

Telephone: **044-22574416**

Extn:

Department of **Electrical Engineering**
Indian Institute of Technology, Madras
 I.I.T.P.O., MADRAS – 600 036.

Ref. No.

ELE	AMIT	2019	MS Powder coated Class 100 Fumehood
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Date: 14/6/19
Due Date: 28/6/19Under Certificate of posting

To:

Dear Sirs,

1. Quotations are invited in duplicate for the various items shown below/overleaf/enclosed list.
2. The Quotations duly sealed and superscribed on the envelope with the reference no. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above.
3. The Quotations should be valid for sixty days from the due date and period of delivery required should also be clearly indicated.
4. If the item is under DGS & D Rate contract, Rate Contract Number and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate Contract price. If so, please send copy of the R.C. (Please note that we are not Direct Demanding Officers).
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable.
6. Local Firms: Quotations should be for free delivery to this Institute. If Quotations are for Ex-Godown, delivery charges should be indicated separately.
7. Firms outside Chennai: Quotations should be F.O.R Chennai. If F.O.R consignor station, freight charge by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of Sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have Concessional Sales Tax applicable to non-Government Educational Institutions run with no profit motive for which a commission Sales Tax certificates will be issued at the time of final settlement of the bill.
9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. Payment: Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later.

Specification enclosed and quotation to be sent to the below address:

*Dr. Amitava DasGupta
 Professor,
 Department of Electrical Engineering,
 Indian Institute of Technology, Madras,
 Chennai – 600 036.*

Yours faithfully,

Amitava DasGupta
 HEAD / Project Co-Ordinator

Technical Specifications for Installation of MS Powder coated Class 100

Fumehood (1no)

It is proposed to install a "Fume hood" inside Bio-MEMS lab area of our lab as shown in the following figure 1. The complete work will involve design, fabrication and installation of fumehood, exhaust system (ducting and blower) inside the lab and roof with suitable dampers and flexible duct, fresh air inlet system (ducting and filter), electrical and plumbing as per our required specifications.

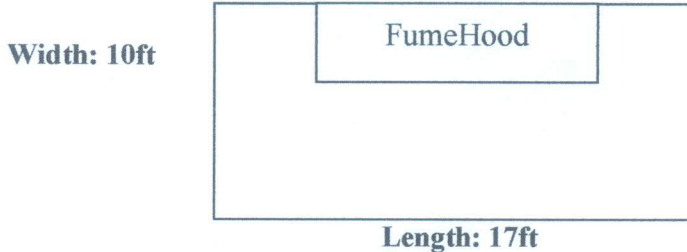


Figure 1. Layout of Room

The specifications are as below.

Construction

- Double wall construction should be made of Made of CRCA 18G Epoxy Powder Coated.
- Mounting Stand should be M. S square powder coated.
- All materials should be selected for application in the most demanding conditions and should be semi- clean room compatible.
- Sash should be made of 6 mm thick toughened glass. Vertical rising sash counter-balanced with pulley and counterweight system
- Overall Dimensions - 1220mm L x 1000mmD x 2300mm H

Worktop

- Worktop should be made of 1.6 mm thick made of SS304 grade.

Fan Filter Unit

- To provide clean air inside the wet bench, Fan Filter module with HEPA filters should be used. These FFM's should be self-powered grid module with modular design, to fitting in standard T grid ceiling. Total height should be 320mm. The Fan Filter Module should be UL listed and CE certified. FFU speed should vary from 0.2 to .5m/s and air flow rate should vary from 460-760 CFM. The sound level should be less than 55dBs when measured from 760mm below from filter face. The vibration level should be less than 0.9mils.

Amitan Singh

- Non-washable pre-filters made of polyurethane foam with arresting capacity Of 30 μ should be provided.
- The HEPA filters should be rated 99.995% and should be efficient in removing 0.3 μ or larger particles. Leak free in accordance with latest I.E.S recommended particle. The filter media should be micro glass fiber with poly-string separator, sealed to casing. The filter guard should be provided with diamond pattern expanded sheet for protection.
- The Fan motor drive should be direct drive, forward curve centrifugal type with sealed bearing. The motor should be permanent split capacitor type, rated for continuous operation with thermal overload protection with two speed switch. The power requirement is 230V, 50Hz single phase with maximum current of 1.9A with 280watts power input.
- The fan/motor assembly should be capable of delivering air at filter pressure of 9mm to 23mm final state. These FFM should have a speed controller for increasing the speed of the motor/blower from low, medium and high.

Lighting

- Fluorescent Lamp or UV Lamp to be provided.
- Fluorescent light (minimum -40Watt, 2 nos) with vapor-proof fitting for proper illumination.
- Intensity should be approximately 400lux at worktop level.

Exhaust Port

- Exhaust port Exhaust port design should be provided and to be ensured that the fumes will be exhausted smoothly without any turbulence at the exhaust port

Dry services

- 1 off Vacuum, 1 LPG and 1 N2 line should be provided on the worktop.

Electrical

- For circuit protection miniature circuit breakers (MCB) should be provided. There should be 4 nos. of 15amps socket and switches provided on front of the station on either side

Magnehelic Gauge

- Magnehelic gauge of 50mm of water column capacity should be provided to measure the differential pressure at the exhaust plenum box in fume hood.

Anil Kumar Gupta

Exhaust Requirements

- The blower should be placed at the terrace of the building (building height 20 feet). Exhaust Blower capacity: 900cfm
- PP Damper at the exhaust line main near the blower
- The blower should be noise and vibration free.
- Blower should be installed properly and electrical connection to be provided with suitable starter.
- Blower Output should be properly designed for exhaust.
- Blower outlet should be connected with lengthy ducting with suitable bends and supports(Approx – 10 feet vertical and bend)
- Ducting FRP PVC with VCD- Approximately 35RMT each with Dia. 250mm for the fume hood with damper for fumehood and Dia. 500mm (35RMT) for main piping from bench to blower.

Note:

- Proof of experience for the above mentioned work to be provided as a supporting document.

Anita Singh