NOTICE INVITING
Expression of Interest (EOI)

For Modular Operation Theatres in 6 Medical College & Hospitals,
36 District Hospitals on turnkey basis

Expression of Interest (EOI) is invited from reputed agencies for the design, installation and maintenance of Modular Operation Theatres in the 6 Medical College & Hospitals, 36 District Hospitals across the state. The broad details of requirement and terms & conditions may be downloaded from website (http://www.statehealthsocietybihar.org/). A pre-bid meeting is scheduled at 3:00 pm on 26/11/2013 in the Conference room of State Health Society Bihar building, Sheikhpura in Patna. Competent interested agencies are requested to submit the details to the undersigned on or before 02/12/2013 at 5.00 P.M. and shall be required to make a presentation before the Technical Committee at the Office of the ED, State Health Society Bihar, Sheikhpura, Patna-14 on 05/12/2013 at 11.00 A.M. Based on the documents submitted and presentation made firms shall be short listed and the short listed firms shall have to submit their price bids in sealed cover immediately thereafter.

Sd/-

Executive Director
State Health Society Bihar

Supply/Installation/Commissioning (turnkey basis) of Modular Operation Theatres

EXPRESSION OF INTEREST (EOI)

Proposal Details

Introduction

Health sector in Bihar has witnessed notable developments in the last few years particularly in fields of improvement in health infrastructure, patients visiting health centres, institutional delivery & reduction in maternal mortality. The results of health initiatives in the Bihar are positive and the state needs to sustain the momentum during the coming years. Continuing with the trend, Government of Bihar intends to establish modular operation theatre in medical college & hospital and district hospitals in the state.

Scope of Work

The Government of Bihar intends to install Modular Operation Theatre (MOT) in 6 Medical College & Hospitals and 36 District Hospitals. The agency will provide complete technical support in terms of design and execute the modular OTs on turnkey basis, supply bio medical equipments & medical furniture as required including installation, operationalisation and maintenance of modular OTs, also including necessary training to the staff. The number of MOT are 7 (seven) in Patna Medical College & Hospital, 3 (three) in remaining 5 Medical College & Hospitals and 1 (one) in each District Hospitals (total 36 District Hospitals), thereby, totalling **58 MOT** across the state. **The Technical Details are in Annexure I.**

General Terms and Conditions:

1. Interested Bidders may inspect the proposed hospital buildings before submission of their EOI to decide requirement at their own cost.

2. Before submitting an EOI, the bidder will be deemed to have satisfied themselves by actual inspection of the site and locality of the works, that all conditions liable to be encountered during the execution of the works are taken into account and that the rates quoted in the EOI are adequate and all inclusive to accord with the provisions of contract for the completion of works to the entire satisfaction of the SHSB.

3. The Bidder should have an experience for similar nature work for a period of 3 years and shall submit documentary evidence of satisfactory performance of the OTs.

4. The EOI with required document shall be submitted on or before 02/12/2013 to the Office of the Executive Director, SHSB.

5. Firm will be short-listed based on documents furnished & presentation made for proposed services. The short listed firm will be required to submit financial bids immediately.

6. The State Health Society Bihar reserves all rights to reject any or all the EOI/tender without assigning any reason.

7. The following documents must be submitted along with the EOI:

a. List of organization available on hand (own) and proposed to be engaged for the work.

b. List of plant and machinery available on hand (own) and proposed to be inducted (own and hired to be given separately) for the work.

c. List of similar works completed in the last three financial years giving description of work, organization for whom executed, approximate value of contract at the time of award, date of award and date of scheduled of completion of work. Date of actual start, actual completion and final value of contract should also be given.

d. List of works on hand indicating description of work, contract value, and approximate value of balance work yet to be done and date of award.

NOTE:

i. In case of items (c) and (d) above, supportive documents / certificates from organizations with whom they worked / are working should be enclosed.

ii. Certificates from private individuals for who such works are executed / being executed will not be accepted.

8. The Bidder shall be responsible for all of the costs associated with the preparation of the EOI and its participation in the pre-bid meeting. The ED, SHSB will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the bidding process.

9. EOI must be accompanied with a Quality Assurance Manual (QAM), project organization (Flow Chart), Project Organization (Duties and Responsibilities), Project Control and Administration, Methodology of Working, Test and Inspection Plan, Non Conformity and Corrective Actions, Safety, Monitoring mechanism.

10. Qualifications and experience of key site management and technical personnel proposed for Contract.

11. The qualified party will have to operate and maintain the MOT for initial three years.

12. Reports on the financial standing of the Bidder, such as profit and loss statements and auditor's reports for the past three years should be submitted along with proposal.

13. Information regarding any litigation, current or during the last three years in which the Bidder is involved, the parties concerned, and disputed amount.

Eligibility Criteria:

Interested agencies must have the following minimum credentials to qualify for the proposed task:

a. The minimum average annual turnover required for agencies taking part in this EOI shall be Rs. 10 crores in the last three years.

b. Minimum of 3 year of experience of working in setting up of Modular OT on turnkey basis.

c. Must not be blacklisted by any government dept./institution

Submission Requirements:

Interested Agencies wishing to undertake the above task on behalf of State Health Society Bihar, may submit their application in a sealed envelope marked "EOI for Providing Modular OTs on

Turnkey Basis". Agency is required to clearly indicate the relevant page number against each of the submission requirements mentioned below in your cover letter/application accompanying the EOI.

The EOI should include the following:

I. Background profile of the firm/organization (along with contact details viz. Name, Address, Phone No., E-mail Address of the party)

II. Capability Statement (List of major completed/on-going assignments similar to present assignment)

III. Detailed Technical Proposal providing approach to the project along with offer of services and the process of rollout of the service.

IV. Pre-requisites for providing the above services would include:

i. Install, operate and maintain Modular OT facility

ii. Providing the necessary equipments and support services {like HVAC and provisions for Electric & medical gas connections} for establishment of the above system.

iii. Provide training to all the health service providers.

V. Audited Financial Statement (turnover certificate) for the last 3 financial years.

VI. No-conviction certificate for the last three years submitting affidavit from Magistrate that they are not blacklisted by any Govt. Dept. /Govt. organization

VII. Earnest Money Deposit (EMD) of **Rs. 1,00,000/- (One Lakh)** (Refundable) through a Demand Draft drawn in favour of "State Health Society Bihar". Any bid which is not accompanied by the EMD will be automatically rejected. The applicants should be prepared to make presentation on their technical proposals at State Health Society Bihar office at Pariwar Kalyan Bhawan, Sheikhpura, Patna without any cost or commitment in a pre-bid meeting. The interested parties will be short listed on the basis of their technical proposals and experience. The Financial bids will be invited subsequently from the short-listed applicants.

Special Terms and Conditions:

1. Delivery & Installation: The ordered items shall be delivered & installed and commissioned within **4 (four) months** from the date of issue of contract.

2. **Payment Terms & Security deposit: 80% of the total price shall be released on Submission of proof of delivery of complete equipments & fixtures and after inspection and installation of the MOT. Balance, 20% payments shall be released after successful commissioning and taking over by the consignee and after submission of**:
   a. Certification of acceptance by the Superintendent in case of MCH and Civil Surgeon in case of DH.
   b. Ten percent (10%) - Bank Guarantee as security deposit in the form of Bank Guarantee valid for 3 (three) years.

3. Penalty Clause: The agency will be bound to establish the MOT within the stipulated period as mentioned above, failing which the following penalty will be levied on the agency (to be deducted from the EMD/Security Deposit).
   a. For delayed setting up of MOT: A penalty of 0.5% of the total value of order per week will be imposed subject to a maximum of 10% of the total value of the order.
   b. For Non-setting up of MOT:- Security Deposit of the firm shall be forfeited.

4. Special Instructions:

a. Prices are firm & fixed
b. Prices accepted are for MCH and DH as mentioned in the EOI
c. Required to furnish original manufacturers test certificate.
d. Freight & insurance, loading / unloading and incidental expenses including of all taxes, installation & commissioning will be arranged by agency at their own cost.
e. The Agency should indicate prices of MOT for Medical College & Hospitals and District Hospitals **separately** as the cost for MOT in DH is likely to be lower than that in MCH.

5. COMPREHENSIVE WARRANTY: The following Guarantee/Warrantee Clause shall be applicable and binding on agency:

Comprehensive Warranty / Guarantee (Initial 3 years):
The seller declares/ certify that the goods/ equipments/ articles sold/ supplied to the purchaser under this contract shall be **NEW** in all respects, are of the best quality, workmanship and shall be strictly in accordance with the specification and particulars contained/ mentioned in the contract and **not** refurbished equipment/ articles are supplied. The contractor/ seller will further guarantees that the said goods/ equipments would continue to conform to the given description and quality aforesaid for a period of 36 months from the date of Installation / Commissioning of the said MOT in the premises of the purchaser/user facility. The above guarantee/ warranty are not-withstanding to the fact that the purchaser may have inspected the MOT/ article and/ or not within a period of 36 months of thereafter. In case said goods/ articles is discovered not to conform to the description and quality aforesaid or not giving satisfactory performance or have deteriorated at subsequent stage, the purchaser may take such action or issue such directions as deems fit to Agency to bring the machine in conformity with prescribed specification/ to make it operational and which shall be final and binding on the contractor/ seller. The purchaser is entitled to call upon the contractor to rectify the goods/ equipments/ articles or such portion of MOT as found to be defective by the purchaser within a reasonable period/ or such specified period as may be allowed to the contractor failing which the losses, compensation, damages etc, including the cost of repairing of such equipments/ goods, if the items/ machine is repaired from open market or such damages as assessed by purchaser, which indenter would suffer due to non-operation of the said article/ instrument, shall be recovered from the Agency and the firms/ tenderer shall be blacklisted for breach of warranty.

6. Free Annual Maintenance Contract (Next 3 years)
The Agency shall further commit to provide unconditional free AMC (labour only) for the next 36 Months (three years) after completion of 3 (three) years of completion of Comprehensive warranty/ gurantee to ensure satisfactory/ flawless functioning of the MOT to give the desired result. The indentor shall bear only the costs of spares at the prescribed prices, in case required as necessary/ essential, to keep the above equipment functional. The Agency shall submit a list of most commonly required components/ spare parts of the equipment along with their prevailing rates. **The Agency will also furnish the list of items not covered under warranty/ guarantee.**

7. Uptime guaranty: During the Warranty / Guaranty period, the agency shall maintain the equipment with 95% uptime. The Agency shall give a written commitment for 95% uptime of the equipment, calculated on annual basis, with penalty equivalent to double the amount of daily cost (on total loss of revenue per day/ running cost per day basis) of the unit for each day's delay in proper functioning of the unit beyond 5% down time per annum.

8. Penalty Clause: The Agency will be bound to get the equipments repaired within 48 hours of the receiving of the complaint from the indenting hospital failing which a penalty of @ 1% of the cost may be recovered from the Bank Guarantee before releasing the same after 3 years.

9. Correctness and Completeness of MOT: The MOT shall be correct and complete in every respect with all mounting fitting, fixtures, standard accessories which are normally supplied even through not specifically detailed to the specification. The Agency should calculate costs considering all these aspects.

10. Rectification Clause: In the event of spares is given back to the manufacturer, it should be ensure that the defect is attended immediately without loss of time so that spares can be re-inspected. However, it should be noted that the manufacturer will not entitled to dispose off that spares which is given for rectification/ rejecting without prior permission of the inspection.

11. Installation: The equipment shall be installed/ demonstrated by Agency free of cost at consignee premises. The Agency should provide 2 copies of the manual including electric circuit diagram design in free of cost along with the equipment.

12. Intimation of dispatch: The documents should be in the name of consignee only. The information regarding shipment should be sent to the institution well in advance. Delay in submission of relevant information/ incorrect document, and any such information due to which the clearance of MOT is delayed, the demurrage charges shall be to Agency accounts.

13. Liability: Supplier's responsibility shall be up to consignee's premises/ facilities. However, agency will be responsible for any damages/ losses due to defective packing, transportation, etc.

14. Training: The Agency shall provide onsite training to medical & technical Staff.

15. Insurance: The Agency shall take insurance cover from originating place and shall keep it valid until entire materials reach hospital leaving sufficient time for necessary installation and commissioning. The Agency shall also ensure accidental/ fire insurance, as applicable of all equipments of the MOT.

16. Service after expiry of warranty of 3 Years and AMC of 3 Years: After the expiry of this period, the Agency will enter into annual maintenance contract on mutually agreed terms & conditions for further maintenance of the whole equipment as per fresh tender.

17. The Agency will have to procure and install the equipments/ fixtures/ articles manufactured only by the reputed companies/ manufacturers. They will have to indicate the name of manufacturers in the bid document which will be duly approved by the Technical Committee of the SHSB before executing the work.

18. The decision of the State Health Society Bihar shall be final, and no enquiries, or application for review, shall be entertained. The State Health Society Bihar reserves the right to modify the terms & conditions partially or wholly or cancel the EOI without assigning any reason.

For any clarification, please contact Sandeep Kumar on Phone +91 9308138612.

Executive Director
State Health Society Bihar

Annexure – I

TECHNICAL DETAILS FOR MODULAR OPERATION THEATRE

Sl. No.	Particulars	Description of Works
1	Pre fabricated Operating Room	The theatre wall should have two independent surfaces with a cavity in between, the outer wall being constructed with brick and mortar and is in the scope of the hospital. The inner surface walls should be constructed from 1.60mm zintex steel panels, as per IS 277, backed by 9mm gypsum board panels having a flame resistance to BS 1142 part 3. The inner surface walls should be fixed to the outer walls. The individual wall panels should be bolted together. The joints on each layer are to be staggered relative to each other. All joints should be filled with metal filler and sanded flush on site, ready to receive the plastic finish. Wall panel joints should be invisible when the final plastic coating is applied. The cavity between the inner and outer walls should be left with minimum obstructions for the possible addition of equipment at a latter date and to enable services, pipes, conduits etc, to be run within the cavity. The inner wall panels should be constructed to withstand strong impacts, such as from the bombardment of trolleys without significant damage to the panels. All wall mounted equipment should be flush mounted and sealed into theatre wall by means of a sterile jointing system. The wall panel design and construction should allow for the installation and support of all equipments and the provision of openings required for the installations, without affecting rigid and strength. Access boxes should be fitted to the rear of wall mounted equipment to enable maintenance to be carried out from outside the operating theatre. All surfaces should be prepared ready for the finish in accordance with the paint manufactures recommendations and requirements.
2	Ceiling Construction	As the theatre inner wall, the ceiling panels should be constructed from 1.60mm Zintex steel panels as per IS277 backed by 9mm gypsum board having a flame resistance to BS 1142 part 3. The individual ceiling panels should be bolted together. All joints should be filled with metal filler and sanded flush on site;

		ready to receive the finish. The internal surfaces of the ceiling should be prepared and sprayed with a water based liquid plastic. Wall glaze or the equivalent, similar to the walls. The plastic coating should overlap all joints, where necessary by 25 mm to provide a continuous sealed surface. The ceiling system should be integrated with Plenar system which consists of the following: ➢ Conditioned Air via 'S' Class HEPA Filters, providing a sterile environment less than 35 BCP / M3 ➢ Integrated OP Lamp support avoids co-ordination and maintenance problems.
3	Sterile Wall coating system for Wall and Ceiling	The internal surfaces of the theatre walls should be sprayed with water based liquid plastic, wall glaze or equivalent, approved by the architect, to a minimum dry film thickness of 300 microns. Aseptic and self sterilizing coating, water resistance, do not support bactenriological or fungicidal growth and is resistant to most chemicals commonly used in hospital departments, it is stretch resistant to as per BS 3900 Part E2 Standards. The plastic coating should overlap the floor covering, ceiling system and doorframs by 25mm to provide a continuous sealed surface. Wall panel joints should be invisible when the final plastic coating is applied. The plastic coating should be non-reflective and the colour should be submitted to the architect for approval.
4	Flooring	A floor screed should be provided, flat to within a tolerance of +/- 3mm over any 3 metre area. The floor finish in the operating room should be 2mm static conductive PVC tiles, laid on a semi conductive adhesive base. It conforms to CEN classification EN 685 and Resistance to Chemicals as per DIN 423/DIN 51958. It conforms to the requirement standard for healthcare facilities NFPA 99. The floor finish should terminate at the room perimeter passing over a concealed cove former and continuing up the wall for 100mm. All joints should be welded and the plastic wall finish should overlap the floor coving by 25 mm, to provide a continuous sealed surface. The PVC flooring tiles should be laid on copper grid for providing antistatic electro-statically conductive flooring.
5	Operation Theatre Control Panel	All the controls within the theatre are located on membrane type control panel mounted in the theatre wall.

		A remote electrical distribution board is provided to allow access to the panel for maintenance without access to the theatre. Each control panel contains:- ➢ Time elapse Clock ➢ Standard Clock ➢ Temp and Humidity Indicators ➢ Temp and Humidity Set Point Adjust ➢ Plenum Lighting Controls ➢ Medical Gas Alarms ➢ Phone The time elapsed digital clock and real time digital clocks are of high brightness characters, not less than 30mm in height. The medical gas alarm indicate High and Low gas pressure for gas service present in the operating theatre and have audible buzzer with mute facility. The medical gas alarms are connected to local pressure switches located downstream of the last isolation valves. The remote cabinet should house the operating lamp transformers, main failure relays, electrical distribution equipment and circuit protection equipment for all circuits within the operating theatre. All internal wiring should terminate in connectors with screw and clamp spring connections of the Klippon type mounted, on a DIN rail and labeled with indelible proprietary labels. Individual fuses or miniature circuit breakers should protect all internal circuits. All internal wiring should be of the high temperature type and enclosed in propriety ducting or mini. All internal wires should be marked with plastic ferrule type cable markers, for ease of identification. All wall mounted equipment should be flush mounted and sealed into theatre wall by means of a sterile jointing system.
6	X-Ray Viewing Screens	The theatre should be equipped with a twin plate X-Ray Viewing Screen, designed to provide a high level of control luminance, without flicker, from a unit that is easy to clean and maintain. The X-Ray viewing screen illumination should be by high frequency fluorescent lamps, controlled by demining ballast. The front panel diffuser should be of a glare free type, sealed flush with the inside face of the operating theatre wall (or may as on option be integrated within the control panel fascia). It should be equipped with eight spring-loaded clips to secure the X-Ray negative when in use.

		The fluorescent lamps should provide a uniform level of illumination across the entire front panel diffuser and should be controlled by electronic step-less dimming controls to provide flicker free dimming from maximum brightness to off. Access for maintenance and lamp changing should be front of the panel. All internal wiring should terminate in connectors with screw and clamp spring connections. Individual fuses or miniature circuit breakers should protect all internal circuits. All internal wiring should be of a high temperature and secured by propriety cable clips. All wall mounted equipment should be flush mounted and sealed into theater wall by means of a sterile jointing system.
7	Doors and Frames (Hermetically Sealed type) 2100 mm Height & 1500 mm Width (with Automation Unit)	The door with its automation unit conforms to machine directive 93/87/EC, low voltage directive 73/23/EEC and 93/68/EEC and EMC directive 89/336/EEC and 92/31/EEC and 93/97/EEC. To maintain sterility and the correct air pressure in the department, all doors into and out of the operating theatre and ancillary rooms be of the sliding, hermetically sealing type. All sliding doors should be electrically operated. The doors should be constructed with high-density particle board cores, and high pressure laminate faced on both sides. The cores should be set firmly in an aluminium frame, suitably sealed with a non-porous non-shedding gasket. The aluminium frames should contain the door seal. The door should seal on all four edges in the closed position. The door track should be constructed from an aluminium extrusion, fixed firmly to the walls. The doors should run on nylon wheels within track. The track and wheel design should be such that during the last 50 mm at travel on the closing cycle, the door moves in 3 directions to form a seal against the floor, at the bottom and against the frame on both sides and at the top. Nylon runner guides should be fixed to the floor in such a way that they do not obstruct trolley movement through the door. They should provide stability during the opening and closing cycles and assist in creating the necessary pressure at the bottom of the door to maintain the seal.

		Floor guides across the door opening, or doors with no floor guidance should not be considered. To ensure efficient sealing of the doors, the door manufacturer should provide the door frames. They should consist of reinforced plasterboard panels faced with the same laminate as the doors. The door frames should be edged with an aluminium extrusion and with concealed fixings that are adjustable during installation to ensure a 100% hermetic seal is achieved. Vision panels should be fitted to all doors. Automatic units should be of the single phase electronic type mounted directly to the door track. The units should consist of a computerized electronic controller and motor. The drive mechanism should be by heavy-duty steel reinforced toothed fabric belt. The controller should have the facility to individually set opening speeds, partials opening, closing speeds, time delays and a variety of locking and interlocking options, within factory preset limits. The door controller should also have the ability to sense additional loads on the door caused by any obstruction in its path and to automatically stop or reverse the direction of travel. The controller should be capable of either being operated by elbow switches/foot switches, key switches. All doors should be able to be operated easily manually in the event of failure of the power supply or the automation units.
8	Air/Light Supply Ceilings	The operating theatre should be equipped with a supply air ceiling to the following specification. The ceiling should have been type tested and certified in accordance with the German standard DIN 4799. The Air-Supply ceiling should provide optimum air distribution over the patient area,integrated with shadow less lighting. The ceiling is 2.40 x 2.40 meter and integrated with the adjacent false ceiling. The ceiling should be constructed with a plenum box supplied with conditioned air from the central system via “S” class HEPA filters, mounted on the exit from the supply ducting. The ceiling should include integral lighting and a composite air/light diffuser. The HEPA filters should be factory tested and certified. Test seals must be provided in the filter housing in

		accordance with DIN 1946 and DIN 4799. The ceiling should incorporate supports to secure it to the main structural frame of the modular operating theatre. The ceiling should be constructed from 1.6 mm thick aluminium sheet frame painted, white after manufacture. Air should be diffused into the theatre uniformly over the total area. The Laminar flow ceiling should also have illumination across its total area. The lighting should be sufficient to provide an illumination level of 1500 Lux (with 40 Illumination lights) at the wound-site and should be dimmable down to 3% of full lighting, without flicker. Lighting should be generated from high frequency electronic ballast's complete with colour corrected fluorescent tubes. The air light diffusers should be installed in a manner, which allows them to be removed for access to the lamps and air filters. Control equipment for the general lighting and the light dimming should be provided in the theatre control panel. The Airtight diffusers should consist of two layers of monofilament precision woven polyester bonded to aluminium frames. The screens should have uniform porosity, with an open area of sufficient resistance to create laminar airflow from the diffuser face. The operating lamps should be secured directly to the framework of the supply ceiling in such a way as to minimise deflection. In addition to the lighting in the central area, a lighting channel should be constructed around the perimeter of the flat ceiling area. This should contain a ring of high frequency fluorescent tubes to provide additional lighting outside the operating area to provide a minimum lighting level of 1000 Lux throughout the operating theatre. Control equipment for the peripheral lighting should be provided in the theatre control panel to allow independent control of the lighting levels of both the central lighting and the peripheral lighting by the surgical team. The peripheral light diffusers should be constructed from opal prismatic diffuser material in aluminium frames. All aluminium used in the construction should be enamelled white.
9	Pressure Stabiliser	The cascade pressure stabilisers are a range of multi bladed units

		specifically designed to control room air pressures in critical areas such as Operation theatres etc. Each Stabiliser comprises of a carbon steel case &. matching slip over ring. The carbon steel housing contains upto four Grade 304 stainless steel Blades, which pivot upon sealed for life bearing assemblies. Balancing should be carried out utilising a proven balance weight assembly. Adjustment can easily be carried out on site should the need arise.
10	Structural steel frames	All structural steel sections will be of Grade 43 to BS 4360 or equivalent Indian Standard. The structural frames for the operating theatre are be designed taking into account all fixed equipment to be installed in the Modular OT. The theatre structure should support all equipment installed in the Modular OT, such as the operating lamp etc, and should be vibration free and rigid. The theatre structure should also be capable of supporting other equipment to be installed in the same Modular OT in future, with total loading not more than twice that of all the equipment to be installed in the OT as mentioned in this specification. Welded sections in accordance with BS 5135.
11	Surgical Scrub Sink	Compact Surgical scrub Sink should be designed for use in Operation theatre complex providing surgeons with a convenient sink for pre-op scrub up. Each Fixture should be fabricated from heavy gauge type 304 stainless steel & should be seamless welded construction polished to a satin finish. The scrub sink should be provided with a front access panel, which should be easily removed for access to the water control valve, waste connections, stoppers & strainers. Hands free Operation includes infrared sensor with built-in range of adjustment. Thermostatic Mixing Valve control should be located behind the access panel & maintain constant water temperature. User defined settings of 1,3,5 & 10 Min. are available. This timing can be changed to meet individual application requirement. Provided with elbow action taps, infrared sensor thermostatic control with fail-safe temperature controls. All units should have radiused anti splash fronts.

		Knee operated switch can be offered as an option.
12	Operating List - Writing Board	A List/Writing Board should be provided in operating theatre. It should comprise a flush mounted, 1.50mm thick, white laminate board, bonded to a 2mm steel sheet for additional rigidity. It should be mounted flush into the theatre wall with a sterile jointing system. All wall-mounted equipment should be flush mounted and sealed into theatre wall by means of a sterile jointing system.
13	Electrical Installation	Modem medical procedures utilise and increasingly rely on, electrical and electronic equipment. This equipment ranges from lighting to patient monitors and electrosurgical equipment. Power distribution within "the departments should be "provided' from distribution boards located local to each theatre. Sub mains power to these panels should be by the general electrical contractor. From these panels all distribution services within the departments should be run. Earthed equipotent bonding of all exposed metalwork should be provided. Power sockets within the Operating Theatres ancillary areas should be matched to the rest of the hospital. Light fittings within the clinical areas should be recessed fluorescent type, with high frequency tubes and control gear. Fittings should be sealed In accordance with the standard IP54. All equipment should be fully and permanently labelled to identify and describe the function, operation and voltage of the apparatus concerned. Throughout and upon completion of the electrical installation, tests in accordance with relevant sections of the local wiring regulations should be carried out and the results recorded.
14	Equipment Storage Unit	Equipment Storage Unit is provided in operating theatre. It is flush mounted into the theatre wall with a sterile jointing system All wall-mounted equipment should be flush mounted and sealed into theatre wall by means of a sterile jointing system.
15	Disposal	Providing, fixing, supply and installation of Hatch for disposal of dirty linen/waste to nonsterile store with all accessories etc.
16	Peripheral Lights	
17		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. It includes a photocell for user's safety. Radar hand switch

		Foot switch Espagnolet lock with euro norm cylinder and 3 keys for electronic door.
18	Pendant	Surgeon's pendant: Surgeon's pendant, multi movement double arm pendant having horizontal and vertical movement. Double arm 1500 mm with 600 mm head with horizontal (weight carrying capacity > 80 Kg.) Two shelves for monitors and one-drawer gas outlets. Oxygen 2 Nos vacuum 2 Nos. air 4 barl no. air 7 bar 1 no. Electrical 6/16 amps. Sockets 8 Nos data connector.2 nos.I/V hooks with stand 2 Nos. infusion management system for surgeon. Anaesthesia pendant. Double are pendant, having horizontal and vertical movement, double are 1500 mm with 600 mm head with horizontal (weight carrying capacity > 150 KG) able to carry a anaesthesia work station monitors, syringe pumps, infusion pumps and IV stands gas outlets: Oxygen 2 Nos Ntrous oxide 2 Nos. Vacuum 2 Nos. Air 4 bar 1 No. AGSS 1 No. Electrical 6/16 amps. Sockets 8 Nos - Data connector 2 Nos. Audio visual connector 1 No, I/V hooks with stand - 2 Nos.