

**Sealed quotations are invited from manufacturer/authorized dealers/service providers for supplying and installation of 8 (eight) Nos. of Fume Hood as per technical specifications listed below:**

**General terms and conditions**

1. The tender notice may be withdrawn at any time without assigning any reason thereof.
2. The decision of the departmental purchase committee in this matter is final.
3. Road permit etc. will be provided by the department as and when required.
4. The instrument along with required accessories should be delivered at the Dept. of Chemistry, NEHU, Shillong in good and working conditions.
5. The quotation should be drawn in the name of '**The Coordinator, UGC-SAP-CAS Programme, Department of Chemistry, NEHU, Shillong – 793022, Meghalaya**'
6. A letter from the Principal should also be furnished guarantying that all the terms and conditions agreed by the supplier as written in the quotation as well as in the tender notice will be taken care of by the Principal in the event the supplier departs the Principal.
7. Payments terms must be "Within 30 days after delivery and installation of the consignment."
8. Incomplete offer will be summarily rejected.
9. The last date submission of quotation is 09/06/2017.

Sd/-

**The Coordinator, UGC-CAS**  
Department of Chemistry  
NEHU, Shillong  
Dated: 5th May, 2017

### **Pre-Qualification Criteria**

- (1) At least 3 each customers PO from Govt. Organisations & Private Companies especially from North East India stating the quality of work and overall feedback of Project with good values.
- (2) Bidder/ parent company should have ASHRAE & SEFA Membership Certificates for Last Five years on a continuous basis.
- (3) Bidder/Parent company has to submit a third party test report for Fume Hoods.
- (4) Additional Certificates to be submitted by the bidder/parent company:
  - a) ISO 9001-2008 (For Manufacturing, Supply and installation of fume hood systems, Equipment's & Laboratory Furniture)
  - b) OHSAS 18001:2007 (For Design, Manufacturing, Supply and Installation of Fume Hood Systems, Equipment's and Laboratory Furniture)
  - c) ISO 14001:2004 (For Design, Manufacturing, Supply and Installation of Fume Hood Systems, Equipment's & Laboratory furniture)
- (5) The bidder or its parent company in India or abroad should have a well-established (their own) in house manufacturing unit for the steel lab furniture and fume hood, quality management system as per International standards providing the products and services on the continuous basis at least for the last 7 years. The bidder or its parent company in India or abroad should possess the current/valid approval for such items manufacturing facility by a statutory certifying authority, like factory inspector etc. Manufacturers should have 100% modern and sophisticated manufacturing facility having strict quality checks at every level.
- (6) 1000 hour salt spray test report (by third party) for powder coating quality assurance also must be attached to the technical bid.
- (7) MOC of the Lab furniture should be of GI (Galvanized Iron) sheets only, 1-1.3mm.
- (8) Should have the facility of ASHRAE testing.
- (9) NEHU has right to visit the factory for the inspection of factory work & materials as when required.
- (10) Bidder / parent company will have to submit a "No Deviation" compliance sheet, any deviation from the technical specification will lead to cancelation.
- (11) The Bidder should have turnover of Rs. 20 crores at least for the last 4 years.

### Specification Sheet for Fume Hood

The Fume Hood should consist of following features:

Overall Dimensions with base cabinet:	1800 mm W X 900 mm D X 2400 mm H
Fume Hood dimensions:	1800 mm W X 900 mm D X 1600 mm H
Base Cabinet dimensions:	1700 mm W X 540 mm D X 700 mm H
Inside Fume Hood working volume:	1520 mm W X 650 mm D X 1155 mm H
Bed size:	1520 mm W X 650 mm D

Sr. No	Specification	Description
1	Usage	Fume hood for Regular usage in Chemical Laboratory
2	Design Basis	<b>The Fume hood should be at par (i) American Design Standard: ASHRAE110- 1995</b> with all tests including "Tracer gas containment test" passed; (ii) <b>European Design Standard: EN-14175- 2003</b> with 'Inner Plane Containment test' passed.
3	Design Structure	Aerodynamic, Floor mounted
4	Airflow Type	<b>Low Constant Volume (for A.C. environment)</b>
5	Color Combination	Grey & White
6	Powder coating	Pre-treated with 8 tank chemical processes and powder coated with highly chemical resistant epoxy Colors having dry film thickness of 70 to 80 microns. Passes all conformity performance tests as per IS standards.
7	Material of Construction of superstructure	Galvanized Iron (GI) as per IS 277: 2003 standard of <ul style="list-style-type: none"> <li>• 1.0 mm thickness for all sheet metal paneling</li> <li>• 1.2 mm for back pillars</li> <li>• 1.2 mm for front corner post</li> </ul>
8	Front Top Panel	Easily openable hinged Top Panel for easy access to Flow Control Valve and Electrical Lighting fixtures for maintenance.
9	Corner Post	Triangular profiled Corner Post is placed on Left and Right Hand Side of the Fume hood and it houses the utility line fittings and electrical receptacles.
10	Construction (Interior)	Chemical & Heat Resistant, Fire Retardant, Smooth Finish, Easily Cleanable Panels Made out of durable PRL integral work walls (6 mm thick). ASTM flame spread index < 25.
11	Active Kinetics exhaust system	<u>Interstitial</u> 7-point active kinetics exhaust system (for light, normal & heavy fumes) with baffle to ensure rapid exhaust of fumes.
12	Airfoil	Aerodynamic Design, Horizontal fixed airfoil mounted on the worktop made of SS 304 (1.2mm).
13	Worktop	Chemical resistant splash & spillage proof dished ' <b>Jet Black Granite</b> ' worktop (18 ±1 mm thick). Skirting of 15 mm from all sides for no chemical spillage.
14	Sink, Water tap with drain arrangement	Worktop should have sink sealed with silicon sealant for drainage with water tap on left & right back side of worktop. Sink should have a trap for waste collection. <ul style="list-style-type: none"> <li>• Oval shaped 100 mm X 200 mm sink</li> </ul>
15	Sash (Shutter)	Vertical rising sash counter-balanced with pulley and counter-weight system. Toughened Float Glass sash (4 mm thick). Smooth and light sash operation. Clear openable height = 750 mm. Impact Resistance of the sash (Toughened Glass) is four times higher than other sash materials (like Safety Glass and Polycarbonate). Breaking Stress value for fully toughened glass (Tempered Glass) = 24,000 psi.
16	Wet & Dry Service valves	Remotely operated Color coded <b>Brass Needle Valves</b> for fine control over utilities (as per DIN 12920 norms) <b>total 6 nos.</b> service valves with PU plumbing with 6 mm internal dia, withstands up to 5 kgf pressure <b>( 3 LHS + 3 RHS)</b> <ul style="list-style-type: none"> <li>• 2 for Raw water (PU)</li> <li>• 2 for Nitrogen(PU)</li> <li>• for Vacuum(Teflon)</li> </ul>

17	Maintenance ports	<ul style="list-style-type: none"> <li>• Open-able top panel for easy maintenance of tube light and flow control valve</li> <li>• Triangular service panel for maintenance of utility valves and tubing.</li> </ul>
18	Internal nozzles	Brass powder coated fittings are staggered in the fume hood to avoid the intermingling of the flexible tubes. Also the taps are tapered in shape to use with flexible tubing of sizes from ¼” to ½” in diameter, to provide greater flexibility to the user.
19	Lighting	Fluorescent light (40 watt, 2 Nos.) with vapour-proof fitting for proper illumination. Intensity approx 400 lux at worktop level.
20	Electrical Utilities	<b>5 nos.</b> electrical sockets ‘North-West’ make (230 V, 6/16 A, 50 Hz), <b>5 nos.</b> ‘North-West’ make MCBs with blower NO/NC switch with built –in starter & light switch on front fascia. Cables & wires ‘Fire Retardant’ grade. <b>(5 RHS + 5 LHS)</b>
21	Built-in Starter	The electrical wiring should have built-in starter of “Telemechanique” make; suitable to blower motor capacity.
22	Cable entering port	For easy access of cables from fume hood to electrical sockets.
23	<b>Chemical Storage Base Cabinet (Ventilated &amp; on castors)</b>	<p>Base cabinet should be ready to receive the fume hood at its top. It should have following features:</p> <ol style="list-style-type: none"> <li>1) Completely made from 1mm thick GI sheet with Highly corrosion resistant epoxy powder coating,60-80 microns thickness.</li> <li>2) Cabinet integral work walls should be Special chemical &amp; heat resistant, smooth finish, easily cleanable panels made out of durable PRL sheets.</li> <li>3) Two exhaust ports connected to the fume hood exhaust system internally.</li> <li>4) One removable horizontal partition to store chemicals.</li> <li>5) PP Trays for chemical storage.</li> <li>6) Cabinets on castors.</li> <li>7) Roller catch of “HAFELE”– Germany” Make for the Base Cabinet doors.</li> <li>8) Polyamide Hinges from outside of Base Cabinet.</li> </ol> <p>Overall Dimensions: 850 mm W X 540 mm D X 700 mm H– 2nos.</p>
24	Apparatus Holding Grid ( <b>Lattice Assembly</b> )	A grid made up of <b>Duralumin Powder coated rod</b> (Dia. 12.7 mm) to hold the apparatus. It should cover the entire length of the fume hood and should be built-in at fume hood backside. Installed at the distance of 150 mm from backside of fume hood.
25	Air Flow Monitor <b>AFA 1000 (Optional - To be ordered separately if required)</b>	<p>Model AFA 1000’. This device is an accessory for Fume hood to indicate the approximate face velocity of airflow with primary purpose of warning when a low flow condition occurs. Red &amp; green LEDs correspond to low &amp; normal flow rates. When flow decreases from Normal to Low, an audible alarm should also actuate requiring manual acknowledgement for silence.</p> <ul style="list-style-type: none"> <li>• Digital display of face velocity in m/sec or fpm</li> <li>• On screen display for Safe and Alarm conditions with</li> <li>• Audible alarm and LED indication.</li> <li>• Push button calibration and configuration</li> <li>• Plug-in connections for power supply and airflow sensor</li> <li>• 3 programmable output relays</li> <li>• 3 configurable inputs</li> <li>• Com port for local or PC network connection</li> </ul>
26	Level adjusting screws	Made of SS Bolts to adjust the fume hood level by $\pm 10$ mm.
27	Exhaust Port	Unique exhaust port design ensures that the fumes should be exhausted smoothly without any turbulence at the exhaust port. Also it ensures low noise level.
28	Flow control valve	To regulate airflow.

29	Noise Level	< 70db at 1 meter from fume hood.
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**CENTRIFUGAL BLOWER (For air suction in Fume Hood):**

Silent PP + FRP high efficiency remote blower consisting of continuous rating motor and chemical resistant impeller. It satisfies international safe velocity norms

Sr. No	Specification	Description
1	Construction	SISW type, chemical & heat resistant PP + FRP blower with aerodynamically balanced PP impeller, with drain plug.
2	Air Suction Capacity	600 CFM confirming to international face velocity norms and as per safe fume hood airflow pattern.
3	Motor	'Crompton / LHP/Other Reputed' make, 1 <b>HP Motor</b> 3 Phase TEFC, IP 55, Class F, continuous rating. As per IS 325.
4	Drive	Direct Drive

**DUCTING:**

Chemical resistant PP + FRP (3mm + 2mm) rigid & flexible ductwork from Fume hood to exhaust stack point with weatherproof canopy. Total ducting with horizontal, vertical members, flanges, bends, bracketed supports and gooseneck exhaust stack.

**INSTALLATION:**

It should be carried out by highly skilled team with ductwork design, fitting, fixing of blower, commissioning & testing of the same at a fixed extra cost.

**IQ/OQ/PQ: (Mandatory)**

Entire IQ/OQ/PQ protocols should be filled up and submitted to us after completion of the installation at extra cost.

**TESTING:**

All fume hoods should be "factory tested" as per **ASHRAE110:1995** face velocity norms. Also, "Onsite Validation" should be carried out to ensure working of fume hood as per international norms. "Tracer gas containment testing" should be carried out only in the factory at extra cost.

**WARRANTY:**

12 months warranty against all manufacturing defects from the date of installation.

**AFTER SALES SERVICE:**

Annual Maintenance Contracts after completion of Warranty period.