

**TECHNICAL SPECIFICATIONS AND OTHER ALLIED REQUIREMENTS**

SI No.	Description of items	Quantity
PUR/285/SET/AP/E/2021-22		
01.	HVAC and Electrical system for clean room ISO class 7  (Details specifications and Layout are as per below ANNEXURE-I)	01 Lot

**1. DELEVERY PERIOD (GOODS & SERVICES)**

- 1.1. Delivery, Installation and commissioning of the ordered goods are to be completed at CSIR-CMERI, Durgapur, West Bengal within 90 days from the receipt of Purchase Order.

**2. WARRANTY**

- 2.1. 01 (one) year warranty will be provided by the supplier from the date of satisfactory installation of ordered goods.

**3. PERFORMANCE SECURITY**

- 3.1. Performance Security @3% of Contract/invoice value is to be furnished by the supplier within 21(twenty-one) days from the date of Purchase Order and it should remain valid for a period of 60 (sixty) days beyond the date of warranty period.

**4. BID SECURITY DECLARATION**

- 4.1. Bid Securing Declaration in Company's Letter Head and duly signed by the authorized personal of the Bidder shall be provided by the supplier as per our format.

**5. QUALIFICATION CRITERIA**

- 5.1 As mentioned in Annexure- I

**6. ACCEPTANCE TEST**

- 6.1 As mentioned in Annexure- I

## Annexure-I

1. **End Use:** To be used for developing clean room to develop uCMM in Project No. MLP232112
2. **Detail Specification of HVAC and Electrical system:**

### **A. Air Handling Unit (AHU) and related specifications**

The HVAC system should be designed to maintain the class-07 (according to ISO 14644) clean room conditions as specified below:

- Air purity: Particulate concentration as per class 07 (ISO14644)
- Room temperature should be maintained at  $20^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- Relative humidity (RH) of room level should be maintained at  $50 \pm 5\%$
- Number of users: 3 to 4 in each of the two room (max)
- Air flow pattern: Downward unidirectional
- Air Handling unit should be double skinned with 25 mm thick Puff Insulation having density of 38kg/cu.mtr.
- Flow rate: 6000 CFM (Re-Circulating Air 90%, Fresh Air 10%)
- Cooling capacity should not be less than 8.5TR
- Drain pan construction should be 16G SS304 with more than 15mm thick nitrile rubber insulation.
- Shelter Should be provided for entire AHU system.
- Canvas connection should be Fire retardant.
- All Installation and electrical works should be done.
- Pre-Air Filter EU-4 and Fine Filter EU-9.

### **B. Air distribution system:**

- Installation of damper, distribution duct (G.I Sheet), raiser, grills.
- Leak testing of duct at site shall be carried out as per SMACNA.
- Duct insulation thickness: considerable amount > 12 mm.
- Aluminium Cladding required for the entire ducting system.

### **C. HEPA filter with Stainless Steel Plenum Box and Dampers:**

- Minimum 18 Gauge thick Terminal Box (made of stainless steel) to bear the required flow.
- Volume control damper (VCD) and perforated Grill (Stainless Steel).
- HEPA filter only to allow  $0.3 \mu\text{m}$  particle at various locations to achieve Class 7 (ISO 14644).

**D. Electrical Power System and Utilities:** The Clean Room Facility must be supplied with Electrical system having following features: (*Total power load – 10kw approx. for all rooms*)

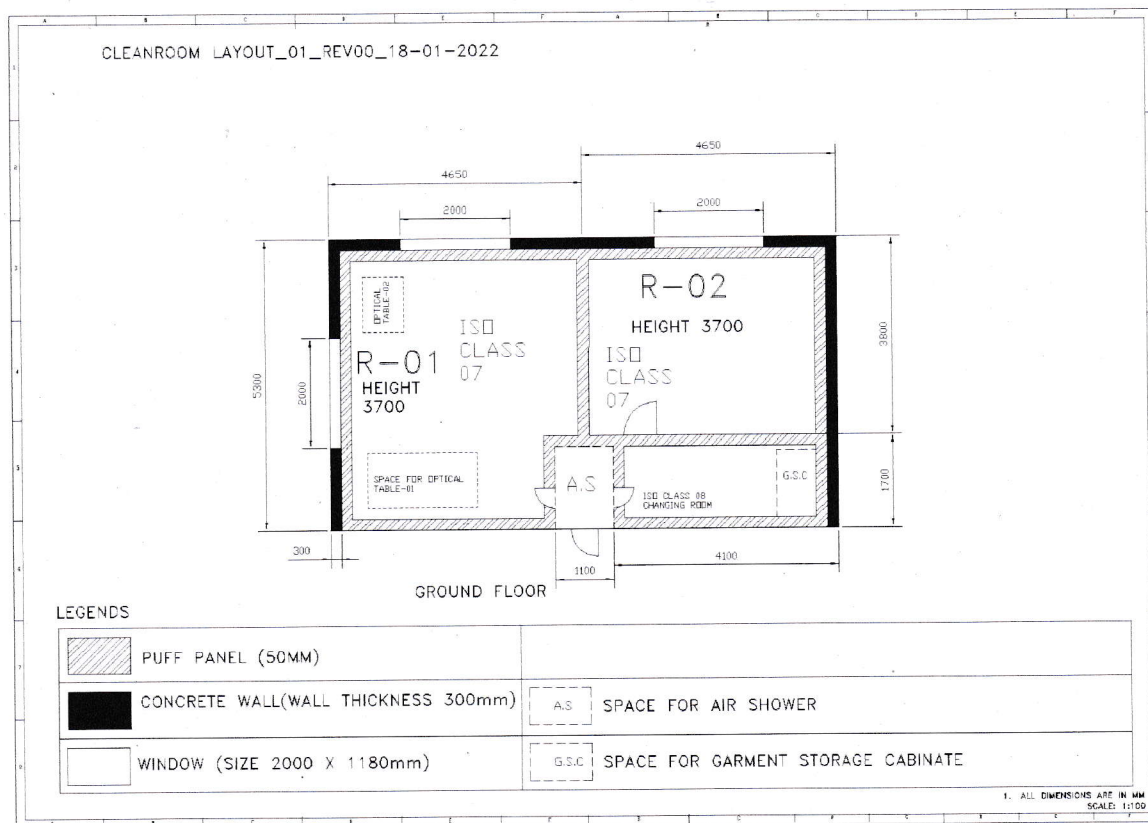
- Power socket: As per requirement.
- LED Light: Supply and installation of Clean Room LED light and accessories as per room size. The lighting level at all rooms shall be over 500 lux.
- All electrical sockets / equipment / circuits shall be protected with MCBs.

### **E. Validation**

Installation, commissioning & validation including DQ-IQ- OQ documentation (As part of Validation HEPA filter Integrity test (PAO challenge test), Air Velocity, AHU capacity, room pressures should be demonstrated and reported using calibrated instrument with traceability to NABL. Third party validation shall be arranged by the qualified bidder.

*Samir Ghosh*  
*10/1/21*

## F. Tentative Layout:



**\*\*Door Size 2100 X 1000 mm**

**\*\*Air Shower and Garment Storage Cabinate for ISO 14644 class 7 are already available in the lab.**

**\*\* Clean Room PUF panels, Doors, Flooring, Covings, Air shower, Garment Storage cabinet are not included with the "HVAC and Electrical System"**

**\*\*Ambient condition:**

**(Location-Durgapur, West Bengal)**

- Temperature: 20°C to 45°C
- Humidity :90% RH

3. **Scope of supply & incidental services:** Yes, at CSIR-CMERI, Durgapur
4. **Inspection and Tests required:** Yes
5. **Acceptance test:** Required to check cleanliness level (as per ISO 14644), Leak testing of duct at site shall be carried out as per SMACNA for air distribution system.
6. **Qualification criteria if any:**
  1. Supply experience of similar items within last 3 years is required.

*Ranib Saha*