

HSCC/NRHM/UP/2013

Dated: 18.03.2013

All Bidders

Amendment-II

Subject: Construction of 100 bedded MCH wing for Zila Mahila Chikitsalaya at Shahjahanpur, Uttar Pradesh, under National Rural Health Mission scheme (U.P)

Dear Sir,

This has reference to the subject work ,the following AMMENDMENT-II/CLARIFICATION-II may please be noted regarding rescheduling of subject tender, which shall be treated as a part of tender to be submitted **along with tender** :

Sr.No.	Description	Amendement-II/Clarification-II
1.	As per PQ (Vol-I) , detailed tender information, Estimated Cost is Rs. 17.46 Crore	Estimated cost may be read as Rs. 13.88 Crore
2.	In Annexure-D of SCC (Vol-III)- APPENDIX TO TENDER - Defect Liability Period is 12 Months and Limit of Liquidated Damages is 5% of Contract price	May be read as Annexure-D of SCC (Vol-III) APPENDIX TO TENDER - Defect Liability Period is 06 Months from the date of handing over of the building to the Client, or One monsoon season away, whichever is later and Limit of Liquidated Damages shall be 10% (ten percent) of Contract price
3.	SCC Vol-III, clause 12.0 Bid Security 12.1 The Bidder shall furnish, as part of his Bid, a Bid Security of the amount of Rs. 27,46,000/- (Rupees Twenty Seven Lakhs Forty Six Thousand Only) having validity period of 180 days from the last date fixed for receiving of bid. No deviation shall be permitted from this. 12.2. Out of total bid security of Rs. 27,46,000/-, Rs. 2,50,000 (Rupees Two Lakhs Fifty Thousand Only) shall be submitted in the form of Demand Draft in favour of HSCC (India) Ltd payable at Noida/Delhi and balance Rs.	SCC Vol-III, clause 12.0 Bid Security May be read as : 12.1 The Bidder shall furnish, as part of his Bid, a Bid Security of the amount of Rs. 23,87,687/- (Rupees Twenty Three Lakhs Eighty Seven Thousand Six Hundred Eighty Seven Only) having validity period of 180 days from the last date fixed for receiving of bid. No deviation shall be permitted from this. 12.2. Out of total bid security of Rs. 23,87,687/-, Rs. 2,50,000 (Rupees Two Lakhs Fifty Thousand Only) shall be

	24,96,000/- (Rupees Twenty Four Lakhs Ninety Six Thousand Only) Bid Security shall be in the form of a Demand Draft/Pay Order/Bank Guarantee in favour of M/s HSCC(India) Ltd., at Plot-6(A), Block-E, Sector-I, NOIDA, UP-201 301 from any Nationalised bank/Scheduled bank.	submitted in the form of Demand Draft in favour of HSCC (India) Ltd payable at Noida/Delhi and remaining Rs. 21,37,687/- (Rupees Twenty One Lakhs Thirty Seven Thousand Six Hundred Eighty Seven Only) of Bid Security shall be in the form of a Demand Draft/Pay Order/Bank Guarantee in favour of M/s HSCC(India) Ltd., at Plot-6(A), Block-E, Sector-I, NOIDA, UP-201 301 from any Nationalised bank/Scheduled bank.
4.	Date of Sale : 11.03.2013 to 25.03.2013 upto 12:00 hrs. Submission & opening: 25.03.2013 upto 15:00 hrs. and opening on 25.03.2013 at 15:30 hrs. Pre bid meeting : 19.03.2013 at 15:00 hrs	Date of sale, prebid, submission & opening of bids has been extended as under Date of sale : upto 04.04.2013 till 12:00 hrs Date of submission : 04.04.2013 upto 15:00 hrs Date of opening: 04.04.2013 at 15:30 hrs. Pre bid meeting: 22.03.2013 at 15:30 hrs.
5.	In Detailed tender information of PQ document (Vol-I) it is written that : Volume-VI i.e. Tender Drawings may be obtained from HSCC office on written request (if other volumes 1 to V downloaded from website) and must be submitted along with the complete bid without which the bid may be rejected	may be added as : Volume-VI i.e. Tender Drawings may also be downloaded from websites along with other volumes 1 to V and must be submitted along with the complete bid without which the bid may be rejected.

Further, the following amendment pertains to Technical Specifications (Vol-IV) may be noted as under:

Sr.No.	Description	Amendment/Clarification
1.	In the approved Makes of Civil works : 12. Reinforcement Steel : Procured from primary producers such as SAIL or TISCO or RINL, as approved by Ministry of Steel	May be read as In the approved Makes of Civil works : 12. Reinforcement Steel : ISI marked TMT steel confirming to BIS -1786 & approval of source by Engineer
2.	List of approved Makes for Electrical System.	Revised List of approved Makes for Electrical System shall be followed (copy enclosed)
2.	Specification of OT	Revised Specification of OT enclosed (12 Pages enclosed) replacing previous specification published earlier.
4.	Medical Gas Pipeline system	Following has been added : 1.7 : Oxygen Cylinders (D Type) , 2.6 :

		Nitrous Oxide Cylinders (D Type) and approved makes (detail enclosed) (03 pages)
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The entire BOQ (Vol-V) has been revised and enclosed, which shall be followed replacing previous BOQ (Vol-V) published earlier.

Other all terms & conditions of tender shall remain unchanged.

Thanking you,

Enclosure: As above

Yours faithfully,

(Rajiv Tyagi)
Dy. General Manager (C)

**TECHNICAL SPECIFICATION OF MEDICAL GAS PIPELINE
SYSTEM FOR SHAHJAHANPUR UP**

Scope of work **Supply, installation, testing, commissioning and handing over of Medical Gas Pipeline System and providing of free spare parts and service during 1 year Defect Liability Period.**

1.7 Oxygen cylinders (D type):

- Gas : Medical Oxygen
 - Capacity of Gas : 7.00 CUM
 - Capacity of Water: 46.7 ltrs.
 - Standard : one to IS : 7285, BS : 1045
 - Working Pressure : 150 KGF/CM²
 - Test Pressure : 250 KGF/CM²
 - Outside Diameter : 232 mm
 - Wall Thickness : 5.5 mm
 - Length : 1370 mm
 - Tear Weight: 54 kg. (approx.)
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- The valves fitted to these cylinders should confirm to specification IS:3224 & IS:3745
 - The Cylinder being offered should be manufactured within the country or imported from abroad and should conform to IS Specification 7285 and BS 5045 Part I respectively
 - They should also have approval of the Chief Controller of Explosives, Govt. of India, Nagpur
 - Each Cylinder Shoulders should be stamped with GG : Symbol for Gas, Mfgr. : Identification Mark, MMY : Month & Year of Hyd. Test, XYZ : Serial No. of Cylinder, IS 7285: B.I.S. Specification, TW : Tear Weight, TP : Test Pressure FP:

2.6 Nitrous Oxide cylinders (D type):

- Gas : Nitrous Oxide
- Capacity of Gas : 30.0 Kg
- Capacity of Water: 46.7 ltrs.
- Standard : one to IS : 7285, BS : 1045
- Working Pressure : 150 KGF/CM²
- Test Pressure : 250 KGF/CM²
- Outside Diameter : 232 mm

- Wall Thickness : 5.5 mm
- Length : 1380 mm
- Tear Weight: 53 kg. (approx.)
- The valves fitted to these cylinders should confirm to specification IS:3224 & IS:3745
- The Cylinder being offered should be manufactured within the country or imported from abroad and should conform to IS Specification 7285 and BS 5045 Part I respectively
- They should also have approval of the Chief Controller of Explosives, Govt. of India, Nagpur
- Each Cylinder Shoulders should be stamped with GG : Symbol for Gas, Mfgr. : Identification Mark, MMY : Month & Year of Hyd. Test, XYZ : Serial No. of Cylinder, IS 7285: B.I.S. Specification, TW : Tear Weight, TP : Test Pressure FP:

APPROVED MAKES

- | | |
|-------------------------------------|--|
| 1. Oxygen System | MDD/MPS/BENSON/MGI/HI_TEK/UNISSI/BOC |
| 2. Emergency Oxygen System | MDD/MPS/BENSON/MGI/HI_TEK/UNISSI/BOC |
| 3. Oxygen Cylinder | STANDARD MAKE |
| 4. Nitrous System | MDD/MPS/BENSON/MGI/HI_TEK/UNISSI/BOC |
| 5. Emergency Nitrous System | MDD/MPS/BENSON/MGI/HI_TEK/UNISSI/BOC |
| 6. Nitrous Cylinder | STANDARD MAKE |
| 7. Vacuum System | INGERSOLRAND |
| 8. Compressor | ANESTIWATA/INGERSOLRAND |
| 9. Ward Vacuum Unit | MDD/MPS/BENSON/MGI/HI_TEK/UNISSI/BOC |
| 10. Theatre Vacuum Unit | MDD/MPS/BENSON/MGI/HI_TEK/UNISSI/BOC |
| 11. Flow Meter cum Humidifier | MDD/MPS/BENSON/MGI/HI_TEK/UNISSI/BOC |
| 12. Valve Box | MDD/MPS/BENSON/MGI/HI_TEK/UNISSI/BOC |
| 13. Cable | GLOSTER/UNIVERSAL/NATIONAL/ KALINGA |
| 14. Electrical Control Panel | L & T/ SIEMENS/ SCHNEIDER |
| 15. PVC Pipe Class III with Fitting | FINOLEX/ SUPREME/ PRINCE/ ORI-PLAST |
| 16. G.I. / M.S. Pipe Heavy Class | TATA/ JINDAL(HISSAR)/SAIL /SURYA PRAKASH |
| 17. MCCB/Contactor/Relay | L&T/ABB/SIEMENS/SCHNEIDER |

- | | |
|---------------------|---|
| 18. Pressure Gauges | H.GURU /FIEBIG |
| 19. Stainless Steel | TATA/SALEM/JINDAL/MUKUND/BHAYANDER/AMBICA |
| 20. Copper Pipe | MEHTA/PRECISION/RAJCO |

TECHNICAL SPECIFICATION OF OPERATION THEATRE(MINOR) FOR SHAHJAHANPUR, UP

SCOPE OF WORK -

Supply construction, and commissioning of Operating Theatre (Minor) in accordance with the specifications, bill of quantities and providing of free spare parts and service during 1 year Defect Liability Period.

1. CEILING SYSTEM

40 mm thick Double skin totally flush Walkable false ceiling panels made with 0.8 mm thick Galvanised Powder coated Skin Pass (GPSP) sheet on both side with 36 ± 2 kg/m³ density PUF as infill, with suitable Ceiling grid and supporting hardware. Joints shall be sealed with clean room compatible silicon sealant. Panel will be class "0", fire rated. Factory made cutout -12 Nos. (Approx.) in the ceiling panel for light fixture

2. WALL WITH CORNER COVING

Epoxy painting and Extruded aluminium powder coated/Anodized clip on type covings for the entire wall to wall and wall to ceiling. R-70 , 3D internal/ external corner coves

3. SWING DOOR

44 mm thick doors made with Poly Urethane painted 0.8mm thick GPSP sheets on both sides with PUF as infill, 1.2 mm thick GPSP powder coated door frames totally flush with the wall panels, hardware like push plates, handles, door closure, double glazed view glass of std size, Stainless Steel Ball Bearing butt hinges and provision for concealed automatic door bottom Drop seal etc. Supply & Installation of double glazed view panels (1 Square ft. area) with flush design, with 6mm thick float glass fixed in double panel with necessary arrangements.

4. PERIPHERAL LIGHT

It should be fitted outside the air ceiling system area and flush with the ceiling in the operation theatre suitable to required illumination of OT. Peripheral lights and clean room luminaries fitted in the frame should be 12 in numbers for each OT. The fluorescent

lamps 54 W 16mm Ø- 3 nos with highly spectacular anodized Aluminum reflectors and optical antiglare system for adjustable light distribution. Luminaries cover made of highly resistant, disinfectant proof laminated safety glass with fine grained surface, glass pane with white powder coated steel frame. Luminary's body made of sheet steel, white, powder coated supplied ready for connection. The reflectors should be of high quality, cleanable and non deteriorating. Dimmable ballasts of reputed companies to be used and diffuser should be constructed with opaque acrylic diffuser material in aluminum frames/ SS frames. It should have flicker less design with color. Recess frames should be gas tight. The fitting should be flush with the ceiling and should be removable from top or bottom. Lighting units should be properly sealed with the ceiling by means of fillers and beadings so that all lighting units are airtight with ceiling panels. The light fitting should be uniformly and aesthetically distributed on the ceiling to provide uniform illumination in the OR. Peripheral lighting should be done according to IP65 protocol. Light should not interfere when green mode of Endoscopy is performed.

5. X-RAY FILM VIEWER

The two (2)-plate viewing 3 pieces of high frequency fluorescent lamps X-Ray Viewing Screen should be designed to provide flicker free luminance for clear film viewing. Each plate should be able to illuminate films upto 14"x17" size. 'Dimming is controlled using dimming ballast and PCB mounted inside the box. The mounting of the Screen should be installed flushed with Operation theatre wall to avoid dust accumulation and microbial growth and ease of cleaning. The diffuser should diffuse the light evenly and to provide adequate luminance for film viewing. Body should be of extruded aluminum powder coated black with bacteria and disinfectant resistant finish. Proper spring loaded film clip with rollers should be provided to hold the films firmly and to remove the film without scratches. The X-Ray Film viewer should comply with relevant Electrical Safety Codes for High and Low voltage system.

6. BUILT-IN STORAGE UNIT

Storage Unit should be made out of 1.50 mm thick AISI-304 Stainless steel. The storage unit should be divided 2 or more parts and each part should have individual glass doors with high quality locking system. These doors should be installed on the storage units with the help of imported fittings allowing an opening allowance of 160degree. Each part should be provided with steel racks which should be completely detachable type. The storage unit should be fitted with 5mm thick vacuum insulated glass door and mounted

flush with the theatre wall. The storage unit should be continuously ventilated by positive air in the OT through ventilation holes provided at the bottom and top of opposite sides. The dimensions of each storage unit should not be less than height 2100mm x width 1200mm x depth 350mm. The storage units should be designed in a way that they are flush with the OT wall panels and the units should be air tight, not allowing any leakage between units and the wall panels.

7. DISTRIBUTION BOARD & ELECTRICAL WIRING, CONDUITING WITH FIXTURES INSIDE THE OPERATION THEATRE

Electrical Distribution Board along with all high voltage equipment should be installed in a separate enclosure. Electric Distribution Panel, UPS, Transformers, Mains, Relays, Circuit protective equipment, for all circuits of Operation theatre shall be installed in the remote cabinet. All electrical wiring should be terminated to the connectors mounted on DIN/CE approved rail and labeled with indelible labels. Individual fuse and miniature circuit breakers should protect all internal circuits. Complete schematic diagram drawing description should be enclosed with the equipment.

Laying of PVC conduits, Modular Switch Boxes, Modular Switches-sockets, Power and Light wiring including Earthing wire for all the lighting controls, Pendant and other equipment fixtures and fittings inside the theatre Wiring with low leakage current wires of FRLS wires should be as per requirements. Wiring for 250 volts single phase and neutral 6/16 Amps switched socket outlet with 4 sq.mm and 2.5 sq.mm PVC insulated copper conductor 1100 volts stranded flexible wires should be concealed with conduit. Installation of all electrical cabling must be of IS: 1554 (As per latest amendment) standard and wiring as per IS: 732 standard and proper earthing of OT and other accessories in the OT room as per standard guidelines of BIS. Fittings should be sealed on accordance with the standard IP54. Earthed equipotent bonding of all exposed metal work should be provided.

8. OPERATION THEATRE FLOORING (ANTISTATIC CONDUCTIVE TILES)

A floor should be provided, flat to within a tolerance of +/- 3mm over any 3-metre area. Onto this sub floor, a self-leveling compound should be laid prior to laying of the floor finish.

Copper grounding strips (not less than 0.05mm thick, 50mm width) should be laid flat on the floor in the conductive adhesive and connect to copper wire of grounding. The floor finish in the operating room should be 2mm Conductive PVC tiles, laid on a semi conductive adhesive base. 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 with electrodes of the same compatible material to provide a continuous sealed surface.

9. Minor OT Light Ceiling –HALOGEN

The unit should have reflector for optimum utilization of the dual reflector by means of targeted light direction technique with following specifications:

- Power supply : 230V, 50/60Hz
- Colour Temp. : 4200K
- Light intensity at 0.8m distance : 40000-45000lux
- Light field diameter : 180-200mm
- Colour rendering index Ra(1-8)-93
- Luminous efficacy in the light field : 290lm/w or more
- Power consumption : 12V/50W
- Working space : 27-173cm
- Lifetime of bulb : Atleast 2000hrs.
- Swivel radius : 960mm
- Vertical adjustment : 1250mm
- Weight : 20 kg.
- Should have CE certification for electricity safety

In addition to the above mentioned equipment/appliances, if the contractor thinks it necessary to include any other equipment/appliances, accessories etc. for the MGPS then that may be provided after approval from Engineer in-charge.

The sizes are approximate. Minor variations in sizes shall be acceptable subject to prior approval of the Engineer.

APPROVED MAKES

1.	Ceiling System	MDD/MPS/Hi_Tek/MGI/Unissi
2.	Swing door	MDD/MPS/Hi_Tek/MGI/Unissi
3.	Peripheral Light	Philips/Wipro
5.	X-Ray Film Viewer	MDD/MPS/Hi_Tek/MGI/Unissi
6.	Writing Board	MDD/MPS/Hi_Tek/MGI/Unissi
7.	Built-in Storage Unit	MDD/MPS/Hi_Tek/MGI/Unissi
8.	Distribution board &	MDD/MPS/Hi_Tek/MGI/Unissi

electrical wiring, conduiting
with fixtures inside the
operation theatre

9.	Antistatic Flooring	MDD/MPS/Hi_Tek/MGI/Unissi
10.	Ceiling OT Light	PHILIPS/UNITED SURGICAL/MAGNATEK/SURGITECH
12.	Cable	GLOSTER/UNIVERSAL/NATIONAL/ KALINGA
13.	Control Panel	L & T/ SIEMENS/ SCHNEIDER
14.	PVC Pipe Class III with Fitting	FINOLEX/ SUPREME/ PRINCE/ ORI-PLAST
15.	G.I. / M.S. Pipe Heavy Class	TATA/ JINDAL(HISSAR)/SAIL /SURYA PRAKASH
16.	MCCB/Contactor/Relay	L&T/ABB/SIEMENS/SCHNEIDER
17.	Pressure Gauges	H.GURU /FIEBIG
18.	Stainless Steel	TATA/SALEM/JINDAL/MUKUND/BHAYANDER/AMBICA

Note:

- All electrical accessories like cable wire, electrical outlets, switches etc, should be fire proof of reputed make, certified for electrical safety.
- Wherever makes have not been specified for certain items, the same shall be as per BIS and as per approval of HSCC.
- The contractor should provide test certificate for all material used for construction of pre-fabricated OT
- The contractor shall be responsible for the complete works including submission of working drawing and walk through view.
- The Contractor should provide complete parts manual/Service manuals for all systems and subsystems.
- Final electrical safety test, system test and calibration should be done by authorized person with test instruments.
- Training for seven working days should be provided to the staff & engineers of client by the Manufacturer
- The contractor should prepare and submit layout plan to HSCC for approval before beginning of supply and installation.

TECHNICAL SPECIFICATION OF OPERATION THEATRE(MAJOR) FOR SHAHJAHANPUR UP

SCOPE OF WORK -

Supply construction, and commissioning of Operating Theatre (Major) in accordance with the specifications, bill of quantities and providing of free spare parts and service during 1 year Defect Liability Period.

1. CEILING SYSTEM

40 mm thick Double skin totally flush Walkable false ceiling panels made with 0.8 mm thick Galvanised Powder coated Skin Pass (GPSP) sheet on both side with 36 ± 2 kg/m³ density PUF as infill, with suitable Ceiling grid and supporting hardware. Joints shall be sealed with clean room compatible silicon sealant. Panel will be class "0", fire rated. Factory made cutout -12 Nos. (Approx.) in the ceiling panel for light fixture. Laminar Flow Tent is to be made of 0.8mm thk SS-304 grade, no-4 finish sheet and provision for flanges for Duct connections and 6mm perforated grill. Size 8ft x 8ft x 700mm ht. (Duct connection and Diffusers/Dampers, filters if any required are in the scope of HVAC part) Tent will be made so as Laminar Flow System to integrate with OT equipments

2. WALL WITH CORNER COVING

Epoxy painting and Extruded aluminium powder coated/Anodized clip on type covings for the entire wall to wall and wall to ceiling. R-70 , 3D internal/ external corner coves

3. SWING DOOR

44 mm thick doors made with Poly Urethane painted 0.8mm thick GPSP sheets on both sides with PUF as infill, 1.2 mm thick GPSP powder coated door frames totally flush with the wall panels, hardware like push plates, handles, door closure, double glazed view glass of std size, Stainless Steel Ball Bearing butt hinges and provision for concealed automatic door bottom Drop seal etc. Supply & Installation of double glazed view panels (1 Square ft. area) with flush design, with 6mm thick float glass fixed in double panel with necessary arrangements.

4. PERIPHERAL LIGHT

It should be fitted outside the air ceiling system area and flush with the ceiling in the operation theatre suitable to required illumination of OT. Peripheral lights and clean room luminaries fitted in the frame should be 12 in numbers for OT. The fluorescent lamps 54 W 16mm Ø- 3 nos with highly spectacular anodized Aluminum reflectors and optical antiglare system for adjustable light distribution. Luminaries cover made of highly resistant, disinfectant proof laminated safety glass with fine grained surface, glass pane with white powder coated steel frame. Luminary's body made of sheet steel, white, powder coated supplied ready for connection. The reflectors should be of high quality, cleanable and non deteriorating. Dimmable ballasts of reputed companies to be used and diffuser should be constructed with opaque acrylic diffuser material in aluminum frames/ SS frames. It should have flicker less design with color. Recess frames should be gas tight. The fitting should be flush with the ceiling and should be removable from top or bottom. Lighting units should be properly sealed with the ceiling by means of fillers and beadings so that all lighting units are airtight with ceiling panels. The light fitting should be uniformly and aesthetically distributed on the ceiling to provide uniform illumination in the OR. Peripheral lighting should be done according to IP65 protocol. Light should not interfere when green mode of Endoscopy is performed.

5. OT CONTROL PANEL

The room Surgeon's control panel should be designed to cope with changing technology & equipment in operating environments. Control Panel will be user friendly & ease of operating & maintaining purpose. The panel should be "Membrane" type; configured to incorporate all the services that operation room staff required. Operation Theatre Surgeon Control Panel consisting of display like Real time, Count down time, lighting control through dimmer, Telephone, Gas pressure set point, Alarm, Room Temperature and Relative Humidity mounted flush in the theatre wall with Distribution Board complete with all accessories etc. Lighting Control along with

- i. Day time clock -Digital
- ii. Elapsed Time Clock -Digital

The control panel should be user friendly and ease of operation and maintenance. All internal wires should be marked with plastic ferrule type cable markers, for ease of identification. The control panel should be able to be integrated with the commonly used OT software in future.

The control panel should meet Electrical Safety Code for High and Low voltage system, wired to the current IEE regulations.

6. X-RAY FILM VIEWER

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7. WRITING BOARD

Writing Board as operating list Board of size-1000x700x60deep should be made of ceramic having magnetic properties and should be flushed to the wall of the operating Room.

8. BUILT-IN STORAGE UNIT

Storage Unit should be made out of 1.50 mm thick AISI-304 Stainless steel. The storage unit should be divided 2 or more parts and each part should have individual glass doors with high quality locking system. These doors should be installed on the storage units with the help of imported fittings allowing an opening allowance of 160degree. Each part should be provided with steel racks which should be completely detachable type. The storage unit should be fitted with 5mm thick vacuum insulated glass door and mounted flush with the theatre wall. The storage unit should be continuously ventilated by positive air in the OT through ventilation holes provided at the bottom and top of opposite sides. The dimensions of each storage unit should not be less than height 2100mm x width 1200mm x depth 350mm. The storage units should be designed in a way that they are flush with the OT wall panels and the units should be air tight, not allowing any leakage between units and the wall panels.

9. DISTRIBUTION BOARD & ELECTRICAL WIRING, CONDUITING WITH FIXTURES INSIDE THE OPERATION THEATRE

All high voltage equipment should be installed in a separate enclosure. Electric Distribution Panel, UPS, Transformers, Mains, Relays, Circuit protective equipment, for all circuits of Operation theatre shall be installed in the remote cabinet. All electrical wiring should be terminated to the connectors mounted on DIN/CE approved rail and labeled with indelible labels. Individual fuse and miniature circuit breakers should protect all internal circuits. Complete schematic diagram drawing description should be enclosed with the equipment.

Laying of PVC conduits, Modular Switch Boxes, Modular Switches-sockets, Power and Light wiring including Earthing wire for all the lighting controls, Pendant and other equipment fixtures and fittings inside the theatre Wiring with low leakage current wires of FRLS wires should be as per requirements. Wiring for 250 volts single phase and neutral 6/16 Amps switched socket outlet with 4 sq.mm and 2.5 sq.mm PVC insulated copper conductor 1100 volts stranded flexible wires should be concealed with conduit. Installation of all electrical cabling must be of IS: 1554 (As per latest amendment) standard and wiring as per IS: 732 standard and proper earthing of OT and other accessories in the OT room as per standard guidelines of BIS. Fittings should be sealed on accordance with the standard IP54. Earthed equipotent bonding of all exposed metal work should be provided.

10. OPERATION THEATRE FLOORING (ANTISTATIC CONDUCTIVE TILES)

A floor should be provided, flat to within a tolerance of +/- 3mm over any 3-metre area. Onto this sub floor, a self-leveling compound should be laid prior to laying of the floor finish. Copper grounding strips (not less than 0.05mm thick, 50mm width) should be laid flat on the floor in the conductive adhesive and connect to copper wire of grounding. The floor finish in the operating room should be 2mm Conductive PVC tiles, laid on a semi conductive adhesive base. 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 with electrodes of the same compatible material to provide a continuous sealed surface.

11. CEILING MOUNTED ANAESTHETIC PENDANT (SINGLE ARM)

1x Articulated Arm- 850 mm and 650 mm

1x Basic Console-600 mm-1 x Single Shelf 500 mm x 400mm x 80mm-2xIV Poles set (tube +4 bottle holding tube)

Provision of Outlets : 6 Nos. with Hose Assembly

Power Sockets : 8 Nos

12. CEILING MOUNTED SURGEON PENDANT-(Double Arm) comprising of

1 x Articulated Arm-850 mm and 650mm

1x Basic Console-600 mm-1 x Single Shelf 500 mm x 400mm x 80mm

1 x Adjustable shelf (Hang on/Un hinge)

8 x Mains Socket (13A single)-

8 x Medical terminals & Hose Assembly

Medical Rail One Set

13. CEILING OT LIGHT – (LED)-IMPORTED

Description of Function

Dual Dome Surgical lights illuminate the surgical site for optimal visualization of small, low-contrast objects at varying depths in incisions and body cavities.

Operational Requirements

The light should comprise of 2 units, one major (diameter one minor (diameter around 55 cm). Each unit should have a central light around 90 cm) and bulb.

Should have a facility of continuous brightness adjustment.

Should be shadow free

Cables should be through the central supporting pillar of light. Each should have a single bulb with reserve.

Technical Specifications

The light should be easily maneuverable and should have a swivel radius of at least 150 cms and height adjustment of at least 100 cms

Each unit should provide more than 200000 lux light at 4200 k colour temperature

The optimum colour temperature of the light should be between 4200 –4700 kelvin, with colour rendering index of at least 90.

Each unit should provide a pre-focussed beam of light with at least 50 cms depth of field. It should be a cool light and should not interfere with the laminar air flow system. The absorption of infrared radiation should be more than 99% and infrared radiation to feet at 100000 lux should be less than 35 w per sq metre

Each unit should have halogen lamp of average life of 1000 hours 25 spare bulbs should be included

There should be reserve light source (halogen) with automatic activation in case of a fuse bulb

Should have option of electro magnetic brakes to maintain the light in a steady position

The light should have 360 degree turning radius with unbreakable head Glass.

Light should automatically switch on in case of resumption of electricity after power failure.

The handle should be Auto clavable & detachable.

Should have CE certification

System Configuration Accessories, spares and consumables

In addition to the above mentioned equipment/appliances, if the contractor thinks it necessary to include any other equipment/appliances, accessories etc. for the MGPS then that may be provided after approval from Engineer in-charge.

The sizes are approximate. Minor variations in sizes shall be acceptable subject to prior approval of the Engineer.

APPROVED MAKES

- | | | |
|----|---|----------------------------|
| 1. | Ceiling System | MDD/MPS/Hi_Tek/MGI/Unissi |
| 2. | Hermetically Sealed Swing door | MDD/MPS/Hi_Tek/MGI/ Unissi |
| 3. | Peripheral Light | Philips/Wipro |
| 4. | OT Control Panel | MDD/MPS/Hi_Tek/MGI/ Unissi |
| 5. | X-Ray Film Viewer | MDD/MPS/Hi_Tek/MGI/ Unissi |
| 6. | Writing Board | MDD/MPS/Hi_Tek/MGI/ Unissi |
| 7. | Built-in Storage Unit | MDD/MPS/Hi_Tek/MGI/ Unissi |
| 8. | Distribution board & electrical wiring, conduiting with fixtures inside the operation theatre | MDD/MPS/Hi_Tek/MGI/ Unissi |

9.	Antistatic Flooring	MDD/MPS/Hi_Tek/MGI/ Unissi
10.	Pendant	MDD/MPS/Hi_Tek/MGI/ Unissi
11.	Cable	GLOSTER/UNIVERSAL/NATIONAL/ KALINGA
12.	Control Panel	L & T/ SIEMENS/ SCHNEIDER
13.	PVC Pipe Class III with Fitting	FINOLEX/ SUPREME/ PRINCE/ ORI-PLAST
14.	G.I. / M.S. Pipe Heavy Class	TATA/ JINDAL(HISSAR)/SAIL /SURYA PRAKASH
15.	MCCB/Contactor/Relay	L&T/ABB/SIEMENS/SCHNEIDER
16.	Pressure Gauges	H.GURU /FIEBIG
17.	Stainless Steel	TATA/SALEM/JINDAL/MUKUND/BHAYANDER/AMBICA
18.	Copper Pipe	MEHTA/PRECISION/RAJCO

Note:

- All electrical accessories like cable wire, electrical outlets, switches etc, should be fire proof of reputed make, certified for electrical safety.
- Wherever makes have not been specified for certain items, the same shall be as per BIS and as per approval of HSCC.
- The contractor should provide test certificate for all material used for construction of pre-fabricated OT
- The contractor shall be responsible for the complete works including submission of working drawing and walk through view.
- The Contractor should provide complete parts manual/Service manuals for all systems and subsystems.
- Final electrical safety test, system test and calibration should be done by authorized person with test instruments.
- Training for seven working days should be provided to the staff & engineers of client by the Manufacturer
- The contractor should prepare and submit layout plan to HSCC for approval before beginning of supply and installation.

LIST OF APPROVED MAKES FOR ELECTRICAL SYSTEM

Contractor shall use the materials of approved make as indicated below unless specified in BOQ or as approved by the HSCC electrical incharge.

The contractor shall ensure the correct selection of the approved make meeting the specifications and application duties. Before placing order for procurement, the sample of approved make shall be got verified for its suitability to the specification and application duty. However, HSCC electrical engineer (approving authority) reserves the right to opt for the best preferred listed make.

The contractor shall quote the rate for the material and equipment as per the list of approved makes and equipment as per the list of approved makes. In the event of the contractor wants to use alternate makes other than those stipulated for any reason, the contractor can send a proposal after ensuring that what he proposes at the least meets both the quality and safety standard of the stipulated makes, and the financial benefit that will accrue to the client. He shall also stand full guarantee to his alternate proposal. The alternate makes can be used only after an approval accorded by the client/HSCC., whose decision will be final in this matter. Any financial implication incurred related with inspection will be borne by contractor.

S.No.	ITEM	MAKE
1.	Main LT Panel/ Synchronizing Panels/APFC panels /AC panels	Siemens/ L&T/ABB/ GE/Schneider/Control & Switchgear and its approved Channel Partner. Contractor will submit agreement copy of principle manufacturer of above.
2.	11 KV VCB Panel Board	Siemens/L&T/ABB/Schneider/Kirlosker/Crompton Greaves/Control & Switchgear
3.	Transformer	Siemens/ L&T/ABB/ Crompton /GE/ Mirzapur Electrical Industries Limited
4.	Cast resin current Transformers:	AE/ Kappa/Control & switchgear/L&T/Gillbert & Maxwell
5.	Selector Switches:	L&T/ Salzer/KAYCEE/ Siemens/BCH
6.	Push button, Indicating Lamps LED:	L&T(Esbee)/Siemens, Schinder/BCH/Veshno/Teknik/RAAS
7.	Rubber Mats:	Jyoti or Equivalent
8.	Diesel Engine:	Cummins/ FG Wilson (Perkins)/ Caterpillar/ MTU/Kiroskar/Ashok Leyland/Greaves cotten
9.	Alternator:	Stamford/ AVK-SEGC/ Marathan/ Leroysoner, NGEF/ Crompton

10.	Anti-vibration mounting:	Gerb or equivalent make
11.	Dry Battery:	Panasonic/Hitachi/Mistubishi/Cummins/Exide
12.	Automatic Battery Charger:	Max Power/ Cossel/ Statcon/ Voltstat, Amarraja/HBL Knife
13	MV panels/Fire panel/AHU Panel	SPC Electro Tech Limited/Adlec system (P) ltd. (Mundka)/Jacksons Engineers (p) Ltd./Control & switchgear/Advance control & Switchgear (Haridwar) / Krypton Power control /Nitya Electro Control Pvt. Ltd. and also manufacturer of above LT Panels.
14.	ACB	L &T 'U' Power(Omega)/ Siemens 3WL/ ABB/ Legrand(DMX) Schneider (MG- Master Pact)/ GE- Entelliguard /C&S
15.	Moulded case circuit Breaker	L &T – D Line / GE/ Siemens/ ABB/ Schneider Compact Design) (MG-NS)/Legrand/C &S
16.	Power/auxiliary Contactors, timers, Relay, starters	ABB/ Schneider/ L&T/ Siemens/GE/C & S,
17.	AMF Relay	Control & switchgear/wood ward or approved by engineer incharge.
18.	SFU with HRC	L&T/ GE/ Siemens/Control & Switchgear/ ABB, Merlin-Gerin/ CromptonGreaves/HPL(SOCOMECH)
19.	Change over switches/Isolators	Merlin Gerlin/ Crompton/ Siemens/ABB/HPL/GE
20.	Instruments (analoge)	L&T(Rishab)/ AE/ MECO/C &S
21.	Digital Meter	Enercon/ AE/ Secure/ Allan Bradely/L&T Motwane/Dukati (Imported) Meco/HPL/Trinity/Minilec /C &S
22.	Timers in Distribution board	Legrand/ Hagar/ Siemens/ ABB/ GE/C&S
23.	Battery (Maintenance Free VRLA Battery)	HBL Nife/ Exide/ Standard/Amar Raja/ Furakawa/ Panasonic

24.	MCB distribution Boards	L &T/Hager/Legrand/ Siemens/ ABB/GE/ Schenieder (MG)/Havells/C&S
25.	RCCB	L & T /Hager/ Legrand/ Siemens / GE/Schenider (Merlin –Gerin)/C&S
26.	11 KV LT XLPE cables	RPG/ Polycab/ NICCO/ UNIVERSAL/Rallison/KEI/Skytone
27.	Copper Control cable	Finolex/ Polycab/ NICCO/ Universal/ National/ Rallision/RR Cable
28.	Compression Glands & Lugs 11KV grade cables(Double compression gland)	Peeco/ Comet/ Dowells/ Siemens
29.	Copper/ Aluminum(Crimping Type cable lugs for 11KV cables	Asian/Dowells /Crystal/Jointwell or equivalent make
30.	Cable Joints (Heat Shrinkable) HT cable termination	Raychem/3M/Cabseal
31.	Cable Trays	Steelways/ Bharti/ Unitech /Maheshwari/or approved by HSCC
32.	Galvanized/PVC Raceways and raceways accessories	Steelways/ Bharti/ Schneider(MG)/Legrand
33.	Light fitting	Philips/ Wipro/ Bajaj/ GE/ Crompton Greaves/Control & Switchgear/ Kesalec Schreder/Anchor(Panasonic)/ Twinkle/ Ankur/ Decon.
34.	Lamps	Philips/ Osram/ GE/Anchor (Panasonic)/
35.	GI / MS conduit ISI marked	BEC/ AKG/ Steel Kraft

36.	PVC conduit	BEC/ AKG
37.	Steel conduit accessories (ISI as approved sample)	Sharma sales corporation, super sales corporation or equivalent.
38.	Modular Metal box for switch /socket	Havells/ MK/MDS/Anchor Roma/Northwest
39.	Copper conductor FRLS PVC insulated wires ISI marked	National/ Skyline/ Finolex/ Havells/ L&T/KEI / R R cable/Rallison/Skytone/
40.	Modular Switches & sockets Outlets	Havell's (Crabtree)/ MK- Wraparound/Hagger/Wipro Legrand (Myrius/ Anchor-Roma(Tersa, woods, viola)/ Northwest
41.	Metal clad Socket outlets With boxes	L & T Hager/ Siemens/ Merlin Gerin/ ABB MDS / BCH /Havells
42.	Lighting protection	Erico/Galaxy electrode /Earth plus or equivalent
43.	UPS system	Hitachi/ Siemens/ Amarraja / Etone powerware/Emerson/APC (Schneider) /PCI LTD
44.	Street Light poles	Jindal/ Bombay poles/ Bajaj /Twinkle/ Pierlite or equivalent
45.	Electronic Ballast	Philips/ Wipro/Osram/Bajaj/Crompton
46.	Ceiling fans	Crompton Greaves/ Bajaj/ Orient/ Alastom/ Usha
47.	Main PC with CPU monitor	HP/ Compaq/Del
48.	Auto manual changeover switches (3Way)	Kaycee/L&T/ Schnieder
49.	Public address system	Bosch/ Bose/ Haristasa/Honey well /Harman/JBL/Shure
50.	CCTV camera	Honeywell/ Schnider electric (Pelco)/DVTEL/Bosch/Siemens/Johson control
51.	Fire Detection System	Honeywell- Notifier/GENT/ Thorn/Bosch/Siemens/Cease fire (Hochiki)

52.	Portable fire extinguisher	Minimax/Agnidevices/Superex/Ceasefire/Eversafe
53.	EPABX system	Avaya/ Siemens/Alcatel/Erricsion/Panasonic
54.	Telephone cables /communication cables	AT & T/ Fusion /Polymers/Finolex/Delton Skyline/Skytone
55.	Nurse Call bell system	Omnitech automations/Process care system or equivalent as per spect

END OF TECHNICAL SPECIFICATION