GEC / SEMS / HPL / ALTHOM /  
SECURE
- iii) Frequency Meter : AEP / NIPPON / UE
- iv) Indicating Lamps : Siemens / Larsen & Toubro / Binay / Concord.

(D) Instrument Transformers

- i) H.T. Current Transformers : VE / EMS / KAPPA / AUTOMATIC ELECTRIC.
- ii) H.T. Potential Transformers : Jyothi / VE / ESM.
- iii) D.T. Current Transformers : ANP / KAPPA / ESM.
- iv) Selector Switches : Larsen & Toubro / Kaycee / Thakoor.

(E) Relays

- i) Over current and earth fault relay : AREVA / Siemens / Larsen & Toubro.
- ii) Power factor correction relay : NIPPO / MSIL / AVMACO / Siemens.
- iii) AX relay : AREVA / ABB

(F) Miscellaneous

- i) Cable gland : APT / ELECTROMAG
- ii) Lugs : Dowels.
- iii) Connectors : Indian Engineering Company / ELMEC / Schneider
- iv) Capacitors : Khatau Junker / Voltas / BSES / MSIL / Powercap /

132

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Crompton Greaves.

- v) Contactors : Larsen & Toubro / Siemens / BCH / Schneider
- vi) Starters : Larsen & Toubro / Siemens / BCH

- N.B.:**
- 1. All material to be used should be of standard / make / specification as specified in the Tender and only after approval of the Concerned Consultant/ NLUO.
  - 2. The various items to be used in the interior and furnishing work shall be of ISI Standards. Wherever the item/product will not come under ISI mark/standard, shall be got tested/approved for its quality etc ,however the necessary testing charges shall be borne by the contractor.

**MATERIAL LIST OF APPROVED MAKE OF WI-FI SYSTEM AND LAN NETWORKING**

- 1. CABLE : SYSTIMAX /PANDUIT/SEIMON/ROSANBERGER
- 2. OFC : SYSTIMAX /PANDUIT/SEIMON/AMP
- 3. WIRELESS ACCESS POINT : CISCO/ALLIED TELSIS/MOTOROLA
- 4. WIRELESS CONTROLLER : CISCO/MOTOROLA/ALLIED TELESIS/DLINK
- 5. INDOOR ACCESS POINT : CISCO/MOTOROLA/ALLIED TELESIS
- 6. POE : CISCO/D-LINK/ALLIED TELESIS/HP
- 7. RACK : VAL RACK/HCL/APW PRESIDENT
- 8. PATCH PANEL : SYSTIMAX /PANDUIT/SEIMON
- 9. MODULAR JACK : SYSTIMAX /PANDUIT/SEIMON
- 10. PATCH CORD : SYSTIMAX /PANDUIT/SEIMON
- 11. 6U/9U Rack : APW / NETRACK/PRESIDENT
- 12. WIFI & SWITCHING : CISCO / DLINK / ALLIED TELESIS/ HP
- 13. DISTRIBUTION SWITCH : CISCO / DLINK / ALLIED TELESIS/ HP
- 14. IP PBX WITH 50 EXTENSIONS : CISCO/PANASONIC/GRANDSTREAM

133

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- 15. IPPHONE : CISCO/PANASONIC/GRANDSTREAM
- 16. 64PORT LICENSE : CISCO/DLINK/ ALLIED TELESIS/ HP
- 17. 12PORT LIU : SYSTIMAX /PANDUIT/SEIMON/HP
- 18. 6KVA ONLINE UPS : APC/UNILINE

**Note: All approved makes shall be ISI Marked**

# SECTION - XIV

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