

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
SEMI-CONDUCTOR LABORATORY (SCL)
CHANDIGARH**

**Tender for Replacement of Air Handling Unit (AHU) feeding to
Environmental Test Facility (ETF) at Semi-Conductor Laboratory,
Mohali**

Bids to be submitted online

Tender No.: SCL/PurUnit-4/SC202200019201 dated 09-11-2022

A. Tender Details

Tender No : **SCL/PurUnit-4/SC202200019201**

Tender Date : **09-11-2022**

Tender Classification: **GOODS**

Purchase Entity : **PurUnit-4**

Centre : **SEMI-CONDUCTOR LABORATORY (SCL)**

Replacement of Air Handling Unit (AHU) feeding to Environmental Test Facility (ETF) at Semi-Conductor Laboratory, Mohali

Replacement of Air Handling Unit (AHU) feeding to Environmental Test Facility (ETF) at Semi-Conductor Laboratory, Mohali

A.1 Tender Schedule

Bid Submission Start Date : **09-11-2022 17:30**

Bid Clarification Due Date : **18-11-2022 11:30**

Bid Submission Due Date : **30-11-2022 15:00**

Bid Opening Date : **30-11-2022 15:30**

B. Tender Attachments

Technical Write-up/Drawings

Document : BOQ

Document : Specification only

Instructions To Vendors

3. INSTRUCTIONS TO TENDERERS AND TERMS CONDITIONS OF TENDER

1. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.
- (b) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.
- (c) Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should be clearly indicated by the tenderer in his quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary, along with the quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.

2. ACCEPTANCE OF STORES:

- (a) The stores shall be tendered by the Contractor for inspection at such places as may be specified by the purchaser at the Contractor's own risk, expense and cost.
- (b) It is expressly agreed that the acceptance of the stores Contracted for, is subject to final approval by the purchaser, whose decision shall be final.
- (c) If, in the opinion of the purchaser, all or any of the stores do not meet the performance or quality requirements specified in the Purchase Order, they shall be rejected.
- (d) If the whole or any part of the stores supplied are rejected in accordance with Clause No. 6 (c) above, the purchaser shall be at liberty, with or without notice to the Contractor, to purchase in the open market at the expense of the Contractor stores meeting the necessary performance and quality Contracted for in place of those rejected, provided that either the purchase, or the agreement to purchase, from another supplier is made within six months from the date of rejection of the stores as aforesaid.

3. (a) Your quotation should be valid for 90 days (single part tender) and 120 days (two part tender) from the date of opening of the tender.

(b) Prices are required to be quoted according to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.

4. Bid shall be submitted on-line only complying specified schedule.

5. COUNTER TERMS AND CONDITION OF SUPPLIERS: Where counter terms and conditions printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the Purchaser, unless specific written acceptance thereof is obtained.

6. DEFINITIONS:

(a) The term PURCHASER shall mean Semi-Conductor Laboratory, Sector-72, Mohali, Punjab-160071, under the administrative control of DOS, Government of India.

(b) The term CONTRACTOR shall mean, the person, firm or company with whom or with which the order for the supply of stores is placed and shall be deemed to include the Contractor's successors, representative, heirs, executors and administrators unless excluded by the Contract.

(c) The term STORES shall mean what the Contractor agrees to supply under the Contract as specified in the Purchase Order. (d) The term PURCHASE ORDER shall mean the communication signed on behalf of the Purchaser by an Officer duly authorised intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

7. DELIVERY:

(a) The time for and the date of delivery of the stores stipulated in the Purchase Order shall be deemed to be the essence of the Contract and delivery must be completed on or before the specified dates.

(b) Should the Contractor fail to deliver the stores or any consignment thereof within the period prescribed for such delivery, the purchaser shall be entitled at his option either.

(i) to purchase from elsewhere, without notice to the Contractor on the account and at the risk of the Contractor, the stores not delivered or others of a similar description (where others exactly complying with the particulars, are not, in the opinion of the purchaser, readily procurable, such opinion being final) without cancelling the Contract in respect of the consignment (s) not yet due for delivery, or

(ii) to cancel the Contract or a portion thereof and if so desired to purchase or authorise the purchase of stores not so delivered or others of a similar description (where others exactly if complying with the particulars are not, in the opinion of the purchaser, readily procurable, such opinion final) at the risk and cost of the Contractor. In the event of action being taken under sub-clause (iii) of clause 10 (b) above, the Contractor shall be liable for any loss which the purchaser may sustain on that account, provided that the re-purchase or if there is an agreement to repurchase then such agreement is made within six months from the date of such failure. But the Contractor shall not be entitled to any gain on such re-purchase made against default. The manner and method of such re purchase shall be at the discretion of the purchaser, whose decision shall be final. It shall not be necessary for the purchaser to

serve a notice of such re purchase on the defaulting Contractor. This right shall be without prejudice to the right of the purchaser to recover damages for breach of Contract by the Contractor.

8. **DESPATCH:** The Contractor is responsible for obtaining a clear receipt from the Transport Authorities specifying the goods dispatched. The consignment should be dispatched with clear Railway Receipt/Lorry Receipt. If sent in any other mode, it shall be at the risk of the Contractor. Purchaser will take no responsibility for short deliveries or wrong supply of goods when the same are booked on said to contain basis. Purchaser shall pay for only such stores as are actually received by them in accordance with the Contract. Any dispatch action shall start only after receipt of purchase order signed by competent authority and as per terms and conditions.

9. **EXTENSION OF TIME:** As soon as it is apparent that the Contract dates cannot be adhered to, an application shall be sent by the Contractor to the purchaser. If failure, on the part of the Contractor, to deliver the stores in proper time shall have arisen from any cause which the purchaser may admit as reasonable ground for an extension of the time (and his decision shall be final) he may allow such additional time as he considers it to be justified by circumstances, of the case without prejudice to the purchaser's right to recover liquidated damages under clause 09 thereof.

10. **GST and/or other duties/levies** legally leviable and intended to be claimed should be distinctly shown separately in the tender.

11. **INDEMNITY:** The Contractor shall warrant and be deemed to have warranted that all stores supplied against this Contract are free and clean of infringement of any Patent, Copyright or Trademark, and shall at all times indemnify the purchaser against all claims which may be made in respect of the stores for infringement of any right protected by Patent Registration of design or Trade mark and shall take all risk of accidents or damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for sufficiency of all means used by him for the fulfilment of the contract.

12. Late tenders and delayed tenders will not be considered.

13. **MODE OF PAYMENT:** Normally payment will be made for the accepted stores within 30 days from the date of receipt of the materials.

14. **PACKING FORWARDING INSURANCE:** The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of packages shall be done by and at the expense of the Contractor. The purchaser will not pay separately for transit insurance, all risks in transit being exclusively of the Contractor and the Purchaser shall pay only for such stores as are actually received in good condition in accordance with the Contract

15. PAYMENT: Contractor's bill will be passed for payment only after the stores have been received, inspected and accepted by the Purchaser.

16. PRICES: Tenderer offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotation with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variation/s.

17. RECOVERY OF SUM DUE: Whenever any claim for the payment of, whether liquidated or not, money arising out of or under this Contract against the Contractor, the purchaser shall be entitled to recover such sum by appropriating in part or whole, the security deposited by the Contractor, if a security is taken against the Contract. In the event of the security being insufficient or if no security has been taken from the Contractor, then the balance or the total sum recoverable as the case may be, shall be deducted from any sum then due or which at any time thereafter may become due to the Contractor under this or any other Contract with the purchaser. Should this sum be not sufficient to cover the full amount recoverable, the Contractor shall pay to the purchaser on demand the remaining balance due. Similarly, if the purchaser has or makes any claim, whether liquidated or not, against the Contractor under any other Contract with the purchaser, the payment of all moneys payable under the Contract to the Contractor including the security deposit shall be withheld till such claims of the purchaser are finally adjudicated upon and paid by the Contractor.

18. REJECTED STORES: Rejected stores will remain at destination at the Contractor's risk and responsibility. If instructions for their disposal are not received from the Contractor within a period of 14 days from the date of receipt of the advice of rejection, the purchaser or his representative has, at his discretion, the right to scrap or sell or consign the rejected stores to Contractor's address at the Contractor's entire risk and expense, freight being payable by the Contractor at actuals.

19. SECURITY FOR PURCHASE OF MATERIALS: Successful tenderer will have to furnish in the form of a bank guarantee or any other form as called for by the purchaser towards adequate security for the materials and properties provided by the Purchaser for the due execution of the Contract.

20. TERMS CONDITIONS OF TENDER

21. TEST CERTIFICATE: Wherever required, test certificates shall be uploaded in EGPS.

22. The authority of the person signing the tender, if called for, should be produced.

23. The Purchaser reserves the right to place order on the successful tenderer for additional quantity up to 25% of the quantity offered by them at the rates quoted.

24. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the

right of acceptance of the whole or any part of the tender or portions of the quantity offered and the tenderers shall supply the same at the rates quoted.

25. The tenderer should supply along with his tender, the name of his bankers as well as the latest Income-Tax clearance certificate duly countersigned by the Income-Tax Officer of the Circle concerned under the seal of his office, if required by the Purchaser.

C. Bid Templates

C.1 Technical Bid - Replacement of Air Handling Unit (AHU) feeding to Environmental Test Facility (ETF) at Semi-Conductor Laboratory, Mohali

1. Supply of Air handling unit of Modular construction with PUF insulated double wall Capacity of 11000 CFM and static pressure 125 mm of WG.

Item specifications for Supply of Air handling unit of Modular construction with PUF insulated double wall Capacity of 11000 CFM and static pressure 125 mm of WG.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of Air handling unit of Modular construction with PUF insulated double wall and air flow capacity of 11000 CFM and static pressure not less than 125 mm of WG. Detailed technical specification attached as annexure-I.		-		

2. Supply of Pan type Humidifier, Capacity 6 kW complete with SS Tank level Switch overflow connection etc.

Item specifications for Supply of Pan type Humidifier, Capacity 6 kW complete with SS Tank level Switch overflow connection etc.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of Pan type Humidifier, Capacity 6 kW, complete with SS Tank, level Switch, overflow connection, Makeup connection with float valve and other safeties & control as per OEM standards.		-		

3. Supply of Pipe MS C class, size 3 inch complete with all fittings.

Item specifications for Supply of Pipe MS C class, size 3 inch complete with all fittings.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of Pipe MS C class, size 3 inch complete with all fittings like bends, flanges, gasket etc.		-		

4. Supply of Pipe MS C class, size 2 inch complete with all fittings.

Item specifications for Supply of Pipe MS C class, size 2 inch complete with all fittings.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of Pipe MS C class, size 2 inch complete with all fittings like bends, flanges, gasket etc.		-		

5. I/T/C of GI Pipe, size 1/2 inch, schedule 10 with complete fittings.

Item specifications for I/T/C of GI Pipe, size 1/2 inch, schedule 10 with complete fittings.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of GI Pipe, size 1/2 inch, schedule 10 with complete fittings.		-		

6. Supply of Insulation using pipe sections of TF quality thermocole, density not less than 18 kg/m3 for chilled water Pipe size: 3 inch

Item specifications for Supply of Insulation using pipe sections of TF quality thermocole, density not less than 18 kg/m3 for chilled water Pipe size: 3 inch

SI No	Specification	Value	Compliance	Offered Specification	Remark
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1	Supply of Insulation using pipe sections of TF quality thermocole, density not less than 18 kg/m ³ for chilled water Pipe size: 3 inch		-		
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7. Supply of Insulation of hot water line with mineral wool,density not less than 80kg/m³ for hot water Pipe size: 2 inch

Item specifications for Supply of Insulation of hot water line with mineral wool,density not less than 80kg/m³ for hot water Pipe size: 2 inch

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of Insulation of hot water line with mineral wool,density not less than 80kg/m ³ for hot water Pipe size: 2 inch		-		

8. Supply of GI duct work using 20 gauge GI sheet, 120 gsm, complete with nuts, bolts, gasket, insulation etc.

Item specifications for Supply of GI duct work using 20 gauge GI sheet, 120 gsm, complete with nuts, bolts, gasket, insulation etc.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of GI duct work using 20 gauge GI sheet, 120 gsm, complete with nuts, bolts, gasket, insulation etc.		-		

9. Supply of SS 304, Ball valve, size 1/2 inch threaded type for humidifier.

Item specifications for Supply of SS 304, Ball valve, size 1/2 inch threaded type for humidifier.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of SS 304, Ball valve, size 1/2 inch threaded type for humidifier.		-		

10. Supply of SS 304L Pipe, size matching with steam outlet socket of the humidifier, schedule 10,complete with all the fittings.

Item specifications for Supply of SS 304L Pipe, size matching with steam outlet socket of the humidifier, schedule 10,complete with all the fittings.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of SS 304L Pipe, size matching with steam outlet socket of the humidifier, schedule 10,complete with all the fittings.		-		

11. Supply of Insulation with mineral wool,density not less than 80kg/m3 for steam outlet pipe from humidifier to AHU

Item specifications for Supply of Insulation with mineral wool,density not less than 80kg/m3 for steam outlet pipe from humidifier to AHU

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of Insulation with mineral wool,density not less than 80kg/m3 for steam outlet pipe from humidifier to AHU		-		

12. Supply of GI Pipe, Size: 1/2 inch, schedule 10 with complete fittings.

Item specifications for Supply of GI Pipe, Size: 1/2 inch, schedule 10 with complete fittings.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of GI Pipe, Size: 1/2 inch, schedule 10 with complete fittings.		-		

13. Supply of Automatic smoke damper complete with smoke sensor, actuators and control electronics, frame, supports etc.

Item specifications for Supply of Automatic smoke damper complete with smoke sensor, actuators and control electronics, frame, supports etc.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of Automatic smoke damper/s, complete with smoke sensor, actuators and control electronics, frame, supports, and other standard accessories at the outlet of the AHU.		-		

14. Supply of M S supporting structure, nuts, bolts, gaskets etc.

Item specifications for Supply of M S supporting structure, nuts, bolts, gaskets etc.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of M S supporting structure, nuts, bolts, gaskets etc.		-		

15. I/T/C of Air handling unit of Modular construction with PUF insulated double wall capacity of 11000 CFM and static pressure 125 mm of WG.

Item specifications for I/T/C of Air handling unit of Modular construction with PUF insulated double wall capacity of 11000 CFM and static pressure 125 mm of WG.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of Air handling unit of Modular construction with PUF insulated double wall and air flow capacity of 11000 CFM and static pressure not less than 125 mm of WG.		-		

16. I/T/C of Pan type Humidifier, Capacity 6 kW, complete with SS Tank, level Switch, overflow connection etc.

Item specifications for I/T/C of Pan type Humidifier, Capacity 6 kW, complete with SS Tank, level Switch, overflow connection etc.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of Pan type Humidifier, Capacity 6 kW, complete with SS Tank, level Switch, overflow connection, Makeup connection with float valve and other safeties & control as per OEM standards.		-		

17. I/T/C of Pipe MS C class, size 3 inch complete with all fittings like bends, flanges, gasket etc.

Item specifications for I/T/C of Pipe MS C class, size 3 inch complete with all fittings like bends, flanges, gasket etc.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of Pipe MS C class, size 3 inch complete with all fittings like bends, flanges, gasket etc.		-		

18. I/T/C of Pipe MS C class, size 2 inch complete with all fittings like bends, like bends, flanges, gasket etc.

Item specifications for I/T/C of Pipe MS C class, size 2 inch complete with all fittings like bends, like bends, flanges, gasket etc.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of Pipe MS C class, size 2 inch complete with all fittings like bends, like bends, flanges, gasket etc.		-		

19. I/T/C of Insulation using pipe sections of TF quality thermocole, density not less than 18 kg/m3 for chilled water Pipe size: 3 inch

Item specifications for I/T/C of Insulation using pipe sections of TF quality thermocole, density not less than 18 kg/m³ for chilled water Pipe size: 3 inch

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of Insulation using pipe sections of TF quality thermocole, density not less than 18 kg/m ³ for chilled water Pipe size: 3 inch		-		

20. I/T/C of hot water line with mineral wool,density not less than 80kg/m³ for hot water Pipe size: 2 inch

Item specifications for I/T/C of hot water line with mineral wool,density not less than 80kg/m³ for hot water Pipe size: 2 inch

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of hot water line with mineral wool,density not less than 80kg/m ³ for hot water Pipe size: 2 inch		-		

21. I/T/C of GI duct works using 20 gauge GI sheet, 120 gsm, complete with nuts, bolts, gasket, insulation and supports etc.

Item specifications for I/T/C of GI duct works using 20 gauge GI sheet, 120 gsm, complete with nuts, bolts, gasket, insulation and supports etc.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of GI duct works using 20 gauge GI sheet, 120 gsm, complete with nuts, bolts, gasket, insulation and supports etc.		-		

22. I/T/C of SS 304, Ball valve, size 1/2 inch threaded type for humidifier.

Item specifications for I/T/C of SS 304, Ball valve, size 1/2 inch threaded type for humidifier.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of SS 304, Ball valve, size 1/2 inch threaded type for humidifier.		-		

23. I/T/C of SS 304L Pipe, size matching with steam outlet socket of the humidifier, schedule 10,complete with all the fittings.

Item specifications for I/T/C of SS 304L Pipe, size matching with steam outlet socket of the humidifier, schedule 10,complete with all the fittings.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of SS 304L Pipe, size matching with steam outlet socket of the humidifier, schedule 10,complete with all the fittings.		-		

24. I/T/C of Insulation with mineral wool,density not less than 80kg/m3 for steam outlet pipe from humidifier to AHUs

Item specifications for I/T/C of Insulation with mineral wool,density not less than 80kg/m3 for steam outlet pipe from humidifier to AHUs

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of Insulation with mineral wool,density not less than 80kg/m3 for steam outlet pipe from humidifier to AHU		-		

25. I/T/C of automatic smoke damper/s, complete with smoke sensor, actuators and control

electronics, frame, supports etc.

Item specifications for I/T/C of automatic smoke damper/s, complete with smoke sensor, actuators and control electronics, frame, supports etc.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of automatic smoke damper/s, complete with smoke sensor, actuators and control electronics, frame, supports, and other standard accessories at the outlet of the AHU.		-		

26. I/T/C of M S supporting structure, nuts, bolts, gaskets etc.

Item specifications for I/T/C of M S supporting structure, nuts, bolts, gaskets etc.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, testing and commissioning of M S supporting structure, nuts, bolts, gaskets etc.		-		

27. Supply of 415V, 63A TPN SFU including spreader terminals, rotary handle and HRC fuse, Cu wire of matching the switch rating for bus bar termination.

Item specifications for Supply of 415V, 63A TPN SFU including spreader terminals

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Make: L&T/Schneider/Siemens/ABB		-		

28. Supply of Star Delta Starter along with all control accessories as per attached schematic for 11kW (matching/suitable with the AHU fan motor) motor in existing MCC panel with microprocessor based relay having following protection as specified:

Item specifications for Supply of Star Delta Starter along with all control accessories

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Make: Siemens, Schneider, L&T, ABB or equivalent reputed make. Note: Party to deliver all material require for modification of existing 5.5kW to 11 kW starter as per SCL requirements.		-		
2	Protection : a) Overload b) Short Circuit c) Earth Fault d) Single Phasing e) Phase Reversal		-		

29. Supply of 3C x 6 sq.mm Copper conductor, XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable (2XWY).

Item specifications for Supply of 3C x 6 sq.mm Copper conductor, XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable (2XWY).

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Make:Havells/KEI/Polycab/RPG		-		

30. Supply of 4C x 4 sq.mm Copper conductor, XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable (2XWY).

Item specifications for Supply of 4C x 4 sq.mm Copper conductor, XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable (2XWY).

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Make:Havells/KEI/Polycab/RPG		-		

31. Supply of indoor end termination for 3C x 6 sq.mm Copper conductor , XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable. (2XWY)

Item specifications for Supply of indoor end termination for 3C x 6 sq.mm Copper conductor

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Make: Dowells/Hex/Comet		-		

32. Supply of indoor end termination for 4C x 4 sq.mm Copper conductor , XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable. (2XWY)

Item specifications for Supply of indoor end termination for 4C x 4 sq.mm Copper conductor

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Make: Dowells/Hex/Comet		-		

33. Installation testing and commissioning of 415V, 63A TPN SFU in existing MCC panel

Item specifications for Installation testing and commissioning of 415V, 63A TPN SFU in existing MCC panel

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Note- The work shall be carried out in close coordination with SCLs Engineer-In-Charge		-		

34. Installation testing and commissioning of Star Delta Starter for 7.5kW motor in existing MCC panel including making of necessary cut and drilling of holes for proper fit and operation.

Item specifications for Installation testing and commissioning of Star Delta Starter for 7.5kW motor

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Note- The work shall be carried out in close coordination with SCLs Engineer-In-Charge		-		

35. Laying of 3C x 6 sq.mm Copper conductor, XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable on existing cable tray

Item specifications for Laying of 3C x 6 sq.mm Copper conductor, XLPE insulated, PVC inner

sheath, steel wire armoured and overall FRLS PVC sheathed cable

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Note- The work shall be carried out in close coordination with SCLs Engineer-In-Charge		-		

36. Laying of 4C x 4 sq.mm Copper conductor, XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable (2XWY) on existing cable tray.

Item specifications for Laying of 4C x 4 sq.mm Copper conductor, XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Note- The work shall be carried out in close coordination with SCLs Engineer-In-Charge		-		

37. Making of indoor end termination for 3C x 6 sq.mm Copper conductor , XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable. (2XWY)

Item specifications for Making of indoor end termination for 3C x 6 sq.mm Copper conductor

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Note- The work shall be carried out in close coordination with SCLs Engineer-In-Charge		-		

38. Making of indoor end termination for 4C x 6 sq.mm Copper conductor , XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable. (2XWY)

Item specifications for Making of indoor end termination for 4C x 6 sq.mm Copper conductor

SI No	Specification	Value	Compliance	Offered Specification	Remark
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1	Note- The work shall be carried out in close coordination with SCLs Engineer-In-Charge		-		
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39. Dismantling and removal of Air handling unit of Modular construction with PUF insulated double wall and air flow capacity of 10500 CFM.

Item specifications for Dismantling and removal of Air handling unit of Modular construction with PUF insulated double wall and air flow capacity of 10500 CFM.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Dismantling and removal of Air handling unit of Modular construction with PUF insulated double wall and air flow capacity of 10500 CFM.		-		

40. Dismantling and removal of star delta starter and TPN SFU from existing MCC panel including removal all existing power and control accessories etc.

Item specifications for Dismantling and removal of star delta starter and TPN SFU from existing MCC panel including removal all existing power and control accessories etc.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Dismantling and removal of star delta starter and TPN SFU from existing MCC panel including removal all existing power and control accessories and disposal at designated site. (approx 250m)		-		

41. Dismantling and removal of armoured power cables upto size 3C/4C x 10sq.mm from existing cable tray/wall surface etc.

Item specifications for Dismantling and removal of armoured power cables upto size 3C/4C x 10sq.mm from existing cable tray/wall surface etc.

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Dismantling and removal of armoured power cables upto size 3C/4C x 10sq.mm from existing cable tray/wall surface etc. including disposal at designated site. (approx 250m)		-		

Common Specifications (Applicable for all items)

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	A)INTENT OF WORK:	Replacement of Air Handling Unit (AHU) feeding to Environmental Test Facility (ETF) at Semi-Conductor Laboratory, Mohali	Yes / No / Explain		

2	B)SCOPE: THE SCOPE OF WORK INVOLVES THE FOLLOWINGS	<p>a)Dismantling and removal of existing horizontal type floor mounted modular construction AHU (Air Flow: 10500 CFM) and shifting the same to scrap yard within the SCL premises.</p> <p>b)Design, Supply, Installation, Testing & Commissioning (S/I/T/C) of new AHU (Air flow: 11000 CFM, Fan static: 125 mm WG) as per detailed technical specification and BOQ attached as annexure -I and II. The proposed new AHU will be installed after removal of the old AHU.</p> <p>c)Supply, unloading at site, Installation, Testing & Commissioning of pan type humidifier, associated electrical, Instruments, power and control cables etc. as per detailed technical specification and BOQ attached as annexure I & II.</p> <p>d)The scope of work includes inspection, packing, dispatching, loading, transit, unloading & storage at site, assembly, pre-commissioning checks, installation, commissioning and handing over of the equipments/systems to SCL.</p> <p>e)The Contractor shall demonstrate performance and quality parameters of the equipment/systems etc. supplied, installed and commissioned under the scope of work at the rated capacity/as per design.</p>	Yes / No / Explain		
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3	<p>C) TECHNICAL SPECIFICATIONS - HVAC SYSTEM</p> <p>1. AIR HANDLING UNIT:</p>	<p>Design, Detailed engineering and S/I/T/C of Air handling unit.</p> <p>a) Quantity – One (01) number</p> <p>b) Capacity: Minimum 11000 CFM air flow with a total fan static of 125 mm of WG.</p>	<p>Yes / No / Explain</p>		
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4	1.1AHU CASING	<p>a)AHU Casing shall be of horizontal type floor mounting, modular construction and of draw through type comprising of return air/fresh air mixing section, pre-filter section, fine filter section, fan section, cooling coil section, heating coil section, HEPA filter section, drain pan and all necessary accessories for proper functioning of the AHU.</p> <p>b)The AHU shall have 1500 CFM of fresh air to be mixed with return air through mixing chamber that includes fresh air duct with bird screen/louver, pre & fine filters and dampers. Filters shall be of size 2 ft by 2ft and suitable for 1500 CFM air flow.</p> <p>c)The frame work shall be of extruded Al sections joined by moulded high tensile reinforced plastic (RFP) and shall be assembled to provide a sturdy, strong and self-supporting frame work for various sections. Each section shall be complete with its own independent base and mounted on 14G (2 mm) galvanised sheet steel. Zinc deposition on the GI sheets shall be minimum 120 GSM. The frame work for each section shall be joined together with soft rubber gasket in between to make joints air tight.</p> <p>d)AHU casing shall be of double skin with 43±2 mm thick PUF insulation sandwiched panel, 1 mm GI outer skin pre-coated and 0.8 mm thick Al sheet inside. The density of</p>	Yes / No / Explain		
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		<p>PUF insulation shall be minimum 40 kg/m³.</p> <p>e) Suitable air tight access doors with aluminium die cast heavy duty hinges and locks shall be provided for various sections.</p> <p>f) The casing shall incorporate thermal break profile and all other necessary design features to ensure that condensate does not occur during all seasons.</p> <p>g) Automatic smoke damper, complete with smoke sensor, actuators and control electronics, frame, supports, and other standard accessories, shall be provided at the outlet of the AHU. The damper will get closed and AHU will be switched off automatically with the sense of smoke.</p>			
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5	1.2FAN AND FAN MOTOR	<p>a)Fan Quantity: 01 no. (one)</p> <p>b)Fan Type: Direct driven, Plug type centrifugal fan.</p> <p>c)Capacity: Minimum 11000 CFM</p> <p>d)Total static pressure: Minimum 125 mm WG.</p> <p>e)Fan shall have backward curved blades.</p> <p>f)Motor and fan assembly shall be floor mounted and placed on extruded aluminium sections and on vibration isolators.</p> <p>g)Motor: Adequately sized (Approx. 11 kW), TEFC, Squirrel cage induction motor suitable for 415V + 10%, 3 phase, 50 Hz+ 5% AC power supply.</p> <p>h)The motor shall be of high Efficiency IE3 class.</p> <p>i)Motor shall be compatible for VFD operation.</p> <p>j)Fan impeller and housing shall be treated suitably for the rust protection.</p> <p>k)Fan shall be statically and dynamically balanced.</p> <p>l)The air handling unit shall be provided with rubber impregnated canvas connection at inlet of the fan.</p>	Yes / No / Explain		
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6	1.3COOLING AND HEATING COIL	<p>a)Cooling coil shall be suitable for cooling water at a temperature of 7.5 ± 0.5 Deg C.</p> <p>b)Cooling coil shall be designed for air handling quantity: Minimum 11000 CFM</p> <p>c)Total cooling area shall be sufficient so that the velocity across coil shall not exceed 2.25 m/s.</p> <p>d)Cooling coil shall be of seamless copper tubes with Al fins, 6 rows deep, with 12-13 fins/inch, with copper header, flange connection and SS 304 enclosure.</p> <p>e)Copper tubes shall be 24 SWG and hydrostatically tested for 21 kg per sq. cm.</p> <p>f)Cooling coil condensate tray shall be of 20 SWG SS 304 materials.</p> <p>g)Accessories: Frame, support, inlet and outlet header, vent connection and drain connection with valves, pressure gauges complete with all the fittings and isolating valve, Temperature gauge complete all the fittings and SS thermowell in chilled water supply and return line.</p> <p>h)Heating coil shall be suitable for available hot water at a temperature of 60 Deg C.</p> <p>i)Heating coil shall be designed for air handling quantity: Minimum 11000 CFM</p> <p>j)Heating coil shall be of seamless copper tubes with Al fins, 2 rows deep, with 12-13 fins/inch, with copper header, flange connection and SS 304 enclosure, 24 gauge and tested for 21 kg per sq. cm. .</p>	Yes / No / Explain		
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		k)Coils shall be AHRI certified.			
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7	1.4FILTER SECTIONS AND FILTERS	<p>a)There will be three (03) stages of filtration.</p> <p>b)Air handling capacity of each stage will be Minimum 11000 CFM.</p> <p>c)Pre-Filter: The pre-filters shall be of G4 grade as per EN 779, non-woven synthetic material, sandwiched between HDPE mesh on both sides and suitable for maximum 1500 CFM with an initial pressure drop of 5 mm WG or less, suitable for cleaning with dry air or water jet.</p> <p>d)Fine filters: Fine filter shall be of F7 grade as per EN779, non-woven synthetic material sand-witched between HDPE mesh on both sides and suitable for maximum 1500 CFM with an initial pressure drop of 6-8 mm WG or less, suitable for cleaning with dry air or water jet.</p> <p>e)HEPA filter: HEPA filter shall be of H14 grade as per be EN1822, made of Micro-fibre glass media and suitable for maximum 1500 CFM with initial pressure drop of 25 mm of WG or less, Efficiency of the filter shall be 99.995% down to 0.3 microns.</p> <p>f)Filters face velocity shall not exceed 2.5 m/sec.</p> <p>g)Filters shall be having a quick release mechanism and sealing gasket.</p> <p>h)Filters shall have Al/GI frame with a module size of 600mm x 600mm (preferably) and shall be flange type.</p> <p>i)Differential pressure gauge shall be installed across the</p>	Yes / No / Explain		
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		pre, fine and HEPA filter in the AHU.			
8	1.5DAMPERS	<p>a) Dampers of suitable size are to be provided at various points in the AHU i.e. in the inlet, outlet and fresh air sections.</p> <p>b) The operation of the dampers shall be controlled using the rigid link and shall be suitable for manual operation.</p> <p>c) The blades shall be mounted on bush/bearings for smooth operation. Outer frame of the damper shall be fabricated from heavy duty GI (min. 16 Gauge) and blades shall be fabricated from Anodised Al construction.</p> <p>d) The dampers should provide tight shutoff of air flow and blades should not bend due to the air pressure in the closed position.</p>	Yes / No / Explain		

9	2HUMIDIFIER	<p>a)The scope of work involves supply and installation of the new humidifier meeting the humidification requirements of new AHU.</p> <p>b)Quantity: One (01) no.</p> <p>c)Capacity: 6 kW</p> <p>d)Work involves disconnection of existing power/electrical cable, water inlet, over flow, drain piping and re-connection with new humidifier. Existing water piping connection is 1/ 2 inch size. Detailed BOQ attached as per Annexure -II</p> <p>e)Humidifier shall be pan type, floor mounted, indoor unit, stainless steel (SS304/316) tank of minimum 1.2 mm thickness, comprising of resistance type immersion heaters in chrome plated SS tube construction, float valve assembly in heavy duty construction with SS ball, level switch, over flow connection, inlet make-up connection, isolation valve, drain water connection, cabling, earthing, etc. complete as required with controls such as humidistat, thermostat, sight glass, resin bonded fibre glass wool thermal insulation with cladding etc. as per OEM standard.</p> <p>f)The humidifier shall be standalone unit with all controls to maintain required RH levels and shall be suitable for continuous operation. The humidifier shall only require power connection and water inlet connection at site</p>	Yes / No / Explain		
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for its operation.
g)The Humidifier shall be suitable for suitable for 3 ϕ , 415 +/- 10% Volt, 50 +/- 5% Hz power supply.
h)The unit shall have in own electrical control panel fabricated from epoxy painted, CRC sheet, with incomer indicating lights, outgoing contactors, fault indicating lights, On/Off switch, digital display humidity
i)The Humidifiers shall be compatible for BMS operation.
j)Humidifier shall be kept outside the AHU and steam shall be injected after the chilled water coil.

10	3DUCTING	<p>a)The scope of ducting work involves dismantling the existing GI ducts of return air, fresh air and supply air from the old AHU and re-connecting the return air and supply air ducts with new AHU and insulation for the same. Approximate requirement of duct shall be 60 sq. meter, Ducting work shall be carried out using GI sheet of 20 gauge with 120 GSM zinc coating and shall be complete with nuts, bolts, gaskets, insulation etc., ducting insulation shall be carried out using 19 mm thick Nitrile rubber insulation, Al. foil backed of closed cell, Class '0' and density 50 kg/m³ (approx.)</p> <p>b)Present AHU ducting sizes are as follows</p> <ul style="list-style-type: none"> •Return air duct size: 24 inch x 30 inch (approx.), 2 nos •Supply air duct size: 32 inch x 32 inch. (approx.), 2 nos 	Yes / No / Explain		
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11	4 PIPING AND PIPING INSULATION	<p>a) The scope of piping work involves disconnection of chilled water and hot water piping from old AHU and re-connection with the new AHU and insulation of the same. Present chilled water and hot water piping connection sizes are 3 inch and 2 inch respectively, the pipe for chilled water and hot water shall be of MS heavy duty, C-Class pipe, complete with all the fittings like flanges, bends etc. The flanges shall be heavy duty (rating 300 psi). The gaskets shall be good quality neoprene of appropriate thickness. Approximate amount of piping work shall be 12 meters i.e. 6 m for chilled water and 6 m for hot water line and 8 sets flange (approx.).</p> <p>b) Piping Insulation: Insulation on chilled water piping, fittings etc. shall be done using TF quality thermocole of not less than 50 mm thickness and having density of not less than 18 kg/m³ pipe sections/slabs. Two coats of 85/25 bitumen/CPRX shall be applied on the entire pipe surface and the inside surface of the pipe section/slabs (as required) of insulating material so that the insulating mass sticks with the pipe properly. Thereafter, white transparent polyethylene sheet of thickness not less than 500 gauge shall be wrapped all along sealing the insulation mass, overlapping the joints by not less than</p>	Yes / No / Explain		
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		<p>50 mm and sealing them properly using bitumen/CPRX/good quality adhesive tape. Over the polyethylene sheet, 0.5 mm thick aluminium sheet shall be used as cladding to cover the insulation ensuring good workmanship.</p> <p>The insulation on hot water piping including valves and fitting shall be done with mineral wool having density 80 kg/m³ or more and thickness not less than 50 mm. The insulation mass will be covered with chicken wire mesh and then with two layers of cement plaster (min.10 mm thick layer) and finally covered with 0.5 mm thick Aluminium cladding with proper workmanship.</p>			
12	<p>D) TECHNICAL SPECIFICATION - ELECTRICAL SYSTEM GENERAL SPECIFICATIONS</p> <p>1. GENERAL DESIGN CONSIDERATION:</p>	<p>a. System configuration:</p> <ul style="list-style-type: none"> • Voltage Supply: 415V ± 10% • Frequency : 50Hz ± 5% • No of Phase and grounding: 3 Phase & Solidly ground earth • Power Distribution: A.C., 3 Phase 4 wire for 3 Phase system, 1 Phase 3 wire system for 1 Phase system. <p>b. Code & Standards: All electrical equipment and accessories to be furnished, installed and commissioned under scope of these specifications shall be designed, manufactured, tested and installed in accordance with relevant Indian Standard Specifications (ISS), Indian electricity rules and any other applicable regulations.</p>	Yes / No / Explain		

13	2.SCOPE OF THE WORK	<p>•Cables: The scope includes the Supply and installation of XLPE insulated, overall FRLS PVC outer sheathed, Cu armoured Power cable of different size on wall/surface/existing cable tray as required from existing MCC Panel to the AHU Humidifier quantity as per the BOQ. All necessary hardware for installation of cable like cable tie, clamps, tags etc. is in the scope of contractor. Contractor to ensure that cable laid on the cable tray is properly clamped with GI clamps and cable is properly secured on cable tray. The cable shall be tagged at both ends with Aluminium tagging plate in black letters on white background indicating the: - (i) Cable size (ii) Supply end panel and feeder (iii) Load end panel/equipment.</p> <p>•Star Delta Starter :The scope includes supply of all material such as TEN SFU, contactor, MPR relay, timer, SPP, MCB etc. for 11kW (Suitable/Matching with the AHU Fan motor rating) starter and installing the same on existing panel feeder by dismantling the 7.5 KW starter. The scope also includes supply of wires of suitable size matching the starter rating and connecting the same to the main bus bar. Vendor to ensure that starter should be in operational condition for providing the power supply to AHU motor.</p> <p>•Termination:</p>	Yes / No / Explain		
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		<p>Double/single compression brass cable glands, cable lugs of different size as per BOQ, cable ties, cable/wire identification tags required for the installation and maintenance of trouble free operation of the downstream system and accessories are covered under this specification.</p> <ul style="list-style-type: none">•Earthing: Minor earthing for motor and heater if required shall be done by the contractor and shall be tapped from the existing earthing. Material if required shall be provided by SCL free of cost.			
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14	3.OTHER REQUIREMENTS:	<ul style="list-style-type: none"> •Erection testing & commissioning of items as per Bill of Quantities (BOQ) forming part of this document. •Special tools & tackles. Vendor shall arrange the ladder/scaffolding/stair for working at height for cable laying etc. •Vendor to engage the electrical contractor possessing valid class 'A' electrical contractor license issued by state/central authority for execution of the electrical work. •Contractor to ensure that the manpower is equipped with PPE for working at the site. •Materials and accessories which are necessary or used for satisfactory and trouble free operation and maintenance of the above equipment's/material shall also be furnished. •Contractor shall deploy skilled & unskilled labour, qualified technical Supervisor(s), erection tools & tackles, testing tools & equipment, supplies, consumables and hardware and transport for timely and efficient execution of the work. •Materials/systems etc. procured by the selected contractor for incorporation in the work will be only of Makes/Manufacturers specified in the tender document. Submittals of the same shall be submitted by the contractor for SCL review and approval. 	Yes / No / Explain		
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15	E)GENERAL TERMS AND CONDITIONS 1.ACCEPTANCE PROCEDURE	<p>The Performance & Quality parameters of the entire installation shall be monitored for a period of seven (07) days after commissioning for satisfactory performance upon which SCL shall give its acceptance. Deviation in any of the specified parameters will not be acceptable and it shall be the responsibility of the contractor to take corrective action/improvements/modifications, as required, in the installed system to meet the specified parameters and the system will be put back to trial run again for seven (07) days before the acceptance is given.</p> <p>On successful completion of the entire work, the contractor shall provide 'As Built' drawings for all the systems executed under the contract. Three (03) sets of hard copies and one (01) set in soft copy (CD/pen drive) in Auto-CAD format shall be provided to SCL for its record and reference. Contractor shall also provide instruction / Operation manual(s) and maintenance manuals for the all equipment.</p>	Yes / No / Explain		
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16	2.MEASUREMENT AND BILLING OF QUANTITY	<p>The quantities indicated against each item in the bill of quantities (BOQ) are indicative and are for the purpose of bidding only. Variation in quantities up-to + 25% shall be carried out by the contractor on the same conditions in all respects including the rates as per PO/Contract. In case of Contract/PO items which exceed the said limit of +25%, the contractor may claim revision of rates supported by proof of analysis and if the rate claimed is in excess of the rate specified in the bill of quantities, SCL's authorized officials in-charge of the work shall after giving consideration to the analysis of rates submitted by the contractor, determine the rates on the basis of market rates and the contractor shall be paid in accordance with the rates so determined.</p> <p>In case of extra items (that are completely new and are in addition to the items contained in the contract), they may claim rates supported by proper analysis, and SCL's authorized officials in-charge of the work, shall after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of market rates and the contractor shall be paid in accordance with the rates so determined.</p>	Yes / No / Explain		
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17	3.WARRANTY	<p>The contractor shall warranty the entire system for a period of two (02) year from the date of acceptance by SCL for successful /trouble free running of the entire system under scope of this work. During the warranty period, the contractor shall provide four (04) numbers of quarterly preventive maintenance visits per year.</p> <p>Any breakdown in any part of the system including replacement of the faulty parts/ equipment, if any, during warranty period shall be attended by the contractor within 24 hours of intimation by SCL.</p> <p>All preventive and breakdown maintenances (as and when required) during the warranty period shall be carried out by the contractor at no extra cost. Warranty shall cover both Parts and labour.</p>	Yes / No / Explain		
18	4.COMPLETION PERIOD	<p>The time period for the completion of the entire work (including, dismantling, supply, installation and commissioning) is 3 months from the date of release of the Purchase Order (PO) by SCL.</p> <p>After supply of the material, vendor should give intimation minimum 7 days prior to start the dismantling work. The entire dismantling, installation and commissioning work shall be completed in minimum possible time, not more than three weeks.</p>	Yes / No / Explain		

19	F)OTHER TERMS AND CONDITIONS	<p>1.The required test certificates of the material in the scope as well as all equipment tested at manufacturer's works shall be supplied by the contractor.</p> <p>2.Vendor to submit the general layout drawing for approval of SCL before starting the fabrication work.</p> <p>3.The machines shall be adequately isolated against transmission of vibrations to the building structure as per manufacturer recommendation.</p> <p>4.All the sensors, gauges and energy meters etc. shall be calibrated and shall be traceable to accredited test house standards.</p> <p>5.Necessary foundation bolts, nuts, leveling-screws vibration pads etc. wherever required, for mounting the machines, shall be provided by the contractor as per manufacturer's drawings/recommendations.</p> <p>6.Technical leaflets and General layout of the equipment showing their overall dimensions shall be provided in duplicate along with the technical bid.</p> <p>7.The Contractor shall impart on-site hands-on training to SCL personnel free of cost, on operations, troubleshooting and preventive maintenance of the equipment/systems supplied and installed under the Contract, during installation and commissioning.</p> <p>8.Contractor to provide certificate showing the date of</p>	Yes / No / Explain		
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manufacture of the machine and certifying that the machine being supplied is new and not a used/old/second hand/ refurbished /reconditioned machine.

9.The contractor should satisfy himself for the adequacy/completeness of the system and shall include any other item/s required for safe and satisfactory functioning.

10.Detailed manuals incorporating all technical details, spare part lists and troubleshooting etc., mechanical & electrical drawings, wiring-diagrams etc. shall be provided by the contractor.

11.The quantities indicated against each item in the bill of quantities (BOQ) are indicative and are for the purpose of bidding only. However, the final payment for the work shall be made on the basis of actual work done and the accepted rates for various items in the Bill of Quantities.

12.For measurement of piping, installed straight length including fittings (bends, flanges, Tee, reducers) etc. shall be considered and the payment shall be made as per unit rates based upon the measurements of actual work done. Valves shall be counted separately and paid at the agreed unit rates.

13.All the required tools, tackles, scaffoldings, man power etc. is in scope of the contractor.

	<p>14. Contractor shall ensure adherence to safe construction practices which shall inter-alia include use of Personnel Protection Equipment (PPE) by their workmen, supervisors etc. deployed on the work. PPE viz., safety helmets, safety shoes, harnesses, safety glasses, gloves etc. shall be provided by the contractor for the safety of all the personnel at the site of work.</p> <p>15. Contractor shall take adequate measures to ensure that no damage or loss is caused to SCL's buildings, equipment and personnel due to any activity carried out by the contractor relating to the performance of the Contract. Contractor shall be liable to make good the loss/damage including any consequential damage caused by them and in case of failure to do so, SCL shall affect financial recovery for the same from the contractor.</p> <p>16. All materials and equipment shall conform to the relevant Indian or applicable standard and shall be of the approved make and design. Makes shall be strictly in conformity with the Recommended Makes/Manufacturers' listed in the Tender Document.</p> <p>17. Electricity required for installation shall be provided by SCL at no charge basis to the contractor. For this, electricity connection will be provided at</p>			
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		<p>single point and further distribution shall be the contractor's responsibility. Contractor shall provide wattage of all the electrical loads required for installation and install all safety and protection devices viz., MCB/MCCB/ELCB/RCB etc. as per the applicable electricity rules.</p> <p>18.Civil works are excluded from the contractor's scope of work however; all necessary drawings and other details shall be provided by the contractor.</p> <p>19.Contractor shall be required to follow the security procedures in vogue at SCL for the movement of contractor's personnel, materials etc. into/from SCL premises.</p>			
20	G)Recommended Makes:	<p>Air Handling Unit (AHU) - ZECO/Blue Star/Voltas/Carrier/Edge Tech/Citizen/Systemaire/Flakt</p> <p>AHU fan - Kruger/Nikotra/Comfri/Greenheck</p> <p>AHU motor - ABB/Siemens/Kirloskar/Bharat</p> <p>Bijlee/NGEF/GE</p> <p>Pipes - Tata/Jindal</p> <p>GI sheets - SAIL/Tata/Jindal/Ispat</p> <p>Motor actuator - Siemens/Honeywell/Belimo</p> <p>Thermocole/Expanded Polystyrene Insulation - Beardsell/Styrene packing/Lloyd</p> <p>Nitrile rubber - Armaflex/Aeroflex</p> <p>Cables - Universal/CCI/Eckonational</p> <p>Humidifier - Rapid cool/KEPL</p>	Yes / No / Explain		

Supporting Documents required from Vendor

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	DELIVERY TERMS : For supply Store/s: Stores shall be dispatched on F.O.R destination basis i.e. SCL, S.A.S. Nagar, Mohali, Punjab exclusive of GST as may be applicable	Yes / No / Explain	
2	GST : Please mention percentage of applicable GST.	Yes / No / Explain	
3	Completion Period: The time period for the completion of the entire work (including, dismantling, supply, installation and commissioning) is 3 months from the date of release of the Purchase Order (PO) by SCL. After supply of the material, vendor should give intimation minimum 7 days prior to start the dismantling work. The entire dismantling, installation and commissioning work shall be completed in minimum possible time, not more than three weeks	Yes / No / Explain	
4	Validity of Offer: The offer shall be valid for 90 days from the date of opening.	Yes / No / Explain	
5	Warranty: The contractor shall warranty the entire system for a period of two (02) year from the date of acceptance by SCL for successful /trouble free running of the entire system under scope of this work. During the warranty period, the contractor shall provide four (04) numbers of quarterly preventive maintenance visits per year. Any breakdown in any part of the system including replacement of the faulty parts/ equipment, if any, during warranty period shall be attended by the contractor within 24 hours of intimation by SCL. All preventive and breakdown maintenances (as and when required) during the warranty period shall be carried out by the contractor at no extra cost. Warranty shall cover both Parts and labour. (Please refer Sr. No.3 at Annexure -I)	Yes / No / Explain	

6	<p>TERMS OF PAYMENT: 90% value of the supply parts shall be paid within 30 days of receipt of material at Purchaser site and the balance 10% amount and 100% of installation charges shall be payable on acceptance of the entire project against a Performance Bank Guarantee. Payment towards services (installations etc.) shall be released after deduction of TDS, if any</p>	Yes / No / Explain	
7	<p>Liquidated Damages (LD): If the Vendor fails to deliver the stores within the time specified in the contract or any extension thereof, the purchaser shall recover from the Vendor as liquidated damages a sum of one-half of one percent (0.5 percent) of the Contract price for each calendar week of delay. The total liquidated damages shall not exceed ten percent (10 percent) of the Contract price. Delivery of stores means supply, Installation, commissioning and acceptance as applicable.</p>	Yes / No / Explain	
8	<p>SECURITY DEPOSIT: After acceptance of the purchase order, the Contractor shall submit security deposit for three percent(03 percent) value of the Purchase Order (PO) within 15 days from the date of receipt of PO towards successful execution of the PO. Security Deposit shall be submitted through Demand Draft / Bankers Cheque/ Fixed Deposit Receipt or Bank Guarantee(BG) from any of the Scheduled Banks executed on non judicial stamp paper of appropriate value, and shall be valid for a period of sixty (60) days beyond the date for completion of the Purchase Order. This will be returned by SCL immediately on execution of the PO satisfactorily as per order terms. If not, the amount will be forfeited.Note:In case of BG, Vendor to ensure that their Banker gives Bank Guarantee(BG) confirmation over email from Bank Domain at the following email ids, followed by a letter of confirmation as hard copy:hariparsad@scl.gov.inCC: sunilchauhan@scl.gov.in jarnail@scl.gov.in In addition the banker may send a scanned copy of the BG as an attachment.</p>	Yes / No / Explain	

9	<p>PERFORMANCE BANK GUARANTEE (PBG): The Contractor shall furnish a Bank Guarantee (as per format given by purchaser) from any nationalized/ scheduled bank for an amount equivalent to 3% of the value of the Contract and shall be valid for a period of 60 days beyond the expiry date of warranty period. On the performance and completion of the Contract in all respects, the Bank Guarantee will be returned to the Contractor without any interest.</p> <p>Note: Vendor to ensure that their Banker gives Bank Guarantee(BG) confirmation over email from Bank Domain immediately after issuance of the same at the following email Ids: hariparsad@scl.gov.in CC:sunilchauhan@scl.gov.in jarnail@scl.gov.in In addition the banker may send a scanned copy of the BG as an attachment.</p>	Yes / No / Explain	
10	<p>WARRANTY REPLACEMENTS: The replacement parts during warranty period, if any, shall be supplied by the Contractor, free of cost on F.O.R. Purchaser site at SAS Nagar, Punjab basis. Rejected items if required back by vendor, shall be collected by vendor from SCL premises.</p>	Yes / No / Explain	
11	<p>EXTENSION OF TIME : If the completion of supply of stores is delayed due to reason of force majeure such as acts of god, acts of public enemy, acts of Government fires floods epidemics quarantine restriction strikes freight embargoes etc., the Contractor shall give notice within 15 days to the purchaser in writing of his claim for an extension of time. The purchaser on receipt of such notice after verification, if necessary may agree to extend the Contract delivery date as may be reasonable but without prejudice to other terms and conditions of the Contract.</p>	Yes / No / Explain	

12	<p>Variation Clause: The quantities indicated against each item in the bill of quantities BOQ are indicative and are for the purpose of bidding only. Variation in quantities up-to plus 25 percent shall be carried out by the contractor on the same conditions in all respects including the rates as per PO Contract. In case of Contract/PO items which exceed the said limit of plus 25 percent the contractor may claim revision of rates supported by proof of analysis and if the rate claimed is in excess of the rate specified in the bill of quantities SCL s authorized officials in-charge of the work shall after giving consideration to the analysis of rates submitted by the contractor, determine the rates on the basis of market rates and the contractor shall be paid in accordance with the rates so determined. In case of extra items (that are completely new and are in addition to the items contained in the contract), they may claim rates supported by proper analysis, and SCLs authorized officials in-charge of the work, shall after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of market rates and the contractor shall be paid in accordance with the rates so determined.</p> <p>In case of extra items (that are completely new and are in addition to the items contained in the contract), they may claim rates supported by proper analysis, and SCLs authorized officials in-charge of the work, shall after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of market rates and the contractor shall be paid in accordance with the rates so determined. (Please refer Sr. No.2 at Annexure-I)</p>	Yes / No / Explain	
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13	<p>Labour Law: Contractor shall abide by all labour laws, rules and regulations in India, which are prevailing, and as enforced from time to time and SCL shall not be responsible for any accident or mishap during the course of the contract to any of engineer/ labour employee by the Contractor. The contractor shall also ensure that the statutory obligations with regards to the employment of labour under law are complied properly and timely.</p>	Yes / No / Explain	
14	<p>ARBITRATION: In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Contract, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in New Delhi in the Arbitration and Conciliation Centre New Delhi (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be English only. Work under the Contract shall be continued by the CONTRACTOR during the pendency of arbitration proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the DEPARTMENT or unless the matter is such that the works cannot be possibly continued until the decision (whether final or interim) of the Arbitrator is obtained.</p>	Yes / No / Explain	

15	<p>APPLICABLE LAWS: The contract shall be interpreted, construed and governed by laws of India.</p> <p>The contract shall be subject to exclusive Jurisdiction of the Court of SAS Nagar (Mohali), Punjab, India irrespective of anything mentioned in any correspondences or otherwise.</p>	Yes / No / Explain	
16	<p>REJECTION:</p> <p>In the event that any of the stores supplied by the Vendor is found defective in material or workmanship or otherwise not in conformity with the requirements of the Contract specifications, the purchaser shall either reject the stores or request the Contractor, in writing, to rectify the same. The Contractor, on receipt of such notification, shall either rectify or replace the defective stores free of cost to the purchaser. If the Vendor fails to do so, the purchaser may at his option either:</p> <p>a)replace or rectify such defective stores and recover the extra cost so involved from the Contractor, or</p> <p>b)terminate the Contract for default or</p> <p>c)acquire the defective stores at a reduced price considered equitable under the circumstances.</p> <p>The provision of this article shall not prejudice the Purchasers rights under LD clause.</p>	Yes / No / Explain	
17	<p>The Participating Vendor / Suppliers /Service Provider shall indicate specifically whether they fall in the category of Class-I local Supplier or Class-II Local Supplier or Non - Local Supplier for evaluation as per Ministry of Commerce and Industry Office Order No. P-45021/2/2017-PP (B-II dt. 16th September 2020. The Provisions of the office order shall apply for this tender. The Vendor/Supplier/Service provider shall submit documentary proof in this regard along with their quotation.</p> <p>Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content:</p> <p>a)Equal to or more than 50% : Class-I local supplier.</p> <p>b) More than 20% but less than 50%: Class-II local supplier.</p> <p>c)Less than or equal to 20% : Non local supplier.</p> <p>Mention your category.</p>	Yes / No / Explain	

18	CANCELLATION OF CONTRACT: In the event of the contractor fails to execute the contract as per terms and conditions mentioned therein, purchaser reserves the right to cancel the contract without any notice obligations.	Yes / No / Explain	
19	Any other terms	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	Supply of Air handling unit of Modular construction with PUF insulated double wall Capacity of 11000 CFM and static pressure 125 mm of WG.	1.00 Nos.		-		
2	Supply of Pan type Humidifier, Capacity 6 kW complete with SS Tank level Switch overflow connection etc.	1.00 Nos.		-		
3	Supply of Pipe MS C class, size 3 inch complete with all fittings.	6.00 m		-		
4	Supply of Pipe MS C class, size 2 inch complete with all fittings.	6.00 m		-		
5	I/T/C of GI Pipe, size 1/2 inch, schedule 10 with complete fittings.	12.00 m		-		

6	Supply of Insulation using pipe sections of TF quality thermocole, density not less than 18 kg/m3 for chilled water Pipe size: 3 inch	6.00 m					
7	Supply of Insulation of hot water line with mineral wool,density not less than 80kg/m3 for hot water Pipe size: 2 inch	6.00 m					
8	Supply of GI duct work using 20 gauge GI sheet, 120 gsm, complete with nuts, bolts, gasket, insulation etc.	60.00 Square Metre					
9	Supply of SS 304, Ball valve, size 1/2 inch threaded type for humidifier.	2.00 Nos.					
10	Supply of SS 304L Pipe, size matching with steam outlet socket of the humidifier, schedule 10,complete with all the fittings.	6.00 m					
11	Supply of Insulation with mineral wool,density not less than 80kg/m3 for steam outlet pipe from humidifier to AHU	6.00 m					

12	Supply of GI Pipe, Size: 1/2 inch, schedule 10 with complete fittings.	12.00 m		-		
13	Supply of Automatic smoke damper complete with smoke sensor, actuators and control electronics, frame, supports etc.	1.00 Sets		-		
14	Supply of M S supporting structure, nuts, bolts, gaskets etc.	1.00 Lot		-		
15	I/T/C of Air handling unit of Modular construction with PUF insulated double wall capacity of 11000 CFM and static pressure 125 mm of WG.	1.00 Nos.		-		
16	I/T/C of Pan type Humidifier, Capacity 6 kW, complete with SS Tank, level Switch, overflow connection etc.	1.00 Nos.		-		
17	I/T/C of Pipe MS C class, size 3 inch complete with all fittings like bends, flanges, gasket etc.	6.00 m		-		

18	I/T/C of Pipe MS C class, size 2 inch complete with all fittings like bends, like bends, flanges, gasket etc.	6.00 m		-		
19	I/T/C of Insulation using pipe sections of TF quality thermocole, density not less than 18 kg/m ³ for chilled water Pipe size: 3 inch	6.00 m		-		
20	I/T/C of hot water line with mineral wool, density not less than 80kg/m ³ for hot water Pipe size: 2 inch	6.00 m		-		
21	I/T/C of GI duct works using 20 gauge GI sheet, 120 gsm, complete with nuts, bolts, gasket, insulation and supports etc.	60.00 Square Metre		-		
22	I/T/C of SS 304, Ball valve, size 1/2 inch threaded type for humidifier.	2.00 Nos.		-		
23	I/T/C of SS 304L Pipe, size matching with steam outlet socket of the humidifier, schedule 10, complete with all the fittings.	6.00 m		-		

24	I/T/C of Insulation with mineral wool,density not less than 80kg/m3 for steam outlet pipe from humidifier to AHUs	6.00 m		-		
25	I/T/C of automatic smoke damper/s, complete with smoke sensor, actuators and control electronics, frame, supports etc.	1.00 Sets		-		
26	I/T/C of M S supporting structure, nuts, bolts, gaskets etc.	1.00 Lot		-		
27	Supply of 415V, 63A TPN SFU including spreader terminals, rotary handle and HRC fuse, Cu wire of matching the switch rating for bus bar termination.	1.00 Nos.		-		

28	Supply of Star Delta Starter along with all control accessories as per attached schematic for 11kW (matching/suitable with the AHU fan motor) motor in existing MCC panel with microprocessor based relay having following protection as specified:	1.00 Nos.		-		
29	Supply of 3C x 6 sq.mm Copper conductor, XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable (2XWY).	30.00 m		-		
30	Supply of 4C x 4 sq.mm Copper conductor, XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable (2XWY).	20.00 m		-		

31	Supply of indoor end termination for 3C x 6 sq.mm Copper conductor , XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable. (2XWY)	4.00 Nos.				
32	Supply of indoor end termination for 4C x 4 sq.mm Copper conductor , XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable. (2XWY)	2.00 Nos.				
33	Installation testing and commissioning of 415V, 63A TPN SFU in existing MCC panel	1.00 Job				
34	Installation testing and commissioning of Star Delta Starter for 7.5kW motor in existing MCC panel including making of necessary cut and drilling of holes for proper fit and operation.	1.00 Job				

35	Laying of 3C x 6 sq.mm Copper conductor, XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable on existing cable tray	30.00 m		-		
36	Laying of 4C x 4 sq.mm Copper conductor, XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable (2XWY) on existing cable tray.	20.00 m		-		
37	Making of indoor end termination for 3C x 6 sq.mm Copper conductor , XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable. (2XWY)	4.00 Nos.		-		

38	Making of indoor end termination for 4C x 6 sq.mm Copper conductor , XLPE insulated, PVC inner sheath, steel wire armoured and overall FRLS PVC sheathed cable. (2XWY)	2.00 Nos.				
39	Dismantling and removal of Air handling unit of Modular construction with PUF insulated double wall and air flow capacity of 10500 CFM.	1.00 Nos.				
40	Dismantling and removal of star delta starter and TPN SFU from existing MCC panel including removal all existing power and control accessories etc.	1.00 Job				
41	Dismantling and removal of armoured power cables upto size 3C/4C x 10sq.mm from existing cable tray/wall surface etc.	50.00 m				