TENDER NO: 6/2019 Dated 4/7/2019

NOTICE INVITING TENDER

FOR
COMPUTATIONAL BIOLOGY WET LAB FURNITURE WORKS AT IIITD CAMPUS AT OKHLA PHASE-III
NEW DELHI-110020

INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY,
IIITD Campus Okhla Phase III New Delhi
Website: http://www.iiitd.ac.in

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INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY
IIITD CAMPUS
NEW DELHI

Dated: 04.07.2019

TENDER NOTICE

1. Last Date & Time of issue of tender documents from: **04.07.2019**

2. Last Date & Time of receipt of tender: **12.07.2019 up to 3.00 p.m**

Registrar IIITD invites sealed item rate tenders from eligible specialized manufacturers / authorized agencies /contractors for similar works.

Name of work: Works of Fabrication Supply and Installation of Specialized Laboratory furniture including Electrical and Plumbing works for Setting up of Computational Biology Wet Lab IIIT-D Campus at Okhla III New Delhi. 110020. This Includes all types of furniture items for Molecular Biology/ Biochemistry lab work benches, storages lab fabricated/fixed/loose seating, laboratory workstation furniture including storage units over bench. Fabrication, Supply & fixing of lab case work in laboratories. Manufacture, Supply, Installation, testing & commissioning of Fume Hoods & electrial outlets labs benches. Includes utility connections and piping (plumbing, electrical, water, gas etc) to the Case Work & Fume Hood .

Location: 3rd floor of Lecture Hall Complex

Estimated cost of work put to tender: Rs.30 Lacs

Time of completion: 2 Months

Earnest Money Deposit: **Rs. 60,000/- (Rupees Sixty Thousand only)** is to be submitted with tender document as earnest money in **Envelope-1**. The above payment shall be made in the shape of deposit or pay order/ demand draft of a scheduled bank issued in favour of **IIITD Collections** payable at New Delhi.

Works to be completed in coordination with the other agencies/ contractors. No extra for non-availability of fronts or coordination with other agencies shall be payable on account of the same.

Tender documents can be downloaded from IIITD website (www.iiitd.ac.in) and submitted with non- refundable DD of Rs. 500/- in favour of **IIITD Collections** as cost of tender.

1. The tenders shall be placed in sealed envelopes with a name of work and due date written on the envelope and addressed to Registrar, IIITD.. Complete tender documents shall be submitted by the approved contractors in two envelopes. **First envelope** shall contain the earnest money in the shape of Demand Draft / Pay Order of a scheduled Bank requisite shape as per condition & Prequalification Section with eligibility criteria and cost of tender as stated above in case of the downloaded version.

2. The applications not supported with requisite experience certificates, GST registration certificate, TIN no. and ITCC **in Envelope-1** shall not be entertained.

3. A pre-bid conference would be held on the **8th July 2019** at 11.00 AM at the 3rd floor R&D Block , IIITD Campus Okhla Phase III New Delhi.

4. The **second envelope** shall contain the financial bids including Tender Section ,Priced Schedule of Quantities, Form of Tender, Conditions of Tender, Articles of Agreement, Brief Specifications, Condition of contract, Drawings all duly signed by the authorized signatory of the firms.

5. All these envelopes are to be put in a single envelope duly super-scribed the name of work, and addressed to Registrar, IIITD and with their address. Incase the tenderer does not fulfill the laid down eligibility criteria or fails to deposit the earnest money in prescribed form, financial bid shall not be opened.

6. Tenderers shall seal the tender affix their initials and put stamp on each and every page of tender document before submission. The tender of the contractor, who submits in-complete tender document or submits more than one tender for one work, shall not be considered at all.

7. Tenders will be received by the Registrar up to **3.00 P.M on 12/07/2019** and will be opened by him or his authorized representative in the office of Registrar, IIITD on the same day at 3.30 P.M.

8. First the Prequalification Bids will be opened and screened. The bids shall be examined whether the EMD is in order and the bidder meets the minimum eligibility criteria specified above. Those bidders whose EMD is in order, meets the eligibility criteria, has submitted all the required documents and meet the technical requirements shall only be considered for opening of financial bid. Conditional tenders would not be accepted. Financial bids in respect of firms/agencies/contractors who do not fulfill above prequalification criterion shall not be opened. The firm/contractor shall supply catalogue of the laboratory furniture items of at no extra cost for any/all items as per the scheme/specifications/as called for the approval when called for prior to opening of financial bids. "Vendors are required to list at least 2-3 sites, where similar work has been done in last 5 years in Delhi-NCR region. Committee members shall visit the site for evaluation." Financial bids of the vendors whose samples are rejected will not be opened.

9. No Xerox / certified copies of tenders shall be accepted, if submitted these tenders shall be rejected.

Registrar IIITD

INFORMATION & INSTRUCTIONS FOR BIDDERS

Earnest Money Deposit	Rs. 60,000/- (Rupees Sixty Thousand only) pay order/ demand draft of a scheduled bank issued in favour of IIITD Collections payable
Performance Guarantee	5% of contract value
Completion period of the Purchase Order	Two months
Pre bid meeting	On 8th July 2019 at 11:00 AM
Date and time submission of Prequalification/Technical ,Tender ,Catalogues & Financial bid	On 12th July2019 at 3:00 PM
Opening of Prequalification /Technical bid in presence of the authorized representatives of bidders, if any.	On 12th July2019 at 3:30 PM
Opening of Financial bid in presence of the authorized representatives of bidders, if any.	Date shall be intimated to the prequalified bidders only.
Clarification/Queries, if any, can be addressed to	email ID: admin-project@iiitd.ac.in

N.B. "Vendors are required to list at least 2-3 sites, where similar work has been done in last 5 years in Delhi-NCR region. Committee members shall visit the site for evaluation."

PREQUALIFICATION SECTION

CONTENTS

LETTER OF TRANSMITTAL

FROM:-

To,
The Registrar/Chief Engineer
Indraprastha Institute of Information Technology
IIITD Campus
Okhla Phase III
New Delhi

Subject: Notice Inviting Tenders for Computational Biology Wet Lab Furniture Works at IIIT-D Campus at Okhla III New Delhi.

Sir,

Having examined the details given in Press Notice and Tender document for the above work, I/we hereby submit the tender document and other relevant information.

1. I/we hereby certify that all the statements made and information supplied in the enclosed Forms/Tables and accompanying statement are true and correct.
2. I/we have furnished all information & detail necessary for pre-qualification eligibility and have no further pertinent information to supply.
3. I/we submit the requisite certified solvency certificate and authorize the Registrar IIIT-D to approach the Bank issuing the solvency certificate to confirm the correctness there of. I/we also authorize IIIT Delhi to approach individuals, employer's firms and corporation to verify our competence and general reputation.
4. I/we submit the following certificates in support of our suitability, technical know-how and capability for having successfully completed the following works:

Name of Work **Certificate from**

Enclosures:

Seal of applicant

Date of Submission **Signature(s) applicant(s)**

SECTION-2

PART I - GENERAL INSTRUCTIONS AND CONDITIONS

1. **SCOPE OF WORK**

Setting up of Computational Biology Wet Lab -Fabrication supply and installation of Specialized Laboratory Furniture Works at IIIT-D Institutional Campus at Okhla III New Delhi.

Includes all types of furniture items for Molecular Biology/ Biochemistry lab work benches, storages lab fabricated/fixed/loose seating, laboratory workstation furniture including storage units over bench. Fabrication, Supply & fixing of lab case work in laboratories. Manufacture, Supply, Installation, testing & commissioning of Fume Hoods & electrial outlets labs benches. Includes utility connections and piping (plumbing, electrical, water, gas etc) to the Case Work & Fume Hood .

The estimated cost of the work is Rs 30 Lakhs (approx.).

2. **MINIMUM PRE QUALIFICATION REQUIREMENTS**

Intending firms / contractors bidding for pre-qualification should comply with the following minimum requirements, joint ventures are not accepted.

a) Should have completed following successfully by or before ending 30th June 2019 during last 7 years:
   i. Three similar work each costing not less than Rs. 12 Lakhs satisfactorily completed similar works.
   OR
   ii. Two similar work each costing not less than Rs. 18 Lakhs satisfactorily completed similar works
   OR
   iii. One similar works each costing not less than Rs. 24 Lakhs satisfactorily completed similar works.

Similar works means fabrication, supply, and installation of furniture, mostly machine /factory made loose or fixed furniture and fume hoods, for Molecular Biology/Biochemistry or similar laboratories for major educational Universities /colleges or research institutions / Biotechnology based companies with high quality of workmanship and finish complete. Agencies not having requisite work experience in similar works need not apply.

b) One Completed works of similar nature costing not less than Rs 12 Lakhs with some Central Government Department/State Government Department/Central Autonomous Body State Autonomous Body / Central Public Sector undertaking. /State Public Sector undertaking /City Development Authority/Municipal Corporation of City formed under any Act by Central/State Govt. and published in Central/State Gazette.

c) Shall have an average annual financial gross turnover of Rs. 75 Lakhs on similar works during the last three consecutive financial years ending 31st March 2019. Further, the financial price

updating of 7% per annum shall be applied to the turnover of the Previous Years to bring them to 2018-2019 Price Level.

d) Photographic evidence of works/supplies executed must be attached.

e) Shall not have incurred any loss in more than two years during the last five years ending 31st March, 2019.

f) Shall have a solvency of Rs. 12 Lakhs. The applicant shall submit the solvency certificate, not older than three months prior to 30th June 2019, issued by any scheduled bank, in original.

g) The firm/contractor must have its own workshop for fabrication of furniture and supply preferably in knockdown condition at site for assembly /as called for.

h) The firms/contractors who don't have their registered office at Delhi/Gurgaon/Faridabad/Noida/Ghaziabad must have their functional/operational office /workshop in National Capital Region in operation for at least last two years for their works being done in NCR (two years as on 30th June 2019).

i) Vendors are required to list at least 2-3 sites, where similar work has been done in last 5 years in Delhi-NCR region. Committee members shall visit the site for evaluation.

j) The reputed firms shall preferably have valid registration in appropriate class for carrying out similar works with CPWD/PWD/MES/Railways/Other Govt/Statutory bodies/Reputed MNC/private agencies.

k) The applicant shall be of OEM or through its authorized dealer. OEM can submit its application through only one of its authorized dealers and submission of applications through more than one dealer is not admissible. Their Authorized dealer's applications shall be submitted with supporting letter from the OEM. Subletting of works to third party is not permitted.

l) The Tenderer shall preferably hold certifications of ISO:9001:2008; ISO 14001:2004; ISO18001:2007. BIFMA , Green Guard , SEFA 8M/10 certified.

m) Must not have ever been blacklisted/barred by any organization/ body from tendering for public/ private projects in India.

n) Works/supplies may be awarded to one or more vendors depending on the Committee recommendations, specialization of the agency and capability of the firm at the sole discretion of the IIITD and no claims on any such account would be entertained.

3. **LAST DATE FOR SUBMISSION OF COMPLETED APPLICATIONS**

The last date for the submission of applications is 15.00 hours on 12th July 2019 and applications received after that time (i.e. 15.00 hours on 12th July 2019 (Friday) . will not be considered/accepted.

4. **COMPLETED APPLICATION**

All completed application forms are to be submitted in duplicate with a copy stamped "original" and enclosed in a sealed envelope, clearly marked Confidential - "Tender for Computational Biology Wet Lab Furniture Works of IIIT-D Campus at Okhla, New Delhi " stated on the top left hand corner of the envelope along with a non-refundable of **Rs. 500/- in favour of IIIT-Delhi Collections** payable at Delhi and to be submitted to

:

INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY (IIIT-D) Campus Okhla Phase III , New Delhi -110020

Phones: +91 11 26907419/563

Website: http://www.iiitd.ac.in
Documents submitted for pre-qualification are "confidential" and not returnable.

5. **VERIFICATION**

The Institute reserves the right to enquire, interview, verify searches the particulars furnish by the applicant besides obtaining reports in writing which are considered necessary for pre-qualification.

6. **DECISION OF THE EMPLOYER**

The Institute reserves the right to reject any prospective application without assigning any reason and **to restrict the list of pre-qualified contractors to any number deemed suitable by it, if too many applications are received satisfying the basic PQ criteria**. The decision of the Institute is final and binding. No interim inquiries/correspondence in this regard shall be entertained.

7. **PRE-QUALIFICATION EXPENSES**

All pre-qualification applications are received on the understanding that the Employer shall not entertain nor be held liable for any claims for expenses incurred by applicants in connection with the pre-qualification exercise.

8. If any information furnished by the applicant is found in correct at a later stage, he shall be liable to be debarred from tendering/taking up work in the Institute.

9. **SUPPORTING DOCUMENTS**

The supporting documents must include, but not necessarily limited to the following:

- Copy of Certificate of Registration in case of registration with CPWD/MES/Railways/P&T/AIR/State PWD etc.
- Copy of registration certificate for GST, works contract tax, PF, ESI, labour license, Sales Tax etc and others related to construction/interior works/furniture sales by Central/State Govt. and NCT of Delhi.
- Copy of Annual Report/Statement of Profit and Loss Account certified by chartered accountants together with a certified copy of audited Balance Sheet.
- Copy of completion certificate of similar nature and magnitude's project.
- Solvency certificate from a scheduled bank.
- Copy of ISO certificates, balance sheet & solvency certificate of sub-contractors
- Copy of sole ownership / partnership deed / documents relating to joint-venture agreement for this project (if any).
- Copy of ITCC for last three years

SECTION-3

PART II - PREQUALIFICATION APPLICATION FORM

1. **PARTICULARS/STRUCTURE & ORGANISATION OF THE FIRM/COMPANY**

1.1	Name of Firm/Company	
1.2	Address(s): Registered Office: Head Office: Branch Office(s):	
1.3	Telephone No : Mobile / Landline(s): Contact Person(s) : Telex No.: Fax No : E-mail :	
1.4	Legal Status of the applicant: Type of Company *(Attached copies of original document defining legal status):* *(Please attach a copy of the* *Registration Certificate of the* *Company)*	(a) An individual (b) A proprietary Firm (c) A Firm in Partnership (d) A Limited Company / Corporation (*Please delete accordingly)
1.5	Particulars of registration with various government bodies (attached attested photocopies) Organization/ place of registration. (1) (2) (3)	Registration No.

1.6	Name and Titles of directors and officers with designation to be concerned with this work.	
1.7	Designation of individual authorized to act for the organization.	
1.8	Was the applicant ever required to suspend supplies for a period of more then 6 months continuously after you commenced the supplies? If so, give the name of the project and reason of suspension of work.	
1.9	Has the applicant or any constituent partner in case of partnership firm ever abandoned the awarded work before its completion? If so, give the name of the project and reason of abandonment.	
1.10	Has the applicant or any constituent partner in case of partnership firm ever debarred/ black listed for tendering in any organization at any time? If so, give the details.	
1.11	Has the applicant or any constituent partner in case of partnership firm ever been convicted by a court of law? If so, give details.	
1.12	In which field of interiors the applicant has specialization and interest?	
1.13	Any other information considered necessary but not included above.	

NOTE : If response to S.No 1.8 to 1.11 is Yes then please submit supporting documents if any.

Signature of applicant

2.0 FINANCIAL CAPACITY

2.1 Credit Facilities/Overdrafts

Name of Bank	Credit Facilities/Overdrafts

2.2 Financial Standing of the last 3 years (as on 31/3/2019) ;

Length of Establishment	
Shareholder's Fund	

	Year ____	Year ____	Year ____
Authorized Capital			
Paid Up Capital			
Net Worth			
Turnover			
Current Assets			
Current Liabilities			
Gross Annual turnover on interior furniture works			

Note: To attach complete annual reports with corresponding Statement of Profit & Loss Account certified by chartered accountants and a certified copy of the audited Balance Sheet for the last 3 (three) years as on 31-03-19.

2.3 Financial Information

1) Financial Analysis – Details to be furnished only supported by figures in balance sheet. Profit and loss account for the last 5 years duty certified Chartered Accountant as submitted by the applicant to the Income Tax Dept. (copies to be attached) years.

		31/3/2019	31/3/2018	31/3/2017	31/3/2016	31/3/2015
(i)	Net Profit / Loss after tax					

2) Financial arrangements for carrying out the proposed work.

Following certificates are enclosed:

a. …….
b. Solvency certificate from Scheduled Bank / Bankers of the applicant in prescribed form as below;

FORM OF BANKERS CERTIFICATE FROM A SCHEDULED BANK.

This is to certify that to the best of our knowledge and information that M/S Shri._____ having marginally noted address , customer of our bank are /is respectable and can be treated as good for any engagement upto a limit of Rs._____(Rs._____)

This certificate is issued without any guarantee or responsibility on the bank or any of the officers.

Signature	Signature	Signature
(C.A. with seal)	(Applicant)	(For the ank)

NOTE:

1. Bankers Certificate should be on letter head of the bank sealed in cover addressed to authority calling Pre Qualification applications.
2. In case of Partnership Firm, certificate should indicate names of all the partners as recorded with the Bank.

SECTION-4

3.0 PARTICULARS OF PROJECTS COMPLETED DURING THE LAST SEVEN YEARS. As on 30/6/2019.

3.1 Submit details as per Table A.

4.0 PARTICULARS OF CURRENT PROJECTS IN PROGRESS/AWARDED

4.1 Submit tabulation in the format as per Table B

5.0 PARTICULARS OF SIMILAR PROJECTS COMPLETED IN THE LAST SEVEN YEARS.

5.1 Submit tabulation in the format as per Table C1/,C2/,C3

6.0 PARTICULARS OF PERSONNEL

6.1 Submit tabulation in the format as per Table E

7.0 PLANT & MACHINERY IN THE WORKSHOP and PROPOSED TO BE DEPLOYED

7.1 Submit tabulation in the format as per Table D

8.0 LIST OF SUB-CONTRACTORS /MANUFACTURERS FOR SPECIALISED WORKS , IF ANY

8.1 Submit tabulation in the format as per Table F

9. Submit name of qualified responsible interior furniture coordinator proposed for the project

TABLES FOR INFORMATION /ANNEXURE

TABLE A - DETAILS OF ALL WORKS OF SIMILAR CLASS/ NATURE COMPLETED DURING THE LAST SEVEN YEARS ENDING LAST DAY OF THE MONTH 30/6/2019

S. No.	Name of work/ project and location (Give brief of nature of work)	Owner or sponsoring organization and designation Name of officer signing agreement	Cost of works in crores of rupees Estimated cost put to tender Tendered Cost	Stipulated date of start as per agreement Actual date of start	Stipulated date of completion Actual date of completion	Litigation/ Arbitration Pending / in progress with details*	Name and Address and Phone no. of officer to whom reference maybe made	Give brief reason for delay in execution	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

* Indicates gross amount claimed and amount awarded by arbitrator

Signature of applicant(s)

FORM OF PERFORMANCE REPORT OF WORKS (REFERED TO IN TABLE 'A' & B')

1. Name of work/Project and location
2. Agreement Number
3. Estimated cost put to tender
4. Tendered Cost
5. Stipulated date of start
6. Date of completion
   a) Stipulated date of completion
   b) Actual date of completion
7. Amount of compensation levied for delayed completion, if any
8. Amount of reduced rate items, if any
9. Performance of work
   a) Quality of work - very good/ good/ fair/ poor
   b) Financial soundness - --do--
   c) Technical proficiency - --do—
   d) Resourcefulness - --do—
   e) General Behaviour - -- do—

Dated:

- to be signed by Executive Engineer in case of Government Department
- General Manager in case of Public Sector Undertaking
- Owner in case of Private

TABLE-B: PARTICULARS OF CURRENT PROJECTS IN PROGRESS/AWARDED

- PARTICULARS OF PROJECTS UNDER EXECUTION OR AWARDED

S.No.	Name of work/ project and location (Give brief of nature of work) Role in project (as main contractor or NSC, State name of main contractor)	Name of client Owner or sponsoring organization	Cost of works in crores of rupees Estimated cost put to tender Tendered Cost	Stipulated date of start as per agreement Actual date of start	Stipulated date of completion	Up to date percentage progress of work	Slow progress if any and reasons thereof	Name and Address/ Phone no. of officer to whom reference maybe made	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

Certified that the above list of works is complete and no work has been left over and that the information given is correct.

Signature of applicant(s)

TABLE C1 – Detailed information of at least one similar completed work for Minimum value of 24lacs each during the last 7 years ending 30.06.2019.

Project name:

Client: (Name and Address, contact Number of

officer to whom reference can be made)

ROLE IN PROJECT

(As Main Contractor, if not, state name of Main Contractor with address)

Architect:

Name:

Address:

Contact No.:

Consultants:

Name:

Address :

Contact No.:

Project description:

1. Fixed furniture

2. Loose furniture

Others-

Estimated Cost put to tender cost:

Tender Cost:

Actual Cost:

1. **Project duration (as per contract):** (in months)
2. **Stipulated date of start(dd/mm/yy):**
3. **Stipulated date of Completion (dd/mm/yy):**
4. **Actual date of Completion**
5. **Actual duration** (Months)**:**
6. **Reasons for delay (if any):**

Certificates to be attached:

Original or attested copies of letter of award of work and completion certificate mentioning name of work, Estimated cost put to Tender, Tendered Cost, Stipulated period of Completion, Actual period of Completion. Client name & Address, Location of work, Stipulated start and completion date, Actual Start and Completion date, Reasons for Delay (if any), Nature of Work etc.

Table C2 – Detailed information of at least two similar completed work for Minimum value of 18lacs each during the last 7 years ending 30.6.2019.

Project name:

Client: (Name and Address, contact Number of

officer to whom reference can be made)

ROLE IN PROJECT

(As Main Contractor, if not, state name of Main Contractor with address)

Architect:

Name:

Address :

Contact No.:

Consultants:

Name:

Address:

Contact No.:

Project description:

1. . Fixed furniture

2. Loose furniture -

Estimated Cost put to tender cost:

Tender Cost:

Actual Cost:

1. **Project duration (as per contract):** (in months)
2. **Stipulated date of start(dd/mm/yy):**
3. **Stipulated date of Completion (dd/mm/yy):**
4. **Actual date of Completion**
5. **Actual duration** (Months)**:**
6. **Reasons for delay (if any):**

Certificates to be attached:

Original or attested copies of letter of award of work and completion certificate mentioning name of work, Estimated cost put to Tender, Tendered Cost, Stipulated period of Completion, Actual period of Completion. Client name & Address, Location of work, Stipulated start and completion date, Actual Start and Completion date, Reasons for Delay (if any), Nature of Work etc.

Table C3 – Detailed information of at least three similar completed for Minimum value of 12 lacs each during the last 7 years ending 30.06.2019.

Project name:

Client : (Name and Address, contact Number of

officer to whom reference can be made)

ROLE IN PROJECT

(As Main Contractor, if not, state name of Main Contractor with address)

Architect:

Name :

Address :

Contact No. :

Consultants:

Name :

Address :

Contact No. :

Project description:

1. Fixed furniture

2. Loose furniture -

Estimated Cost put to tender cost:

Tender Cost:

Actual Cost:

1. **Project duration (as per contract):** (in months)
2. **Stipulated date of start(dd/mm/yy):**
3. **Stipulated date of Completion (dd/mm/yy):**
4. **Actual date of Completion**
5. **Actual duration** (Months)**:**
6. **Reasons for delay (if any):**

Certificates to be attached:

Original or attested copies of letter of award of work and completion certificate mentioning name of work, Estimated cost put to Tender, Tendered Cost, Stipulated period of Completion, Actual period of Completion. Client name & Address, Location of work, Stipulated start and completion date, Actual Start and Completion date, Reasons for Delay (if any), Nature of Work etc.

TABLE D – LIST/DETAILS OF PLANT & MACHINERY IN THE WORKSHOP AND PROPOSED TO BE DEPLOYED/USED

S.no	Name of equipment	Capacity / specification	Age	Condition	Quantity	Ownership Status			Current Location	Remarks
						Personally owned	Leased	To be purchased		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

Signature of applicant(s)

TABLE-E: PROPOSED PERSONNEL FOR THIS PROJECT

- DETAILS OF TECHNICAL & ADMINISTRATIVE PERSONNEL TO BE EMPLOYED FOR THE WORK

S. No.	Designation	Total number	Numbers available for this work	Names	Qualification	Professional experience and details of work carried out	How these would be involved in this work	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Signature of applicant(s)

TABLE F - LIST OF SUB-CONTRACTORS /MANUFACTURERS FOR SPECIALISED WORKS ,IF ANY.

S.NO.	SUB-CONTRACT WORKS	NAME OF CONTRACTOR	YEAR ESTABLISHED	PROJECTS OF SIMILAR NATURE

Note: Copies of the proposed Sub-Contractor's printout of ROC and BCA Certification of Registration must be submitted.

Signature of applicant(s)

SECTION-5

APPENDIX 1

Confidentiality Agreement

Indraprastha Institute of Information Technology, Delhi (Institute) would like to invite you to submit a Prequalification Application for specialised Laboratory furniture of IIIT-D Campus Work Contractor has to fill in the detail which may contain or involve information, which Institute considers confidential, trade secret, proprietary and/or sensitive.

In order to proceed, please acknowledge that you will regard and preserve as confidential, all information of Institute/Company, its parent, subsidiary and affiliated companies, as well as customers and Consultants of these companies, which is disclosed to, or otherwise obtained by you in whatever form, in connection with this matter. You agree to receive and maintain all such information in trust and confidence, and you will not, without first obtaining written consent, disclose to any person, company or enterprise, or use for your own benefit or the benefit of others (directly or indirectly), any such information. At any time and upon our request, you agree to either return or destroy the originals (and all copies) of such information, documents and/or materials, which are in your possession or under your control.

It should be emphasized that proceeding in this manner does not and will not create, convey or transfer any interest or rights and should not be construed to create a contractual relationship or otherwise obligate either party beyond the terms of this letter. Information will not be considered confidential, trade secret, proprietary or sensitive only to the extent that it is or becomes publicly available through no wrongful act of yours, or if you rightfully receive it from a third party, without restriction.

Please acknowledge your understanding and agreement with the contents of this Confidentiality Agreement by signing and returning this document with your proposal.

Accepted and Agreed To: On behalf Contractor / Firm (Applicant)

Signature with date	
Name & Designation	
Date:	

SECTION-6

INFORMATION AND INSTRUCTIONS FOR APPLICANTS

1. General:

1.1 Letter of Transmittal Section-1 and Forms/Tables for deciding eligibility for Prequalification are given in Section-3 and 4 .

1.2 All Information called for in the enclosed forms should be furnished against the relevant columns in the Forms / tables. IF for any reason information is furnished on a separate sheet, this fact should be mentioned against the relevant column. Even if no information is to be provided in a column, a “Nil” or “No Such Case” entry should be made in the column. If any particular/query is not applicable in case of the applicants. It should be stated as “not applicable”. The applicants are cautioned that not giving complete information called for in the application forms or not giving it in clear forms or making any change in the furnished forms / tables or deliberately suppressing the information may result in the applicant being summarily disqualified. Applications made by telegrams or telex and those received late will not be entertained.

1.3 The application should be type written and each page stamped and signed.

1.4 Overwriting should be avoided. Correction if any should be made by neatly crossing out, initialing, dating, and rewriting. Pages of the Pre-qualification document are numbered. Additional sheets if any added by the contractor should also are numbered by him. They should be submitted as a package with signed letter of transmittal.

1.5 References information and certificates from the respective clients certifying suitability, technical know-how or capability of the applicant should be signed by an officer not below the rank of Executive Engineer or equivalent in case of Govt. Dept. / G.M. for Public Sector undertaking and owner in case of Private Company. If required the IIITD team may also visit the site of completed works executed by you and /or workshop to ascertain the quality of works etc. This would be coordinated and facilitated by the applicant

1.6 The applicant may furnish any additional information which he thinks is necessary to establish his capabilities to successfully complete the envisaged work. No information shall be entertained after submission of Pre-qualification document unless it is called for by the employer.

1.7 Any information furnished by the applicant found to be incorrect immediately or at a later date would rendered him liable to be debarred from tendering / taking up of work in the Institution.

1.8 The pre-qualification document in prescribed form duly completed and signed should be submitted in a sealed cover. The sealed cover super scribed “Pre-Qualification document for “Construction of IIIT-D Campus, Okhla, New Delhi, Package-II” shall be received by the Registrar or his authorized representative up to 3.00 PM on 12-09-2016 Documents submitted in connection with pre-qualification will be treated confidential and will not be returned.

1.9 Prospective applicants may request clarifications of the Project requirements and Pre-qualification document, if any, in writing and email to **admin-project@iiitd.ac.in.**

Any clarification given will be forwarded to all those who have applied for Pre-qualification .No request for clarification will be considered after 8th July 2019.

2. Definitions

2.1 In this document the following words and expressions have the meaning hereby assigned to them

2.2 Institute means the IIIT Delhi acting through Registrar /Chief Engineer/ Architects Applicant means the individual, proprietary firm, partnership firm, limited company, private public corporation.

2.3 "Year" mean "Financial Year" unless stated otherwise

3. Method of Application

3.1 If the applicant is an individual the application shall be signed by him above his full type written name and current address

3.2 If the applicant is a proprietary from the application shall be signed by the proprietor above his full type-written name and the full name of his firm with its current address.

3.3 If the applicant is a firm in Partnership, the application shall be signed by all the partners of the firm above their full type written names and current addresses or alternatively by a partner holding Power of Attorney for the firm. In this latter case a certified copy of the Power of Attorney should accompany the application. In both cases a certified copy of partnership deed and current address of all the partners of the firm should accompany the application.

3.4 If the applicant is a limited company or a corporation, the application shall be signed by a duly authorized person holding Power of Attorney for signing the application accompanied by a copy of the Power of Attorney. The applicant should also furnish a copy of the Memorandum of Articles of Association duly attested by a Public Notary.

4. Final Decision Making Authority

The Institute reserves the right to accept or reject any application and to annul the Pre-qualification process and reject all applications at any time, without assigning any reason or incurring any liability to the applicants.

5. Particulars Provisional

The particulars of the work given are Provisional. They are liable to change and must be considered only as advance information to assist the applicant.

6. Site Visit

The applicant is advised to visit the site of work at his own cost and examine it and its surroundings to himself collect all information that he considers necessary for proper assessment of the prospective assignment.

7. Initial Criteria for eligibility

7.1 The applicant should satisfy the minimum prequalification requirements in the General Instructions and Conditions.

7.2 The bidding capacity of the contractor should be equal to or more that the Estt cost of the work. The bidding capacity shall be worked out by the following formula;

Bidding Capacity= (A.N.2)-B

Where A=maximum value of the construction work executed in any one year during the last seven years taking into account the completed as well as works in Progress.

N= number of years prescribed for completion of work for which pre- qualification application has been invited.

B=Value of the existing commitments and ongoing works to be completed during the period of completion of work for which pre-qualification has been invited.

7.3 The applicant should own construction Equipment as per list required for the proper and timely execution of the work. Else he should certify that he would be able to manage the equipment by hiring etc and submit the list of firms from whom he proposes to hire.

7.4 The applicant should have sufficient number of Tech and Admin employees for the Proper execution of the contract. The applicant should submit a list of those employees stating clearly how these would be involved in the work.

7.5 The applicants Performance for each work completed in the last seven years and in hand should be certified by an officer not below the rank of Executive. Engg. in case of Govt. Dept / G.M for Public Sector and owner in Private. It should be obtained in Sector cover.

8. Evaluation criteria for Pre-qualification

8.1 For the purpose of Pre-qualification applicants will be evaluated in the following manner

8.1.1 The initial criteria prescribed in Para 7.1 to 7.5 above in respect of on presence of similar class of works be scrutinized and applicant's eligibility for Pre-qualification for the work be determined.

8.1.2 The applicants qualifying the initial criteria / minimum Pre-qualification requirements will be evaluated for following criteria by scoring methods on the basis of details furnished by them:

a) Financial strength (Section-3 (2) Maximum 20 marks

b) Experience in similar nature of work during last seven years (Table A/B) --Do—

c) Performance of Works Time/ Quality - "Vendors are required to list at least 2-3 sites, where similar work has been done in last 5 years in Delhi-NCR region. Committee members shall visit the site for evaluation." samples to be shown to Committee - Mandatory/ Personal Establishments / Plant & Machinery.- A presentation of the proposal using the furniture as per the BOQ shall be made by the vendor . This will be reviewed by an Expert Committee comprising of subject matter experts. Maximum 60 marks

To pre-quality the applicant must secure at least 70% marks in criteria (a) & (b) above, (i.e. Financial Strength & Experience in works of similar nature & quality of works) ,60% in criterion based on the presentation and samples inspected against(c) and 80% in aggregate.

8.2 Even though an applicant may satisfy the above requirements he would be liable to disqualification if he has:

(a) Made misleading or false separation or deliberately suppressed the information in his tables. Statements and enclosures required in the Pre-qualification documents.
(b) Record of poor performance such as abandoning work not properly completing the contract or financial failures / weaknesses etc.

9. Organization Information

Applicant is required to submit the following information in respect of his organization.

(a) Name and postal address, Telephone, Telex Numbers, Fax, E-mail etc.
(b) Copies of original documents defining the legal status, place of Registration and Principal places of business.
(c) Names and titles of Director and officers to be concerned with the work with designation of individuals authorized to act for the organization.
(d) Information on any litigation in which the applicant was involved during the last Five Years, including current litigation
(e) Authorization for employer to seek detailed references
(f) Number of Technical and Admn. Personnel / Employees in Parent Company, Subsidiary Company and how these would be involved in this work.

10. Plan and Equipment

Details of any other Plants and Equipment required for the work (not included) in the list and available with the applicant may also be indicated.

11. Letter of Transmittal

The applicant should submit the letter of transmittal attached with Pre-qualification documents

12. Tender Submission

After evaluation of Pre-qualification applications, a list of qualified agencies will be prepared. Thereafter pre-qualified agencies only would be invited to submit tenders for the work.

13.1 Award Criteria

The employer reserves the right, without being liable for any damages or obligation to inform the applicant to:

(a) Amend the scope and value of contract to the applicant.
(b) Reject any or all of the applications without assigning any reason.

(c) Award works of part or whole of the Contract or different items of works/supplies to different vendors from amongst the shortlisted vendors depending on the samples seen/approved by the IIITD Committee.

13.2 Any effort on the part of the applicant or his agent to exercise influence or to pressurize the institute would result in rejection of his application. Canvassing of any kind is prohibited.

TENDER SECTION

CONTENTS

CONDITIONS

1. The time allowed for carrying out the construction work will be 2 months from the 3rd day after the date of written orders to commence the work.
2. The site for the work is available.
3. During execution of works, because of some unforeseen circumstances to enable him to complete the work as per terms of the contract, shall not relieve the contractor from any liability or obligations under the contract and he shall be responsible for the acts, defaults and neglects of any sub-contractor, his agents or workmen as fully as if they were the acts, defaults or neglects of the contractor, his agents or workmen.
4. The Contractor shall be required to deposit an amount equal to 5% of the tendered value of the work as performance guarantee in the form of an irrevocable bank guarantee bond of any scheduled bank or State Bank of India in accordance with the form prescribed or in the form of fixed deposit receipt etc. within 4 days of the issue of letter of acceptance. The performance guarantee shall have the validity up to 31st December 2019.
5. Tenderers are advised to inspect and examine the site and its surrounding at their own cost and satisfy themselves before submitting their tenders as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risk, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed. The tenderer shall be responsible for arranging and maintaining at own cost all materials, tools and plants, water, electricity, access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contact documents. Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specification of the work to be done, local condition and other factors having a bearing on the execution of the work.
6. The Accepting Authority (IIITD) does not bind himself to accept the lowest or any other tender and reserves to him/herself the authority to reject in whole or part, any or all of the tenders received without the assignment of any reason. All tenders in which any of the prescribed conditions are not fulfilled or for any condition including that of conditional rebate is put forth by the tenderer shall be summarily rejected.
7. Canvassing, whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the contractor who resort to canvassing will be liable to rejection.
8. The Accepting Authority reserves to himself the right of accepting the whole or any part of the tender and the tender shall be bound to perform the same at the rates quoted.
9. Tenders shall remain open for acceptance for a period of 60 days from the date of opening of the tenders. If any tenderer withdraws his tender before the said period for issue of letter of acceptance, whichever is earlier or makes any modification in the terms and condition of the tender which are not

acceptable to the IIITD, then IIITD shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money absolutely besides black listing of the tenderer.

10. The notice inviting tender shall form a part of the contract document. The successful tenderer/contractor shall, sign the necessary contract documents consisting of the notice inviting tender, all the documents including additional conditions, specification and drawings, if any forming the tender as issued at the time of invitation of tender and acceptance thereof with any correspondence leading thereto within the time specified in the letter communicating the acceptance of the tender. In case of delay, the earnest money may be forfeited and the tender cancelled or the contract enforced as per the terms of the tender and the invitation to tender and the tenderer shall thus be bound by the condition of contract even though the formal agreement has not been executed and signed within the specified time by the tenderer.
11. The work shall be carried out as per general conditions of contract for central PWD works 7/8 (Tender Contract) and form part of the agreement/document.
12. Contract is liable to be terminated by the IIITD without payment of any compensation, if subsequent to the acceptance of tender the contractor is black-listed by, or enters into partnership of employs any black listed contractor of the IIITD or any other department, or Govt. or its, undertakings.
13. **Cost of Bidding:** The bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will in no case be responsible and liable for those costs.
14. **Clarification of Bidding Documents:** A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing/mail at the Employer's address indicated in the invitation to bid not later than 5 days before the Date of Submission of Tenders.

Email- **admin-project@iiitd.ac.in**

15. **Currencies of Bid and Payment:** The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees. All payments will be invariably made in Indian Currency (Indian Rupees.)
16. **Protection of Environment and Other Laws:** The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.
17. During continuance of the contract, the contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and other local Acts/ Laws/ rules made there under, regulations, notifications and bye-laws of local authorities or any other law, bye-laws, regulations that may be passed or notification that may be issued in this respect in future by the State/ Local authority.

For and on behalf of

Registrar IIITD

TENDER

I/We have read and examined and understood 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 IIITD within the time specified in Schedule ' F ', viz., schedule of quantities and in accordance in all respects with the specifications, designs, drawings 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 in accordance with, such conditions so far as applicable.

We agree to keep the tender open for sixty (60) days from the due date of its opening and not to make any modifications in its terms and condition.

A sum of Rs…… Rupees (…….)

has been deposited in demand draft of a scheduled bank issued by a scheduled bank as earnest money. If I / we, fail to furnish the prescribed performance guarantee within prescribed period, l / we agree that the said Director, IIITD 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 l / we fail to commence work as specified, I / we agree that Director, IIITD or his 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 therein and to carry out such deviations as may be ordered, up to maximum of the percentage mentioned in Schedule ' F' and 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 or both Earnest Money & Performance Guarantee as aforesaid, I / We shall be debarred for participation in the re-tendering process of the work.

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 no 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. . . . .

Witness: Signatures of Contractor

Address: Postal Address

Occupation:

LETTER OF SUBMISSION

The CE
Indraprastha Institute of Information Technology, Delhi
Okhla Phase-III
(Behind Govind Puri Metro Station)
New Delhi-110020.

I/We, the undersigned, have read and examined in detail, the specifications and all bidding documents and hereby declare that:

1. All the rates quoted in our proposal are in accordance with the terms and conditions as specified in the bid document. All the prices and other terms and conditions of this proposal are valid for a period of 60 calendar days from the date of opening of bid.

2. We do hereby confirm that our bid prices include all taxes/levies/GST indicated separately.

3. We hereby declare that if any tax law is altered, we shall pay the same.

4. The quoted rates are inclusive of ESI, PF and Green Tax no extra on such heads would be payable on such account.

Earnest Money
We have enclosed EMD in the form of demand draft no……., dated……..favoring IIIT, Delhi payable at New Delhi issued / drawn on ……Bank for Rs._____/- (Rupees _____ Thousand only), as desired.
Deviations
We declare that all the works shall be performed strictly in accordance with the technical specifications and other tender conditions with no deviations.

Qualifying Data
We confirm that all information/data have been submitted as required in tender document.
We hereby declare that our proposal is made in good faith, without collusion for fraud and the information contained in the proposal is true and correct to the best of our knowledge and belief. I/We agree that in case any information is found to be incorrect the tender is liable to be rejected at any point of tendering process.

Bid submitted by us is properly sealed and prepared so as to prevent any subsequent alteration and replacement.

We understand that you are not bound to accept the lowest or any bid you may receive.

Thanking you,
Yours faithfully,
(Signature and seal of Tenderer with name, designation and contact no.)

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of Registrar, IIITD for a sum of

Rs. ---------- (Rupees ----------)

The documents referred to below shall form part of this contract Agreement:-

- NIT
- Performa for Agreement
- Additional conditions.
- Special conditions
- Schedule of Quantities &
- Drawings
- General conditions of contract for CPWD Works-2012 with up to date correction slip

For & on behalf of
Registrar
IIIT

Signature. ……

Dated..... Designation.....

SCHEDULES

SCHEDULE 'A' Schedule of quantities (Enclosed)	Enclosed
SCHEDULE 'B' Schedule of materials to be issued to the contractor	NIL
SCHEDULE 'C' Tools and plants to be hired to the contractor	NIL
SCHEDULE 'D' Extra schedule for specific requirements/documents for the work, if any,	NIL
SCHEDULE 'E' Schedule of component *of* Cement, Steel, other materials, Labour etc. for price escalation.	NIL
CLAUSE 10 CC Component of Cement - expressed as percent of total value work,	N/A
Component of Steel-expressed as percent *of* total work.	N/A
Component of civil (except cement & steel) / Electrical construction Materials-expressed as percent of total value of work.	N/A
Component of labour-expressed as per cent of total value *of* work.	N/A
Component of P.O.L. - expressed as percent of total value work.	N/A

SCHEDULE 'F'

Reference to General Conditions of contract.

Name of Work: Setting up of Computational Biology Wet Lab -Fabrication supply and installation of Specialised Laboratory Furniture Works at IIIT-D Institutional Campus at Okhla III New Delhi.

Estimated cost of work:	Rs.30 lacs
i. Earnest money:	Rs. 60,000/-

ii. Performance Guarantee: The contractor, for due and faithful performance of the Contract, shall obtain and submit to the Owner such security of 5% of the Contract Value within 7 days after the receipt of the Letter of Acceptance, in the form of BG Performa as appendix to tender from a scheduled Bank /FD providing such security shall be subject to the approval of the Owner. The cost of complying with the requirement of this Clause shall be borne by the Contractor.

Period of Validity of performance Bond: The performance bond shall be valid as at Conditions Cl 4 and till the Contractor has executed and completed the Works in accordance with the Contract. This security shall be returned to the contractor within 14 days of the issue of the said Completion Certificate.

Claim under Performance Security: Prior to making a claim under the performance security the Owner shall, in every case, notify the Contractor stating the nature of the default in respect of which the claim is to be made.

Security Deposit/ Retention money shall be Five percent (5%) of the value of executed works and will be deducted from each and every payment made to the contractor against running account bill submitted for the work done at site. 50% of retention money will be released along with the payments of final bill and balance 50% will remain with Employer until the Defects Liability period is successfully over.

iii. Defect Liability period 12 months from date of completion.

iv. **Liquidated damages:** In case of delay on account of reasons attributable to the Contractor Liquidated Damages shall be levied .The amount of Liquidated Damages payable by the Contractor to the Employer would be 0.25% of the value of order for each calendar day of delay subject to a maximum of 5% of the value of order after which Employer reserves the right to terminate the contract without prejudice to the rights of the Employer.

General Rules & Direction:

Officer inviting tender:	Registrar IIITD

Definitions

2(v) Engineer-in-Charge	CE
2(viii) Accepting Authority	Director IIITD
2(x) Percentage on cost of materials and labour to cover all overheads and profits.	15%

2(xi) Standard Schedule of Rates (Civil and Electrical)	DSR-2018
2(xii) Department	IIITD
9(ii) Standard CPWD contract Form	CPWD form 8 -2010 with up to date correction slips.

Clause 1

(i)	Time allowed for submission of Performance Guarantee From the date of issue of letter of acceptance	4 days
(ii)	Maximum allowable extension beyond the period (Provided in (I) above	7days

Clause 2

Authority for fixing compensation under clause 2. — Director IIITD

Clause 2A

Whether clause 2A shall applicable — No

Clause 5

Number of days from the date of issue of letter Acceptance for reckoning date of start — 3 days

Time allowed for construction — 2 months

Clause 6, 6A

Clause applicable - (6 or 6A) — Clause 6A

Clause 7

Gross work to be done together with net payment /adjustment or advance for material collected, if any since the last such payment for being eligible to interim payment. — Rs 15 Lakhs.

Clause 10A

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

Clause 10 B (ii)

Whether Clauses 10B (ii) (iv) shall be applicable — Yes

------do---------10B(iii) ---------- — No

Clause 10CA Escalation — **Not Applicable**

Clause 10CC Escalation — **Not Applicable**

Clause 11

Specification to be followed for execution of work — CPWD Specifications 2007, Part I & II with Up-to-date correction slips

Clause 12 Deviation limit beyond which clauses 12.2 & 12.3 shall Apply for building work	100%
Clause 16 Competent Authority for deciding reduced rates.	Director IIITD
Clause 17 Contractor liable for Damages defects during Maintenance period	Applicable
Clause 18 List of mandatory machinery, tools & plants to be deployed by the contractor at site	As per the site requirement.
Clause 36(i) Requirement of Technical Representative (s)	As per requirement.
Clause 25 Arbitration Clause	As per special conditions

SPECIAL CONDITIONS

1. In the event of the tender being submitted by a firm, it must be signed by a person duly authorized through a power of attorney issued by all the partners and a certified copy of the power of attorney should be enclosed with the forwarding letter or separately by each member thereof, or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power of attorney authorizing him to do so and such power of attorney shall be produced with the tender and it must disclose that the firm is registered under the Indian partnership Act.

   Each and every signature given shall be separately witnessed. A Contractor or a contractor who himself / themselves has/have tendered or who may tender for the work shall not witness the tender of another person for the same work. Failure to observe this condition would render tenders of the contractors tendering as well as witnessing the tenders liable for summary rejection.

2. The conditions for item rate tender only will be applicable as given in general conditions of contract for central PWD works 2010. As mentioned there in also, in event no rate has been quoted for any items leaving space bolts in figure (s), word(s) and amount blank, it will be presumed that the contractor has included the cost of this/these item(s) in other item(s) and rate for such items will be considered as zero and work will be required to be executed accordingly.

3. Rates quoted as percentage below/above in the tender will be summarily rejected.

4. It must be understood that the work has to be completed as per the time provided in the contract and as such time is the essence of the contract.

5. The quantities furnished in the bills of quantities are only probable quantities liable to alternation by omission, deduction or addition, and it would be clearly understood that the contract is **not a lump sum contract** and the IIITD do not, in any way, assure the tenderer or guarantee that the said probable quantities are correct or that the work would correspond thereto. Payments will be regulated on the actual quantities of work authorizedly done and measured at the accepted rates. No claims due to change in quantities (+ or -) will be entertained. The drawings, forming parts of complementary installations work specifications and the bills of quantities, of the contract, are explanatory of and are to one another, representing together the works / to be carried out. If neither the drawings nor the specifications nor the accepted bills of quantities include any part/parts the intention to include which is nevertheless clearly inferred and which are obviously necessary for the proper completion of the works/ installations, all such parts shall be supplied and executed by the contractor at no extra charge. Anything contained in one or another of (a) the drawings, (b) the specifications and (c) the accepted bills of quantities and not found in the others will be equally binding as if it were contained in each of them.

6. No alterations, which are made by the tenderer in the drawings, specifications, conditions or probable quantities accompanying this notice will be recognized and if any such alterations are made the tender, will be invalid. Conditional tenders will however be liable for rejection.

7. The tenderer must obtain for himself on his own responsibility and at his own expense all the information necessary, including risks, contingencies and other circumstances to enable him to make a proper tender and to enter into a contract with the IIITD. He must examine the drawings, specifications, conditions and so on and must inspect the site of work, examine the nature of the ground and the subsoil (so far as is practicable) and acquaint himself with local conditions, means

of access to the work, storage facilities or areas for staff colony, the nature of the work, in fact all matters pertaining thereto before he submits his tender.

8. The tenderer shall also bear all expenses in connection with the preparation and submission of his tender and attendance for subsequent negotiations/clarifications.

(I) Omission, neglect or failure on the part of the tenderer to obtain requisite and reliable information on any matter affecting his tender, the contract and the construction, completion, maintenance, (dismantling and disposal) of the work shall not relieve the tenderer whose tender is accepted from any liability in respect of the contract.

(II) The tenderer whose tender is accepted shall not be entitled to make any claim for increase in the rates quoted and accepted excepting in pursuance of any specific provision in the contract.

9. The Contractor, upon award of work, shall furnish the following details for the approval of the Engineer in charge:

9.1. The names of manufacturers of specialized items such as patented water proofing systems / materials, doors, flooring tiles, false ceilings, insulating materials, wind mill, cement, steel, glazing, and any other materials etc. which he proposes to use in the work.

9.2. The makes and types of fittings, materials, subject to the makes and type stipulated in the specifications, which he proposes to use in the work.

9.3. The details of licenses granted to him and/or to professional qualified and/or licensed technical personnel on his staff who will be engaged on the work (and submit, if called for, the licenses for inspection by the Officer in charge in consultation with Engineer in charge).

9.4. Only approved agencies/ skilled workers shall be deployed to carry out requisite specialized items of work. The Officer/ Engineer in charge's decision in consultation with Architect's/ in this regard shall be binding to all the parties concerned.

10. The rates quoted in the bills of quantities shall unless specified otherwise will be for all heights, depths deemed to be for finished work in-situ/ item by item as provided for, and shall include cost for all necessary material and labours, all necessary tools and plants and machinery, sheds, marking out, clearing site, etc. and for all taxes, octroi, excise, VAT works contract and any other tax or duty levied by Government, Central or Local, Green Tax, ESI and PF. or Local Authority if any as applicable. The GST indicated separately, if any as applicable.

10.1. The rates shall be firm and not be subject to any variations in exchange rates, in taxes, duties etc. in railway freight and the like including labour conditions, etc. The rates are not subject to escalation.

11. It will be the sole responsibility of the contractor to procure all the equipments/ materials and other materials required for the work.

12. The IIITD further reserves the right to delete or reduce at any time, any section of the bills of quantities with out assigning any reasons whatsoever there for and no claim will be entertained in this regard.

13. The tenderer whose tender is accepted is bound to execute formal agreement with the IIITD

within one week of the date of intimation of award of work in accordance with the draft agreement which will include conditions of tender, form of tender (general conditions of contract for central PWD works 2010), Articles of Agreement, Bills of quantities, Conditions of contract, Special conditions if any, the drawings and specifications, but his liability under the contract shall commence from the date of written order to commence work whether the formal agreement is drawn or not.
The Contractor shall bear all expenses in connection with the execution of the said agreement including fees for stamping and registration of documents as required.

14. The Security Deposit will bear no interest what so ever until the date of release.

15. a) The contractor, upon award of work, shall submit a memorandum of procedure giving the outline of his general scheme, programme and time table, in the form of a chart that shall be scrutinized and approved (with modifications as necessary), which shall become the approved programme for execution. The approved programme shall be the basis for assessment of comparative progress under the relevant conditions of contract.

(b). Over and above, the contractor has to supply programme chalked out showing important milestones to be achieved and the progress actually achieved compared with, the target of the same in the programme and shortfall, if any planned for being made up in the programme for next month.

16. (a) The work in general shall conform to the CPWD Specifications 2007 with up to date correction slips & any other latest civil specification published by CPWD, New Delhi and the "Specifications for works".
(b)In case items not covered by the general specifications referred above, reference shall be made to the appropriate I.S. Code.
(c) Should there be any difference in the particular specifications of individual item of work and the description of item as given in the Schedule of quantity, the latter shall prevail, which will be as per the relevant drawing.
(d), In case of any work for which there is no specification in I.S. specifications or in the specifications forming part of tender documents or in case there is any variation, such work shall be carried out in all respects in accordance with the instructions to be issued by the Engineer in charge.

17. On acceptance of the tender the Contractor shall in writing and at once inform the IIITD and the Architects the name of his accredited representative(s) who will be responsible to take instructions from the Architects / Officer in Charge.
The work of any part of it shall not be transferred, assigned or sublet without the written consent of the IIITD.

18. The Contractor shall be required to co-operate and work in co-ordination with and afford reasonable facilities for such other agencies / specialists / interior designers / consultants as may be employed by the Architects / Project Management Consultant/ Officer in Charge on other works / sub-works in connection with the project/scheme of which this work forms a part.

19. The Contractor shall get the necessary insurance done for their personal employed/ company insurance, third party insurance, marine insurance, all risk insurance or any other insurance as required.

20. The Contractor shall make arrangements of carrying water and electricity beyond one point where

same shall be provided and recovery @1% of the cost of works shall be effected accordingly.

21. The Contractor is required to comply with all Acts of Government relating to labour, safety, environment and other Rules and Regulations made there under from time to time and to submit at the proper times all particulars and statements required to be furnished to the appropriate Authorities.

22. Delay and extension of time

If in the opinion of the Architect/PMC/Owner the Work is delayed:

a) By force majeure, or

b) By reason of any exceptionally inclement weather, or

c) By reason of proceedings taken or threatened by or dispute with adjoining or neighboring owners or public authorities arising otherwise than through the Contractor's own default, or

d) By the works or delays of other Contractor or tradesmen engaged or nominated by the Owner or the Architect/PMC and not referred to in the Schedule of Quantities and/or Specification, or

e) By reason of Architect's/PMC/Owner Instructions to delay work, or

f) By reason of civil commotion, local combination of workmen or strike or lock-out affecting any of the building traders, or

g) In consequence of the Contractor not having received in due time necessary Instructions from the Architect/PMC/Owner for which he shall have specifically applied in writing,

Then the Architect/PMC/Owner shall make a fair and reasonable extension of time for completion of the Contract Work; in case of such strike or lock-out the Contractor shall, as soon as may be, give written notice thereof to the Architect/PMC/Owner, but the Contractor shall nevertheless constantly use his endeavors to prevent delay and shall do all that may reasonably be required to the satisfaction of the Architect to proceed with the work.

23. Failure by Contractor to comply with Architect's Instructions

If the Contractor after receipt of written notice from the Architect requiring compliance fails within ten days to comply with such further drawings and/or Architect's Instructions the Owner with the consent of the Architect may employ and pay other persons to execute any such work whatsoever that may be necessary to give effect thereto, and all costs incurred in connection therewith shall be recoverable from the Contractor.

24. Termination or Abridgment of Contract by the Owner

a) If the Contractor being an individual or a Firm commit any 'Act or Insolvency' or shall be adjudged an Insolvent or being an Incorporated Company or Society shall have an order for compulsory winding up made against it or pass an effective resolution for winding up voluntarily or subject to the supervision of the Court and of the Official Assignee of the Liquidator in such acts of insolvency or winding up shall be unable within seven days after notice to him requiring him to do so, to show to the reasonable satisfaction of the Architect that he is able to carry out and fulfill the Contract, and to give security therefore, if so required by the Architect, or

b) If the Contractor (whether an individual, Firm, Incorporated Company or Society) shall suffer execution to be issued, or

c) Shall suffer any payment under this Contract to be attached by or on behalf of any or the creditors of the Contractor, or

d) Shall assign or sublet this Contract without the consent in writing of the Architect/PMC first obtained, or

e) Shall charge or encumber this Contract or any payments due or which may become due to the Contractor there under, or

f) If the Architect/PMC shall certify in writing to the Owner that the Contractor:

i) Has abandoned the Contract, or

ii) Has failed to commence the works, or has without any lawful excuse under these

Conditions suspended the progress of the works for 14 days after receiving from the Architect/PMC/Owner written notice to proceed, or

iii) Has failed to proceed with the works with such due diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or

iv) Has failed to remove materials from the site or to pull down and replace work for seven days after receiving from the Architect written notice the said materials or work were condemned and rejected by the Architect under these conditions, or

v) Has neglected or failed persistently to observe and perform all or any of the acts, matters or things by this Contract to be observed and performed by the Contractor for seven days after written notice shall have been given to the Contractor requiring the Contractor to observe or perform the same, or

vi) Has to the detriment of good workmanship or in defiance of the Architect's/PMC Instructions to the contrary sub-let any part of the Contract,

25. Then and in any of the said cases the Owner with the written consent of the Architect/PMC may, notwithstanding any previous waiver, after giving seven days' notice in writing to the Contractor, determine the Contract, but without hereby affecting the powers of the Architect or the obligations and liabilities of the Contract the whole of which shall continue in force as fully as if the Contract had not been so determined and as if the works subsequently executed had been executed by or on behalf of the Contractor. The costs of these works are therefore recoverable from the Contractor. And further, the Owner under instructions of the Architect, by his Agents or servants may enter upon and take possession of the works and all plants, tools, scaffolding, sheds, machinery, steam and other power utensils and materials lying upon the premises or the adjoining lands or roads, and use the same as his own property or may employ the same by means of his own servants and workmen in carrying on and completing the works or by employing any other Contractor or other person or persons to complete the Work, and the Contractor shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other Contractor or other person or persons employed for completing and finishing or using the materials and plant for the Work. When the Work shall be completed or as soon thereafter as convenient the Architect shall give a notice in writing to the Contractor to remove his surplus materials and plant, and should the Contractor fail to do so within a period of 14 days after receipt thereof by him, Owner shall sell the same, and shall give credit to the Contractor for the amount realized. The Architect shall thereafter ascertain and certify in writing what (if anything) shall be due or payable to or by the Owner for the value of the said plant and materials so taken possession of by the Owner and the expense or loss which the Owner shall have been put to in procuring the works to be completed, and the amount, if any, owing to the Contractor and the amount which shall be so certified shall thereupon be paid by the Owner to the Contractor or by the Contractor to the Owner, as the case may be, and the certificate of the Architect shall be final and conclusive between the parties.

26. If at any time after the commencement of the work the Owner shall for any reason whatsoever not require the whole thereof, as specified in the tender, to be carried out, but need to abridge the Contract, the Owner shall give notice in writing of the fact to the Contractor who shall have no claim to any payment or compensation which he might have derived from the execution of the work in full, but which he did not derive in consequence of the whole amount of the work not having been carried out. The Contractor shall in this case, however, be entitled to payment for the work already executed by him in accordance with the agreed rates. The Owner shall also take over all building materials as might have been ordered for the work, but orders for which cannot be canceled, if delivered within a reasonable time, and shall pay for them at cost price. The Contractor shall also be allowed to remove his tools and plants from the site.

27. Termination of Contract by Contractor

a) If payment of the amount payable by the Owner under Certificate of the Architect /PMC for beyond two months from date of issue of certificate due to reason not attributable to the contractor.
b) The Owner commits any 'Act of Insolvency', or
c) If the Owner (being an individual, or firm) shall be adjudged an Insolvent, or (being an Incorporated Company or Society) shall have an order made against him or pass an effective resolution for winding up, either compulsorily or subject to the supervision of the Court or voluntarily, or if the Officials Assignee or the Owner shall repudiate the contract, or if the Official Assignee or the Liquidator in any such winding up shall be unable within fifteen days after notice to him requiring him so to do, to show to the reasonable satisfaction of the Contractor that he is able to carry out and fulfill the Contract and to make all payments due, and to become due there under and, if required by the Contractor, to give security of the same, or
d) If the works be stopped for three months or more under a continuous spell under the order of the Architect /PMC or the Owner or by any injunction or other order of any Court of Law,

28. Then and in any of the above said (Clause28) cases the Contractor shall be at liberty to determine the Contract by notice in writing to the Owner, through the Architect, and he shall be entitled to recover from the Owner payment for all works executed and cost of the material supplied and lying at site for the purpose of the Contract as on the said day of the termination. No other claim for idle labour , loss of overheads , profits shall be entertained nor shall any other claim on account of the delay in completion of the work /availability of site/ unwarranted conditions whatsoever shall be tenable, even if it is caused by circumstances beyond the Contractor's control.

29. Procedure for Settlement of Disputes

29.1 Engineer's Decision

If a dispute of any kind whatsoever arises between IIIT-Delhi and the contractor in connection with, or arising out of , the contract or the execution of the works, whether during the execution of the works or after their completion and whether before or after any repudiation or other termination of the contract, including any dispute as to any opinion, instruction, determination, certificate or valuation of the engineer, the matter in dispute shall, in the first place, be referred in writing to the engineer, with a copy to all parties. Such reference shall be made within one (1) month of arising of any such dispute and state that it is made pursuant to this clause. No later than one (1) month after the day on which he received such reference the engineer shall give notice of his decision to IIIT-Delhi and the contractor. Such decision shall state that it is made pursuant to the reference under this clause.

Unless the contract has already been repudiated or terminated, the contractor shall in every case, continue to proceed with the works with all due diligence and the contractor and IIIT-Delhi shall give effect forthwith to any / every such decision of the engineer unless and until the same shall be revised, as hereinafter provided, in an amicable settlement or an arbitral award. If either IIIT-Delhi or the contractor be dissatisfied with any decision of the engineer, or if the engineer fails to give notice of his decision on or before one (1) month after the day on which he received the reference, then either IIIT-Delhi or the contractor may within a further period of one (1) month from the day on which it / they receive(s) the notice of such decision, or on the day on which the said period of notice of / for decision expired, as the case may be, give notice to the other party, with copy for information to the engineer, of its / their intention to commence arbitration. Such notice shall establish the entitlement of the party giving the same to commence arbitration, as

hereinafter provided, as to such dispute and no arbitration in respect thereof may be commenced unless such notice is given. If the engineer has given notice of his decision as to a matter in dispute to IIIT-Delhi and the contractor and no notification of intention to commence arbitration as to such dispute has been given by either IIIT-Delhi or the contractor as herein provided, the said decision shall become final and binding upon IIIT-Delhi and the contractor.

29.2. **Amicable Settlement**

Where notice of intention to commence arbitration as to a dispute has been given in accordance with sub-clause 22.1, arbitration of such dispute shall not be commenced unless an attempt has first been made by the parties to settle such dispute amicably. Provided that, unless the parties otherwise agree, arbitration may be commenced on or after one (1) month from the day on which notice of intention to commence arbitration of such dispute was given, whether or not any attempt at amicable settlement thereof has been made or result achieved.

29.3. **Arbitration**

Any dispute in respect of which:

a) the decision, if any, of the engineer has not become final and binding pursuant to the first sub-clause above,
b) amicable settlement has not been reached within the period stated in the second sub-clause above, shall be finally settled, unless otherwise specified in the contract, by arbitration to be held in New Delhi in English, under the provisions of the Arbitration and Conciliation Act 1996, including any statutory reenactment(s) / amendment(s) thereof and Rules made thereunder, by the arbitrator. The Director of the Institute shall appoint one person as the sole arbitrator. Either party shall be limited in the proceeding before such arbitrator to evidence or arguments put before the engineer for the purposes of obtaining the said decision pursuant to the first sub-clause herein. No such decision shall disqualify the engineer from being called as a witness and giving evidence before the arbitrator on any matter whatsoever relevant to the dispute. Arbitration proceedings shall not be commenced prior to the completion of the works, unless any major pre-requisite criticality is discerned by the arbitrator, and the obligations of IIIT-Delhi, the engineer and the contractor shall not be altered by reason of the arbitration .The works shall not be stopped on account of the said process of arbitration and the contractor shall not be relieved of his responsibilities for the completion of the work under any circumstances whatsoever.

29.4. Contractor to provide everything necessary

The Contractor shall provide everything necessary for the proper execution of the Work according to the intent and meaning of the Drawings, Schedule of Quantities and Specifications taken together whether the same may or may not be particularly shown or described therein provided that the same can reasonably be inferred there from, and if the Contractor finds any discrepancy in the Drawings or between the Drawings, Schedule of Quantities and Specification he shall immediately and in writing refer the same to the Architect who shall decide which is to be followed.

29.5. Materials and Workmanship to conform to Descriptions

All materials and workmanship shall so far as procurable be of the respective kinds described in the Schedule of Quantities and/or Specification and in accordance with the Architect's Instructions, and the Contractor shall upon the request of the Architect furnish him with all invoices, accounts, receipts and other vouchers to prove that the materials comply therewith. The Contractor shall at his own cost arrange for and/or carry out any test of any materials which the Architect may require.

29.6. Assignment and Sub-letting

The whole of the works included in the Contract shall be executed by the Contractor and the Contractor shall not directly or indirectly transfer, assign or underlet the Contract or any part share thereof or interest therein without the written consent of the Architect, and no undertaking shall relieve the Contractor from the full and entire responsibility of the Contract or from active superintendence of the Work during its progress.

29.7. Removal of improper work

The Architect shall, during the progress of the Work, have the power to order the removal, from the Site or works within such reasonable time or times as may be specified in the order, of any materials which in the opinion of the Architect are not in accordance with the Specification or the Instructions of the Architect, the substitution of proper materials, and the removal and proper re-execution of any works executed with materials or workmanship not in accordance with the Drawings, Specifications or Instructions and the Contractor shall forthwith carry out such order at his own cost. In case of default on the part of the Contractor to carry out such order, the Owner shall have the power to employ and pay other persons to carry out the same, and all expenses consumed thereon or incidental thereto as certified by the Architect shall be borne by the Contractor, or may be deducted by the Owner from any moneys due or that may become due to the Contractor.

ADDITIONAL CONDITIONS

1. General conditions of contract for Central PWD Works 7/8 (Tender of Form) shall be part of the agreement.

2. The work shall be carried out strictly as per CPWD specifications 2007, Part I & II with up to date correction slips. Wherever no specification is available in the above said document, drawings and specifications supplied with bill of quantities shall be applicable

3. The Contractor shall have to clear the site for the work of all overlying rubbish /garbage/dumped refuse material prior to commencement of the work in case required at no extra cost. The contractor shall take approval from the Engineer /Officer in Charge in writing for collection and stacking of materials.

4. The contractor must follow CPWD Safety Code as provided in general conditions of contract for CPWD Works.

5. Any damage done by the contractor or his workmen to any existing work during the course of execution of the work shall be made good by him at his own cost.

6. Contractor shall clear the site thoroughly of all rubbish etc. left out of his materials immediately on completion of the work and properly keep the site clean around the building to the satisfaction of the Engineer- in-Charge.

7. The preference of the codes will be IS codes.

8. The rates are inclusive of all staging, material and labour as required for the works. The items in the bill of quantities include all the materials, labour, and installation, complete as a finish items unless otherwise stated.

9. Unless specifically mentioned otherwise, quoted Rates shall be deemed to include work to be carried out at all curvatures, heights, depths, inclinations and locations, and in wet/foul locations, as and when they are encountered. The rates quoted for the various works as specified in the Priced Schedule of Quantities are work in all types of soils/rock and prevailing Site conditions including earth work, excavation, shoring, execution of various other items of work, i.e., laying of pipes, joining, concreting, masonry, plastering, etc. in and under water and dewatering as required. Nothing extra is payable on this account.

10. All security precautions shall be taken during dismantling work. The site shall be fenced /barricaded with suitable material during construction period .No payment shall be made for fencing/barricading work. Fencing/barricading shall be done immediately after possession of site and shall be removed after completion of construction period

11. No space on site/otherwise for labour huts shall be provided by IIITD, cost of same shall be borne by contractor.

12. The general condition of contract for Central P.W.D. Works has reference of various laws /acts /rules. The settlement of any disputes and arbitration, only Indian arbitration and conciliation act 1996 shall be applicable.

13. In case any specific brand of material has been specified either the same brand or of approved make of same specifications shall be used. The contractor shall take approval in advance for all such materials.

14. The contractor should take utmost care to avoid any damage to the existing flooring, electrical works/cables, telephone cables, false ceiling, sprinkler system, fire alarm etc. in place. In case of any damage, it would be the responsibility of the contractor to restore the same immediately.
CORRIGENDUM TO FORM 7/ 8 / 9 (CPWD) MUST BE READ ALONG WITH THE PAMPHLET

S.No	FOR	READ
1	Government of India/Owner	Indraprastha Institute of Information Technology Delhi
2	C.P.W.D. or Government or Department	Indraprastha Institute of Information Technology Delhi
3	CPWD -7/8/9	CPWD 7/8/9
4	President / President of India	Chairman ,BOG,IIITD
5	Chief-Engineer	Director ,IIITD
6	Superintending Engineer	CE, IIITD
9	Administration Head	Registrar ,IIITD
11	CPWD Code, Paragraph '90	Shall be applicable to IIITD works
12	DSR'2007	Shall be applicable to IIITD works
13	CPWD specifications 2007 part - I& II	Shall be applicable to IIITD works
14	DSR (Internal) 2007 for Electrical works	Shall be applicable to IIITD works
15	CPWD specifications (Internal) 2007 for Electrical works	Shall be applicable to IIITD works
16	DSR External 2007 for Electrical works and specifications	Shall be applicable to IIITD works
17	Provision of Section 12 Sub-Section (i) of the works man compensation	Shall be applicable to IIITD works
18	CPWD safety Code framed from time to time	Shall be applicable to IIITD works
19	CPWD maternity benefits to labour	Shall be applicable to IIITD works
20	Model Rules of the protection of health and sanitary appointment for workers employed by CPWD	Shall be applicable to IIITD works

21	CPWD contractor labour Regulations	Shall be applicable to IIITD works

SPECIFICATIONS:

1. GENERAL:

1.1. Without forgoing the requirements of the conditions of Tender and the Conditions of Contract the works in general shall conform to the "Specifications 2007" published by CPWD, New Delhi and the "Specifications for works" stated in this tender. In case items not covered by the general specifications referred above, reference shall be made to the appropriate I.S. Codes. If there is any difference in the particular specifications of individual item of work and the description of item as given in the Schedule of quantity, the latter shall prevail. In case of any work for which there is no specification in I.S. specifications in the specifications forming part of tender documents or in case there is any variation, such work shall be carried out in all respects in accordance with the instructions to be issued by the Engineer–in-charge. The term Officer in Charge appearing in the specifications shall mean supervisor and be in Charge of the work or his authorized representative as the context may demand. All corrections to "Specifications 2007" or latest revisions of I.S. Code/ Specification shall be deemed to apply to this contract.

1.1.1. Materials bearing ISI certification mark certification shall be given highest preference for use in the works. Where the Contractor is required to do, perform, execute (etc.) any work or service or the like, it shall be deemed to be at his own cost. Absence of terms providing, Supplying, installing, fixing, etc. shall not even remotely entitle the Contractor to any additional payment there for

1.1.2. The rates accepted in the Schedule of Quantities apply to all floors, heights, depths, leads, lifts, spans, sizes, shapes, locations, etc. unless a distinction has been included in the very Schedule.

1.1.3. The Specifications and the Schedules may have been divided into various sub-heads for convenience only. This does not limit applicability of one to the other nor does it absolve the Contractor of his responsibility to complete any trade / item of work as reasonably inferred from one or more of such sub-heads.

1.1.4. The Schedule of Quantities is not necessarily based on "Schedule of Rates - Delhi 2007 or any of its later/ earlier versions. Hence the Schedule of Quantities shall be read and construed according to explanations given herein and intentions gathered there from. A mere parallel drawn form the said Schedule of Rates shall therefore not form a basis for a variation and, or additional payment.

1.1.5. All work under this contract is deemed to be performed above subs soil water level. However, removal of water collected from rains and the like shall be treated as part of contractual risk/obligation.

1.1.6. Screws, bolts, nuts, washers, hold fasts, lugs, anchors, clamps, plugs, suspenders, brackets, straps and fasteners of the like are deemed to be included in the rates of various items unless the Schedule of Quantities expressed a different intention.

1.1.7. Resetting any displacements, making good holes/chases and such other incidental jobs are included in rates of respective items for which these are required.

2. DRAWINGS, SPECIFICATIONS, INTERPRETATIONS ETC.:

In general, drawings shall indicate the dimensions, positions and type of construction, the specifications shall stipulate the qualities and the methods and performance criteria, and the schedule of quantities shall indicate the provisional quantities and the rates for each item of work. However, the above documents being complementary, what is called for by any one shall be as binding as if called for by all. In case of contradictory requirements between specifications and schedule of quantities, the requirements given in the schedule of quantities shall prevail.

Special conditions being mainly an amplification of General Conditions, they shall be read in conjunction with each other.

Work indicated on the drawings and not mentioned in the schedule of quantities or specifications or vice versa, shall be deemed as though fully set forth in each. Work not specifically detailed, called for, marked or specified, shall be the same as similar parts that are detailed, marked or specified.

3. Sample Approvals

a. A pre-delivery inspection may be undertaken by the IIITD representatives at the place of manufacture of the suppliers works / sites of installation of similar works . If required, inspections at various stages of manufacturing can also be undertaken by the IIITD representatives at supplier's workshop and contractor should not have any objection for the same. The time taken for inspection is inclusive of the scheduled completion time of the delivery & placing. If there are any issues, regarding quality of materials, the IIITD reserves right to get the material tested and the contractor has to bear all expenses towards transportation, testing charges, etc.

b. Each of the supplied items must conform to the sample shown by the bidder for evaluation that has been approved. If the technical committee observes that the quality of the supplied items appears to be lower than the sample provided and initially approved, then randomly selected supplied items will be subjected to further third party testing at the Sri Ram Test Laboratories, New Delhi or any other NABL accredited laboratory. Vendor will bear all the cost of the test. Negative report may lead to cancellation of Supply order/Work Order, forfeiture of Performance Bank Guarantee and necessary legal action under relevant clauses of IPC.

4. Defect Liability period :Warranty

The contractor shall provide 12 months Warranty (on site and comprehensive) on all items from the last date of placing and shall be responsible for any defects that may develop in the furniture. They shall also have to replace any defective part of the product supplied and other accessories, without any exception and recourse without any extra cost.

The contractor is responsible for all packing, unpacking, assembly, placing of units. The contractor will test the products and accomplish the adjustments necessary for successful and continuous operation of the products supplied at all placing sites and shall ensure maintenance of the supplied products during the warranty period. All the repairing/replacing of defects shall be done by the contractor under defect liability conditions without any additional expenses to the Institute.

5. Payment Terms

a. Each invoice should be submitted in duplicate clearly specifying contract no, goods description, quantity, unit price, total amount along with warranty certificate, etc.
Payment for Goods and Services shall be made by Institute in Indian Rupees as follows:

b. **Mobilization Advance:** Mobilization advance not exceeding 10% of the tendered value may be given to the contractor if requested in writing within one month of the order to commence the work in two or more installments at the discretion of the Engineer In Charge against Guarantee bond from a scheduled bank for an amount equal to 110% of the amount of advance and valid for the Contract period. This BG shall be renewed to cover balance amount till likely period of recovery. No other advances shall be payable whatsoever.

c. **Payment** : Payment will be made against actual supplies as specified in the delivery schedule.

i) 70% of the payment will be made on delivery at site and receipt of the invoice thereof.

ii) 30% of the payment will be made after the assembly and installation in place and site clearance.

d. SECURITY RETENTION @5% (five percent) shall be retained from gross value of each bill towards security deposit. 50% of this shall be refunded on successful completion of the work/ supply and balance 50% on successful completion of the defect liability period.

e. Payment due to Variation in Prices of Materials after receipt of tender.
There will be no Variation in Prices/Rates of any Items of work, and the prices shall remain firm during the currency of the Contract and for the extended period of Contract, if any.

6. Delay and Non-Conformance of supplies

a. If the contractor fails to supply and place any or all of the goods with in the period specified in the Work/ Supply Order, Institute shall without prejudice to its other remedies under the Purchase Order/Work Order deduct from the contract price, as liquidated damages a sum @ 1% per week of delay, for delay until actual delivery for reasons attributable to the vendor. The penalties will be maximum of 10% of the contract amount/awarded value.

b. In case of extraordinary delay, the Institute reserves the right to terminate the contract without any liability to cancellation charges and encash the Performance Guarantee. The supplies would be thereafter procured from any other vendor at the Risk and Cost of the vendor for the short supplies.

7. Services during warranty period

a. The maximum response time for maintenance complaint during warranty period (i.e. time required for contractor's maintenance engineer to report at the placing after a request call/email /telegram is made or letter is written) shall not exceed 02 days.

b. The period for correction of defects in warranty period is 03 days.

c. In case the rectification of defects is not carried out within 03 days and replacement of defective items are not provided, a penalty of sum equivalent to 5% per week of the delivered price of that defective item(s) shall be levied. This penalty is applicable up to a maximum of 4 weeks (maximum 20%). Subsequently, the rectification shall be carried out by the Institute at the risk and cost of the contractor. The cost of the repairs along with the penalty of 100% shall be

recovered from the payment withheld with Institute and the balance amount, if any, will be paid to the contractor after completion of warranty obligations.

8. Substitution and Wrong Supplies

Unauthorized substitution or materials delivered in error of wrong description or quality or supplied in excess quantity or rejected goods shall be removed by the contractor at his own risk and cost.

9. Insurance, Freight and Deliveries

a. The contractor shall make all arrangements towards safe and complete delivery at the designated locations indicated by Institute in the Purchase Order. Such responsibility on part of the contractor will include taking care of insurance, freight, state level permits, octroi, duties, green tax etc. as applicable. These shall be included in rates and no extra shall be payable on such account.

b. The contractor will keep Institute informed about changes, if any, in various stages of deliveries/ placing.

Special Note

Though every care is taken while preparing this document to cover all necessary matters, specifications, general conditions, special conditions, provisions for smooth and complete execution of work, however in case of any omission in the tender/ contract document, latest correction slips of General Conditions of Contract for CPWD Works 2014 will be the reference manual but not in supersession to aforesaid conditions.

AGREEMENT

AN AGREEMENT is made this ----------BETWEEN the Registrar for and on behalf of IIIT Delhi, Okhla Industrial Area, Phase III, New Delhi 110020 ,and with its registered office at Okhla Phase III , New Delhi 110020,

WHEREAS the Authority has, under tender Notification No. ----------

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WHEREAS the contractor has submitted tender for carrying out the work as above as per the tender document page ---- to ----- and has represented that in conformity with his / its obligation contained in the tender as modified by the correction slips and corrigendum contained he / it shall carryout the same truly, faithfully and honestly.

THE SAME has been accepted by both the parties on the terms and conditions, corrections, corrigendum contained in the tender as modified as well as the letter of acceptance Issued party No.1 annexed here to as.

The same shall be binding on both the parties.

IN WITNESS WHEREOF, the parties have signed the deed of agreement on the date, month and year referred to above.

Date: ----------
At New Delhi.

Signed by

Party No.1

Party No.2

WITNESS

1. ---------- Party No.1

2. ---------- Party No.2

GENERAL INSTRUCTIONS* FOR SITE *VISIT

I, _____, aged ___ years, son/daughter of_____, presently residing at _____and authorized by _____(name of tenderer) ("Tenderer") to solemn this affidavit on behalf of the Tenderer, solemnly affirm on oath as hereunder:

The Tenderer confirms that the Tenderer has duly undertaken the visit of the proposed project site of IIITD located at Okhla Phase III , New Delhi,.

The Tenderer has inspected and examined its surroundings and has satisfied itself about the site conditions and site logistics. The Tenderer confirms that it is aware of the ground conditions and nature of the site, means of access to the site and the accommodation area required for establishing the labour camp. The Tenderer agrees and confirms it shall be solely responsible for arranging and maintaining the afore-mentioned at its own cost including 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.

The Tenderer confirms and agrees that the submission of the tender implies that the requisite site visit has already been undertaken and that the Tenderer has acquainted itself with the local conditions and other factors having a bearing on the execution of the Work.

DEPONENT

VERIFICATION

I, _____, aged ___ years, son/daughter of_____, presently residing at _____and authorized by Tenderer verify that the information mentioned above is true and correct to the best of my knowledge and belief.

DEPONENT

SUMMARY

S.no	Description	Amount
A	FUME HOOD	
B	FURNITURE	
C	EXHAUST	
D	TOTAL AMOUNT	
	GST ____	
	TOTAL AMOUNT WITH GST	

A. FUME HOOD

Sl. No	Description of Items	Unit	Qty	Rate	Amount
1	Providing installing and commissioning Fume hood of size 1500mm(L) x 900mm (w) x 2400mm(H) with Granite top of thickness 20mm and raised edges 32mm thick, superstructure external walls made of powder coated steel and internal wall made of polyresin/Phenolic resin with as per the arrangement drawing, specification attached hereto and direction of Engineer-in- charge conforming to ASHRAE and EN specifications consisting of the followings:	Nos	1		
1.1	(b) 1 No. Bench-mounted fume cupboard with side installation - upper part 1500mm wide Lighting down light energy saving lamp Internal lining - Phenolic Resin Sash - fixed glazing (Vertical Raising) Glass pane - Laminated safety glass Control/monitoring - on-site or respectively according to the description of items Exhaust air system - connection DN 315mm Extraction - under bench/floor exhaust device (connection for two units)				
1.2	(c) 1 No. Side wall left Internal lining- Phenolic resin Side panel design - Material like internal lining with sink module of polypropylene				
1.3	(d) 1 No. Side wall right Internal lining - Phenolic resin side panel design - material like internal lining.				
1.4	(e) 1 No. Microprocessor controlled face velocity monitor with audible alarm to give an indication in case of non-working of exhaust blower.				
2	**Under bench unit**				
2.1	(a) 2 No. Fume hood under bench unit on plinth size in - 750mm wide, 1 No. hinged door, 2 extendable shelves with depth of 550mm.				
2.3	(b) Extraction - under bench exhaust.				
3	**Worktops**				
3.1	(a) 1 No. Worktop of Granite 1495 x 760 x 20mm+/-2mm (The edges shall be 30mm)				
3.2	(b) 1 No. Drip cup of Poly Propylene 230 x 75 x 126mm				
4	**Mechanical services**				
4.1	(a) 1 No. outlet, outlet + valve Drinking water, cold (RW).				
4.2	(b) 1 No. outlet, outlet + valve Nitrogen (N2).				
4.3	(c) 2 Nos. Internal piping until 150mm above the hood without connector .				
5	**Electricity**				
5.2	(a) 4 Nos. double socket along with the internal wiring & lighting and light switch				
6	**Scaffolding**				
6.1	(a) 4 Nos. scaffolding rod dia 13mm of epoxy length 120mm.				
6.2	(b) 2 Nos. scaffolding rod dia 13mm of aluminium length 1200mm.				
	TOTAL AMOUNT OF **FUME HOOD**				

B. FURNITURES

Sr. No	Description of Items	Unit	Qty	Rate	Amount
1	**ISLAND WORK BENCHES**				
	Providing and installing dual sided island work bench of standing height 900 ± 25mm (Excluding worktop), overall height including reagent rack 1530 ± 25mm.Table should be inclusive of Granite top of 18mm thick, Thickness of storage should be at least 0.8mm thick for load carrying parts. Combination of door drawer Cabinets, legspace & all required covering panels as per the arrangement drawing, specification and direction of Engineer-in-charge consisting of the followings:				
1.1	**ISLAND BENCH (With 2 Tier Reagent Rack width 300mm)-length 6502 ± 50mm & width 1525 ± 15mm**	Nos.	**2**		
1.2	Total Leg space-750mm L x 550mm D x 900mm H (28 Nos) (With Apron Drawer)				
1.3	Total Sink Base storage cabinet-750mm L x 550mm D x 900mm H (4 Nos)				
1.4	PP Sink (Size: 600Lx450Dx315Hmm & Bowl : 550Lx400Dx315Hmm) with Bottle trap,waste-4 Nos				
1.5	3 Way water tap-4 Nos				
1.6	Twin Head Eyewash-2 Nos				
1.7	Acrylic Pegboard with 24 Pegs & mounting Support-4 Nos				
2	**Providing and installing wall bench Height 900 ± 25mm (Excluding worktop), Table should be inclusive of Granite top of 18mm thick ,Thickness of storage should be at least 0.8mm thick for load carrying parts, as per the arrangement drawing, specification and direction of Engineer-in- charge consisting of the followings:**				
2.1	**WALL BENCH-LENGTH (2007mm ± 50mm & width 900 ± 15mm**	Nos.	**1**		
2.1a	Total Base storage DR cabinet-750mm L x 550mm D x 900mm H (1 Nos)				
2.1b	Total Base Storage Dust Bin Cabinet- 450mmL x 550mm D 900mm H(1No)				
2.1c	Total Sink Base storage cabinet-750mm L x 550mm D x 900mm H (1 Nos)				
2.1d	PP Sink (Size: 600Lx450Dx315Hmm & Bowl : 550Lx400Dx315Hmm) with Bottle trap,waste-1 Nos				
2.1e	1 Way water tap-1 Nos				
2.1f	Twin Head Eyewash-1 Nos				
2.1g	Acrylic Pegboard with 24 Pegs & mounting Support-1 Nos				
2.2	**WALL BENCH-LENGTH (8560mm ± 50mm & width 750 ± 15mm**	Nos.	**2**		
2.3	Total Base storage DW/DR cabinet750mm L x 550mm D x 900mm H (22 Nos)				

3	**Providing and installing wall bench Height 900 ± 25mm (Excluding worktop),Table should be inclusive of Granite top of 18mm thick ,Thickness of storage should be at least 0.8mm thick for load carrying parts, as per the arrangement drawing, specification and direction of Engineer-in- charge consisting of the followings:**				
3.1	**L WALL BENCH-length (5585+ 7871) ± 50mm & width 750 ± 15mm**	Nos.	**1**		
3.2	Total Leg space-750mm L x 550mm D x 900mm H (4 Nos) (With Apron Drawer)				
3.3	Total Leg space-1372mm L x 550mm D x 900mm H (1 Nos) (With Apron Drawer)				
3.4	Total Base storage DW/DR cabinet-380mm L x 550mm D x 900mm H (1 Nos)				
3.5	Total Base storage DW/DR cabinet-450mm L x 550mm D x 900mm H (1 Nos)				
3.6	Total Base storage DW/DR cabinet-610mm L x 550mm D x 900mm H (1 Nos)				
3.7	Total Base storage DW/DR cabinet750mm L x 550mm D x 900mm H (9 Nos)				
3.8	Total Base storage DW/DR cabinet-610mm L x 550mm D x635mm H (4 Nos) With Castors				
4	**Providing and installing wall bench Height 750 ± 25mm (Excluding worktop),Table should be inclusive of Granite top of 18mm thick. Thickness of storage should be at least 0.8mm thick for load carrying parts, as per the arrangement drawing, specification and direction of Engineer-in- charge consisting of the followings:**				
4.1	**FOUR LEG BENCH-LENGTH (1016mm ± 50mm & width1016 ± 15mm**	Nos.	**9**		
4.1	Four Leg unit 965mm x 965mm D x 750mm H(9 Nos)				
4.2	Veretebrae ebco make for sitting height (9 Nos)				
5	**TALL STORAGE**	Nos.	**4**		
5.1	Tall storage swinging Glazed Door 900mmL x 550mm D x 2134 H (4 Nos)				
6	**Electrical & Data**				
	Providing & fixing of Electrical & Data boxes of suitable size as per Layout and Sockets. Wiring will be client scope.				
6.1	6/16A SOCKET WITH SWITCH	Nos.	138		
7	**WALL MOUNT STORAGE CABINET**				
7.1	Size : 600mm x 400mm x 600mm, Glazed swinging Door with Lock	Nos.	2		
7.2	Size : 600mm x 400mm 750mm, Glazed swinging Door with Lock	Nos.	27		
8	**FILLER PANELS**				

8.1	FILLER PANEL FOR ALL CABINETS TO FINISH WITH WALL AND IN BETWEEN CABINETS	Smt	10		
9	**BASE MOLDING & CORNER CLIP**				
9.1	BASE MOLDING ARE PROVIDED TO ALL LEGS TO CONCEAL LEVELING DEVICE. SHOES SHALL BE A PLIABLE, BLACK VINYL OF 4" HEIGHT.	Rmt.	160		
9.2	CORNER CLIP	Nos.	98		
10	**WORK TOP**				
10.1	20mm +/-2mmTHK. GRANITE WORKTOP	Smt	74		
11	**GRANITE SKIRTING. 4x1**				
11.1	20mm THK.+/-2mm GRANITE as WORKTOP	Rmt.	60		
	TOTAL AMOUNT OF FURNITURES				

C. EXHAUST

SL No.	DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL PRICE
A	**CENTRIFUGAL BLOWER & MOTOR**				
1	Medium Pressure Direct Driven PP Centrifugal Blower (1000 cfm @ 40 mm WG Static pressure) including suitable clamp adapter, Electro galvanized stand and fasteners like bolts, nuts and washers , base frame, vibration isolators,weather cowl, stack support, motor guard, bird mesh, inlet & Outlet flaxible hose for centrifugal blowers.	No.	1		
2	Motor 1.5KW/2P(2HP/2P) TEFC B5 / Flange mounted 3phase 50Hz, 415Volts IP-55 Protection Class F. For outdoor application for blower.Terminal box should be on top side. Compatible for ssVFD Operation at 50 Hz.	No.	1		
C	**PP-FRP DUCTING & ACCESSORIES**				
1	PP-FRP ducting using 3mm thick PPGL sheets 3 mm thick FRP lining using isothelic resin including flanges & bends, gasket, support with threaded rod, clamps, anchor fasteners, washer nuts and bolts.	Sqm	25		
2	MS Support for Ducts inside shaft and in terrace floor.	Kg.	100		
3	PP Moulded 12" dia. single leaf Butterfly Manual damper with Both side flange for Fume hood.	Nos.	2		
4	8" dia. PP single leaf Butterfly Manual damper with both side flanges for Bypass.	Nos.	1		
5	12" Dia PVC Coated chemical resistance hose with 14" Dia. Clips for Fume Hoods.	Rm	2		
6	Fumehood Base cabinet vent connection & Accessories	Set	1		
6.1	40 mm GI Slip x Slip x Slip Tee	No.	1		
6.2	40mm CTS Slip x MPT Male Adapter 2" with Chuck Nut	No.	2		
6.3	40mm CTS 90-Degree Slip x Slip Elbow	No.	2		
6.4	40mm. x 2500mm GI Exhaust Pipe	No.	1		
	TOTAL AMOUNT OF EXHAUST				

APPROVED MAKE LIST

MAKE LIST FOR FUMEHOOD

S.no	Item	Approved Make
1	Fume Hood Valves	Water saver/Broen
2	Air flow Monitor T	EL, UK
3	Work Surface -	Fume Hood Granite
4	PP Sink	Premier Polymer

MAKE LIST FOR LAB FURNITURE

S.no	Item	Approved Make
1.	Work Surface -	Benches Granite worktop
2.	PP Sink	Premier Polymer, India/ Equivalent
3.	Water Tap	Water saver/Broen
4.	Bench Mounted Valves	Water saver/Broen
5.	Spot Extractor	Fumex/Alisident/Nedermann
6.	Eye Wash	Guardian/Broen
7.	Safety Station	Guardian/Broen
8.	Electrical Sockets	Northwest/MK
9.	Data / Voice Sockets	AMP/Dlink

MAKE LIST FOR EXHAUST

S.no	Item	Approved Make
1	Blower	Colasit/Plastifer
2	Blower Motor	ABB / Crompton Greaves

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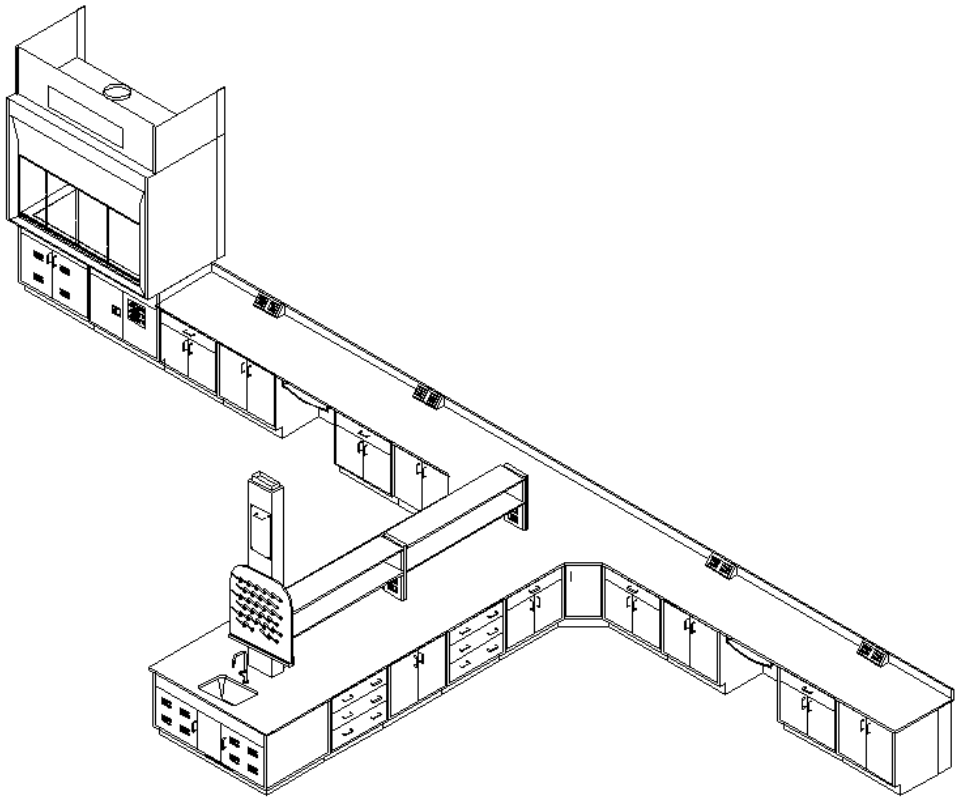
TECHNICAL SPECIFICATION FOR LABORATORY FUMEHOOD, FURNITURE, EXHAUST SYSTEM



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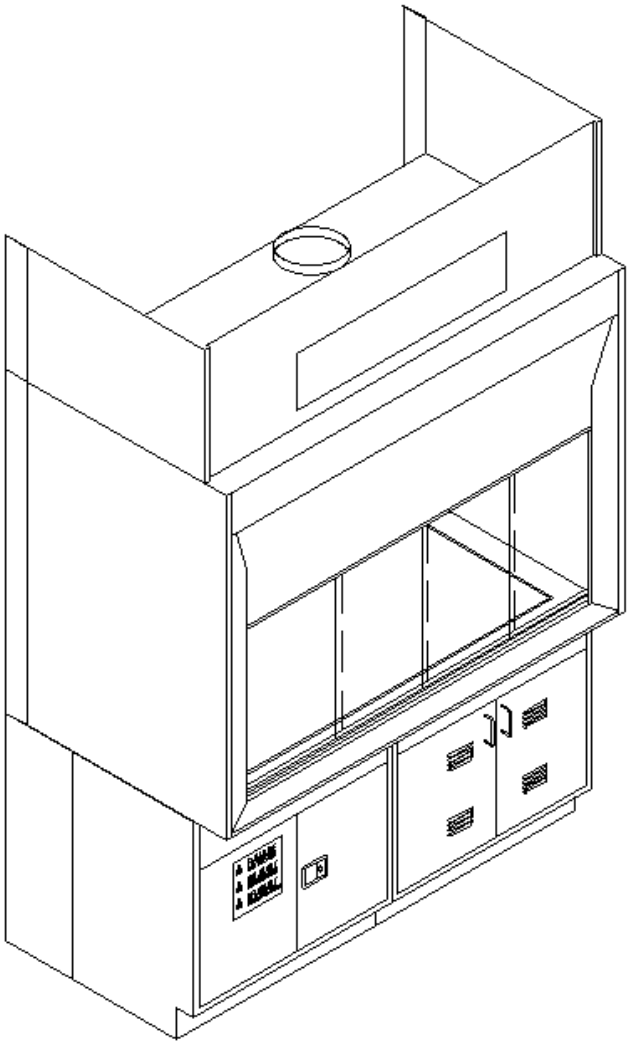
CHAPTER-01

FUMEHOOD SPECIFICATION



DESCRIPTION OF WORK

1.00 SUMMARY AND SCOPE

A. Section Includes:
Furnish and install all fume hoods, work tops, and understructures as shown on drawings.

B. Accessorization:
Furnishing and delivering all service outlets, accessory fittings, electrical receptacles and switches as listed in these specifications, equipment schedules or as shown on drawings. Fittings attached to the fume hood superstructure shall be mounted at the factory.

C. Removal of all debris, dirt and rubbish accumulated as a result of the installation of the fume hoods to an on-site container provided by others, leaving the premises clean and orderly.

1.02 STANDARD FUME HOOD PERFORMANCE REQUIREMENTS

A. Fume hoods shall be of complete airfoil design to insure maximum operating efficiency. Foil sections at the front facias of the hood shall minimize eddying of air currents at the hood face and the rear baffle system shall minimize turbulence in the upper portion of the hood interior.

B. Standard Fume Hood Type:
The fume hoods shall be of the variable air volume type in which the exhaust air volume varies proportionally to the hood opening when used with a hood face velocity controller system.

2.01 MATERIALS AND CONSTRUCTION

A. Fume Hood Superstructure Frame:
A free-standing rigid frame structure of steel angle shall be provided to support exterior panels and interior liner and baffle panels. To allow for maintenance and replacements, the interior liner panels shall be removable without disassembly of the frame structure and outer steel panels. Likewise, the exterior steel panels shall be removable without disassembly of the frame structure and inner liner panels. Fume hoods that require disassembly of the superstructure for liner

replacement are not acceptable.

B. Fume Hood Interior Walls:

Double wall ends, not more than 4" wide, shall be provided to maximize interior working area. The area between the double wall ends shall be closed to house the remote control valves. The front vertical facia section shall have a full 135 degree 1" radius at the front leading edge to provide a streamlined section and insure smooth even flow of air into the hood. The vertical facias shall contain the required service controls, electrical switches and receptacles. The hood interior end panels and sash track shall be flush with the facia to prevent eddy currents and back flow of air.

C. Fume Hood Airfoil:

A streamlined airfoil shall be integral at the bottom of the hood opening on bench and distillation hoods. This foil shall provide a nominal 1" open space between the foil and the top front edge of the work surface to direct an air stream across the work surface to prevent back flow of air. The airfoil shall extend back under the sash, so that the sash does not close the 1" opening. The foil shall be removable to allow large equipment into the hood. The foil shall be of 12-gauge steel to resist denting and flexing. Black Colour PVC cover is used as a additional protective cover on the metal defector vane.

D. Fume Hood Top Panel:

Standard Grille Bypass Configuration:
The top front panel shall be of the same material as the exterior facia. It shall have an integral grille stamped into the upper portion.

E. **Fume Hood Baffles :**

A stable, non-adjustable baffle with three fixed horizontal slots shall be provided to aid in distributing the flow of air into and through the hood. The baffle shall be spaced out 2-1/4" from the back liner. The baffle shall be removable for cleaning

F. **Fume Hood Duct Collar :**

A 12" diameter polyethylene bell-mouthed duct collar shall be located in the top of the hood plenum chamber. Coated common steel duct collars are not acceptable

G. **Fume Hood Lighting:**

Energy-efficient, LED light with light fixture of the size given below shall be provided in the hood roof. Illumination at 13" above the worksurface shall be at least 500 lux.

The light fixtures shall be isolated from the hood interior by a 1/4" thick tempered glass panel sealed from the hood cavity. Fixture shall be UL labeled. For Hood length more than 6ft will have 2 Nos 2ft Length Light fixture.

H. **Fume Hood Sash:**

Vertical Sash:

A vertical sash shall be provided. The sash shall have horizontal sliding glass panels in a vertical rising steel frame. The bottom of the sash frame shall have a full length metal handle. The sash track shall be a neutral colored polyvinyl chloride set flush with the interior liner panels to minimize turbulence. The sash shall be counterbalanced with a single weight to prevent tilting and binding during operation. The glass panels shall be 1/4" laminated safety float glass mounted on metal rollers in an aluminum track.

I. **Fume Hood Plumbing Service:**

Utility services shall consist of remote control valves as selected located within the end panels, controlled by extension rods projecting through the control panels of the hood, with color coded plastic handles. Interior fitting for gases and water shall be nylon panel flanges and angle serrated hose connectors, color coded. Interior fittings for distilled water shall consist of a bronze tin lined, white color-coded, panel flange and angle serrated hose connector. Interior fittings for steam shall consist of a cast bronze flange and angle serrated hose connector with a chemical resistant metallic bronze finish. Water goosenecks shall be cast bronze with a chemical resistant metallic bronze finish. All plumbing fittings shall be factory installed and piped between the valve and the outlet. Inlet piping will be of 3/8" OD SS304 shall have a single-point connection for each valve provided and carried to a point 150mm above the fume hood roof. Points of final service connection by other trades shall be at the stub provided by the fume hood manufacturer.

J. **Fume Hood Electrical Service:**

The hood superstructure shall be pre-wired and contain wire gauge, connections, fixtures and wire color coding. Wiring electrical services shall consist of two duplex receptacles and a light switch. Sockets of 230 Volt AC, and 3-wire polarized grounded with ground fault interruption. The receptacles shall be of specification grade, side wired only, to insure a positive connection. Wiring shall terminate in one 6" x 6" x 4" service junction box located on the fume hood roof. Electrical contractor will provide single phase power supply to the junction box.

K. **Lattice Rod Assemblies:**

1/2" dia Epoxy rods shall be clamped with the Epoxy clamps to form a lattice arrangement to hold the test samples and rotors within the fume hood.

L. **Hood Work Surface:**

Black Granite:

Hood worksurface shall be 1-1/4" thick jet black granite made in the form of a watertight pan, not less than 3/8" deep to contain spillage with a 6" wide safety ledge across the front edge. A cup sink flush with the recessed worksurface shall be provided. The worksurface and cup sink shall be available in black.

M. **Cup Sinks:**

Molded polypropylene cup drains shall be molded in one-piece of acid-resistant polypropylene. They shall have an integral mounting flange and an integral tailpiece with a 1-1/2" I.P.S. male straight thread outlet.

N. **Access Opening:**

The interior end liner panels shall be furnished with an opening that provides access to the service piping and valves to facilitate installation and maintenance. The openings shall be covered with a removable panel with rounded corners. Panels that require tools to remove are not acceptable. The panel shall provide an overlapping seal on all edges.

O. **Fume Hood Finish:**

After the component parts have been completely welded together and before finishing, they shall be given a pre-paint treatment to provide excellent adhesion of the finish system to the steel and to aid in the prevention of corrosion. Physical and chemical cleaning of the steel shall be accomplished by washing

with an alkaline cleaner, followed by a spray treatment with a complex metallic phosphate solution to provide a uniform fine grained crystalline phosphate surface that shall provide both an excellent bond for the finish and enhance the protection provided by the finish against humidity and corrosive chemicals.

After the phosphate treatment, the steel shall be dried and all steel surfaces shall be coated with a chemical and corrosion-resistant, environmentally friendly, electrostatically applied powder coat finish. All components shall be individually painted, insuring that no area be vulnerable to corrosion due to lack of paint coverage. The coating shall then be cured by baking at elevated temperatures to provide maximum properties of corrosion and wear resistance.

P. The completed finish system in standard colors shall meet the performance test requirements specified under PERFORMANCE TEST RESULTS.

Q. Performance Test Results (Chemical Spot Tests):

a. Testing Procedure:
Chemical spot tests for non-volatile chemicals shall be made by applying 5 drops of each reagent to the surface to be tested and covering with a 1-1/4" dia. watch glass, convex side down to confine the reagent. Spot tests of volatile chemicals shall be tested by placing a cotton ball saturated with reagent on the surface to be tested and covering with an inverted 2-ounce wide mouth bottle to retard evaporation. All spot tests shall be conducted in such a manner that the test surface is kept wet throughout the entire test period, and at a temperature of 77° ±3° F. For both methods, leave the reagents on the panel for a period of one hour. At the end of the test period, the reagents shall be flushed from the surface with water, and the surface scrubbed with a soft bristle brush under running water, rinsed and dried. Volatile solvent test areas shall be cleaned with a cotton swab soaked in the solvent used on the test area. Immediately prior to evaluation, 16 to 24 hours after the reagents are removed, the test surface shall be scrubbed with a damp paper towel and dried with paper towels.

b. Test Evaluation:
Evaluation shall be based on the following rating system.

Level 0 – No detectable change.

Level 1 – Slight change in color or gloss.
Level 2 – Slight surface etching or severe staining.
Level 3 – Pitting, cratering, swelling, or erosion of coating. Obvious and significant deterioration.

After testing, panel shall show no more than three (3) Level 3 conditions.

c. Test Reagents

Test No.	Chemical Reagent	Test Method
1.	Acetate, Amyl	Cotton ball & bottle
2.	Acetate, Ethyl	Cotton ball & bottle
3.	Acetic Acid, 98%	Watch glass
4.	Acetone	Cotton ball & bottle
5.	Acid Dichromate, 5%	Watch glass
6.	Alcohol, Butyl	Cotton ball & bottle
7.	Alcohol, Ethyl	Cotton ball & bottle
8.	Alcohol, Methyl	Cotton ball & bottle
9.	Ammonium Hydroxide, 28%	Watch glass
10.	Benzene	Cotton ball & bottle
11.	Carbon Tetrachloride	Cotton ball & bottle
12.	Chloroform	Cotton ball & bottle
13.	Chromic Acid, 60%	Watch glass
14.	Cresol	Cotton ball & bottle
15.	Dichlor Acetic Acid	Cotton ball & bottle
16.	Dimethylformanide	Cotton ball & bottle
17.	Dioxane	Cotton ball & bottle
18.	Ethyl Ether	Cotton ball & bottle
19.	Formaldehyde, 37%	Cotton ball & bottle
20.	Formic Acid, 90%	Watch glass
21.	Furfural	Cotton ball & bottle
22.	Gasoline	Cotton ball & bottle
23.	Hydrochloric Acid, 37%	Watch glass
24.	Hydrofluoric Acid, 48%	Watch glass
25.	Hydrogen Peroxide, 3%	Watch glass
26.	Iodine, Tincture of	Watch glass
27.	Methyl Ethyl Ketone	Cotton ball & bottle
28.	Methylene Cloride	Cotton ball & bottle

29.	Mono Chlorobenzene	Cotton ball & bottle
30.	Naphthalene	Cotton ball & bottle
31.	Nitric Acid, 20%	Watch glass
32.	Nitric Acid, 30%	Watch glass
33.	Nitric Acid, 70%	Watch glass
34.	Phenol, 90%	Cotton ball & bottle
35.	Phosphoric Acid, 85%	Watch glass
36.	Silver Nitrate, Saturated	Watch glass
37.	Sodium Hydroxide, 10%	Watch glass
38.	Sodium Hydroxide, 20%	Watch glass
39.	Sodium Hydroxide, 40%	Watch glass
40.	Sodium Hydroxide, Flake	Watch glass
41.	Sodium Sulfide, Saturated	Watch glass
42.	Sulfuric Acid, 33%	Watch glass
43.	Sulfuric Acid, 77%	Watch glass
44.	Sulfuric Acid, 96%	Watch glass
45.	Sulfuric Acid, 77% and Nitric Acid, 70%, equal parts	Watch glass
46.	Toluene	Cotton ball & bottle
47.	Trichloroethylene	Cotton ball & bottle
48.	Xylene	Cotton ball & bottle
49.	Zinc Chloride, Saturated	Watch glass

* Where concentrations are indicated, percentages are by weight.

R. Performance Test Results (Heat Resistance):
Hot water (190° F - 205° F) shall be allowed to trickle (with a steady stream at a rate not less than 6 ounces per minute) on the finished surface, which shall be set at an angle of 45° from horizontal, for a period of five minutes. After cooling and wiping dry, the finish shall show no visible effect from the hot water treatment.

S. Performance Test Results (Impact Resistance):
A one-pound ball (approximately 2" diameter) shall be dropped from a distance of 12 inches onto the finished surface of steel panel supported underneath by a solid surface. There shall be no evidence of cracks or checks in the finish due to impact upon close eye-ball examination.

T. Performance Test Results (Bending Test):

An 18 gauge steel strip, finished as specified, when bent 180^{o} over a 1/2" diameter mandrel, shall show no peeling or flaking off of the finish.

U. Performance Test Results (Adhesion):
Ninety or more squares of the test sample shall remain coated after the scratch adhesion test. Two sets of eleven parallel lines 1/16" apart shall be cut with a razor blade to intersect at right angle thus forming a grid of 100 squares. The cuts shall be made just deep enough to go through the coating, but not into the substrate. They shall then be brushed lightly with a soft brush. Examine under 100 foot-candles of illumination. Note: This test is based on ASTM D2197-68, "Standard Method of Test for Adhesion of Organic Coatings".

V. Performance Test Results (Hardness):
The test sample shall have a hardness of 4-H using the pencil hardness test. Pencils, regardless of their brand are valued in this way: 8-H is the hardest, and next in order of diminishing hardness are 7-H, 6-H, 5-H, 4-H, 3-H, 2-H, F, HB, B (soft), 2-B, 3-B, 4-B, 5-B (which is the softest).

The pencils shall be sharpened on emery paper to a wide sharp edge. Pencils of increasing hardness shall be pushed across the paint film in a chisel-like manner until one is found that will cut or scratch the film. The pencil used before that one-that is, the hardest pencil that will not rupture the film-is then used to express or designate the hardness.

W. Fume Hood Liners :
Interior liner panels shall be 1/4” thick fiberglass reinforced polyester sheet **OR** shall be 1/4” thick made from a compression molded cellulose fiber reinforced phenolic resin core with integrally cured white melamine surfaces. Interior liner panels shall be fastened using stainless steel screws with plastic covered heads.

Q. Liner Tests – Chemical Spot Tests – 24 Hours

1. Chemical spot test shall be made by applying 10 drops (approximately 1/2 cc) of each reagent to the surface to be tested. Each reagent (except those marked **) shall be covered with a 1-1/2” diameter watch glass, convex side down to confine the reagent. Spot tests of volatile solvents marked ** shall be tested as follows: A 1” or larger ball of cotton shall be saturated with the solvent and placed on the surfaces to be tested. The cotton ball shall then be covered by an inverted 2-ounce, wide mouth bottle to retard evaporation. All spot tests shall be conducted in such a manner that

the test surface is kept wet throughout the entire 24-hour test period and at a temperature of 77 degrees F. ± 3 degrees F.

2. At the end of the test period, the reagents shall be flushed from the surfaces with water and the surface scrubbed with a soft bristle brush under running water, rinsed, and dried. Volatile solvent test areas shall be cleaned with a cotton swab soaked in the solvent used on the test area. Spots where dyes have dried shall be cleaned with a cotton swab soaked in alcohol to remove the surface dye. The test panel shall then be evaluated immediately after drying.

3. Ratings/Legend:

1 – KMER (Kewaunee Modified Epoxy Resin)	A = No effect or slight change in gloss
2 – Glass Reinforced Polyester	B = Slight change in gloss or color
3 – Stainless Steel 304	C = Slight etching or severe staining
4 – Stainless Steel 316	D = Swelling, pitting, or severe etching
5 – Reinforced Phenolic Resin	

RESULTS:	1	2	3	4	5
1. Acetic Acid 98%	A	B	B	B	A
2. Acetone **	A	D	A	A	A
3. Acid Dichromate	A	A	A	A	A
4. Ammonium Hydroxide ** 28%	A	A	B	B	A
5. Amyl Acetate **	A	A	A	A	A
6. Benzene **	A	A	A	A	A
7. Butyl Alcohol **	A	A	A	A	A
8. Carbon Tetrachloride **	A	A	A	A	A
9. Chloroform **	A	D	A	A	A
10. Chromic Acid 60%	B	B	C	C	A
11. Cresol	A	A	A	A	A
12. Dichloroacetic Acid	A	D	B	A	A
13. Dimethylformamide	A	A	A	A	A
14. Dioxane **	A	A	A	A	A
15. Ethyl Acetate **	A	A	A	A	A
16. Ethyl Ether **	A	A	A	A	A
17. Ethyl Alcohol **	A	A	A	A	A
18. Formaldehyde	A	A	A	A	A
19. Formic Acid 90%	A	A	A	A	A
20. Furfural **	B	B	A	A	C

21.	Gasoline **	A	A	A	A	A
22.	Hydrochloric Acid 37%	A	A	B	B	A
23.	Hydrofluoric Acid 48%	B	D	D	D	A
24.	Hydrogen Peroxide 30%	A	A	A	A	A
25.	Methyl Ethyl Ketone **	A	A	A	A	A
26.	Methyl Alcohol **	A	A	A	A	A
27.	Methylene Chloride **	A	D	A	A	A
28.	Monochlorobenzene **	A	A	A	A	A
29.	Naphthalene **	A	A	A	A	A
30.	Nitric Acid 20%	B	A	B	A	A
31.	Nitric Acid 30%	B	A	B	A	A
32.	Nitric Acid 70%	B	D	B	A	A
33.	Phenol ** 85%	A	C	A	A	A
34.	Phosphoric Acid 85%	A	A	B	A	A
35.	Silver Nitrate	B	C	A	A	C
36.	Sodium Hydroxide 40%	A	D	A	A	A
37.	Sodium Hydroxide 20%	A	D	A	A	A
38.	Sodium Hydroxide 10%	A	D	A	A	A
39.	Sodium Hydroxide Flake	A	B	A	A	A
40.	Sodium Sulfide	A	B	A	A	A
41.	Sulfuric Acid 77%	A	A	C	A	A
42.	Sulfuric Acid 96%	C	D	C	A	C
43.	Sulfuric Acid 33%	A	A	C	A	A
44.	Tincture of Iodine	A	C	B	B	A
45.	Toluene **	A	A	A	A	A
46.	Trichlorethylene **	A	A	A	A	A
47.	Xylene **	A	A	A	A	A
48.	Zinc Chloride	A	A	B	A	A
49.	Nitric 70%/Sulfuric Acid 77%*	B	B	B	A	A

* Equal parts of Nitric Acid 70% and Sulfuric Acid 77%.

** Indicates these solvents tested with cotton and jar method

S. **Fume Hood Base Cabinets**

Normal Base cabinet:

Base units under hoods shall be fabricated of Cold rolled prime grade roller leveled furniture steel. Gauges of steel used In construction shall be 18 gauges except as

follows: Corner gussets for leveling bolts and apron corner braces, 12 gauges. Hinge reinforcements, 14 gauges.Top and intermediate front horizontal rails, apron rails and reinforcement Gussets, 16 gauge.Door assemblies and adjustable shelves, 20 gauge.Performance of the painted surfaces shall match that of the fume hood outer panels.

2.0 MATERIAL OF CONSTRUCTION

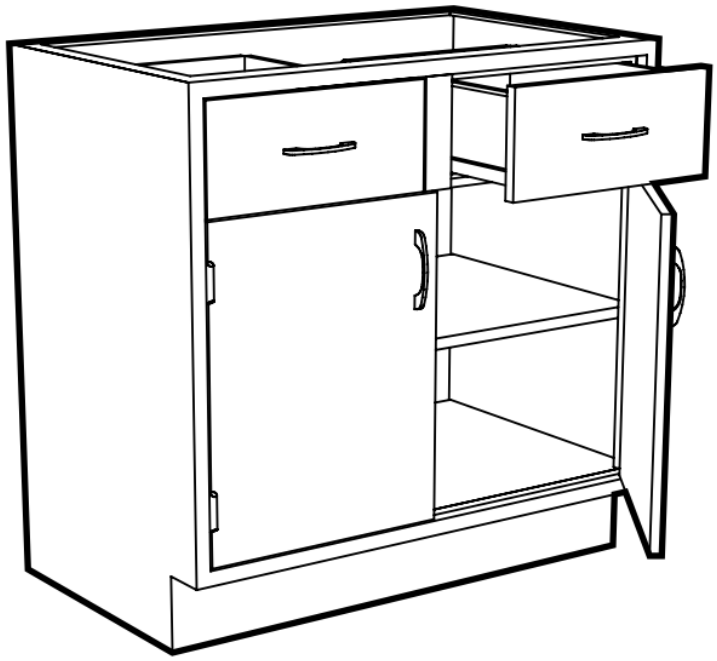
Fume Hood superstructure	: 18 gauge CRC Sheets, Electrode position Powder coated 60-80 micron
Table top	: 32 mm Jet Black Granite Table top
Electrical sockets	: PVC
Gas fixtures	: Brass Lacquer Coated
Gas piping	: SS304
Vacuum Fixtures	: Brass Lacquer Coated
Vacuum Piping	: Copper/SS/PP
Water fixtures	: Brass Lacquer Coated
Water Piping	: Brass Lacquer Coated
Electrical cables	: Copper wire with PVC Sheath

3.0 APPLICABLE CODES & STANDARDS:

ASHRAE Standard 110.1995 - Method of Testing Performance of Laboratory Fume Hoods
NSF STD#49 - Photometric Method of Testing
NIH03-112C - National Institute of Health Specification
UL - Underwriters Laboratories
ASTM D552 - Bending Test
NFPA-45 - National Fire Protection Association

CHAPTER-02

LAB FURNITURE SPECIFICATION



DESCRIPTION OF WORK

1.00 SUMMARY AND SCOPE

A. Section Includes:

1. Furnish all cabinets and casework, including tops, ledges, supporting structures. Include delivery to the building, set in place, level, and scribe to walls and floors as required. Furnish and install all filler panels, knee space panels and scribes as shown on drawings.

2. Furnish and deliver all utility service outlet accessory fittings, electrical receptacles and switches identified on drawings as mounted on the laboratory furniture. All plumbing and electrical fittings, not preinstalled in equipment, will be packaged separately and properly marked for delivery to the appropriate contractor.

3. Furnish and deliver, for installation by the mechanical contractor, all laboratory sinks, cup sinks or drains, drain troughs, overflows and sink outlets with integral tailpieces, which occur above the floor, and where these items are part of the equipment. All tailpieces shall be furnished less the couplings required to connect them to the drain piping system.

4. Furnish service strip supports where specified, and setting in place service tunnels, service turrets, supporting structures and reagent racks of the type shown on the drawings.

5. Removal of all debris, dirt and rubbish accumulated as a result of the installation of the laboratory furniture to an onsite container provided by others, leaving the premises broom clean and orderly.

1.01 BASIS OF WORK

Laboratory Furniture as the standard of construction for steel laboratory furniture. The construction standards of this product line shall provide the basis for quality and functional installation.

2.00 CABINET STYLE:

Steel:
Cabinet bodies, drawer bodies, shelves, drawer heads and door assemblies shall be fabricated from Cold Rolled Steel.

2.01 DRAWER AND DOOR STYLE:

The outer drawer and door head shall have a channel formation on all four sides to eliminate sharp raw edges of steel and the top front corners shall be welded and ground smooth. Drawer and door, when closed, shall be recessed to create an overall flush face, and with optional pull.

2.02 MATERIALS

A. **General Requirements:**
It is the intent of this specification to provide a high quality steel cabinet specifically designed for the laboratory environment.

B. Steel:
Cold Rolled Steel:
Cold rolled sheet steel shall be prime grade 12, 14, 16, 18 and 20 gauge U.S. Standard; roller leveled, and shall be treated at the mill to be free of scale, ragged edges, deep scratches or other injurious effects.

C. **Glass:**
Glass used for framed sliding and swinging doors shall be 1/8" float glass. Glass used for unframed sliding doors, shall be 1/4" float glass. Glass used in fume hoods or other hazardous locations shall be 7/32" laminated safety float glass, except the glass shielding fluorescent lights in fume hoods shall be tempered glass to provide greater resistance to heat and impact.

D. Drawer and Door Pulls:
Pull shall be of modern design, offering a comfortable handgrip, and be securely fastened to doors and drawers with screws. All pulls shall be satin finish aluminum, with a clear, lacquer finish. Two pulls shall be required on all drawers over 24" long. Use of plastic pulls (molded or extruded), or a design not compatible for usage by the handicapped will not be acceptable.

E. **Hinges:**
Hinges shall be made of Type 304 stainless steel .089 thick, 2-1/2” high, with brushed satin finish, and shall be the institutional type with a five-knuckle bullet-type barrel. Hinges shall be attached to both door and case with two screws through each leaf. Welding of hinges to door or case will not be accepted. Doors under 36" in height shall be hung on one pair of hinges, and doors over 36" high shall be hung on 3 hinges.

F. **Positive Catch:**
A two-piece heavy-duty cam action positive catch shall be provided on all base cupboard doors and shall be positioned near the pivoting edge of door to provide a clean unobstructed opening. Main body of the catch shall be confined within an integral cabinet divider rail, while latching post shall be mounted on the hinge side of door. Nylon roller type catches are not acceptable.

G. **Elbow Catches:**
Elbow catches and strike plates shall be used on left hand doors of double door cases where locks are used, and are to be burnished cast aluminum, with bright brass finish.

H. **Shelf Adjustment Clips:**
Shelf adjustment clips shall be nickel-plated steel.

I. **Base Molding:**
Base Molding shall be provided on all table legs, unless otherwise specified, to conceal leveling device. Shoes shall be a pliable, black vinyl material. Corner clip should be provided to hold the base molding firmly. Use of a leg shoe, which does not conceal leveling device, will not be acceptable

J. **Sink Supports:**
Sink supports shall be the hanger type, suspended from top front and top rear horizontal rails of sink cabinet by four 1/4" dia. rods, threaded at bottom end and offset at top to hang from two full length reinforcements welded to the front and rear top rails. Two 3/4" x 1-2/2" x 12 gauge channels shall be hung on the threaded rods to provide an adjustable sink cradle for supporting sinks. When sink capacity exceeds 3,750 cu. in., the sink supports shall be suspended from full-length reinforcements welded to the two end rails. Two 1" x 2" x 10 gauge full-length channels shall be hung from the four 1/4" dia. rods to provide an alternate sink

cradle.

2.03 CONSTRUCTION

A. Steel Base Cabinet Construction:

1. General:

a. The steel furniture shall be of modern design and shall be constructed in accordance with the best practices of the Scientific Laboratory Equipment Industry. First class quality casework shall be insured by the use of proper machinery, tools, dies, fixtures and skilled workmanship to meet the intended quality and quantity for the project.

b. All cabinet bodies shall be flush front construction with intersection of vertical and horizontal case members, such as end panels, top rails, bottoms and vertical posts in same plane without overlap. Exterior corners shall be spot welded with heavy back up reinforcement at exterior corners. All face joints shall be welded and ground smooth to provide a continuous flat plane.

c. Each cabinet shall be complete so that units can be relocated at any subsequent time without requiring field application of finished ends or other such parts.

d. Case openings shall be rabbetted on all four sides for both hinged and sliding doors to provide a dust resistant case.

e. All cabinets shall have a cleanable smooth interior. Bottom edges shall be formed down on sides and back to create easily cleanable corners with no burrs or sharp edges, and front edge shall be offset to create a seamless drawer and door recess rabbet for dust stop.

2. **Steel Gauges:**
Gauges of steel used in construction of cases shall be 18 gauge, except as follows:
a. Corner gussets for leveling bolts and apron corner braces, 12 gauge.
b. Case and drawer suspension channels, 14 gauge.
c. Top and intermediate front horizontal rails, table aprons, hinge reinforcements, and reinforcement gussets, 16 gauge.

d. Drawer assemblies, door assemblies, bottom, bottom back rail, toe space rail, and adjustable shelves, 20 gauge.

3. Base Cabinets:

a. End uprights shall be formed into not less than a channel formation at top, bottom, back and front. The front edge shall further offset to form a strike for doors and drawers, and shall be perforated for the support of drawer channels, intermediate rails and hinge screws. An upright filler shall be screwed in place in all cupboard units to close the back of the channel at front of the upright and to provide a smooth interior for the cupboard to facilitate cleaning. The upright filler shall be perforated with shelf adjustment holes at not more than 2" centers painted prior to assembly. The inside front of the upright shall be further reinforced with a full height 16 gauge hinge reinforcement angle.

b. Top horizontal rail on base cabinets shall interlock within the flange at top of end panels for strength, but shall be flush as face of unit. Top rail shall have a full width rabbet for swinging doors and drawers. Reinforcements shall be provided at all front corners for additional welded strength between vertical and horizontal case members.

c. Intermediate rails shall be provided between doors and drawers, but shall not be provided between drawers unless made necessary by locks in drawers. When required, intermediate rails shall be recessed behind doors and drawer fronts, and designed so that security panels may be added as required.

d. Intermediate vertical uprights shall be furnished to enclose cupboards when used in a unit in combination with a half width bank of drawers. However, to allow storage of large or bulky objects, no upright of any type shall be used at the center of double door cupboard units.

e. Cabinet bottom, and bottom rail shall be formed of one piece of steel except in corner units and shall be formed down on sides and back to create a square edge transition welded to cabinet end panels, and front edge shall be offset to create a seamless drawer and door recess rabbet for dust stop.

f. Toe space rail shall extend up and forward to engage bottom rail to form a smooth surfaced fully enclosed toe space, 3" deep x 5" high. Whenever toe space base is omitted for units to set on building bases on separate steel bases, then the toe space rail shall extend back 4-1/2".

g. Back construction shall consist of a top and bottom rail, channel formed for maximum strength and welded to back and top flange of end uprights, open for access to plumbing lines.
Cupboard units only shall be provided with removable back panels.

h. Die formed gussets, with multiple ends for strength, shall be furnished in each bottom corner of base units to insure rigidity, and a 3/8"-16 leveling bolt, 3" long, and shall engage a clinch nut in each gusset. Access to the leveling bolts shall be through plug buttons in the bottom pan. Each leveling bolt and gusset shall be capable of supporting 500 lbs. Access to leveling bolts through toe space or leveling bolts requiring special tools to adjust are not acceptable.

i. Adjustable shelves shall be formed down 3/4", returned back 7/8" and up 1/4" into a channel formation front and rear; formed down 3/4" at each end, shelves over 42" long shall be further reinforced with a channel formation welded to underside of shelf.

j. Drawer bodies shall be made in one-piece construction including the bottom, two sides, back and front. They shall be fully coved at interior bottom on all four sides for easy cleaning. The top front of the inner drawer body shall be offset to interlock with the channel formation in drawer head providing a 3/4" thick drawer head.

k. Drawer suspension assembly shall consist of 2 sections providing a quiet, smooth operation on ball bearing nylon rollers. All drawers shall be self-closing from a point 5" open. Cabinet channels shall maintain alignment of drawer and provide an integral drawer stop, but the drawer shall be removable without the use of tools. Drawers shall provide 13-5/8" front to back clearance when fully extended. Drawers shall rise when opened thus avoiding friction with lower drawers and/or doors. Drawer suspension system shall incorporate a double stop, lock open feature. Case suspension channels shall be Galvanized Steel, drawer suspension channels shall be Cold

Rolled Steel. Drawer suspension channels on Stainless Steel Cabinets shall be zinc plated after they are formed.

l. Steel Door assembly (two-piece) for solid pan swinging doors shall consist of an inner and outer door pan. Outer door pan shall be formed at all four sides. The corners on the pull side of the outer door pan shall be welded and ground smooth to prevent exposure of sharp edges of steel at these critical points. Inner door pan shall be flanged at all four sides with hinge reinforcements welded in place. The door assembly shall be 3/4" thick and contains sound deadening material.

m. Steel Drawer/door assemblies shall be painted prior to assembly. Both shall be punched for attaching drawer pulls. Likewise, inner pan formation of door and drawer body shall be indented for in-field installation of locks when required.

n. Doors shall be readily removable and hinges easily replaceable. Hinges shall be applied to the cabinet and door with screws. Welding of hinges to either cabinet or door will not be acceptable.

o. Knee space panels, where shown or specified, shall be 20 gauge, finished same as casework cabinets, and easily removable for access to mechanical service areas.

2.04 PERFORMANCE REQUIREMENTS

A. Steel Casework Construction Performance:

1. Base cabinets shall be constructed to support at least a uniformly distributed load 200 lbs. per square foot of cabinet top area, including working surface without objectionable distortion of interference with door and drawer operation.

2. Base cabinet corner gussets with leveling bolts shall support 500 lbs. per corner, at 1-1/2" projection of the leveling bolt below the gusset.

3. Each adjustable and fixed shelf 4 ft. or shorter in length shall support an evenly distributed load of 40 lbs. per square ft. up to a maximum of 200 lbs., with nominal temporary deflection, but without permanent set.

4. Drawer construction and performance shall allow 13-5/8" clear when in an extended position and suspension system shall prevent friction contact with any other drawer or door during opening or closing. All drawers shall operate smoothly, a minimum of 10,000 cycles with an evenly distributed load of 150 lbs.

5. Swinging doors on floor-mounted casework shall support 200 lbs. suspended at a point 12" from hinged side, with door swung through an arc of 160 degrees. Weight load test shall allow only a temporary deflection, without permanent distortion or twist. Door shall operate freely after test and assume a flat plane in a closed position.

B. Steel Paint System Finish and Performance Specification:

Steel Paint System Finish:
After Cold Rolled Steel and Textured Steel component parts have been completely welded together and before finishing, they shall be given a pre-paint treatment to provide excellent adhesion of the finish system to the steel and to aid in the prevention of corrosion. Physical and chemical cleaning of the steel shall be accomplished by washing with an alkaline cleaner, followed by a spray treatment with a complex metallic phosphate solution to provide a uniform fine grained crystalline phosphate surface that shall provide both an excellent bond for the finish and enhance the protection provided by the finish against humidity and corrosive chemicals.

After the phosphate treatment, the steel shall be dried and all steel surfaces shall be coated with a chemical and corrosion-resistant, environmentally friendly, electro statically applied powder coat finish. All components shall be individually painted, insuring that no area be vulnerable to corrosion due to lack of paint coverage. The coating shall then be cured by baking at elevated temperatures to provide maximum properties of corrosion and wear resistance.

The completed finish system in standard colors shall meet the performance test requirements specified under PERFORMANCE TEST RESULTS.

1. Performance Test Results (Chemical Spot Tests):

d. Testing Procedure:
Chemical spot tests for non-volatile chemicals shall be made by applying 5

drops of each reagent to the surface to be tested and covering with a 1-1/4" dia. watch glass, convex side down to confine the reagent. Spot tests of volatile chemicals shall be tested by placing a cotton ball saturated with reagent on the surface to be tested and covering with an inverted 2-ounce wide mouth bottle to retard evaporation. All spot tests shall be conducted in such a manner that the test surface is kept wet throughout the entire test period, and at a temperature of 77° ±3° F. For both methods, leave the reagents on the panel for a period of one hour. At the end of the test period, the reagents shall be flushed from the surface with water, and the surface scrubbed with a soft bristle brush under running water, rinsed and dried. Volatile solvent test areas shall be cleaned with a cotton swab soaked in the solvent used on the test area. Immediately prior to evaluation, 16 to 24 hours after the reagents are removed, the test surface shall be scrubbed with a damp paper towel and dried with paper towels.

e. Test Evaluation:

Evaluation shall be based on the following rating system.

Level 0 – No detectable change.
Level 1 – Slight change in color or gloss.
Level 2 – Slight surface etching or severe staining.
Level 3 – Pitting, cratering, swelling, or erosion of coating. Obvious and significant deterioration.

After testing, panel shall show no more than three (3) Level 3 conditions.

f. Test Reagents

Test No.	Chemical Reagent	Test Method
1.	Acetate, Amyl	Cotton ball & bottle
2.	Acetate, Ethyl	Cotton ball & bottle
3.	Acetic Acid, 98%	Watch glass
4.	Acetone	Cotton ball & bottle
5.	Acid Dichromate, 5%	Watch glass
6.	Alcohol, Butyl	Cotton ball & bottle
7.	Alcohol, Ethyl	Cotton ball & bottle
8.	Alcohol, Methyl	Cotton ball & bottle
9.	Ammonium Hydroxide, 28%	Watch glass
10.	Benzene	Cotton ball & bottle
11.	Carbon Tetrachloride	Cotton ball & bottle

12.	Chloroform	Cotton ball & bottle
13.	Chromic Acid, 60%	Watch glass
14.	Cresol	Cotton ball & bottle
15.	Dichlor Acetic Acid	Cotton ball & bottle
16.	Dimethylformanide	Cotton ball & bottle
17.	Dioxane	Cotton ball & bottle
18.	Ethyl Ether	Cotton ball & bottle
19.	Formaldehyde, 37%	Cotton ball & bottle
20.	Formic Acid, 90%	Watch glass
21.	Furfural	Cotton ball & bottle
22.	Gasoline	Cotton ball & bottle
23.	Hydrochloric Acid, 37%	Watch glass
24.	Hydrofluoric Acid, 48%	Watch glass
25.	Hydrogen Peroxide, 3%	Watch glass
26.	Iodine, Tincture of	Watch glass
27.	Methyl Ethyl Ketone	Cotton ball & bottle
28.	Methylene Cloride	Cotton ball & bottle
29.	Mono Chlorobenzene	Cotton ball & bottle
30.	Naphthalene	Cotton ball & bottle
31.	Nitric Acid, 20%	Watch glass
32.	Nitric Acid, 30%	Watch glass
33.	Nitric Acid, 70%	Watch glass
34.	Phenol, 90%	Cotton ball & bottle
35.	Phosphoric Acid, 85%	Watch glass
36.	Silver Nitrate, Saturated	Watch glass
37.	Sodium Hydroxide, 10%	Watch glass
38.	Sodium Hydroxide, 20%	Watch glass
39.	Sodium Hydroxide, 40%	Watch glass
40.	Sodium Hydroxide, Flake	Watch glass
41.	Sodium Sulfide, Saturated	Watch glass
42.	Sulfuric Acid, 33%	Watch glass
43.	Sulfuric Acid, 77%	Watch glass
44.	Sulfuric Acid, 96%	Watch glass
45.	Sulfuric Acid, 77% and Nitric Acid, 70%, equal parts	Watch glass
46.	Toluene	Cotton ball & bottle
47.	Trichloroethylene	Cotton ball & bottle
48.	Xylene	Cotton ball & bottle

49. Zinc Chloride, Saturated Watch glass

* Where concentrations are indicated, percentages are by weight.

2. **Performance Test Results (Heat Resistance):**
   Hot water (190° F - 205° F) shall be allowed to trickle (with a steady stream at a rate not less than 6 ounces per minute) on the finished surface, which shall be set at an angle of 45° from horizontal, for a period of five minutes. After cooling and wiping dry, the finish shall show no visible effect from the hot water treatment.

3. **Performance Test Results (Impact Resistance):**
   A one-pound ball (approximately 2" diameter) shall be dropped from a distance of 12 inches onto the finished surface of steel panel supported underneath by a solid surface. There shall be no evidence of cracks or checks in the finish due to impact upon close eye-ball examination.

4. **Performance Test Results (Bending Test):**
   An 18 gauge steel strip, finished as specified, when bent 180^{o} over a 1/2" diameter mandrel, shall show no peeling or flaking off of the finish.

5. **Performance Test Results (Adhesion):**
   Ninety or more squares of the test sample shall remain coated after the scratch adhesion test. Two sets of eleven parallel lines 1/16" apart shall be cut with a razor blade to intersect at right angle thus forming a grid of 100 squares. The cuts shall be made just deep enough to go through the coating, but not into the substrate. They shall then be brushed lightly with a soft brush. Examine under 100 foot-candles of illumination. Note: This test is based on ASTM D2197-68, "Standard Method of Test for Adhesion of Organic Coatings".

6. **Performance Test Results (Hardness):**
   The test sample shall have a hardness of 4-H using the pencil hardness test. Pencils, regardless of their brand are valued in this way: 8-H is the hardest, and next in order of diminishing hardness are 7-H, 6-H, 5-H, 4-H, 3-H, 2-H, F, HB, B (soft), 2-B, 3-B, 4-B, 5-B (which is the softest).

The pencils shall be sharpened on emery paper to a wide sharp edge. Pencils of increasing hardness shall be pushed across the paint film in a chisel-like manner until one is found that will cut or scratch the film. The pencil used before that one-that is, the

hardest pencil that will not rupture the film-is then used to express or designate the hardness.

4. WorkTops:

The worktops shall be of 18/19mm Jet black Granite of a even surface and the level Tolerance less than 1 mm. The front edge of the granite shall be chamfered at an angle of 28 deg and smoothened. The back splash for the wall bench shall be granite 18/19mm thick material for an height of 4" from the finished table top level.

5. Polypropylene Molded Sinks:

The sinks should be injection molded from Poly propylene co-polymer resin. Polypropylene to have very high resistance to attack from a wide range of chemicals and the ability to withstand temperatures up to 100 deg C. The impact resistance should be high which will minimize damage during and after installation. The sinks should be with self draining base and should be suitable for mounting on top or underside of the work benches. The sinks should be compatible to a vast number of acids, alkalis and reagents. The size of the sink is 600Lx450Dx315Hmm AND BOWL SIZE: 550Lx400Dx315Hmmmm. This sinks shall have bottle trap with reducing coupler of size 51x31mm and with 38mm polypropylene pipe of one foot length. All gaskets and O-rings are made from Nitrile.

6. Laboratory Service fixtures:

I. **General**

A. All laboratory service fixtures shall have the construction and shall meet the performance requirements set forth in this specification. Fixture types shall be as indicated in the fixture schedule or fixture details included in either the project drawings or these specifications.

D. All service fixtures shall be factory assembled (including the assembly of valves and shanks to turrets, flanges and other mounting accessories), and each fixture shall be individually factory tested. Fixtures shall be tested in the manner and at the pressures set forth below.

E. Except as otherwise indicated, faucet and valve handles shall be forged brass Nylon type and shall have a color coded screw-on index disc. Color code requirements for indexing service fixtures shall follow DIN Standard 12920:1995.

II. **Finish**

1. **General**

1. Laboratory service fixtures and safety equipment shall be furnished with a powder coated finish to enhance the appearance of the fitting and to protect against corrosion. Coating material shall be a blend of epoxy and polyurethane. The hybrid blend shall ensure a finish coating with and optimum combination of chemical resistance, mar and abrasion resistance and resistance to fading under ultraviolet (UV) light.

2. Fittings inside fume hoods shall have an epoxy finish color-coded to match the fixture service index color. Coating material shall be free flowing epoxy powder with a particle size of 35-70 microns.

2. **Mar and Abrasion Resistance**

Finishes shall have a pencil hardness of 2H-4H with adhesion substantial enough to withstand both direct and reverse impacts of 160 inch pounds. Finish shall have excellent mar resistance and be capable of withstanding scuffing, marring and other ordinary wear.

3. **Reparability**

Finish shall be capable of surface repair in the event that a fixture is scratched or a surface rupture occurs. The service fixture manufacturer shall have available an air-drying aerosol coating, specially formulated to match the existing epoxy coating color, which may be applied in the field to repair coated surfaces.

III. **Water Faucets and Valves**

A. All faucets and valves for water service shall have a renewable unit containing all working components subject to wear, including a stainless steel replaceable seat and an integral adjustable volume control (designated by the suffix “AC”). The renewable unit shall be interchangeable among all faucets and valves for water service. The renewable unit shall be broached for position locking in the valve body. The unit shall have a high durometer thermoplastic valve disc and a molded TFE stem packing. The unit shall be capable of being readily converted from compression to self-closing, and vice versa, without disturbing the faucet body.

B. Goosenecks shall have a separate outlet coupling with a 3/8" IPS female thread securely brazed to the gooseneck for attachment of serrated hose ends, aspirators and other outlet fittings. Rigid goosenecks shall have a 3/8" IPS male inlet thread and be threaded directly into the faucet body so as to be absolutely rigid. Swing goosenecks shall utilize a TFE packing with an externally adjustable packing nut.

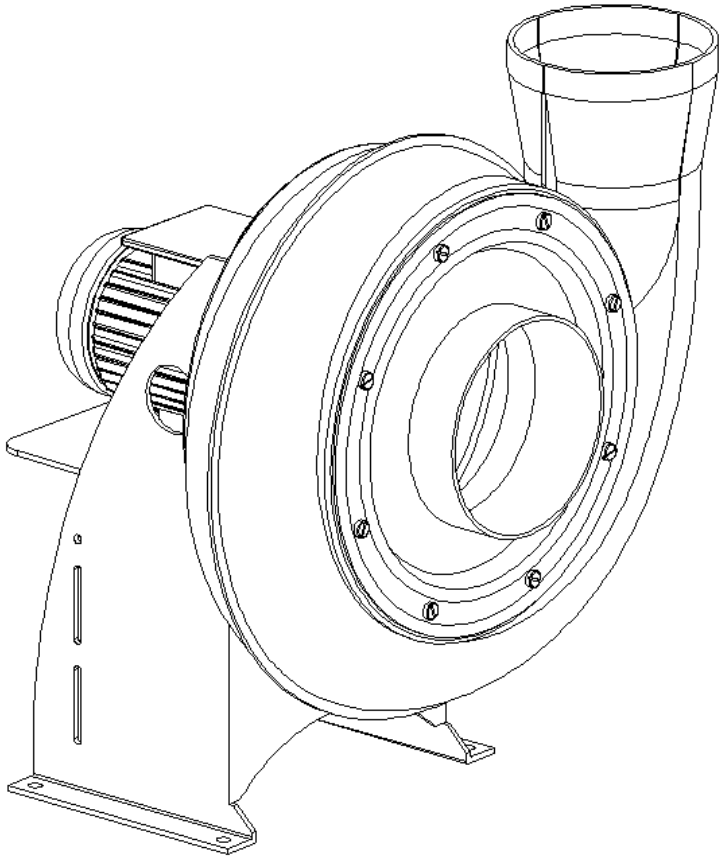
C. Water faucets and valves shall be fully assembled and individually tested at 80 pounds per square inch (PSI) water pressure.

APPLICABLE CODES & STANDARDS

a. SEFA 3 – Scientific Equipment and Furniture Association
b. SEFA 8 - Scientific Equipment and Furniture Association
c. NFPA 30 - National Fire Protection Association
d. NFPA-45 - National Fire Protection Association
e. UL - Underwriters Laboratories
f. ASTM D552 – Bending Test

CHAPTER-03

EXHAUST SYSTEM SPECIFICATION



CENTRIFUGAL PP EXHAUST FAN

The exhaust fans supplied and installed shall be of 'Centrifugal Corrosion Resistant' type and shall be capable of delivering the design flow rate against all duct losses.

The fans shall be robust in construction and suitable for continuous duty operation. It shall be mounted with ease of maintenance and shall be installed with proper vibration isolators to minimize vibration transmission to ductwork and support structure.

Fans selected shall be silent and vibration free when running and suitable for outdoor use and shall not exceed 3000rpm.

Aerodynamic performance of the fan shall be tested and comply **'ISO 5801'** standards.
Sound level shall be tested and comply with **'ISO 5136.2'** standards.
The casing shall be of self-supporting design, thermoformed welded by machine. The material of construction shall be **polypropylene (PP)** and suitable for use against corrosive 'medium' and a maximum allowable operating temperature of 70°C.

No metal parts shall be exposed and in contact with the airstream.

Impeller material of construction shall be **polypropylene (PP)** and suitable for use against corrosive.

Electro-galvanized stand shall be used to support the fan and the motor in view of the corrosive environment.

A standard hub seal shall be fitted onto the impeller hub to prevent the corrosive 'medium' from contacting the shaft.

MOTOR AND ACCESSORIES

The standard TEFC electric motor shall be with class 'F' insulation and class 'B' temperature rise. Motor shall be suitable for outdoor installation with IP55 protection and suitable for operation with 415V/3Ph/50Hz electrical supply. Motor shall be flange mounted (B5) or foot mounted (B3) based on the fan configuration.

PP/FRP DUCTING:

a. PP means PPGL: One side smooth & glassy finish and other end is mat finish.
   - The smooth surface should be the inner surface of the duct.
   - On mat side, FRP lining to be done.
   - 25 mm x 25 mm Stitch welding is done on inner surface and continuous welding on outer surface with 5 mm welding thickness.

b. FRP Lining to be done on the outer surface of PPGL I.e. on mat side.
   - One layer FRP is one mm.
   - The final layer should be with fine mat to have smooth and good finish.
   - While making the lining, there should not be any air pockets or any sort of Uneven finish.
   - There should be time gap between the FRP layers, allowing each layer to be got dried.

c. Isothelic resin to be used.
d. The flange thickness should be 1.5 times of the duct thickness up to 750 mm and 2 times above 750 mm ducting.
e. All flanges are to be matched with M8, GI fasteners and flat washers on both the sides.
f. All the flanges should have fasteners at the 4 corners.
g. All the fasteners to be fixed at a pitch distance of between 125 mm to 150mm.
h. All the flanges should be properly ground and dressed.
i. Duct support distance should not be more than 2500 mm.
j. Any duct length should not be more than 3600 mm.
k. All square / rectangular ducts with more than 1800 mm length should have a brazing frame at the center on the external surface.
l. Provide 40 x 40 flanges up 750 mm duct size and 50 x 50 above 750 mm.
m. The finish paint should be admiral grey unless specified.
n. 5 mm Thick Neoprene gasket shall be used between the flanges.

PP DAMPERS

Dampers shall be double thickness heavier than the thickness of the large duct & shall be rigid in construction.

The volume control dampers shall be of an approved type , lever operated & complete with locking devices which will permit the dampers to be adjusted & locked in any positions.

Construct blades of 5 mm thick PP MOC, provide heavy-duty molded self-lubricating nylon bearings, 13mm (1/2") diameter Plastic axles spaced on 225mm (9") centers. Construct frame of 300 mm diameter outer with Flange for fitting minimum 6 bolts and nuts.

PVC FLEXIBLE HOSE

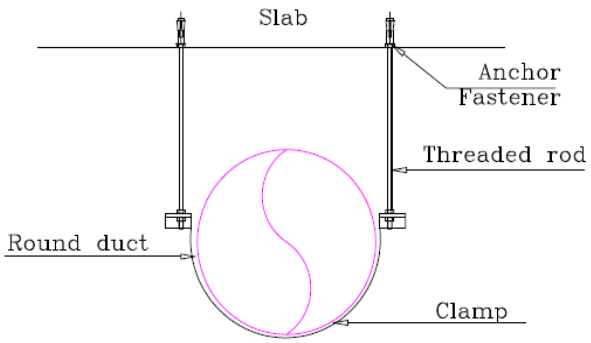
Provide flexible duct connections wherever ductwork connects to vibration isolated equipment and on all exhaust final connections to fume hoods, spot extractor and canopy as indicated on the drawings. Construct flexible connections of PVC coated collapsible hose clipped into duct and equipment to make air-tight joint. Provide adequate joint flexibility to allow for thermal, axial, transverse and torsional movement and also capable of absorbing vibrations of connected equipment.

Flexible connections shall be air tight and resistant to water and fire.

Flexible connections shall be fitted to isolate fans from equipments and/or ductwork. The connections shall be arranged to permit the renewal of the connection without disturbing the duct work or the plant.

DUCT SUPPORT SYSTEM

A complete supporting system consisting of fully threaded rods, double L bottom brackets nuts, Washers, clamps for circular ducts and anchor bolts as supplied.



To provide the required thermal brake effect, Neoprene or equivalent material of suitable thickness shall be used between duct joints.

Bird screens

Galvanized woven mesh or weld mesh bird screens in rigid galvanized iron frames shall be installed behind all external louvers and over all relief and exhaust air openings to the outside of the building.

GIRLS TOILET
5975X3715

JANITOR

PLUMBING SHAFT
5975X1000

JANITOR

BOYS TOILET
5975X5515
150 MM SUNK

VOID

HC TOILET
2100 X 1600

DRINKING WATER

ELECTRICAL/HUB
DATA ROOM
3875X6585

AHU ROOM

DN

UP

1550 WIDE PASSAGE

2000 WIDE PASSAGE

Lab 1

9185X 10095

L-TYPE BENCH

WALL BENCH-1

5' Feet Bench Provided

Dust Bin Cabinet

ISLAND BENCH

ISLAND BENCH

L-TYPE BENCH

TALL UNIT

Tall Unit With Glazed Door Ht. 2134mm

Lab 2

9115 X 10805

TALL UNIT

Tall Unit With Glazed Door Ht. 2134mm

4-LEG BENCH

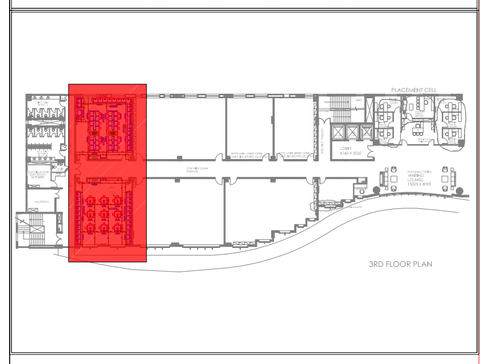
WALL BENCH-2

WALL BENCH-2

NOTE:

- All dimensions in mm
- All wall to wall dimensions are to be verified at site.
- All Floor mounted case work should be with 100mm height toe space.

TENDER



KEYPLAN

Project Title:

Client:

M/s. IIIT,Delhi.
Okhla,phase 3,Delhi.

Drawing Title:
Laboratory Furniture and Fumehood Layout
Third Floor
Plan View

Issue Date: 24.06.2019

Drawing No: IIIT-TEND-1001-19

Revision: 03