

**INDIAN INSTITUTE OF TECHNOLOGY DELHI**
HAUZ KHAS, NEW DELHI – 110016**NOTICE INVITING E-TENDER****IITD/WORKS (SP - 556)/2016**

Executive Engineer [E] Indian Institute of Technology Delhi, Hauz Khas, New Delhi-16 (Phone No. 011-26591742) on behalf of Board of Governors invites online **Item Rate Tender** from Specialized Firms/ Contractors for the following work:

1	Name of Work	:	Construction of BSL-2 lab in block-I for Textile Deptt. in academic area at IIT Delhi..
2	NIT No.	:	8802/51/EW/IITD/2016-17
3	Estimated cost	:	Rs.1,61,77,631.00
4	Earnest Money	:	Rs.3,23,553.00
5	Period of completion	:	06 Months
6	Date Of Pre-Bid meeting	:	30-09-2016, 11:00 AM
7	Last date & time of bid submission	:	Upto 3 PM of 05-09-2016
8	Performance Bank Guarantee	:	5% of the tendered amount

The bid forms and other details may be downloaded from Central Public Procurement Portal <http://eprocure.gov.in/eprocure/app>. Aspiring Bidders who have not enrolled / registered in e-procurement should enroll / register before participating through the website <http://eprocure.gov.in/eprocure/app>. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at 'Instructions for online Bid Submission'.

Bidders can access Quotation / tender documents on the website (For searching in the NIC site, kindly go to Quotation Search option and type 'IIT'. Thereafter, Click on "GO" button to view all IIT Delhi Quotations). Select the appropriate Quotation / tender and fill them with all relevant information and submit the completed Quotation / tender document online on the website <http://eprocure.gov.in/eprocure/app> as per the schedule given in the next page.

No manual bids will be accepted. All bids (both Technical and Financial should be submitted in the E-procurement portal).

**Executive Engineer [E],
For & on Behalf of BOG, IIT Delhi**

Ch. Head: PLN - 05
Work code- W02786

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



Copy to: -

1. Institute Engineer
2. D.A. (Works Accounts) - for opening of tenders in the office of D.R. [SPS]
3. A.E.E. (E) Plg.
4. D.R. (A/Cs)
5. D.R. [SPS]
6. Notice Boards.
7. Office Copy
8. Web site Administrator, IITD

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.

**INDEX**

SR. NO.	DESCRIPTION	PAGE NUMBER	
		From	To
1	SCHEDULE	4	4
2	INSTRUCTION FOR ONLINE BID SUBMISSION	5	7
3	INFORMATION & INSTRUCTION TO BIDDERS	8	11
4	IITD 6	12	15
5	INTEGRITY PACT	16	22
6	IITD - 7 / 8	23	24
7	PROFORMA OF SCHEDULE	25	28
8	COMMERCIAL & ADDITIONAL CONDITIONS	29	33
9	GENERAL CONDITIONS	34	37
10	TECHNICAL DOCUMENT	38	43
11	IITD 2010 CORRECTION SLIPS	44	51
12	TECHNICAL SPECIFICATIONS	52	52
13	ANNEXURE - I	53	53
14	LIST OF APPROVED MAKES	54	60
15	DRAWING [ANNEXURE 3]	61	61
16	BID SUBMISSION	62	62
17	SCHEDULE OF QUANTITY	63	83

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.

**SCHEDULE**

1	Name of Organisation	:	Indian Institute of Technology Delhi
2	Tender / Quotation Type [open / limited / EOI / auction / single]	:	Open
3	Tender / Quotation Category [services / goods / works]	:	Goods & Works
4	Type / Form of Contract [work / supply / auction / service / buy / empanelment / sell]	:	Work & Supply
5	Product Category [civil works / Civil Work / fleet management / computer systems]	:	Civil, Electrical & Mechanical Work
6	Is Multi Currency Allowed?	:	No
7	Date of issue / publishing /start	:	16-09-2016, 5:00 PM
8	Date Of Pre-Bid meeting	:	30-09-2016, 11 AM
9	Venue of pre-bid meeting	:	Office of the Institute Engineer
10	Document download end date	:	05-10-2016 upto 3:00 PM
11	Last date & time of uploading of bids	:	05-10-2016 upto 03:00 PM
12	Date & time of opening of Technical Bids	:	07-10-2016 after 11 AM
13	Tender fee	:	NIL
14	EMD	:	Rs.3,23,553.00 [For EMD] (To be paid through RTGS/NEFT. IIT Delhi Bank details are as under: Name of the Bank A/C : IITD Revenue Account SBI A/C No. : 10773572622 Name of the Bank : State Bank of India, IIT Delhi, Hauz Khas, New Delhi-110016 IFSC Code : SBIN0001077 MICR Code : 110002156 Swift No. : SBININBB547 (This is mandatory that UTR Number is provided in the on-line quotation/bid. Kindly refer to the UTR Column of the Declaration Sheet at Annexure-II)
15	No. of covers [1/2/3/4]	:	02
16	Address for communication	:	Executive Engineer [E], Works Organisation, Hauz Khas, IIT Delhi, New Delhi – 110016
17	Contact No.	:	011- 2659 1742
18	E-mail address	:	a25226@admin.iitd.ac.in ; a26335@admin.iitd.ac.in

C.....Nil

I..... Nil

O..... Nil



INSTRUCTIONS FOR ONLINE BID SUBMISSION

As per the directives of Department of Expenditure, this Quotation / tender document has been published on the Central Public Procurement Portal (URL:<http://eprocure.gov.in/eprocure/app>). The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at:

<http://eprocure.gov.in/eprocure/app>

REGISTRATION

- 1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL:<http://eprocure.gov.in/eprocure/app>) by clicking on the link "Click here to Enroll". Enrolment on the CPP Portal is free of charge.
- 2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- 3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- 4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.), with their profile.
- 5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse.
- 6) Bidder then logs in to the site through the secured log-in by entering their userID / password and the password of the DSC / e-Token.

SEARCHING FOR QUOTATION /TENDER DOCUMENTS

- 1) There are various search options built in the CPP Portal, to facilitate bidders to search active Quotations / Tender by several parameters. These parameters could include Quotation ID, organization name, location, date, value, etc. There is also an option of advanced search for Quotations, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a Quotation published on the CPP Portal.
- 2) Once the bidders have selected the Quotations they are interested in, they may download the required documents / Quotation schedules. These Quotations can be moved to the respective 'My Quotations' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the Quotation document.

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



- 3) The bidder should make a note of the unique Quotation ID assigned to each Quotation / Tender, in case they want to obtain any clarification / help from the Helpdesk.

PREPARATION OF BIDS

- 1) Bidder should take into account any corrigendum published on the Quotation document before submitting their bids.
- 2) Please go through the Quotation / Tender advertisement and the Quotation / Tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- 3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the Quotation document / schedule and generally, they can be in PDF / XLS / RAR / DWF formats. Bid documents may be scanned with 100 dpi with black and white option.
- 4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Space" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

SUBMISSION OF BIDS

- 1) Bidder should log into the site well in advance for bid submission so that he/she upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- 2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the Quotation document.
- 3) Bidder has to select the payment option as "offline" to pay the Quotation fee / EMD as applicable and enter details of the instrument.
- 4) A standard BoQ format has been provided with the Quotation document to be filled by all the bidders. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BOQ file is found to be modified by the bidder, the bid will be rejected.

OR

In some cases Financial Bids can be submitted in PDF format as well (in lieu of BOQ).

- 5) The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

C.....Nil

I..... Nil

O..... Nil



- 6) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done.
- 7) The uploaded Quotation documents become readable only after the Quotation opening by the authorized bid openers.
- 8) Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
- 9) Kindly add scanned PDF of all relevant documents in a single PDF file of compliance sheet.

ASSISTANCE TO BIDDERS

- 1) Any queries relating to the Quotation document and the terms and conditions contained therein should be addressed to the Quotation Inviting Authority for a Quotation or the relevant contact person indicated in the Quotation.
- 2) Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is 1800 233 7315.

GENERAL INSTRUCTIONS TO THE BIDDERS

- 1) The Quotations will be received online through portal <http://eprocure.gov.in/eprocure/app> . In the Technical Bids, the bidders are required to upload all the documents in .pdf format.
- 2) Possession of a Valid Class II/III Digital Signature Certificate (DSC) in the form of smart card/e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through <https://eprocure.gov.in/eprocure/app> . Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site <https://eprocure.gov.in/eprocure/app> under the link "Information about DSC".

Bidders are advised to follow the instructions provided in the 'Instructions to the Bidder for the e-submission of the bids online through the Central Public Procurement Portal for e Procurement at <https://eprocure.gov.in/eprocure/app>



INFORMATION AND INSTRUCTIONS TO BIDDERS FOR E-TENDERING

Executive Engineer (E,) Indian Institute of Technology Delhi, Hauz Khas, New Delhi-16 (Phone No. 011-26591742) on behalf of Board of Governors invites online **Item Rate Tender** from Specialized Firms/ Contractors for the following work:

Sl. No.	N.I.T. No.	Name of work & Location	Estimated cost put to bid	Earnest Money	Period of completion	Date Of Pre-Bid meeting	Last date & time of submission of bid (online mode)	Time & date of opening of Technical Bid	Time & date of opening of Financial Bid
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
1	8802/51/EW/IITD/2016-17	Construction of BSL-2 lab in block-I for Textile Deptt. in academic area at IIT Delhi	Rs. 1,61,77,631.00	Rs. 3,23,553.00	06 Months	30-09-2016, 11 AM	05-10-2016 upto 03:00 PM	07-10-2016 after 11 AM	To be intimated after assessing Technical Bid.

1. The successful bidders shall be required to submit a performance guarantee of 5% of the tendered amount in the form of Bank Guarantee or F.D.R. from a Nationalized / Scheduled Bank within 15 days of issue of letter of intent before award of work. In case of failure by the Contractor to submit the performance guarantee within the specified period, full earnest money will be forfeited and the tender shall be treated as null and void. **The performance guarantee shall be initially valid up to the stipulated date of completion plus 60 (Sixty) days beyond that.**

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



2. Contractors who fulfill the following requirements shall be eligible to apply. Joint ventures are not accepted.

A] Firms/Contractors should have satisfactorily completed one similar work of value not less than **Rs.1,29,42,200.00** or two similar works each of value not less than **Rs.97,06,600.00** or three similar works each of value not less than **Rs.64,71,100.00** during last 7 years ending previous day of last date of submission of bids.

B] Should have had average annual financial turnover of Rs.80,88,800.00 during the last three years ending 31st March 2016 [**Scanned** copy of certificate from CA to be uploaded]

C] Should have a solvency of Rs.64,71,100.00 [**scanned** copy of original solvency to be uploaded]

- ii) **Earnest Money of Rs.3,23,553.00** to be deposited on-line as indicated in Schedule

3. **Similar work means work pertaining to construction of clean rooms for biological science labs including Civil, Electrical, A/C, HVAC, BMS, Fire & other works all combined.**

4. The intending bidder must read the terms and conditions [both commercial & Additional] & IITD - 6 carefully which will be the part of the Contract. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.

5. Information and Instructions for bidders posted on website shall form part of bid document.

6. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website e-procure.gov.in.

7. But the bid can only be submitted after depositing requisite EMD as specified in the schedule.

8. Copy of enlistment order and certificate of work experience and other documents as specified in the Press Notice / web notice shall be scanned and up-loaded to the e-Tendering website within the period of bid submission. However, certified / original copy of all the scanned and up-loaded documents as specified in press notice web / notice shall have to be submitted by the lowest bidder only within a week physically in the office of e-tendering authority.

9. Online bid documents submitted by intending bidders shall be opened only of those bidders, who has deposited requisite EMD and other documents scanned and uploaded are found in order.

10. Completion certificates are required to be got issued by an officer not below the rank of Executive Engineer of similar works completed by the Firm. The work experience certificates submitted by the bidders shall clearly indicate that:

- The similar work executed shall be **as '3' above**
- The completed cost of the work
- Actual date of completion of the work

11. Attested copy of registration certificates to be submitted. Registration of firms/ Contractors must be valid on the day of submission of Tenders or extended date of submission of Tenders whichever is later.

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



12. Work means only work under Government / Public Sector Undertaking / Central Autonomous bodies.
13. The value of executed work shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to last date of submission of financial bid.
14. IITD is committed to follow the principle of transparency, equity and competitiveness in public procurement. Before submission of bid, **each bidder should sign integrity pact at respective places** and submit the bid. If duly signed integrity pact is not submitted by bidder, such bid shall not be considered.
15. Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online bidding process as per details available on the website.
16. When bids are invited in two / three stages systems and if it is desired to submit revised financial bid it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.
17. The department reserves the right to reject any prospective application without assigning any reason and to restrict the list of qualified contractors to any number deemed suitable by it, if too many bids are received satisfying the laid down criterion.
18. **The bid submitted shall become invalid if:**
 - a. The bidder is found ineligible.
 - b. The bidder does not upload all the documents (including service tax registration / VAT registration / Sales Tax registration) as stipulated in the bid document including the undertaking / declaration.
 - c. EMD not deposited as specified
19. The firm shall be registered with EPFO & ESIC

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



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

1. Annexure – I duly filled in and got signed
2. Certificate of work experience
3. Certificate of financial turnover from CA
4. Bank solvency certificate
5. Certificate of Registration for Sales Tax / VAT and acknowledgement of up to date filed return
6. Certificate of Registration of Service Tax and acknowledgement of upto date filed return
7. Affidavit as per Notice Inviting Tender Condition [IITD-6] 1.2.2 [To be submitted on stamp paper]
8. Acceptance to execute INTEGRITY PACT [see integrity pact]
9. IITD 7 / 8 duly signed
10. EPFO & ESIC Registration proof
11. Any other document as specified in the NIT

**Executive Engineer [Electrical]
For & on Behalf of BOG, IIT Delhi**

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



INDIAN INSTITUTE OF TECHNOLOGY DELHI NOTICE INVITING E-TENDER

Executive Engineer (E,) Indian Institute of Technology Delhi, Hauz Khas, New Delhi-16.(Phone No. 011-26591742) on behalf of Board of Governors invites online **Item Rate Tender** from Specialized Firms / Contractors for the following work.

1.0 Construction of BSL-2 lab in block-I for Textile Deptt. in academic area at IIT Delhi..

1.1 The work is estimated to cost **Rs.1,61,77,631.00**. This estimate, however, is given merely as a rough guide

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

For composite bid, besides indicating the combined estimated cost put to tender, should clearly indicate the estimated cost of each component separately. The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.

1.2 Intending bidder is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having satisfactorily completed similar works of magnitude specified below: -

Criteria of eligibility for submission of bid documents.

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

Three similar works each of value not less than **Rs.64,71,100.00** or two similar work each of value not less than **Rs.97,06,600.00.00** or one similar work of value not less than **Rs.1,29,42,200.00** in last 7 years ending previous day of last date of submission of bids.

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

"I / We undertake and confirm that eligible similar works(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I / We shall be debarred for bidding in IIT Delhi in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee (Scanned copy to be uploaded at the time of submission of bid)"

2. Agreement shall be drawn with the successful bidders on prescribed Form No. IITD 7/8 which is available as IIT Delhi Publication. Bidders shall quote their rates as per various terms and conditions of the said form which will form part of the agreement.

3. The time allowed for carrying out the work will be **06 Months** from the date of start as

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.

4. The site for the work is available.
5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen from the web site www.iitd.ac.in or www.eprocure.gov.in.
6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of tender as notified.
7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of tender as notified.
8. If it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the tender submitted earlier shall become invalid.
9. Earnest Money as specified to be paid through RTGS / NEFT.
IIT Delhi Bank details are as under:
Name of the Bank A/C : IITD Revenue Account
SBI A/C No. : 10773572622
Name of the Bank : State Bank of India, IIT Delhi,
Hauz Khas, New Delhi-110016
IFSC Code : SBIN0001077
MICR Code : 110002156
Swift No. : SBININBB547
(This is mandatory that UTR Number is provided in the on-line quotation/bid. Kindly refer to the UTR Column of the Declaration Sheet at Annexure-II)

Interested contractors who wish to participate in the bid has also to make following payments within the period of bid submission:

- (i) Copy of Enlistment Order and certificate of work experience and other documents as specified in the press notice shall be scanned and uploaded to the e-tendering website within the period of bid submission.
10. The bid submitted shall become invalid, if:
 - a) The bidder is found ineligible.
 - b) The bidder does not upload all the documents (including VAT registration/ Sales Tax registration/Technical bid) as stipulated in the bid document.
 - c) EMD not deposited as specified
11. The contractor whose bid is accepted will be required to furnish **performance guarantee of 5% (Five Percent)** of the bid amount within the period specified in Schedule F. This guarantee shall be in the form of Deposit at Call receipt of any scheduled bank/Banker' cheque of any scheduled bank/ Demand Draft of any scheduled bank/Pay order of any Scheduled Bank (in case guarantee amount is less than Rs.1,00,000/-) or Government Securities or Fixed Deposit Receipts or irrevocable Bank Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F' including the extended period if any, the Earnest Money

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



- deposited by the contractor shall be forfeited automatically without any notice to the contractor.
12. Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and subsoil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.
 13. The competent authority on behalf of the Board of Governors does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidder shall be summarily rejected.
 14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.
 15. The competent authority on behalf of the Board of Governors reserves to himself the right of accepting the whole or any part of the bid and the bidder shall be bound to perform the same at the rate quoted.
 16. The contractor shall not be permitted to bid for works in the IITD responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any Gazetted officer in the IIT Delhi. Any breach of this condition by the contractor would render him liable to be debarred from bidding process in future in IIT Delhi.
 17. No Engineer of Gazetted rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. This contract liable to be cancelled, if, either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.
 18. The bid for the works shall remain open for acceptance for a period of **ninety [90] days from the date of opening of financial bids**, if any bidder withdraws his bid before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the bid which are not acceptable to the department, then the IIT Delhi shall, without prejudice to any other right or remedy, be

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



at liberty to forfeit 50% of the said earnest money as aforesaid. Further the bidder shall not be allowed to participate in the re-bidding process of the work.

19. This notice inviting bid shall form a part of the contract document. The successful bidder / contractor, on acceptance of his bid by the Accepting Authority shall **within 15 days** from the stipulated date of start of the work, sign the contract consisting of:-
- a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
 - b) Standard IITD Form -7/8 or other Standard IITD Form as applicable.
20. In case any discrepancy is noticed between the documents as uploaded at the time of submission of the bid online and hard copies as to be submitted physically in IIT Delhi, if so desired by the accepting authority, then the bid submitted shall become invalid and the IIT Delhi shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the bidder shall not be allowed to participate in the bidding process of the work.



INTEGRITY PACT

To

.....,

.....,

.....

Sub: NIT No. **8802/51/EW/IITD/2016-17** for the work of **"Construction of BSL-2 lab in block-I for Textile Deptt. in academic area at IIT Delhi.."**

Dear Sir,

It is here by declared that IITD is committed to follow the principle of transparency, equity and competitiveness in public procurement.

The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the Integrity Agreement, which is an integral part of the tender/bid documents, failing which the tender/bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected.

This declaration shall form part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of the Integrity Agreement on behalf of the IITD.

Yours faithfully,

Executive Engineer (E)

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



[TO BE SUBMITTED DULY SIGNED BY THE BIDDER ALONGWITH BID DOCUMENTS]

To

Executive Engineer (Elect.),
IIT Delhi, Hauz Khas,
New Delhi – 110016

Subject: Submission of Bid for the work of **"Construction of BSL-2 lab in block-I for Textile Deptt. in academic area at IIT Delhi"**

Dear Sir,

I / We acknowledge that IIT Delhi is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document.

I / We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I / We will sign the enclosed integrity Agreement, which is an integral part of tender / bid documents, failing which I / We will stand disqualified from the tendering process. I / We acknowledge that THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT.

I / We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by IITD. I / We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article 1 of the enclosed Integrity Agreement.

I / We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, IITD shall have unqualified, absolute and unfettered right to disqualify the tenderer /bidder and reject the tender/bid in accordance with terms and conditions of the tender/bid.

Yours faithfully,

(Duly authorized signatory of the Bidder with seal)

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



[To be signed by the bidder and same signatory competent / authorized to sign the relevant contract on behalf of IITD]

INTEGRITY AGREEMENT

This Integrity Agreement is made at on this day of..... 20.....

BETWEEN

The Board of Governors, IIT Delhi, Hauz Khas, New Delhi - 16 represented through **Executive Engineer (Elect.)**, IIT Delhi

.....
.., (Hereinafter referred as the 'Principal/Owner',
(Address of Division)

'Principal/Owner', which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

AND

.....
.....
(Name and Address of the Individual/firm/Company)

through
..... (Hereinafter referred
(Details of duly authorized signatory)

to as the "Bidder/Contractor" and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

Preamble

WHEREAS the Principal / Owner has floated the Tender (NIT No. **8802/51/EW/IITD/2016-17**) (hereinafter referred to as "Tender/Bid") and intends to award, under laid down organizational procedure, contract for "**Construction of BSL-2 lab in block-I for Textile Deptt. in academic area at IIT Delhi**" (Name of work) hereinafter referred to as the "Contract".

AND WHEREAS the Principal/Owner values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s).AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as "Integrity Pact" or "Pact"), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:

Article 1: Commitment of the Principal / Owner

- 1) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:
No employee of the Principal / Owner, personally or through any of his / her family members, will in connection with the Tender, or the execution of the Contract, demand, take

C.....Nil I..... Nil O..... Nil



a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

- (a) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.
 - (b) The Principal/Owner shall Endeavour to exclude from the Tender process any person, whose conduct in the past has been of biased nature.
- 2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PoC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.
 - 3) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PoC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s) / Contractor(s)

- 1) It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Government / Department all suspected acts of **fraud or corruption or coercion or collusion** of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.
- 2) The Bidder(s)/Contractor(s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:
 - a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.
 - b) The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.
 - c) The Bidder(s) / Contractor(s) will not commit any offence under the relevant IPC/PoC Act. Further the Bidder(s) / Contractor(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or

C.....Nil

I..... Nil

O..... Nil



documents provided by the Principal / Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

- d) The Bidder(s) / Contractor(s) of foreign origin shall disclose the names and addresses of agents / representatives in India, if any. Similarly Bidder(s) / Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.
 - e) The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.
- 3) The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
 - 4) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practices means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the Government interests.
 - 5) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/ her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Principal /Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder/ Contractor accepts and undertakes to respect and uphold the Principal/Owner's absolute right:

- 1) If the Bidder(s)/Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/Owner. **Such exclusion may be forever or for a limited period as decided by the Principal/Owner.**
- 2) **Forfeiture of EMD/Performance Guarantee/Security Deposit:** If the Principal/Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Principal/Owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



Security Deposit of the Bidder/Contractor.

- 3) **Criminal Liability:** If the Principal/Owner obtains knowledge of conduct a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the Principal / Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

Article 4: Previous Transgression

- 1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.
- 2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/ Owner.
- 3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

Article 5: Equal Treatment of all Bidders/Contractors/Subcontractors

- 1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Sub-contractors/sub-vendors.
- 2) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.
- 3) The Principal/Owner will disqualify Bidders, who do not submit, the duly signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6: Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 6 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded.

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority of IITD.

Article 7: Other Provisions

- 1) This Pact is subject to Indian Law, place of performance and jurisdiction is the Head Quarters of the Division of the Principal/Owner, who has floated the Tender.
- 2) Changes and supplements need to be made in writing. Side agreements have not been made.

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



- 3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by Board Resolution.
- 4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.
- 5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.

Article 8: LEGAL AND PRIOR RIGHTS

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

.....
(For and on behalf of Principal / Owner)

.....
(For and on behalf of Bidder / Contractor)

WITNESSES:

1.
(signature, name and address)

2.
(signature, name and address)

Place:

Dated :

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.

**IITD - 7/8****INDIAN INSTITUTE OF TECHNOLOGY DELHI
HAUZ KHAS, NEW DELHI - 110016****Percentage Rate Tender / Item Rate Tender & Contract for Works****Tender for the work of "Construction of BSL-2 lab in block-I for Textile Deptt. in academic area at IIT Delhi"****(A) (I) To be submitted online by 05-10-2016 upto 03:00 PM****(II) To be opened on 07-10-2016 at 11 AM online****e-TENDER**

I / We have read and examined the Notice Inviting Tender, schedule, A, B, C, D, E & F, Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, Clauses of Contract, Special conditions, Schedule of Rate & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I / We hereby tender for the execution of the work specified for the Board of Governors, IIT Delhi within the time specified in Schedule 'F' viz., schedule of quantities and in accordance in all respect with the specifications, designs, drawing and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respect of accordance with, such conditions so far as applicable.

We agree to keep the tender open for ninety (90) days from the due date of its opening / ninety days from the date of opening of financial bid in case tenders are invited on 2/3 envelop system (**strike out as the case may be**) and not to make any modification in its terms and conditions.

A sum of **Rs.3,23,553.00** is hereby deposited in IIT Delhi Revenue Account No. 10773572622as earnest money. If I / We, fail to furnish the prescribed performance guarantee within prescribed period I / We agree that the said The Board of Governors, IIT Delhi, Hauz Khas, New Delhi - 16 or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I / We fail to commence the work as specified, I / We agree that The Board of Governors, IIT Delhi, Hauz Khas, New Delhi - 16 or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form. Further, I / We agree that in case of forfeiture of Earnest Money & Performance Guarantee as aforesaid I / We shall be debarred for participation in the re-tendering process of the work.

I / We undertake and confirm that eligible similar work(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I / We shall be debarred for tendering in IIT Delhi in future forever. Also, if such a violation comes to the notice of Department before date of start

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

I / We hereby declare that I / We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person other than a person to whom I / We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

Dated:

Signature of Contractor

Witness:

Postal Address

Address:

Occupation:

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



PROFORMA OF SCHEDULES

[Operative Schedules to be supplied separately to each intending tenderer]

SCHEDULE 'A'

Schedule of quantities (enclosed)

SCHEDULE 'B'

Schedule of materials to be issued to the contractor

S.No.	Description of item	Quantity	Rates in figures & words at which the material will be charged to the contractor	Place of issue
	Nil			

SCHEDULE 'C'

Tools and plants to be hired to the contractor

S.No.	Description	Hire charges per day	Place of Issue
	Nil		

SCHEDULE 'D'

Extra schedule for specific requirements/document for the work, if any.

----- Nil -----

SCHEDULE 'E'

Reference to General Conditions of contract [GCC]

C.....Nil I..... Nil O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



1	Name of work	:	Construction of BSL-2 lab in block-I for Textile Deptt. in academic area at IIT Delhi
2	Estimated cost of work	:	Rs.1,61,77,631.00
3	Earnest Money	:	Rs.3,23,553.00
4	Performance Guarantee	:	5 percent of tendered value
5	Security Deposit	:	5 percent of tendered value

SCHEDULE 'F'**GENERAL RULES & DIRECTIONS**

: Officer inviting tender

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3	:	See below
Definitions:		
2[v] Engineer – in - charge	:	Executive Engineer [E]
2[vi] Accepting Authority	:	Institute Engineer
2[x] Percentage on cost of materials and labour to cover all overheads and profits	:	15 percent
2[xi] Standard schedule of rates	:	Market Rate / DSR 2014
2[xii] Department	:	E & W, IIT Delhi
9[ii] Standard IITD Contract Form	:	General Conditions of Contract 2010, IITD Form 7/8-2010 modified & Corrected up to date of submission of tender

Clause 1:

[i] Time allowed for submission of Performance Guarantee from the date of issue of letter of acceptance	:	15 days
[ii] Maximum allowable extension with late fees @ 0.1% per day of performance guarantee amount beyond the period provided in (i) above	:	1 to 15 days

Clause 2:

Authority for fixing compensation under clause 2	:	Institute Engineer
--	---	---------------------------

Clause 2 A:

Whether Clause 2A shall be applicable	:	No
---------------------------------------	---	-----------

Clause 5:

Number of days from the date of issue of letter of award for reckoning date of start	:	10 [ten] days
--	---	----------------------

Milestone(s) as per table given below:-

S.No.	Financial Progress	Time Allowed (from the date of start)	Amount to be withheld in case of non-achievement of milestone.
-------	--------------------	---------------------------------------	--

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



1.	3/8th (of the whole work)	1/2th (-do-)	In the event of non-achieving the necessary progress as assessed from the running payment 1% of the tendered value of the work will be withheld as per applicable clause of GCC.
2.	3/4th(-do-)	3/4th (-do-)	
3.	Full	Full	

Time allowed for execution of work	:	06 Months
Authority to decide:		
Extension of time	:	Executive Engineer [Engineer-in-charge]
Rescheduling of mile stones	:	Institute Engineer
Clause Applicable 6 or 6A:	:	Clause 6A
Clause 7:		
Gross work to be done together with net payment / adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment	:	Not Applicable
Clause 10 A:		
List of testing equipment to be provided by the contractor at site lab	:	As desired by the Engineer-in-charge relating to the work
Clause 10B(ii):		
Whether Clause 10 B (ii) shall be applicable	:	No
Clause 10C:		
Component of labour expressed as percent of value of work	:	25 percent
Clause 10CA:		

Clause 10CA:

S.N.	Material covered under this clause	Nearest Materials (other than cement, reinforcement bars and the structural steel) for which All India Wholesale Price Index to be followed	Base Price of all Materials covered under clause 10 CA*
1			
2			
3			
4			

* Base price of all the materials covered under clause 10 CA is to be mentioned at the time of approval of NIT.

Clause 10CC

Clause 10 CC to be applicable in contracts with stipulated period of completion exceeding the period shown in next column	:	18 months
---	---	-----------

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



Schedule of component of other Materials, Labour, POL etc. for price escalation	
Component of civil (except materials covered under clause 10CA)/ Electrical construction Materials expressed as percent of total value of work	: X_m : 75 percent
Component of Labour expressed as percent of total value of work	: Y : 25 percent
Component of P.O.L. expressed as percent of total value of work	: Not Applicable

Clause 11

Specifications to be followed for execution of work	: CPWD General specifications for Civil & Electrical works with up to date modifications.
---	--

Clause 12

Type of work	: Project & Original work
Clause 12.2. & 12.3	
Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building work	: 30 percent
Clause 12.5	
Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work	: 100 percent

Clause 16

Competent Authority for deciding reduced rates	: Institute Engineer
--	-----------------------------

Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site:

1.....	2.....	3.....
4.....	5.....	6.....
7.....	8.....	9.....

Nil

Clause 36 (i)

Requirement of Technical Representative(s) and recovery Rate

S. No.	Minimum Qualification of Technical Representative	Discipline	Designation (Principal Technical/ Technical Representative)	Minimum Experience (Years)	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36(i)	
						Figures	Words
1	Graduate Engineer	Civil	Principal Technical Representative	5	1	Rs.20,000/- per month	Rupees Twenty Thousand only per month

Assistant Engineers retired from Government services that are holding diploma will be treated at par with Graduate Engineers

C.....Nil I..... Nil O..... Nil



COMMERCIAL AND ADDITIONAL CONDITIONS

1 General

This specification covers manufacture, testing as may be necessary before dispatch, delivery at site, all preparatory work, assembly and installation, commissioning, putting into operation of BSL Lab 2.

1.1 Name of work & location: Construction of BSL-2 lab in block-I for Textile Deptt. in academic area at IIT Delhi

1.1 The work shall be executed as per CPWD General Specifications for both Civil & Electrical works as amended up to date, relevant IE Rules, relevant IS, manufacturer's standards and as per directions of Engineer-in-charge. These additional specifications and conditions are to be read in conjunction with above and in case of variations, specifications given in the Additional Specifications and Conditions shall apply. However, nothing extra shall be paid on account of these as the same are to be read along with schedule of quantities for the work.

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

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

2 COMMERCIAL CONDITIONS

2.1 Type of contract

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

2.2 Submission of Tender:-

Bidder shall submit the cost of tender documents, if any, e-tendering processing fee and earnest money, other documents, price bid in prescribed manner as indicated in "INFORMATION AND INSTRUCTIONS FOR CONTRACTORS FOR e-TENDERING FORMING PART OF NIT AND TO BE POSTED ON WEBSITE"

2.3 The tenderers are advised not to deviate from the technical specifications / items, commercial terms and conditions of NIT like terms of payment, guarantee, arbitration clause, escalation etc.

2.4 The department reserves the right to reject any or all the price bids and call for fresh price tenders as the case may be without assigning any reason.

3.0 Validity

Tenders shall be valid for acceptance for a **period of 90 days from the date of opening of price bid.**

4.0 SAFETY CODES AND LABOUR REGULATIONS

(i) In respect of all labour employed directly or indirectly on the work for the performance of the contractor's part of work, the contractor at his own expense, will arrange for the safety provisions as per the statutory provisions, B.I.S. recommendations, factory act, workman's compensation act, CPWD code and instructions issued from time to time. Failure to provide such safety requirements would make the tenderer liable for **penalty**

C.....Nil

I..... Nil

O..... Nil



as specified in applicable clause. In addition the Engineer-In-Charge shall be at liberty to make arrangements and provide facilities as aforesaid and recover the cost from the contractor.

- (ii) The contractor shall provide necessary barriers, warning signals and other safety measures while laying pipelines, cables etc. or wherever necessary so as to avoid accident. He shall also indemnify IITD against claims for compensation arising out of negligence in this respect. Contractor shall be liable, in accordance with the Indian Law and Regulations for any accident occurring due to any cause. The department shall not be responsible for any accident occurred or damage incurred or claims arising there from during the execution of work. The contractor shall also provide all insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the contractor due to the above provisions thereof.

5.0 Payment Terms

- 5.1 Unless otherwise specified, in the additional conditions of the contract, the payment shall be made as per the relevant clauses of form IITD 7/8 forming a part of the tender documents.

6.0 Security Deposit

Security deposit shall be deducted from each running bill and the final bill to be the extent of 10 percent of the gross amount payable. However the maximum amount of security deposit will be 5 percent of the tendered value. The earnest money deposited shall be adjusted against this security deposit. The security deposit shall be released on the expiry of guarantee period stipulated in the contract. **Bank guarantee will not be accepted as security deposit.**

7.0 Performance Guarantee

The successful tenderer shall submit an irrevocable performance guarantee of 5 percent of the tendered amount in addition to other deposits mentioned elsewhere in the contract in the contract for his proper performance of the contract agreement within 15 days of issue of letter of acceptance of tender. This guarantee shall be in the form of Demand draft/ Pay order or irrevocable bank guarantee bond of any scheduled bank or the State Bank of India in the specified format or in the form of Government security, fixed deposit pledged in favour of Executive Engineer or as specified in the letter of acceptance of tender. **The performance guarantee shall be initially valid up to the stipulated date of completion plus 60 Days beyond.** This bank guarantee shall be kept valid till the recording of completion certificate for the work by the competent authority.

8.0 RATES

- 8.1 The rates quoted by the tenderer, shall be firm and inclusive of all taxes (including works contract taxes), duties & levies, octroi etc. and all charges for packing forwarding, insurance, freight and delivery, installation, testing, commissioning etc. at site including risk, overhead charges, general liabilities / obligations and clearance from concerned authority, if any.
- 8.2 (a) Water arrangement has to be made by agency. If Institute has to provide, then recovery rate will be 1% of gross value of work done from bills.
(b) Electricity for work will be arranged by the contractor. If Institute has to provide electricity, then recovery rate will be 0.50% of gross value of work done from the bills.
- 8.3 Work Contract Tax, income tax and other taxes as applicable shall be deducted from the bills of contractor.

C.....Nil

I..... Nil

O..... Nil



- 8.4 Contractor has to quote against the item of schedule for credit of dismantled material. The contractor cannot quote either minus rate or zero rate for these items. **The minimum amount to be quoted for this item is Rupees Three Hundred only.** This total quoted amount will be considered in calculating lowest agency. However, actual deduction in bills will be made as per actual quantity of dismantled material received and rate quoted by agency.
- 8.5 **Bidder has to quote 'percentage above or below or at par' only on Civil DSR 2014 for the item no. 1 [Miscellaneous Civil Work]. Lowest bidder [L-1] shall be evaluated based on total lowest quoted rates for the items 2 to 50.2. Lowest quoted percentage for item no. 1 amongst all bids shall be applicable & binding on the L-1 bidder.**

9.0 STORAGE AND CUSTODY OF MATERIALS

No separate storage accommodation shall be provided by the department. Watch and ward of the stores and their safe custody shall be the responsibility of the contractor till the final taking over the installation by the department.

10.0 COMPLETION PERIOD

The completion period of **06 Months** as indicated in the tender documents is for the entire work of routine maintenance and servicing including breakdown maintenance to the satisfaction of the Engineer-in-charge.

11.0 CARE OF THE BUILDING

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

- 12.0 Any item required for completion of the project but left inadvertently shall be executed with-in the quoted rate.

13.0 Compliance with Regulations and Indian Standards

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

- [a] Factories Act
- [b] IE Rules
- [c] BIS and other standards as applicable
- [d] Workmen's Compensation Act
- [e] Statutory norms prescribed by local bodies like CEA, Power Supply Co. etc.
- [f] For civil & electrical works CPWD Specifications as amended up to date

14.0 Mobilization Advance:

No mobilization advance shall be paid for this work.

15.0 Verification of correctness of Equipment at Destination:

C.....Nil I..... Nil O..... Nil



The contractor shall have to produce all the relevant records to certify that the genuine equipment from the manufacturers has been supplied and erected, as and when demanded by the Engineer-in-charge.

16.0 CLEAN UP WORKS AT SITE

During maintenance the contractor shall at all times keep the working and storage areas free from waste or rubbish. On completion of maintenance / servicing he shall remove all temporary structures, debris and leave the premises clean to the full satisfaction of the department.

17.0 INTERPRETING SPECIFICATIONS

In interpreting the specifications, the following order of decreasing importance shall be followed in case of contradictions:

- [a] schedule of quantities
- [b] Technical specifications
- [c] Drawing [if any]
- [d] General specifications
- [d] Relevant BIS or other international code in case BIS code is not available

18.0 COOPERATION WITH OTHER AGENCIES

The successful tenderer shall co-ordinate with other contractors and agencies in the site of work, if any, and exchange freely all technical information so as to make the execution of this work / contract smooth.

No remuneration should be claimed from the department for such technical cooperation. If any unreasonable hindrance is caused to other agencies and any completed portion of the work has to be dismantled and re-done for want of cooperation and coordination by the tenderer during the course of work, such expenditure incurred will be recovered from the successful tenderer if the restoration work to the original condition or specification of the dismantled portion of the work was not undertaken by the tenderer himself.

- 18.1 The work will be carried out with least disturbance to the Institute during maintenance, servicing and shutdown.

19.0 INDEMNITY

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

20.0 ERECTION TOOLS

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

- 21.0 The sample of material required for Testing shall be provided at free of cost by the contractor. Testing charges if any shall be borne by the Contractor and shall be reimbursed in case the test results are satisfactory after submission of proof. All other

C.....Nil

I..... Nil

O..... Nil



expenditure to be incurred for taking sample, conveyance, packing etc. shall be borne by the contractor.

22.0 No payment shall be made to contractor for any damage caused by the rain, snowfall or any other natural causes what so ever during the execution of work.

23.0 Some restrictions may be imposed by the Security staff of IIT Delhi etc. on the working and or movement of labour & material. **No labour camp/ huts shall be allowed in IIT Campus. The contractor shall make his own arrangement for labour huts outside the campus.** However temporary construction of cement godown and Chowkidar's hut in the Campus may be permitted, if Engineer-in-charge desires so justified. The contractor shall be bound to follow all such restrictions/ instructions and nothing shall be payable on this account.

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



GENERAL CONDITIONS

SUBMISSION OF TENDERS AND OPENING OF TENDERS

1. Firm must study the area / location along with the drawing where the clean rooms (Class 10000) and other rooms are to be created before submission of tender. The Institute shall not bear any responsibility for the lack of knowledge and also the consequence thereof to the contractor. The information and data given and mentioned in the tender document have been furnished in good faith for general information and guidance only. The firm is required to submit the analysis and impact of existing and proposed development on its immediate environment.
2. A technical document is attached with the tender document which includes approximate design layout, design consideration, work detail like civil work, electrical work, clean room body, air handling units, ducting and accessories, air filtration, air conditioning, building management system, fire detection alarm system, access control and internet including validation & commissioning as per BOQ. **Firm shall be required to study the technical document with respect to the available site, hence bidder must see the site before pre-bid or quoting the rate.** Bidders have opportunity to comment / suggest the modification on the technical documents prior to the submission of technical bid i.e. prebid. In case firm suggests some modification in the design for successful project outcome, the firm may intimate to IIT Delhi up to the prebid meeting along with full justification thereof. If IIT Delhi finds that the modification suggested by the firm is technical requirement and acceptable, then an addendum shall be issued to all the firms, however, it must be done before pre-bid meeting.
3. The firm shall require to submit the layout of installations needed as a part of design and detailing for clean room for meeting the performance criteria given in the technical document.
4. The firm shall require to submit in soft as well as hard copies in Auto-cad of the layout of utility piping (water supply, drainage work and other service mentioned in the BOQ), layout of electrical installations including fitting & fixtures, layout of ducts for HVAC in technical bid.
5. The firm shall require to submit soft as well as hard copies In Auto-cad of concept and layout in soft as well as hard copies in Auto-cad of fire detection, fire protection and security system needs to be provided.
6. The firm shall have to arrange for validation of clean room for completion and commissioning from the approved accredited third parties along with technical bid.
7. The firm shall, if required, before submission of the tender, inspect the site. The institute shall not bear any responsibility for the lack of knowledge and also the consequence thereof to the contractor. The information and data shown in the drawing and mentioned in the tender document have been furnished in good faith for general information and guidance only. The Engineer-in-Charge, in no case, shall be held responsible for the accuracy thereof and / or interpretation or conclusion drawn from by the firm and all the consequences shall be borne by the firm. No claim, whatsoever, shall be entertained from the firm on account of this. It is presumed that the firm should satisfy himself for all then possible contingencies, incidental charges, wattages, bottlenecks etc. likely during execution of work and act if coordination, which may be required between different agencies. Nothing extra shall be payable on this account.
8. There shall be a pre-bid conference on a date as specified in the schedule, in which the doubts of the intending tenderers shall be clarified besides discussions on any additional

C.....Nil

I..... Nil

O..... Nil



suggestions proposed by the tenders. If it is found necessary, a corrigendum to tender documents would be issued to all the intending tenderer, and thereafter no further query / condition shall be entertained. After finalization of the technical bid, if required, tender may be given chance to modify their financial bids thereafter financial bid shall be opened.

9. RATES

- 1.1. The work shall be executed on indivisible work contract basis. The rates shall include all taxes, duties, including import duty for any imported item (if any), octroi, freight, insurance, all incidental charges, watch and ward charges (except service tax) service tax may be reimbursed on production of proof that firm has deposited the service tax to the concerned department for this work at IIT Delhi.
- 1.2. The statutory deductions like income tax, work contract tax, labour cess shall be deducted from the bill of the contractor. The department shall deduct taxes as applicable on the value of work done from the bill of the contractor.
- 1.3. Security deposit shall be deducted from each bill as per relevant tender Clause.
- 1.4. No mobilization advance shall be paid for the work.

10. COMPLETION PERIOD

- 1.1. The time permitted for the entire work of supply, installation, testing and commissioning complete in all respect to the satisfaction of engineer-in-charge shall be 6 months, reckoned from the 10th day after the award of work. Firm delivery period for the material shall be specified.

11. Fixing of Milestones:

As per schedule 'F' clause 5 of general conditions of contract for CPWD work the milestones to be fixed as per table given below:-

S.No.	Financial Progress	Time Allowed (from the date of start)	Amount to be withheld in case of non-achievement of milestone.
1.	3/8 th (of the whole work)	1/2 th (-do-)	In the event of non-achieving the necessary progress as assessed from the running payment 1% of the tendered value of the work will be withheld as per applicable clause of GCC.
2.	3/4 th (-do-)	3/4 th (-do-)	
3.	Full	Full	

12. WORKS TO BE CARRIED OUT BY IIT DELHI

Electrical supply at the incoming switch gear of the main distribution pillar for testing and commissioning. Space for storing the material & tools etc. (but watch and ward shall be the responsibility of the contractor)

13. WORKS TO BE CARRIED OUT BY SUCCESSFUL TENDERER

In addition to the items covered by the schedule of work and specifications, the following shall also be included in the scope of work of the successful tenderer within the quoted rates of Air-Conditioning head.

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



- i. Constructing a plant room of size 16 ft X 12 ft X 12 ft to house the 1 no. package type plant of 11TR Capacity. The plant room shall be insulated to handle the return air etc. and as per specification of the tender.
- ii. Foundation for all kind of equipment & machines.
- iii. Any other item required to complete the job but not accounted for in the scope of work or schedule of quantity being a turnkey project.

14. POWER AND WATER SUPPLY

Power supply shall be provided at the main incomer free of cost for testing and commissioning purposes, power supply for erection purpose shall, however, be arranged by the successful tenderer. Water supply for erection shall be arranged by the successful tenderer.

15. WATCH AND WARD OF THE MATERIAL AND EQUIPMENT

The contractor for supply of material and equipment for bonafide use on work at site, shall continue to be responsible for their safe custody till they are erected in position, tested, commissioned and handed over to engineer-in-charge. The contractor shall furnish an unstamped receipt to the engineer-in-charge for items of material and equipment so supplied.

16. DRAWINGS

The successful tenderer shall furnish, within two weeks of award of work, the following drawings for approval of IIT Delhi.

- 1.1. Detailed execution drawing related to civil and electrical work of various labs/ halls / clean rooms.
- 1.2. Layout drawing of services of all the utilities like plumbing drawing, HVAC, Fire Detection, access control etc. meeting the requirement of clean room as per technical specification of tender.
- 1.3. Any other drawing considered necessary by tenderer, Engineer-in-Charge.
- 1.4. The work shall be executed only after the approval of drawings by IIT Delhi including modification if any
- 1.5. The tenderer shall submit completion drawing in triplicate, as per execution at site on completion of work.

17. Defect liability of period:

- 1.1. The contractor shall guarantee the complete system to maintain the specified conditions under all the conditions of ambience and internal loads. Also the inlet/outlet temperatures at the specified flow of air in the AHU unit shall be guaranteed. All electrical, mechanical and civil installations shall work smoothly without any defects for 12 months after date of commissioning.
- 1.2. All equipment shall be guaranteed for at least a period of 12 months from the date of acceptance and taking over of the installations by the department against unsatisfactory performance and / or breakdown due to defective design, material, manufacture, workmanship or installation. The equipment or component or any part thereof so found defective during the guarantee period shall be repaired or replaced free of cost to the satisfaction of the Engineer-in-charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of contractor. The decision of Engineer-in-charge in this regard shall be final.



18. The work shall be executed in strict conformity to CPWD general specifications for civil & electrical work part-I internal, part-II external, part-IV substation, part-V wet riser and sprinkler system, part-VII D.G. set & HVAC CPWD specifications (amended up-to-date).
19. No foreign exchange shall be provided by the department for the purpose.
20. The tenderer shall clearly indicate the makes of the equipment being supplied by him.
21. The successful tenderer shall be responsible for the transportation handling and erection of the equipment at site. Any special tools tackles / lifting arrangements etc. required in this connection shall also be his responsibility.
22. In case any statutory inspection is required to be got done from any authorized Govt./ Local/ International agency the same shall be got done by the successful tenderer without any extra payment by the department.

23. Inspection and testing

Initial inspection at the work and final inspection and testing at the site shall be carried out as per the conditions of tender specifications.

The contractor shall assume all liability, financial or otherwise in connection with this contract and shall protect and indemnify the department from any and all the damages and claims that may arise on any account. The contractor shall indemnify the department against all the claims in respect of patent rights, royalties design, trade makes of name of other protected rights, damages to adjacent building, roads or member of public, in course of execution and subsequent maintenance period of work or any other reason whatsoever, and shall himself define all actions arising from such claim expenses. Nothing extra shall be payable on this account. **Bidder has to quote 'percentage above or below' only on Civil DSR 2014 for the item no. 1 [Miscellaneous Civil Work]. Lowest bidder [L-1] shall be evaluated based on total lowest quoted rates for the items 2 to 50.2.**

Lowest quoted percentage for item no. 1 amongst all bids shall be applicable & binding on the L-1 bidder.



TECHNICAL DOCUMENT

Contents

1. Proposal
2. Design layout
3. Design consideration
4. Work detail
 - 1.1. Civil work
 - 1.2. Electrical work
 - 1.3. Clean room body
 - 1.4. Air handling, ducting and accessories
 - 1.5. Air filtration
 - 1.6. Air conditioning
 - 1.7. Miscellaneous components
 - 1.8. Miscellaneous units
 - 1.9. Building management system
 - 1.10. Addressable fire detection/ suppression system
 - 1.11. Biometric access control and internet
 - 1.12. Validation and commissioning

Annexure-1 Facilities

Annexure-2 Approved make of electrical items

Annexure-3 Fitting and fixture material of construction

Table-1 Air handling

Table-2 Air conditioning

Table-3 Clean room furniture and accessories

Clean Room

1. Proposal

Indian Institute of Technology Delhi (IITD) is planning to set up a clean room facility for Tissue Engineering research, at its campus at New Delhi at block 1. These clean rooms will be constructed by dismantling the entire existing partitions and doors. These clean rooms will house various facilities required for research including general purpose. The total projected electrical load is max 100 KVA. This electrical supply will be received by one main LT panel located at suitable place on ground floor. 10 KVA one UPS to various electrical equipment loads shall be provided.

2. Design layout

The layout of the clean room has been optimized based on the requirements for various functional areas and available space. As a thumb rule, the ratio of clean room space to utilities space is about 50:50 sq. ft. for clean rooms. There will be air curtains, one at the entrance to the lab; one change room/gowning room.

Clean room 1 & 2 (Room No. 3 & 4): The rooms will have total area of Aprox. 500 sq. ft. with required height (around 8.5 feet). The rooms shall be designed to operate as Class 10000 Clean Room. This room will have approx 35 air changes per hour (ACPH).

3. Design considerations

1.1. Air handling:

Based on design layout given in area, height and thus the volume and ACPH of each clean room, the total flow rate will be calculated. Providing fresh air compensation for exhaust and a small margin, the AHU flow rate for each clean room is proposed. The AHU will have a fresh air

C.....Nil

I..... Nil

O..... Nil



intake damper (also fire damper) at the return air side and the balancing damper at the supply (delivery air side).

1.2. HEPA filters:

The HEPA filter of 99.97% efficiency are designed to be 2' x 2' (refer BOQ) standard size. The HEPA filters selected for the functional are based on the extent of the area to be covered on the clean room ceiling which is in turn is governed by clean room standards.

1.3. Air-conditioning: Drawing of room enclosed

Cooling of the clean rooms as well as non clean rooms and maintaining a temperature of $22 \pm 2^\circ \text{C}$ (with 44°C ambient) depends upon the area (volume) of the clean room and the heat transfer from outside the clean room through the clean room walls and also die to heat transfer in the supply / return air ducts and AHU body. Further cooling is required to compensate for the heat dissipated in the clean room such as equipment, heater (for humidity control), personnel (at the rate of 0.3 KW per person) and loss conditioned air due to exhaust. Air conditioning required for the clean rooms has been given only for the reference purpose.

The clean room temperature ($22 \pm 2^\circ \text{C}$), relative humidity level, various heat dissipation loads, total cooling required and the number of condenser units required for each room. All condenser units are chosen to be of air cooled type (Total = 11 Tr) to be installed just outside the clean room complex. The air cooled condenser units are reliable, efficient and simple to maintain as opposed to huge water cooled compressor which require cooling towers and water pumps which are difficult to maintain in long run.

1.4. Clean room walls

The clean room complex has external brick walls and also glass aluminium window which serve as shield for the internal clean room wall. The bottom of the ceiling has to be coated with antifungal paint from inside for protection of the clean room ceiling. The existing floor is covered with floor tiles which are reasonably clean; however the surface will have to be prepared for the coating of epoxy on the clean room floors. Clean room walls are proposed to be of powder coated 100 mm thick GI panel, each panel having double walls (1 mm thick GI sheets) with fire resistant Poly Urethane Foam in between. The ceiling will be walkable type with powder coated double wall GI panel with fire resistant Poly Urethane Foam (PUF) in between. The powder coating is 60-80 micron meter thick. The clean room ceiling will be supported from the main ceiling with sufficiently load bearing fasteners and hangers. All clean room will have 900 mm (W) x 2150 mm (H) doors for personnel entry, and a double leaf 1200 mm (W) x 2150 mm (H) doors for equipment loading. The return air for all clean rooms will be in the return air riser integrated in the riser wall panel.

1.5. Clean room floor: as per BOQ

1.6. Change room, Air curtain, Pass boxes

The change room (governing area) will be assembled by using the powder coated double walled GI panel. There will be an air curtain (fan filter, 3u unit, 4 X 2 ft. for main entrance to visitor corridors). Also, each clean room (rooms 3 and 4) should have a set of 304SS garment cabinets and storage furniture for storage of clean room clothing, shoes, head cover, gloves etc. further, Between room 3 & 4, one dynamic pass box will be provided for quick exchange of items / wafers required in the clean room. Dynamic pass box, SS304 600 X 600 X 600 mm with all necessary accessories for clean rooms.

**WORK DETAILS:****4.1. Civil Work Refer to BOQ**

Civil work includes the following

- a) Removal of all unwanted internal partitions in the rooms and as per site requirement and enclosed drawings and BOQ.
- b) All floors to be cleaned and tiling to be redone if required. No tiling is required in the clean room areas as the clean room will have epoxy flooring to be implemented by the clean room vendor at the end.

4.2. Electrical work

The electrical work includes the following: **Refer to BOQ**

LT Panel to provide electrical supply for the laboratories (Refer to BOQ)

UPS location are shown in the drawing: UPS-1 in 10 KVA

- The UPS system should have power diagNos.tics system based on IRIS (Intelligent Remote Information System)
- The UPS should have GPRS modem for cell phone use
- The UPS should have Data protection card
- The UPS should have SNMP card with GE single MIB
- The DC bank of the UPS should be 384V DC

The UPS manufacturer should have the following safety certificates:

1. Safety: EN-62040-1-1 with all the required certified papers.
2. EMC (Electro Magnetic Certificate): EM-62040-2 with all the required certificate papers.

- a) Two secondary LT panels, one for each UPS, with following MCCBs with over-current, short-circuit and with fault-protection;
Incoming (from UPS): 630A; outgoing: 250A (2 Nos.); 150A (2 Nos.), 125A (4 Nos.) and 63A (4 Nos.)
- b) Chemical earthing: 1 ohm earthing, one each for two 300 KVA UPS and main receiving panel; the secondary panel will have a separate earthing. In all, 6 Nos.. chemical earthing are required.
- c) Power cables:
Supplying and installation with end termination with single brass compression gland with aluminium lugs for the following size of XLPE insulated PVC sheathed aluminium conductor armoured power cables of 1.1 KV grade
3.5 core, 400sq.mm.
3.5 core, 300sq.mm.

4.3. Clean room body Refer to BOQ

Modern clean rooms are constructed using double layered panels, varying from 50mm to 100 mm thick; panel sheet is fabricated from powder coated GI sheet, thickness in the range 1mm to 0.5 mm; the GI sheets are separated by the fire resistant and insulating foam material. The ceiling is usually of 50 mm thick powder coated GI panel, usually walk able, suspended from main roof, using load bearing fasteners and hangers.

- 1.1.1. Clean room wall panels, 100 mm thick, 0.8 mm powder coated G.I. sheets, with fire resistant PUF foam size: 1200mm (W) x 2500mm (H)
(Riser panel area: As required)
- 1.1.2. Clean room ceiling panel, 50mm thick, 1mm powder coated G.I. sheets, with fire resistant PUF foam size: 1200mm (W) x 2500mm (L)
- 1.1.3. Clean room compatible double glazed windows 6 Nos.. (to be fitted in clean walls) size: 900mm x 750mm

C.....Nil

I..... Nil

O..... Nil



- 1.1.4. Clean room compatible flush doors (to be fitted on clean room walls)
- 1.1.5. Aluminum coving with aluminium backing
- 1.1.6. Return air riser panel (integrated in wall panels)
- 1.1.7. Epoxy flooring
- 1.1.8. Wall/ ceiling cutouts (for doors, windows, filters, lights & grill, etc.)

1.4. Air handling and ducting As per BOQ

1.4.1. Air handling: the air handling requirement is based on the air flow required in each clean room which in turn is dependent on the ISO class, volume of the room, exhausts, etc. based on this, air flow requirements have been calculated and categorized in a total of 2 air handling units. Each AHU has centrifugal blower of appropriate rating, a heat exchanger, filters at both input (15 micron at return and fresh air intake) and supply (3 microns at delivery) ends, damper for fresh air, balancing (fire) damper and heater for humidity control at delivery end. Body of all AHUs will be of powder coated GI with 40 mm thick internal PUF insulation. A dedicated air handling unit (AHU4) is used to provide air conditioning.

1.4.2. Ducting:

All ducting will be fabricated out of high zinc GI sheets, 20 gauge for main ducts and 22 gauge for branch ducts. All ducts are supported from the ceiling and terminated (for joints) in flanges.

Since the floor to ceiling height is limited to 9ft.6inches the concept of supply air plenum is proposed.

Clean room 1 and 2, class 10000

1.5. Air filtration

Prefiltration: These are located in the AHU section; generally 15 micron type at the return air / fresh air intake region before the heat exchanger (dx) coils and 3 micron type at the delivery end after the AHU blower but before the balancing damper. The total no. of prefilters (2'x2' area each) depends upon the AHU flow rate, and are included in the cost of AHU.

1.1.1. HEPA: high efficiency particulate air type filter have 99.97% efficiency for 0.3 micron particulates and above; these terminal HEPA filter form the important component of the clean room structure. These filters are fabricated (with imported HEPA materials) in various sizes and flow rates. In this proposal a standard design of 2'x2' size.

Terminal HEPA filter box will be MS Powder coated perforated plate:

1.1.2. Fire damper with blades of formed 1:6 mm galvanized steel, Axis of plated solid steel stubs, bearing of permanently sealed Bronze oil lubricated, linkage of plated steel on blade type actuator of 74°C UL rated fusible link of 74°C electro thermal link, sleeves of 18 GA galvanized steel 400/485 mm, side seal of metallic compression type.

1.6. Air conditioning

1.1.1. Cooling of the clean room as well as non-clean room labs maintaining a temperature of 22±2°C (with 44°C ambient) depends upon the area (volume) of the clean room and heat transfer from outside the clean room through clean room walls and also due to heat transfer in the supply / return air ducts and AHU body. Further, cooling is required to compensate for the heat dissipated in then clean room such as equipment, heater (for humidity control), personnel (at the rate of 0.3 KW per person) and loss of conditioned air due to exhaust.

Air conditioning required for the clean room has been calculated based on HVAC calculations.

Condensing unit:

C.....Nil

I..... Nil

O..... Nil



Air cooled condensing unit of absolute capacity comprising of scroll compressor complete with 5 M of refrigerant piping (liquid and suction) with nitrile rubber insulation of 19 mm thick for suction line, powder coated M.S. stand for mounting outdoor condenser units, with first charge of refrigerant, oil and necessary controls of following absolute capacity. Air cooled compressor with scroll/rotary compressor- 11 TR.

1.7. Miscellaneous components: As per BOQ

Thermostat with timer, Humidistat, Aluminium powder coated T section, Fastener & suspender (1/2" threaded GI) for ceiling panel, Electrical panel for air handling unit with VFDs (for blower) And PLC for control of condenser units, heaters, temperature & humidity, Cu. Piping with installation, leak detection & insulation, Lighting, High efficiency , Power cables and power points etc.

1.8. Building Management System (BMS)

Colour LCD display unit for displaying parameters including AHU No., room name, parameter to be displayed like temp., RH, pressure, set points for each and indication of normal operation and 2 level of alarms with sensor and cables.

Addressable Fire Detection System:

Single panel, cross zone detection, auto manual operation;

1.9. Access control system and internet:

1.1.1. Biometric lock: Combination of biometric, card reader and numerical keypad, user capacity upto 100.

1.1.2. LAN wiring with outlet sockets. D-link WiFi access points and D-link WiFi Ethernet card 64 kbps and cabling

1. Validation and commissioning:

Wet benches:

a) Wet benches for Lab Rooms

Specifications

Chemical benches for weak acid/ bases/ organics:

Work surface: 1800mm (L) x 700mm (W) x at height of 700mm from the floor

Overall size: 1850mm (L) x 850mm (W) x 2300mm (H)

Material: SS304,20/22 gauge

Tank: for drain water collection and complete drain outlet

Sink for wash and rinse: 300mm (L) x 200mm (W) x 150mm (H)

Sink for organic disposal: 200mm (L) x 200mm (W) x 150mm (H)

Exhaust flow: 500 CFM achieved with 150mm PP pipe at the top

Exhaust fan: 500 CFM with single phase motor, FRP body complete with PP pipe installation and testing

8. **Chemical fume exhaust:** Chemical bench exhaust fumes is to be treated (scrubbed) with water shower appropriately in the exhaust line (Room 2).

10. Drainage and fresh water system:

Drainage and fresh water system is to be fitted in various wet benches as per requirement described for each clean room (refer Tender Drawing) and other rooms



Table 1: Air Handling

Room function	Area Sq.ft. (approx)	Height Ft.	Volume (CFT)	Class	Air changes per hour	Room pressure Pascal	Flow rate CFM	Fresh air flow rate CFM	HEPA % of ceiling	No. of HEPA filters 2' x 2'	AHU CFM
Clean Room 1 (Room No 4)	288	8.5	2048	10000	35	20	1500	200	20	55 (400 CFM)	3000 AHU 1
Clean Room 2 (Room No 3)	256	8.5	2448	10000	35	20	1500	200	20	20 (400 CFM)	
Non Clean Room 2 (general)	224	10	2240								
Non Clean Room 1 (general)	176	10	1760								

Table 2: Air-conditioning

Room No.	Area Sq.ft.	Height Ft.	Volume (CFT)	Class	Air changes per hour (ACPH)	Temp (°C) +/- 2°C	Humidity % Rel +/- 5%	AHU CFM
Clean Room 1 (Room No 4)	288	8	2304	10000	35	22	50	3000
Clean Room 2 (Room No 3)	256	8	2048	10000	35	22	55	
Non Clean Room 2 (general)	224	10	2240			22		
Non Clean Room 1 (general)	176	10	1760			22		

Split A/C condenser units shall be installed in the open area using powder coated steel supports.

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.

**IITD -2010 CORRECTION SLIPS**

In General condition of contract for IIT Delhi works department 2010 –

	Existing	Modified
Clause 10B (ii), Para-2	Before any installment of advance is released, the contractor shall execute a Bank Guarantee Bond from Scheduled Bank for the amount of advance & valid for the contract period. This shall be kept renewed from time to time to cover the balance amount and likely period of complete recovery, together with interest.	Before any installment of advance is released, the contractor shall execute a Bank Guarantee Bond from Scheduled Bank for the amount equal to 110% of the amount of advance and valid for the contract period. This (Bank Guarantee from Scheduled Bank for the amount equal to 110% of the balance amount of advance) shall be kept renewed from time to time to cover the balance amount and likely period of complete recovery.
Reference	Existing Provision	Modified Provision
Clause 3 (vii)	If the contractor shall obtain a contract with Government as a result of wrong tendering or other non-bonafide methods of competitive tendering.	If the contractor had secured the contract with Government as a result of wrong tendering or other non-bonafide methods of competitive tendering or commits breach of Integrity Agreement.

Reference	Existing Provision	Modified Provision
Page 5, IITD 2010	Page 5, IITD 2010 4A. Applicable for Percentage Rate Tender only (IITD-7) In case of Percentage Rate Tenders, a tenderer shall fill up the usual printed form, stating at what percentage below/above (in figures as well as in words) the total estimated cost given in Schedule of Quantities at Schedule-A, he will be willing to execute the work. Tenders, which propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort including conditional rebates, will be summarily rejected. No single	Page 5, IITD 2010 4A. Applicable for Percentage Rate Tender only (IITD-7) In case of Percentage Rate Tenders, contractor shall fill up the usual printed form, stating at what percentage below/above (in figures as well as in words) the total estimated cost given in Schedule of Quantities at Schedule-A, he will be willing to execute the work. The tender submitted shall be treated as invalid if :- 1. The contractor does not quote percentage above/below on the total amount of tender or any section/sub head of the tender. 2. The percentage above/below is not

C.....Nil

L..... Nil

O..... Nil



	<p>tender shall include more than one work, but contractors who wish to tender for two or more works shall submit separate tender for each. Tender shall have the name and number of the works to which they refer, written on the envelopes.</p>	<p>quoted in figures & words both on the total amount of tender or any section/sub head of the tender.</p> <p>3. The percentage quoted above/below is different in figures & words on the total amount of tender or any section/sub head of the tender: Tenders, which propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort including conditional rebates, will be summarily rejected. No single tender shall include more than one work, but contractors who wish to tender for two or more works shall submit separate tender for each. Tender shall have the name and number of the works to which they refer, written on the envelopes.</p> <p>New Para 4B is added as below:</p> <p>4B: In case the lowest tendered amount (estimated cost + amount worked on the basis of percentage above/ below) of two or more contractors is same, such lowest contractors will be asked to submit sealed revised offer in the form of letter mentioning percentage above/below on estimated cost of tender including all sub sections/sub heads as the case may be, but the revised percentage quoted above/below on tendered cost or on each sub section/ sub head should not be higher than the percentage quoted at the time of submission of tender. The lowest tender shall be decided on the basis of revised offers.</p> <p>In case any of such contractor refuses to submit revised offer, then it shall be treated as withdrawal of his tender before acceptance and 50% of earnest money shall be forfeited.</p> <p>If the revised tendered amount of two more contractors received in revised offer is again found to be equal , the lowest tender, among such contractors, shall be decided by draw of lots in the presence of SE of the circle, EE(s) in-charge of major & minor component(s) (also DDH in</p>
--	---	--

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



		<p>case Horticulture work is also included in the tender), EE(E) or EE(HQ) of the circle & the lowest contractors those have quoted equal amount of their tenders.</p> <p>In case all the lowest contractors those have quoted same tendered amount, refuse to submit revised offers, then tenders are to be recalled after forfeiting 50% of EMD of each contractor.</p> <p>Contractor(s), whose earnest money is forfeited because of non-submission of revised offer, shall not be allowed to participate in the re-tendering process of the work.</p>
--	--	---

Reference	Existing Provision	Modified Provision
10A (page 6-7)	<p>In case of Percentage Rate Tenders only percentage quoted shall be considered. Any tender containing item rates is liable to be rejected. Percentage quoted by the contractor in percentage rate tender shall be accurately filled in figures and words, so that there is no discrepancy. However if the contractor has worked out the amount of the tender and if any discrepancy is found in the percentage quoted in words and figures, the percentage which corresponds with the amount worked out by the contractor shall, unless otherwise proved, be taken as correct. If the amount of the tender is not worked out by the contractor or it does not correspond with the percentage written either in figures or in words, then the percentage quoted by the contractor in words shall be taken as correct. Where the percentage quoted by the contractor in figures and in words tally but the amount is not worked out correctly, the percentage quoted by the contractor will, unless otherwise proved, be taken as correct and not the amount.</p>	<p>In case of Percentage Rate Tenders only percentage quoted shall be considered. Any tender containing item rates is liable to be rejected. Percentage quoted by the contractor in percentage rate tender shall be accurately filled in figures and words, so that there is no discrepancy.</p> <p>(Remaining part deleted)</p>

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



--	--	--

Reference	Existing Provisions	Modified Provisions
Deviations/ Variations Extent and Pricing	<p><u>CLAUSE 12</u></p> <p>The Engineer-in-Charge shall have power (i) to make alteration in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and (ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him writing signed by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main works except as hereafter provided.</p>	<p><u>CLAUSE 12</u></p> <p>The Engineer-in-Charge shall have power (i) to make alteration in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and (ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him writing signed by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main works except as hereafter provided.</p> <p>The completion cost of any agreement for Maintenance works including works of upgradation, aesthetic, special repair, addition/alteration shall not exceed 1.25 times of Tendered amount.</p>
Deviations, Extra Items, Pricing	<p>12.2</p> <p>In the case of extra items (items that are completely new and are in addition to the items contained in the contract), the contractor may within 15 days of</p>	<p>12.2</p> <p>A. For Project and original works:</p> <p>In the case of extra items (items that are completely new and are</p>

C.....Nil

I..... Nil

O..... Nil



	<p>receipt of order or occurrence of the item(s) claim rate, supported by proper analysis, for the work and the Engineer-in-charge shall within one month of the receipt of the claims supported by analysis after giving considerations to the analysis of the rates submitted by the contractor, determined the rates on basis of market rates and the contractor shall be paid in accordance with the rates so determined.</p>	<p>in addition to the items contained in the contract), the contractor may within 15 days of receipt of order or occurrence of the item(s) claim rate, supported by proper analysis, for the work and the Engineer-in-charge shall within one month of the receipt of the claims supported by analysis after giving considerations to the analysis of the rates submitted by the contractor, determined the rates on basis of market rates and the contractor shall be paid in accordance with the rates so determined.</p> <p>B. For Maintenance including works of upgradation, aesthetic, special repair, addition/ alteration:</p> <p>In the case of Extra Item(s) being the schedule items (Delhi Schedule of Rates items), these shall be paid as per the schedule rate plus cost index (at the time of tender) plus/minus percentage above below quoted contract amount.</p> <p>Payment of Extra items in case of non-schedule items (Non-DSR items) shall be made as per the prevailing market rate.</p>
Deviation, Substituted Items, Pricing	<p>In the case of substituted items (items that are taken up with partial substitution or lieu of items of work in the contract), the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentioned in the following Para.</p> <p>(a) If The market rate for the substituted item so determined is more than the market rate of the</p>	<p>A. For Project and original works:</p> <p>In the case of substituted items (items that are taken up with partial substitution or lieu of items of work in the contract), the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentioned in the following Para.</p>

C.....Nil

I..... Nil

O..... Nil



	<p>agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted).</p> <p>(b) If the market rate for the substituted item so determined is less than the market rate of the agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted)</p>	<p>(a) If The market rate for the substituted item so determined is more than the market rate of the agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted).</p> <p>(b) If the market rate for the substituted item so determined is less than the market rate of the agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted)</p> <p>B. For Maintenance including works of up gradation, aesthetic, special repair, addition/ alteration:</p> <p>In the case of Substitute Item(s) being the schedule items (Delhi Schedule of Rates items), these shall be paid as per the schedule rate plus cost index (at the time of tender) plus/minus percentage above below quoted contract amount.</p> <p>Payment of Extra items in case of non-schedule items (Non-DSR items) shall be made as per the prevailing market rate.</p>
Deviation, Deviated Quantities,	In the case of contract items, substituted items, contract cum substituted items, which exceed the	<p>A. For Project and original works:</p> <p>In the case of contract items,</p>

C.....Nil

I..... Nil

O..... Nil



Pricing	limits laid down in schedule F, the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities, the Engineer-in-Charge shall within one month of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.	substituted items, contract cum substituted items, which exceed the limits laid down in schedule F, the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities, the Engineer-in-Charge shall within one month of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined. B. For Maintenance including works of up-gradation, aesthetic, special repair, addition/ alteration: In the case of contract items, which exceed the limit laid down in schedule F, the contractor shall be paid rates specified in the schedule of quantities.
	12.3 The provisions of the preceding paragraph shall also apply to the decrease in the rates of items for the work excess of the limits laid down in Schedule F, and the Engineer-in-Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice, revise the rates for the work in question within one month of the expiry of the said period of	12.3 A. For Project and original works: The provisions of the preceding paragraph shall also apply to the decrease in the rates of items for the work excess of the limits laid down in Schedule F, and the Engineer-in-Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



	<p>fifteen days having regard to the market rates.</p>	<p>fifteen days of the receipt of the notice, revise the rates for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.</p> <p>B. For Maintenance including works of up-gradation, aesthetic, special repair, addition/ alteration:</p> <p>In the case of decrease in the rates Prevailing in the market of items for the work excess of the limits laid down in Schedule F, and the Engineer-in-Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice, revise the rates for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.</p>
Schedule F	<p>Clause 12</p> <p>No provision.</p>	<p>Clause 12</p> <p>Type of work _____</p> <p>*** _____</p> <p>*** To be filled by NIT approving authority either Project and original work or Maintenance works including works of up-gradation, aesthetic, special repair, addition/ alteration.</p>



TECHNICAL SPECIFICATIONS

1.0 The work shall be executed as per CPWD General Specifications for Civil & Electrical Work as amended up to date, relevant IE Rules, relevant IS, and as per directions of Engineer-in-charge. These additional specifications and conditions are to be read in conjunction with above and in case of variations, specifications given in the Additional specifications and conditions shall apply.

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.

**ANNEXURE - 1**

<< Organization Letter Head duly typed >>

DECLARATION

I / We, _____ hereby declare that all the information and data furnished by our organization with regard to this tender specification are true and complete to the best of our knowledge. I / we have gone through the specification, conditions and stipulations in details and agree to comply with the requirements and intent of specification.

1	Name & Address of the bidder	:	
2	Phone	:	
3	E-mail	:	
4	Contact person name	:	
5	Mobile number	:	
6	TIN number	:	
7	PAN number	:	
8	UTR no. [for payment of EMD]	:	
	BANK DETAILS		
9	Bank name	:	
10	Branch address	:	
11	Branch telephone no.	:	
12	MICR Code of the bank	:	
13	IFSC code	:	
14	Bank Account no.	:	
15	Type of account	:	

We further declare that our organization has not been blacklisted / delisted or put to any holiday by any Institutional agency / Govt. Department / Public Sector Undertaking in the last three years.

[Signature of the bidder]

Name:

Seal of the bidder

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



Annexure -2

LIST OF APPROVED MAKE OF MATERIAL

S.no	Description	Make
1.	Clean room Wall & Ceiling panel etc.	IClean/ Nicomec/ Clestra
2.	Clean room furniture	IClean/ Kleainzaida
3.	Doors	IClean/ Shaktimet
4.	Epoxy flooring	Fosroc/Sika
5.	Air-CoolLED Condensing unit	Carrier/Blue star
6.	Air-Handling unit	Edgetech/Zeco/System air/ Iclean
7.	Duct Sheet	Tata/Sail/Jindal
8.	Thermal Insulation	Supreme/K. Flex
9.	HEPA Filters	AAF/Camfil
10.	Steel Conduit	BEC/AKG/Any ISI marked
11.	PVC Conduit	AKG/Polypack
12.	Switch/socket	Roma/MK/North-west/ Legrand
13.	Industrial type Socket	Legrand/L&T
14.	Distribution Board	Legrand/L&T
15.	Cables	Gloster/National/Havells
16.	Wires	Kalinga/Polycab/Finolex/ Havells
17.	Building Management System	Honeywell (Trend) /Race/ Siemens
18.	Fire Detection System	Honeywell/GE/Siemens
19.	CCTV	Bosch/Sony/Panasonic/ Hikvision/Honeywell(vista)
20.	Access System	Realtime/ Zicom
21.	Door Interlock	Honeywell/Eltech
22.	Light Fixture	Phillips/Wipro
23.	UPS	Emersion/GE
24.	Damper	System air/Carrier
25.	Pan Humidifier	KEPL/Rapid Cool
26.	Electrical Panel	Anand/EAP/Emation

C.....Nil

I..... Nil

O..... Nil



27.	L.T. panel	L&T/Siemens / Schneider / Legrand /Adlec / Tricolite / Jakson / Rittal.
28.	ACB with short ckt/ over load / earth fault with time lag facility (for main L.T. panel and D.G. panel)	L&T (U-Power) / Merlin Gerin (Masterpact) /Siemens(3WL) / schneider / Legrand
29.	MCCB with microprocessor based release inbuilt O/L, S/C & E/F protections	L&T Dsine / Merlin Gerin (NSX) / siemens (sentron 3VL) / ABB (T MAX) schneider/ Legrand
30.	MCB	Legrand (Lexic)/ L&T (Hager) MG(multi-9)/ Schneider
31.	Current transformer	L&T / Automatic Electric / Kappa / ALFA
32.	Digital meters	L&T / Trinity / Conzerv / AE
33.	Selector Switches	Kaycee / L&T (Salzer) Manufacturer's approved
34.	Indication lamps and push button	BCH/ L&T /Telemecanique / Siemens / Tecknic / manufacturer's approved
35.	Push button	L&T (BCH)/ Siemens / Telemecanique / Tecknic / Manufacturer's approved
36.	Contractor suitable for type-2 coordination	L&T (MNX) / Schneider (Telemecanique-france)
37.	Timers	L&T (GIC) / Siemens / BCH
38.	Digital energy meter (ISI Marked)	L&T / trinity / Ducati / Secure / Enercon / AE konzerv
39.	Relays	Areva/ L&T/ EPCOS / schneider
40.	Capacitor LTXL type with Reactors	Siemens / L&T / EPCOS / Schneider
41.	APFCR Micro processor based on intelligent relay	L&T / GE /EPCOS/ Schneider
42.	Bus bar aluminium (E91E)	Jindal/ Indalco/ Century / Hindalco
43.	Bus bar copper	Hindustan copper / Ltd. Birla copper Ltd. / Sterile Industries.
44.	Bus duct sandwiched type	L&T / Siemens / Schneider / Legrand / Henikwon / Sudhir
45.	Diesel engine	Cummins / Mitsubishi / MTU/ Caterpilla
46.	Alternator	A Vkc / kirloskar / Jyoti / Stanford / Leroy former
47.	Over head bus trunking	Control and switch gear / Zeta / Siding / Moellels / SUDHIR
49.	Fuse switch grips	GE power / L&T Siemens /Crompton

C.....Nil

I..... Nil

O..... Nil



50.	Mineral / rock wool Hyderabad	U.P. Twigs / F.G.P. / Rockwool india
51.	Ammeter/ voltmeter	Automatic electric / Syntron / Imp / Rishab
52.	Batteries	Exide/ Lucas / Pace setter / standard / Amco / Kirloskar / Prestolite / Cummins pursuit
53.	Acoustic enclosure	Jackson/ Sudhir / Kirloskar electrodyne / Manufacture's approved
54.	Cubical panels	Siemens / GE ower / Crompton / L&T / Sudhir / Tricolite / Jackson / Schneider / Legrand Adlec Rittal.
55.	Antivibration mounting	Resistoflex/ Gerb / polybond / manufacturer's approved
56.	Control, protection & relays, Contractors	GE Power/ L&T / Siemens / Manufacturer's approved
57.	Audio/ video Annunciations	L&T / Minilec / Manufacturer's approved
58.	Energy Management Analyzer	Ducati / swift /AB / Enercon /L&T / Manufacturer's approved
59.	The PVC insulated copper wire	Finolex / Plaza / Skyline / Havells / Polycab/ Kalinga premium(ISI Marked)
60.	Steel conduit	BEC / NOC AKG (ISI marked)
61.	PVC conduit	Polypack / AKG / Setia, (ISI Marked)
62.	The electrical accessories	Anchor/ Antex / M.KEY (ISI Marked)
63.	5A switch/ socket / 15A switch / socket /and electric fan regulator (stepped type)	ROMA / MK/Northwest / Legrand / L&T make (ISI Marked)
64.	Modular plate and cover for GI box	ROMA / MK/Northwest / Legrand / L&T make (ISI Marked)
65.	Distribution board / isolator	Legrand / L&T / Schneider
66.	MCCBs/ S.F.U. switches	L&T / Siemens / ABB / Legrand / Schneider
67.	Industrial type socket for air-conditioner	Crompton/ havells/ Schneider
68.	Ceiling fan	Crompton greaves/ Usha / Bajaj / Havells , model high speed

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



69.	Exhaust fan	GEC / Crompton / Greaves / Usha
70.	L.T. Armoured cable	Havells / Gloster / Grandlay ICL/ Kalinga premium (ISI Marked)
71.	Energy meter	AE/HP/Enercon (Coserve)
72.	G.I. Box	G.I. box required for modular switches shall be of respective manufacture whose switch provided by the firm for the work.
73.	Screw/Scroll chilling machine	Trane / Blue star / Carrier /Voltas
74.	Cooling tower	Bell / Advance / Flowtech / Mihir
75.	Pump	Mather Platt / Kirloskar / Beacon /Grunfoss
76.	MS Pipe / GI pipe / GI sheet	Tata / Sail / Jindal
77.	Butterfly valve	Audco/ Advance / T&A
78.	Balancing valve	Danfoss/ Audco / Advance / T&A
79.	NRV	Leader /Advance / Castle / Sant
80.	Pot/ Y strainer	Emerald / Rapid cool / Sant / DS
81.	Thermometer / Pressure gauge	Fiebig / H Guru / Taylor / Emerald
82.	Modulating motor	Honeywell / JCI / Siemens / Danfos / Staefa
83.	Thermostat / Humidistat	Honeywell / JCI / Siemens / Danfos / Staefa
84.	Water flow switch	Sant / Siemens / Honeywell / JCI / Anergy / rapid cool
85.	Airstat	Sant / Siemens / Honeywell / JCI / Anergy / rapid cool
86.	Auto air vent with stop valve	Sant / Siemens / Honeywell / JCI / Anergy / rapid cool
87.	Vibration isolator / rubber pad	Dunlop/ Emerald / Resistoflex
88.	Motor	Siemens/ ABB / Crompton / NGEF / Bharat Bijlee / Crompton Greaves / Hindustan

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



89.	Starter	L&T / Siemens / Crompton / GE / ABb
90.	Single phase preventer	L&T / Siemens / Minilec / GE / ABB Power control India
92.	SFU / HRC / MCCB	AE/ L&T / Crompton / Alstom / GEC / Siemens /ABB
93.	MCB	ABB / Siemens / Merlin Gerin (Compact)/ Legrand/ Hager
94.	Ammeter/ voltmeter	AE / L&T / Crompton /Alstom / GEC / Laxmi
95.	Indicating lamp / push button / LED	Siemens/ GE Power / BCH/ RASS Control/ Essbee/ Kaycee/ Schneider Electric
96.	Selector switch	AE/ L&T / C&S / Kappa / IMP / Kaycee / Salzer
97.	Relay / Timer / Contractor	Siemens/ L&T / BCH/ Telemecanique/ Minilec/ Nerolac/ Asian/ Berger
98.	Paint	Nerolac/ Asian / Berger

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.

**LIST OF APPROVED MAKES FOR CIVIL WORK**

S. No.	Description	Approved Makes
1.	Cement (Grey) OPC/ PPC	ACC / Ultratech/ J.K. / BIRLA/ J.P./ Vikram
2.	Cement (White)	J.K. / BIRLA
3.	Reinforcement Steel	PRIMARY MANUFACTURERS APPROVED BY MINISTRY OF STEEL / SECONDARY MANUFACTURERS HAVING VALID BIS LICENSE (to be as per latest BIS provisions)
4.	Structural Steel	PRIMARY MANUFACTURERS APPROVED BY MINISTRY OF STEEL / SECONDARY MANUFACTURERS HAVING VALID BIS LICENSE (to be as per latest BIS provisions)
5.	Stainless steel (Grade 304)	Jindal / SAIL / Salem
6.	Bricks	COMMERCIALY AVAILABLE OR REQUIRED STRENGTH
7.	Aluminum Sections	HINDALCO / JINDAL / MAHAVIR
8.	Flush doors	CENTURY / MERINO / DURO BOARD /GREEN
9.	Laminates	GREENLAM / DURO / MERINO /DECOLAM / CENTURY
10.	Glass / Mirror	SAINT GOBAIN / MODI FLOAT / ASAHI FLOAT
11.	Ceramic Glazed tiles/Border tiles	1 ST QUALITY KAJARIA / NITCO / JOHNSON / ORIENTAL SOMANY
12.	Vitrified Tiles	NAVEEN / NITCO / JOHNSON / KAJARIA
13.	Interlocking Precast pavers blocks / Kerb Stone	HINDUSTAN TILES / NIMCO PREFAB / K.K. MANHOUS / DALAL
14.	Stainless Steel Hinges	JOLLY / GARG /AMIT / ASI SUPREME
15.	Stainless Steel Nuts Bolts / Screws	KUNDAN / PUJA / ATUL / GW
16.	Paint / primer / oil bound distemper / Acrylic paint	1 ST QUALITY PAINTS OF ASIAN / BERGER / NEROLAC / AKZONOBAL INDIA (ICI)
17.	Water Proof. Cement Paint	SNOWCEM / ASIAN PAINTS / BERGER / NEROLAC / ICI / SHALIMAR
18.	Sanitary ware (Vitreous China) (European Seats, Urinals, Wash Basins etc.)	HINDWARE / PARRYWARE / CERA
19.	Seat Covers	HINDWARE / PARRYWARE / CERA
20.	C.P. brass Fittings / Accessories	JAQUAR / MARC / CERA / ESS ESS / KOHLER
21.	G.I. Pipes	TATA / JINDAL (HISSAR)
22.	G.I. Fittings	UNIK / ZOLOTO
23.	Stainless Steel Sink	NEELKANTH / JAINA / KINGSTON (COBRA) / NIRAL
24.	Commercial Board / PLY	MERINO / DURO /GREEN / Century
25.	CI Pipes / Fittings & Manhole covers	RIF / NECO / BENGAL IRON WORKS / BC / SKF
26.	CI Pipes "Class LA"	NICO / KESORAM / ELECTRO STEEL / KAPILANSH
27.	Floor Spring	DOORKING / EVERITE
28.	Door Closer	EVERITE / SANDHU/ Hardwin or as approved Equivalent
29.	Bison Board	BISON / E BOARD
30.	Vertical Blinds	VISTA / MAC
31.	False Ceiling	Armstrong/ Saint Gobain/ Metaworth or as approved equivalent
32.	Water proofing compound	CICO / FOSROC / PIDILITE
33.	Polymer Compound	CICO / PIDILITE / FOSROC
34.	Particle Board	NOVA PAN / BHUTAN BOARD/ Eco Board
35.	Rust Remover / Anticorrosive	FOSROC / CICO / PIDILITE
36.	Adhesive	FEVICOL / VAMICOL

C.....Nil

I..... Nil

O..... Nil



37.	Tile Adhesive	PIDILITE / BALENDURA / FERROUSCRETE
38.	Wall Putty	BIRLA / JK / FERROUSCRETE
39	GRG Partitions	Gypsum India or as approved equivalent
40	Insulation	U.P. Twiga Ltd or as approved equivalent
41.	Epoxy Grout	Ballendura / Kerakoll / Ferrouscrete
42.	PVC Water storage tank (ISI marked)	Sintex / UniPlast / Polywell
43.	PVC insulated Water storage tank Heavy duty 4/5 layer	Sintex / UniPlast / Polywell / Euro or equivalent.
44.	Brass Ball Valve/ Gate Valve / Float Valve	Zoloto / Leader / SANT
45.	Aluminium Door fittings	Classic or ISI
46.	Brass Bib / Stop cock	Sant / Leader or ISI
47.	Thermoplastic paint	CBM, CMS, S.N. Industries and any other approved by Engineer-in-charge.
48.	Plaster of paris putty	Sakarni, Adhar Shree, Shree Ram, J.K., Ashirwad
49.	Commercial Board / Ply	As per item or Duro

N.B.: For any item not covered in the above list, the contractor shall require to get the samples approved from the Engineer-in-charge before the supply is made.

C.....Nil

I..... Nil

O..... Nil

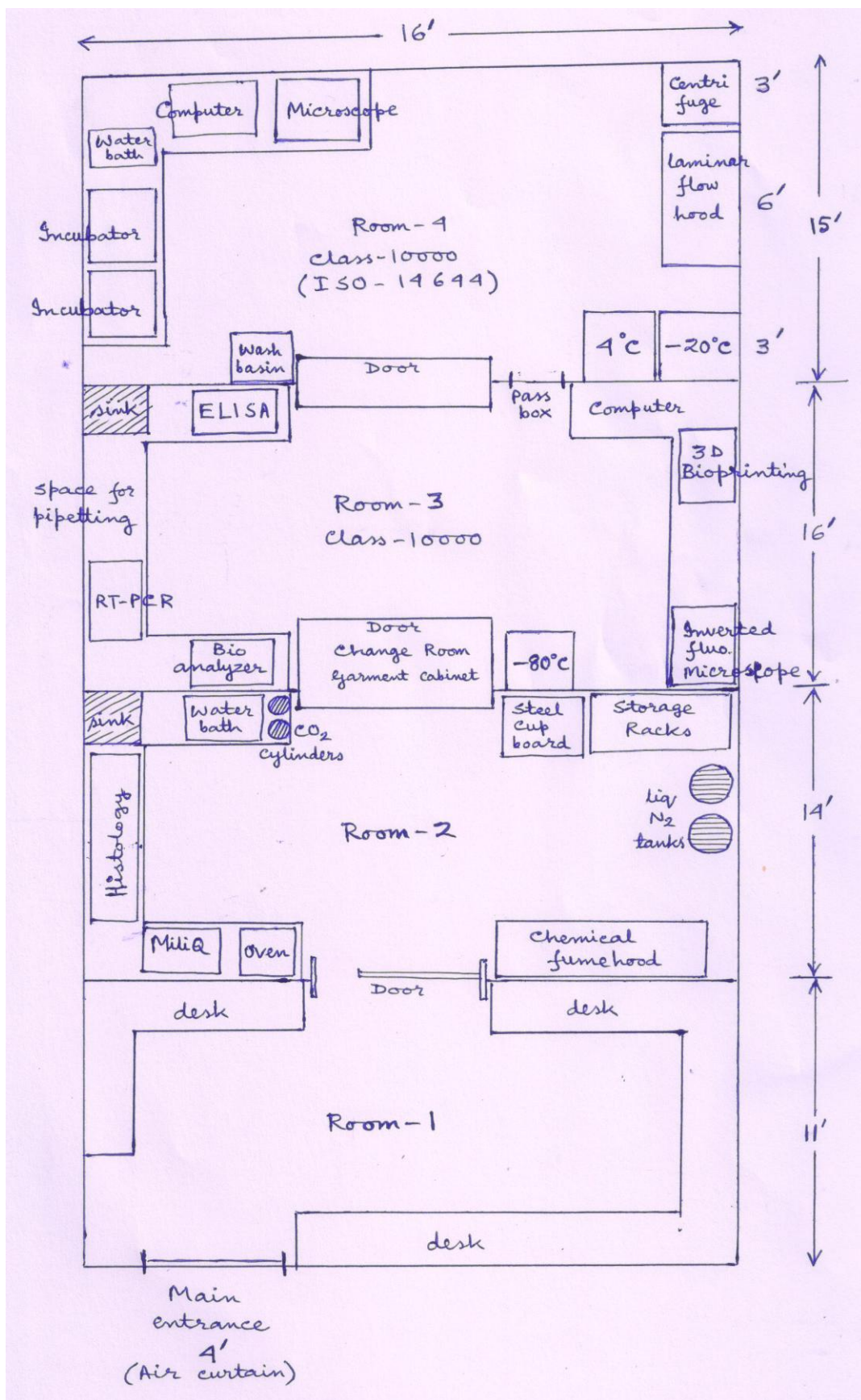
D'Man /J.E.

A.E.E / A.E.

E.E.



Annexure - 3 -- TENTATIVE DRAWING



C.....Nil

I.....Nil

O.....Nil

D'Man /J.E.

A.E.E /A.E.

E.E.

**BID SUBMISSION****ONLINE BID SUBMISSION:**

The bids (complete in all respect) must be uploaded online in **two** bids as explained below:-

Bid – 1 (Following documents to be provided as single PDF file)			
Sl. No.	Documents	Content	File Types
1.	Technical Bid	Organization Declaration Sheet as per Annexure - I	.PDF
2.		Attested Certificate of work experience	.PDF
3.		Certificate of financial turnover from CA	.PDF
4.		Bank solvency certificate	.PDF
5.		Certificate of Registration for Sales Tax / VAT and acknowledgement of up to date filed return	.PDF
6.		Certificate of Registration of Service Tax and acknowledgement of upto date filed return	.PDF
7.		Affidavit as per Notice Inviting Tender Condition [IITD-6] 1.2.2 [To be submitted on stamp paper]	.PDF
8.		Acceptance to execute INTEGRITY PACT [see integrity pact]	.PDF
9.		IITD 7 / 8 duly signed	.PDF
10.		EPFO & ESIC Registration proof	.PDF
11.		Any other document as specified in the NIT	.PDF
Bid – 2			
Sl. No.	TYPE	Content	
1.	Financial Bid	Price bid should be submitted in PDF format.	.PDF

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.

**SCHEDULE OF QUANTITY**

Name of work: - Construction of BSL-2 lab in block-I for Textile Deptt. in academic area at IIT Delhi

S.N.	Description	Unit	Qty	Rate	Amount
1	CIVIL WORKS:				
	<p>All miscellaneous civil works for clean room facility etc. as per DSR-2014 items for foundations, structural steel work. Stone flooring, finishing, brick work, tile work, painting and finishing, internal works of water supply and drainage, sanitary, toilet fixture, Aluminium doors & windows with fittings, dismantling work, removal of existing partition work and all other works / accessories and as per requirement at site and mentioned in drawings and instructions to complete the project in all respect</p> <p>Note :</p> <p>(i)The tenderer has to quote a single percentage above / below / at par of CPWD: DSR - 2014</p> <p>(ii) This item may or may not be operated. The Engineer-in-charge has the option to withdraw the item if not needed.</p> <p>(iii) The contractor shall have to execute any item of DSR-2014 as per site requirement including landscaping areas as per direction of Engineer-in-charge and as per drawing and specifications etc. The amount taken, for this purpose, in the estimate is tentative and can vary as per the requirement of work.</p> <p>(iv) Mode of measurement: All items shall be measured separately for the quantity executed</p> <p>N.B.: Bidder has to quote 'percentage above or below or at par' only on Civil DSR 2014 for the item no. 1 [Miscellaneous Civil Work]. Lowest bidder [L-1] shall be evaluated based on total lowest quoted rates for the items 2 to 50.2.</p> <p>Lowest quoted percentage for item no. 1 amongst all bids shall be applicable & binding on the L-1 bidder</p>				
2.0	CLEAN ROOM				
	Clean rooms shall be constructed using double layered panels, varying from 50 mm to 100 mm thick; panel sheet is fabricated from powder coated GI sheets, thickness in the range 1 mm to 0.5 mm; the GI sheets are separated by the				

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



	fire resistant and insulating foam material. The ceiling is usually of 50 mm thick powder coated GI panels, usually walkable, suspended from main roof, using load-bearing fasteners and hangers.				
2.1	Clean room wall panels, 50 mm thick, 0.8 mm powder coated G.I. sheets, with fire resistant PUF foam	sqm	50		
2.2	Cleanroom ceiling panels, 50 mm thick, 0.8 mm powder coated G.I. Sheets, with fire resistant PUF foam Size: 1200mm (w) x 2500mm (L)	sqm	85		
2.3	Clean room compatible double glazed windows (to be fitted on clean walls) Size: 900mm x 750 mm	Nos.	2		
2.4	View panels integrated with Civil wall and Modular Panel (1000x1000x300)	No.	1		
2.5	Clean room wall panels, 100 mm thick, 0.8 mm powder coated G.I. sheets, with fire resistant PUF foam	sqm	80		
2.6	Clean room Riser panels, 100 mm thick, 0.8 mm powder coated G.I. sheets, with proper stiffer and support	sqm	20		
2.7	Conduit in the wall panel	RM	80		
2.8	Wall/Ceiling cutouts (for doors, windows, filters, lights & grills, etc.)	Nos.	50		
2.9	Aluminum Powder cutouts T sections, Fasteners & Suspenders (1/2" threaded GI) FOR CEILING PANELS	Lot	1		
3.0	Clean room compatible flush doors (to be fitted on clean rooms walls)				
3.1	Single leaf door - 900 x 2100	Nos.	3		
3.2	Single leaf door - 1000 x 2100	No.	1		
3.3	Double leaf door - 1200 x 2100	No.	1		
3.4	Emergency door (900 mm x 2150mm)	No.	1		
3.5	Air - Tight Door for BSL - 2 Room (900x2100mm)	No.	1		

C.....Nil

I..... Nil

O..... Nil



3.6	Alluminum Covings with Aluminium Backing	RM	250		
3.7	3D Aluminium powder coated internal & external R-70 Coving	Nos.	25		
4.0	SH 3 Flooring				
4.1	Screening with Self leveling compound on cement floor to cover the undulations of floor	sqm	80		
4.2	Laying of 2mm Epoxy flooring for BSL-2 lab.	sqm	80		
4.3	Epoxy coving	RM	30		
5.0	SH 4 Supplying, Designing, Installation, Testing and Commissioning of Miscellaneous Units				
5.1	Dynamic Pass box				
	Working area: 600(w) x 600(d) mm	No.	1		
5.2	Ventilated type Garment Cubicle	No.	1		
	Size: 1200(w) X 800(d) mm				
5.3	Air curtain, fan filter (3u) unit - 4 x 2 ft for Main entrance to visitor corridors	No.	1		
6.0	Clean room Furniture				
6.1	Tables polished 304SS size l4 x w3 x h2.5' and storage and drawers	Nos.	6		
6.2	304SS chairs with adjustable height and antistatic Synthetic leather cushion	Nos.	6		
6.3	304Ss Stool with adjustable height	Nos.	6		
6.4	304SS racks for 12 set of shoes	Nos.	2		
7.0	Supply of a labourer for helping in supervision and site related activities on all days of month except on Sunday including all taxes.	Months	6		
8.0	Designing, Supplying, Installation, Testing and Commissioning Building of Management System (BMS)				
8.1	Centralised automation along with controllers, sensors and control valves, man machine interface unit, cabling, interconnecting the units and integrator units for the building				

C.....Nil

I..... Nil

O..... Nil



	management system to operate remotely.				
8.1.1	Supply, Installation, testing and Commissioning of windows based graphical user software, web based with GUI, alarming, reporting software as per manufacturer specifications.	No.	1		
8.1.2	Supply, installation, testing and Commissioning of Rack mounted IBMS server station with min Xeon E5 processor or greater with min 32 GB RAM with DVD drive, H.V.G.A card, 1 GB graphics card, min 1 TB HDD (or) required storage for loading Database / OS software + 2 years logs & events (whichever is higher), 1 GB Ethernet Network interface card, Scroll mouse and original software, The original 64 bit OS Windows server (2008 or above) software, Latest MS Office software, Anti-virus software (as per Client requirement) , with the required serial & parallel ports, 4 USB ports 21" LED colour HD monitor.	No.	1		
8.1.3	Supply, Installation, testing and Commissioning of DDC controllers 32 bit with supply relays, wing trays, wiring in an enclosure	Job	1		
8.1.4	DDC 1 of required Ports as per minimum data of points given in I/O summary 50 points controller.	No.	1		
8.1.5	DDC 1 of required Ports as per minimum data of points given in I/O summary 30 points controller.	No.	1		
8.2	DEVICES For AHU				
8.2.1	Supply, Installation, Testing & Commissioning of Differential Pressure Transmitter (Air Static Pressure Sensor) With output of 4 to 20mA or 0-10V DC Supply and input of 24V DC/AC	Nos.	2		
8.2.2	Supply, Installation, Testing & Commissioning of Differential pressure switch for Filter Status with potential free contact.	Nos.	2		
8.2.3	Supply, Installation, Testing & Commissioning of Modulating type motorized actuator 5Nm torque with operating voltage of 24 Volt AC/DC and modulating voltage of 0-10 V DC supply.	Nos.	4		

C.....Nil

I..... Nil

O..... Nil



8.2.4	Supply, Installation, Testing & Commissioning of Duct mounting type Temperature and RH sensor with output of 4 to 20 mA or 0-10 V DC supply and Input 24 V DC/AC.	Nos.	2		
8.2.5	Supply, Installation, Testing & Commissioning of Relay panel for AHU fire damper with damper open close status.	Nos.	2		
8.2.6	Supply, Installation, Testing & Commissioning of outdoor mounting type Temperature and RH sensor with output of 4 to 20 mA or 0-10V DC supply and input of 24V DC/AC	No.	1		
8.2.7	Supply, Installation, Testing & Commissioning of wall mounting type Temperature and RH sensor with output of 4 to 20 mA or 0-10V DC supply and input of 24V DC/AC	Nos.	5		
8.3	Cable & Conducting for BMS				
8.3.1	Supply, Laying, Termination of ISI marked 2 Core 1.0 sq.mm, FRLS PVC insulated, Un-armoured Tinned Copper twisted, Shielded, PE insulated Signal Cable / DDC Communication Cable with proper ferrules, Lugs and other necessary accessories. The spec shall meet the manufacturer spec.	RM	800		
8.3.2	Supply, Laying, Termination of ISI certified 3 Core 1.0 sq.mm, FRLS PVC insulated, Un-armoured Tinned Copper twisted, Shielded, PE insulated Signal Cable / DDC Communication Cable with proper ferrules, Lugs and other necessary accessories. The spec shall meet the manufacturer spec.	RM	400		
8.3.3	Supply, Laying, Termination of ISI certified 4 Core 1.0 sq.mm, FRLS PVC insulated, un-armoured Tinned Copper twisted, Shielded, PE insulated Signal Cable / DDC Communication Cable with proper ferrules, Lugs and other necessary accessories. The spec shall meet the manufacturer spec.	RM	200		
8.3.4	Supply, Laying, Termination of ISI certified 6 Core 1.0 sq.mm, FRLS PVC insulated, un-armoured Tinned Copper twisted, Shielded, PE insulated Communication Cable for third party device(VFD, Energy meter) network with	RM	200		

C.....Nil

I..... Nil

O..... Nil



	proper ferrules, Lugs and other necessary accessories. The spec shall meet the manufacturer spec.				
9	Providing Access system having finger print and password punching system	No.	1		
10	CCTV CONTROL SYSTEM				
10.1	Supply, Installation, Testing and Commissioning of 1/3" Colour C/CS Mount Low Light CCD Camera with at least 480 TV lines resolution in color mode & 530 TV Lines in B&W mode with 0.7lux sensitivity for colour mode & 0.09 Lux for B&W mode suitable for wall mount as required.	Nos.	4		
10.2	Supply and laying of RG 11 video cable in & including 25mm dia Heavy gauge FRLS PVC conduits.	RM	200		
10.3	Supply, erection, testing and commissioning of VIN 6008 H.264 Standalone DVR,16 Ch Video, D1+CIF Real Time 1 SATA HDD up to 2 TB, PTZ, Dual Stream, Digital Zoom, Sequence, HDMI, VGA and TV out, Mobile phone supported Vinton , including Software requirement for PC interconnection	Nos.	2		
10.4	Supply and laying of Cat 6 E cable in & including 25mm dia Heavy duty FRLS PVC conduits etc. complete.	RM	200		
10.5	Supply erection testing and commissioning of 12V DC 2.5A Power supply unit with battery backup of 30min (for four cameras one unit)	Nos.	2		
11	2 door interlocking system with all the necessary wiring , magnets & controller etc.	No.	1		
12	FIRE ALARM SYSTEM				
12.1	Supply, installation, testing and commissioning of Microprocessor based 1 Loop analogue addressable type fire alarm control panel with 80 character LCD display with Battery backup of 1 1/2 hour four access levels 500 event historical logging.(UL approved).	No.	1		
12.2	Supply, installation, testing and commissioning of Analog addressable Photoelectric Smoke	Nos.	18		

C.....Nil

I..... Nil

O..... Nil



	detector with mounting based LED, Address Switch to programme the detectors from 01-99, with base complete as required.				
12.3	Supply, installation, testing and commissioning of 2C x 1.5 sq.mm armoured cable.	RM	500		
12.4	Supply, installation, testing and commissioning of Addressable manual call point (Break glass), complete as required as per specification.	Nos.	2		
12.5	Supply, installation testing and commissioning of Hooter cum Flash	Nos.	4		
12.6	Supply, installation testing and commissioning of Manual abort station (Pull type)	Nos.	2		
12.7	Supply, installation testing and commissioning of addressable control module for hooter complete as required as per specifications.	Nos.	2		
13	Providing and installation of Sticker for the clean room & for the equipments	Lot	1		
14	S.I.T.C. of Magnehelic Gauge				
14.1	for room - range 30-0-30 pa/ range 45-0-45 pa	Nos.	2		
14.2	for AHU - range 0-500 pa	Nos.	2		
15	Documentation, Commissioning & Validation				
15.1	Preparation of DQ, ID, OQ documentation including testing and Validation of the Cleanroom facility as per international standard of BSL-2 Lab or clean room 10000 [viz. ISO 14644 clean room standards for ISO class 7 at rest conditions].	Lot	1		
	HVAC SYSTEM				
16	Supplying and Designing, Installation, Testing and commissioning of Air Handling and Ducting				
16.1	Supply, Installation and Commissioning of Double skin air handling units; panel shall be made of 40+/- 2mm thick fabricated out of powder coated 0.6 mm thick GI on the outer side and plain 0.6 mm thick GI sheet on inner side with PUF insulation density of 38 +/- 2 kg/cum; the framework shall be of extruded aluminium thermal break hollow section; AHU				

C.....Nil

L..... Nil

O..... Nil



	<p>shall comprise of mixing box section with aluminium airfoil blade low leakage type F/A & R/A damper suitable for manual/ motorized operation; Pre- Filter section with 10 micron and 5 micron filter on common frame , Coil section with 6 row DX coil, Electrical heater, insulated 18G SS 304 stainless steel drain pan, fan section with DIDW backward curved centrifugal fan, belt drive with taper lock bush pulley, fire retardant flexible canvass connection between fan and AHU panel, Internal vibration mounts under the fan & motor frame . Final Filter section with 1 micron filter and humidifier section and supply plenum with aluminium airfoil blade low leakage type S/A damper suitable for manual/ motorized operation.</p> <p>Pre-filtration: These are located in the AHU section generally 10 micron & 5 micron type at the return air/ fresh air intake region before heat exchanger (dx) coil and 3 micron type at the delivery end after the AHU blower but before the balancing damper. The total no. of pre-filters (2' x 2' area each) depends upon the AHU flow rate, and are included in the cost of AHU. Air flow AHU 3000 CFM, 75 mm static : 6Row deep</p>				
	AHU-01 / 11 TR / 17 Kw / 3000CFM	No.	1		
17	Terminal HEPA Module made from 18 G GI powder coated sheet including H13 HEPA filter, GI powder coated grill.				
17.1	610 x 610 x 150 mm	Nos.	6		
17.2	450 x 450 x 150 mm	Nos.	2		
18	Terminal HEPA filter with High efficiency particulate air filter shave 99.97% efficiency for 0.3 Micron Particulate and above with G.I Power coated perforated plate matching with ceiling grid size : 610x610x117mm (400CFM) for take out the mixed air from the clean room terminal ULPA filters with G.I power coated perforated plate matching with ceiling grid . ULPA filters of 99.9995% efficiency down to 0.12um EN1822 UL{A filter size 610x610x117mm(400CFM)	Nos.	12		

C.....Nil

I..... Nil

O..... Nil



19	S/F of Exhaust air unit (EAU-01) for room exhaust	No.	1		
20	S.I.T.C. of Ducting:				
	All ducting will be fabricated out of high zinc GI sheets, 20 gauge for main ducts and 22 gauge for branch ducts. All ducts are supported from the ceiling and terminated (for joints) in flanges.				
20.1	20 gauge	Sqm	30		
20.2	22 gauge	Sqm	50		
20.3	24 gauge	Sqm	150		
21	S.I.T.C. of SS 304 Round Ducting - Option for return air from BSL 2 lab				
21.1	Ø 200 mm	RM	9		
21.2	Ø 150 mm	RM	5		
22	Providing and installation of Thermal Insulation				
22.1	Supply Air ducts insulation with 19mm thick nitrile rubber insulation with aluminized surface	Sqm	100		
22.2	Return Air ducts insulation with 13mm thick nitrile rubber insulation with aluminized surface	Sqm	150		
22.3	Sand cement plaster for exposed ducting	Sqm	100		
23	S.I.T.C. of Fire Dampers				
23.1	Fire damper with Blades of formed 1.6mm Galvanized steel, Axis of Plated solid steel stubs, Bearing of Permanently sealed Bronze oil lubricated, Linkage of Plated steel on Blade type Actuator of 74°C UL rated fusible link or 74°C Electro Thermal Link, Sleeve of 18 GA Galvanized steel 400/485 mm, Side seals of Metallic Compression type	No.	1		
24	Supplying, Designing, Installation, Testing and Commissioning of Air Cooled Condensing Units				
	Supply and installation of Air Cooled Condensing units with scroll/ Rotary compressor, copper tube/aluminium fin condenser coil, Axial type condenser fan with				

C.....Nil

I..... Nil

O..... Nil



	direct driven motor. The unit would be suitable to operate with 415V/ 3ph/50Hz power supply. Necessary thermostat for temperature control including cabling shall be included.				
24.1	Air Cooled Condenser with Scroll Compressor-11 TR	No.	1		
24.2	Cu. Piping with installation, leak detection & insulation	RM	80		
25	Supplying, Designing, Installation, Testing and Commissioning of Miscellaneous components				
25.1	Thermostat with timer	No.	1		
25.2	Humidistat	No.	1		
25.3	Control wiring for Thermostat & Humidistats	Lot	1		
26	S.I.T.C. of Pan Humidifiers made out of MS having connections of quick fill, make up, over flow and drain. The top cover is open able for access to the inside of Humidifier for servicing. The body of Humidifier is Air Tight and leak proof.				
26.1	Pan Humidifier -3kw	No.	1		
27	S.I.T.C. of Volume Control Damper				
27.1	for Branch ducting - GI dampers	Sqm	5		
27.2	for HEPA filter housing - Aluminium extruded dampers	Sqm	1		
28	SITC of Thyristor controlled heater bank				
28.1	up to 27 A	No.	1		
29	Duct Leak Test				
29.1	Duct Leakage Testing of all Ducting with smoke test.	LOT	1		
30	P/I/T/C of Split Air-Conditioner				
30.1	Providing & supply of 5 star rating 1.5 TR split type Air conditioners complete make :- Voltas, Hitachi, Whirl pool, Blue star, LG	Nos.	3		

C.....Nil

I..... Nil

O..... Nil



30.2	Installation of split type Air Conditioner as per the following, (i) Mounting and fitting of indoor and outdoor units at their respective location (ii) Providing Laying Refrigerant pipe lines (both) 5.0 metres for the connection both the units after drilling holes/ holes in the walls, if required thickness of the pipe shall not be less than 0.80 mm . including six metres of three core PVC wire (iii) providing and insulating the suction pipe line with expanded Polyethylene foam / Tubing. and covered with PVC flexible pipe (iv) providing and laying drain pipe to throw out the condensate water being formed in the indoor unit (v) leakage testing of entire system. (vi) Providing and charging refrigerant gas in the unit. 3000/4500/6000 kcal / Hr, (1.0/1.5/2.0 TR)	No.	3		
30.3	Providing and Laying Extra Refrigerant pipe lines (both) beyond 5.0 metres for connections both the units after drilling holes / holes in the wall, if required, thickness of the pipe shall not be less than .80 mm including three core PVC wire 80/0.20 and drain pipe to throw out the condensate water being formed in the indoor unit, and covered with 2" PVC flexible pipe with clamps on outer side and bends only.	RM	30		
30.4	providing and laying PVC plastic channel 50x50mm size for concealing the refrigerant piping etc.	RM	15		
30.5	Proving & fixing of M.S Angles /Sheet (Size 40x40x5mm) (or manufacturer specification) stand /platform for the outdoor units as required at site. Make ISI mark	Job	3		
ELECTRICAL WORKS:					
31	Wiring for light point / fan point / exhaust fan point / call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface / recessed steel conduit, with piano type switch, phenolic laminated sheet, suitable size M.S. box and earthing the point with 1.5 sqmm FR PVC insulated copper conductor single core cable etc. as required.				
31.1	Group C	Pts.	30		

C.....Nil

I..... Nil

O..... Nil



32	Wiring for light / power plug with 2 X 4 sq.mm FR PVC insulated copper conductor single core cable in surface / recessed steel conduit along with 1 N. 4 sq.mm FR PVC insulated copper conductor single core cable for loop earthing as required.	RM	300		
33	Wiring for light / power plug with 4 X 4 sq.mm FR PVC insulated copper conductor single core cable in surface / recessed steel conduit along with 2 N. 4 sq.mm FR PVC insulated copper conductor single core cable for loop earthing as required.	RM	250		
34	Wiring for circuit / sub main wiring alongwith earth wire with the following sizes of FR PVC insulated copper conductor, single core cable in surface / recessed steel conduit as required.				
34.1	2 X 2.5 sq.mm + 1 X 2.5 sq. mm. earth wire	RM	250		
35	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case conduit , or cutting the wall making good the same in case of recessed conduit as required.				
35.1	(i) 20 mm	RM	250		
35.2	(ii) 25mm	RM	400		
36	Supplying and installation & testing of Luminaires, Sockets, switches etc.				
36.1	42W LED Top open able cleanroom luminaire [type of fitting to be got approved by the E-in-C]	Nos.	24		
36.2	Single phase cleanroom power sockets with enclosure (6/16A)	Nos.	35		
36.3	16A Switch 1No's with front & rear Plate for light Control	Nos.	13		
36.4	16A Switch 2No's with front & rear Plate for light Control	Nos.	2		
36.5	16A Switch 3No's with front & rear Plate for light Control	Nos.	2		
36.6	RJ11 Telephone socket (NW)	Nos.	5		

C.....Nil

I..... Nil

O..... Nil



36.7	RJ45 LAN socket (NW)	Nos.	10		
37	SITC of CRCA Module back Box				
	The CRCA module box shall be concealed/surface mounted on Brick wall/Modular portion				
37.1	2 Module CRCA box	Nos.	2		
37.2	3 Module CRCA box	Nos.	2		
37.3	6 Module CRCA box	Nos.	2		
38	Providing & fixing Plug & Socket 63 Amp. 4pole including connection etc. complete as required.	Nos.	2		
39	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing along with existing surface / recessed conduit/ sub main wiring /cable as required.	RM	150		
40.00	Providing and installation of Power Distribution Panels, DBs.				
40.1	3 Phase , 16 WAY Distribution Boards with Horizontal double door type (ETPN DB) with per phase Isolation kit , 63A TPN MCB as a incomer, 40 A DP MCB per Phase & 18 Nos... 16A SP MCB and 6 Nos. 20A SP MCB as a outgoing circuit (8 Way per Phase). MCB shall be provided with "C" curve.	No.	1		
40.2	3 Phase, 12 WAY Distribution Board with Horizontal double door type (ETPN DB) with per phase isolation kit, 32A TPN MCB as a incomer , 25A-300 mA DP RCCB per phase & 12 Nos... 10A DP MCB as a outgoing circuit (4 Way per Phase).MCB shall be provided with "C" curve.	No.	1		
40.3	Providing and fixing 25 mm X 5 mm copper strip with PVC insulation in 40 mm dia G.I. pipe complete as required.	RM	34		
40.4	Providing and fixing 25 mm X 5 mm copper strip with PVC insulation on surface or in recess for connections etc. complete as required.	RM	30		
40.5	Providing and fixing 2x25mm x 5mm G.I. strip in 40mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring,	RM	25		

C.....Nil

I..... Nil

O..... Nil



	washer excavation and refilling etc. as required.				
41	COPER EARTH PLATE ELECTRODE:				
41.1	Earthing with copper earth plate 600 mm x 600mm x 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal / coke and salt as required.	Nos.	2		
41.2	G.I. EARTH PLATE ELECTRODE:				
41.2.1	Earthing with G.I. earth plate 600 mm x 600mm x 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal / coke and salt as required.	Nos.	2		
42.0	L.T PANEL				
	I] Supplying, installation, testing and commissioning of outdoor expandable double door cubical type L.T panel suitable for 415 volt, 3 phase, 4wire 50Hz AC supply system having front surface area 3.1 sq. mtr.(approx.)(1850 x1640 x 450 mm) fabricated in compartmentalized design CRCA sheet steel of 2mm thick for frame work and covers, 3mm thick 7 tank, electro dip coating process for powder coating in the approved shades having 2000 amps capacity four pole aluminium alloy bus bar of high conductivity . DMC / SMC bus bar supports with short circuit withstand capacity of 31 MVA for 1 sec, bottom base channel of MS section not less than 100 x 50 x 5 mm thick, fabrication should be done in transportable section , entire panel shall have a common aluminium earth busbar of size 25 x 5mm at the rear with 2 Nos.. earth stud, solid connection from main busbar to switchgears with required size of aluminium busbar and control wiring with 1.5 sq.mm PVC insulated copper conductor s/c cable, cable gland plates in two half i/c construction of brick masonry foundation height, providing following switchgears : (IP - 56 CPRI approved)				

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



A] INCOMER				
1600 amps. each four pole horizontal electrical draw out type air -circuit breaker of fault breaking capacity 50KA (Ics=Icu=Icw for 1sec.) fitted with interlocked door, automatic safety shutters, mechanical ON/OFF and service/test/isolated position indicators and frame earthing contract , confirming to IS:60947-1993 as amended up to date complete with following accessories for each LSING + current metering QUANTITY : 02 Nos.				
A] U/V release, micro switch for common fault, and mechanical operation counter.				
B] 1 No. numerical relay (Equivalent to MC31A) with 2 No.+ 2 NC O/P contacts				
C] T-N-C breaker control switch				
D] 96x96 sqmm multi-function meter having display of all power parameters CL-1.0 with maximum demanded indication & Rs - 485 port				
E] 1600/5,cast resin metering CT,15VA, CL-1.0				
F] ON/OFF /Trip indicating lights R.G.A (LED Type)				
G] Phase indicating lights R.Y.B (LED type)				
H] Auxiliary contactors as required				
I] 2A SP MCBs as required				
B] Bus Coupler				
A] 1600 amp. 4 pole MDO air-circuit breaker without protection release but with U/V release, door interlock and mechanical Operation counter (ICU=ICS=ICW) Quantity - 01No.				
B] T-N-C breaker switch				
C] On/OFF indicating light R.G (LED type)				
D] Auxiliary contactors as required				
E] 2A control SP MCBs as required				

C.....Nil

I..... Nil

O..... Nil



C] BUS BARS				
4 poles aluminium bus bars of minimum of 2000 amps. Capacity with heat shrinkable coloured sleeves and including DMC bus bars support at required intervals complete for cross section, size supports and their spacing etc. for with standing fault level of 35 MVA for 1 sec.				
D] INTERLOCKING				
Electrical though advance contacts in ACB's (incomer & bus coupler) and mechanical (castell key) interlocking should be provided to ensure that only one supply is available at a time on each section bus and to eliminate any possible of accidentally approaching two suppliers at one bus section.				
E] OUTGOINGS				
I) 1600 amps each 4 pole horizontal mechanical draw out type air-circuit breaker of fault Breaking capacity of 50 KA (ICS=ICU for 1sec) fitted with interlocked door, automatic safety shutters, Mechanical ON/OFF and service /test/isolated position indicators and frame earthing contract ,confirming to IS: 60947-2 1993 as amended upto date complete with following accessories for each ACB with UW-MTX 2.5G, LSING+ current metering communication Quantity - 02 Nos.				
A] U/V release , micro switch for common fault , and mechanical operation counter				
B] T-N -C breaker control switch				
C] 96x96 sqmm multi-function meter, CL-1 with maximum demanded indication & RS- 485 port				
D] 1600/5, cast resin metering CT.15VA, CL 1.0				
E] ON/OFF Trip indicating lights R.G.A (LED Type)				
F] Phase indicating lights R.Y.B (LED Type)				

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



	G] Auxiliary contactors as required				
	H] 2A control SP MCBs as required				
	(II) 630 amp. MCCB feeder: Quantity - 04 Nos.				
	A] 630 amp.36 KA (ICS=ICU) 4 pole MCCB with micro Processor based release for over load, short circuit and earth fault protection with extendible rotary handle and spreader terminal - 04Nos...				
	B] 96 x 96 sq.mm. digital multifunction meter VAF - 1 no.				
	C] 630/5 amp. Cast resin meter CT,15VA CL-1.0 as required				
	D] 2A control SP MCBs as required				
	(III) 400 amp. MCCB feeder - 04 Nos.				
	A] 400 amp.36 KA (ICS=ICU) 4 pole MCCB with microprocessor based release for over load Short circuit and earth fault protection with extendable rotary handle and spreader terminal Quantity: 04 Nos.				
	B] 96 x 96 sq.mm. digital multifunction meter VAF				
	C] 400/5 amp. Cast resin meter CT, 15VA, CL - 1.0				
	D] 2A control SP MCBs as required				
		Job	01		
43	S.I.T.C. of System Control Panel for Recirculation AHU system, Comprising of Incomer MCB/MCCB, 2.2KW,VFD for Supply air fan Motor,3 Pole contactors and related indication lamps,4 Pole MCB+ contactors and related indication lamps etc.. For AHU, Fan Motors, Complete with Wall mounting, CRCA fabricated, Epoxy powder coated after seven tank process, fully wired and tested. The Control Panel shall have provision for Hook up to BMS interface in Auto mode.				

C.....Nil

I..... Nil

O..... Nil



43.1	AHU control Panel 01	No.	1		
44	SITC of online 10 KVA UPS with Batteries and Battery Rack as per specification	No.	1		
45	Supplying and laying of Power & control cabling on surface / recess as required.				
45.1	3.5C x 25.0 sqmm Al armoured cables	RM	100		
45.2	4C x 16 sqmm Al armoured cables	RM	100		
45.3	3C x 1.5 sqmm copper un armoured flexible cables	RM	400		
45.4	3C x 2.5 sqmm copper un armoured flexible cables	RM	200		
45.5	3C x 4.0 sqmm copper un armoured flexible cables	RM	300		
45.6	4C x 2.5 sqmm copper un armoured flexible cables	RM	100		
45.7	4C x 4.0 sqmm copper un armoured flexible cables	RM	100		
45.8	Telephone cable (2 Pair 0.5 Sqmm Un Armoured Cable)	RM	200		
45.9	LAN Cable (CAT 6e Cable)	RM	305		
46	Providing & installation of 50 Pair Telephone junction Box	No.	1		
47.00	Supplying and laying of Power Cables of 1.1 KV grade on surface / recess as required				
47.1	3.5-core, Al armoured, 95 Sq. mm.	RM	40		
47.2	3.5-core, Al armoured, 35 Sq. mm	RM	50		
47.3	3.5-core, Cu, 10 Sq.mm.	RM	50		
47.4	3-core, Cu, 4 Sq.mm.	RM	70		

C.....Nil

I..... Nil

O..... Nil



CABLE END TERMINATIONS					
48.0	Supplying and making End Termination with brass compression glands and al / copper lugs for the following sizes of PVC / XLPE insulated PVC sheathed & armoured 1100 V grade cable including cost of crimping lugs / ferrules, compression glands, solder, cable sockets, insulation tap etc. complete as required.				
48.1	3 ½ X 95 sq.mm	No.	4		
48.2	3 ½ X 35 sq.mm	No.	4		
48.3	3.5 C X 25 Sq.mm CU.	No.	6		
48.4	4 C X 16 Sq.mm CU.	No.	2		
48.5	4 X 10 sq.mm	No.	12		
48.6	3 C X 10 Sq.mm CU.	No.	20		
48.7	3 C X 6Sq.mm CU.(Single strand type)	No.	13		
48.80	4 CX 6 Sq.mm CU.	No.	2		
48.9	3 C X 4 Sq.mm CU.(Single strand type)	No.	33		
48.10	4 C X 2.5 Sq.mm CU.	No.	6		
48.11	3 C X 2.5 Sq.mm CU.(Single strand type)	No.	2		

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.



48.12	4 C X 1.5 Sq.mm CU.	No.	6		
48.13	3 C X 1.5 Sq.mm CU.(Single strand type)	No.	2		
49	Supplying and installation of Cable trays, conduits and Earthing.				
49.1	300mm (W) x 50 mm (H) perforated cable trays with accessories (GI)	RM	30		
49.2	150mm (W) x 50 mm (H) perforated cable trays with accessories (GI)	RM	50		
49.3	100mm (W) x 50 mm (H) perforated cable trays with accessories (GI)	RM	70		
49.4	150 mm perforated type cable tray with cover of 2mm thick and complete set for BMS work	RM	150		
49.5	PVC conduit rigid 19/20mm with accessories	RM	50		
49.6	PVC conduit rigid 25mm with accessories	RM	50		
49.7	19mm dia PVC flexible Conduit	RM	20		
49.8	25mm dia PVC flexible Conduit	RM	100		
49.9	Supply and Laying of 20mm dia Heavy gauge FRLS PVC conduit with bends, collar saddles, saddle base and other accessories for Signal Cable.	RM	500		
50.00	CHIPPING [CHASING] OF WALL / SLAB / BEAM ETC.				
50.10	Chasing of brick wall	RM	40		
50.20	Chasing of RCC wall	RM	20		

C.....Nil

I..... Nil

O..... Nil



	Total Rs (A)				
	Credit for dismantled material (N.B. – Minimum Amount to be quoted Rs.300/- for dismantled items)				
	Scrap Iron	Kg	20		
	Total Rs. (B)				
	Total Rs. (A - B)				

AEE(C)

AEE [E] Plg

EE(E)

C.....Nil

I..... Nil

O..... Nil

D'Man /J.E.

A.E.E / A.E.

E.E.