

	<p style="text-align: center;">INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai 600 036</p> <p style="text-align: center;">Telephone: [044] 2257 9798/9723 E-mail: arpp@iitm.ac.in</p>	
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V. Sathyanarayanan
Senior Manager (Project Purchase)

Ref : PHY/JKRT/035/2019
Date: 09/04/2019

Open Tender No: PHY/JKRT/035/2019

Due Date: 30 April 2019, 3pm

Pre-bid meeting date : 24 April 3pm

*The potential bidders can visit the laboratory space for pipe line installation during morning time of the pre-bid date or any other time with prior appointment.

Technical Bid opening meeting on : 30 April 2019, 4:00 PM at Department of Physics, IIT-Madras.

****The bidders complying with technical specifications have to make a presentation before a select committee to explain the quality control and compliance of safety protocol.**

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, offers are invited for the supply of **"Design and Installation of Gas Distribution System"** conforming to the specifications given in Annexure I.

Instructions to the Bidder

- I. Preparation of Bids:** - The tenders should be submitted under two-bid system (i.e.) Technical bid and Financial bid.
- II. Delivery of the tender:** - The tender shall be sent to the addresses mentioned below, either by post or by courier so as to reach our office before the due date and time specified in our schedule. The offer/bid can also be dropped in the tender box on or before the due date and time specified in the schedule.
The tender box is kept in the office of the:

**Senior Manager,
Project Purchase,
IC & SR Building 2nd floor,
I.I.T. Madras,
Chennai - 600 036.**

- III. Opening of the tender:** - The offer/bids will be opened by a committee duly constituted for this purpose. The technical bids will be opened first and will be examined by a technical committee which will decide the suitability of the bids as per our specifications and requirements. All bidders will be invited for opening of the technical bids. With respect to opening the financial bid, only technically qualified bidders will be called.
- IV. Prices:** - The price should be quoted in net per unit (after breakup) and must include all packing and delivery charges to the **Department of Physics**. The offer/bid should be exclusive of taxes and duties. The percentage of tax & duties should be clearly indicated separately. Kindly note that IIT Madras is eligible for concessional GST and relevant certificate will be issued.
- In case of import supply, the price should be quoted without custom duty. IIT Madras is exempted from levy of IGST on Imports and eligible for concessional custom duty (not exceeding 5%) and the price should be quoted on EX-WORKS and CIP basis indicating the mode of shipment.
- V. Agency Commission:** - Agency commission, if any, will be paid to the Indian agents in rupees after receipt of the equipment and its satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The details should be explicitly shown in the tender document even in the case of 'Nil' commission. The tenderer should indicate the percentage of agency commission to be paid to the Indian agent. The foreign Principal should indicate the percentage of payment and it should be included in the basic price quoted originally (if any)..
- VI. Terms of Delivery:** - The item should be supplied to the **Department of Physics, IIT Madras** as per the Purchase Order. In case of import supply, the item should be delivered at the cost of the supplier to our Institution. The Installation/Commissioning should be completed as specified in our important conditions.
- VII. Technical Bid Opening:** The technical bid will be on **30th April, 2019, 4pm** at the **Department of Physics, IIT-Madras**. The financial bids of those tenders who are technically qualified will be opened at a later date under intimation to them.
- VIII. IIT Madras** reserves the full right to accept / reject any tender at any stage without assigning any reason.

Yours sincerely,

V. Sathyanarayanan
Senior Manager (Project Purchase)
IC&SR Building, I.I.T. Madras, Chennai – 600 036.

SCHEDULE

Important Conditions of the tender

1. The due date for the submission of the tender is **30 April 2019, 3 pm.**

The offers / bids should be submitted in two bids systems (i.e.) Technical bid and financial bid. The Technical bid should consist of all technical details / specifications only. The Financial bid should indicate item-wise price for each item and it should contain all Commercial Terms and Conditions including Taxes, transportation, packing & forwarding, installation, guarantee, payment terms, pricing terms etc. The Technical bid and financial bid should be put in separate covers and sealed. Both the sealed covers should be put in a bigger cover. The Open Tender for supply of "**Design and Installation of Gas Distribution System**" should be written on the left side of the Outer bigger cover and sealed.

2. **EMD: - The EMD in the form of account payee DD for 2% value of the item in favor of The Registrar – IIT Madras, payable at Chennai should be enclosed in the cover containing financial bid.** Any offer not accompanied with the EMD shall be rejected summarily as non-responsive.

The EMD of the unsuccessful bidders shall be returned within 30 days of the end of the bid validity period. The same shall be forfeited, if the tenderers withdraw their offer after the opening during the bid validity period. The Institute shall not be liable for payment of any interest on EMD. EMD is exempted for Micro and Small Enterprises (MSE) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME).

3. **Performance Security: -** The successful bidder should submit Performance Security for an amount of 5% of the value of the contract/supply. The Performance Security may be furnished in the form of an Account Payee DD, FD Receipt from the commercial bank, Bank Guarantee from any nationalized bank in India. **The performance security should be furnished within 21 days from the delivery of the purchase order.**

Performance Security in the form of Bank Guarantee:- In case the successful bidder wishes to submit Performance Security in the form of Bank Guarantee, the Bank Guarantee should be routed through the Beneficiary Bank to the end user bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee from a Nationalized Bank of India.

The Bank Guarantee should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including the warranty obligations.

4. **Indian agent:** If an Indian agent is involved, the following documents must be enclosed: Foreign principal's proforma invoice indicating the commission payable to the Indian Agent and nature of after-sales service to be rendered by the Indian Agent.

- ✓ Copy of the agency agreement with the foreign principal and the precise relationship between them and their mutual interest in the business.
5. The offer/bids should be sent only for a machine that is available in the market and supplied to a number of customers. A list of customers in India and abroad with details must accompany the quotations. Quotations for a prototype machine will not be accepted.
 6. Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the Technical bid.
 7. Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal.
 8. **Validity:** Validity of Quotation not less than 90 days from the due date of tender.
 9. **Delivery Schedule:** - The tenderer should indicate clearly the time required for delivery of the item (subjected to the executive committee-IITMdras approval). In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.
If there is delay, the penalty will be @1% per week of delay subject to a max of 10% of the value of purchase order and if the delay is more than accepted time frame by IITM, the PO would be cancelled and liquidated damages will be enforced.
 10. **Risk Purchase Clause:-** In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.
 11. **Payment:-**
 - (i) No Advance payment will be made for Indigenous purchase. However 90% Payment against Delivery and 10% after installation are agreed to wherever the installation is involved. In case of import supplies the payment will be made only through 100% Letter of Credit i.e. (90% payment will be released against shipping documents and 10% after successful installation wherever the installation is being done).
 - (ii) **Advance Payment:** No advance payment is generally admissible. In case of specific percentage of advance payment is required, the Foreign Vendor has to submit a Bank Guarantee equal to the amount of advance payment and it should be routed through the Beneficiary Bank to the end user Bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee through a Nationalized Bank of India.

12. **Warranty/Guarantee:** - The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately (For more details please refer our Technical Specifications).
13. **Late offer:** - The offers received after the due date and time will not be considered. The Institute shall not be responsible for the late receipt of Tender on account of Postal, Courier or any other delay.
14. **Acceptance and Rejection:** - I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.
15. **Do not quote the optional items or additional items unless otherwise mentioned in the Tender documents / Specifications.**

16. Disputes and Jurisdiction:

Settlement of Disputes: Any dispute, controversy or claim arising out of or in connection with this PO including any question regarding its existence, validity, breach or termination, shall in the first instance be attempted to be resolved amicably by both the Parties. If attempts for such amicable resolution fails or no decision is reached within 30 days whichever is earlier, then such disputes shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996. Unless the Parties agree on a sole arbitrator, within 30 days from the receipt of a written request by one Party from the other Party to so agree, the arbitral panel shall comprise of three arbitrators. In that event, the supplier will nominate one arbitrator and the Project Coordinator of IITM shall nominate one arbitrator. The Dean IC&SR will nominate the Presiding Arbitrator of the arbitral tribunal. The arbitration proceeding shall be carried out in English language. The cost of arbitration and fees of the arbitrator(s) shall be shared equally by the Parties. The seat of arbitration shall be at IC&SR IIT Madras, Chennai.

- a. **The Applicable Law:** This Purchase Order shall be construed, Interpreted and governed by the Laws of India, Court at Chennai shall have exclusive jurisdiction subject to the arbitration clause.
- b. Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.

18. All Amendments, time extension, clarifications etc., will be uploaded on the website only and will not be published in newspapers. Bidders should regularly visit the above website to keep themselves updated. No extension in the bid due date/ time shall be considered on account of delay in receipt of any document by mail.

Acknowledgement: - It is hereby acknowledged that the tenderer has gone through all the conditions mentioned above and agrees to abide by them.

SIGNATURE OF TENDERER ALONG WITH SEAL OF THE COMPANY WITH DATE

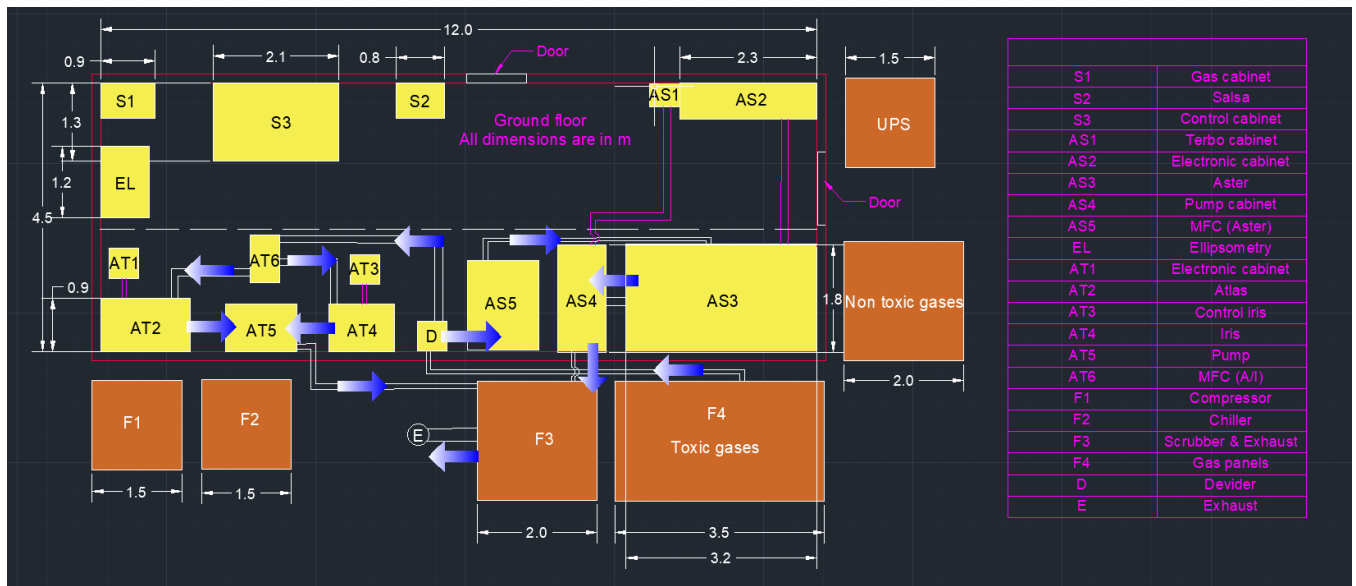
ANNEXURE I

Technical Specifications for Design and Installation of Gas Distribution System

It is proposed to Design and Install a High Value Gas Distribution System for the delivery of Toxic, Inflammable and Inert gases (SiH₄, H₂, PH₃, CH₄, NH₃, TMB, GeH₄, General N₂, He+N₂, Ar, and CO₂) for Deposition equipment like, multi chamber PECVD CVD and sputtering system. Gas Supply Panels, EP and BA SS316L tubing, Coaxial SS tubing, Coaxial Pressure Switch Assembly and Exhaust Ducting are required for the same. The design should also include with SCADA and PLC based automated monitoring and control of Gas Supply with emergency shutoff procedures in case of leaks. Following installation, need to be Tested and Validated for Pressure hold test, for 24 hours, Helium Leak, upto 1×10^{-9} He mBar lit/sec, Trace Moisture, tested upto 10 ppb impurities, Trace Oxygen, tested upto 10 ppb and Particles, upto 0.1 micron level. A brief description of requirements is given below. The floor plan with intended gas line connections is illustrated*.

Note- Quantities of the item given bellow are approximate, it can be less or more according to the deign requirement. Bidder can come up with their own design for the gas distribution system. Actual billing would be based on actual consumed quantities. Thus, the bidder should quote a total price based on quantity given in the table along with per unit price of these items.

*Ground floor plan with the directions of gas line connections



S.No	Description	Specification	Quantity
Supply of equipment for gas deliver			
1.	Semi-automatic gas cabinets (including gas panel) for SiH ₄ , PH ₃ , TMB, GeH ₄ , CH ₄ , NH ₃ , and H ₂	SEMI-S2 Approved and certified by TUV/BV/ATEX/ equivalent gas cabinet of third party	No of cabinets can be chosen based on gases compatibility

2.	Single cylinder gas supply panel for 5% He+95% N2	SEMI Compliant	1 Nos
3.	Gas supply panel for H2, CO2, and Ar with 3 outlets	SEMI Compliant	3 Nos
4.	3 outlet stick, manual valve manifold boxes (VMB) for SiH4	SEMI Compliant	1 Nos
5.	High pressure (150 Bar) single cylinder gas panel for gas cabinets panel pressure testing and purging	SEMI Compliant	1 Nos
6.	Pressure regulators, size 1/4" NPT end	SS 316L	3 Nos
7.	Diaphragm valves, 1/4" compression end	SS 316L	3 Nos
8.	Ball valves, 1/4" compression end	SS 316L	3 Nos
Tube lines for gas delivery from source to point of use (Note- tube length given bellow is approximate, it can be less or more according to the deign requirement.)			
9.	Coaxial tube for toxic gases, size 1/2" X 1/4", thickness of inner tube wall 0.35" for SiH4, PH3, GEH4, NH3 and TMB	SS 316L EP	90 MTR
10.	Tube, size 1/2", tube wall thickness 0.49" for ultra-pure gases (Purity 99.9999 %)	SS 316L EP	50 MTR
11.	Tube, size 1/4", tube wall thickness 0.35" for ultra-pure gases (Purity 99.9999 %)	SS 316L EP	120 MTR
12.	Tube, size 1/2", tube wall thickness 0.49" for Ar, CO2, and N2	SS 316L BA	60 MTR
13.	Tube, size 1/4", tube wall thickness 0.35" for Ar, CO2, and N2	SS 316L BA	90 MTR
14.	Point of use gas sticks for high pressure inert gases	SS 316L	8 Nos
15.	Gas tube fitting, MOC (includes glands, gaskets, male and female, nuts, tee points, reducers, fitting for tubes like tee, terminators, sleeves, etc.)	SS 316L EP	1 Lot
Safety system			
16.	PLC based central control panel with PC and SCADA	Should have AI/AO cards, SMPS and communicate with all the gas delivery equipment's, GLD's and other field instruments	1 Set
17.	Gas leak detector for SiH4, PH3, TMB, H2, GeH4, CH3, and NH3	Should be installed in each gas cabinet, gas cabinet room, gas divider, MFC cabinets, process room, pump cabinets	1 Lot
18.	Signal cables for GLD's, field instruments and gas delivery equipment's		1 Lot
19.	Manual call point/emergency push bottoms and alarm hooters. In addition, emergency push switch for electrical lines only		1 Lot

20.	Pressure switch for all the lines with vacuum contact gauges. Signal from switches must be interlocked with PLC system to take proper shut-off action during emergency		8 Nos
21.	UVIR sensor	In the SiH ₄ gas cabinet and VMB's or MFC cabinet	2 Nos
Scrubber and exhaust system (Note- size and quantity of exhaust ducts and dumpers are approximate; it can be less or more according to the design requirement.)			
22.	Gas scrubber to treat vent lines of toxic gas panels	Dry based	1 Nos
23.	8" exhaust duct made of 2 mm thick with elbows, tees, flanges, and other fittings	SS 304	20 RM
24.	6" exhaust duct made of 2 mm thick with elbows, tees, flanges, and other fittings	SS 304	20 RM
25.	4" exhaust duct made of 2 mm thick with elbows, tees, flanges, and other fittings	SS 304	20 RM
26.	2 2/3" exhaust duct made of 2 mm thick with elbows, tees, flanges, and other fittings	SS 304	15 RM
27.	Exhaust dampers/Butterfly valves- size 2"	SS 304	4 Nos
28.	Exhaust dampers/Butterfly valves- size 4"	SS 304	4 Nos
29.	Exhaust dampers/Butterfly valves- size 6"	SS 304	2 Nos
30.	Exhaust dampers/Butterfly valves- size 8"	SS 304	2 Nos
31.	Flexible bellows for equipment isolation of respective size, 4", 3", 2", and 8"		8 Nos
32.	Exhaust blower, capacity at least 3000 CFM, static pressure of 30 MM WC with exhaust stack, different pressure gauge, flow detector, and auto switch over in emergency condition.	SS (one is the main exhaust and the other as the backup.)	2 Nos
33.	Tube clamps	MOC SS with PVC/PP inserts	400 Nos
34.	Unistruts for support structure		1 Lot
35.	Cylinder holding structure with cylinder strap	MS with powder coated	3 Nos
36.	Cable tray/conduits for single cables, anchor bolts, nuts etc.		1 Lot
Scope			
37.	Installation of all gas delivery equipment's, scrubbers etc.		1 Lot
38.	Installation of ultra-high pressure gas lines using orbital welding technology		1 Lot
39.	Installation of gas leak detectors, complete safety system with cable, cable trays, and control panel		1 Lot
40.	Installation of electrical cables and cable connection to equipment's		1 Lot
41.	Installation of exhaust duct and blower with support structure and clamps		1 Lot
42.	Pressure hold test for gas lines and gas delivery equipment's at site	Certified upto 1.5 times of the working pressure by keeping the system under	15 Loops

		pressure using ultra high pure N2 for 24 hours without drop in pressure	
43.	He leak test for gas line	Certified upto the leak rate of 1×10^{-9} He mBar lit./sec.	13 Loops
44.	Trace oxygen analysis inside the gas delivery tube lines	Certified upto 10 ppb level of impurity	13 Loops
45.	Trace moisture analysis inside the gas delivery tube lines	Certified upto 10 ppb level of impurity	13 Loops
46.	Particle count analysis inside gas delivery tube lines	Certified upto the particle size of 0.1 micron	13 Loops
47.	The exhaust connection should be from tools to pump and pumps to scrubber and exhaust	Part of scope for vendor to include	

Specifications of Major Items:

The bidder must include all required information in the Technical Bid.

S. No	Details
1	<p><u>Safety and Automation:</u></p> <ul style="list-style-type: none"> • The primary focus of this project should be on the Safety aspects. • The safety interlocks, auto-shut off systems etc. should be of the highest standard, and should be clearly specified in the P&ID of the design. • The design should also include modification of SCADA and modification of PLC based automated monitoring and control of Gas Supply with automated emergency shutoff procedures. • The PLC Cause-Effect logic should be provided for the entire system.
2	<p><u>Gas Leak Detectors for Toxic, Corrosive, Flammable gases:</u></p> <ul style="list-style-type: none"> • Gas leak detectors should take continuous sample via pump installed inside detectors. • The output will have Visual Alarm, Power and Fault lights as well as back lit LCD with all gas readings and events. • The sample Flow Rate will be 500 ml / min and Transport Time shall be 2 to 30 sec maximum. • The Cartridge will come with calibration certificate.
3	<p><u>Testing and Validation:</u></p> <p>It is required to do the complete testing and validation of the installed system. The system should be tested and validated for the following.</p> <ul style="list-style-type: none"> • Pressure – 24hrs hold test. The entire installation shall be validated for Pressure Decay test as per ASME standards. • Helium Leak – minimum 1×10^{-9} mbar He Lit/sec. Helium leak testing shall be carried out with dry vacuum pump having leak detection capability up to 1×10^{-11} mbar He Lit/sec. • Trace Moisture – Less than 10 ppb of impurity. This will be conducted at all hook-up points using analytical equipment having capability to measure as low as 500

	<p>ppb moisture. Bidder to provide evidence of having done these tests in the previous installations. Test certificates and data sheet of analytical instruments used for the same should be provided along with latest calibration certificate.</p> <ul style="list-style-type: none"> • Trace Oxygen – Less than 10 ppb of impurity. This will be conducted at all hook-up points using analytical equipment having capability to measure as low as 500 ppb Oxygen. Bidder to provide evidence of having done these tests in the previous installations. Test certificates and data sheet of analytical instruments used for the same should be provided along with latest calibration certificate. • Particles – 0.1micron and above. Post Trace Oxygen and Trace Moisture analysis, all the Gas lines will be tested for particle contamination before charging the Process Gas. Particle counter shall have capability of measuring particle size as low as 0.1 micron using High Pressure Diffusion Device. Bidder to provide evidence of having done these tests in the previous installations. Test certificates and data sheet of analytical instruments used for the same should be provided along with latest calibration certificate. • Bidder must have own or rented Analyzers to carry out the above tests and validations. A third party can be used for the testing and validation of the system at the bidder’s expense, provided they satisfy the above criterion.
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Bid Evaluation Criteria

The bidder must include their statement and proof of compliance for the below in the Technical Bid.

S.No	Details
1.	Should have installed gas distribution system involving Toxic and Hazardous gases like Silane, methane Germane, Ammonia, and Hydrogen using co-axial SS 316L EP tubing for IITs/similar institutes/universities or reputed Government R&D centers or Private Industries.
2.	Must have own or rented analyzers to measure trace oxygen (min 10 ppb), trace moisture (min 10 ppb) and sub-micron particles (min 0.1 micron) before commissioning the pipe lines.
3.	Must have stainless steel clean room compatible tools for handling components in the project.
4.	Vendor must have high radius benders approved for semiconductor gas piping.
5.	Must have used Ultra High Purity Argon purifier with impurities of oxygen less than 100 ppb, moisture less than 100 ppb, total hydrocarbons less than 100 ppb. During installation vendor must use purifiers to achieve the purity level of welding gas.
6.	People must be trained to do the validation.
7.	Should have experience and demonstrated design capability for safe Gas Distribution System.
8.	Should be well versed to use instruments like pressure switch, gas leak detectors, pressure transducers and vacuum venturis.
9.	The vendor shall have understanding of JSA (Job Safety Analysis), MAPP (Major Accident Prevention Plan) and PSR (Pre Start up safety review) for effective project implementation.
10.	The vendor must have done 3 similar projects in nature for customers in semiconductor manufacturing involving gases like SIH4, PH3, GEH4, NH3
11.	Vendor must have implemented SCADA/Gas Management software involving emergency responses and shut down procedures using Cause Effect Logic duly approved by Safety Engineer.
12.	Bidder to submit the cause effect matrix for the proposed equipment’s in line with Gas Hazard.

13.	Vendor must have trained team to service trouble shoot Gas Cabinet, VMB, PLC programming and associated equipment. Necessary evidence from existing customers in India for having supported Gas Cabinets Maintenance and Troubleshooting should be enclosed. Vendor must submit letter from customers confirming that similar gas cabinets (similar makes of gas cabinets) are installed by vendor and the system is running successfully since last 3 years minimum and satisfactory service support is been provided by vendor.
14.	Vendor should demonstrate capability and experience of installation of Gas cabinet, VMB, Abatement equipment, VMP for Ultra High Purity gases with references from at-least 3 customers
15.	Must provide training to operate gas cabinets and other equipment to run the facility safely. Training must be provided by OEM only.
16.	Vendor must provide authorization certificate from the Principal.
17.	Customer feedback letters indicating the quality of work and satisfactorily working of gas cabinets from at least 3 customers in India
18.	List of customers, projects done with contact address, phone number, and email etc., Necessary site visit to any of the projects mentioned in your reference may be conducted at our discretion and accordingly Technical capability rating will be given to bidders.

List of approved OEM's for various components, equipment's required in the Project

S. No	Description of Components / Equipment	Makes (or equivalent), TUV/BV/ATEX/SEMI certified, for equipments listed 1 to 7 below
1.	Gas Cabinets	<ol style="list-style-type: none"> 1. Air Products 2. Ceres 3. KAS Tech 4. Applied Energy 5. Norcimbus 6. Air Liquide
2.	Valve Manifold Box (VMBs)	<ol style="list-style-type: none"> 1. Air Products 2. KAS Tech 3. Ceres Technologies Inc. 4. Matheson Gas 5. Applied Energy 6. Norcimbus 7. Air Liquide
3.	SS 316L Gas Supply Panels	<ol style="list-style-type: none"> 1. Air Products 2. KAS Tech 3. Ceres Technologies Inc. 4. Matheson Gas 5. Applied Energy 6. Norcimbus 7. Air Liquide
	Inert Gases and Flammable Gases	

4.	POU Gas Stick	<ol style="list-style-type: none"> 1. Air Products 2. KAS Tech 3. Ceres 4. Applied Energy 5. Norcimbus 6. Air Liquide
5.	SS316L Valves and fittings	<ol style="list-style-type: none"> 1. Parker USA 2. Daja 3. Swagelok USA 4. Carten 5. Gas Arc 6. Dhruva
6.	Regulators	<ol style="list-style-type: none"> 1. Tescom 2. AP-Tech 3. Veriflo
7.	Tubes (BA and EP)	<ol style="list-style-type: none"> 1. Valex USA 2. Dockweiler Germany 3. Sandvik Sweden
8.	Gas Detection System	
	Gas Leak Detectors (SIL 2 certified)	<ol style="list-style-type: none"> 1. Honeywell 2. Draeger 3. Bionics 4. Cosmos 5. Riken Keiki
	PLC & SCADA	<ol style="list-style-type: none"> 1. Honeywell 2. Bionics 3. Draeger 4. Cosmos 5. Allenbradley 6. Siemens 7. ABB 8. Moviecon 9. Wonderware
	3 Core Flexible shielded Cable	<ol style="list-style-type: none"> 1. Polycab 2. LAPP 3. ManCab 4. Varsha 5. Finolex
	100 mm GI Cable Tray	<ol style="list-style-type: none"> 1. Reputed Indian Make
9.	Dry Scrubber	<ol style="list-style-type: none"> 1. KAS Tech 2. Edwards Systems 3. CS Clean, Germany 4. Centrotherm 5. ATMI Inc
10.	Exhaust Blower	<ol style="list-style-type: none"> 1. Alpha Projects 2. Pilani Enviro Tech

11.	Exhaust Ducting and Dampers	<ol style="list-style-type: none"> 1. AKI 2. SE Products
12.	Pressure Switch and Gauges	<ol style="list-style-type: none"> 1. Wika 2. Waree 3. Tescom 4. USG 5. TE 6. I2N 7. Baumer
13.	Flash Back Arrestor	<ol style="list-style-type: none"> 1. Super flash 2. Witt
14.	Point of Use (POU) filter	<ol style="list-style-type: none"> 1. Entergis 2. Pall 3. Saes Getters
15.	Support System	Equivalent Reputed Indian Make is acceptable
	Unistrut Channel	<ol style="list-style-type: none"> 1. RSSIPL 2. Divine 3. DKNV 4. Hilti
	Tie Rods 8 mm	<ol style="list-style-type: none"> 1. Reputed Indian Make
	Tube Clamps	<ol style="list-style-type: none"> 1. AKI 2. Stauff
	Anchor Fasteners	<ol style="list-style-type: none"> 1. Hilti
	Unistrut Support System Hardware and accessories (Nuts, Bolts, L plates, Straight Plates. All GI items)	<ol style="list-style-type: none"> 1. Hilti 2. Reputed Indian Make