Tender for creating a class 10,000 Clean-room environment:

IISER Mohali is inviting tenders for procuring and installation of equipment to create a class 10,000 clean room environment with manual processing equipment like wet benches and fume hoods. The room will be for fabricating nano-scale electronic devices. The appropriate site preparation and installation must also be done by the vendor. Vendors are also encouraged to do a site visit. The bids are invited in 3 part system
(i) Technical specifications
(ii) Financial bid
(iii) Please provide an Earnest Money deposit of Rs. 90,000 in favour of Registrar, IISER Mohali.
All three parts must be sealed separately in labeled envelopes and sealed in a large envelope.
All vendors are required to give references for similar projects with contact details. Vendor must have done at-least three class 10,000 or better (say class 1000) clean-rooms for reputed Government Institutes or labs or well known semi-conductor industries. Vendors must also give a list of clean-room projects undertaken in last 5 years. Please e-mail details of references with contact info to Dr Ananth Venkatesan (v_ananth@rocketmail.com and ananthv@iisermohali.ac.in) Delay in receiving information from references can also result in disqualification. Please address any clarifications in the tender to the same e-mail id. Auto-Cad drawings of the same rooms may be provided on request by mailing to v_ananth@rocketmail.com

Please send bids to reach as specified by stores and purchase and addressed to
The Stores & Purchase Officer,
IISER Mohali,
Knowledge city,
Sector 81,
SAS Nagar, Manauli PO 140306

Please use speed post ahead of time to reach us by 4.00 p.m on the date mentioned. Some Couriers may cause delay to our address please double check before using any courier. Technical bids will be opened in presence of any bidders who may be present. Note : Please refer to drawing attached and commercial terms from stores when trying to read this document

Evaluation scheme:
(i) All vendors who qualify the technical bid will be considered. (the technical qualification will also be based on feedback from customers. IISER may choose to get this feedback by phone or mail and will not share these information). If we are unable to collect any feedback within 1 week after the tender we reserve the right not to consider your company.
(ii) Time undertaken to complete the project.
The time scale will be given 50 % weight, the cost 50% weight-age. The qualified vendor with the shortest quoted time scale will be given 50% and the vendor with the lowest price will be given 50% for the price bid. Kindly note the 10% LD

clause will be implemented strictly hence do not give unrealistic estimates of time.
Note: Please provide cost of major units like fume hood separately in financial bid. This will help us decide on having these units or going for 3rd party items if expensive.
Please refer to additional commercial terms in documents provided by Stores & Purchase officer. Please give technical compliance chart on the following items with reference to item number. : General
G1) A layout of the room is given. The red outlines are brick walls. The green walls are partitions to be created by vendor. The two small rooms and the large room are to be made class 10,000. (Room I , IV and V in drawing) The outer area is a service area and can be made class 100,000 (area labeled Room II) Room II needs appropriate partitions with faculty platform area to include facilities like air shower , garment storage area etc.
G2) The room is to be maintained at 21 deg C. (Stability by +/- 1 deg C is important) considering 12 users are working in this room. The dissipation from equipment in the main room will be ~ 2 KW. The dissipation in the small rooms will be around 2 KW each without including the wet benches and fume hoods. Kindly note this must be year round in Mohali where the lowest temp may be 0 deg C and highest around 48 deg C.
G3) The area labeled Faculty platform can be used for HVAC equipment. The vendor should make appropriate partitions.
G4) The humidity in the room must range from 30-40 % . Hygrometers must be placed in every room.
G5) Magnahelic pressure gauges must be provided at appropriate points to monitor differential flow.
G6) Exhaust points must be placed on the central service area after the corridor or on the faculty platform with additional ducts.

G7) All Filters must be removable and replaceable from inside the room without disturbing the equipment. The areas marked in orange should particularly be avoided to avoid moving sensitive equipment like electron microscopes.
G8) Any AC required for service area must also be provided by vendor. Cooling and heating for the class 10,000 areas must be via the Air Handling Unit.

General Construction

GC1) Flooring
Provide self leveling epoxy flooring (at-least 3 coats) . The epoxy must be dissipative and antistatic. The flooring must be laid on top of existing vitrified tiles.
GC2) Walls
The walls marked green indicate where the vendor must make his own partitions. The existing brick walls have ordinary paint and tiles. These must also be covered with clean-room compatible materials. Powder coated GI PUF GI or SS PUF SS sandwich panels or clean room compatible aluminium alloys filled with PUF. The walls must be 4 inches thick or greater must be used to make the walls marked in green. These walls must be supported on C-type channels grouted to the floor.

The walls where there are already brick walls must be covered with at-least 2 inch powder coated GI PUF GI sandwich panel walls. All existing doors will be removed. The vendor must provide doors that (open outside) for the small rooms.
All the walls must have appropriate curved covings at places where they meet the floor or ceiling.
GC3) Doors:
All the existing doors which are not cleanroom compatible indicated in the drawing will be removed. (except the main door outside) The vendor must provide doors that open outwards for the two small rooms. Vendor must also provide a door in the service area closest to the gowning area to be able to expand into the area on the right in future. Three large service doors (5 feet wide (1.5 m wide ateast) and 2.1 m height must be provided. The doors are to be in the yellow area marked as safety door not part of cleanroom and side of the class 100,000 service areas and class 10,000 areas. Doors must open outside preferably and can be made of two leaves.
GC3) False Ceiling
The vendor must also provide a false ceiling so that the reduced ceiling height is not lower than 2.4 m. The lowest beam height is 2.85 m in the room and the ceiling around 3.41 m. The frame work for the false ceiling is also in the scope of supply of the vendor. All site preparation work like metal support frames are within the scope of vendor's supply.
GC4) Lighting
LED lighting or tube lights mounted on reflecting panels covered with removable UV filtering Yellow plastic slides must be provided.
GC5) Windows
4 double glazed windows 1x 2m must be provided on the outer wall of the service area as well as a second set conformal to the inner wall defining the class 10,000 room.
GC6) Utility feed-throughs
Small removable panels 1x 2 feet 10 units must be provided all around the rooms . These panels should be removable to drill holes for utilities like water. Appropriately holes must be provided for all existing utilities like cooling water, vacuum etc.
GC7) Electrical plug points:
A set of 20 electrical points (15 A and 30 A) must be provided via appropriate feed through. The sources for these points may be from UPS units in the service area or direct lines already present in the room or Faculty platform area.
A vertical Laminar flow wet bench of class 100
wb1) Approx 2.3 m long, 0.9 to 1m deep and 1.5 high working areas
wb2) Wet bench must be made of Polypropylene. The bench must be capable of handling solvents like Acetone, Ethyl -lactate, toluene, N-methyl Pyrolidone, Isopropanol, methanol and possibly chlorinated solvents like chlorobenzene etc. Various resists will be processed in this bench and some bases like KOH and TMAH.
wb3) Water flow must be provided below the top are a ppf bench. The flow must be regulated by a tap. The top part of the bench must be removable to salvage samples that may fall through the holes.

wb4) A spin coater provided by IISER (Brewer Science CE-200X must be mounted on the wet bench). Design of spin coater can be provided at time of order.
wb5) One sink with tap for building water (Size of Sink ~ 2 feet deep ~2 feet wide and ~ 2 feet long
made of polypropylene.
wb6) Two filtered pressurized nitrogen blow guns on both ends of wet bench.
wb7) Power strips three 15 Amp units on each end for hot plates ovens
wb8) UV-free yellow lighting
wb9) Magnahelic pressure gauges to monitor the system
wb10) Indicators to show failure of fans, filters and other critical parts must be given.
wb11) A set of PTFE drying /storage rack for 20 glass ware.
wb12) UPS for wet bench with 30 mins backup.
wb13) A scrubber must be installed at the roof top for the wet bench.
NOTE2: Please provide cost of Fumehood and Wet bench separately in financial bid . In case we find several vendors are not able to offer to our requirements we may choose to have a 3rd party hood or wet bench
FUME HOOD.
FH1) Approx 2m long working area 0.9 deep and ~ 1.5 m height area)
FH1) The fume hood must be made of Polypropylene or PTFE. All interiors, piping, ducts, fans and exhausts must also be plastics like Polypylene suitable to handle HF (Hydro-fluoric Acid) and other corrosive acids and bases. Any critical area that will get exposed to acids like HF must be compatible with HF.
FH2) Fume hood should have 2 hours UPS back-up. Please provide cost of UPS with 5 year warranty (separately in financial bid) We may choose to install our own UPS for cost as well as service reasons. FH3) One large sink with tap water supply water (Size of Sink ~ 2 feet deep ~2 feet wide and ~ 2 feet long) made of polypropylene. Work area of fume hood should preferrably have ~ 5 deg slope towards sink for easy wash down)
FH3) Two filtered pressurized nitrogen blow guns.
FH4) Electrical outlets for equipment like hotplates and ovens.
FH5) Clear Plexi -glass or polycarbonate sash.
FH6) The fume hood must have automatic variable flow that adjusts with sash height to save power and minimize load on HVAC.
FH6) Alarm to indicate sash level (option to turn of alarm for sash level if servicing or working with non- toxic substances.)
FH7) Alarms to indicate failure of critical parts like exhausts.
FH8) KOH scrubber at the level of the room followed by activated charcoal scrubbers at the top of the roof.
FH9) Feethroughs for vacuum, water and nitrogen gas.
FH10) One PTFE glassware drying rack for 20 beakers
FH12) One Acid and base storage compartments below the fume hood.
NOTE 1: If you have not provided polypropylene fume hoods for handling HF kindly provide a 3rd party vendor item (e.g ESCO Global FUME HOODS or equivalent.)
NOTE2: Please provide cost of Fumehood and Wet bench separately in financial bid . In case we find several vendors are not able to offer to our requirements we may choose to have a 3rd party hood or wet bench

DI WATER supply:
Note Fume hood in room (iv) and Wet bench (room v) must face each other on the wall with sinks on same side to share a water DI water plant.
D1)A DI water unit (supplied by IISER) must be installed near the fume-hood . All the extendable brackets must be attached to the brick wall followed by sealing of the PUF panel or partition appropriately.
D2) A hole should be provided to get the DI water supply via a remote gun to the wet bench on the opposite wall.

Laminar flow bench
LF1 A vertical flow laminar flow bench area (4ftx2ft work area) providing a class 100 environment for dry processing and storage.
LF2 Alarms or Indicators to indicate filter changes, failure of motors etc.
Other facilities:
O1) Air shower entry:
The garment change area must have an air shower entry to let one person at a time
02) Garment storage Rack
A garment storage rack outside the air shower area to hand 30 cleanroom garments.
O3) A Garment Storage Cupboard:
A cupboard to keep 50 additional garments and supplies like gloves.
Note : If providing garment rack and cupboard with ventilation and filters please provide cost for non vented simple storage version also.
O4) Glove dispensers.
Polycarbonate glove dispensers for 3 different sizes in air shower area.
O5) One pass box in service area
Provide these as options with cost indicated separately in financial bid.
O6) Explosion proof vented solvent storage cabinet (4 feet height , 2 feet deep and 4 feet long with 2 shelves)
O8) Vented storage cabinet for ACIDS and bases separately similar dimensions to solvents cabinet.
O7) Set of antistatic clean room cover-alls including shoe cover upto calf, head cover and body suite) 10 pcs Medium, 15 large , 10 extra large ,5 small provide all boot covers as large and extra large. Installation, Warranty, Spares etc
w1)The vendor must install the setup and provide a comprehensive test. All parameters like particle count , humidity, temperature etc must be demonstrated.
w2) The vendor must provide warranty for first three years with tests every six months and change filters if necessary for first three years. IISER also has a particle counting system that will be used and reported for servicing if the performance is below class 10,000 standards.
W3) One set of filters to be procured and stored for installation beyond 3 years.
W4) Training must be provided to select users from IISER to maintain the clean-room ,
W5) Please list all 3rd party equipment with brand, model etc. Provide manuals for all such equipment. W6) Please note order must be executed after approval of drawings.

Other Accessories

A1) Clean room wipes (2000 pcs)

A2) Disposable bouffant caps & beard covers 2000 pcs

A3) Antistatic clean room compatible furniture (8 revolving stools with castors and hydraulic lift

3 revolving chairs with back rest and hydraulic lift.)

A4) A rustproof stainless steel oven drying glass ware (approx 1 feet depth , 3 feet wide with two shelves 0.5 feet height for each shelf.

A5) A vented oven (50 deg C to 300 deg C) 1 deg accuracy with PID controls and exhaust connected to wet bench duct)

A6) Spill kit for solvent and acid spills.

A9) If you suggest any other consumables are required to maintain the clean-room environment please list them and quote them