Name and Specifications of the product:

Sealed tenders are invited in Two Parts, (I- Technical Bid and II- Price Bid) on behalf of the Director, IISC, Bangalore for the work "**Setting up Virus BSL 3 laboratory facility inside the existing structural shed at roof top of CIDR building approximate area 865 Sq. Ft. The newly constructed BSL 3 lab should be compatible to WHO recommendation including Design, Engineering, Supply, Installation, Commissioning, Testing and 3rd, party Validation with Documentation on TURNKEY basis"** at IISC, Bangalore, Centre for Infectious Disease Research (CIDR) Biological Sciences Division. IISC, Bangalore, Karnataka" from well experienced and specialized companies only, as per the schedule of work and General Terms & Conditions available in the Institute office and on the Institute's website **www.iisc.ac.in.**

Send your best quotation for the following item with various accessories on C.I.P. Bangalore basis to the undersigned. Your quotations for setting up theVirus BSL 3 Laboratory facility and Animal Holding – ABSL-3 area including Supply, Installation, Commissioning, Testing, 3rd, Party Validation and Documentation confirming to WHO guideline at 'IISC', Bangalore, India needs to be distinct and should clearly indicate the terms of delivery, delivery schedule, applicable GST and entry tax, payment terms, etc.

The tender should be submitted in two separate sealed envelopes: onecontaining the TECHNICAL Bid and the other containing the COMMERCIAL Bid, both of which should reach the undersigned, duly signed and stamped on or before 1700 hours MAY30th, 2019. The technical bid must include details of technical specifications of the equipment along with commercial terms and conditions; however, **the price components should NOT be shown**.The commercial bid must include the price of the item on the BOQ sheet indicating the break-up of the following:

(i) The price of the goods quoted should be CIF Bangalore.

(ii) The charges for insurance and transportation of the goods by Air/Road upto Bangalore.

(iii) The installation, commissioning and training charges including anyincidental services, if any.

(iv) Please enclose a compliance certificate along with the technical bid.

IISC, Bangalore intended to set up Virus BSL 3 laboratory facility to be located at 3rd floor roof top existing structural shed of the CIDR centre inside the institute campus according to the minimum acceptable regulatory recommendations established by WHO related to regular operation of BSL: 3 and associated Animal BSL-3 lab. Approximate area of the BSL 3 lab facility would be 865 Sq Ft.This is an educational-research & development establishment. Users will not go for commercial production of any vials/ ampoule in large scale and should be used as an R&D study establishment. The existing structural shed is located at thespecific3rd, floor roof top of CIDR building along with the technical plant room positioned at the adjacent existing structural shed area only. Construction of the BSL-3 & ABSL-3 lab facilities shall be executed inside existing structural shed after necessary dismantling of existing equipment that are not in use in consultation with IISC authorized personnel of CIDR department.

The specific requirement of the Bio-containment laboratory requirements along with stipulated indoor climate guidelines confirming to WHO recommendations as applicable for the BSL 3 lab facility on turnkey contract basis. The existing civil & structural setup and other system to be dismantled and replaced with dedicated once through HVAC system with arrangement for 100% redundancy stand by, other accessories including DX air chilling/condensing units supply, fully auto control system, 3 stage filtration system to ensure supply of treated and filtered fresh air flow into the specified area confirming to class-100,000, and exhaust air system with necessary air filtration and burning units from the lab area, necessary arrangement should be made for dedicated exhaust air from the IVC ventilators, provision for 3 sets of the IVC system has to be considered, Suitable system for extraction of discharged air from the Bio Safety cabinets – 3 sets, provisions shall be provided accordingly,necessary GI ducting with thermal insulation, Chiller with multiple compressors operating in tandem to TFArefrigerant piping including manifold and insulation, necessary BMS system automation and control system for maintaining BSL 3 lab internal environment, Electricals & controls, etc complete in all respect to maintained the desired Temperature 22±2˚C & RH 60±5% and required **NEGATIVE** pressure cascade. CCTV shall be provided inside the BSL 3 & ABSL 3 lab facilities and that shall be interconnected with BMS/automation system monitor to be placed at existing control room at GF.

The following temperature and humidity conditions shall be maintained.

- 100% fresh air and NO recirculation system
- Lab Inside Temperature: 22 +/- 2 C
- RH: 60% +/-5 %
- ACPH: Min. 40 ACPH
- Cleanliness as class 100,000 should be maintained inside the facility.

1. General Scope of works:

Designing and re-structuring of MS structural shed and peripheral walling as required for construction of new BSL 3& ABSL 3 lab.De-activation, dismantling and removal of existing Electrical, HVAC & other system components complete in all respect i.e Electrical terminations, existing AHU, Exhaust units, ducting closing and sealing of non-operational air network in specified BSL 3 lab space, construction of new BSL-3 lab internal clean room compatible double skin PUF in-filled modular wall system with necessary factory fabricated cut outs for electrical and HVAC installations, fabrication and installation of double skin walk-able modular ceiling system etc and repairing it as per site requirement including supply/installation of all applicable materials and necessary labours etc related for specified area & route (route for BSL 3 lab interior installation of system) of the lab. Designing of the BSL 3 lab facility suitable for the specific location and area shall be in the scope of the contract. The designing with necessary man-material flow plan shall be incoordination with users and material movement planning according to the BSL3 lab set up guidelines.Separate CO_2 cylinder storing space barricaded outside the facility along with SS distribution piping & manifold shall be provided for supply gas to CO_2 incubator and BSC cabinets.

Any other work related to uninterrupted working of the BSL/ABSL 3 lab facility shall be treated as a part of scope of the bidder. The entire lab shall be validated in coordination with authorized members of IISC as per the WHO guidelines and necessary documentation and validation report duly stamped and signed by the authorized member of IISC and contractor as well should be submitted at the time of completion and handing over.

Round the clock Operation and Comprehensive Maintenance for 12 months after successful validation and handing over to IISC:

Operation and Comprehensive Maintenance of the ABSL 3 lab facility including providing skilled operator cum technicians in each shift (round the clock) with one supervisor and one operator in general shift including reliever, for operation and maintenance of the facility round the clock (7 days x 24hrs, 365 days/year) as per the site requirement to run the facility without any breakdown. Periodical Operation and Maintenance test report duly signed by authorized user scientist of IISC should be submitted in pre-approved format at the end of every third month. Yearly facility validation should be conducted by the contractor in coordination with user scientists. Vendors need to submit an optional quote for round the clock operation and comprehensive maintenance for additional 24 months after 12 months of initial maintenance contract.

On-site Operation & Comprehensive Maintenance activities include:

- High Side comprising of Chiller, Compressors, with all accessories
- Low Side comprising of AHUs, EXUs, Air distribution system (ducting with insulation), Air control devices like VCD, Registers, Grilles, Louvers, Terminals with filters, coils, heaters etc.
- Refrigerant piping system including control devices, flow balancing and Insulation
- Total Electrical System comprising of MCC and connected components, Cabling with all associates and Protection devices
- Building management system including controllers, field devices and sensors checking and monitoring including calibration, replacement if needed
- Operation & comprehensive maintenance of complete security System including access control and door interlock arrangement, Fire and CCTV.
- Observations & readings to be recorded - Reporting
- Periodic Lab Fumigation & Performance qualification/validation in coordination with USERS

BSL-3 Laboratory Controlled Area:

The proposed BSL3 lab shall consist of Virus lab, necessary Buffer/Airlock, Change room-1, Change Room-2, Virus BSL-3 lab and an Animal Holding area, one set entry/exit airlock, wash /sterilization room, integrated Building Management System (IBMS) room for controlling-monitoring and preparation area, procedure area. The proposal for any amendment to layout for better utilization of the available space to increase the laboratory functioning should be discussed during technical presentation. The following pressure gradient condition shall be maintained in various areas of the laboratory.

1) Virus BSL-3 Room: **Operating pressure: -40 Pa**.
2) Animal Holding air lock: **Operating pressure: -25 Pa**.
3) Animal Holding Room: **Operating pressure: -40 Pa.**
4) Entry Buffer Air lock room : **Operating pressure : +5 Pa.**
5) Change room-1 : **Operating pressure : -10 Pa.**
6) Change room – 2 **: Operating pressure : -25**
7) **Lab Uncontrolled Area:** Non control area includes wash room, mechanical rooms for utilities only.
8) Utility system including piping manifold:CO_2Cylinder banks housing outside the new facility
9) Necessary Utility connections including, SS piping and manifold for CO_2 incubator Bio-safety Cabinets etc. should be in the scope of the turnkey contractor.

10) Dedicated silent DG set should be installed at GF near existing old DG room and should be suitably connected for supplying electrical load at GF and new Virus BSL 3 lab in need.

Major Project Components for consideration while designing the facility:

- Supply, installation, testing and commissioning of once through TFA units with 3-stage filtration system, tubular heater, motor blower, wiring etc complete in all respect. DX type TFA system, Dedicated suitable Exhaust Air System installed and connected air distribution system through GI outside/inside ducting up-to the lab area complete in all respect with all materials and labours etc including dismantling and construction / repairing of civil and structural.
- Supply, Installation, Testing and commissioning of new set of suitable air-cooled condensing units required for interconnection with new TFA system complete with all necessary valves and auto controls as required.
- SA Duct Mounted heater section fitted with Tubular Air Heating Elements filled with best quality MGO Powder, Stainless Steel - 304. Sheathed with G.I. Finns. Terminal Box in G.I dust-proof construction, 14 SWG GI enclosure complete with Primary and Secondary step control system in 4 sequences to be configured according to 4 sensors to be installed in LAB-I in different locations, corresponding mapping to be arranged for sequential ON/OFF command to trigger the respective heating element for effective control of RH as per stated parameter.
- Main Electrical & Process MCC with UPS LT Panel with bus bar and sub MODULES for HVAC control system, Electrical, Mechanical and process utility supply. Panels shall have aluminium bus bar and required and necessary tripping arrangement. Free floor/wall mounted, indoor type, front operated, Top/Bottom cable entry. Panels made out of powder coated 2 mm sheet steel, PVC colour coded. With Humidity control system.
- Necessary Incoming power cabling with support cable tray to be installed considering the available best possible cable routing from GF power source area up to electro-mechanical plant room are at 3rd, floor near the proposed BSL 3 lab.
- Dedicated MCC panels to be designed for RAW, UPS & Process power supply with necessary protection for supporting entire BSL 3 lab utilization.
- Three Phase On-line UPS capacity 20 KVA, 3 Phase IN & 3 Phase OUT. Microprocessor controlled double conversion advanced VFI inverter with isolation at outlet. Sine Wave PWM with high frequency switching. Battery Back-up 30 Mins.
- Field communication control cabling network to be done between Pressure / TEMP / RH sensors and controllers and finally with power distribution boards / MCC. All field

devices/instruments shall be located in close vicinity of the working staff enabling them to check and operate accordingly. Necessary modifications will be done in existing structural units in coordination with re-modelling scope.

- Field mounted sensors will be installed and mapped for working in sequence with operating parameters of the BSL 3 lab. Control panel box with step operation module is proposed in suitable locked room only.
- All power / control socket pores installed inside BSL 3 LAB shall be blocked at FC level for arresting un-controlled air infiltration / ex-filtration event.
- The Tubular heating section to be installed at the SA AHU/Duct in specific location inside technical plant room space only for easy check and operation-maintenance.
- Temp sensors to be installed which shall be guided by control system to be installed in coordination with solenoid valve in PLC panel of the existing condensing units to work in sequence to the command received from input status of lab climatic parameters.
- New systems to be installed in all air flow control devices mainly VCDs and should be throttled in different stages according to flow balancing with as required with reference to required negative air flow pattern in main BSL 3 labs only.
- 20 KVA 3 Phase online UPS system should be installed for power supply to the critical lab instruments as suggested by IISc authorities.
- Magnahelic gauges are proposed for installation at entry door top of the critical BSL 3 labs (3 labs) to check status of air flow before entering the lab space.
- Provision kept for 100% stand by drive arrangement designed inside the TFA/EAU itself.
- SITC of Automation and BMS system and integrated Operator Terminal to view the DATA (Negative Pressure, Temp & RH) through device, complete with administrator locking parameter. Automatic Temperature and Humidity control arrangement.
- Addressable Fire detection system with CCTV surveillance network should be considered for setting up the BSL 3 lab facility.
- VFD arrangement to ensure desired constant air flow supply/ACPH to lab area.
- Visual check device near TFA itself for maintaining healthy condition of filters.
- Testing and commissioning of system in co-ordination with IISC team.
- 3rd, Party Validation of specified laboratory rooms ambiance with documentation.

BSL 3 LAB INTERIOR WALL& CEILING PANELS:

Wall Panel System should be self-supported; double skin sand-witch type GSS/CRCA powder coated metallic Wall panels of 0.6 mm thickness on both sides with 80 mm min. thickness PUF

in-filled with min.40+/-2 Kg/m3 density insulation. Complete with in-built (25mm / 32mm dia) conduit including service panel, Aluminium / GI floor track system, factory fitted cut-outs for necessary Doors, Windows, hatch openings for lab or process equipment, power/communication sockets etc. Ceiling System- Walkable double skin sandwich type GSS/CRCA Powder coated Metallic ceiling panels of 0.6 mm thickness on both sides, 80 mm thick PUF in-filled with 40+/-2 Kg/m3 density insulation. Complete with extruded aluminium powder coated supports and hanging arrangement, with aluminium profiles that create uniform seams. The Partition seams must be sealed by RTV silicone with a perfectly flush finishing. PUF insulation material is sandwiched between the two skin layers and sealed from the exterior by the GI frame work including all cut-outs factory fitted, for Air terminals/Diffusers and lighting, Pass Box etc.

THE RADIUS COVING (wall-to-wall, and wall-to-ceiling, from inside to outside corner):
Smooth radius Powder Coated / PVC 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.

THE DOORS:
Door System: Double skin PUF insulated Clean Room compatible Doors should be designed to fit flush into the 100 mm thick wall panel system on both sides and are supplied in different dimensions as per drawing. Doors are to be fabricated from CRCA duly powder coated sheet. Shutter has sheet thickness of 0.8mm and the frame of 1.2mm. Standard 50 mm panel has frame width of 50 mm and shutter width of 46mm. Sizes as per the requirement stated here. The following accessories are a part of the door: SS ironmongery, DORMA make Model TS 68 door closers, SS 304 D type handles of 300 mm size on one side and Push plate fixed with D/A tape on other side, SS 304 butt hinges, side seal & Automatic drop seal and other accessories. Sizes mentioned herein are total sizes including the door frame. Emergency exit and the main door shall have bottom sil as well (all doors directly opening to atmosphere should be air leak proof type with cam arrangement and to be tested with soap- solution during validation and testing).
All windows should be double glass (toughened type) min. 6 mm thick. Should be flushed with wall panel. All doors opening to outside area should be 100% leak-proof type with factory fitted powder coated metallic wall frame.

THE FLOORING:

The floor should be made of 3 mm sheet of EPOXY material after application of existing surface treatment, application of self-levelling compound to achieve smooth and even floor surface, non-skidding, abrasion resistant and chemical resistant with 40mm wall to floor sand-cement fabricated coving. Floor to Wall coving to be provided for easy cleaning. Flooring material should

be installed after making floor surface clean and dert free and NO un-even surface should be allowed during and after installation.

Air cooled condensing Units: -

Supply, installation, testing and commissioning of Air cooled condensing unit of nominal capacity 22 TR comprising of multiple scroll compressors with air cooled condenser unit, inbuilt/fitted control panel with all other accessories as per original manufacturer. These compressors shall be operating with R407 refrigerant. Complete with necessary copper piping and insulation with fittings.The Refrigeration piping with insulation from Air cooled condensing unit to Air Handling Unit with all accessories, supports, Expansion Valve, Solenoid valve, pressure/leak testing and refrigerant gas top-up or charging complete in all respect.

Air Handling System: -

ONCE THRU TYPE - Modular double skin Treated Fresh air handling unit fabricated from aluminium extruded section from structure. The panel shall be 43±2mm thick having PUF in-fill in between two skins, inner skin in 24G GI plain and outer skin in 24G GI pre-coated construction. The twin blower and motor assembly shall be on a common base frame and shall be mounted on vibration isolators within the blower section. Fan discharge ducting shall be isolated from TFA casing by a fire retardant type flexible connection. Inspection doors shall be provided in blower section (as per site requirement). All section shall be mounted on a common skid. TFA shall be complete with:

- Air Handling Units shall be Modular Double skin of 43±2mm thick PUF injected panels with 24 gauge GI inner skin and pre-coated GI as outer skin. Complete in all respect.
- The centrifugal DIDW fan with twin TEFC motor.
- TFA shall have Supply air/Return air aluminium VCD.
- The Pre filter section with EU-3 filters (50mm deep), Fine Filter section (EU-9) and (EU-13) HEPA filters mounted on common frame.
- The DX type cooling Coil section with distributors and 8 Row deep DX coil (22 TR, cooper tubing with aluminium fins) with SS drain tray duly insulated.
- The blower fan section with twin DIDW centrifugal fan having static pressure of 140 mmWg, and dynamically balanced, drive package with belts & pulleys, twin TEFC motor to drive the fan, Fan out let shall be provided with fire retardant canvas connection and aluminium volume control damper, all internal wiring and supports, connector, switch etc as per requirement.

Exhaust System :

EXHAUST AIR UNIT - Modular Double skin Exhaust Air Handling Units of 25+/-2 mm thick PUF injected panels with 24 gauge GI inner skin and pre-coated GI outer skin all as per specification including centrifugal DIDW fan with TEFC motor. TFA shall have aluminium Exhaust air VCD, Micro Filter section (EU-9), HEPA filter section (EU-13), static pressure of 110 mm/Wg - With TWIN MOTOR ARRGT. TFA. Fan section shall be after HEPA & Micro filter banks. Ducted suitable Burning Units shall be designed at the outlet of the exhaust air before discharging to environment.

Air Circulation and filtration System: -

- The supply air is transported to the biological laboratory area (PVC - ducted) through the SA/RA Plenum mounted Register with VCD into the biological laboratory. Return air from biological laboratory areas are taken back through Return air registers with suitable VCD and control devices. This supply and return air ducting shall be routed through outer space of the building and above false ceiling, the ducting should be duly insulated with Aluminium foil faced Armaflex – Grade O bio protect (19 mm insulation).
- Supply and Exhaust air ducting shall be constructed from PVC/FRP Circular sections / GI sheet as per IS 277 and shall be constructed as per IS 655. All duct supports shall be of MS construction duly painted with primer.
- All supply/return air ducting shall be sealed with RTV silicon sealant
- All supply and return air ducting shall be insulated with Armaflex duly factory fitted aluminium foil faced of Armaflex – Class‘O’ bio protect (19 mm insulation)19 thick.

Electrical Panel: - Power Distribution Panel (MCC) Stand-alone type. CPRI Approved 250 Amp & IP-55. As per approved specification and drawings. With Special protection arrangement for Rain water leakage.The Main Electrical LT Panel shall have bus bar for HVAC, Power System and laboratory Equipment. Panels shall have suitable aluminium bus bar, Incomer MCCB and required outgoing MCB breakers, starters, connector, contactors, meter, selector switch, CT & PT etc and necessary tripping arrangement etc. (Free floor mounted, outdoor type, front operated, Top/Bottom cable entry. Panels shall be made out of powder coated 2 mm sheet steel, PVC colour coded bus bar. With VFD ventilated enclosure alongwith ventilation fan. Suitable for TFAs, EXUs, Condensing unit, PDB / LDB, & IBMS control system.Main incoming power shall be 1.1 KV grade PVC/ XLPE insulated aluminium/ copper conductor armoured/ Unarmoured cables on cable tray (as given in schedule of work) and flexible cable through MS conduit on cable tray. Main Electrical control panel MCC shall be provided for TFAs, EXUs, control system and all equipment supplied under this scope of work. The electrical panels are to be placed at Technical area near installation site of TFA. Necessary Earthling strip / wire shall be provided

Automation and Security System: -

Building Management System should be envisaged to configure, monitor and control the HVAC System, Life Safety System (LSS) which consists of Surveillance System (CCTV), Fire Address System for BSL 3 lab area and Access Control System.Modification and up-gradation of Building Management System envisaged to monitor and control of HVAC System. Room temperature shall be controlled through BACKTalk Programmable Logic Controller - VLC supported by BACK Talk View port operator Terminal. DDC panel Enclosure for automatic control arrangement. RH shall be controlled by tubular type electrical heater mounted inside TFA/SA duct. The same heater shall be used for winter heating. Room differential pressure shall be maintained by VFD, supported by Air-Velocity sensors installed inside SA and EA main duct, this will ensure constant calculated air flow inside the BSL 3 lab facility.

CCTV – 2 sets surveillance system complete with ; 4 CH, 2.4 Megapixel Dome Camera with night vision, 500 GB HDD, BNC and DC Connector.

Fire address and alarm system with suitable sets of FIRE & SMOKE sensors in BSL & ABSL 3 lab facility comprising of standalone 4 Zone CPRI approved Fire Panel and Sound & Light Bazaar.

WATER SUPPLY AND DRAINAGE

Treated soft water (to be provided by IISc) connection should be connected to Wash/Autoclave room only, for use of water inside critical lab area only portable water arrangement will be provided. Insect resistant SS drain trap should be installed in washing area and should be connected to central drainage pipeline network.

COMMUNICATION SYSTEM

Telephone and internet receptacles should be installed in Control station, BSL 3 lab, Virus Lab and Animal Room.

UTILITY PIPING

Separate provision should be made for CO2 gas for Incubators. All utility piping shall be fitted with backflow prevention device/Non-return valve.

2. LABORATORY TESTING SCHEDULES

BSL 3 laboratory rooms shall be tested for the following parameters. All tests shall be carried out in coordination and presence of nominated IISC, executive and 3rd, party invigilator.

a. Particle count for Biological laboratory cleanliness (class-100,000)
b. HEPA filter installation integrity leak test
c. Differential Pressure check
d. Room Temperature 22±1˚C
e. Room Humidity 60±5%
f. ACPH as per actual flow rate

g. Room Illumination test

h. Lab Room differential pressure cascade check

Technical Specifications of Laboratory Instruments

1. Bio Safety Cabinet, Type-II, A2, 4 feet/1.2 m with stand and all other accessories. Microprocessor controlled Airstream, Class II Type-A2 Biological safety cabinet EN 12469 certified with single piece SS interior finish.

2. IVC set for housing 32 no Mice cages in SS construction and suitable Ventilator arrangement with exhaust flexible pipe and clamping system

3. Semi-automatic wall mounted rectangular steam jacket type Autoclave of capacity 430 ltrs. Made of SS with double door radial locking system. Along with bio-seal arrangement and in-built steam generator.

4. 16 R Refrigerated centrifuge with multiple rotors. Swinging Bucket Rotor, Fixed angle rotor, microprocessor based control system, certified quick seal Bio-containment system and motorized lid latch. CSA certified, IVD compliant, UL listed, RoHS compliant and WEEE compliant.

5. 200 KVA, 1500 RPM Silent DG set comprising of engine coupled to suitable make (ISI) alternator of 200 KVA, 415 Volt AC – 3 Phase, 0.8 PF (Lag). Both mounted on a common base frame with Necessary statutory authority inspection and approval. DG comprising of ;-

- Manual Control Panel
- Silencer
- Fuel tank
- In-built AVM pads
- DG set in Acoustic housing
- First fill of fuel
- Batteries with leads
- Suitable AMF panel with single main incomer

6. Thermo scientific Forma Air Jacketed Co2 Incubator with sterilization cycle for decontamination of inner chamber with I/R Sensor. Suitable SS piping system from Co2 cylinder bank area up to instruments shall be in the scope of supplier.
7. Lab work table of size 750 x 1750 complete with powder coated frame and granite stain resistant top and required drawers. The work bench shall be utilized for placing table top instruments.

List of approved Makes

S NO.	ITEM DESCRIPTIOPN	MANUFACTURER / SUPPLIER
1	Motor	ABB/Siemens/Crompton/GEC/Equv.
2	Double skin Air handling units	Flaktwoods/Citizen/ ZECO
3	Condensing Unit	Voltas/Blue Star/Hitachi
4	Centrifugal Fan	Kruger/Nicotra/Comefri
5	Air filters (Pre, Micro & HEPA)	Thermadyne/AAF/Dyna
6	VFD	ABB/Dahfoss
7	Fire Damper (Fusible-link type)	Caryaire/system air/Continental/Wq
8	GI ducting sheet-Lock forming	SAIL/TATA/Bhusan
9	Closed Cell Nitrile Rubber Insulation Aluminium faced – Class “O”	Armacell / Armaflex/Paramount
10	Extruded aluminium Grill/Diffuser/ Damper	Caryaire/system air/Continental/Eq
11	MCCB	Siemens/Schneider/L&T/GE/ABB
12	High pressure In-line Exhaust air Fan	GEC/Alstom/CGL/Humidine
13	BMS & Automation	Honeywell/Alarton/Delta
14	Field Sensors	Honeywell/Alarton/Delta
15	MCC Panel	Tricolite/Khokar/Trident/PTC
16	Power Cable	Polycab/CCE/Finolex/Skytone/KEI
17	Control Cable	Polycab/Finolex/Kalinga/KEI
18	PUSH BUTTON STN	Siemens/Schneider/ABB
19	Electric Tubular Heater	DASS-PASS/KEPL/Rapid cool
20	Supply Air Terminal Perforated baffle	Fabtech / GMP
21	Interior clean room component	Fabtech / GMP / Clean Tech/Iclean
22	Antistatic PVC flooring	Wonderfloor/ DECO/ Turkit
23	Clean room “0”leak CFL light fixture	Wipro/PTC/Havells
24	Air filters	Thermadyne, Dyna, AAF, Spectrum
25	Bio Safety Cabinet-Type 2/A-II	ESCO / Labconco
26	Sterilizer (Autoclave)-430 Ltr.	Natsteel / PSM
27	Static Pass Box – SS (600x600)	Fabtech/GMP/Iclean
28	IVC – 48 cages - MICE	Citizen / Techniplast
29	CO_2 Incubator	Thermo scientific
29	Refrigerator – (-80)	Thermo scientific
30	Refrigerator – (-20)	Thermo / Eq.
31	Refrigerator – (4 Deg.)	Celfrost/Vestfrost
33	SS lab work bench-750x1250	Citizen
34	16 R Refrigerated Centrifuge	Thermo scientific
35	Lab Work Bench 750x1250	ISI
36	CCTV Surveillance system with DVR	CPPLUS / Hikvision
37	Fire address system & Extinguisher	Agni / Fire Pro / Eq.
34	250 KVA silent DG with canopy& AMF	Kirloskar / Greaves

Primary Schedule of Material

Name of Work:
Construction of Virus BSL 3 laboratory facility, inside the existing structural shed at roof top of CIDR building. The newly constructed BSL 3 lab should be compatible to WHO recommendation including Supply, Installation, Commissioning, Testing and 3rd, party Validation with Documentation:

S.No	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
1	**Dismantling and Re construction of Civil & Structural construction** work as required for dismantling and establishing the NEW BSL 3 lab facility as per approved drawing. Suitable RCC foundation and structural shed for housing DG set at GF.Construction of suitable civil / structural foundations for new HVAC, Mechanical and Electrical components for new facility	Set	1		
2	Air cooled Condensing Unit - 22 TR complete with multiple compressors and accessories and FDN	Set	2		
2B	**Air Handling Units**				
2B.1	**Modular Outdoor type Double skin TFA Air Handling Units of 43+/-2 mm thick PUF injected panels** with 24 gauge GI inner skin and pre-coated GI outer skin all as per specification including fan with TEFC motor. AHU shall have Air intake louver combined with pre filter (EU-3), Fine Filter section (EU-9), coil section with CHW 8 Row coil, blower section with DIDW centrifugal fan having static pressure of 140 mm/Wg - **With TWIN MOTOR ARRGT.**	Set	1		
3	**Exhaust Air Filtration System**				
3.1	**Modular Double skin Exhaust air EAU , with 25+/-2 mm thick PUF** injected panels with 24 gauge GI inner skin and pre-coated GI outer skin all as per specification including fan with TEFC motor. EXU shall have extruded aluminium construction, gear operated volume control damper at Air Inlet and outlet, with Micro Vee filter (EU-9), HEPA (EU-13) filter section flange type with HEPA filters,Cap=75**00 CFM, With TWIN MOTOR ARRGT**	Set	1		
4.0	**Air Distribution System**				
4.1	GI Ducting complete with MS painted flanges, all joints sealed with RTD silicon sealant with MS painted supports as per IS-266 with Zinc deposition 120gms/sqm. Complete with double deflection ceiling mounted diffusers, Class "O" thermal insulation, suitable fire damper and necessary air volume control dampers and electrical heating element as required for site.	Lot	1		
5.0	**Electricals**				
5.1	1. M C C Panel – Main-250 Amps. Electrical Panel, IP-55, comprising of - MCCB, DOL Starter, Digital Volt meters, indication lamps and VFD enclosure with ventilation fan and protection MCCB etc. comprising of Process Electrical Panel, IP-55, MCCB, DOL Starter, Digital Volt meters, indication lamps and required MCCB etc. **2.** M C C Panel - UPS Panel, IP-55, comprising of - MCCB, DOL Starter, Digital Volt meters, indication lamps Change over arrangement etc.	Set	2		
5.2	**Electrical Power and Control Cabling** 1.1 KV grade PVC/ XLPE insulated aluminium/ copper conductor armoured/ Unarmoured cables on cable tray.(Copper / Aluminium armoured / Flexible cables), control cables (copper), (for plug points and Power Sockets) - Power cabling from Main MCC to BSL 3 lab distribution system and HVAC equipment termination considered. Including dedicated Earthing arrangement for power and BMS system. Cable tray and necessary dressing included.	Lot	1		
5.3	Variable Frequency Drive **(VFD)** ACS 550 with IP 55 protection and enclosure withExhaust air ventilation fan in-built	Set	4		

5.4	Supplying all the fitting materials, cutting, peeling, terminating and connecting cable with cable gland and crimped aluminium lugs in respective Feeders, Equipment's. Any accessories necessary for turnkey completion of the project.	Job	1		
6	**Power sockets & Lighting arrangement**				
6.1	Cleanroom Light fixtures : **BSL lab compatible, 'O' leak**, fitted with 5 mm Thk Toughened Glass, 2 x 36 watts CFL top opening type with electronic ballast with; Housing : CRCA powder coated frame-less. Lens: To provide Toughened glass with 3 M adhesive tape (to be fixed inside the opening provided in 60 mm ceiling)Reflector : Preanodized imported aluminium Ballast : Philips electronic with pf>0.98 & THD < 10 %	Set	1		
6.2	8 &4 Module Box with inner plate and SS outer plate, suitable for 1 no 5/15 amp. Socket + 2/4 Nos. 5/15 amp. Switch (for power socket and light). Complete with Lighting DB/ Power DB with MCBs / MCCBs	Set	1		
7	**BSL 3 lab interior & clean room**				
7.1	Double skin Clean room **Wall Cladding, Wall Partition Panel system 80 mm thick** , PUF infilled powder coated GI sheet, as per specification complete with concealed conduits for power socket, data, telephone points and necessary cut-outs for double gazed view panels and doors	Lot	1		
7.2	**Double skin powder coated GI sheet, PUF in-filled, Walkable Clean room Ceiling system 50 mm thick** , including necessary utility cut-outs duly concealed, as per specification , including necessary utility cut-outs duly concealed, as per specification	Lot	1		
7.3	**3 mm sheet of EPOXYFlooring** with application of self-levelling compound to achieve smooth and even floor surface, non-skidding, abrasion resistant and chemical resistant with Flooring surface should be clean and dirt free and NO un-even surface should be allowed during and after installation.	Lot	1		
7.4	R-45mm wall to floor sand-cement fabricated coving. Wall to ceiling and Wall to wall coving with Extruded aluminium powder coated (R= 42) clutch-coving with silicon finish	Lot	1		
8	Clean room compatible Double Leaf Doors 1500 (W) x 2100mm (H) as per specification with door closure, SS-'D' handle, Push plate and kick plate along with 480x750 double glazing view pane & Drop-seal	Lot	1		
8a	Clean room compatible Single Leaf Doors 1000 (W) x 2100mm (H) as per specification with door closure, SS-'D' handle, Push plate and kick plate along with 480x750 double glazing view pane & Drop-seal	Lot	1		
9	EMERGENCY 800 (W) x 2100mm (H) as per specification with SS-'D' handle, PANIC-BAR along with 480x750 double glazing view pane & Drop-seal	Lot	1		
10	Double glazing windows with 6 mm thk toughened glass fitted (1200x1000), as per approved drawings.	Lot	1		
11	S S Static Pass Box of size 600 x 600 opening space 450 x 450 complete with PLC, UV Lamp with hour meter and double door interlocking arrangement with specified time delay mechanism	Set	1		
12	**BMS Automation & Access Control system**	Set	1		
12.1	Programmable Logic Controller , View port operator Terminal				
12.2	DDC panel Enclosure Powder coated wall type with Transformer, MCB & terminal block				
12.3	Duct mounted Air velocity sensor				
12.4	Exhaust duct Temperature sensors				
13	Access control & 2 - Door Interlock system with Electromagnetic Strike lock unit + Egress Button and 10 nos Access Proximity cards	Set	1		
14	FIRE Control Address System & Communication cabling with termination.	Job	1		
15	CCTV surveillance system with night vision movement detection auto-start IP based Cameras	Job	2		
16	SITC of 20 KVA online UPS with ½ hours back-up	job	1		

17	SITC of ABC type Fire suppression devices of 3 & 6 Kgs capacity	Set	3		
18	Room communication port/socket with RJ 11 & RJ 45 and 2 core CAT 5 cabling for communication from BSL 3 lab	Set	2		
19	**NSF Approved Bio-safety cabinet (BSC-4 Ft.) of Type-II, A-2**, Exhaust including necessary Exhaust system	**No**	**1**		
20	**Wall mounted double door sliding type Autoclave cap. 430 ltrs with inbuilt steam steriliser and PLC controlled operation**	**Set**	**1**		
21	CO2 Incubator – Thermo scientific	Set	1		
22	16 R Refrigerated Centrifuge – Thermo scientific	No	1		
23	Refrigerator (– 80) – Thermo scientific	No	1		
24	Refrigerator (– 20)	No			RATE ONLY
25	Refrigerator 4 Deg. C	No			RATE ONLY
26	**32 Cage IVC system for MICE - Citizen**	Set			RATE ONLY
27	**Animal Change Station - Citizen**	Set			RATE ONLY
28	**Work Bench Table with Granite top – 750 x 1750**	Set	1		
29	**200 KVA Silent DG complete with canopy and AMF Panel**	Set	1		
30	**Validation, Testing and Documentation of BSL-3 lab facility**	Lot	1		
31	Operation Manual (SOP)	Set	1		
32	**On-Site Comprehensive operation and maintenance of the duly validated BSL-3 lab facility for next 12 months.**After successful completion and handing over of the facility. Operation & maintenance of the newly validated BSL-3 facility including providing skilled operator cum technicians in each shift (round the clock) including reliever and one helper & a supervisor in general shift, for operation and maintenance of BSL-3 facilities 2 technicians in each shift round the clock (7 days x 24hrs, 365 days/year) etc as per the site requirement to run the facility without any breakdown.	**Lot**	**1**		
				GR. TOTAL (INR) :	

Terms and conditions:

1. **<u>Prequalification criteria</u>**:

a. The company should have successfully completed independently at least One similar work costing not less than 40% of estimated value the similar works means set-up/up-gradation/conversion/revamping of uncontaminated BSL 3 laboratory] in any Central Govt./State Govt./PSU/Autonomous Bodies/Reputed laboratory institutes and other Govt. Department etc during last Four financial years. This may be inspected (at the risk and cost of participating company) by the competent authority of IISC, if required. Tenders shall be submitted with all supporting documents i.e satisfactory Completion certificate with schedule of work/Bill of Quantity etc.

The firm should have in-house personnel with experience in setting up and maintaining experiences of minimum **three** BSL-3 facilities **in INDIA** on turnkey basis in the last 4 years. The firm should have proven track record of successful operation and maintenance services of minimum three BSL 3 lab facilities in **last three years**. Certificate of satisfaction a must from at least three institutions on original letter head. (Please DO NOT submit any information pertaining to either clean room or BSL 2 facility)

b. A proof to the effect must be furnished.
c. The company shall attached copy of ITCC of last 3 years or ITR of last 3 years.
d. The company has to give an undertaking on their 'Letter Pad' that they have not been blacklisted during last three years by any of the Govt. Depts./Govt. Institutions etc. and not engaged in any form of legal litigations related to any institutional obligations.
e. <u>An affidavit in a e-stamp paper of Rs. 50/- (duly notarized) to the effect that the company undertakes that :</u>

i. The documents submitted by the company are genuine and undisputable and in the event of it coming to notice at a later date that the documents are not genuine, company shall be liable for criminal action.
ii. The company will not withdraw his/their Tender after opening of Technical Bid and if done so; the company will be blacklisted.
iii. The company will not sublet or subcontract the work (if awarded to them) and if done so; the penalty shall be payable by him to IISC as may be decided by the Institute.

Copy of all documents of pre-qualification criteria and as asked for in the tender may please be attached with the Technical Bid ONLY. In case of short fall of any documents, tender will summarily be rejected and no queries will be entertained in this regards. Decision of the IISC, Bangalore authority shall be final in this regards. The offer shall remain open for at least 60 days from the date of opening of Price Bids.

Criteria for evaluation of the technical BID:

All offers should be in Two parts viz., Technical and Price Bids separately. The proposal should include details of the technical design and bill of quantities (BOQ) to be addressed as per the actual requirement to complete operational BSL 3 lab facility as and whatever items are required considering this as a TURNKEY contract and IISC shall be held responsible for rejecting any request after the award of the contract for any additional fund allocation that may be required for making the lab fully operational as per the users suitability. It is mandatory for the interested vendorsto visit the site for physical check and status of the site condition at least one week before the last date of proposal submission. Site visit will be allowed after prior appointment. The email ID: office.cidr@iisc.ac.in and phone number: 080-22933063 may be used for the purpose of prior appointment and site visit. Vendors submitting proposal without visiting the site will be disqualified. All the participating vendors will be called for a short presentationof up to Fifteen minutes. The presentation should include a brief introduction, proposed facility layout, plan for project execution, timeline and new suggestions that might include a better alternate layout plan for a better utilization of the limited space considering limited time frame.

The details submitted by the bidders will be evaluated in the following manner:

a. Experience in similar nature of work during the last five years (30 marks)
b. Performance on works completed on time and quality (20 marks)
c. Personnel Experience, potential understanding and establishment (30 marks)
d. Presentation (20 marks)

To become eligible for short listing for opening of the price bid the bidder must secure at least **fifty percent** marks in each and **sixty percent** marks in aggregate. The institute, however, reserves the right to restrict the list of such qualified contractors to any number deemed suitable by it. Even though any bidder may satisfy the above requirements, he/she would be liable to disqualification if he/she has:

a. made misleading or false representation or deliberately withheld information in the forms, statements and enclosures required in the eligibility criteria document
b. the bidding Capacity of the company shall be calculated and company multiple bids will not be considered. In case company is unable to provide satisfactory competency proof of understanding and knowledge of criticality of such facilities during technical presentation, the decision of competent authority of IISc, for opening of price bids will be final and binding without any prejudice.
c. at least one live contract for CAMC of BSL-3 or any working BSL 3 facilities in research laboratory of any Central Govt./State Govt./PSU/Autonomous bodies and other Govt. Departments.

d. record of poor performance such as abandoning work, not properly completing the contract, or financial failures/ weaknesses etc.
e. engaged in any form of litigation with court order or organizations

Other conditions

The vendor should have qualified technical service personnel for theequipment based in India (preferably in Bangalore).

The lead time for the delivery of the equipment should not be more than 5months from the date of receipt of our purchase order.

The validity period of the quotation should be 90 days.

If the goods are found to be defective, they have to be replaced orrectified at the cost of the supplier within 15 days from the date of receipt of written communication from us. If there is any delay in replacement or rectification, the warranty period should be correspondingly extended.

The purchaser reserves the right to accept or reject any bid and to annualthe bidding process and reject all bids at any time period to award ofconstruct without thereby incurring any liability of the affected bidder or bidders.

Yours Sincerely,

Dipankar Nandi

Professor
Department of Biochemistry
Center for Infectious Disease Research (CIDR)
Indian Institute of Science
Bangalore-560012

(on behalf of the purchase committee)