HSCC/SES/MGMS/AIIMS/Nagpur/2019 **Date : 12.07.2019**

All Bidders

Amendment –II

Project: Supply, Installation, Testing & Commissioning of Medical Gas Manifold System for Hospital Block at All India Institute of Medical Sciences (AIIMS), Nagpur

IFB No.HSCC/SES/MGMS/AIIMS/Nagpur/2019 Date :13.06.2019

This has reference to above IFB.

The following Amendment may be noted which shall be treated as part of the tender document and to be submitted duly signed & stamp along with tender.

Sr. No.	Bidders' Queries	Reply
1	Vol 4 - Technical Specifications, Page 2, Para 1.2 Oxygen Manifold Supply System (without Cylinders): Oxygen Manifold should consist of 2 row/s of respective numbers of class D-type bulk oxygen cylinders. The Standard configuration of Manifolds available with most of the leading manufacturers are of Single (1) Row. Therefore we request you to amend the sentence as; Oxygen Manifold should consist of 2/1 row/s of respective numbers of class D-type bulk oxygen cylinders. In addition to this, and for enhancing safety of the manifold system, we suggest that you should demand that the manifold system should not contain any Halogenated Polymer materials.	Oxygen Manifold should consist of 2/1 row/s of respective numbers of class D-type bulk oxygen cylinders. Manifold system should not contain any Halogenated Polymer materials
2	Vol 4 - Technical Specifications, Page 2, Para 1.2 Oxygen Manifold Supply System (without Cylinders): Header bar/s assembly shall be provided with a highpressure shut off valve. It may be noted that HTM or ISO Standards doesnot permit the use ofShut Off Valves on the Headers. Moreover, if any Shut Off Valve are provided on Manifold Header, thenthe same will not be compliant / satisfying the requirement of HTM /ISO Standards. Hence, we request you to delete the sentence:	Header bar/s assembly shall be as per standards mentioned in the technical specification of tender.

	Header bar/s assemblyshall be provided with a high pressure shut off valve.	
3	Vol 4 - Technical Specifications, Page 2, Para 1.2 Oxygen Manifold Supply System (without Cylinders): The manifold should be hydraulically tested to 3500psig or as per guideline of standard to be followed. In India, the general practise is that the medical gas manifolds aretested at a minimum pressure of 3500 psig. This is inherent and can beverified in many of the earlier tenders floated by HSCC as well. Accepting of any manifold which are tested below 3500 psig isactually diluting the safety standards and requirement, and therebyincreasing the risk of untoward incidents happening. We therefore request you to maintain the requirement of manifold hydraulically tested to minimum 3500 psig, and delete the wordings or as per guideline of standard to be followed.	Manifolds are designed and tested with at leastinlet pressure of 3000 psig or as per standards mentioned in the technical specification of tender.
4	Vol 4 - Technical Specifications, Page 3, Para 1.3 Emergency Oxygen Manifold (without Cylinders): Header bar/s assembly shall be provided with a highpressure shut off valve. It may be noted that HTM or ISO Standards doesnot permit the use ofShut Off Valves on the Headers. Moreover, if any Shut Off Valve are provided on Manifold Header, thenthe same will not be compliant / satisfying the requirement of HTM / ISO Standards. Hence, we request you to delete the sentence: Header bar/s assemblyshall be provided with a high pressure shut off valve.	Header bar/s assembly shall be as per standards mentioned in the technical specification of tender.
5	Vol 4 - Technical Specifications, Page 3, Para 1.3 Emergency Oxygen Manifold (without Cylinders): The manifold should be hydraulically tested to 3500psig or as per standard to be followed. In India, the general practise is that the medical gas manifolds aretested at a minimum pressure of 3500 psig. This is inherent and can be	Manifolds are designed and tested with at leastinlet pressure of 3000 psig or as per standards mentioned in the technical specification of tender.

	Verified in many of the earlier tenders floated by HSCC as well. Accepting of any manifold which are tested below 3500 psig is actually diluting the safety standards and requirement, and thereby increasing the risk of untoward incidents happening. We therefore request you to maintain the requirement of manifold hydraulically tested to minimum 3500 psig, and delete the wordingsor as per guideline of standard to be followed.	
6	Vol 4 - Technical Specifications, Page 3, Para 1.3 Emergency Oxygen Manifold (without Cylinders): Please confirm if any Pr Regulating arrangement is required to beoffered along with the Emergency Oxygen Manifold? If YES, what is the flow capacity & other technical requirement?	Tender terms and condition prevails
7	Vol 4 - Technical Specifications, Page 3, Para 1.5 Oxygen Flow meter with Humidifier Bottle: I) should be BIS/CE certified/ UL Listed It is observed that elsewhere in the tender technical specs, it is mentioned as : It should be US FDA/European CE Certified with 4 digitnotified body number or American ETL/ UL listed. In this case the 4 Digit notified body number is missing? Even for a less critical item like Ward Vacuum Unit, you have asked for European CE with 4 Digit notified body number. Considering that the Oxygen Flowmeter is a critical item and workingunder positive pressure, we request that this also be classified as : It should be US FDA/European CE Certified with 4 digit notified bodynumber or American ETL/ UL listed. Out of all the items sought in tender, only for this item BIS Standard isaccepted. Why? It should be ideally sought for all items or for none.We request you to delete BIS criteria, as this will result in substandardlocal product being offered.	BIS/US FDA/European CE Certified with 4 digit notified body number or American ETL/ UL listed

	Vol 4 - Technical Specifications, Page 1, Para 1.1 Fully Automatic Oxygen Control Panel This specification is tilted towards NFPA Standard. It is not possible to meet word by word requirement in toto of Technical Specs, as this is make and standard specific. We request you to permit us to offer as per should fully meet and complies with ISO 7396-1/ HTM0201 / NFPA99C standards, and as per manufacturers own design for a capacity of 2000 LPM at 50 / 60 PSI .	Specification of Fully Automatic Oxygen Control Panel should be as per standards mentioned in the technical specification.
8	Vol 4 - Technical Specifications, Page 9, Para 2.1 Fully Automatic Nitrous Oxide Control Panel This specification is tilted towards NFPA Standard. It is not possible to meet word by word requirement in toto of Technical Specs, as this is make and standard specific. We request you to permit us to offer as per should fully meet and complies with ISO7396-1/ HTM0201 / NFPA99C standards, and as per manufacturers own design for a capacity of 2000 LPM at 50 / 60 PSI.	Specification ofFully Automatic Nitrous Oxide Control Panel should be as per standards mentioned in the technical specification.
9	Vol 4 - Technical Specifications, Page 10, Para 2.2 Nitrous Oxide Manifold (Without Cylinders) Header bar/s assembly shall be provided with a high pressure shut off valve. It may be noted that HTM or ISO Standards does not permit the use of Shut Off Valves on the Headers. Moreover, if any Shut Off Valve are provided on Manifold Header, then the same will not be compliant / satisfying the requirement of HTM /ISO Standards. Hence, we request you to delete the sentence: Header bar/s assembly shall be provided with a high pressure shut off valve.	Header bar/s assembly shall be as per standards mentioned in the technical specification of tender.
10	Vol 4 - Technical Specifications, Page 10, Para 2.2 Nitrous Oxide Manifold (Without Cylinders) The manifold should be hydraulically tested to 3500 psig or as per guideline of standard. In India, the general practise is that the medical gas manifolds are tested at a minimum pressure of 3500 psig. This is inherent and can be verified	Manifolds are designed and tested with at least inlet pressure of 3000 psig or as per standards mentioned in the technical specification of tender.

	in many of the earlier tenders floated by HSCC as well. Accepting of any manifold which are tested below 3500 psig is actually diluting the safety standards and requirement, and thereby increasing the risk of untoward incidents happening. We therefore request you to maintain the requirement of manifold hydraulically tested to minimum 3500 psig, and delete the wordings or as per guideline of standard to be followed.	
11	Vol 4 - Technical Specifications, Page 10, Para 2.2 Emergency N2O Manifold (Without Cylinders) Each header bar assembly shall be provided with a high pressure shut off valve. It may be noted that HTM or ISO Standards does not permit the use of Shut Off Valves on the Headers. Moreover, if any Shut Off Valve are provided on Manifold Header, then the same will not be compliant / satisfying the requirement of HTM / ISO Standards. Hence, we request you to delete the sentence: Header bar/s assembly shall be provided with a high pressure shut off valve.	It shall be as per standards mentioned in the technical specification of tender.
12	Vol 4 - Technical Specifications, Page 10, Para 3 MEDICAL AND SURGICAL AIR SYSTEM : The medical air plant shall fully comply with the requirements of the HTM 02-01/ NFPA 99C/EN/DIN/ISO 7396-1. It should be US FDA/European CE certified with 4 digit notified body number or American ETL/ UL listed	Tender terms & conditions prevail.
13	It may be noted that NFPA99C doesnot permit for use of a Combined Medical & Surgical Air System. Medical Air and Surgical Air Plants are required to be separate as per NFPA99C. If any bidder is offering a combined Medical & Surgical Air plant and confirming that it is as per NFPA, then it is a complete violation of NFPA99C standards. This may be kindly noted and taken into consideration.	Combination or de-combination of Medical Air & Surgical Air system should be followed as per standards mentioned in the technical specification of tender.
14	Vol 4 - Technical Specifications, Page 11, Para 3.1 MEDICAL AND SURGICAL AIR SYSTEM : Air Compressor Modules: It should be Oil-Less Screw Compressors /Scroll Compressors to produce the plant output as mentioned in BOQ as primary and same as	Tender terms & conditions prevail.

	standby. HTM & ISO Standards permit use of Oil injected Air Screw Compressors for Medical & Surgical Air. It may be noted that Lubricated Screw Compressors are very economical in terms of initial investment and also maintenance and lifetime cost compared to oilless scroll / screw. This type of Air Compressors are installed all over the world in major hospitals. Also, it is to be noted that a Scroll technology is not a very good choice for 10 Bar plant requirement. Hence, we request you to include oil injected screw compressors in the specifications.	
15	Vol 4 - Technical Specifications, Page 11, Para 3.1 Pressure Reducing Station: Padlocks available to allow locking of the valves in both open and closed positions and must have easy to read pressure gauges or as per guideline of standard to be followed. We fail to understand why padlocks are required to be provided in the Pressure reducing Station? Please note that this appears to be a particular make specific. Hence, we request you to delete the requirement of padlocks for the valves.	Padlocks available to allow locking of the valves in both open and closed positions and must have easy to read pressure gauges or as per guideline of standard to be followed. Base plate mounted and supplied with copper stub pipes for ease of installation using inert joining procedures
16	Vol 4 - Technical Specifications, Page 12, Para 3.2 Vertical Air Receiver: Total air receiver capacity shall be at least 50% (± 5%) of the primary plant capacity mentioned in the BOQ) in 1 minute in terms of free air delivered at normal working pressure or as per guideline of standard to be followed. Our submission is that, for fair evaluation and comparison of bidders of various standards and for parity purposes, the minimum capacity of the Air Receiver should be specified, which should be complied by bidders for all standards. If an open ended statement like as per guideline of standard to be followed is mentioned, then this would be a huge disadvantage for HTM / ISO eqpt suppliers. Contrarily, it may be noted that, NFPA does not	The air receiver / vacuum reservoir capacity should be as per standard mentioned in the technical specification of tender.

	have any guideline on sizing the capacity of Air Receivers. It has been left to the discretion of manufacturers. It has been observed that Medical Air Systems of NFPA Standards are usually supplied with a small capacity Air Receivers. Hence, to avoid this ambiguity, we suggest that minimum capacity of Air Receiver is clearly specified in the amended tender specs, and which should be followed by all bidders.	
17	Vol 4 - Technical Specifications, Page 12, Para 3.4 System Controls: The cabinet shall have status display to include system pressure, dew point pump operation, accumulated time, maintenance interval, fault conditions, and silence button, lighted Hand-Off-Automatic selector switches It appears that the specification is of a particular make and standard. We request you to delete the words silence button, lighted Hand-Off-Automatic selector switches. Further, it is suggested that this be amended as : System controls be offered as per the requirement of the standard.	System controls be offered as per the requirement of the standard.
18	Vol 4 - Technical Specifications, Page 13, Para 4.2 Vacuum Receiver: Vacuum reservoir shall have total volume of at least 100 % of Primary plant output(± 5%) (Capacity as mentioned in the BOQ) Our submission is that, for fair evaluation and comparison of bidders of various standards and for parity purposes, the minimum capacity of the Vacuum Receiver should be specified, which should be compliedby bidders for all standards. If an open ended statement like as per guideline of standard to be followed is mentioned, then this would be a huge disadvantage for HTM/ISO eqpt suppliers. Contrarily, it may be noted that, NFPA does not have any guideline on sizing the capacity of Vacuum Receivers. It has been left to the discretion of manufacturers. It has been observed that Medical Vacuum Systems of NFPA Standards are usually supplied with a small capacity Vacuum Receivers. Hence, to avoid this ambiguity, we suggest that	The air receiver / vacuum reservoir capacity should be as per standard mentioned in the technical specification of tender.

	minimum capacity of Vacuum Receiver is clearly specified in the amended tender specs, and which should be followed by all bidders.	
19	Vol 4 - Technical Specifications, Page 14, Para 4.3 System Controls: The cabinet shall have status display to include system pressure, dew point pump operation, accumulated time, maintenance interval, fault conditions, and silence button, lighted Hand-Off-Automatic selector switches It appears that the specification is of a particular make and standard. We request you to delete the words silence button, lighted Hand-Off-Automatic selector switches. Further, it is suggested that this be amended as : System controls be offered as per the requirement of the standard.	System controls be offered as per the requirement of the standard.
20	Vol 4 - Technical Specifications, Page 14, Para 4.4 Bacterial Filters: The dryer should be particulate filter dryer with ability to remove particles as small as 1 micron. This appears to be a typo error. Please clarify and issue necessary amendments.	Tender terms and conditions prevail
21	Vol 4 - Technical Specifications, Page 14, Para 8 AGSS (Anesthetic Gas Scavenging System) Plant: The package should consist of two dry rotary vane/Claw type vacuum pumps (Dry/Oiless) or as per guideline of standard to be followed, As per HTM & ISO Standards, the Blower type Pumps are normally used in the AGSS System. Please confirm if this is acceptable.	The package should consist of two dry rotary vane/Claw type vacuum pumps (Dry/Oiless) or Blower pump as per guideline of standard
22	Vol 4 - Technical Specifications, Page 14, Para 8 AGSS (Anaesthetic Gas Scavenging System) Plant: Connecting hose suitable to fit with anaesthesia Workstation should be provided.	Quantity mentioned in the attached revised BOQ

	Please provide the Qtys of Connecting Hoses required for the Anaesthesia Workstations and their Technical Specs. Ideally, the connecting hoses are supplied by the respective Anaesthesia Workstation Suppliers, and therefore can be deleted from the tender specs.	
23	Vol 4 - Technical Specifications, Page 17, Para 11 AREA VALVE SERVICE UNIT: The Area Valve Service Unit should incorporate a ball valve with NIST/else connectors either side mounted in a lockable box with emergency access or as per guideline of standard to be followed. Please confirm if the AVSU is required to be supplied along with ball Valves? If yes, specify the valve sizes configuration required in each of the AVSU models 2 gas - 6 gas services.	The Area Valve Service Unit should incorporate pre-fitted ball valve in a box with emergency access. Valve sizes and quantities are mentioned in the BOQ.
24	Vol 4 - Technical Specifications, Page 17, Para 11 AREA VALVE SERVICE UNIT: The Area Valve Service Unit should incorporate a ball valve with NIST/else connectors either side mounted in a lockable box with emergency access or as per guideline of standard to be followed. Our submission is that, for fair evaluation and comparison of bidders of various standards and for parity purposes, and also for the Safety and backup arrangement and continuity of gas supplies of the MGPS, the NIST is a very critical requirement for AVSU, which should be complied by bidders for all standards. If an open ended statement like as per guideline of standard to be followed is mentioned, then this would be a huge disadvantage for HTM/ ISO eqpt suppliers. Contrarily, it may be noted that, NFPA doesnot categorically mention about the requirement of NIST. However, the Isolation Valves as per NFPA Mandates to have provisions for inlet ports on the pipe extensions, wherein the NIST connectors can be fixed. Hence, to avoid this ambiguity, we suggest that NIST Connectors are mandatory is clearly specified in the amended tender specs, and which should be followed by all bidders.	Shall be as per standards mentioned in the technical specification of tender
25	Vol 4 - Technical Specifications,	Extruded Aluminium/MS

	Page 17, Para 11 AREA VALVE SERVICE UNIT: The box shall be made from extruded aluminium to prevent corrosion or as per guideline of standard to be followed. It may be noted that the AVSU Box manufactured by all major suppliers is made of Steel and powder coated etc to prevent corrosion. Hence, we request you to kindly delete the wordings extruded aluminium from the tender specs.	powder coated

26	Vol 4 - Technical Specifications, Page 18, Para 12.1 Master Alarm : The master alarms should be capable to monitor minimum 30-40 Point. Bidder shall be responsible for all cabling from local alarm panels to master alarm panel. Please confirm if all the Area Alarms are required to be connected with the Master Alarm Panel by providing cabling? If Yes, then the Size of Master Alarm Panel is not sufficient, as it has provision to connect only 30-40 points. Whereas, the total number of AVSU is 93 Nos.	Bidder shall be responsible for all cabling from local alarm panels (OTs, ICUs)to Master alarm panel.
27	Vol 4 - Technical Specifications, Page 19, Para 12.2 Medical Gas Area Alarm: The medical gas central alarms should be capable of monitoring up to 5 medical gas services (As specified in BOQ) It appears the central mentioned in the tender specs is a typo error. Please clarify. Also, the 5 medical gas services mentioned in the specs is not correct, as the BOQ mentions upto 6 medical gas services. Please clarify.	The medical gas central alarms should be capable of monitoring up to 6 medical gas services (As specified in BOQ)
28	Vol 4 - Technical Specifications, Page 22, Para 13b Manufacturer Authorization: This is a limiting clause and appears to be favouring few companies only and which may restrict competition to a few bidders only. You are requested to delete the requirement of Manufacturers AuthorisationCertificates. By getting committed to a particular manufacturer while quoting, the bidders lose their ability to negotiate better prices and terms at the time of supply and also quite often are restricted to the products of the particular manufacturer despite better products becoming available from other manufacturers while the tender is still under consideration of the tenderer. This requirement is inviting cartelisation because local / Indian representatives of particular foreign manufacturers have got their specification incorporated in the major tender and the leading bidder will have their supporting bidders.	Tender terms and conditions prevail

	Moreover, it may be noted that the requirement of Manufacturers Authorisation Certificate is against the CCI Act 2012.	
29	Vol 4 - Technical Specifications, Page 24, Responsibility of bidder: 5. Rota meters for measurement of consumption of Oxygen and Compressed air To enable fair evaluation and parity among all bidders, Please provide Technical Specs for the Rotameters. Also, request you to include this in the line item of the BOQ, as this is a major item.	Tender terms and conditions prevail
30	Vol 4 - Technical Specifications, Page 24, Para 15 The following systems/items must be from the same principal company/Manufacturer: a. Control Panels & Manifold for O2, N2O & CO2 b. Medical air plant c. Medical Vacuum Plant d. AGSS Plant e. Area & Master Alarm f. All types Outlets g. AVSU h. Line Isolation valves i. High Pressure tubes We request you to kindly delete the sentence The following systems/items must be from the same principal company/Manufacturer*:* , and allow the bidders to select the best possible supplier option, as long as all the MGPS Products are from the same single MGPS Standard selected for which the bid is being submitted. It may be kindly noted that there are only a few and limited suppliers worldwide who manufacture (or outsource) all the MGPS products. On the other hand, there are certain manufacturers who are having exceptionally good experience and reputation in their respective domain like supplying MGPS Plant Source Equipments (Medical Air Plant, Vacuum & AGSS Plants), and there are other's who can offer exceptionally good quality	Tender terms and conditions prevail

	MGPS Distribution System Equipment and similarly for Architectural Systems (Bed Head panels etc), SOT Products (Oxygen Flowmeter, Ward Vacuum Units, Theatre Vacuum Units etc). Linde shall take the single point responsibilty for all the equipment supplied by the respective OEM Suppliers, and shall be fully responsible for the complete installation and during warranty and CMC Periods.	
31	Vol 4 - Technical Specifications, Page 26, Para 23 Inter connection to Manifolds with LMO tank with necessary automatic switchover panels between LMO & Manifold will be up to responsibility of bidder up to 100m distance. We request you to provide drawings of the site to identify the location of proposed LMO system and the location of Manifold Room, to enable ascertain the distance, routing and cost estimation.	Tender terms and conditions prevail
32	Vol 3 - SCC, Page 35, After provisional taking over, the contractor shall provide operation and maintenance services for the complete MEDICAL GAS MANIFOLD SYSTEM EQUIPMENT till the successful completion of Defect Liability Period. Please clarify the meaning of Operation. Will the bidder have to provide manpower at site? If Yes, how many in each shift etc? The BOQ file doesnot have relevant areas to provide the Operation Cost. Please amend the BOQ file, if this scope of work is required to be provided.	The word ‘Operation’ is deleted.
33	Vol 3 - SCC, Page 49, MANUFACTURER’S AUTHORIZATION FORM: Dear Sir, Tender No. ---------- We who are established and reputed manufacturer of (name & description of goods Offered) having factories at (address of factory) do hereby authorize M/s (Name& address of	Tender terms and conditions prevail

	agent) which has been our dealer/distributor since , to submit a bid, and sign the contract with you for the goods manufactured by us against the above tender. No company or firm or individual other than M/s are authorized to bid and conclude the contract for goods manufactured by us against this specific tender. We hereby extend our full guarantee and defect Liability period as per the clause of Condition of Contract and Additional Specific Conditions of Contract of above tender for goods and services offered for supply by our authorized firm. To enable a Principal Supplier to follow, we request you to amend the format as: MANUFACTURER'S / PRINCIPAL SUPPLIER'S AUTHORIZATION FORM: Dear Sir, Tender No. ---------- We who are established and reputed manufacturer / Supplier of (name & description of goods offered) having factories at (address of factory) do hereby authorize M/s (Name & address of agent) which has been our dealer/distributor since, to submit a bid, and sign the contract with you for the goods manufactured / supplied by us against the above tender. No company or firm or individual other than M/s are authorized to bid and conclude the contract for goods manufactured /supplied by us against this specific tender. We hereby extend our full guarantee and defect liability period as per the clause of Condition of Contract and Additional Specific Conditions of Contract of above tender for goods and services offered for supply by our authorized firm.	
34	Vol 1- Page 3 Period of work completion – 6 Months Considering the huge quantum of work and imported equipment which needs to be arranged, we request you to kindly amend the work completion time to minimum 9 Months	Period of work completion – 7 Months from the date of letter of commencement
35	Vol-III, Special Conditions of Contract , Page No. SCC- , Clause 39.2.4, Page 25 Water Supply & Power Supply: The contractor will provide water & electricity	Tender terms and conditions prevail

	to the Consultant's office free of cost for the required quantity by the Consultant's site office. MGPS Works require very less electrical power and water for construction purposes. We request to delete the sentence: The contractor will provide water & electricity to the Consultant's office free of cost for the required quantity by the Consultant's site office.	
36	Vol-II, General Conditions of Contract, Clause 47.1 & Annexure-B (Appendix To Tender), Page 38 & 71 Liquidated Damages for Delay: Amount of Liquidated damages: 1% (one percent) of contract price per calendar week of delay Limit of liquidated damages: 10% (Ten percent) of contract price. Please consider the aggregate maximum of liquidated damages payable under clause No. 47.1 shall not exceed 0.5% of contract value per week of delay and shall be subjected to maximum amount of 5% on overall contract price.	Tender terms and conditions prevail
37	General Point Release of Final 10% Payment After completion of installation works, if the Commissioning / Trial Run of the MGMS system is delayed for more than 3 months due to reasons not attributable to Contractor, then the final 10% payment should be released without any further delay against submission of Bank Guarantee. Please confirm acceptance of this.	Release of final 10% payment of BOQ contract rates after final acceptance of system by the client
38	General Point DLP Period Start Date After completion of installation works, if the Commissioning/ Trial run of the MGMS system is delayed for more than 3 months due to reasons not attributable to Contractor, then DLP period start date would be considered from that date. Please confirm acceptance of this.	Tender terms and conditions prevail
39	General Point Customs Duty Please confirm customs duty is under customer or bidders scope. Also confirm the applicable rate of customs duty for the job. Also confirm if CDEC (Customs Duty Exemption Certificate)	Tender terms and conditions prevail

	would be issued by customer. If Yes, what would be the rate of Customs Duty exemption?	
40	General Point Statutory Duties In case of any statutory variation in duties like GST, Customs Duty, IGST etc within the contractual delivery date shall be borne by client. Kindly confirm this.	Tender terms and conditions prevail
41	For safety of personnel & patients at hospital premises, it is highly recommended that all cylinders are fitted with Valve Guards to prevent incidents during cylinder handling / tripping. Hence, we request you to include the following in the Technical Specs for Cylinders: **14. Supply of O2 Cylinders – Class D Type** Should be as per BIS/IS/ASME Standard. Valve Guard should be fitted on all cylinders for the protection of Cylinder Valve, to prevent incidents happening during cylinder handling / tripping. **15. Supply of N2O Cylinders – Class D Type** Should be as per BIS/IS/ASME Standard Valve Guard should be fitted on all cylinders for the protection of Cylinder Valve, to prevent incidents happening during cylinder handling / tripping. **16. Supply of CO2 Cylinders – Class D Type** Should be as per BIS/IS/ASME Standard Valve Guard should be fitted on all cylinders for the protection of Cylinder Valve, to prevent incidents happening during cylinder handling / tripping.	Valve Guard should be fitted on all cylinders for the protection of Cylinder Valve
42	Oxygen Flow meter with Humidifier Bottle We understand that you missed out to mention USFDA/European CE Certified with 4 digit notified body no or American UL /ETL Listed as you have mentioned the same for Ward Vacuum Unit and Theatre Vacuum unit. You are requested to kindly amend and mention European CE Marked with 4 Digit Notified Body No /USFDA Certified /UL Listed /ETL Listed.	BIS/US FDA/European CE Certified with 4 digit notified body number or American ETL/ UL listed.

	Humidifier Bottle asked in the tender is of polycarbonate /polysulfone material. We recommend adding polypropylene material for humidifier bottle, which is better quality material autoclavable at 134°C	
43	Medical and Surgical Air System You missed out to mention the Variation of +1-10% for Vacuum System as mentioned in past tenders published by HSCC. You are requested to kindly amend the same and also mention the same in BOQof tender. • In the BOQ, it is mentioned that vendor may offer two plants. Since the total Flow requirement for is 15000 LPM, may we offer 7500 LPM working and 7500 LPM as standby or 9000 LPM as working or 6000 LPM as standby. Please clarify and confirm the same	+/-10 % to flow capacity of plant is permitted Tender terms and conditions prevail
44	Vacuum System – Youmissed out to mention the Variation of +1-10%for Vacuum System as mentioned in past tenders published by HSCC. You are requested to kindly amend the same and also mention the same in BOQof tender	+/-10 % to flow capacity of plant is permitted
45	Master Alarm /Medical Gas Area Alarm • In HTM Standard, the Area /Master Alarms are LED Type and not Digital /Touch Screen type. Kindly amend the same accordingly. • In Bill of Quantity, for Medical Gas Area Alarm for 2 Services, there is a typographical error in mentioning the gases for 2 Service Alarm, It should be Oxygen and Vacuum instead of MA4Bar. You are requested to kindly correct the same. • Further the specifications mentioned in the tender are more of NFPA Standard, you are requested to kindly add technical specifications as per HTM 02-01 standard for the following items as published by HSCC in their past tenders of MGPS, For your reference, copy of technical specifications enclosed: Master Alarm and Area AlarmGas Outlet	• Digital or as per standard mentioned in the technical specification of tender • Read as Oxygen and Vacuum instead of MA4 bar. • Tender terms and conditions prevail
46	**Horizontal / Vertical Bed Head Panel-** You are requested to kindly amend the same to 3 Channel instead of 2 tier / 2 Channel, because electrical and Gas Outlets are not possible to mount of 2 channel Bed Head Panel.	3 Channel / 2 tier / 2 Channel/3 Partition rows

47	**Responsibility of bidder -** Being an accessory item, High Pressure tubing must not be a part of this clause. You are therefore requested to kindly delete the same from clause 15 of responsibility of bidders.	Tender terms and conditions prevail
48	**Point to be Clarified -** Please confirm who will supply 200 KW DGSet and when?	Tender terms and conditions prevail
49	1.2 of INSTRUCTION TO APPLICANTS 5 of Volume – I COMPLETION PERIOD: 6 months from the date of order of commencement. We request you to kindly change the COMPLETION PERIOD to 12 months instead of 6 months from the date of order of commencement.	Period of work completion – 7 Months from the date of letter of commencement
50	2.2 (ii) of INSTRUCTION TO APPLICANTS 5 of Volume – I The Applicant should meet the following minimum criteria for Pre-Qualification : Experience of having successfully completed similar work during last 7 years ending last day of month previous to the one in which tenders are invited should be either of the following : Three similar* completed works costing not less than the amount equal to 40% of the estimated cost. or Two similar* completed works costing not less than the amount equal to 50% of the estimated cost. or One similar* completed work costing not less than the amount equal to 80% of the estimated cost. We wish to inform you that, we fulfill all your eligibility criteria to great extent. However, we have observed that the Pre- Qualification Criteria is restricted & biased to favour some proven cartel companies to participate. In view of this, we request you to kindly amend the Pre-Qualification Criteria in line with 2 Options requested below. This will ensure wider participation from various bidders including us and there will be a price advantage to HSCC in view of huge participation, price comparison,	Tender terms and conditions prevail

	and no encouragement to cartelization. OPTION 1: Please go through attached HITES Tender Eligibility criteria for this size of MGPS work and same may be amended accordingly. We are surprised to note that HSCC and HITES both are under Ministry of Health & Family Welfare but asking different Eligibility Criteria. PQ Criteria - Request for Amendment: "Minimum work of similar Nature: Eligible bidders should have successfully executed globally in last Seven years from the date of tender opening, similar turnkey project of value, equivalent to or exceeding 50% of the estimated schedule / tender value. Out of total 50% value, at least one single order for similar work of minimum 10% of the estimated schedule / tender value should have been executed globally". Please refer to Annexure - II for similar condition in one of the tenders of HITES issued on 14.02.2019. OPTION 2: (i) As can be seen we are very eager to participate in this tender and in this regard, we request you to kindly allow the bidders to submit the "Experience of having successfully completed similar work during last 10 years ending last day of month previous to the one in which tenders are invited instead of 7 years:	
51	Standards/ Guideline 1 of Volume – IV Standards/Guideline The design & selection of all imported items should be of international standard like NFPA 99(latest version) standard and UL listed or ISO-7396-1/DIN/ EN (latest version) and UL listed/European CE or HTM 02 01 (latest version) guideline and European CE. This supersedes single/multiple standards mentioned at any other places in the tender specification involving item/system/capacity etc. The imported products should be of one standard only. All indigenous items should be of high quality and to be compatible to the main system. We have observed that most of the technical	Design following one of International standards mentioned in the technical specification of tender will be accepted.

	specifications are written around one standard only i.e. NFPA. This may please be amended to Generic specifications in nature and OEM's should allowed to use their own design and follow any of the international standards. In case you do not want to change the present technical specifications, you may need to mention somewhere in the tender that "The tender technical specification are general in nature. However, manufacturer own design following one of the given international standard in the tender will be accepted, without compromising the flow rate".	
52	10.1 GCC - 10 of VOLUME – II Performance Security: The Contractor shall provide security for his proper performance of the Contract to the Employer within 15 days after the receipt of the Letter of Acceptance. The performance security shall be in the form of bank guarantee. The amount of the bank guarantee shall be 10 percent of the Contract Price. It shall be issued by a Nationalised bank of India. When providing such security to the Employer, the Contractor shall notify the Engineer of so doing. Performance BG should not be more than 5% of order value and submission must be minimum 30 days from the date of your firm order. In place of Nationalised Bank you should mention Scheduled banks.	The Performance security shall be 5% of the estimated cost.
53	12.1 & 12.2 SCC-12 of Volume – III Bid Security: The Bidder shall furnish, as part of his Bid, a Bid Security of the amount of Rs. 2 5 , 0 0 , 0 0 0 /- (Rupees Twenty Five Lakhs Only) for Medical Gas Manifold System, Hospital Block, AIIMS, Nagpur. No deviation shall be permitted from this. The Bid Security shall be in the form of a Demand Draft/Pay	Tender terms and conditions prevail

	Order/Bank Guarantee in favour of HSCC (India) Ltd. Payable at New Delhi/NOIDA from any Nationalised/Scheduled bank. Bid Security may please be reduced to 1% of estimated value only which means Rs. 15 lac in place of Rs. 25 lac, you can understand that this blocks bidders finances as you know government takes long time in deciding the tender and then returning the EMD and with this huge amount bidders cannot bid other on going and upcoming tenders even in your case you have floated three big tenders on almost on same dates. This is unfair and there is no such CVC guidelines for this huge EMD amount which some of you were referring in pre-bid meeting.	
54	21.0 & 21.1 SCC-38 of Volume – III Terms of Payment: For purposes of estimating the contract value of works executed for certificate of payment, the following norms shall be followed: - 70 % of the BOQ contract rates on delivery of equipment at site after inspection ,passing and issue of dispatch clearance on pro-data basis. - 20% of BOQ contract rates on satisfactory take over certificate by client after erection and installation, testing and commissioning of equipments on pro-data basis. - 10 % of BOQ contract rates after successful completion of trial run of 30 days from the date of handover to the client (1) Please amend the payment terms as : 85% against delivery of material on or before 30 days from the date of supply the material. 10% against installation on pro-rata basis within 30	1) 75% of the BOQ contract rates on delivery of equipment at site after Inspection and Despatch Clearance Report on pro-data basis. 2) 15% of BOQ contract rates on Installation (Installation certificate to be provided with bill) of MGPS. 3) 10% of BOQ contract rates after final acceptance of system by the client

	days of submission of bills and balance 5% against testing and commissioning within 30 days of submission of bills, in case site is not ready or electrical supply, gas supplies are not provided, contractor payment will be released within 30 days of testing and commissioning against undertaking that as and when electricity and gases will be provided contractor will do the needful without any extra charges. (2) Since, your technical specifications asking for International standards which can only be met with foreign manufacturer in totality which clearly means that you are looking for imported components. In such case you should give an option for quoting in foreign currency and you need to pay these foreign suppliers by means of letter of credit, with this you will be 100% assured that you are getting 100% imported material directly from manufacturers. This will avoid foreign makes stamping on local products, which is happening very commonly.	
55	Standards/Guideline 1 of Volume – IV Standards/Guideline The design & selection of all imported items should be of international standard like NFPA 99(latest version) standard and UL listed or ISO-7396-1/DIN/ EN (latest version) and UL listed/European CE or HTM 02 01 (latest version) guideline and European CE. This supersedes single/multiple standards mentioned at any other places in the tender specification involving item/system/capacity etc. The imported products should be of one standard only. All indigenous items should be of high quality and to be compatible to the main system. We have observed that most of the technical specifications are written around one standard only i.e. NFPA and make specific for example Item 1.1, Page No. 1 & 2, Item 2.1, Page No. 9 & 10, Item 3, Page No. 10, 11, 12 & 13, Item 4, Page No. 13 & 14, Item 10, Page No. 17, Item 12, Page No. 18 & 19, Item 17 on Page No.	Tender terms and conditions prevail

	19 and Item 20, Page No. 21. This may please be amended to Generic specifications in nature and OEM's should be allowed to use their own design as per any of the international standards. In case you do not want to change the present technical specifications, you may need to mention somewhere in the tender that "The tender technical specification are general in nature. However, manufacturer own design following one of the given international standard in the tender will be accepted, without compromising the flow rate". For Example: In case of Air Plant please remove the word oil-less compressors because as per HTM which is mentioned in your tender does not require oil-less compressors because all the UK manufacturers who are producing Air plants as per HTM are using oil-floaded screw compressors (because their efficiencies are many times higher than oil-less compressors) and all UK hospitals and even in Europe as per ISO:7396 and Middle east hospitals are using oilflooded air compressors. Once you are demanding HTM standard / recommendations then it is the responsibility of manufacturer to design and manufacture the air plants with medical air quality by using any types of air compressors but by using this oil-less word you are only inviting NFPA standard / recommendations and mentioning of HTM is an eye. We strongly object this approach to favour only proven cartel companies.	
56	1.5 3 of Volume – IV LIQUID MEDICAL OXYGEN STORAGE TANK The double walled Vacuum Insulated Evaporator shall be constructed of stainless steel inner vessel contained within a carbon steel outer vessel. The annular space between the vessels shall be filled with non-inflammable perlite insulation material to insulate under vacuum. The VIE should be self-pressurizing type by partial evaporation of liquid oxygen	Tender terms and conditions prevail

	through a pressure building coil by a non-ferrous imported pressure regulator. The vessel shall be supplied as a functional whole with all materials of construction & the cleaning regime suitable for medical grade liquid oxygen. Please remove this item "LIQUID TANK" because 99% of the government and private hospitals go for this directly through oxygen manufacturers on rental basis, It is consumables hence hospital is supposed to buy on regular basis, we do not understand why this item is being purchased and that through by MGPS installation companies, who will have no control on what kind of gas will be supplied, when someone else is liquid tank and someone elseis oxygen gas with this hospital will have to deal with two parties one for maintenance and one for gas and tanksupplier will say problem occurred due to gas supply decantation etc and gas supplier will say gas pressure holding is an issue to due tank and over and above MGPS bidder will be depending upon third party like INOXCVA who is tank manufacturer. By removing this you will not only come out of these problems but save lot of money but also avoid re-occurrence of Gorakhpur incident. It is our duty to make you aware well in advance. Theanotheradvantage is that Estimated value will come down and more and more bidders will be able to participate with lower eligibility criteria which is dependent on Estimated Value.	
57	14, 15 & 16 19 of Volume -IV Supply of Oxygen, N2O and CO2 Cylinders. Please remove this items "Oxygen, N2O and CO2 Cylinders" because 99% of the government and private hospitals go for this directly through these gases manufacturers on rental basis, It is consumables hence hospital is supposed to buy on regular basis, we do not understand why this item is being purchased and that through by MGPS installation companies, who will have no control on what kind of gas will be supplied, when someone else is liquid tank and someone else is oxygen gas with this hospital will have to deal with two parties one for maintenance and one for gas and tank supplier will say problem	Tender terms and conditions prevail

	occurred due to gas supply decantation etc and gas supplier will say gas pressure holding is an issue to due tank and over and above MGPS bidder will be depending upon third party like Rama or Everest Kanto etc.Cylinders who are Cylinders manufacturers. By removing this you will not only come out of these problems but save lot of money but also avoid re-occurrence of Gorakhpur incident. It is our duty to make you aware well in advance. The another advantage is that Estimated value will come down and more and more bidders will be able to participate with lower eligibility criteria which is dependent on Estimated Value.	
58	22 of Volume -IV Manufacturer Authorization: Eligible bidders should submit amandatory letter of authority from the Foreign Principal /Manufacturer, mentioning country of origin with name of manufacturing company for major products quoted by them. For the following major items, Manufacturer's Authorization as per format Volume-II SCC of tender document should be submitted: 1. Fully Automatic Oxygen Control Panel 2. Oxygen Flow meter 3. Fully Automatic Nitrous Oxide Control Panel 4. Fully Automatic Control panel for CO2 System 5. VACUUM SYSTEMS 6. MEDICAL AND SURGICAL AIR SYSTEM 7. ALARM SYSTEM 8. AREA VALVE SERVICE UNIT 9. BED HEAD PANELS 10. GAS OUTLETS 11. AGSS (Anesthetic Gas Scavenging System) This is purely a favourable clause to favour companies who have done exclusive tie-ups for Indian market with three to four American companies, who are also not manufacturing these Air Plants, Vacuum Plants and AGSS/WAGD plants themselves but most of them buy from Powerex USA only and they simply print their catalogues with powerex plants specifications and certifications, which has unfortunately never asked or checked by HSCC ever. Ideally there should be an enquiry on this subject. This is an another example of	Tender terms and conditions prevail

	restricted conditions to buy only NFPA standard / recommendations products and other international standards mentioned in the tender are just eye wash. Under the circumstances this highly objectionable clause may please be removed from this tender and we expect justice at this stage from your end only. We are surprised you being Engineering organization and consultants is not having this information and you did not bother to check online as well before publishing such tenders. Worldwide plants manufacturers are different as they manufacture not only for Medical Industry but for many other industrial requirements too and MGPS manufacturers worldwide do not manufacturer these plants except one who are also dealing with Medical and Industrial. You should also not ask single standard for all theitems because it has no relevance, we expect you the explain to us for our knowledge what advantage you get with this and what disadvantage you have without this when the aim of all the standards manufacture products for medical applications and full fill your flow rate, pressure and quality requirements. These are nothing but to favour companies of your choice probably or due to lack of knowledge which both the cases are not expected from government consultants like you. In view of the facts presented above, we request you to remove this requirement of submission of Manufacturer Authorization Letter from Foreign Principal / Manufacturer, so that bidders should have freedom to buy from any of the international manufacturer and make them to compete with each other which will ultimately benefit you in the price which is ultimate aim of Govt. of India by means of inviting open tender and for your information most of the Govt. organizations like PWD, CPWD do not ask for such manufacturer authorization letter (If you want we can submit the copy of PWD tender documents in this regards). Under the circumstance we should come out of foreign manufacturers' slavery.	
59	15 25 of Volume -IV The following systems/items must be from the same principal	Tender terms and conditions prevail

	company/Manufacturer: a. Control Panels & Manifold for O2, N2O & CO2 b. Medical air plant c. Medical Vacuum Plant d. AGSS Plant e. Area & Master Alarm f. All types Outlets g. AVSU h. Line Isolation valves i. High Pressure tubes This is purely a favourable clause to favour companies who have done exclusive tie-ups for Indian market with three to four American companies, who are also not manufacturing these Air Plants, Vacuum Plants and AGSS/WAGD plants themselves but most of them buy from Powerex USA only and they simply print their catalogues with powerex plants specifications and certifications, which has unfortunately never asked or checked by HSCC ever. Ideally there should be an enquiry on this subject. This is an another example of restricted conditions to buy only NFPA standard / recommendations products and other international standards mentioned in the tender are just eye wash. Under the circumstances this highly objectionable clause may please be removed from this tender and we expect justice at this stage from your end only. We are surprised you being Engineering organization and consultants is not having this information and you did not bother to check online as well before publishing such tenders. Worldwide plants manufacturers are different as they manufacture not only for Medical Industry but for many other industrial requirements too and MGPS manufacturers worldwide do not manufacturer these plants except one who are also dealing with Medical and Industrial. You should also not ask single standard for all the items because it has no relevance, we expect you the explain to us for our knowledge what advantage you get with this and what disadvantage you have without this when the aim of all the standards manufacture products for medical applications and full fill your flow rate, pressure and quality requirements. These are nothing but to favour companies of your	

	choice probably or due to lack of knowledge which both the cases are not expected from government consultants like you.	
	Page No.24 of Volume – IV	
60	Point No.6 Bidder shall execute all required civil, electrical, plumbing, lighting, fire safety, exhaust systems and other works as maybe required for complete installation and trouble-free functioning as a part of the 'turnkey work'. Please elaborate all required civil, electrical, plumbing, lighting, fire safety, exhaust systems and other works as maybe required for complete installation. Please specify the areas where these work has to be executed. Please mention quantity of all additional work required to be carried out by MGPS Vendor in tender BOQ.	Bidder shall execute following turnkey works in addition to the works mentioned in the technical specification of tender: -Providing and fixing of Exhaust fan with IS marked Motor and louver for ventilation of MGPS Plant room and Manifold roomOnly Electrical Power supply will be provided at one location inside the Plant room by client. - Air-conditioning (Ductable with exhaust) to run 24x7 inside the Plant room and Manifold room. -Providing and fixing of cable from local alram panels (OTs & ICUs) - Construction of Overhead/Under Ground trench size approx 1.5mx1m as standard for interconnection between buildings/plant/manifold/etc block. - SITC of 3.5 core 185 sq.mm XLPE Cable as per IS: 7098 inside the gas manifold and plant room including Electrical Distribution Panel for plant & Manifold rooms. -SITC of Electrical Distribution Panel for Plant & Manifold rooms. - Providing of dedicated chemical earthing for MGPS Plant room as per IS: 3043 --Wiring for light point/fan point/exhaust fan point/call bell point with 1.5 sqmm FRLS PVC insulated copper conductor single core cable in surface/recessed medium plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc as

		required- Group-A - Point = 30, Group-B- Point = 2 and Group-C- Point = 15 Revised BOQ attached
61	Point No.6 Bidder will be responsible for trenching or other associated work related to installation and commissioning of complete MGPS system. Since this work is costly, you are requested to kindly mention the same in tender BOQ as extra works.	Tender terms and conditions prevail
62	Point No.19 Bidder should be responsible for dedicated earthing (Chemical type) for MGPS Plant (if required) In the responsibility of bidder, you have mentioned that dedicated chemical earthing for MGPS Plant room is to be provided by MGPS bidder, while the same is not considered in tender BOQ. Since this item includes cost also, we therefore request you to kindly add the same in tender BOQ.	Tender terms and conditions prevail
63	Point No.24 Bidder should submit the MGPS plant and Manifold equipment loading design with footprint of all components as per their offered plant along with bid within the area of 200 sq.m bidder may keep tanks inside. Bidder has to consider proper sitting space for technicians, cylinder storage space for filled and empty including Plant room equipment. Any drawings related to MGPS work will be designed only after issuance of NOA against the Autocad Drawing / Floor Plan of Hospital provided by HSCC / Consignee. Hence it is not possible to submit the same at the time of submission of bid. You are requested to kindly delete the lines stating "Bidder should submit the MGPS Plant and Manifold equipment loading design with foot print of all component as per their offered plant along with bid within the area of 200 sq m. bidder may keep the tanks inside, only when their offered plant and	Tender terms and conditions prevail

	manifold are coming within the 200 sq m area along with proper sitting space for technicians, cylinder storage space for filled and empty including Plant Room Equipment".	
64	**Item No.1.1** **Fully Automatic Oxygen Control Panel** The Manifold Control Panel should be Digital / Analogue Since Analogue is outdated technology and have no comparison with Digital Technology, we recommend amending it to "The Manifold control panel should have 10" LCD Digital Display". Kindly amend the same accordingly. Digital is only specified in all other AIIMS & PMSSY tenders published by Hites& NBCC India Ltd AIIMS tenders. If the requirement is more than flow capacity requirement automatic control panel the bidders has to supply 02 numbers of Automatic Control Panel and design the system in such a way to meet the flow requirement of respective institute. Since the Primary Source for Oxygen is Liquid Medical Oxygen and Secondary source is Automatic Control Panel. Can you please confirm, why there is a requirement of an additional Automatic control panel. You are requested to kindly delete invalid line from tender specifications.	Fully Automatic Oxygen Control Panel should have digital display
65	**Item No.1.4** **OXYGEN FLOW METER WITH HUMIDIFIER BOTTLE** Point No. I) – Should be BIS / CE Certified / UL Listed Kindly amend it By mistakenly you have missed to add European CE Marked with 4 Digit Notified Body No / USFDA Certified / UL Listed / ETL Listed Please note same is specified in all other AIIMS	BIS/US FDA/European CE Certified with 4 digit notified body number or American ETL/ UL listed.

	& PMSSY tenders published by HITES & NBCC India Ltd AIIMS tenders.	
66	**Item No.1.5** **LIQUID MEDICAL OXYGEN** Max. Working pressure : 17 Bar G Max. Working Pressure is 17.6 Bar G instead of 17 Bar G. Please amend the same. Hydraulic test pressure: 26 bar G Hydraulic test pressure should be as per EN 13458 code instead of 26 bar G. please amend the same. Joint Efficiency : 100% Joint Efficiency: As per code EN 13458 Inspection: By 3rd party (SGS/LLOYDS/TUV) Kindly also add 3rd party BVIS Page 8, Requirement of the Cryogenic Vessel should be: Inner vessel maximum allowable working pressure: 17 kg/cm2 Max. Working Pressure is 17.6 Bar G instead of 17 Bar G. Please amend the same. Inner Vessel hydrostatic test pressure: greater than 26 kg/cm2 Hydraulic test pressure should be as per EN 13458 code instead of 26 bar G. please amend the same. **Vaporiser Coil** Duty Cycle: Continuous duty Duty Cycle: 6-8 hrs. Kindly amend the same. **Safety Fitting** Vessel Low Liquid level alarm In Safety Fitting, Vessel Low Liquid level alarm is not required since low pressure alarm will be provided. Kindly delete Vessel Low Liquid Level Alarm from tender technical specifications.	Max. working Pressureis 17-17.6 Bar G Hydraulic test pressure should be 26 bar G or as per EN 13458 Joint Efficiency 100% or as per code EN 13458 Tender terms and conditions prevail Maximum allowable working pressure: 17-17.6Bar G Inner Vessel hydrostatic test pressure: greater than 26 kg/cm2 or as per EN13458 Tender terms and conditions prevail Deleted

67	**Item No.2.3** **EMERGENCY N2O MANIFOLD** The Manifold should be hydraulically tested at 3500 psig. Please note as per NFPA standard, Manifolds are designed with a maximum inlet pressure of 3000 psig instead 3500 psig. You are requested to kindly amend the same and mention "The Manifold should be hydraulically tested at **3000 psig**".	Manifolds are designed and tested with aatleast inlet pressure of 3000 psig or as per standards mentioned in the technical specification of tender.
68	**Item No.3** **MEDICAL AND SURGICAL AIR SYSTEM** **System Control** – The control include individual self-protected combination motor controls with short circuit protection, single phase and thermal overload protection, individual control circuit **transformers with fuseless** primary and secondary protection. As per NFPA Standard, transformers used are fused instead of fuseless. You are therefore requested to kindly amend the same accordingly.	Shall be as per standard mentioned in the technical specification of tender
69	**Item No.3** **MEDICAL AND SURGICAL AIR SYSTEM** Tender Required Total Capacity of Medical & Surgical Air System (combined medical air plant) is 15000 LPM Please allow options: 1 complete medical air plant = Total Capacity of 15000 LPM Or 2 medical air plant = Total Capacity of 15000 LPM Or 3 medical air plant = Total Capacity of 15000 LPM	Tender terms and conditions prevail

	The total output of 1 or 2 or 3 medical Air plant should meet with tender specifications & Total Capacity requirement.	
70	**Item No.4** **VACUUM SYSTEM** **System Control** – The control include individual self-protected combination motor controls with short circuit protection, single phase and thermal overload protection, individual control circuit **transformers with fuseless** primary and secondary protection. As per NFPA Standard, transformers used are fused instead of fuseless. You are therefore requested to kindly amend the same accordingly.	Shall be as per standards mentioned in the technical specification of tender
71	**Item No.4** **VACUUM SYSTEM** Tender Required Total Capacity of 28000 LPM Please allow options 1 complete medical vacuum plant = Total Capacity of 28000 LPM Or 2 medical vacuum plant = Total Capacity of 28000 LPM Or 3 medical vacuum plant = Total Capacity of 28000 LPM The total output of 1 or 2 or 3 medical vacuum plant should meet with tender specifications& Total Capacity requirement.	Tender terms and conditions prevail
72	**Item No.6** **LOW FLOW WARD VACUUM UNIT** Technical Specifications of Low Flow Unit is given in tender, while the same is not considered in BOQ for pricing. You are requested to kindly add Low flow ward vacuum unit in BOQ of tender.	Mentioned in the BOQ attached herewith. Tender terms and conditions

	Please amend the capacity 0-250m/bar for low flow vacuum regulator Please amend the capacity of suction jar 600-1000ml (1000cc) The complete low flow vacuum unit with regulator and jar should be European CE Marked with 4 Digit Notified Body No / USFDA Certified / UL Listed / ETL Listed Please note same is specified in all other AIIMS & PMSSY tenders published by HITES & NBCC India Ltd AIIMS tenders.	prevail Tender terms and conditions prevail Tender terms and conditions prevail
73	**Item No.** **WARD VACUUM UNIT** Please amend the capacity 0-1000m/bar for low flow vacuum regulator Please amend the capacity of suction jar 600-1000ml (1000cc) The complete ward vacuum unit with regulator and jar should be European CE Marked with 4 Digit Notified Body No / USFDA Certified / UL Listed / ETL Listed Please note same is specified in all other AIIMS & PMSSY tenders published by HITES & NBCC India Ltd AIIMS tenders.	Tender terms and conditions prevail Tender terms and conditions prevail Tender terms and conditions prevail
74	**Item No.12.2** **MEDICAL GAS AREA ALARM** In Bill of Quantity, for Medical Gas Area Alarm for 2 Services, there is a typographical error in mentioning the gases for 2 Service Alarm, It should be Oxygen and Vacuum instead of MA4 Bar. You are requested to kindly correct the same.	Amended as Oxygen and Vacuum
75	**Item No.13** **LINE ISOLATION VALVES** Kindly add Lines stating: • "Line Isolation Valves should be 3" Piece ball	Tender terms and conditions prevail

	type with Bronze body Lockable with Stuffed Pipes. Each Valve should be separately packed as per the standard. • Valves should be Single Port for 12mm to 76 mm and for 108mm, it should be dual port. This is safety feature and must be added for quality assurance.	
76	Regarding Manufacturer Authorization Ref. Bed Head Panel, you had asked for specific authorization for this item, you are requested to kindly clarify whether you need BHP of indigenous or imported make. Bed Head Panels should be 3 channel/3 partition rows 1 channel /1 partition row for gas outlets (pre piped) 1 channel /1 partition row for electricals sockets (pre wired) 1 channel /1 partition row for Data sockets, nurse call, telephone (not pre wired) This is mandatory feature as per the standards. Please note same is specified in all other AIIMS & PMSSY tenders published by Hites& NBCC India Ltd AIIMS tenders.	3 Channel / 2 tier / 2 Channel/3 Partition rows
77	Volume-I, Page no. 3, Period of Completion: 6 Months We request the period of completion should be 9 months after approval of drawings. You would appreciate that quantum of this Project is large and arranging quantity of material takes time and resources. This is not mere supply of equipments items like Touch Screen Control Panel, Surgeon & Anaesthesia Pendant, OT Light with Camera & Monitor etc are imported items for which procurement only starts after approval of final drawing which is a time consuming process. We hereby request to kindly increase the completion schedule to 9 months.	Period of work completion – 7 Months from the date of letter of commencement
78	Volume-I, Pre-Qualification Criteria; Page no. 5	The experience Certificate for

	& 6, Clause no. 2.2 (ii) (ii) Experience of having successfully completed similar work during last 7 years ending last day of month previous to the one in which tenders are invited should be either of the following : We request the successfully completed experience certificate of similar work should from the last date of receipt of application for tender instead of last day of the month previous to the one in which tenders are invited. The reason is this is a prestigious and high value tender. The Experience should be relaxed enough, enabling bidders to arrange & place experience certificate of this magnitude. Therefore it is requested to kindly amend it to "Experience of having successfully completed similar work during last 7 years ending last day of receipt of tender".	completed similar works during last 7 years should be ending last date previous to the date of submission of tender.
79	Volume-I, Page no. 6, 2.2 (iii) Solvency Certificate Considering the estimated cost of the tender, we request M/s HSCC to be liberal & relaxed in terms of value of Solvency Certificate. We request 1 more option should be allowed i.e. Net Worth Certificate from Chartered Accountant. Sir, this qualification criteria is in practice in M/s HLL Infra Tech Services Ltd. Tenders. A copy is enclosed herewith for your ready reference at Page 1 to 3. The criteria should be: Average Net Worth: Eligible bidders should have an Average Net Worth (i.e. Assets minus Liabilities) for the last five years (i.e. from 2013-14 to 2017-18) of not less than 10% of the cumulative estimated value of work to qualify in tender. Please appreciate in this way the bidder has the option to either submit Solvency Certificate or Net Worth Certificate by Chartered Accountant. Considering the estimated cost of the tender the bidder should be allowed with an option of Net	Tender terms and conditions prevail

	Worth Certificate from Chartered Accountant or Solvency Certificate of 40% estimated cost. Needless to emphasise by this criteria more and more bidders will participate in the tender.	
80	Volume-III, SCC, Page no. 12, 12.4 Bid Security, Document Fee and EMD are exempted for NSIC registered Firm. As you are aware, to promote Micro Small & Medium Enterprise, Government of India had given the facility of NSIC Certification to the manufacturing firm. This may please be noted that this clause is only applicable for manufacturing of goods in India and not for procurement of Imported goods. If we go through the tender Specifications, there are imported items such OT Light, Pendant etc We request this clause should be suitably amended so that NO Bidder could take undue advantage of NSIC Certification and all the bidders should be treated on single platform. This has been done in earlier HSCC Sangrur, Shimla & Raebareli Tenders.	Tender terms and conditions prevail
81	Volume-III, Page no. SCC-38, Clause no. 21.0 Terms of Payment For purposes of estimating the contract value of works executed for certificate of payment, the following norms shall be followed: 1) 70% of the BOQ contract rates on delivery of equipments at site after inspection and passing on pro-data basis. 2) 20% of BOQ contract rates on satisfactory take over certificate by client after erection and installation, testing and commissioning of equipments on pro-data basis. 3) 10 % of BOQ contract rates after successful completion of trial run of 30 days from the date of handover to the client on pro-data basis. We request, the payment terms should be amended as:	1) 75% of the BOQ contract rates on delivery of equipment at site after Inspection and Despatch Clearance Report on pro-data basis. 2) 15% of BOQ contract rates on Installation of MGPS. 3) 10% of BOQ contract rates after final acceptance of system by the client

	1) 75% of the BOQ contract rates on delivery of equipment at site after inspection and passing on pro-data basis. 2) 20% of BOQ contract rates on satisfactory take over certificate by M/s HSCC after Installation. 3) 5% of BOQ contract rates after successful completion of trial run of 30 days from the date of handover to the client on pro-data basis. Please appreciate, as soon as the work order is received , the contractor has to initiate necessary actions for successful execution of the work order. Among the very important, Contractor need to place order to the respective suppliers along with 100% payment because supplier will not wait till the completion of the project. Here it is worthwhile to say that contractor do not get 75% payment as 5% amount gets hold for Security from Running Bill; 1% towards Labour Cess; 10% towards Performance Bank Guarantee, 12% towards GST & in case of delay in supply liquidated damages. After going through all this in the netshell a contractor gets approximately 50% amount at the initial stage. It is just a eye wash that 70% payment will be released on pro-rata basis. Initial payment is the lifeline to the contractors, which gives relief up to some extent. With regard to 20% payment, please be noted that commissioning and handing over has no difference. After commissioning by our experience, most of the sites are not ready for handover such as civil work is not complete, hospital staff is not available etc etc. Without any fault of contractor, he need to wait for the payment till the handing over takes place. Therefore this payment should be at the time of erection, installation. You will appreciate GST tax regime has been implemented since 1st July 2017 by Govt. of India. With the implementation of this system vis-a-vis in current payment structure, most of the projects gets delayed or handing over not taken by the Hospital/Institute/Department; because of this the balance payment gets stuck for longer duration. This way the liquidity get	

	blocked and input credit is lost.	
82	No Deduction from Running Bills We understand, a common ideology & practice has been adopted as that of M/s HLL Lifecare Ltd. in the present tender. While implementing all rules, we request there should not be any deductions with regard to retention of security amount etc.	Tender terms and conditions prevail
83	Part Completion Certificate We request Part Completion Certification should be accepted for Bidder's Evaluation in Tender. As it is project and sometimes due to unavailability of manpower or handover not taken by user it results in delay in commissioning for executed project. For instance, in one of the M/s HLL's Project of J&K Modular Operation Theatre, the complete Installation is done but commissioning is not done from last Four years as the Site is not Clear for Commissioning. Because of this the project remains incomplete. We therefore request Part Completion Certificate should be Accepted in Evaluation.	Tender terms and conditions prevail
84	Performance of the Company We request, to kindly ensure that the bidder who has executed the similar nature of work who has worked in Government Hospital through Government Agencies such as M/s HSCC (India) Ltd., M/s HLL Lifecare Ltd, UPRNN, NBCC etc., the performance of the company should be satisfactory.	Tender terms and conditions prevail
85	We understand, Imported means the place from where the goods are mined, cultivated, grown, manufactured, produced or processed and Outside India. Accordingly the certification of the product applies i.e. if it is UL Listed certification same shall be applicable to American Manufacturer only and European CE Certification same shall be applicable to European Manufacturer only. We requestthis criteria should be strictly applied and maintained.	Tender terms and conditions prevail

	It is further requested that the European CE Certified/UL listed Criteria for NFPA-99 STANDARD SHOULD BE "CERTIFICATION, WHEREVER APPLICABLE FOR ALL THE ITEMS of MEDICAL GAS".	
86	Page no. 1 & 2 1.1 Fully Automatic Oxygen Control Panel (Imported): Control panel should have Alarm reset switch/Mute /acknowledgement switch to control and monitor the alarm indications by the operator. Fully Automatic Oxygen Control Panel is defined as Automatic whereas at the bottom para it is mentioned "reset switch". Both the statements are contradicting to each other. Once the system is Automatic the reset word does not apply. The system will be automatic. All the features are available in Master Alarm this is duplicacy. We request, "Control panel should have Alarm reset/Mute /acknowledgement switch to control and monitor the alarm indications by the operator" should be deleted.	Control panel should have Alarm reset/Mute /acknowledgement switches to control and monitor the alarm indications by the operator" is deleted.
87	Page no. 2 1.2 Oxygen Manifold Supply System (without Cylinder) The Manifold should be hydraulically tested at 3500 psig. Please note as per NFPA standard, Manifolds are designed with a maximum inlet pressure of 3000 psig instead 3500 psig. You are requested to kindly amend the same and mention “The Manifold should be hydraulically tested at 3000 psig”. The working pressure is 2000 LPM, we are giving 1.1/2 time more pressure.	Manifolds are designed and tested with atleast inlet pressure of 3000 psig or as per standards mentioned in the technical specification of tender.
88	Page no. 3 1.3 Emergency Manifold Supply System (without Cylinder) The Manifold should be hydraulically tested at 3500 psig.	Manifolds are designed and tested with at least inlet pressure of 3000 psig or as per standards mentioned in the technical specification of tender.

	Please note as per NFPA standard, Manifolds are designed with a maximum inlet pressure of 3000 psig instead 3500 psig. You are requested to kindly amend the same and mention “The Manifold should be hydraulically tested at 3000 psig”. The working pressure is 2000 LPM, we are giving 1.1/2 time more pressure.	
89	Page no. 3 1.4 Oxygen Flow meter with Humidifier Bottle We request, Oxygen Flow Meter with Humidifier Bottle should be European CE with 4 digit notified no. /UL Listed/USFDA for better quality product.	BIS/US FDA/European CE Certified with 4 digit notified body number or American ETL/ UL listed
90	Page no. 9 & 10 2.1 Fully Automatic Nitrous Oxide Control Panel (Imported): Control panel should have Alarm reset switch/Mute /acknowledgement switch to control and monitor the alarm indications by the operator. Fully Automatic Oxygen Control Panel is defined as Automatic whereas at the bottom para it is mentioned "reset switch". Both the statements are contradicting to each other. Once the system is Automatic the reset word does not apply. The system will be automatic. All the features are available in Master Alarm this is duplicacy. We request, "Control panel should have Alarm reset/Mute /acknowledgement switch to control and monitor the alarm indications by the operator" should be deleted.	Control panel should have Alarm reset/Mute /acknowledgement switches to control and monitor the alarm indications by the operator" is deleted.
91	Page no. 10 2.2 Nitrous Oxide Manifold (without Cylinder) The Manifold should be hydraulically tested at 3500 psig. Please note as per NFPA standard, Manifolds are designed with a maximum inlet pressure of 3000 psig instead 3500 psig. You are requested to kindly amend the same and mention “The Manifold should be hydraulically tested at 3000 psig”.	Manifolds are designed and tested with at least inlet pressure of 3000 psig or as per standards mentioned in the technical specification of tender.

92	Page no. 10 2.3 Emergency Nitrous Oxide Supply System (without Cylinder) The Manifold should be hydraulically tested at 3500 psig. Please note as per NFPA standard, Manifolds are designed with a maximum inlet pressure of 3000 psig instead 3500 psig. You are requested to kindly amend the same and mention "The Manifold should be hydraulically tested at 3000 psig".	Manifolds are designed and tested with at least inlet pressure of 3000 psig or as per standards mentioned in the technical specification of tender.
93	Page no. 10 & 11 3. Medical and Surgical Air System (Package Unit - Imported) - Variation of + 10% is missing Please appreciate throughout the worldwide , the Models and the Capacity (LPM) of Air System are Pre-Defined by Manufacturers. Air System is not manufactured as per the requirement. Based on the Pre-Defined Air System, the Models are selected as per the requirement. Like in M/s HSCC (India) Ltd. Tender no. HSCC/SES/MGMS/2018 (IIT Kharagpur) Amendment no. IV dated 02.02.2018; Tender no. HSCC/SES/MGMS/PGI/SANGRUR/2019 Dated 09.01.2019 (PGI Sangrur); Tender no. HSCC/SES/MGMS /SSB/Shimla/2019 Dated : 31.01.2019; Tender no. HSCC/SES/MGMS /AIIMS/Raebareli/2019 Dated : 29.03.2019 variation of +/- 10% is given & like wise and M/s HLL Tenders such as SIX AIIMS for MGPS etc, + 10% variation is given. This +/- 5% / 10% variation is mentioned for ease in procurement. We therefore request, the Air Compressor plant capacity should be defined with variation of +/- 10% and same should be as per Standard.	+/-10 % to flow capacity of plant is permitted
94	Page no. 11 Stage 3: Bacteria filter for removing particles down to 0.01 micron.Purity should betested as per the American Pharmacopeia / European Pharmacopeia standard	Testing should be American Pharmacopeia/ European Pharmacopeia/Third Party likeSGS/Lloyd/TUV/ Bureau Veritas

	We request the testing should be American Pharmacopeia/ European Pharmacopeia/Third Party such as TUV etc, which will be more appropriate for bidders.	
95	Page no. 11, 12 3. Medical & Surgical Air System (Package Unit - Imported) Total air receiver capacity shall be atleast 50% (+/- 5%). You have asked 50% standby capacity of air receiver. This should be as per standard. Please amend it to corresponding standards quoted by the bidder'- The capacity should be as per NFPA 99/HTM 02 01 standards as done in Tender no. HSCC/SES/MGMS /AIIMS/Raebareli/ 2019 Dated : 29.03.2019; Tender Enquiry No. TC-1404/GT/Manifold/19-20/FSC [AIIMS Jai Prakash Narayan Apex Trauma Centre, New Delhi] Copy Enclosed at Page no. 4 to 5	The air receiver / vacuum reservoir capacity should be as per standard mentioned in the technical specification of tender.
96	Page no. 11, 12 3. Medical & Surgical Air System (Package Unit - Imported) We request the Air Compressor (Imported) should be factory fitted, factory tested, packed, pre-wired & pre-piped and tank mounted. As the plants are expensive items and that too imported the genuiness& authenticity of the product should be utmost priority.	Air Compressor should be factory fitted, factory tested, packed, pre-wired & pre-piped.
97	Page no. 13, 14 4. 4. VACUUM SYSTEMS (Package unit – imported) - Variation of + 10% is missing Please appreciate throughout the worldwide, the Models and the Capacity (LPM) of Vacuum System are Pre-Defined by Manufacturers. Vacuum System is not manufactured as per the requirement. Based on the Pre-Defined Vacuum System, the Models are selected as per the requirement. Like in M/s HSCC (India) Ltd. Tender no. HSCC/SES/MGMS/2018 Amendment no. IV dated 02.02.2018 (IIT	+/-10 % to flow capacity of plant is permitted

	Kharagpur); Tender no. HSCC/SES/MGMS /SSB/Shimla/2019 Dated : 31.01.2019; Tender no. HSCC/SES/MGMS /AIIMS/Raebareli/ 2019 Dated : 29.03.2019 variation of +/- 10% is given and M/s HLL such as SIX AIIMS Tender no. HLL/PCD/ PMSSY/AIIMS-II/14-RT-01/15-16 dated 31.12.2015 for MGPS etc, +/- 10% variation is given. This +/- 10% variation is mentioned for ease in procurement. We therefore request, the Vacuum plant capacity should be defined with variation of + 10% and same should be as per Standard.	
98	Page no. 13, 14 4. VACUUM SYSTEMS (Package unit – imported) 4.4 Bacterial Filters Bacteria Filters does not come in NFPA-99 Standard. The Bacteria Filter is in built in the vacuum system. Bacteria Filters comes in HTM Standard. We therefore request to kindly take a note of it and issue necessary amendment.	Shall be as per standard mentioned in the technical specification of tender.
99	Page no. 13, 14 4. VACUUM SYSTEMS (Package unit – imported) Vacuum reservoir shall have total volume of at least 100% of Primary plant output (+/- 5%). You have asked 100% (+/-5%) standby capacity of air receiver. This should be as per standard . Please amend it to corresponding standards quoted by the bidder'- The capacity should be as per NFPA 99/HTM 02 01/ DIN standards as done in Tender no. HSCC/SES/MGMS /AIIMS/Raebareli/ 2019 Dated : 29.03.2019; Tender Enquiry No. TC-1404/GT/Manifold/19-20/FSC [AIIMS Jai Prakash Narayan Apex Trauma Centre, New Delhi] Copy Enclosed at Page no. 4 to 5.	The air receiver / vacuum reservoir capacity should be as per standard mentioned in the technical specification of tender.
100	Page no. 13, 14 4. VACUUM SYSTEMS (Package unit – imported) Standby Plant Capacity We request the Vacuum (Suction) System (Imported), should be factory fitted, factory	Vacuum System should be factory fitted, factory tested, packed, pre-wired & pre-piped

	tested, packed, pre-wired & pre-piped and tank mounted. As the plants are expensive items and that too imported, the genuiness& authenticity of the product should be utmost priority.	
101	Page no. 15 8.0 AGSS Anesthesia Gas Scavenging System (Imported) :- We request the Anesthesia Gas Scavenging System (Imported), should be factory fitted, factory tested, packed, pre-wired & pre-piped and tank mounted. As the plants are expensive items and that too imported, the genuiness& authenticity of the product should be utmost priority.	Anaesthesia Gas Scavenging System should be factory fitted, factory tested, packed, pre-wired & pre-piped.
102	Page no. 16 9. DISTRIBUTION PIPING 8.1 Piping specifications We request the Medical Grade Copper Pipe should be Kite Mark. Here, Lloyd is 3rd party Inspection Agency whereas Kite Mark product and service quality certification mark which is owned and operated by the British Standards (BSI Group). It is a voluntary mark of manufacturers and service industries use to demonstrate safety and reliability. The product has been proven to meet the agreed high standard. We therefore request Copper Pipe should be kite marked.	Tender terms and conditions prevail
103	Page no. 17 11. AREA VALVE SERVICE UNIT : The Area Valve Service Unit should incorporate a ball valve with NIST/else connectors either side mounted in a lockable box with emergency access. The NIST Connection as mention is as per HTM Standard. We work on the Principals of NFPA-99 Standard, where no NIST connection is applicable. We therefore request NIST Connection should be deleted.	Shall be as per standard mentioned in the technical specification of tender.
104	Page no. 18, 19 12.1 Master Alarm System The emissions from alarms should conform	Shall be as per standard mentioned in the technical specification of tender.

	with EMC standard We work on the principals of NFPA-99 standard where EMC Standard is not applicable. This standard may be applicable to HTM Standard. Therefore we request you to please delete.	
105	Page no. 19 & 20 17. Horizontal/ Vertical Bed Head Panel Kindly clarify the no. of Horizontal and no. of Vertical Bed Head Panel required as there is costing involved in it.	All Bed Head Panels shall be Horizontal
106	Page no. 18, 19 12. Alarm System 12.2 Medical Gas Area Alarm We request the Alarm System should be Touch Type Alarm Technology – Please refer to the Tender no. HITES/PCD/AIIMS-IV/14/MGPS/18-19 dated 14.02.2019 for New AIIMS Gorakhpur and Bhatinda under PMSSY Phase-IV & V and Tender no. HITES/PCD/ PMSSY-IV/02/MGPS/18-19 dated 14.02.2019 for 7 Medical Colleges /Institutions getting upgraded under PMSSY Phase-IV; where in it is clearly defined DIGITAL. [Tender Papers enclosed for your ready reference].	Alarms shall be digitalor as per standards mentioned in the technical specification of tender
107	Page no. 24 13. The Medical Gas Pipe Line System must follow Single Standard any one only from: NFPA 99c/HTM02-01/ ISO 7396-1/DIN/EN except Copper pipe. As mentioned the products should of one standard only; kindly note rest of the medical gas items are Engineering Products. Items such as Ward Vacuum Unit, Theatre Vacuum Unit, Flowmeter with Humidifier bottle are Accessories and are not part of Medical Gas Pipeline System. The Standard applies from Pipe Distribution to Gas Outlets Worldwide and all the Companies works on this methodology.	The Medical Gas Pipe Line System except accessories like Ward Vacuum Unit, Theatre Vacuum Unit, Flow meter with Humidifier bottle must follow Single Standard any one from: NFPA 99c/HTM02-01/ ISO 7396-1/DIN/EN including Copper pipe.
108	Page no. 24 Bidder shall execute all required civil, electrical, plumbing, lighting, fire safety, exhaust systems,	Bidder shall execute following turnkey works in addition to the works mentioned in the technical specification of tender:

	false ceiling trap door/ cutout and repair(if any) and other works as maybe required for complete installation and trouble-free functioning as a part of the 'Civil Modification'. It is requested to Please elaborate all required civil, electrical, plumbing, lighting, fire safety, exhaust systems, false ceiling trap door/ cutout and repair (if any) and other works as maybe required for complete installation. Please specify the areas where these work has to be executed. Please mention quantity of all additional work required to be carried out by MGPS Vendor in tender BOQ	-Providing and fixing of Exhaust fan with IS marked Motor and louver for ventilation of MGPS Plant room and Manifold roomOnly Electrical Power supply will be provided at one location inside the Plant room by client. - Air-conditioning (Ductable with exhaust) to run 24x7 inside the Plant room and Manifold room. -Providing and fixing of cable from local alram panels (OTs & ICUs) - Construction of Overhead/Under Ground trench size approx 1.5mx1m as standard for interconnection between buildings/plant/manifold/etc block. - SITC of 3.5 core 185 sq.mm XLPE Cable as per IS: 7098 inside the gas manifold and plant room including Electrical Distribution Panel for plant & Manifold rooms. -SITC of Electrical Distribution Panel for Plant & Manifold rooms. - Providing of dedicated chemical earthing for MGPS Plant room as per IS: 3043 -Wiring for light point/fan point/exhaust fan point/call bell point with 1.5 sqmm FRLS PVC insulated copper conductor single core cable in surface/recessed medium plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc as required- Group-A - Point = 30, Group-B- Point = 2 and Group-C- Point = 15 Revised BOQ attached
109	**In volume V of your tender document (BOQ) , We request that the stand –by asked for the Air plant in the BOQ should be as per International standards(like**	Standby in Air Plant should be as per the standardsmentioned in the technical specification of tender.

	nfpa99,htm0201,din) followed by the Bidder/Company because different international standards have different protocals when it comes to the standby for the Air Plants. **Similarly in Air Receivers the capacity should also be as per the standard followed by the as different standards have different protocols when it comes to the Air receiver capacity for Air plants.** **Also a range of +/- of 10%, instead of +/- 5% be given for plant capacities as different companies may have different plant capacities.**	The air receiver / vacuum reservoir capacity should be as per standard mentioned in the technical specification of tender. +/-10 % to flow capacity of plant is permitted
110	**Similarly in Volume V (BOQ) of your tender document, the standby asked for the Vacuum plant is 100% whereas different International standards have different protocols for back up, so our submission is that the standby asked in Vacuum plants should be as per the standards followed by the bidder/Company in case of Vacuum Plants.** **Similarly in Vacuum Receivers the Volume should be as per the standard followed by the company as different standards have protocols for the volume of Vacuum receivers.** **Also kindly give the range of +/- of 10% instead of +/-5% for the plant capacities as different companies have different plant capacities and to reach the capacity asked in the tender documents.**	Standby in Vacuum plants should be as per the standardsmentioned in the technical specification of tender. The air receiver / vacuum reservoir capacity should be as per standards mentioned in the technical specification of tender. +/-10 % to flow capacity of plant is permitted
111	**On page no17 of TS, point no 11, please clarify whether the AVSU are with Valves or Without Valves, otherwise it will have effect in the Quantities of the Valves as in the BOQ .**	AVSU are with valves
112	On page no 22, you have asked Manufacturer Authorisation Form certificate for only 11, items	Tender terms and conditions prevail

	Our Submission is that kindly include Ward Vacuum Unit,Low flow ward Vacuum unit and Theatre Vacuum unit should also be included in the list so that you get quality products of a good standard and there are no compatibility issues among different products .	
113	On page 25 of TS(Technical Specification), point no 15, where it is written that The following systems/items must be from the same principal company/Manufacturer **Our submission is that Ward Vacuum Unit, Theatre suction Unit,Low flow Ward Vacuum unit should also be included in the list and they should be from the same manufacture so that there is no compromise on the Quality of the product and also there is no issue with the compatibility among the products.**	Tender terms and conditions prevail
114	In Pre Qualification Criteria on page no 5, point no (ii), you have asked that Experience of having successfully completed similar work during last 7years ending last day of month and Three similar* completed works costing not less than the amount equal to 40% of the estimated cost. **Or** Two similar* completed works costing not less than the amount equal to 50% of the estimated cost. Or One similar* completed work costing not less than the amount equal to 80% of the estimated cost **Our submission is that keeping the above criteria only one company will be fulfilling the above Qualification criteria, so to have more companies that will be eligible to bid the tender, the Pre Qualification criteria should be amended to**	Tender terms and conditions prevail

	Experience of having successfully completed similar work during last 10 years ending last day of month and **Three similar* completed works costing not less than the amount equal to 30% of the estimated cost.** **or** **Two similar* completed works costing not less than the amount equal to 40% of the estimated cost.** **or** **One similar* completed work costing not less than the amount equal to 50% of the estimated cost.**	
115	The time period to complete the Entire work given in the tender documents is 6 months **Our submission is that it should be amended to 8-10 months as it is a big work and cannot be completed in 6 months timeline.**	Period of work completion – 7 Months from the date of letter of commencement
116	**In vol II, clause no 10.1 where in of your tender document , you have asked for 10% of the contract price as Performance Security** **Our submission is that kindly amend it to 5% of the contract Price as 10% of contract price is a very big amount keeping in view of the Budget for the tenders.**	The Performance security shall be 5% of the estimated cost.
117	We also request to kindly amend the payment terms clause 21.0 of volume III of your tender document where it is written that the payment will be released as per 70/20/10 ratio **Our submission is to kindly amend the payment terms and it should be released inthe ratio of 80/10/10(80% on supply(pro rata basis),10 % on installation and remaining 10% on handover/Trial run).** **Also request to extend the dates of the tender atleast by 15-20 days days from the day of uploading of the amendments.** **Hope our request will be taken into account and the amendments will be uploaded so that every company has a chance to**	1) 75% of the BOQ contract rates on delivery of equipment at site after Inspection and Despatch Clearance Report on pro-data basis. 2) 15% of BOQ contract rates on Installation (Installation certificate to be provided with bill) of MGPS. 3) 10% of BOQ contract rates after final acceptance of system by the client

	bid/Participate in the tender process of your prestigious Institute.	
118	Technical specification : Page No. 15 Point no. 8 in Volume IV Anesthesia Gas Scavenging System (Imported) There is 2 different technologies i.e. Rotary Vane / Claw type mentioned in NIT specs which meets only NFPA99 guidelnes. Where as HTM/ISO 7396 standard allows "Blower" technology which is Oil Free produce better output with less energy consumption. Request you to please add "Oil Free Blower Technology" as per ISO 7396 standard. ISO 7396 standard is adopted by latest Indian Medical Gas Pipeline Standard	Tender terms and conditions prevail
119	Technical specification : Page No. 3 Point no. 1.4 in Volume IV Flow meter with Humidifier C. The flow meter body should be made of brass chrome plated materials. Request you to please add "Brass Nickle Chrome plated" along with "Brass Chrome plated.	Tender terms and conditions prevail
120	Technical specification : Page No. 19 Point no. 12.2 in Volume IV The area alarm should have a digital display of pressures LED display of pressure is allowed under HTM / ISO standard. The main purpose of the alarms is to have a audio visual display in case pressure goes out of the prescribed limits So, LED display can be visualized from disptance	Area Alarm should have digital display or as per standards mentioned in the technical specification

	and helpful for the nursing staff. So, kindly allow it.	
121	Technical specification : Page No. 11 Point no. 3.1 in Volume IV It should be Oil-Less Screw Compressors / Scroll Compressors Oil less screw compressors are high in capacity which is not suitable & design for the the hospital application. Oil less screw compressors are meant for the industrial application. The Medical Air Plant with oil injected screw compressors are permitted as per ISO 7396 / HTM guidelines and are suitable & design for the hospital application. ISO 7396 standard is adopted in the latest Indian Medical Gas Pipeline standard. So, kindly oil injected screw compressors as per ISO 7396 / Indian Medical Gas Pipeline Standard.	Tender terms and conditions prevail
122	Pre-Qualification Criteria: Page 5, Point 2.2 (ii) Three similar* completed works costing not less than the amount equal to 40% of the estimated cost. or Two similar* completed works costing not less than the amount equal to 50% of the estimated cost. or One similar* completed work costing not less than the amount equal to 80% of the estimated cost. The estimated cost of the project is very high and therefore, the present PQ condition will restrict bidder to qualify for this tender. The financial capability of the bidder can be checked thru other parameter like average turnover clause, a solvency certificate and networth of the company and these parameters are alreday listed in the tender. Many prestigious hospital like AIIMS, Delhi & tendering authorities like HITES has relaxed PQ condition for the other new AIIMS tenders to attract bidders.. So, we request you to relax it to 10% single order of estimated value and total cumulative 50% of the estimated value	Tender terms and conditions prevail

	project work to be completed during last 7 years	
123	5 1.2 COMPLETION PERIOD 6 months from the date of order of commencement Going by the outlets disposition chart of MGPS tender, the OT's are in three different floors- ground floor (02 nos), first floor (23 nos) and third floor (02 nos). Since AIIMS projects are done in phases, we request more clarity on readiness of the site to carry out the works within the stipulated time period and accordingly accept PBG to commence work.	Period of work completion – 7 Months from the date of letter of commencement
124	Pg. no. SCC 14, Clause 15 (c) The contractor must fill up price in Indian Rupees against each item of BOQ (Volume V) online both in words and figures in the blanks spaces provided in the respective columns. Request that imported items be allowed to be quoted in Euro/US dollar and payment through Letter of Credit be allowed. This will greatly reduce our financial stress.	Tender terms and conditions prevail
125	Pg. No. GCC Page No. 10 10.1 Performance Security The amount of the bank guarantee shall be 10 percent of the Contract Price Request that the performance guarantee be lowered to 5 percent of the contract price since the estimated cost is higher.	Performance security should be 5% of the estimated cost
126	Vol. IV Technical Specification Pg. No. 10 3. MEICAL AND SURGICAL SYSTEM Kindly provide tolerance 10 +/-10 % to flow	+/-10 % to flow capacity is permitted

	capacity.	
127	Pg. 11 3.1 It should be Oil Less Screw Compressors/Scroll Compressors to produce the plant output of {minimum Liters Per Minutes (LPM)} as mentioned in BOQ of respective institute as primary and same capacity as standby. Kindly include oil free screw compressor /oil free tooth compressor. According to NFPA99 guidelines, medical air and surgical air must be from two independent sources. Hence please add "If the bidder is quoting as per NFPA 99 then surgical air system and medical air system must be from completely separate sources /compressor systems" . This point is necessary since the tender requires third party	Combination or de-combination of Medical Air & Surgical Air system should be followed as per standards mentioned in the technical specification of tender.
128	Pg. 13 4 VACUUM SYSTEM Primary plant output (+/- 5%) capacity Kindly increase tolerance to +/-10%	+/-10 % to flow capacity is permitted
129	**Commercial criteria:** 1. Since most of the items belongs to US/UK/EUROPE origin. Request you to please consider products which belongs to US/UK/EUROPE origin those must be consider in their respective currency. 2. Major products like Air Compressors & Vacuum Systems is a customized product according to client requirement. And these systems dispatches from ''Ship Cargo'' due to highly in larger size. So, we request you to kindly accept 240 days instead of 180 days.	Tender terms and conditions prevail
130	**Pre-Qualification criteria:** 1. According to NIT, only Indian Experience have been asked. Whereas other India government organizations like HLL/HITES also accept Global Experience.	Tender terms and conditions prevail

131	Minimum Works of Similar Nature: Eligible bidders should have successfully executed globally in last Seven years from the date of tender opening, similar turnkey project of value, equivalent to or exceeding 50% of estimated schedule/tender value. Out of total 50% value, at least one single order for similar work of minimum 10% of the estimated schedule/tender value should have been executed globally. The details of requirement of cumulative schedule value of MWSN (minimum work of similar nature) are mentioned in Eligibility Table. The value of the executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of completion to last date of receipt of tenders. Example/Clarification : Similar projects means that Medical Gas Pipeline System meeting major technical parameters irrespective of material of construction.	Tender terms and conditions prevail
132	1. **''Air Compressor Modules''** ***As per NIT, Oil free Rotary Screw/Scroll compressors only accept.*** **a)** Atlas Copco also manufacturers ''OIL FREE ROTARY TOOTH'' compressors which is smaller version of Oil Free screw. Oil Free Screw requires for larger requirement & Oil Free Tooth designed for lesser demand especially for the Medical Application as compare to Oil Free Screw Tooth. The only difference between both the technologies is Element Size. And this technology is globally accepted. Our sincere request you to kindly refer the attached technical brochure which gives you more glimpse & advantages of the technology. **b) Standby Capacity-** As per NIT, there is specific 'standby capacity' is mentioned. Whereas every standard i.e. HTM/NFPA99/ISO 7396 has its own calculation for system stand by capacity. Request you to please accept ''system standby capacity'' as per relevant standards. ***- As per NFPA99 compliance- Secondary should be 25% of primary flow.*** ***- As per HTM 0201/ISO 7396-1 compliance- If there are 6 Vacuum Pumps, 2 Pumps should maintain as secondary.***	a) Tender terms and conditions prevail b) Standby in Compressed Air system should be as per the standardsmentioned in the technical specification of tender.

	c) Air Receiver Capacity- As per NIT, this is also specified for one standard. Air Receiver capacity and size must be design as per the relevant standards HTM/NFPA99/ISO 7396. For ex: HTM/ISO says Air Receiver capacity should be minimum of 50% flow whereas NFPA99 says i.e. 5.1.3.5.6 Medical Air Receivers be of a capacity sufficient to prevent the compressors from short-cycling. The above mentioned tender seeks a declaration from the manufacturer, (in case NFPA system is being offered) that the quoted system conforms to NFPA99 guidelines. The technical specifications of tender demands the Medical Air and Surgical Air be a combined package unit whereas NFPA99 doesn't allow common source for Medical Air and Surgical Air. In case a combined system is installed, it will fail to comply third party audit to conform to NFPA99. **NFPA 99 2005 edition** does not contemplate the use of combined air systems in which Medical Air and Instrument air derive from a single source. This is a violation of a basic principle of the standard which seeks to ensure that no one failure can deny supply, and in this case, it could deny supply to two systems. 1. According to NFPA99 edition 2005 **para no. 3.3.80** states that 3.3.80 Instrument Air. For the purposes of this standard, instrument air is intended for the powering of medical devices unrelated to human respiration (e.g., surgical tools, ceiling arms). Medical air and instrument air are distinct systems for mutually exclusive applications. Instrument air is a medical support gas that falls under general requirements for medical gas. (PIP) 2. Medical Air and Instrument are different sources as mentioned in **Para no. 5.1.3.3.1.3** 5.1.3.3.1.3 Any of the following system shall be permitted to be located together in the same room:	c) The air receiver / vacuum reservoir capacity should be as per standard mentioned in the technical specification of tender. Combination or de-combination of Medical Air & Surgical Air system should be followed as per standards mentioned in the technical specification of tender.

	1) Medical air compressor supply sources (see 5.1.3.5.3.) 2) Medical-surgical vacuum sources (see 5.1.3.6) 3) Waste anaesthetic gas disposal (WAGD) sources (See 5.1.3.7) 4) Instrument air compressor sources (See 5.1.3.8) 5) Any other compressor, vacuum pump, or electrically powered machinery 3. There are different set of quality air levels as per NFPA99 for Medical Air and Surgical Air Quality. 4. **System configuration** **The NFPA 99 guidelines defines different system configuration for medical and instrument air system and the guideline states different dew point levels for medical air system and surgical air system. It is self-explanatory that the medical and instrument/surgical air system must be from mutually exclusive and different sources.**	
133	2. **''Vacuum Pump Module''** a) NIT says only one technology that is **''Rotary Vane Oil Lubricated''**. Whereas other technologies are also available which is more energy efficient i.e. **''Rotary Screw Oil Lubricated and Dry Vane''** Request you to kindly allow these technologies. These kind of pumps delivers higher output in with less motor capacity as compare to **Rotary Vane Oil Lubricated**. I have enclosed product catalogue which is self explanatory about these technologies. b) None of the standards says that Primary system capacity is same as Secondary system capacity. Because as per your NIT Primary Plant output and secondary output is same which is bias the standard norms & regulations. - As per NFPA99 compliance- Secondary should be 25% of primary flow.	a) Tender terms and conditions prevail b) Standby in Compressed Air system should be as per the standardsmentioned in the technical specification of tender.

	- As per HTM 0201/ISO 7396-1 compliance- If there are 6 Vacuum Pumps, 2 Pumps should maintain as secondary. **Vacuum Receiver Capacity-** As per NIT, this is also specified for one standard. Vacuum Receiver capacity and size must be design as per the relevant standards HTM/NFPA99/ISO 7396. For ex: HTM/ISO says Air Receiver capacity should be minimum of 50% flow whereas NFPA99 says i.e. **5.1.3.6.3 Vacuum Receivers** be of a capacity based on the **technology of the pumps.**	The air receiver / vacuum reservoir capacity should be as per standard mentioned in the technical specification of tender.
134	**Master Alarm and Area Alarm Panel** According to NIT- only area alarm should have digital display/Touch screen type of pressures. We would request you to kindly accept **''touch screen panel''** only for both Master and Area Alarm Panel.	Alarm should be digital or as per standards mentioned in the technical specification of tender
135	**Page no. 3, Volume-I, Period of Completion: 6 Months** **Our Suggestion :**The period of completion should be 10 months. The important items of Modular Operation Theatres are imported and takes time to finally arrive in India and being big Project in the history of MOT the period of completion should be atleast 10 months. One should also consider the vicinity of the project. Therefore please extend the completion period to 10 months.	Period of work completion – 7 Months from the date of letter of commencement
136	**Page no. 5 & 6, Clause no. 2.2 (ii) Volume-I, Pre-Qualification Criteria; (ii) Experience of having** **successfully completed similar work during last 7 years ending last day of month previous to the one in** **which tenders are invited should be either of the following** : **Our Suggestion:** The completed Experience Certificate of similar work i.e. Modular Operation Theatre should be last date of receipt of application for tender. It should not be last day of month previous to the one in which tenders are invited. This is big project in the history of MOT therefore the qualification criteria should be relaxed, so that bidders like us could take part in the tender. **Therefore amend experience tolast date of receipt of application**	The experience Certificate for completed similar works during last 7 years should be ending last date previous to the date of submission of tender.

	for tender.	
137	**Page no. SCC-38, Clause no. 21.0, Volume-III, Terms of Payment** **Our Suggestion**: The terms of payment should be: A. 80% of the BOQ contract rates on delivery of equipment at site after inspection and passing on pro rata basis. B. 10% of BOQ contract rates on satisfactory take over certificate by client after erection. C. 10% of BOQ contract rates after successful completion of trial run of 30 days from the date of handover to the client on pro-data basis. The payment is important part of contract. The department should understand, to secure "A" payment, a contractor has to incur various expenses, such as payment to supplier/manufacturer, transportation cost, contract expenses such as PBG, Labour Cess, Security Charges, GST etc etc. After so much of struggle contractor gets payments. Therefore change in Terms of Payment is utmost important and should be looked upon.	1) 75% of the BOQ contract rates on delivery of equipment at site after Inspection and Despatch Clearance Report on pro-data basis. 2) 15% of BOQ contract rates on Installation (Installation certificate to be provided with bill) of MGPS. 3) 10% of BOQ contract rates after final acceptance of system by the client
138	**Page no. 6, Volume-I, 2.2 (iii), Solvency Certificate** **Our Suggestion**: We participate in Government/Private Tenders, floated by various Departments such as MES, PWD etc for similar nature of work. One such Department M/s HLL Infra tech service ltd'squalification criteria is: "Average Net Worth: Eligible bidders should have an Average Net Worth (i.e. Assets minus Liabilities) for the last five years (i.e. from 2013-14 to 2017-18) of not less than 10% of the cumulative estimated value of work to qualify in tender". This is big project in the history of MOT therefore the qualification criteria should be relaxed. The Solvency Certificate should be 10% of the estimated cost of tender or bidder should be allowed to submit Average Net worth Certificate for the last five years of not less than 10% of the estimated cost from Chartered Accountant. Therefore please amend the criteria for more participation.	Tender terms and conditions prevail
139	**Page 2- 1.2 Oxygen Manifold Supply System**	Manifolds are designed with at

	(without Cylinder) - The Manifold should be hydraulically tested at 3500 psig. **Page 3- 1.3 Emergency Manifold Supply System (without Cylinder) - The Manifold should be hydraulically tested at 3500 psig.** **Page 10 - 2.2 Nitrous Oxide Manifold (without Cylinder) - The Manifold should be hydraulically tested at** **3500 psig.** **Page 10 - 2.3 Emergency Nitrous Oxide Supply System (without Cylinder) - The Manifold should be** **hydraulically tested at 3500 psig.** **Our Suggestion**: It is requested to please note as per NFPA standard, Manifolds are designed with a maximum inlet pressure of 3000 psig instead 3500 psig. Please amend "The Manifold should be hydraulically tested at 3000 psig".	least inlet pressure of 3000 psig or shall be as per standard.
140	**Page no. 10 & 11 - 3. Medical and Surgical Air System (Package Unit - Imported)** **Page no. 13, 14 - 4. 4. VACUUM SYSTEMS (Package unit – imported)** **Our Suggestion**: We request +/- 10% variation should be provide as in all Government Tenders variation is allowed.	+/-10 % to flow capacity is permitted
141	**Page no. 11, 12 - 3. Medical & Surgical Air System (Package Unit - Imported) - Total air receiver capacity** **shall be atleast 50% (+/- 5%).** **Page no. 13, 14 - 4. Vacuum Systems (Package unit – imported) - Vacuum reservoir shall have total** **volume of atleast 100% of Primary plant output (+/- 5%).** **Our Suggestion**: The air receiver / vacuum reservoir capacity should be as per standard HTM 02 01/NFPA-99 Standard.	The air receiver / vacuum reservoir capacity should be as per standard mentioned in the technical specification of tender.
142	**Page no. 18, 19 - 12. Alarm System 12.2 Medical Gas Area Alarm** **Our Suggestion: We suggest the alarm system should be digital as this is the latest technology.**	Alarm system shall be digitalor as per standards mentioned in the technical specifications of tender document.
143	**Page no. 3 - 1.4 Oxygen Flow meter with**	BIS/US FDA/European CE

	Humidifier Bottle - **Our Suggestion**: The certificates of the product should be European CE Certified with notified 4 digit body no. / UL Listed.	Certified with 4 digit notified body number or American ETL/ UL listed
144	Quality standards-US FDA/European CE with 4 digit notified body no./ETL/UL etc for quoted model	Quality standards-BIS/US FDA/European CE with 4 digit notified body no./ETL/UL etc for quoted model
145	Operationand Maintenance of MGPS	The Estimated cost of MGPS Project is excluding of Cost of Operation and CMC Agreement for Operation and CMC shall be made between AIIMS and the contractor. AIIMS will award for Operation and CMC and make payment accordingly for the same. In addition to technical specification, details of manpower planning and management of Operation and Maintenance are mentioned in the attached sheet. Payment for Operation shall be half yearly basis after satisfactory completion of operation of the said period **Revised BOQ attached.**

All other terms & conditions remain unchanged.

Sr. Chief General Manager -I , HSCC (I) Ltd.
For & on behalf of Director, AIIMS, Nagpur

Added part under Technical Specification

Operation and Maintenance of Medical Gas Pipeline system at AIIMS

Scope of the work:

The bidder should ensure safe and reliable MGPS and their efficient Operation and use as per standards. Bidder will be responsible for operation and maintenance of MGPS as following:

- Medical oxygen System -Liquid oxygen system , Manifold and Control panels
- Nitrous oxide System-Manifold and Control Panel
- Medical and Surgical Air System-Compressor systems , Control panel, Dryers, Reservior, Filters etc
- Medical Vacuum System-Vacuum pumps, Control panel, Reservoir, Filters etc.
- Waste anaesthetics gas scavenging systems (AGSS)
- Carbon dioxide manifold system
- Copper pipelines
- Area Valve Service Units
- Isolation Valves
- Area Alarm panels and Master alarm panels
- Gas Outlets
- Bed Head Panels
- Pendants (If any)

Staff responsible for plant operation should be aware of the activities necessary to ensure the continuous safe operation of the system and action necessary to be taken in an emergency. The authorised person of MGPS provider in particular should take a lead in explaining to users the function of the system and should be adequately trained and informed about the system. Operator shall be responsible for safe cylinder handling, storage and transportation. Any work involving alterations, extensions or maintenance work on the system should be subject to the permit-to-work procedure as per standards.

Operation of Medical Gas Pipeline System

The contractor should provide manpower to operate the plant 24 x 7 and 365 days in a year. The duty of the worker in each shift should be limited to 8 hours per day.

Sl. No.	Designation	Shift-A	Shift-B	Shift-C	General Shift	Leave substitute	Total
1	Supervisor (Diploma in Mechanical/Electrical)With 5 years' Experience in installation maintenance & operation of MGPS				1		1
2.	Medical Gas Technicians (ITI)With 2year Experience in installation maintenance & operation of MGPS	1	1	1		1	3
3.	Helpers (8^{th} Standard or more with minimum 5 years' experience in installation, maintenance & operation of MGPS	2	2	2			6

The operators should ensure a trouble free seamless supply at the outlets at the required pressure. They should Monitor the consumption of O2& N2O on hourly basis and submit a consolidated report weekly, Timely intimation of cylinders refill due date, Timely intimation of oxygen plant refill due date based on consumption, and other service maintenance has to be done by the operator.

The contractors and operator should be fully aware of the safety regulation applied to Medical gas System. It is the responsibility of the contractor to conduct training sessions of adequate level to the workforce periodically to keep them fit for handling the plants and associated systems. All tests to be conducted by authorized persons, competent persons, quality controller etc have to be arranged by the contractor additionally as required. The contractor may refer to relevant part of standards for details.

Routine Activity

1. Oxygen plant

Checking oxygen pressure and liquid level
Entering details in the log book
Checking for leaks
Checking the change over
Intimating the preventive Maintenance one week ahead of the schedule
Supervising Maintenance jobs and checking reports

2 Manifold (Oxygen and Nitrous oxide)

Inspection of following
Checking for leakage
Checking inlet and outlet pressure
Checking the change over
Loading the cylinder as required
Replacement of defective parts
Notifying breakdown
Logging details

3 Compressed Air

Checking change over
Checking pressure
Checking the dryer and change over
Checking the receiver
Checking the filter

4 Medical Vacuum system

Checking vacuum pump
Checking vacuum level
Checking controls
Checking change over
Checking for drop in Vacuum level
Checking the filters

5 Medical Gas Lines

Checking for leakage
Checking the isolation valves
Checking the vacuum lines for block
Checking alarms
Replacing leaking lines

6 Bedhead Panels, Gas outlets, Pendants

Checking for leakage
Checking for defective valves
Replacement of defective parts