



Enquiry No.: IITK/CHM/DHD/16-17/14

Enquiry Date: 10.2.17

Closing Date: 28.2.17

Quotations are invited for “Fume Hoods for Chemistry Laboratory” Pre-Qualification Criteria

- 1) The laboratory fume hoods must confirm to the following regulations and standards.
- 2) ASHRAE 110-1995, American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Method of Testing Performance of Laboratory Fume Hoods.
- 3) EN-14175, The European Standard EN 14175:2003, Method of Testing Performance of Laboratory Fume Hoods.
- 4) The bidder should have in house ASHRAE 110: 1995 and EN 14175:2003 fume hood test facility. Past ASHRAE and EN test reports & photographs of this test facility must be attached to the technical bid.
- 5) At least 2 Customer feedback forms stating the quality of work and overall feedback of Project Values of at least Rs. 1 Crore for one project and Rs. 40 Lacs each for the remaining two projects.
- 6) Bidder/ parent company should have SEFA Membership Certificates for Last three years on a continuous basis.
- 7) Bidder/ parent company has to submit:
 - A). Test Report: Furniture to be type tested as per SEFA-8 standard by a third-party.
 - B). Test Report: Fume Hood to be type-tested as per EN 14175 by a third-party.
 - C). Test Report: Fume Hood to be type-tested as per ASHRAE 110 by a third-party.
- 8) Membership Certificate: The bidder/parent company should possess the key professional staff, at least one, in his organization with good knowledge of codes and standards like SEFA, OSHA, EN 14175, ASHRAE 110 etc. Such professionals should have a valid membership of SEFA.
- 9) Additional Certificate: ISO 9001-2008, ISO 14001-2004, OSHAS 18001-2007 (For Design, Development, Manufacturing, Supply and servicing) should be submitted by the bidder/parent company.
- 10) 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



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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.

- 11) 1000 hour salt spray test report (by third party) for powder coating quality assurance also must be attached to the technical bid.
- 12) MOC of the Fume hood should be GI (Galvanized Iron) 1-1.3mm
- 13) Bidder / parent company will have to submit a “No Deviation” compliance sheet, any deviation from the technical specification will lead to cancellation.

Technical Specifications for 5 Feet Regular Fume Hood

Quantity: 4 no.s

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	Design Basis	American Design Standard: ASHRAE110- 1995 European Design Standard: EN-14175- 2003
2	Design Structure	Aerodynamic, Floor mounted
3	Airflow Type	Low Constant Volume (for A.C. environment)
4	Color Combination	Grey & White
5	Powder coating	Pre-treated with 8 tank chemical processes and powder coated with highly chemical resistant material having appropriate dry film thickness.
6	Material of Construction of	Galvanized Iron (GI) as per IS 277: 2003 standard of

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	superstructure	<ul style="list-style-type: none"> ➤ 1.0 mm thickness for all sheet metal paneling ➤ 1.2 mm for back pillars ➤ 1.2 mm for front corner post
7	Front Top Panel	Easily openable hinged Top Panel for easy access to Flow Control Valve and Electrical Lighting fixtures for maintenance.
8	Corner Post	Triangular profiled Corner Post should be placed on Left and Right Hand Side of the Fume hood for the utility line fittings and electrical receptacles.
9	Construction (Interior)	Chemical & Heat Resistant, Fire Retardant, Smooth Finish, Easily Cleanable Panels should be made out of durable PRL integral work walls.
10	Active Kinetics exhaust system	Interstitial 7-point active kinetics exhaust system (for light, normal & heavy fumes) with baffle to ensure rapid exhaust of fumes.
11	Airfoil	Aerodynamic Design, Horizontal fixed airfoil mounted on the worktop made of SS.
12	Worktop	Chemical resistant splash & spillage proof dished ' Jet Black Granite ' worktop (18 +1 mm thick). Skirting of 15 mm from all sides for no chemical spillage.
13	Sink, Water tap with drain arrangement	Worktop will have sink sealed with silicon sealant for drainage with water tap on left back side of worktop. Sink will have a trap for waste collection. <ul style="list-style-type: none"> ➤ dimensions of sink should be 100 mm X 200 mm sink
14	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 open able 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.
15	Wet & Dry Service valves	Remotely operated Color coded Brass Needle Valves for fine control over utilities (as per DIN 12920 norms) total 6 nos. service valves with PU plumbing with 6 mm internal dia, withstands up to 5 kgf pressure (4 LHS)

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		<ul style="list-style-type: none"> ➤ 1 for Raw water (PU) ➤ 1 for Nitrogen(PU) ➤ 1 for Vacuum(Teflon) ➤ 1 for Compressed Air (PU)
16	Maintenance ports	<ul style="list-style-type: none"> ➤ Open-able top panel for easy maintenance of tube light and flow control valve ➤ service panel for maintenance of utility valves and tubing.
17	Internal nozzles	Fittings should be coated with Brass powder to avoid the intermingling of the flexible tubes. Also the taps should be tapered in shape to use with flexible tubing of sizes from ¼” to ½” in dia, to provide greater flexibility to the user.
18	Lighting	Fluorescent light (minimum 40 watt, 2 Nos.) with vapour-proof fitting for proper illumination. Intensity approx 400 lux at worktop level.
19	Electrical Utilities	6 nos. electrical sockets ‘NorthWest’ make (230 V, 6/16 A, 50 Hz), 6 nos. ‘NorthWest’ make MCBs with blower NO/NC switch with built –in starter & light switch on front fascia. Cables & wires should be ‘Fire Retardant’ grade.
20	Built-in Starter	The electrical wiring should have built-in starter of “Telemechanique” make; suitable to blower motor capacity.
21	Cable entering port	For easy access of cables from fume hood to electrical sockets.
22	<i>Chemical Storage Base Cabinet (Ventilated on Castors)</i>	<p>Base cabinet should be ready to receive the fume hood at its top. It should have following features:</p> <ul style="list-style-type: none"> ➤ Completely made from 1mm thick GI sheet with Highly corrosion resistant epoxy powder coating,60-80 microns thickness. ➤ Cabinet integral work walls will be Special chemical & heat resistant, smooth finish, easily cleanable panels made out of durable PRL sheets. ➤ Two exhaust ports connected to the fume hood exhaust system internally. ➤ One removable horizontal partition to store chemicals. ➤ PP Trays for chemical storage.



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		<ul style="list-style-type: none"> ➤ Cabinets on castors. ➤ Roller catch of “HAFELE”– Germany” Make for the Base Cabinet doors. ➤ Polyamide Hinges from outside of Base Cabinet. <p>Overall Dimensions: 850 mm W X 540 mm D X 700 mm H– 2nos.</p>
23	Apparatus Holding Grid (<i>Lattice Assembly</i>)	A grid made up of Duralumin Powder coated rod (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.
24	Level adjusting screws	Made of SS Bolts to adjust the fume hood level by +or - 10 mm.
25	Exhaust Port	Unique exhaust port design should ensure that the fumes will be exhausted smoothly without any turbulence at the exhaust port. Also it should ensure low noise level. Dia. 250 mm
26	Flow control valve	To regulate airflow.
27	Noise Level	< 70db at 1 meter from fume hood.
28	Auto fire extinguisher	Fire extinguisher to take care of fire erupting within the fume hood. The sensing tube/ sensor will activate immediately after fire breaks out within the hood. Sensor threshold: 68 degree centigrade. Media: ABC Dry Powder

CENTRIFUGAL BLOWER: (For air suction in cluster of 2 nos. Fume Hood) - 2Nos.

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, 2 HP Motor 3 Phase TEFC, IP 55, Class F, continuous rating. As per IS 325.
4	Drive	Direct Drive



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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:

Should be carried out by vendor's skilled team with ductwork design, fitting, fixing of blower, commissioning & testing of the same.

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" can be asked to be carried out at vendor's factory (extra cost can be charged).

WARRANTY:

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

DELIVERY:

As soon as possible after the release of PO.

Terms and Conditions:

1. Prices should include transportation, installation, and maintenance for a year, including all manufacturing flaws.
2. 1 year warranty.
3. Maximum educational discount.
4. Other specification according to the above technical requirements including commercial bids.
5. Quoted price should be in Indian Rupees only.

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Please mention “Fume Hoods for Chemistry Laboratory (-----)” on the sealed envelope carrying the quotation and related literature. Send your best offer on or before 28.2.2017 to the following address.

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