जीव विज्ञान संस्थान
INSTITUTE OF LIFE SCIENCES
(An Autonomous Institute of Department of Biotechnology, Govt. of India)
NALCO SQUARE, BHUBANESWAR-751 023

Corrigendum 3

No.: No. IV-303-S&P/GT/Online/SE/2753/ 2018-19/ILS, dated 30.11.2018

Global Online Tender Notice No. IV-302-S&P/GT/Online/BSL3/2754/ 2018-19/ILS, dated 30.11.2018

Design, Supply, Installation, Testing and Commissioning and Validation of Prefabricated Modular BSL3

The BOQ and revised important dates of the online Tender are modified as follows:

Bid submission end date and time/ Bid Closing date & time	8th January, 2019 at 04.30 p.m. (IST)
Date and time of opening of Technical Bid	9th January, 2019 at 11.00 a.m. (IST)

All other items & conditions except the above modifications, of the above Global Online Tender remain unchanged.

Sd/-
Stores & Purchase Officer

Bill of Quantity (BOQ)

Turnkey Project for Design, Supply, Installation, Testing, Commissioning and Validation of Prefabricated Modular BSL-3 Lab

S. No.	Description	Quantity
	Turnkey Project involving Design, Supply, Installation, Testing, Commissioning (SITC) and Validation of BSL-3 Lab of approximate Area 1280+320 sq ft (4 Container for Lab Area and + 1 Container for the Plant Room) on Turnkey Basis and its Operation and Maintenance complying with WHO-BMBL and CDC-NIH guidelines: Bacteria Lab-1 (1 No.) Virus Lab-1 (1 No.) Animal Holding Lab (1 No.) Procedure Room (1 No.) Autoclave Room Common Corridor (Airlock) Inner Change Room Shower Outer Change Room Preparation Room System Feature: BSL Area - HVAC system including complete air management system for maintaining the lab environment as per WHO-BMBL and CDC-NIH guidelines, Air flow control, air-conditioning, electricity systems and machineries are fabricated on the site.	
1	Prefabricated Containerized BSL 3 Lab in 4 + 1 Containers (40 ft x 8 ft each) With Ducting Insulation as per layout & technical Specifications meeting the WHO-BMBL and CDC-NIH guidelines	1 Lot
	HVAC Work: **Chiller:** #The actual capacity of Chiller should be suitable to maximum outside temperature, CHILLING UNITS each complete with compressor, motor, insulated chiller, flow switch at chiller, fans, vibration isolators, integral refrigerant piping and wiring, accessories as required and called for, automatic and safety controls mounted in central console panel and all mounted on a steel frame complete as per specifications. Chiller Shall be placed outside the Container. **Air Handling Units:** AHU parts selection shall be done as per WHO/BMBL and NIH-CDC guidelines #The inner skin 20 G Plain GI # Outer skin 22 G precoated GI # Approximately 40 mm thick PUF insulation panel, with internal coving and in thermal break construction. #Three Stage Filtration shall be in Air Handling Unit as per above mentioned ASHRAE Standards. # Third stag e Filter should be HEPA Filter with average efficiency > 99.99% down to 0.3 micron	1 Lot
	# All filters should be UL 9000 Classified. # The Air Handling Unit should be complete with Fresh Air Section, 8RD CHW coil, Pre & fine filters on common frame, approx 25 mm PUF panel sections with thermal break profile , Fresh Air, Supply Air, Return Air dampers with Standby Motor/	

2	Blower option. Supply, Installation, testing and commissioning of AHU - FOR CLASSIFIED AREAS - ISO 8 at Rest as per US Fed Standard. Three Stage Filtration shall be in Air Handling Unit as per above mentioned ASHRAE Standards. Third stage Filter should be HEPA Filter with average efficiency > 99.99% down to 0.3 micron. Duct Heaters shall be used for De-humidification purpose to achieve desired RH. **Exhaust System:** The inner skin 20G Plain G.I and Outer skin 22 G pre coated GI and approx 25 mm thick PUF insulation panel, with internal coving. All AHU Dampers to be of Extruded Aluminium Low Leakage Aerofoil design with polycasted wheels volume control dampers suitable for manual & motorized operation with Standby Motor/ Blower option. The capacity of the selected Exhaust Blowers shall be 15% higher than the designed required capacity. Filtration for Exhaust: BIBO HEPA: 0.3 micron @ 99.99% efficient *AHU-Exhaust unit shall be positioned inside the Plant Room Container.*	
3	**DDC Control System** **CONTROL PANEL: Alarm and Monitoring Systems:** a) Pressure gauge b) Pressure alarm visual/audio c) Temperature/RH alarm visual/audio d) Emergency panic button (break glass type) - audio all rooms/control room e) Emergency door-open” button (For interlock door) **At the Control Side** –BSL3- control software **Computerized Controls (DDC) with Software and Server:** The control System, consist of DDC, should automatically adjust system airflow and maintain system as the designated negative pressure. The DDC should have the following features: · The system controller (DDC) controlled via a dedicated software program. · Centralized Control · Automatic air flow control.	1 Lot
	· Pressure, Temperature & Humidity monitor and control. · Doors interlock - controlled by DDC and display on the DDC control panel. · HEPA filter resistance and efficiency monitoring. When the pressure of the filters reaches the setting value, the DDC has the alarm. · **Manual / Motorized Damper:** #consist of Aluminium casing with factory fitted motorized damper. Casing and attachments should be in stainless steel. # The damper blade with plastic seal when closed should comply with DIN EN 1751, CLASS 4 (Exception normal size 100 and 125, class 3) also complies with the requirement of DIN 1946, Part 4 (leakage < 10 M3/h. M2 of damper cross section with a 100 Pa Pressure differential).	
	Electrical System:	

4	The main power distribution (LT) panel and required power for the BSL-3 Laboratory shall be arranged and provided by institute, upto the main LT Panel of the BSL-3 Laboratory. Connection of AHU/ VFD starter Panel with LT Panel. Complete Electrical wiring, switch & sockets, Lighting. LT Panel Shall be placed inside the Plant Room Container.	1 Lot
5	**CCTV, Door interlocking, Access Control:** CCTV System shall be provided for surveillance of the Laboratory. The CCTV system shall be complete with wall/ceiling mounted high resolution color cameras, multiplexer cum DVR, associated power and control cabling etc. The door interlock and access control system shall be provided with combination of proximity card based, numerical key pad lock based and push button based system. The Fire Detection & Alarm System shall be complete with Smoke detectors, Heat detectors, manual call points, response indicators, power and control wiring and cabling etc.	1 Lot
	Civil Panel Work: **Wall And False Ceiling System:** - Internal wall panels should be pre-fabricated with GI Frame and welded to form C-channel structural frame. - The wall skin should be of GI composite panel, sandwich with PUF material, which acts as a thermal barrier. Space inbetween is sandwiched with PUF insulation and fire retardation purpose. - The GI panel edges are sealed with Room Temperature Vulcanizing (RTV) Silicone to the structural frame and fasten on both sides to form an airtight sealed panel.	1 Lot
	- Wall panel system should be double skin 100 mm thick skin powder coated and the thickness is 0.8 mm with PUF as the insulation. **Flooring** - Airtight and chemical resistant PVC flooring, 2mm thick. - The topside of floor is covered by sheet vinyl flooring (PVC), non-skidding, abrasion resistant and chemical resistant.	
6	- All joints are hot welded. Top coving strip, around the inner perimeter of the walls, is carefully sealed with RTV sealant. - All coved corner wall joints are carefully cut, formed and sealed. **The Radius Coving (wall-to-wall, and wall-to-ceiling, from inside to outside corner):** Smooth radius coving should be installed at all wall-to-wall and wall-to-ceiling joints. All seams should be carefully sealed with RTV sealant. Corners at floor - coved from PVC floor sheet to the wall. **Doors** - The doors meant for entering / exit into the rooms, considered should be double skin GSS with PUF insulation of suitable thickness in between. - Shutters should be 44mm thick. - The Entry Air lock door, Shower door and Exit Air lock doors should be interlocked. - Doors inside the controlled area are interlocked except the emergency exit. All doors have continuous rubber gasket around the perimeter. - The interlock logic should be such that while entering or exiting the facility, traffic from the other side should not get access, to ensure privacy.	

7	**BIOSAFETY CABINET (CLASS II B2 Type)** The Bio-Safety Cabinet body, frame and supports shall be constructed in SS 316 L (18 gauge). The work surface shall be perforated SS 316 L (18 gauge). The front shall have SS 316 L (18 gauge) top section and sliding sash in toughened glass with required counter weight.	5 Nos.
8	**AUTOCLAVE** Autoclave shall be double door, rectangular, steam operated, high pressure high vacuum, suitable for horizontal loading of waste. The autoclave shall be with bio-seal design. The Autoclave shall be approximately 325 Ltr capacity or higher. The autoclave shall be free standing type. The Autoclave shall be PLC controlled, programmable and shall be loaded with different pre-programmed decontamination and sterilization cycles.	1 No.
9	**PASS BOX** shall be provided at required locations for transfer of samples, chemicals and materials into the laboratory Pass box with UV to be provided at Preparation Room and Exit Airlock. The Pass Box shall be constructed in SS 304 (18 gauge). The corners inside the Pass Box chamber shall be coved for easy cleaning. The unit shall be complete with, door electromagnets, door interlock, UV Lamp with timer, necessary wiring, controls and all other accessories. etc. complete.	3 Nos.
10	Preparation of Civil Foundation and Canopy Work as per Site requirement.	1 Lot
11	**EFFLUENT DECONTAMINATION SYSTEM** The Chemical Decontamination System for BSL-3 Laboratory effluent of required Capacity. The drain line from BSL-3 Laboratory containment area shall be terminated to the effluent decontamination tanks. The effluent decontamination tanks shall be provided with motorized OPEN/CLOSE valves connected with liquid level sensor such that when one tank get filled up to full volume, the supply valve shall automatically close and the supply valve of the standby tank shall automatically open to allow collection of effluent.	1 No.
12	S/I/T/C of Shower, Eyewash station and Plumbing work as per technical requirement.	1 Lot
13	UPS - of 30 KVA Capacity shall be provided to cater to the extreme essential power requirement of the laboratory. All critical components like Door Interlocks, BMS, Operation of Isolation Valves, exhaust blowers of BSL-3 Laboratory and critical equipments shall be provided with Uninterrupted Power Supply.	1 No.
14	**Testing and Validation:** The list of test to be performed is as below: · Containment Barrier Integrity Test · HEPA Filter Leak Test – According to the US Federal Standard 209E · Ducting Pre-welding leak test · Ducting post-welding leak test · Room Differential Pressure test · Particle Count Test for Cleanliness · Air Velocity/ Pattern smoke Test · Room Air change Rate Test · Light intensity Test · Noise level Test · Biological Safety Cabinet Test · Temperature and RH	1 Lot