

Dated, the 05th Feb, 2018

CORRIGENDUM-02 TO CORRIGENDUM PUBLISHED 01 FEB 2018

RFP No. 04/2017-18 FOR SETTING UP MICROBIOLOGY SECTION AND INSTALLATION OF EQUIPMENTS: CORRIGENDUM -02

Further to this office Tender Enquiry No. 04/2017-18 dated 03rd January 2018 and Pre-Bid conference held on 12th January 2018 and **corrigendum dated 01 Feb 2018**.

2. The following amendment are made in the ibid corrigendum published on 01 Feb 2018. This may be taken into account for bidding/quoting:

Revised Annexure: II

Technical specification for a Turnkey solution for clean room laboratory Set up & furniture

| No | Specification | Quantity |
|----|---|----------|
| I | <p>GENERAL:</p> <p>The microbiology laboratory shall be modular with unidirectional flow with different zones. A representative zoning floor plan is shown which can be suitably modified by the bidder keeping the flow (personnel and sample) unidirectional and avoiding cross contamination.</p> <ol style="list-style-type: none"> 1. Dress change room (Class D, ISO 8 &< 200 cfu/sq m) over pressure 15 pa 2. Clean corridor (Class B, ISO 7 (turbulent) &< 50 cfu/sq m) over pressure 60 pa 3. Sample receiving area (Unclassified) 4. Media preparation room (Unclassified) 5. Sample preparation room (Class B/ISO 7 &< 50 cfu/sq m) over pressure 45 pa 6. Inoculation room (Class B, ISO 7 &< 50 cfu/sq m) over pressure 45 pa 7. Reference culture room (Class B/ISO 7 &< 50 cfu/sq m) over pressure 45 pa 8. Incubator and enumeration room (Class D/ISO 8 &< 200 cfu/sq m) 9. De-contamination and washing (Unclassified) <p>The necessary civil and electrical shall be done as per the specifications. The class validation of 'clean area' shall be done and report submitted by the tenderer through a third party accredited agency. Equipment used for validation should have valid traceable calibration certificates.</p> <p>The furniture shall be supplied as per the specifications given below</p> | |
| | <p>MODULAR PANELLING and FLOORING WORKS</p> <p>The entire lab as per the layout shall be made with clean room modular partitions as per the following specification.</p> <ol style="list-style-type: none"> 1. Wall panels: Pre-fabricated insulated sandwich panels made up of 0.8 mm GPSP (Galvanised Plain Skin Pass) GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40±2 Kg/m3. Overall thickness of the panel shall be 80 mm. | |

2. Cladding panels: Pre-fabricated insulated sandwich panels made up of 0.8mm GPSP GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40 ± 2 Kg/m³. Overall thickness of the panel shall be 40mm.
3. Walkable Ceiling panels: Pre-fabricated insulated sandwich panels made up of 0.8mm GPSP GI sheet on both side with epoxy polyester powder coating and insulation of PUF with density 40 ± 2 Kg/m³. Overall thickness of the panel shall be 60mm. Panels shall be designed to fit within each other with self-supported system. Load bearing capacity of the panel shall be 150kg/cu. M. Necessary clean room lightings and provision for air conditioning outlets shall be provided.
4. Riser Panels: Pre-fabricated insulated sandwich panels made up of 0.8mm GPSP GI sheet on both side with epoxy polyester powder coating and overall thickness of the panel shall be 80mm with inbuilt riser duct along with perforated grill.
5. Glazed panels flushed view panel with 5mm thick toughened glass of size 900 x 900mm.
6. Aluminium coving: Aluminium coving with radius 50/65 mm with fastening arrangement and aluminium coving corner 3D aluminium coving corner 2D.
7. Clean Room Doors: Single Door fit to flush into the wall panels and must open as shown. Shutter sheet thickness will be 0.8mm and frame will be 1.2mm thick made up of GPSP GI sheet with epoxy polyester powder coating. Leaf thickness will be 44mm and infill will be PUF with density 40 ± 2 Kg/m³. Door size shall be as per requirement. Door bottom seal shall be provided.
8. Single Door Accessories:
 03 Hinges (Altos),
 01 Door Closer (Altos) -
 01 Nos. Back to Back Handle
 01 Nos. Vision (400 x 600) - ,
 01 Drop Seal
 01 Lock
 01 Kick plate
9. Flooring: Seamless antistatic PU floor – Laying 4mm (2+2) thick self leveling epoxy floor. 2mm screed + 2mm epoxy floor. The existing floor should be properly cleaned up, surface preparation carried, apply one coat of primer & laid with 2mm thick self-leveling epoxy unpigmented screed floor. And finished with 2mm self-leveling epoxy floor. The floor finish should be 4mm. The self-leveling PU made of MRF / DUPONT or equivalent. The installed floor should display good abrasion resistant & monolithic jointless surface. Shall be of stain proof, Scratch resistant, Uniform color and free of joints / undulations / bubbles etc. The floor level shall match with the surrounding area.
10. Wall to Floor Ceiling – The cove shall be made with silica sand and PU with a radius of 60mm or larger, with all wall / floor joints made as merging without any unevenness.
11. The panels shall be made of a durable and uniform material that should be easy to clean and extremely hygienic.
12. Should not have any sharp edges and corners and do not support bacteriological or fungicidal growth and is resistant to most chemicals used in the lab.
13. Gas pipe line shall be provided. The cylinders shall be kept outside conveniently for replacement.
14. Plumbing lines as required shall be provided. Water drain work with SS GMP TRAP & it's Connect with main drain line including all civil work

| | | |
|--|--|--|
| | <ol style="list-style-type: none"> 15. Exhaust line for autoclave, biosafety cabinet, laminar flow and other equipment shall be provided. 16. All temperatures, humidity and pressure should be displayed in the clean corridor. 17. The switch board should not have any sharp edges 18. All doors except the doors in change rooms shall have view panels. 19. Air locking system to maintain different pressure at entry and exist area of clean room as shown in figure. 20. The room and sterile corridor over pressure (high positive pressure) should be as indicated above. 21. Fresh air and exhaust should be provided for wash/sterlization and decontamination area. 22. Application of PU Paint on Ceiling & Walls with acrylic pulley base, & Final Finish with two coats for Media preparation area, sample receipt and decontamination and wash area 23. The bidder should do validation initially while commissioning and 2 more validations in an interval of 6 months in a year in the warranty period. | |
| | <p>High vacuum system (HVAC) System</p> <p>1.The following area shall be provided with ISO 7 (Class 10,000) with humidity control HVAC and maintained at 22 ± 3 °C and Relative Humidity 40-60</p> <ol style="list-style-type: none"> i. Clean corridor over pressure 60 pa ii. Sample preparation room over pressure 45 pa iii. Inoculation room over pressure 45 pa iv. Reference culture room over pressure 45 pa i. Incubator room over 30pa (class D) ii. Entry and Exist at 15,30,45 pa as shown in figure <p>The following area shall be provided with unclassified ventilation</p> <ol style="list-style-type: none"> iii. Media preparation room/sterilization room iv. Sample receipt/storage <ol style="list-style-type: none"> 2. Overall air quality shall be Class 10000 and should be class 100 at grill level of HEPA filter. (To achieve this air quality, if any additional items are required which are not mentioned in the technical specifications, shall be included in the offer.) <ol style="list-style-type: none"> i. Validation of HEPA filters by appropriate tests like DOP etc. ii. Air Velocity at outlet of terminal filtration unit / filters. iii. Air Particulate count. iv. Air Change rate calculation. v. Temperature & Humidity test. vi. Pressure differential levels of the OT wrt ambient / adjoining areas. v. Positive pressure in Pascal as indicated for area 3. Supply, delivery, installation, testing and commissioning of Modular type floor mounted Double Skin Air Handling Unit of G.S.S. 24 Gauge ducting complete in all respect along with silicon sealant. Duct Sheet make:- SAIL/Tata/Jindal 4. Application of 12 mm thick XPE TOC Slim insulation Cross Linked polyethylene foam with aluminum metalized foil for insulation on Supply duct running inside building area and with UV Foils for insulation for supply Ducts running out side building area i.e. exposed to atmosphere 5. Application of 09 mm thickness. XPE TOC Slim insulation Cross Linked polyethylene foam with aluminum metalized foil for insulation on Return duct running inside building area and with UV Foils for insulation for Return Ducts running out side building area i.e. exposed to atmosphere 6. Installation, Testing & Commissioning of powder coated perforated (65%) supply and Return air grills made out of extruded Aluminum sheets (Make:- ISI MARK) | |

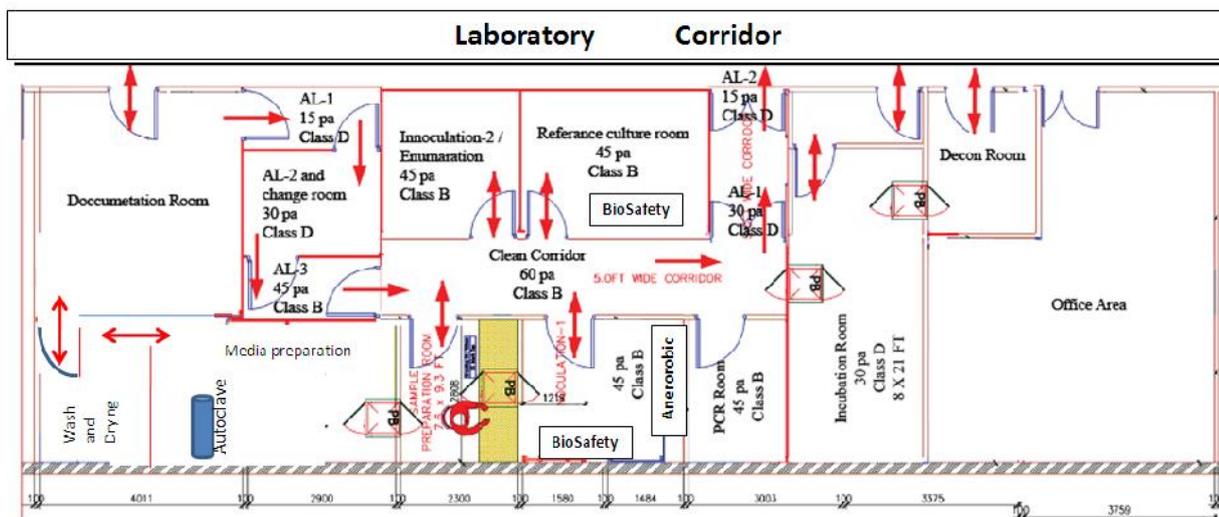
| | | |
|--|---|--|
| | <ol style="list-style-type: none"> 7. Installation, Testing & Commissioning of Powder of suitable numbers and dimensions of coated HEPA Filters (Efficiency, efficiency 99.99% for 0.3 microns with individual test certificates.) housing with PAO & Pascal Pressure Test Point with canvas connection and VCD. 8. Maximum sound limit in the corridor area shall be 50 to 60 db. 9. Installation, Testing & Commissioning of Riser Filters 10. Installation of Magnehelic differential Pressure Gauge Make :- DWYER 11. Supply, Installation of Central Display Station for Magnehelic differential Pressure Gauge with negative or positive pressure pipe with SS base plate suitable for 10 Nos . 12. Temperature and RH sensor to measure the temperature and humidity of each clean room. Accuracy levels: Temperature: ± 0.2 °C or better, RH: $\pm 1\%$ or better. 13. Motor should be non-flame proof type and fan will be non spark proof type. 14. AHU coil, fan, motor shall be selected for 10% extra capacity. 15. The electrical wiring inside the AHU room and interconnection between AHU and outdoor unit through required protective circuits in all manners including HP, LP with fully automatic control unit shall be provided. 16. All the external ducting shall be made weather proof. | |
| | <p>OUTDOOR CONDENSING UNITS (Packed ductable split AC) SITC of air cooled condensing units of following capacities with multiple scroll compressor, condenser fan motor unit etc with R-22 refrigerant and MS mounting stand. The capacity shall be decided as per head load calculation. The offered capacity shall be mentioned in the offer form. The lab will be functioning for</p> <ol style="list-style-type: none"> i. Supply of R-22 Gas of required quantity. ii. Supply, installation, testing and commissioning of Vibration Isolators for Condensing Units. iii. Erection, Testing and Commissioning: Ductable Split Unit Installation, iv. Testing and Commissioning of AHU & ODU along with accessories like expansion valve, drier and corded remote PCB for temperature control. v. Suitable UV lamp for the coil disinfection | |
| | <p>Electrical works comprehensive</p> <ol style="list-style-type: none"> 1. The power required for the microbiology lab shall be taken from the main panel of the building. Necessary distribution panels shall be installed by the bidder. <ol style="list-style-type: none"> a) Adequate lightings shall be provided. b) The electrical inspectorate's approval shall be obtained by the bidder <p>Wiring and Accessories</p> <ol style="list-style-type: none"> 1. Supply & wiring for following points in surface / recessed mounted rigid medium gauge 20mm PVC conduit with all accessories, using 3 runs of 1.5 Sq mm FRLS PVC insulated stranded copper conductor single core wire for phase, neutral & earth, with modular 6A one way switch, modular plate, suitable GI box etc as required: 2. Light point / exhaust fan / turbo ventilator points as required 3. Supply & wiring for circuit / sub main wiring in surface / recessed mounted rigid medium gauge 25mm PVC conduit with all accessories in surface/recess 4. Supply and Fixing the following modular type switches & accessories with modular plates and suitable GI boxes and giving necessary connections as required <ol style="list-style-type: none"> i. 6A SP 5 pin shuttered modular type socket with switch in each switch board ii. 2 nos 6 A SP 5 pin shuttered modular type socket with 2 No's modular switch –UPS power. | |

| | | |
|--|---|--------------|
| | <ul style="list-style-type: none"> iii. 16A 5 pin shuttered modular type socket with switch iv. Provision for shifting existing switch board to a conventional location and giving connections etc. v. Supply and fixing 20 amps. 240 volts SP industrial type socket outlet (IPP) with 2 poles and earth, metal enclosed plug top including supply and fixing of one number 20 amps (10kA) SP MCB (C-Curve) in sheet steel enclosure on surface or in recess with chained metal cover for the socket outlet and complete with connections testing and commissioning etc. as required. vi. Installation of Clean Room Lights & Fixture with fitting with LED12" x 12 vii. Installation & Testing of <ul style="list-style-type: none"> a. Modular Switches. b. Modular Sockets for various instruments in each room <p>MCBs AND MCB DISTRIBUTION BOARDS</p> <ul style="list-style-type: none"> i. Supply and installation of sheet steel, phosphatised and painted, dust and vermin proof enclosure of MCB 4 Way double cover Vertical DB – 3 Phase of including copper /brass bus bar, neutral link, earth bus and DIN rail with MCB/isolator/RCCB etc. fixed on wall using suitable anchor bolts or fixed in recess including cutting hole on the wall, making good the damages, colour washing etc. as required. ii. Supply and installation of sheet steel, phosphatised and painted, dust and vermin proof enclosure of UPS DB –6 way single Phase double cover (IP 42/43)230 V of including copper /brass bus bar, neutral link, earth bus and DIN rail with MCB/isolator etc. fixed on wall using suitable anchor bolts or fixed in recess including cutting hole on the wall, making good the damages, colour washing etc. as required | |
| | <p>Wall mounted fans (In unclassified areas) Supply, conveyance, installation, testing and commissioning of wall mounted fans, as required. Fixing necessary bolt and nuts, making good the damages etc. as required including giving connections with required length of 24/0.20mm PVC insulated and PVC sheathed 3 core round copper conductor flex wire or with extended original wiring etc. and numbers as required.</p> | |
| | <p>Lighting fixtures Supply and fixing cast aluminium down light fitting with 11 to 14 W CFL to false ceiling including giving connections with required length of 16/0.20mm PVC insulated and PVC sheathed 3 core round copper conductor flex wire conforming to relevant ISS or extending the original wiring and making good the surface as required (Wipro WCP 27118 SWG or equivalent make)</p> | |
| | <p>Validation of HVAC after completion</p> <ol style="list-style-type: none"> 1) Documentation for DQ, IQ, OQ with certificates of all brought items. 2) Integrity test for HEPA Filter's once. 3) Room Pressure balancing once. 4) velocity 5) Particle count 6) Recovery Test 7) Air Flow Pattern | |
| | <p>Fire extinguisher Supply and installation of ABC type dry powder fire extinguisher of 2 kg. Capacity complete with initial charges and installation brackets</p> | |
| | <p>15 KVA 3 phase Stand by on-line UPS with 60 minutes back up with battery, rack and stand. Essential lights and equipments shall be connected to the UPS.</p> | |
| | <p>Air curtain 1.7m length should be installed wherever required</p> | |
| | <p>Hand Sanitiser (Automatic IPCA dispenser for clean rooms)</p> <ol style="list-style-type: none"> 1. The hand sanitizer should automatically dispense disinfection (Isopropyl alcohol) on to hands. | <p>6 Nos</p> |

| | | |
|--|--|-------|
| | <p>2. The sensor should detect the hand and dispense 0.5ml disinfectant solution.</p> <p>3. Body should be non-corrosive stainless-steel construction.</p> <p>4. Tank capacity 500ml</p> <p>5. Volume of spray / cycle : 0.5ml</p> | |
| | Single Biometric Access control system for restricted entry to the classified area | 1No |
| | Installation, Testing & Commissioning SS-316 vertical LAF bench for sample preparation room as per Size :-4' X 2.5' x 2.5' (2 Nos) meeting with minor changes as per area available | 2 Nos |
| | <p>Static Pass box</p> <p>Installation, Testing & Commissioning SS-304 static Pass Box fully automatic system, with electromagnetic interlocking system, digital display, UV & fluorescent light alarm system etc.</p> <p>Size :- 1.5' x 1.5' x 1.5'</p> | 1 Nos |
| | <p>Dynamic Pass box</p> <p>Installation, Testing & Commissioning SS-316 DYNAMIC Pass Box fully automatic system, with electromagnetic interlocking system, digital display, HEPA Filters, UV & fluorescent light alarm system etc.</p> <p>Size :- 1.5' x 1.5' x 1.5'</p> | 3 Nos |
| | <p>Cross over Bench at entry and exist of clean room and media room</p> <ol style="list-style-type: none"> 1. SS 304, 18 & 16G combination, mat finish 2. Bottom side of top provide "C" type stiffner for durability of top 3. Inside horizontal support 4. Bottom both side 30mm color for will be grouting 5. Approx size 1000 mm W x 400 mm D x 600mm H (can be modified to size) | 3 No |
| | <p>SS Work Bench/table</p> <p>Table should be SS 304 without drawers and lockers all exposed surfaces should be 16 gauge SS.</p> <p>Size - 1500 MM x 750 MM (W) x 900 MM (H) (minor deviations acceptable)</p> | 4 |
| | <p>Modular Work bench</p> <p>Installation & Commissioning SS304 with drawers and lockers</p> <p>Size - 1500 MM x 750 MM (W) x 900 MM (H) (minor deviations acceptable)</p> <p>6 nos of 15/5 amps with 3 pin socket cum Switch with Electrical Panel should be provided.</p> <p>Table top should be provided with (18mm ±1mm) thick well polished Black Granite.</p> <p>Should have reagent storage rack on the top of the table at convenient height across the table top.</p> <p>Should have provision to keep materials on top of the shelf also.</p> | 3 |
| | <p>Modular workbench with sink and eyewash</p> <p>Stainless steel SS304 table of dimension 1800 x750 (W) x 900 mm (H) tabletop height from floor. Minor deviation in measurement is acceptable.</p> <p>Should have under bench drawers and shutters with locking arrangement.</p> <p>6 nos of 15/5 amps with 3 pin sockets cum Switch with Electrical Panel should be provided.</p> <p>Table top should be provided with (18mm ±1mm) thick well polished Black Granite.</p> <p>Should have covered reagent storage rack with two shelves on the top of the table at convenient height across the table top.</p> <p>Should be supplied with one sink (SS 304)at the right end of size 400 x 300 mm Approx (16x12 inches)sink joints should be continuously welded.</p> <p>with two way water tap (hand-free operation) and eyewash.</p> <p>Water connections and plumbing should be provided</p> | 2 |
| | <p>Movable trolley with lockable wheels</p> <p>SS 304, 18 & 16G combination, mat finish</p> | |

| | | |
|--|---|---|
| | <p>Size :- 2.5' x 2.5' with two shelf 2nos</p> <p>Size :- 2.5' x 2.5' with Three shelf 2Nos</p> | |
| | <p>Bench stool</p> <p>Installation & Commissioning SS-304 WORKING STOOL for above bench SS 304, 18 & 16G combination, mat finish 2Approximate size 900mm W x 600 mm D x 600mm H</p> | 7 |
| | <p>Sterile garment storage cabinet (in Air Lock 2 of entry to clean room)</p> <p>Dynamic garment storage cubicle complete SS304 construction. Port for HEPA filter leak testing Prefilter 5 microns for fresh air intake SS rod for hanging folded garments. SS perforated shelves / tray (removable) at bottom for keeping mask and shoe cover etc. Stainless steel back panel with perforation at bottom for exhaust Fully toughened glass door. Differential pressure gauges ON/OFF switch for blower & white lights UV light with fittings & limit switch Hourmeter for UV Leveling legs. Approx internal dimension : 610(W)x 430(D)x 1335(H)mm with minor modifications as per available area</p> | 1 |

Schematic layout for CFL, Kolkata Microbiology Laboratory



AL : Air lock

Clean room area are marked with desired class and pressure

→ Direction of flow

PB : Pass BOX (Dynamic pass boxes Except from Incubator room to Decontamination room where it is Static)

* The Area Not to be Scaled

Sd/-

(Umesh Kumar Jain)
Joint Director(QA)