

**INDIAN INSTITUTE OF TECHNOLOGY DELHI  
HAUZ KHAS, NEW DELHI-110016**

Ref No:IITD/PLN05/BCHE/

Dated Feb 2, 2013

NOTICE INVITING QUOTATION

**Sub: Purchase of Lab Furniture – Work benches, Sink, Fumehood**

Sealed quotations in separate envelop of technical and commercial bid kept in a one sealed outer envelope are invited for purchase of lab furniture **e.g., Work Benches (wall and Island), Sink Table, Fumehood** as per specifications given below. Your sealed quotation should reach latest by March 18, 2013 to **HOD, Chemical Eng. Dept. (II/278), Indian Institute of Technology Delhi, Hauz Khas, New Delhi-110016**. Your quotation should be superscribed 'Quotation for Lab Furniture' dated.

Items:

1. 6 numbers of Wall bench table of 750 mm depth x 850/900 mm height x 2000 mm length with reagent rank/SPO, with Ele fitting
2. 4 numbers of Wall bench table of 750 mm depth x 850/900 mm height x 3000 mm length with reagent rank/SPO, with Ele fitting
3. 2 numbers of Island Bench table 1500 mm depth x 850/900 mm height x 3000 mm length with regaent rack/SPO, with Ele fitting
4. 2 numbers of sink table 750 mm depth x 850/900 mm height x 1000 mm length with PP sink, 1 way water valve
5. One bench type constant exhaust fume hood of 1500 mm length x 950 mm depth x 2250 mm height having 3 services, 3 Ele fitting, granite work surface, damper, 10 m duct and exhaust blower.

Additional Item: quote one standard floor mounted storage for glass wares and chemicals

**Note the requirement is worked out based on the availability of space in the lab.**

**Please see detailed specs and vendor qualification in the enclosed pages.**

**Terms & Conditions:**

1. Please see vendor qualification very carefully.
2. The quotations must have validity of at least three months.
3. Quotation must include insurance and freight charges, delivery period of the items addresses to Department of Chemical Engineering, Indian Institute of Technology Delhi, New Delhi -110016, India.
4. The products will be used for educational purposes. Any applicable academic institution discounts should be offered and stated.
5. Detailed Brochures should accompany the offer.
6. If the bidder is an authorized dealer then the authorized Indian dealership certificate from the principles should be enclosed.
7. Warranty details must be given.
8. Payment will be through bank transfer after delivery.
9. In case the items are proprietary products of the company, a proprietary item certificate stating the same must be provided.
10. Institute reserves the right to accept or reject any or all the quotations without assigning reasons thereof

**Chairman PFC**

## VENDOR QUALIFICATIONS IMPORTANT REQUIREMENT

- 1 This being a prestigious project, we invite the vendors, who are manufacturers of the laboratory furniture and Fume hoods and observing ISO / international standards of Quality for participating the tender.
- 2 Manufacturer should have ISO-9001-2008, ISO-14001-2004, OHSAS 180012007 certification / certified company and should have SEFA Membership now.
- 3 Manufacturers should have their own modern and sophisticated manufacturing facility having strict quality checks at every level.
- 4 Manufacturer should have in house / own Fume Hood Performance Test Lab – ASHRAE-110 [Tested under American Guidelines] and should provide ASHRAE-110 Test Certificate for Fume Hoods.
- 5 The product shall be tested in the Manufacturer's own test facility for its evaluation and should achieve a rating of 4.0 AM 0.1 PPM when subject to testing as per ASHRAE -110-1995 (USA standards).
- 6 All metal components / parts are supposed to be pre-treated (with premium chemicals and DM water) and minimum 60 micron Epoxy Polyester Powder Coated with automatic robotic spray gun system.
- 7 The vendor will be selected on the basis of the credential and eligibility conditions provided in the technical part. Price bids of the successful bidders who have qualified in the Technical part will only be opened. The minimum eligibility criteria for their capacity shall be Sales Turnover - Manufacturer should have minimum annual sales turnover of Rs. 10 [ Ten ] Crores in last Five years for period ending 31.12.2012. For Capacity of High Value Order Execution -Manufacturer should have also successfully executed minimum 3 Nos orders of each order value minimum Rs. 2 [ Two ] Crore or two orders each value minimum 3 [ Three ] crores or one single order of minimum order value of Rs. Six [Six ] Crore for the Supply and Erection of Laboratory Furniture and Fume Hood system for Labs of reputed R & D Centre or reputed Hospital.
- 8 The vendor should be Lab Furniture manufacturing since last 10 Years to prove their standing in the market, experience and quality supply.
- 9 We reserve the right of selection of party based on the technical credentials and resourcefulness and only being lowest bidder, may not be the absolute criterion for selection. We reserve the right to have our own assessment for their manufacturing facilities, Test Facilities, past executed order performance evaluation to consider the supplier/vendor.

S.N	Supprting Documents to Tech. Bid		Yes / No (requirement)
1	<b>Tender Documents</b>	Copy duly signed and stamped by Vendor	yes
2	<b>PLAN LAYOUT DRGS / Ref Drgs</b>	Copy duly signed and stamped by Vendor	optional
3	<b>Itemwise GA Drgs</b>	Copy duly signed and stamped by Vendor	yes
4	<b>Tender Tech Specifications</b>	Copy duly signed and stamped by Vendor	yes
		Specifying deviations if any	
5	<b>Technical Bid Annexure</b>	Copy duly signed and stamped by Vendor	yes
6	<b>Manufacturing License</b>		yes
7	<b>Enterpreneurs Memorandum No</b>		
8	<b>Sales Tax Registration Certificate</b>		yes
9	<b>CST Return Acknowledgement</b>		yes
	<b>for last one year</b>		
10	<b>VAT Return Acknowledgement</b>		yes
	<b>for last one year</b>		
11	<b>Literature / Catalogues / DVD</b>		yes
12	<b>Company Certifications for Vendor Qualifications</b>		
	<b>A</b>	<b>ISO 9001-2008 Certificate</b>	yes
	<b>B</b>	<b>ISO 14001-2004 Certificate</b>	yes
	<b>C</b>	<b>OHSAS 18001-2007 Certificate</b>	yes
	<b>D</b>	<b>SEFA Membership Certification</b>	yes
13	<b>List of Customers with e-mail/Tel</b>		yes
	<b>For Vendor Qualification</b>		
14	<b>Vendor Capabilities for execution of High Value Order</b>		
	<b>Copy of Single Order of minimum value of Rs. 6 Crore for a period upto 31.12.2012 only for lab Furniture and Fume Hoods</b>		yes
	<b>only for lab Furniture and Fume Hoods List of minimum 3 nos orders of value 2 crore or above each only for lab furniture and fume hoods</b>		yes

15	<b>Turnover /Capabilities of Organisation</b>	<b>P &amp; L A/C Sheet to be attached</b>	yes
	<b>Turnover of last Three Years</b>	<b>Minimum 10 Crore for each year</b>	yes
	<b>A</b>	<b>Year 2011-12</b>	
	<b>B</b>	<b>Year 2010-11</b>	
	<b>C</b>	<b>Year 2009-10 Year 2008-09 Year 2007-08</b>	
16	<b>Company's PAN No</b>		yes
17	<b>Company's TAN No</b>		yes
18	<b>IEC Code No</b>		yes
19	<b>Service Tax Registration Certificate</b>		yes
20	<b>Central Excise Registration Certificate</b>		yes
21	<b>Company Profile</b>		yes
22	<b>Certificate of Incorporation</b>		
23	<b>Memorandum of Articles</b>		
24	<b>Any other Certificates / Documents supporting for qualifications</b>		

## SCOPE OF SUPPLY AND TERMINATION POINTS

1. **Power Connection:-**Power supply of suitable capacity will be provided by Customer at the end of each table on which power points / sockets are provided. For fume hoods, power supply will be provided at the top/rear side of hood where junction box is located. Internal wiring within the tables or fume hoods shall be in supplier scope from the junction Box.
2. **Gas distribution system:-** Necessary service lines for GDS will be provided on rear side of the fume hood with suitable outlet fittings. For work benches, the lines shall be extended up to bottom of the work tables by purchaser. Necessary connection with service valves through flexible tubing shall be supplies.
3. **Drain piping:-** Drain outlet shall be provided by customer at each required point (below sink). A flexible connection between sink outlet and drain point will be supplier scope.
4. **Scope of Supply: -** As per BOQ and specifications mentioned in the tender.
5. Civil Works – All civil work shall be in scope of customer

**TECHNICAL SPECIFICATIONS FOR LABORATORY**  
**FURNITURE, FUME HOOD & ACCESSORIES**

## GENERAL

The supplier should maintain the following material of construction, manufacturing process, dimensions as per attached GA Drg/ Sketch / Item list for Lab and Office Furniture.

### **Description:**

The laboratory furniture should be modular in design, made of mainly G.I. / CRCA Steel in panel form to get the best and full coverage of powder coating and in CKD – (Completely Knocked Down) construction so can be erected at site as per approved layout.

Supply of Laboratory Modular Furniture includes Frame Structure with height adjustable legs, each storage module UDL carrying capacity of 450 Kgs per square meter area when erected with Work Top/ Surface.

Welded construction of Cabinets is also acceptable when powder coating is properly done.

### **Ergonomics:**

The furniture should be designed for Lab Benches / Tables of height 900 mm for standing posture and 750 mm for sitting posture.

## **Laboratory Work bench comprises of following components**

### **1. Storage Cabinets:**

A complete modular type storage cabinet consists of cabinet sides, top, bottom, shelf, Drawer, Cover Panels, Double wall construction shutter and Drawer Fronts, slides, handles and Hinges.

### **Shelves & Drawers:**

G.I. / CRCA Shelves should have a uniformly load carrying capacity of 30 kg. The overall load carrying capacity is 60 kg of UDL (30 kgs. on each shelf and 30kgs. on bottom). The overall load carrying capacity of drawer should be of 20 kgs. of UDL for a pair of ball slide for 450 and 600 mm size Drawers and 30 Kgs for a pair of Telescopic Glides for 750 mm and 900 mm size. All glides can be telescopic as per manufacturer's design.

### **Handles:**

S.S. 316 matt finish Handles of D Type 96 x 8 mm size required.

### **Shutters & Drawers:**

Metal shutters & Drawer Fronts should be in colors combination as approved by Indentor. The steel frames, panels & shutters should be made from Prime Quality CRCA – Cold Rolled Cold annealed Steel sheets / G.I. – Galvanised Iron Steel sheets.

## **Hinges**

HAFELLE / Mepla/ Hettich or Equivalent make self-closing 95 Degree opening hinges should be used with special coating called CED (Cathode Electro-Deposition) which ensures very high corrosion resistance.

## **Powder Coating**

The thickness of powder coat should be of 50-70microns, which should pass the test of salt spray for 1000hours and should have the scratch hardness of 3Kgs.

## **TECHNICAL SPECIFICATION FOR LABORATORY BENCH COMPONENTS**

### **A) Plinth mounted system:**

#### **General Description:**

These are Laboratory Work Stations available in 2 heights of 900mm and 750mm in metallic Construction designed to have completely flexible modular system. Each module will have independent base frame. Necessary leg space will be provided between two modules wherever required. Rear portion of the leg space will be covered with the enclosure panel. Work table shall consist of;

**Under bench cabinet:** In GI / CRCA construction, duly finished with epoxy powder coating, front panel of the cabinet door and drawer shall be in double skin construction. Door hinges will be in SS construction of HAFELLE/ Mapla/Hettich Make. Shutter will have 95° opening. Cabinet will be provided with one shelf. Drawer rails will have the rollers in nylon construction with sealed ball bearing. All fasteners shall be in nickel plated steel /SS construction. Handles shall be in SS 304 construction in D type design. All Modules shall be available in different options such as, module with shutter, module with one shutter/one drawer or all drawers.

### **Detailed Specifications and thickness of GI / CRCA items in each module:**

- Cabinet end panels; min. 0.8 mm Thick sheet
- Cabinet rear panel and top panel; min. 1.0 mm thick sheet
- Cabinet base skid; 1.0 thick Sheet
- Cabinet drawers; 1.0 thick Sheet
- Cabinet shutters & drawer front panels; double skin const, min 1 mm thick sheet
- Cabinet mainframe structure and drawer slide rails, 1.6mm thick Sheet



## **PLINTH MOUNTED UNDER BENCH STORAGE CABINETS**

Cabinet end panels; min. 0.8 mm Thick sheet

Cabinet rear panel and top panel;min. 1.0 mm thick sheet

### **Detailed Specifications and thickness of GI / CRCA items in each module:**

Cabinet base skid; 1.0 thick Sheet

Cabinet drawers; 1.0 thick Sheet

- Cabinet shutters & drawer front panels; double skin const, min 1 mm thick sheet

-Cabinet mainframe structure and drawer slide rails, 1.6mm thick Sheet

**Worktops:**

18(±1mm) mm.thickhighqualitygraniteinjetblack colorswithedgeshaving roundchamfer of5 mmmradius ontopside.Theoverhang ofgranite is 25mm at front side of understructure.

**Reagent Rack:**

Worktop mounted reagent rack in single or double tier design. Vertical member and main bracket ofthe reagentrack shall be in of 0.9mm thick GI /CRCA co nstruction,dulyepoxycoatedfor excellent corrosion resistance. Rack platform shall be in GI / CRCA construction. 3 mm thick Neoprene rubber sheets should be provided on shelves for better corrosion resistance and safety for glass bottles. Shelf height shall be adjustable as per requirement.

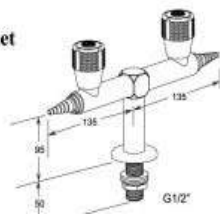
**Service valves:**

Worktop mounted service valves in forgedbrass construction in one way or two way design for NG,CA &V. Valve knobs shall be in plastic construction, generally with color code as per DIN standard..

Burner gas	ISI Make rubber tube suitable for burn
Any other service	Suitable fitting with prior approval

Deck Mounted, Double Outlet Faucet at 180°

Handle: Ergonomic, high grade PP knob



Deck Mounted, Single Faucet

Handle: Ergonomic, high grade PP knob



**Service Panels:**

The service panels should carry all electrical fittings Such as sockets and switches complete with internal wiring up to the battery limit. Fittings shall be mounted on Rectangular Electrical Duct. Electrical Duct shall be 1mmthickGI/CRCA constructionwith epoxy powder coating and attached with Reagent shelf.

Each electrical module should consist of North-west /Norisys or any reputed make as per approval.And MCB shall be ofMDS Legrand/L&T Haqer /Siemens/ Havells or any other approved make.

- 1) 6/16 Amp 5 Pin socket – 230 V 2)
- 16 Amp Tiny Trip MCB Single Phase 230 V

**PP Sink:** 550 x 450 x 310 mm

PP Sink should be of in one piece of High Grade Polypropylene, Black colour with Matt Finish on lip. Sink should be resistant to scratch and most of chemicals, such as Aqua Regia, etc.. Overall size of sink shall be 550 mm L x 450 mm Width x 310 mm Depth (Bowl size: 480 mm L x 380 mm W x 300 mm Depth ). Maxm Thickness to 7 mm. Sink should be with High Grade Stopper, Filter and bottom coupling.



**Water Faucet:**

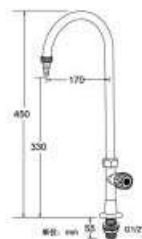
Sink unit has 1 Way water tap made up of Brass and with Epoxy powder coatings. If 3 way Water Valve is asked then it will have Double outlet fixed faucets, one swan neck

360° turn type water faucet made up of Body- Solid Brass, Coating- High gloss epoxy powder resistant to most chemicals, UV Fading & heat, Ceramic headwork, 90 Degree turn, , detachable Nozzle, Bench mounted Valve with 1/2" BSP inlet pipe of 55 mm Length

**Deck Mounted, Swing Gooseneck, Single Faucet**

Handle: Ergonomic, high grade PP knob

Gooseneck spout: 360° swing



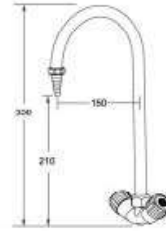
**Mixing Valve [ Hot and Cold Water ]**

Sink unit is also provided with 1Way watertap with Inlet of Hot Water and Cold Water made up of Brass and with Epoxy powder coatings. one swan neck -360° turn type water faucet made up of Body- Solid Brass, Coating- High gloss epoxy powder resistant to most chemicals, UV Fading & heat, Ceramic headwork, 90 Degree turn, , detachable Nozzle, Bench mounted Valve with 1/2" BSP inlet pipe of 55 mm Length

**Deck Mounted, Swing  
Gooseneck, Single Mixer**

Handle: Ergonomic,  
high grade PP knob

Gooseneck spout: 360° swing



All valves and taps shall be provided with at least one meter long flexible tube in appropriate construction as mentioned below with suitable end

## **Floor Mounted Cabinets for Glassware Storage**

Cabinet shall be fabricated out of CRCA/G.I. Sheets and duly coated with epoxy powder for good aesthetics. Cabinet shall have recessed skid and adjustable shelves. Cabinet doors shall be in double skin construction for proper strength and aesthetics. Necessary frame structure and hat section stiffeners should be provided for strengthening larger panels. Doors shall have proper locking arrangement. Dimension and Constructional details of the cabinet are furnished below. **General specifications Overall Dimensions:** W – 900 mm x Depth – 570 mm x Height – 2100 mm **No. of Shelves:** - 5 shelves form 6 compartments. Shelves shall be adjustable in height. **Construction Detail:**

End Panel, Rear panel, Top Panel & Bottom Panel: - 1.2 mm thick Sheet.  
Front door: - 1.0 mm thick double skin Sheet const.  
Door Fixing Frame: - 1.6 mm thick double skin / CRCA Pipe Frame const  
Shelf: - 1.2 mm thick Galvanized Iron (zinc coated) Sheet.  
Door Hinges: - In non ferrous const., zinc - Al alloy const. / SS Hinges  
Door Handles: - SS 316 L / D const.

The cabinet should be suitable for mounting on wall. The cabinet shall be fabricated out of CRCA Sheets / GI sheets. Cabinet should be provided with 1 adjustable shelf. Proper design, stiffening / structural members should be provided for strength and rigidity. Front door of the cabinets shall be in window design having glass panel with metallic frame in galvanized iron / anodized aluminum construction. Dimension and constructional detail of the cabinet is furnished below.

### **General Specifications: Overall Dimensions:**

W – 450 mm x Depth – 340 mm x Height –  
W – 600 mm x Depth – 340 mm x Height – W –  
750 mm x Depth – 340 mm x Height – W –  
900 mm x Depth – 340 mm x Height –

**No. of Shelves:** 1 shelf; forming 2 compartments. Shelf should be adjustable in height.

### **Construction Detail:**

-Rear panel: - 0.8 mm Sheets.  
-End Panel, Top Panel & Bottom Panel: - 1.0 mm thick Sheet.  
  
-Front door: - 5 mm thick glass with metallic frame / metallic doors with locks.  
-Shelf: - 1.2 mm thick. Sheet.  
Door Hinges: - In non ferrous const. / 95 Degree self closing type  
Door Handles: - SS 316 L / D const.

Work top mounted Hand held design Safety shower for Eye wash cum body wash with a single/double, angular faucet and soft plastic cone.

## **FUME HOODS**

### **1. BENCH TOP-AUTOBYPASS FUME HOOD**

#### **SPECIFICATIONS:**

- 1 Fume Hood Body constructed from G.I. sheet High quality Tata /equivalent Make of Grade D of IS:513
- 2 Sash Frame of Stainless Steel -316
- 3 Ceiling Enclosures: G.I. sheet of minimum 1.25 mm thickness with powder coated on all sides
- 4 Sash : Toughened glass of 5 mm thickness
- 5 Sash cables: Stainless steel multi strands coated of 3mm with PVC sleeve
- 6 Sash Guides: Corrosion resistant PVC.
- 7 Pulley assembly for sash cable: 45mm diameter double grooved of white Nylon with ball bearings fitted with plastic snug fitted lid.
- 8 Sash Pull: Full width of extruded aluminum with corrosion resistant epoxy powder coating.
- 9 Fasteners: Interior fastening device shall be concealed. If head of metal fasteners are projecting inside shall be covered with plastic caps. The fasteners on exterior surface to be corrosion resistance of either steel with zinc plating or stainless steel depending on the demands of the service conditions.

#### **Design Structure:**

Aerodynamic, Floor mounted.

#### **Airflow Type:**

Automatic Bypass Type

#### **Construction (Exterior):**

Pure Epoxy powder coated 50-70micron on 18Gauge Galvanized steel with rigid structure.

#### **Construction (Interior):**

As specified in GA Drg / Sketch, all Bench Type Fume Hoods should have internal FRP lining with Vinyl Ester of Ivory shade and all Distillation Fume Hoods should have internal PP Lining of Natural White colour.

#### **Baffle arrangement:**

Removable baffle is fixed to ensure smooth and immediate exhaust of fumes.

#### **Airfoil:**

Fume Hood bottom Front is of aerodynamic design, FRP lined for Bench Hoods and for Distillation Hoods, it should be of suitable for application.

#### **Worktop for Fume Hood:**

##### **Dished Jet Black Granite work surface for Fume Hoods:**

18(±1mm) mm. thick high quality granite in jet black colors with Dished edges.

##### **Sink, Water tap with drain arrangement:**

Worktop should have oval shaped good quality 264 x 111 mm 'PP' Black Cup-Sink with outlet coupling and 1 Meter Long PVC Hose for drainage with water valve.

### **Vertical Rising Sash :**

Vertical rising counter-balanced 'Toughened Float Glass' (5mm thick) should have Aluminum extruded aerodynamic Handle providing Smooth and light sash operation. Clear sash open height =750mm for Bench Hoods and 1100 mm for Distillation Hoods for initial set-up when there is no reaction otherwise it is recommended to use / operate by keeping vertical sash at lowest position for safe working and setting 0.5 m / sec +/-20% average Face Velocity.

### **Blower operation Timer system :**

For each cluster, a timer system should be provided for night and weekend operation / working of Blower automatically at set interval for required period. It should have auto and manual setting system.

### **Service fittings:**

Remotely operated colour coded (as per international norms) service valves with SS braided flexible hose & brass fittings and spouts fitted on FH side. The Qty and Type of Valves are specified in GA Drg. They are for Raw Water, Chilled Water, Compressed Air, Argon

### **Lighting:**

FLP light fittings with corrosion free enclosure should be provided for better illumination with less power consumption and vapour free sealing with glass

### **Electrical Utilities:**

6/16 A SP electrical sockets & 16A MCB 'modular type and shall be of North West/ Norisys or Equivalent approved make.(230V, 50HZ) A soft touch button panel with main switch, NO-NC switch for blower for each cluster & tube light & Rocker switch with LED indication should be provided. DOL starter should be provided for blower motor for each cluster.

### **G.I. Scaffolding / Lattice :**

All Fume Hoods should be provided with G.I. Scaffolding duly PU coated having 160 x 160 mm Pitch and of 12 mm Thick Rod. It should be of removable design.

### **Apparatus / Chemical Storage Base Cabinet:**

Base cabinet should be provided to receive the fume hood at its top / provided below Fume Hood base Frame.

- Complete rigid steel structure to support Fume hood
- Epoxy Powder Coated attractive color combination
- Storage units with shutters and one fixed shelf and FRP / PP tray.
- Shutters of double skin with external Nylon / SS Hinges to avoid any internal corrosion.
- For Acid bottles / the complete cabinet should be coated with 3mm thick Fiber reinforced Vinyl ester .
- For Solvent bottles / the complete cabinet should be of 3mm thick PP .

Overall configuration for storage cabinets are shown in GA Drgs.

### **BFV / Damper:**

To regulate airflow PP damper should be provided at the outlet of hood.

**Testing:**

All fume hoods should be "factory tested" for design as per ASHARE 110 and EN 14175. Also, "onsite validation" for face velocity will be carried out to ensure working of fume hood as per international norms and should provide 0.5 m / sec +/- 20% average Face Velocity at 500 mm High vertical sash. Sufficient inlet air shall be provided for perfect ventilation by customer.



