Technical Specification Of Modular Operation Theater in existing OT complex

Supply, delivery, Installation and required construction of prefabricated Standard modular. One OT will be a fully digital modular OT with Video recording system, One OT will be Standard modular OT and Recovery area, Scrub-up station and others requirement as per design drawing) please refer to the attached preliminary floor plan. The modular OT system shall incorporate a turn-key solution for wall partitions, ceilings and floors, as well as other architectural fixed components, such as light illumination, laminar air flow plenum, scrub sinks and Modular OT system shall be provided in all rooms/areas highlighted in the attached preliminary floor plan.

Modular OT Size -

- **OT 3 = 19'-8" X 26'-7" X 10'-9" (false ceiling)**
  = 19'-8" X 26'-7" X 16'-3" (without false ceiling)
- (Fully digital modular OT with Video recording system)
- **OT 4 = 20'-6" X 21'-2" X 10'-9" (false ceiling**
- **= 20'-6" X 21'-2" X 16'-3" (without false ceiling)**
  (Standard modular OT)
- **Recovery = 19'-7" X 30'-5" X 10'-9"**
- **OT 3 = 19'-8" X 26'-7" X 10'-9" (false ceiling)**
  = 19'-8" X 26'-7" X 16'-3" (without false ceiling)

(Fully digital modular OT with Video recording system)

S. N.	Particulars	Quantity	Model No	Manufacturer	Country of Origin
1	Wall panel system	2 OT			
2	Glass Panel with Digital Printing	2 OT			
3	Paint	2 OT/ Recovery			
4	Flooring	2 OT/ Recovery			
5	Plan air ceiling	2 OT			
6	Laminar flow (Plan and design)	2 OT			
7	OT control panel	2 OT			
8	UHD Monitor	1 OT			
9	Writing Board	2 OT			
10	X-Ray and CT Scan LED View Box	2 OT			
11	Storage cabinets	2 OT			
12	Pressure relief damper	2 OT			
13	Peripheral lights (Plan and design)	2 OT			

14	Modular automatic hermetically sealed door	2 OT			
15	Electrical System (Plan and design)	2 OT			
16	Medical Gas Pipe-Line (Plan and design)	2 OT/ Recovery			
17	Ducting work Inside OT Plan and design)	2 OT			
18	Grills with Damper	2 OT			
19	Hinged automatic hermetically sealed door	2 OT			
20	Scrub sink	2 OT/ Recovery			
21	Anesthesia gas scavenging system	2 OT			
22	Heating Ventilation and Air Condition (HVAC) System	2 OT .			
22	Air Handling Unit (AHU)	2 OT			
23	Anesthesia Pendant	2 OT			
24	Surgical Pendant	2 OT			
25	Twin dome OT light – 1 set	1 OT			
26	Twin dome OT light, HD camera and third arm for HD monitor. – 1 set	1 OT			
27	O.T. table (Pediatric Orthopedic/Uro/General Surgery)	1 OT			
28	DISTRIBUTION BOARD wiring diagram	2 OT			
29	UPS 30 KVA / 30 MIN	2 OT/ Recovery			
30	Cartage Earthing	2 OT			
31	Wall guard system	2 OT/ Recovery			
32	Anesthesia Workstation with Integrated Ventilator & Patient Monitor for Neonatal and Pediatric use.	1 OT			
33	Electro Surgical Unit with Ultrasonic Scalpel along with trolley	1 OT			
34	CIVIL WORKS	1 LOT			

Technical Specification of Electrosurgical Unit with ultrasonic scalpel

S.N.	Purchaser's Specifications	Bidder's Compliance Sheet		
	Electrosurgical Unit with ultrasonic scalpel	Yes/No	Page no.	Remarks
	Manufacturer			
	Brand			
	Type/Model			
	Country of Origin			
1	**Description of Function**			
1.1	Electrosurgical units (ESU) use a HF/RF electrical current to cut tissue and control bleeding by causing coagulation. It must be compatible during endoscopic surgery, gynecology, Vessel sealing and Open Surgery			
2	**Operational Requirements**			
2.1	Unique Combination of Ultrasonic Scalpel and electrosurgical system.			
3	**System Configuration**			
3.1	Micro controller based isolated Electrosurgical Generator having ultrasonic surgical and electrosurgical system. Should have Monopolar output Bipolar output and vessel sealing, designed for all surgical procedures.			
4	**Technical Specifications**			
4.1	Multifunctional surgery Generator for safe, easy and efficient cutting, coagulation			
4.2	An integrated system with minimum 300W output generator and a touch screen or keypad for Monopolar and Bi-Polar integrated in one generator.			
4.3	The unit should have Touch Screen display for various parameters like Bipolar, Monopolar cut and Monopolar Coagulation and vessel sealing.			
4.4	High Performance in Tissue Dissection, Hemorrhage Coagulation, and Blood Vessel			

S.N.	Purchaser's Specifications	Bidder's Compliance Sheet		
	Sealing.			
4.5	Should have Ten Working Modes for Different Clinical Needs including Low Pure Cut, Pure Cut, Blend, Desiccate, Fulgurate, Spray, Precise, Standard, Macro,			
4.6	The system should support multiple surgical instruments, including Ultrasonic Scalpel, Electrosurgical Pencil, Laparoscopic Electrode and Bipolar Coagulation Forceps.			
4.7	Pure cut for clean, precise cut in general surgery having minimum power of 300 W or more with power adjustment of 1W/step.			
4.8	It should have at least three monopolar Coagulation Modes with maximum power of 120 W or more.			
4.9	It should have at least three bipolar coagulations			
4.10	Desiccate mode for low voltage contacts coagulation suitable for Laparoscopic and delicate tissue work.			
4.11	System should have vessel sealing facility for both open surgery and endoscopy surgery. It should seal the vessel up to 7 mm of diameter or better.			
4.12	It should have self-test function. When power on, the unit should check all internal circuits and accessories connected.			
4.13	It should have patient plate monitoring facility and should give audio visual alarm and deactivate output if contact between patient and patient plate is not proper to eliminate the risk of patient burns.			
4.14	The unit should have two hands switching and two Foot switching Monopolar outputs and one hand switching and foot switching bipolar output.			
5	**Accessories, spares and consumables**			
5.1	Standard Accessories. - Ultrasonic Scalpel System-Scalpel, Shaft Length: 13cm - Ultrasonic Scalpel System-Scalpel, Shaft Length: 35cm - Knife shape; Length: 69mm; Thickness: 0.5mm; Width: 2.3mm - Knife shape; Length: 150mm; Thickness: 0.5mm; Width: 2.3mm - Needle shape; Length: 69mm; Diameter of the needle tip: 0.8mm - Needle shape; Length: 150mm; Diameter of the needle tip: 0.8mm - Ball shape; Length:140; Diameter of the ball: 5mm			

S.N.	Purchaser's Specifications	Bidder's Compliance Sheet		
	- Ball shape; Length:140; Diameter of the ball: 3m			
5.2	Should be provided with same company manufactured trolley.			
5.3	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).			
6	**Operating Environment**			
6.1	The system offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc.			
6.2	Power supply: 220 – 240 VAC, 50Hz Single Phase fitted with appropriate plug. The power cable must be at least 3 metre in length.			
7	**Standards and Safety Requirements**			
7.1	Must submit ISO13485 for Medical Devices **AND**			
7.2	European CE(93/42/EC) certification authorized by notified body of European commission **and** USFDA approved product certificate. Self declaration of CE will not be valid			
8	**User Training**			
8.1	Must provide user training (including how to use and maintain the equipment).			
9	**Warranty**			
9.1	Comprehensive warranty for 3 years.			
10	**Maintenance Service During Warranty Period**			
10.1	During warranty period supplier must ensure preventive maintenance & corrective/breakdown maintenance whenever required.			
11	**Installation and Commissioning**			
11.1	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.			
12	**Documentation**			
12.1	User (Operating) manual in English.			
12.2	Service (Technical / Maintenance) manual in English.			
12.3	Must submit valid authorization letter, subauthorization is not valid.			
12.4	Certificate of calibration and inspection from factory.			
	Bidder must completely fill the Technical Specification Form (TSF). Only Yes/no/all complies should not be written. Page number in the catalogue of all the required parameters must be clearly mentioned and highlighted. Failure in doing so may lead to rejection of bid from technical committee			

Specification for OT Table				
S.N.	Purchaser's Technical Specifications	Bidder's Compliance Sheet		
		Yes/No	Page No. in Catalogue	Remarks
	Manufacturer:			
	Brand:			
	Model/Type:			
	Country of Origin:			
1	**Description of Function**			
1.1	A dedicated table for Orthopedic / Urology that can serve for general surgical application as well C-Arm Compatible.			
2	**Operational Requirements**			
2.1	The Table must be mobile, electrically controlled with battery powered hydraulic drive.			
3	**System Configuration**			
3.1	Operating Table for Orthopedic and general surgery with mentioned accessories.			
4	**Technical Specification**			
4.1	The table shall be suitable for general, orthopedic, neuro- and minimally invasive procedures that require unobstructed C-arm imaging.			
4.2	It must perform all key movements under electric power and provide a radiolucent, five-section top with detachable accessories.			
4.3	Five-section, radio-translucent tabletop, with built-in kidney bridge, mattress high-density, anti-static PU foam with conductive cover, resistant to common disinfectants			
4.4	Must be with detachable head, leg and pelvic sections for quick configuration changes			
4.5	Must have inbuilt mechanical kidney bridge operable without removing the patient			
4.6	Should be with zero-position button to return the table to horizontal reference in < 15 s.			
4.7	Overall length of tabletop 1900 mm (approx.)			
4.8	Width of tabletop excluding side rails 540 mm (approx.)			
4.9	Height range (without mattress)750 mm – 1000 mm, stepless electric adjustment			
4.10	Trendelenburg / Reverse Trendelenburg25° / 25° (motorized)			
4.11	Lateral tilt± 20° (motorized)			
4.12	Back section articulation 0° – +60° (motorized)			
4.13	Head section articulation-90° to +60° or better, detachable & manually adjustable			
4.14	Leg section articulation 0° – 90° up, detachable			
4.15	Longitudinal top slide≥ 250 mm to allow full torso imaging without			

	repositioning the patient			
4.16	Floor-locking system Central manual locking with stable, anti-skid pads			
4.17	Column design Eccentric stainless-steel column (SS 304) to maximize C- arm clearance			
4.18	Control & safety Hand-held remote plus side-rail touch panel with battery status indicator, zero/return to level and memory functions			
4.19	Electric movements provided Height, Trendelenburg/Reverse, Lateral tilt, Flex-Reflex, Longitudinal slide			
4.20	Power supply 220 V 50 Hz AC; low-noise DC actuators with stand- by battery pack with automatic charger (minimum 30 min operation in case of mains failure)			
4.21	All external covers and base in polished SS 304 or equivalent corrosion- resistant material; smooth, crevice-free surfaces for rapid disinfection			
4.22	Easy to operate			
4.23	Simple in function			
4.24	**Must have following Accessories with the Table:** Bidders must specify the quantity of every item included in their offer (including items not specified above).			
4.25	Arm rest with clamp: 1 Pair			
4.26	Foot Rest with clamp: 1Pair			
4.27	Anesthesia screen with clamp: 1 nos			
4.28	Lateral Support with clamp: 1 pair			
4.29	Restrain Strap: 1 nos			
4.30	Shoulder support: 1 pair			
4.31	Head Ring (neonatal to pediatric age group) : 1 Pcs each			
4.32	Kidney pillar/support: 1pcs			
4.33	Wristlet: 1pair			
4.34	At least 3 spare mounting clamp/brackets			
4.35	Accessories Storage cart			
4.36	Gospels leg holder for neonatal to pediatric age groups: 1 Pair each			
4.37	leg section with Gynae Cutout			
4.38	Gel lateral leg positioner: 1 Pcs			
4.39	Complete pediatric orthopedic and urology accessories			
5	**Operating Environment**			
5.1	The product offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc.			
5.2	Power supply: 220 - 240 VAC, 50Hz fitted with UK plug. The power cable must be at least 5m in length.			
6	Standards and Safety Requirements			
6.1	Must Submit ISO 13485:2003/AC:2007 for Medical Devices			
6.2	Must submit valid CE or US-FDA approved product certificate			
6.3	Must meet IEC-60601-1-2:2001 General Requirements of Safety for Electromagnetic Compatibility.			
7	**User Training**			
7.1	User and maintenance training should be provided to the hospital personnels' at the time of installation and any time as per requirement for 5 years.			

7.2	Certified service training must be provided to the hospital engineer in the company's own cost.			
7.3	Certified operational training must be provided to the surgeon doctor and OT staffs in the company's own cost			
8	**Warranty**			
8.1	The Table should have 3 years comprehensive warranty.			
8.2	During warranty period supplier must ensure preventive maintenance & corrective/breakdown maintenance whenever required			
9	**Installation and Commissioning**			
9.1	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.			
10	**Documentation**			
10.1	User (Operating) manual in English			
10.2	Service (Technical / Maintenance) manual in English			
10.3	List of important spare parts and accessories with their part numbers and costing			
10.4	It should have provide Certificate of calibration and inspection from factory			
11	**Instruction To The Vendor/Suppliers**			
11.1	Must submit original catalogue and product data Sheet			
11.2	Confirming the specification along with the tender.			
11.3	Bidder must completely fill the Technical Specification Form (TSF). Only Yes/no/all complies should not be written. Page number in the catalogue of all the required parameters must be clearly mentioned and highlighted. Failure in doing so may lead to rejection of bid from technical committee.			

Technical Specification of Anesthesia machine with 7 parameters patient monitor

S. No	Purchaser's Specifications	Bidder's Compliance Sheet		
	Anesthesia machine with 7 parameters patient monitor	Yes/ No	Page No. in Catalogue	Remarks
1	Manufacturer			
	Brand			
	Type / Model			
	Country of Origin			
2	**Description of Function**			
2.1	Anesthesia machine is a medical device used to deliver a controlled mixture of gases, including oxygen and anesthetic agents, to patients during surgical and other medical procedures to induce and maintain anesthesia. And the monitor measures the vital signs of the patients.			
3	**Operational Requirements**			
3.1	It shall operate on built-in battery and AC power supply.			
	It shall be suitable to be used for neonates to adult patients			
4	**System Configuration**			
4.1	Anesthesia workstation should include a circle absorber, two vaporizers, an integrated ventilator, and monitoring capabilities, along with complete accessories.			
5	**Technical Specifications**			
5.1	It must be pneumatically or electrically powered electronically controlled.			
5.2	Ventilator should be pneumatically driven and electronically controlled ventilator			
5.3	Should have provision for delivery of oxygen, nitrous oxide and medical air with pressure gauges.			
5.4	The anesthesia machine should have a color LCD touch display with a minimum size of 15 inches.			
5.5	Machine should have a plug-in multi-gas module (CO_2, N_2O, Halothane, Enflurane, Isoflurane, Sevoflurane, Desflurane, and MAC) as part of the standard configuration and bidder must supply with machine.			
5.6	Should have Plug-in Spo2 module with the range of 70% ~100% and PR range of 30～250bpm.			
5.7	The workstation must have an integrated built-in ventilator capable of delivering precise ventilation for both adult and pediatric patients.			
5.8	The system should include pressure gauges for O_2, N_2O, and air supply. The gauges should be color-coded and conveniently positioned for easy visibility.			

5.9	Must have pin index safety system cylinder yoke for O2 and NO2.			
5.10	Must have separate pipeline inlet for Oxygen, Nitrous Oxide and Air			
5.11	The system should support maximum flow settings of up to 10 LPM for each gas, with the output flow displayed digitally for accurate and easy flow adjustment.			
5.12	The system must feature a visual self-test procedure with images and guidance to simplify complex operational steps.			
5.13	The machine must provide the analysis of FiO_2, EtO_2, CO_2, and N_2O, along with automatic detection of anesthetic agents after the insertion of the gas module.			
5.14	The system should have both visual and audible gas supply failure alarms. It should also provide a high-priority alarm when O_2 pressure falls below the preset limit.			
5.15	System should have an oxygen flush facility, with the O_2 flush switch conveniently positioned for easy accessibility.			
5.16	The system should have a provision for connecting two vaporizers, with the bidder providing 2 vaporizers as part of the standard configuration. Each vaporizer must include an interlock mechanism to isolate it from the gas flow in the off position and prevent the simultaneous activation of more than one vaporizer. The vaporizers must be compensated for temperature, pressure, and flow.			
5.17	Should have selection switch for Open Circuit and Closed circuit operation.			
5.18	Should have provision for bypassing the CO2 absorbent canister during surgical procedure without leaking the system.			
5.19	N_2O (Nitrous Oxide) should shut-off with a loss of O_2 pressure in anesthesia for the safety mechanism to prevent hypoxia (low oxygen levels)			
	in patients.			
5.20	In the event of electricity and battery failure, manual ventilation, gas delivery, and agent delivery should still be possible.			
5.21	The system must be supplied with an Anesthesia Gas Scavenging System (AGSS) port, along with the necessary tubing.			
5.22	The system should be equipped with a lithium-ion battery that provides a backup for no less than 60 minutes of operation.			
5.23	All circuits should be detachable, washable, and autoclavable, except for the flow sensors, O_2 sensor, and mechanical pressure gauge.			
5.24	Must display waveforms of Pressure-Time, Flow-Time, Volume-Time			

5.25	The workstation should have two drawers, a writing area, and four caster wheels with brakes.			
5.26	Must have CO2 absorbent chamber canister of 1500 ml or better.			
5.27	Soda lime absorber with CO2 bypass Function			
5.28	Breathing Circuit compliance: 0.87mL/100Pa (bag mode) and automatically compensates for compression losses within the breathing circuit in mechanical mode			
5.29	APL Valve range: 2~70cmH2O or better			
5.30	Ventilator			
5.31	Display parameter: It should display All setting and alarm parameters (including Breath rate, I/E ratio, Tidal volume, Minute volume, PEEP, MEAN, PEAK, PLAT, and O2 concentration and Aesthesia gas concentration)			
5.32	Ventilation mode should have at least VCV PCV PRVC SIMV(V)+PS SIMV(P)+PS CPAP/PSV, Manual Standby.			
5.33	Compensation: Circuit gas leakage compensation and automatic compliance compensation			
5.34	Patient type: Adult, Pediatric, Infant			
5.35	Tidal volume: 10 to 1500ml or better			
5.36	Pinsp: 5 ~70cmH2O(increments of 1 cmH2O)			
5.37	Plimit: 5 ~100 cmH2O (increments of 1 cmH2O)			
5.38	Freq: 4 ~ 100 bpm			
5.39	I:E: 4:1 ~ 1:10 (increments of 0.5)			
5.40	Flow trigger: 1 ~15L/min (increments of 1 L/min)			
5.41	Psupp: 5 ~60cmH2O(increments of 1 cmH2O)			
5.42	PEEP: OFF, 4 ~ 30 cmH2O			
5.43	Inspired O2 (FiO2): 21% ~100%			
5.44	Should have continuous trend information for the latest 24 hours with at least 500 events storage.			
5.45	Should have alarm setting for Tidal volume, Minute volume, Airway pressure, Frequency, Fio2.			

5.46	Apnea alarm: 10~40s or better			
5.47	Display waveform: P-T, F-T, V-T, CO2-T			
5.48	Loop: P-V, F-V and F-P			
	Patient monitor.			
5.49	Should have seven parameters monitor with Standard Configuration of Side stream ETCo2, IBP, ECG, Respiration, SPO2, NIBP, Temperature.			
5.50	Monitor should have 12" or more LCD touch screen display.			
5.51	It should have built-in battery with more than 120 minutes backup.			
5.52	Should display at least 9 waveforms of selected parameters simultaneously			
5.53	It shall have 72-hour ECG waveform data storage and recall, 1000-hour data trends with graphic and tabular view, 2000 groups event, ARR and SpO2 storage			
5.54	Display View: It shall have various display configuration view for easy and fast analysis or patient report like general/normal view, Big font View, All ECG Trace View, NIBP List View, RESP-Oxy view, Short trend view, etc.			
5.55	Should have Functional like (hemodynamic calculation), Medicine Dosage Calculation, Oxygenation calculation, Ventilation calculation, Renal function etc..			
5.56	Should have Protection against defibrillator discharge. In addition, it should have pacemaker pulse inhibition function for Heart Rate calculation whether user enable or disable the function of cardiac pacemaker pulse detection or not.			
5.57	Should have OxyCRG for monitoring newborns.			
5.58	Alarm: Shall have Physiological alarms, also called patient status alarm and technical alarms, also called system status alarms. Apart from the alarm the monitor			

Technical Specification of Modular Operation Theater in existing OT complex

Supply, delivery, installation and required construction of prefabricated Standard modular. One OT will be a fully digital modular OT with Video recording system, One OT will be Standard modular OT and Recovery area, Scrub-up station and others requirement as per design drawing) please refer to the attached preliminary floor plan. The modular OT system shall incorporate a turn-key solution for wall partitions as per required, ceilings and floors, as well as other architectural fixed components, such as light illumination, laminar air flow plenum, scrub sinks and Modular OT system shall be provided in all rooms / areas highlighted in the attached preliminary floor plan. All complete with finishing work.

K.C.H. Proposed Technical Specifications

Manufacturer -

Brand -

Type / Model -

Country of Origin -

Bidder's Name -

(Actual Ceiling height of existing building)

This is a turnkey base project total no of 2 OTs. One OT will be a fully digital modular OT with Video recording system and One OT will be Standard modular OT. Finishing height should be 11 Ft.		Ceiling height 16.3ft / **OT-3**	Ceiling height 16.3 ft / **OT-4**		Recovery Area 16.3ft		
A	**Modular OT Size -**						
	- **OT 3 = 19'-8" X 26'-7" X 10'-9" (false ceiling)** **= 19'-8" X 26'-7" X 16'-3" (without false ceiling)** - (Fully digital modular OT with Video recording system)						
	- **OT 4 = 20'-6" X 21'-2" X 10'-9" (false ceiling** - **= 20'-6" X 21'-2" X 16'-3" (without false ceiling)** (Standard modular OT)						
	- **Recovery = 19'-7" X 30'-5" X 10'-9"**						
	As per the diagram provided below with dimension from civil/architect engineer						
B	**Configurations -**						
	- Standard Modular OT – 2 set						
	- Twin dome OT light – 1 set						
	- Twin dome OT light, HD camera and third arm for HD monitor – 1 set	**OT 3**	**OT 4**		**Recovery**	**Qty**	**Unit**
1	**Prefabricated Modular Wall Panel and Celling Panel**	1	1		-	2	

	System:						set
1.1	Manufactured in multilayer technology						
1.2	Front of the panel should be stainless steel 304 with suitable antibacterial silver ions additive coat/paint						
1.3	Gap between panels is filled with antibacterial silicon hermetic seal with silver ions additive.						
1.4	The pre-fabricated modular construction is designed and constructed for exact size of field and future disassembly, enlargement, or relocation.						
1.5	The pre -fabricated Operating Room will be a free-standing structure, mounted on substructures / supporting profiles made of non-corrosive galvanized steel.						
1.6	Finishing has to be seamless, concealed mounting of the panels including the corners.						
1.7	The corner wall panels have to be made of stainless steel, same as of wall panels, should not have joints in the corners.						
1.8	Solid glass panel with **Digital Printing** This should be of tampered safety glass panel 5 mm or more thick with decorative graphics manufactured in multilayer technology with wall panels be incorporated for the decoration purpose. This has to be resistant against living organisms and chemical substances, hospital detergents and disinfectants. Please mention the size of the digital Printing. **(> 6 sq/m**). It should be in each OT at one side of the wall as directed by the user.	1	1	-	-	2	Set
1.9	**Sub structure:** The vertical posts shall be made of galvanized steel. The posts shall be fixed between upper profile and lower profile by mean of adjustable mechanism to absorb and level uneven floors. The vertical posts shall be with a self-locking system which allows a fast fixation of the pre-fabricated wall panels and accessories without the use of any screws. The structure shall be with a slide - in fastening system, to remove or insert wall panel easily. The structure shall be with a particular design to make the system " Self-centering" by gravity force guaranteeing a contact distance between the wall panels of 3 mm or better.						
1.10	Wall panel - Front side SS 304 and Back side PPGI, Thick 0.8 mm & 0.5 mm respectively.						
1.11	Aluminum profile with silicone profile						
1.12	Fire protection - Nonflammable material, High intensity.						
1.13	Panel Thickness - > 50 mm & Density = 40kg/m or more						

2	**PAINT:**	**1**	**1**		**1**	**3**	**set**
2.1	Filling of all joints and cavities with antibacterial silicon hermetic seal with silver ion additives to provide a joint less finish.						
2.2	Antibacterial silver ions additive coat/paint						
2.3	RAL color standard sample should be provided. Hospital will decide.						
2.4	It shall guarantee the excellent resistance to chemical products such as detergents, acids and alkaline products.						

3	**FLOORING:**	**1**	**1**		**1**	**3**	**set**
3.1	2 mm thick, Antimicrobial PVC based floor, epoxy self levelling.						
3.2	Seamless with perfectly curved flash - coverings for corners and edges.						
3.3	Resistance to mechanical stress and dynamic loads and having ESD / EMI (conductive) protection characteristics.						
3.4	Adhering materials are to meet restrictions of PVC tiles and have to be a part of the system.						
3.5	It shall guarantee the excellent resistance to chemical products such as detergents, acids and alkaline products.						
3.6	Decontamination rating shall be as "good" in compliance with ISO 8690, the nuclear decontaminations. Antibacterial properties: DIN EN ISO 846-A/C. The standard should be verified by the manufacturer.						
3.7	The flooring shall be hot-welded with good finish. The flooring shall meet the high requirements of particulate contamination set by the healthcare industry. surface shall be waterproof,						
3.8	Color standard sample and design should be provided. Hospital will decide.						

4	**PLANAIR Ceiling:**	**1**	**1**	**-**	**-**	**2**	**set**
4.1	Plan air Ceiling constructed out of pre-fabricated high quality stainless steel 304 panels mounted on stable substructure made of galvanized steel frame with proper hermetic sealing. As same manufacturer of the wall partition.						
4.2	The panels should be able to install and dismantled easily. Hermetically sealed.						
4.3	**LAMINAR FLOW** panel has to be incorporated in this ceiling	1	1	-	-	2	set
4.4	Operation theater supply air system for operation with conditioned outside air for use in operating theatres, generates a vertical, low-turbulence displacement flow.						
4.5	The output frame and filter frame shall be of extruded aluminum profiles, plain anodized, housing the horizontally arranged high performance airborne particle filter installed immediately above the air outlet. The filters of filter class H 14 according to DIN EN 1822 are provided with grip or contact protection on both sides and are scan checked by the manufacturer. The standard should be verified by the manufacturer						
4.6	A test connection for aerosol sampling at the base air side to be provided for proof of on leakages according to DIN ISO EN 14644/3. The standard should be verified by the manufacturer						
4.7	Should provide detail plan design with measurement.						

5	**ELEMENTS INSTALLED ON THE WALL:**						
5.1	**Digital display Electronic Clock**: High quality clock, flushed with the panel system, with antireflection glass cover and regulated with remote control. Clock should have elapsed time	1	1	-	-	2	set

	indicator.						
5.2	**X - ray and CT scan LED View box:** for 2 films, flushed with wall panel & dimmer control,	1	1	-	-	2	set
5.3	**Writing board:** Erasable writing board, flushed with wall panel (4 x 3 ft)	1	1	-	-	2	set
5.4	**UHD Monitor:** > 55-inch monitor, installed and flushed with wall panel, 3 HDMI, Resolution 100 Hz or better	1	-	-	-	1	set
5.5	**Office table:** Multipurpose wall mountable strong working Office table in glossy white top, Stainless steel bracket. Easy to clean (L = 120 cm and B = 45 cm).	1	1	-	-	2	set
5.6	**UV light:** Disinfection technology installation inside the OT, (18" in director light fixtures, 4 set)	1	1	-	-	2	set

6	**OT CONTROL PANEL**	1	1	-	-	2	set
6.1	**Integrated system:** Manages device data and image. Flushed in wall mount box, not less than 21" Touch screen monitor, Computer set with integration software. This Control panel should work as the central control panel:						
6.2	HVAC (Temperature control, Humidity control, Air pressure display)						
6.3	Light Control (Control for general lighting ON/Off and Dimming)						
6.4	Gas control alarm (Gas and vacuum)						
6.5	Hand free Telephone / Media Player/Audio amplifier control						
6.6	HEPA filter efficiency indicator /status display						
6.7	Other standard parameters like clock, stop watch etc.						
	This should meet Electrical safety codes for high & low voltage system, wired to the current IEE regulation						
6.8	Audio system to hear soothing music. It should be able to play pen drive.						
6.9	This system shall provide real - time visual information about the current status of the monitored operating theatre						
6.1	Alarm system with volume control						

7	**STORAGE CABINETS: (Two set each OT)**	2	2	-	-	4	set
7.1	The storage unit should be continuously ventilated by positive air in the OT through the ventilation holes provided at the bottom and top of opposite sides and in the shelves.						
7.2	Should make flush with wall panels, The storage unit made from 1.6mm of Stainless steel 304.						
7.3	Dimension: L 1500 -1800 x B 900 - 800 x D280 -300 mm or more						
7.4	Cabinet doors made of stainless-steel frame and each part should be provided with toughen glass racks as per user department. These should be completely detachable type.						
7.5	Glass doors, transparent safe toughen glass, ≥ 6mm thick, smooth edges, with high quality locking system.						
7.6	Should be hermetic construction not allowing any leakage between						

	units and the wall panels.						

8	**PRESSURE RELIEF DAMPER: (4 units per OT)**	1	1	-	-	2	set
8.1	Cascade pressure stabilizer having SS 304 blades to control room air.						

9	**PERIPHERAL LIGHTS**:	1 set	1 set	-	-	2	set
9.1	12 or more separate light units in the ceiling flushed with ceiling panels to achieve seamless finish and better integration for each OT. As per OT design required.						
9.2	The clean - installed light should be non -hygroscopic; LED based and be color / brightness adjustable. Duration > 50000 hours at ambient temp. 25C.						
9.3	The lights should be covered with translucent Plexi glass with high transmission level (higher than 80%) The connection between the illuminator and the ceiling hollow space should be completely airtight.						
9.4	It should have dimmable electronic mute-lamp ballast with the brightness varying from 10% to 100% linearly, flicker less dimming control.						

10	**MODULAR AUTOMATIC HERMETICALLY SEALED DOOR for OT Entry:**	1	1	-	-	2	set
10.1	Single leaf Sliding type doors.						
10.2	**Opening Size**: 1500 -1600 mm x 2000 - 2100 mm						
10.3	Door Frame: integrated with wall panel, flushed, make steel, ≥1.5 mm thick, should be airtight and shock absorbing.						
10.4	**Door Leaf:**						
10.5	Made in multilayered technology, with chrome - nickel stainless steel on both sides. No joints allowed. No joints allowed. >=45mm thick,>=50kg/m3 density.						
10.6	Viewing window made of safe glass, flushed with the door panel.						
10.7	Provision of making observation window electrically opaque (smart glass blinds) size - 300 x 300 mm						
10.8	Lock with Key facility						
10.9	Radiation resistant/shielded door should be provided						

12	**ELECTRICAL SYSTEM:**	1	1		1	3	set
12.1	All components in OT should be compatible with power supply of 230 V. Provision for UPS wiring and sockets within the OT is mandatory.						
12.2	Sufficient number of electrical sockets (6/16 Amp) should be installed in the wall of OTs as per need of the hospital technical committee.						

14	**MEDICAL GAS PIPE LINE INSIDE THE OT: (TWO SET ON WALL)**	2	2		8	12	set
14.1	Supply and fixing of 15 mm and 22 mm diameter and 1.2 mm thick medical grade, seamless, fully degreased copper, oxygen gas outlets - 2nos, Vacuum - 1 nos,						

11	**AUTOMATIC SYSTEM OF SLIDING DOOR:**						
11.1	Microprocessor based electronic automation for door for controlling the direction of movements, the acceleration and speed of the door, with a low noise level pulse generator motor						
11.2	Should have adjustable speed of door movements, reduction of door movement speed at the final phase of closing.						
11.3	Should have programmable door closing facility.						
11.4	Control by 2 touches less sensors (radar switches) mounted on both sides of door. Foot operation and hand sensors.						
11.5	Should allow manual opening at time of power failures.						
11.6	It includes a photo cell for user's safety.						

13	**DUCTING WORK INSIDE OT: (as per needed in room)**	1	1	-	-	2	set
13.1	Aluminum or Copper Ducting (22 * 24 gauge) with curves & bends where indicated for easy flow of air tight by applying silicon sealant after fabrication. Hangers will be provided to ducts & will be suspended be means of G.I. coated rod & these will not be more than 2.5 meters apart. Thermal insulation with 9mm XPE with aluminum foil for supply & return air ducts. Joints will be lapped with Nitrile tape for better insulation. (Inside OT only) 22-						

	gauge aluminum with 9mm nitrile						

15	Powder Coated Aluminum Extract Grills with Damper	1	1

16	**HINGED AUTOMATIC HERMETICALLY SEALED DOOR FOR DIRTY Exit.**	1	1	-	-	2	set
16.1	Single leaf hinged type door.						
16.2	Opening Size: 900 mm x 2000 - 2100 mm approx..						
16.3	Door Frame: integrated with wall panel, flushed, make steel, ≥1.5 mm thick, should be airtight and shock absorbing.						
16.4	**Door Leaf:**						
16.5	Made in multilayered technology, with chrome - nickel stainless steel on both sides. No joints allowed.>=45mm thick,> =50kg /m3 density.						
16.6	Viewing window made of safe glass, flushed with the door panel.						
16.7	Lock with Key facility						
16.8	Stainless steel hinges and screws						
16.9	Door closer withhold-open arm.						

17	**SCRUB Sink:**	1	1		-	2	set
17.1	Make: Heavy gauge AISI 304 grade Stainless steel, should be seamless welded construction polished to a finish. Bay depth should be more than 200 mm.	3 B A Y	2 BAY				
17.2	It should have hand free operation including infrared sensor with range of adjustments.						
17.3	It should have thermostatically controlled mixing valve which automatically maintains water temperature.						
17.4	Soap, brush and disinfectant dispensers in each bay.						
17.5	It should also have a foot / elbow operated facility.						
17.6	It should have inbuilt Supply water filter with UV light and water Heating system compulsory.						
17.7	Each bay has a good quality mirror and mirror light.						

18	**ANESTHESIA GAS SCAVENGING SYSTEM: (outlets suck the waste anesthetic gases.)**	1	1	-	-	2	set

18.1	It comprises of Oil Free Side Channel Vacuum Pumps. Big Energetic gain Compared to compressed air solution Low maintenance. Constant Vacuum Maintained inspire of the number of terminal units used. Flow adjustment on each terminal unit. Flow - meter with float to fit on terminal unit.						

19	**LAMINAR FLOW**	1	1	-	-	2	set
19.1	Unidirectional laminar air flow ceiling should be constructed out of stainless sheet 304 of size approximately 2400 x 2400 mm having 6 or more of H14 HEPA filters. As per OT design required.						
19.2	The HEPA filters should have dust spot efficiency of 99.99% 0.3 micron. Air & Light diffuser made out of two layers of mono filament precision woven polyester for the plan air ceiling to give a "LAMINAR FLOW" of filtered air. Air flow rates up to 4500 m3h.						
19.3	The Laminar flow ceiling should also have illumination across its total area.						
19.4	It should have CE compliance under Class 1 Medical devices directive.						

20	**HEATING VENTILATION AND AIR CONDITIONING (HVAC) SYSTEM.**	1	1	-	-	2	set
20.1	Minimum of 15 to 20 times air change per hour with 20% fresh air adding needed.						
20.2	Relative Humidity 50 - 55 %.						
20.3	Temperature between 18 to 22, +/- 2 degree C						
20.4	Positive air pressure of 5 cm H2O of inside the OT.						
20.5	Capacity should be as per requirement						

21	**AIR HANDLING UNIT (AHU)**	1	1	-	-	2	set
21.1	Floor mounted Air handling Unit construction with PUF Sandwich Panels at a static pressure of 120 mm complete with backward curved blower.						
21.2	Operations should run on 400V, 3 phase, 50 Hz A.C.						
21.3	Supply complete with 8 rows copper tube, aluminum finned DX cooling coil, pre -filter, micro -vee filters, Heater Bank. As per OT size and requirement.						

21.4	There must be two sets of washable flange type pre filters (EU 4) of efficiency 90% down to 10 microns and fine filter (EU -7) of efficiency 99% down to 3 microns with aluminum/ SS 304 frame with in the AHU.						
21.5	Mixing Box complete with drain connections with ant vibration mounting and with VFD compatible motor of following capacities: 4500 CFM						
21.6	System should have accessories such as Limit Switch, Door Lamp, Inspection Glass, and Canvas.						
21.7	Should have redundant configuration of HVAC for continuous running and service ability.						
21.8	The AHU and outdoor unit should be covered with a fabricated structure for permanent protection from climatic variations						
21.9	With inbuilt UV Light, Ionize & Electronic plasma incineration chamber.						

22	**ANAESTHESIA PENDANT**	1	1	-	-	2	set
22.1	Carrying capacity of the arm must not be less than 100 kg						
22.2	Pendant shall be double arm, movable, ceiling mounted and have modular head with Swivel arm and main case						
22.3	Movement - each arm with up to 350 deg. and radius of rotation must be up to 1200 mm						
22.4	Brakes - The arms should be fitted with electromagnetic control brakes to prevent inadvertent movement.						
22.5	Should be provided with infusion stand with hook 1nos, basket 1nos and support arm 1nos, Shelves 2 or more in nos, different Gas pressure gauge.						
22.6	Should have provision for gas outlets oxygen - 2nos., Medical Air (4 Bar)- 2 nos. Vacuum - 2 nos., AGSS- 1nos, Co2 - 1 nos, complete with hose assemblies can be accomodate within the pendant. Co2 Cylinder connection facility installation in out of the OT complex. (Providing Sufficient connection probes)						
22.7	Vacuum regulator with collection Jar 1 Lit, Portable trolley 5 lit 2 pcs, Connection pipe and O2 flow meter -2 nos						
22.8	Should be provided with three pin UK type 16Amp, Switch / sockets 6 Nos or more and RJ 45 and HDMI socket for networking port for central monitoring						
22.9	Anesthesia pendant should be European CE certified or USFDA approved						

23	**SURGICAL PENDANT**	1	1	-	-	2	set
23.1	Shelves front or sides mounted via t-slow at the front and sides of the console. Drawers under the shelves are available. Accessories can be clamped to optional stainless-steel rails, which are mounted, on 3 sides of the shelves. The console provides optional docking facilities to various carts carrying instruments.						
23.2	Carrying capacity of the arm must not be less than 100 kgs.						

23.3	Pendant shall be double arm, movable, ceiling mounted and have modular head with Swivel arm and main case					
23.4	Movement - each arm with up to 340 deg. and radius of rotation must be up to 1200 mm					
23.5	Brakes - The arms should be fitted with electromagnetic control brakes to prevent inadvertent movement.					
23.6	Should be provided with infusion stand with hook 1nos, basket 1nos and support arm 1nos, Shelves 2 or more in nos, different Gas pressure gauge.					
23.7	Should have provision for gas outlets oxygen-2nos., Medical Air (4 Bar)- 2 nos., Vacuum -2 nos., AGSS- 1nos. Co2 - 1 nos. complete with hose assemblies can be accomodated within the pendant.					
23.8	Should be provided with three pin UK type 16Amp, Switch/Sockets 8 nos or more and RJ 45 and HDMI socket.					
23.9	A connector for data transfer, video recording, telephone & intercom					
23.10	Surgical pendant should be European CE certified or USFDA approved.					

24	**OT LIGHT**	1	1	-	-	2	set
24-A	Twin dome OT light	YES	YES				
24-B	Wireless HD camera in OT Light and a third arm with mini. 27" or more medical grade monitor with record system.	YES	No			1	SET
24-C	Both domes should have compatible 1 wireless HD camera preparation in main lamp and Sterilizable handle in it for adding camera.	YES	YES				
24-D	**Double dome OT light with HD camera and recording system**						
24.1	LED Surgical Light—Double-Dome, ceiling mounted with adjustable-Color Temperature, suitable to be used in laminar flow environment.						
24.2	Aerodynamic, smooth-surface lamp heads to support laminar airflow across the sterile zone.						
24.3	Housing made of fire-retardant, unbreakable polycarbonate with high chemical resistance; all external surfaces shall withstand routine hospital disinfectants and low-temperature plasma sterilization.						
24.4	Dome diameter: approximately 700 mm per lamp head or better						
24.5	Each lamp head must deliver illuminance of 160000 lux or more and maintain a shadow-free field.						
24.6	Illuminance depth 1400mm approx.						

24.7	Size of light field 250-300mm or better						
24.8	Easy to operate						
24.9	The suspension system shall allow 360° rotation about the ceiling column						
24.10	Color temperature: 3800 – 5000 K or better						
24.11	Color-rendering index (CRI): ≥ 93 Ra						
24.12	Average LED service life: ≥ 50 000 h						
24.13	With sterilizable, autoclavable center handle.						
24.14	Power supply - 230 VAC, 50 Hz AC						
24.15	A third arm for HD Medical grade monitor (27" or more)						
24.16	**HD camera module**						
24.17	Built-in HD camera (Image device: CMOS sensor)						
24.18	Effective pixels: 2 megapixels or better						
24.19	Optical zoom: 12x (120x with optical zoom) or better						
24.20	Signal system: HD or better						
24.21	Image size (H*V):1920*1080						
24.22	**Recording System**						
24.23	It should support HD Recorder and Player						
24.24	It should be easy to use web UI, configure and control from standard web browsers						
24.25	It should have multi-channel embedded SDI and HDMI audio						
24.26	It should support Single channel recording up to HD60p and multi- channel up to (HD) 1080p						
24.27	It should have slots for removable storage						
24.28	It should have following features for network interface: i. 1x LAN connector (RJ-45 connector) ii. Video Confidence Monitor via Web Interface	YES	NO				
24.29	High-definition digital hybrid hard disk recorder, supporting SDI and network signal access.						
24.30	**OT light without camera**						

24.31	LED Surgical Light—Double-Dome, ceiling mounted with adjustable-Color Temperature, suitable to be used in laminar flow environment.						
24.32	Smooth-surface lamp heads to support laminar airflow across the sterile zone.						
24.33	Housing made of fire-retardant, unbreakable polycarbonate with high chemical resistance; all external surfaces shall withstand routine hospital disinfectants and low-temperature plasma sterilization.						
24.34	Dome diameter: approximately 700 mm per lamp head.						
24.35	Each lamp head must deliver illuminance of 160000 lux or more and maintain a shadow-free field.						
24.36	Illuminance depth 1400mm approx.						
24.37	Size of light field 250-300mm or better						
24.38	Easy to operate						
24.39	The suspension system shall allow 360° rotation about the ceiling column						
24.40	Color temperature: 3800 – 5000 K or better						
24.41	Color-rendering index (CRI): ≥ 93 Ra						
24.42	Average LED service life: ≥ 50 000 h						
24.43	With sterilizable, autoclavable center handle.						
24.44	Power supply - 230 VAC, 50 Hz AC						
24.45	OT light should be ISO, European CE Certified or USFDA approved.						
25	**DISTRIBUTION BOARD**	1	1	-	-	2	set
25.1	All high voltage equipment should be installed in a separate enclosure. The remote cabinet should house the operating lamp transformers, mains failure relays, electrical distribution equipment & circuit protection equipment for all circuits within the operating theatre. All internal wiring should terminate in connectors with screw & clamp spring connections of the clip- on type mounted, on a DIN rail & labeled with clear proprietary labels. Individual fuse miniature circuit breakers (MCB) should protect all internal circuits with ELCB main switch.						
25.2	Individual protection for O.T. light, Peripheral Lights, Anesthesia Pendant, Surgical Pendant, OT Control Panel, Main Door, Back door, AC, AHU, Peripheral socket, UPS etc.						

26	**UPS**					1	set

26.1	Supply, installation testing and commissioning of 30 KVA with more than 30 mins backup for OT and recovery						

27	**EARTHING**	1	1	-	-	2	set
27.1	Supply and installation of Chemical cartage earthing system for individually OT, connected by 6 SWG Copper Conductor to DB as per requirement.						

28	**WALL GUARD SYSTEM**	1	1		1	3	lot
28.1	Inside OT complex. UPVC wall guard system with aluminum extrusion material of thickness > 1.6 mm as per requirement.						

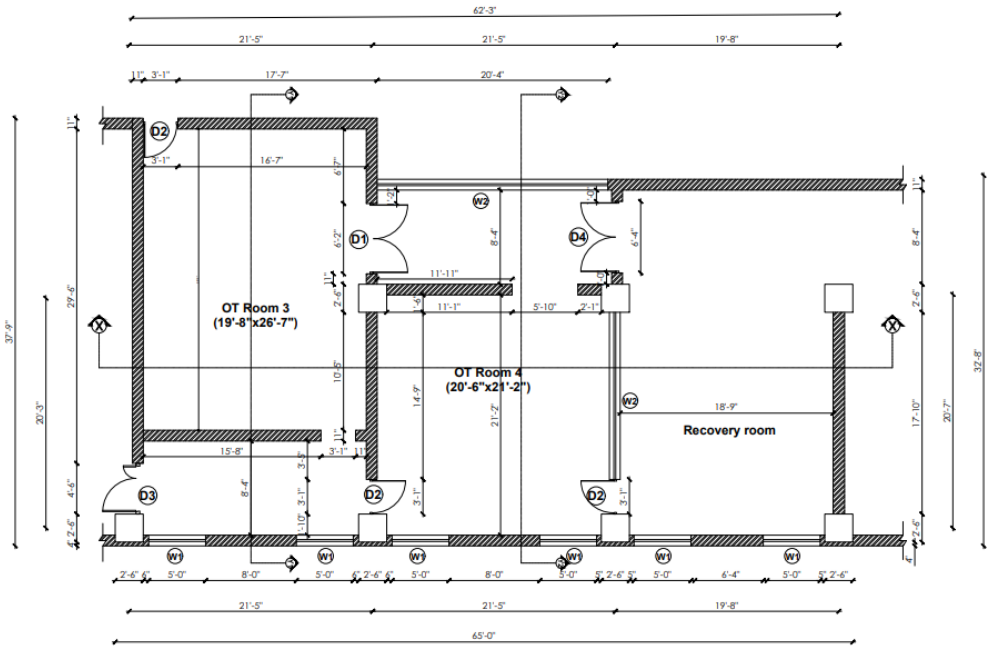
29	**Ceiling Cassette Air conditioning system (Invertor Technology)**	-	-		4	4	set
29.1	Supply, Installation, Testing and commissioning of Invertor Technology Ceiling Cassette Air conditioning system of **2 tons** Ceiling Cassette Indoor / Outdoor unit with fully charged refrigerant (R-410A) inclusive of interconnecting required pipe line, power and control cables, individual wireless remote. Installation in existing hospital new recovery area.						

30	**QUALITY ASSURANCE**						
30.1	Certificate of calibration and inspection from factory.						
30.2	List of Equipment's available for providing calibration and routine.						
30.3	Preventive Maintenance Support. As per manufacturer documentation in service / technical manual.						
30.4	List of important spare parts and accessories with their part number and costing to be given.						
30.5	Logbook with instructions for daily, weekly, monthly and quarterly maintenance checklist.						
30.6	Complete Documents to be provided.						
30.7	User/Technical/Maintenance manuals to be supplied in English.						

31	**TERMS AND CONDITIONS:**
31.1	Bidder must completely fill the Technical Specification Form (TSF). Only Yes/no/all complies should not be written. Page number in the catalogue of all the required parameters must be clearly mentioned and

	highlighted. Failure in doing so may lead to rejection of bid from technical committee.
31.2	Mode of delivery: TURN KEY
	All the work from the beginning should be done in coordination and supervision of technical committee.
31.3	Comprehensive warranty for 5 years
31.4	The supplier must submit the color original brochure with specification in English language.
31.5	List of important spare parts, Consumable parts and accessories with their part numbers and Price in NRs.
31.6	Authorized sales agent and after sales maintenance service by Factory trained engineers must be available locally and available within 6 hours of the breakdown call.
31.7	User/Service training to maintenance staffs and operation for at least three days by factory trained Engineers/Technician from the successful date of testing and commissioning of the system without any extra cost.
31.8	Operational and familiarization training should be provided to the users/ OT staffs.
31.9	Must supply all standard accessories, Maintenance Kits & one set necessary tool set.
31.10	Operating manual, Service manual, Circuit diagram, Other detailed drawings, PPM schedules, Spare parts catalog, Guarantee / warranty Certificate, Performance Test Certificate should be provided at the time of installation & in English Language, certificate of calibration and inspection from factory.
31.11	During the warranty period supplier must ensure planned preventive maintenance (PPM) along with corrective/ breakdown maintenance whenever required.
31.12	Must submit valid ISO 13485:2003/AC:2007 for Medical Devices AND
31.13	Must submit valid CE (93/42 EEC Directives) approved product certificate or valid US-FDA approved product certificate wherever mentioned in the detailed specification.
31.14	All the component's detailed technical specifications must be submitted.
31.15	A prequalified design and install supplier must prepare detailed drawings of operation block diagram. Including the location of equipment built into wall panel system and 3D design also.
31.16	Drawings of construction should be prepared based on technical drawings of installations: electrical, medical gases, HVAC system etc.
31.17	All standard accessories, consumables and parts required to operate the equipment to be included in the offer.
31.18	Modification needed in civil structure in the OT complex during installation is the liability of supplier. Suppliers are encouraged to visit site before they quote.
31.19	As this is a turnkey project, minor needs while completing the project is the responsibility of supplier

Note: As per the response / feedback received after pre - bid meeting, the specification can be adjusted accordingly, if necessary or required.



FLOOR PLAN

(SCALE $\frac{1}{8}$"=1'-0")

CITY PLANNING COMMISSION KATHMANDU METROPOLITAN CITY KAMALADI RD, KATHMANDU 44600	KANTI BAAL HOSPITAL 03-KATHMANDU	REV.	DATE	DESCRIPTION OF REVISION	APPROVED BY	Supervised by: Ar. Sabhana Rajbhandari	SCALE: AS MENTIONED	FLOOR PLAN	DRAWING NO. AR-DWG-01
		A				Drawn by: Ar. Anugya Gautam			
		B				Checked by:		KANTI BAAL HOSPITAL	REFERENCE: -
		C				Approved by:	DATE : ASADH 2082		
		D							