TENDER

FOR

SUPPLY INSTALLATION TESTING AND COMMISSIONING OF MEDICAL GAS AT MDICU POLYTRAUMA, TMC

PART-I
TECHNICAL BID

TENDER NO. HLL / ID / 14 / 58

November 2014

HLL LIFECARE LIMITED.
INFRASTRUCTURE DEVELOPMENT DIVISION

INDEX

SCHEDULE FOR SUBMISSION OF TENDER

EVENT	DATE
Starting date of sale of documents	13.11.2014
Last date of sale of documents	22.11.2014
Date of Pre bid meeting	18.11.2014 at 11.00 am at HLL Lifecare Ltd, (Bio Medical Office), TENRA 22,TC 24/606,Palathinkara, Thycaud,Trivandrum-695014 Ph: 0471 2330447
Last date and time for submission of completed Tender	24.11.2014 at 3:00 hrs
Date and time for Opening of Technical Bid	24.11.2014 at 3:30 hrs

The Tender documents containing the Notice Inviting Tender, Technical bid, General Conditions of Contract and Specifications & Bill of quantities for the works can be downloaded from the HLL web site www.lifecarehll.com from 13.11.2014 and the cost of tender document of **Rs.1575/-** (Rupees One thousand Five hundred and seventy five only) shall be submitted along with the tender in the form of DD taken in favour of HLL Lifecare Limited payable at Thiruvananthapuram.

The completed Tender should be submitted before the due date and time of submission at the following address.

Deputy Vice President (Technical),

HLL Lifecare Limited,

Infrastructure Development Division,

"Adarsh", T.C 6/1718(1),

Vettamukku, Thirumala PO,

Thiruvananthapuram- 695 006.

Phone - 0471 2365873/872
Fax - 0471 2368144

HLL LIFECARE LIMITED
(A GOVT. OF INDIA ENTERPRISE)

PRESS NOTIFICATION

HLL Lifecare Limited on behalf of Principal, Trivandrum Medical College invites sealed tenders on item rate basis in two bid system from experienced, reputed and eligible contractors for the following work.

Name of Work	Estimated Cost	Other details
Supply Installation testing and commissioning of Medical Gas at MDICU Polytrauma, TMC	Rs 35,85,000/-	EMD : Rs. 71,700/- Completion period : 2 Months Last date of submission of bid : 24.11.14 at 3.00hrs Date of Opening : 24.11.14 at 3.30hrs

The Tender documents containing the Notice Inviting Tender, Technical bid, General Conditions of Contract and Specifications & Bill of quantities for the works can be downloaded from the HLL web site www.lifecarehll.com from 13.11.2014 and the cost of tender document of **Rs.1575/-** (Rupees One thousand Five hundred and seventy five only) , shall be submitted along with the tender in the form of DD taken in favour of HLL Lifecare Limited payable at Thiruvananthapuram.

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Phone - 0471 2365873/872
Fax - 0471 2368144

HLL LIFECARE LIMITED
(A Government of India Enterprise)

NOTICE INVITING TENDER

1. Item rate tenders in two bid system are invited by HLL on behalf of Principal, Thiruvananthapuram Medical College invites from reputed contractors for the work for Supply Installation testing and commissioning of Medical Gas at MDICU Polytrauma, TMC

2. The estimated cost of the work is Rs 35,85,000/- (Rupees Thirty five Lakhs seventy four thousand only). This estimate is however, is given merely as a rough guide. The estimated cost of each component in Rupees is given below:

Sl. No.	Item	Estimated cost
1	**Medical gas pipe line system**	Rs 35,85,000/-
	Total	Rs 35,85,000/-

3. Agreement shall be drawn with the successful tenderer and the entire tender document, shall form part of the contract.

4. The time allowed for carrying out the work is 2 months.

5. Tenders, which should be placed in sealed envelope, with the name of the work and due date written on the envelopes, will be **received by the Deputy Vice President (Technical), HLL Lifecare Limited, "Adarsh", Vettamukku, T.C.6/1718(1), Thirumala PO, Thiruvananthapuram- 695006** or his authorized representative up to 2: **00 PM** on 24**.11.2014** and will be opened by him or his authorized representative in this office on 24.11.2014 at 3**.00 PM**.

6. Earnest Money of Rs. 71,700/-has been deposited along with the technical bid as follows. Either the full amount of Rs. 71,700/-shall be submitted in the form of a Demand Draft/ Fixed Deposit Receipt (FDR)/ Banker's cheque of a scheduled bank issued in favour of HLL Lifecare Limited, Thiruvananthapuram or Rs 35,850/- shall be submitted in the form of a Demand Draft/ Fixed Deposit Receipt (FDR)/ Banker's cheque of a scheduled bank issued in favour of HLL Lifecare Limited, Thiruvananthapuram. Remaining amount of Rs 35,850/- shall be submitted in the form of an irrevocable guarantee bond of any scheduled bank or State Bank of India, which should be placed in a separate sealed cover marked "Earnest Money" shall be submitted along with the tenders

7. Prospective applicants may request clarification regarding the Tender document on or before the last date of sale of documents. No request for clarification will be considered after.

8. The contractor shall be required to deposit an amount equal to 5% of the tendered value of the work as performance guarantee in the form of an irrevocable bank guarantee of any scheduled bank or State Bank of India in accordance with the form prescribed within 30 days from the date of issue of letter of indent/acceptance.

9. HLL Lifecare Limited does not bind itself to accept the lowest or any other tender and reserves to itself the authority to reject any or all the tenders received without assigning any reason. All tenders in which any of the prescribed condition is not fulfilled or with any condition including conditional rebate shall be summarily rejected.
10. "The evaluation of the Price Bid shall however be governed by the Purchase Preference Policy of the Government for products and services of Central Public Sector Enterprises".

11. Canvassing whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable for rejection.

12. HLL Lifecare Limited does not bind itself to accept the whole or any part of the tender. The tenderer shall be bound to perform the contract at the rates quoted.

13. The tender for the work shall remain open for acceptance for a period of 120 days from the date of opening of the tenders. If any tenderer withdraws his tender before the said period or issue of letter of acceptance/indent, whichever is earlier, or, makes any modifications in the terms and conditions of the tender which are not acceptable to HLL, then HLL shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid.

14. This Notice Inviting Tender shall form a part of the Contract Document. In accordance with the contract, the letter of intent/acceptance shall be issued first in favour of the successful Tenderer. On such communication of acceptance, the successful Tenderer/Contractor shall, within 30 days from such date, formally sign the agreement consisting of:-

    a) The Notice Inviting Tender, all the documents including additional conditions, specifications and drawings, forming part of the tender, and, as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.
    b) Agreement signed on non-judicial stamp paper as per Proforma annexed to the tender document.

Special Conditions

1) The invoice/ bills shall be raised in the name of "Principal, Thiruvananthapuram Medical College a/c HLL Lifecare Ltd "and the same shall be submitted to the HLL Engineer in charge.
2) TIN no. of HLL should not be mentioned in any of the documents as HLL is acting on behalf of the client in the capacity of consultant alone.
3) Warranty of the equipment has to be given in the name of Principal, Thiruvananthapuram Medical College.
4) The completed works shall be handed over to the client after due verification by HLL Engineer in Charge.

Deputy Vice President (Technical)
HLL Lifecare Limited.

INFORMATION & INSTRUCTIONS FOR APPLICANTS

1.0 GENERAL:

1.1 Letter of transmittal and forms for Technical Evaluation are given below.

1.2 All information called for in the enclosed forms should be furnished against the relevant columns in the forms. If for any reason, information is furnished on a separate sheet, this fact should be mentioned against the relevant column. Even if no information is to be provided in a column, a "nil" of "no such case" entry should be made in that column. If any particulars/query is not applicable in case of the applicant, it should be stated as "not applicable". The applicants are cautioned that not giving complete information called for in the application forms or not giving it in clear terms or making any change in the prescribed forms or deliberately suppressing the information may result in the applicant being summarily disqualified. Applications made by telegram or telex and those received late will not be entertained.

1.3 The application should be neatly type/written in English. The applicant should sign each page of the application.

1.4 Overwriting should be avoided. Correction, if any, should be made by neatly crossing out, initialing, dating and rewriting. Pages of the qualification document are numbered. Additional sheets, if any added by the contractor, should also be numbered by him. They should be submitted as a package with signed letter of transmittal.

1.5 Rate for all the items in the price bid shall be quoted in words and in figures. If there is any difference in rate quoted in words and figures, the amount quoted in words will be considered.

1.6 References, information and certificates from the respective clients certifying suitability, technical know how or capability of the applicant should be signed by an officer not below the rank of Executive Engineer or equivalent.

1.7 The applicant may furnish any additional information, which he thinks is necessary to establish his capabilities to successfully complete the envisaged work. He is, however, advised not to furnish superfluous

information. No information shall be entertained after submission of pre-qualification document unless it is called for by the Employer.

1.8 Any information furnished by the applicant found to be incorrect either immediately or at a later date, would render him liable to be debarred from tendering/taking up of work in HLL Lifecare Limited

1.9 Joint Venture firms are not allowed to participate in the tender.

2.0 METHOD OF APPLICATION:

2.1 If the applicant is an individual, the applicant shall affix his signature above his name type written in full along with his current address.

2.2 If the applicant is a proprietary firm, the application shall be signed by the proprietor above his name type written in full along with the full name of his firm and its current address.

2.3 If the applicant is a firm in partnership, the application shall be signed by all the partners of the firm above their full type-written names and current addresses or alternatively by a partner holding power of attorney for the firm. In the latter case a certified copy of the power of attorney should accompany the application. In both cases a certified copy of the partnership deed and current address of all the partners of the firm should accompany the application.

2.4 If the applicant is a limited company or a corporation, the application shall be signed by a duly authorized person holding power of attorney for signing the application accompanied by a copy of the power of attorney. The applicant should also furnish a copy of the Memorandum of Articles of Association duly attested by a Public Notary.

3.0 FINAL DECISION MAKING AUTHORITY.

The employer reserves the right to accept or reject any application and to annul the qualification process and reject all application at any time, without assigning any reason or incurring any liability to the applicants.

4.0 SITE VISIT

The applicant is advised to visit the site of work, at his own cost, and examine it and its surroundings by himself, collect all information that he considers necessary for proper assessment of the prospective assignment.

5.0 TENDER DOCUMENTS

5.1 The tender documents consisting of the following documents

1. Part-I- Technical Bid
2. Part-II – General Conditions of Contract
3. Part-III- Price Bid

5.2 The tenderer is expected to examine carefully all the contents of the tender documents including instructions, conditions, forms, terms etc. and take them fully into account before submitting the offer. Failure to comply with the requirements as detailed in these documents shall be at the tenderer's own risk.

6.0 SUBMISSION OF THE TENDER DOCUMENTS

The tender document shall be submitted in two parts

1. Part- I- Technical Bid & Part-II – General Conditions of Contract

2. Part-III- Price Bid

6.1 Part –I Technical Bid shall consisting of the following,

a. Earnest Money Deposit
Earnest Money Deposit, as detailed in clause 6 of NIT in original, placed in a separate sealed envelope and duly marked "Earnest Money Deposit".

b. Power of Attorney
Attested copy of Power of Attorney (in favour of the authorized signatory of the tenderer) to submit the tender.

c. Signed copies of Technical Bid, General Conditions of Contract & Drawings.

d. Letter of transmittal
The applicant should submit the letter of transmittal attached with this document.

e. Financial information
Applicant should furnish the Annual financial statement for the last three years (in Form "A").

f. Experience in works / similar works

Applicant should furnish the following:

A. List of all works of similar class successfully completed during the last three years (in Form "B").

B. List of the projects under execution or awarded (in Form "C").

C. Particulars of completed works and performance of the applicant duly authenticated/certified by an officer not below the rank of Executive Engineer or equivalent should be furnished separately for each work completed or in progress (generally as in Form "D").

g. Organization information

Applicant is required to submit the following information in respect of his organization (in Forms "E").

A. Name & Postal Address, Telephone & Fax Number etc.
B. Copies of original documents defining the legal status, place or Registration and principal places of business.
C. Valid VAT/Works Contract Tax registration with Sales Tax Department.
D. Names & Title of Directors and Officers to be concerned with the work, with designation of individuals authorized to act for the organization.
E. Information on any litigation in which the applicant was involved during the last five years, including any current litigation.
F. Authorization for employer to seek detailed references.
G. Details & Expertise of the Applicants

6.2 Part –II Price Bid shall consisting of the following

a. Completed Price bid

7.0 EVALUATION OF BIDS

1) The applicants will be evaluated in the following manner:

The eligibility criteria prescribed below in respect of experience of similar class of works completed and financial turn over etc. will first be scrutinized and the applicant's eligibility for qualification for the work be determined HLL, however, reserves the right to restrict the list of qualified bidders to any number deemed suitable by it.

2) Even though an applicant may satisfy the above requirements, he would be liable for disqualification if he has:

A. Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the pre-qualification document.

B. Record of poor performance such as abandoning work, not properly completing the contract, or financial failures/ weaknesses etc.

C. If the applicant, or any constituent partner in case of partnership firm, has been debarred/black listed or terminated for poor performance by any organization at any time or ever been convicted by a court of law, their application will be summarily rejected.

3) All tenderers who qualified based on Eligibility Criteria shall be informed and their price bids shall be opened. The price bids of the unqualified bidders shall be returned unopened.

8.0 SIGNING OF THE APPLICATION

8.1. The tenderer shall prepare one set of the document. The tender documents (Part I- Technical bid, GCC & Part II- Price Bid) shall be stamped and signed on all pages by the person duly authorized to sign on behalf of the Applicant. The power of attorney duly notarized and on a stamp paper authorizing the person to sign and act on behalf of the firm should be submitted.

8.2 The completed tender shall be without alteration, overwriting, interlineations or erasures except those to accord with instructions issued by HLL or as necessary to correct errors made by the tenderer.

All amendments/ corrections shall be initialed by the person/ persons signing the tender.

8.3 An authorized representative shall have the authority to conduct all business and incur liabilities related thereto for and on behalf of the applicant, during the process and thereafter.

9.0 SEALING AND MARKING OF APPLICATIONS

The Technical and Price bids shall be sealed in two separate envelopes, super scribed as PART-I Technical bid, GCC and PART-II Price Bid respectively. The two covers shall be sealed in a single large envelope and submitted on or before the last date and time for submission of the application. The envelopes shall be titled "Supply Installation testing and commissioning of Medical Gas at MDICU Polytrauma, TMC"

9.2 No responsibility will be accepted by the HLL for the misplacement or premature opening of a tender, not sealed or marked as per aforesaid instructions.

10.0 DEADLINE AND ADDRESS FOR SUBMISSION OF APPLICATIONS

10.1 Applications shall be submitted to HLL Lifecare Limited, by hand or through registered post or courier service at the address given below and not later than 2.00pm on 24.11.2014. .In respect of Applications received by post or courier, HLL shall not assume any responsibility for any delayed delivery. Documents submitted in connection with this tender will be treated confidential.

10.2 The Application should be addressed to

Deputy Vice President (Technical),

HLL Lifecare Limited
Infrastructure Development Division,
"Adarsh", T.C 6/1718(1),
Vettamukku, Thirumala PO,
Thiruvananthapuram- 695 006.
Phone - 0471 2365873/882
Fax - 0471 2368144

10.3 HLL may, at its discretion, extend the deadline for the submission of Tender, in which case all rights and obligations of HLL and the Applicants subject to the previous deadline shall thereafter be subject to the deadline as extended.

11.0 LATE APPLICATIONS

Application received after the dead line of submission of Application shall not be considered or opened under any circumstances.

12.0 VALIDITY OF APPLICATIONS

Application shall be valid for a period of 120 days from the last date of submission of Applications. HLL retain the right that in exceptional circumstances at its own discretion, it may ask the applicants to extend the validity of their application for a Specified period. The Applicant not

submitting the letter of extension of the validity period at that time shall not be further considered.

13.0 AMENDMENT OF TENDER DOCUMENTS

13.1 At any time prior to the deadline for submission of Applications, HLL either on its own or on request of the Applicant may amend the Tender Documents by issuing addenda.

13.2 An addendum issued shall be part of the Tender Documents and shall be informed to the bidders who have purchased the tender documents or shall be posted at the website of HLL as per the date specified in Schedule for submission of tender. The applicants are advised to check the websites specified above after the last date of issue of addendum and download the addendum issued, if any.

13.3 To give Applicants reasonable time to take an addendum into account in preparing their Applications, HLL may, at its discretion, extend the deadline for the submission of Applications.

14.0 WITHDRAWAL OF TENDERS

14.1 No modification or substitution of the submitted application shall be allowed.

14.2 A tenderer may withdraw its Tender after submission, provided that written notice of the withdrawal is received by HLL before the due date for submission of Applications. In case an applicant wants to resubmit his application, he shall submit a fresh application following all the applicable conditions.

14.3 The withdrawal notice shall be prepared in Original only and each page of the notice shall be signed and stamped by authorized signatories. The copy of the notice shall be duly marked "WITHDRAWAL".

15.0 TECHNICAL BID OPENING & EVALUATION

15.1 The covers containing Tender Security and Technical bid will be opened in the presence of the authorized representatives of bidders at the date and time prescribed in the schedule of submission of Application.

15.2 Incase the bidder's technical submittal is found non-responsive with the qualification requirements; the same is liable to be rejected. The price bid of bidders who do not qualify based on the evaluation of technical bids shall be returned unopened.

16.0 PRICE BID OPENING

The price bid of only the qualified bidders will be opened. Evaluation of the financial offer will be based on price quoted by the contractor. Any subsequent alteration in prices shall not be given any cognizance.

17.0 AWARD CRITERIA

HLL will award, the contract to the tenderer, whose tender has been determined to be substantially responsive, complete and in accordance with the Tender documents and whose total evaluated price for undertaking the entire project as per the tender documents is the lowest.

18.0 EMPLOYER'S RIGHT TO ACCEPT AND TO REJECT ANY OR ALL TENDERS.

18.1 The employer reserves the right, without being liable for any damages or obligation to inform the applicant, to:

A. Amend the scope and value of contract to the applicant.
B. Reject any or all of the applications without assigning any reason.

18.2 Any effort on the part of the applicant or his agent to exercise influence or to pressurize the employer would result in rejection of his application. Canvassing of any kind is strictly prohibited.

19.0 JURISDICTION

All disputes arising shall be subject to the jurisdiction of the appropriate court at Thiruvananthapuram, India and will be governed by the laws of India.

ELIGIBILITY CRITERIA

a) The applicant should have a minimum average annual turnover Rs. 10.75 lakhs for the last three financial years ending 31st March 2014. Also the firm shall be profit making for atleast two years in the last five financial years ending 31st March 2014.

b) The applicant shall have the eligibility criteria and experience as follows.

E **Experience in similar work during last 5 years ending last day of the month of October 2014**
Three similar works of value 40% or more of the estimated cost of work Or Two similar works of value 60% or more of the estimated cost of work Or One similar work of value 80% or more of the estimated cost of work

The applicant should submit successful completion certificate for the above works. The certificate issued by the client should submit the satisfactory completion certificate from any officers not below the rank of Manager /Project Manager or above.

c) The firm should have an established service centre operating in Kerala/Karnataka/Tamil Nadu.

d) The firms should be registered with Income Tax and Service Tax Authorities and copies of PAN and Service Tax Registration have to be submitted along with application.

e) There should be **two years warranty** for the entire MGPS system excluding oxygen flowmeter and ward vacuum unit.

f) The supplier should give the rates for AMC for the quoted item for 5 years after 2 years warranty period. Otherwise the bid is likely to be rejected.

Desirable

g) The applicant should have sufficient number of Technical and Administrative employees as per clause 36(i) of General Conditions of contract for the proper

execution of the contract. The applicant should submit a list of these employees stating clearly how they would be involved in this work.

LETTER OF TRANSMITTAL

From:

To

Deputy Vice President (Technical)
HLL Lifecare Limited
Infrastructure Development Division,
"Adarsh", T.C 6/1718(1),
Vettamukku, Thirumala PO,
Thiruvananthapuram- 695 006.

Sir,

Subject: Supply Installation testing and commissioning of Medical Gas at MDICU Polytrauma, TMC

Having examined the details given in the Tender press notice and Qualification documents for the above work, I/we hereby submit the qualification document and other relevant information.

1. I/We hereby certify that all the statements made and information supplied in the enclosed forms A to E1 and accompanying statements are true and correct.
2. I/We have furnished all information and details necessary for pre-qualification and have no further pertinent information to supply.
3. I/We submit the following certificates in support of our suitability, technical know-how and capability for having successfully completed the following works:

Name of work	Certificate from

Enclosures.

Seal of applicant
Date of submission

Signature(s) of Applicant

FORM 'A'

FINANCIAL INFORMATION

I. Financial Analysis – Details to be furnished duly supported by figures in balance sheet/profit & loss account for the last three years duly certified by the Chartered Accountant. (Copies to be attached).

Turnover

Years

2009-10	2010-11	2011-12	2012-13	2013-14

Profit

2009-10	2010-11	2011-12	2012-13	2013-14

Signature of Chartered Accountant with Seal

Signature of Applicant

FORM 'B'

DETAILS OF ALL WORKS OF SIMILAR CLASS COMPLETED DURING THE LAST FIVE YEARS ENDING LAST DAY OF THE MONTH OF FEBRUARY 2014

Sl. No.	Name of work/ project and location	Owner or sponsor	Cost in crores	Date of commencement as per contract	Stipulated date of completion	Actual date of completion	Litigation /arbitration pending /inprogress with details*	Name and address /telephone number of officer to whom reference may be made	Remarks
1	2	3	4	5	6	7	8	8	10

* Indicate gross amount claimed and amount awarded by the Arbitrator.

Signature of Applicant

FORM 'C'

PROJECTS UNDER EXECUTION OR AWARDED

Sl.No	Name of work/ project and location	Owner or sponsoring organization	Cost of work in crores	Date of commencement as per contract	Stipulated date of completion	Litigation /arbitration pending /in progress with details*	Name and address /telephone number of officer to whom reference may be made	Remarks
1	2	3	4	5	6	7	8	9

Signature of Applicant

FORM 'D'

PERFORMANCE REPORT OF WORKS REFERRED TO IN FORM "B" & "C"

1. Name of work /Project & Location

2. Brief description of Nature of Work:

3. Agreement No.

4. Contract Value.

5. Date of start

6. Date of completion
   (i) Stipulated date of completion
   (ii) Actual date of completion

7. Amount of compensation levied for delayed completion, if any

8. Amount of reduced rate items, if any.

9. Performance Report
   1) Quality of work
      Very Good/Good/Fair/Poor
   2) Financial soundness
      Very Good/Good/Fair/Poor
   3) Technical Proficiency
      Very Good/Good/Fair/Poor
   4) Resourcefulness
      Very Good/Good/Fair/Poor
   5) General behavior
      Very Good/Good/Fair/Poor

Dated:

Project Manager or
Officer of Equivalent Grade

'FORM 'E'

STRUCTURE & ORGANIZATION

1. Name & Address of the applicant
2. Telephone No./Fax No.
3. Legal status of the applicant (attach copies of original document the legal status).
   (a) An individual
   (b) A proprietary firm
   (c) A firm in partnership
   (d) A limited company or Corporation
4. Particulars of registration with various Government bodies (attach attested photocopy).

   Organization/Place of registration Registration No.
   1.
   2.
   3.

5. Names and Titles of Directors & Officers with designation to be concerned with this work.
6. Designation of individuals authorized to act for the organization.
7. Was the applicant ever required to suspend construction for a period of more than six months continuously after you commenced the construction? If so, give the name of the project and reasons of suspension of work.
8. Has the applicant, or any constituent partner in case of partnership firm, ever abandoned the awarded work before its completion? If so, give name of the project and reasons for abandonment.
9. Has the applicant, or any constituent partner in case of partnership firm, even been debarred/black listed for tendering in any organization at any time? If so, give details.
10. Has the applicant, or any constituent partner in case of partnership firm, ever been convicted by a court of law? If so, give details.
11. Has the applicant any valid VAT/Works Contract Tax registration with the Sales Tax Department?
12. Any other information considered necessary by not included above.

Signature of Applicant

FORM 'E-1'

DETAILS OF TECHNICAL & ADMINISTRATIVE PERSONNEL TO BE EMPLOYED FOR THE WORK

S. No.	Designation	Number available for this work	Name	Qualification	Professional experience and details of work carried out	Responsibility	Remarks
1	2	3	4	5	6	7	8

Signature of Applicant

Form G

SAP VENDOR CREATION TEMPLATE

Name of Vendor / Supplier		
Address for Communication		
Phone Number		
Type of Organisation		Company / Partnership / Proprietor
PAN Number [attach copies]		
TIN Number [attach copies]		
CST Number [attach copies]		
Service Tax Registration No [attach copies]		
Bank Details Name of Bank		
Account Number		
RTGS / NEFT [IFS] Code		
Branch Name & Address		

Name & Signature of Contractor

LIST OF OUTLETS-MDICU-POLYTRAUMA				
DESCRIPTION OF ROOM	NO OF OUTLETS			BEDHEAD PANEL
	OXYGEN	VACUUM	AIR	
MDICU -24 beds	48	48	24	24

Technical specifications

Supply, Installation, Testing, Commissiong of Medical Gas Pipe Line System on turnkey basis at Polytrauma Block,Trivandrum Medical College	
	GENERAL INSTRUCTIONS
	Bidder shall be responsible for design, supply, installation, testing and commissioning of MGPS System including Oxygen Manifold with automatic change over,Vacuum Plant and installation of pipeline system for Multi Displinary ICU in the second floor of poly trauma block .Bidder shall be responsible for installation medical gas copper pipeline for Air alsoBidder has to install air oulet as per BOQ.Air plant of 2000 LPM designed meet flow demand of entire hospital will be installed later.The bidders are required to survey the site before furnishing the quotations
	Vaccum plant is designed to support flow demand of the entire poly trauma block.Bidder shall be responsible for installation of main risers for Oxygen ,Vacuum and Air .Risers has to be terminated in all floors with suitable provision so that extensions of pipeline can be done at later stage.
	Hospital will provide electrical supply in the plant. The wiring inside the plant has done by the bidder. Control panel for Vacuum system plant system has to be supplied by the bidder.
	The bidder shall be responsible for the complete works including the submission of working Drawings, and isometric views, detailed work schedule and materials. Bidder shall be responsible for installation and commissioning of medical gas supply system in coordination with Consignee authorities and HLL. Bidder shall be responsible for free maintenance of Gas pipeline system, other plants and manifolds during warranty period
I	**OXYGEN SYSTEM**
1	**Oxygen Manifold**
1.1	**10+ 10** Size Oxygen Manifold should be configured with **2 x 10** nos. of class J Cylinders and should be suitable to withstand working pressure of 145 Kg/cm2, along with 20 nos. of high-pressure copper annealed tail pipes with end brass adapter suitable for oxygen cylinders and manifold.10 cylinder manifold bank as left side and 10cylinder manifold bank as right side complete with 20 nos. of pig tail pipes and 20 nos. of non-return valves.

1.2	Top frame should comprise of high pressure copper pipes of size 1/2" NB x 15 swg with high pressure brass fittings made of high tensile brass and connections through non- return valves; high pressure copper tail pipes, made of high pressure copper pipe of size 1/4" NB x 15 swg. The design of middle and bottom frames should be provided to fit both round and flat bottom cylinders safely. The manifold must be tested (hydraulically) at 150 bar and necessary test certificates should accompany along with the supply.
1.3	The manifold system should conform to IS 12827 standard
1.4	Should be upgradable to include more cylinder banks.
2	**Fully Automatic Oxygen Control Panel**
2.1	The Manifold control panel should be digital/analog, fully automatic type and switches from "Bank in Use" to "Reserve bank " without fluctuation in delivery supply line pressure.
2.2	The changeover system should be taken place pneumatically and without the need for external power so that even during power failure the changeover can be taken place automatically if the "Bank in Use" becomes empty. After the switch-over, the "Reserve bank " then becomes the "Bank in Use" and the "Bank in Use" becomes the "Reserve bank".
2.3	The control panel should have a microprocessor based digital /analog display panel.
2.4	The control panel should be incorporated with three large, red, illuminated LED displays for the Left Bank, the Right Bank and for the Supply Pressure. The control panel also should have six LED's, two Green for "Bank in Use", two Amber for "Bank Ready" and two Red for "Bank Empty".
2.5	Should have fully automatic self-contained shuttle-valve with no electrical power required for switching
2.6	Input power: 240 VAC, 50 HZ
2.7	Control panel display should be readable even in poor lighting conditions
2.9	Two limit switches for indication of bank in use
2.10	Dual line pressure regulators
2.11	Delivery flow capacity : Approx **1500 l/min** at 50-60 psi pressure
3	**Oxygen Emergency Reserve Manifold - 1 X 4 Manifold**
3.1	4 cylinder emergency manifold
3.2	Top frame should comprise of high pressure copper pipes of size 1/2" NB x 15 swg with high pressure brass fittings made of high tensile brass and connections through non- return valves; high pressure copper tail pipes, made of high pressure copper pipe of size 1/4" NB x 15 swg. The design of middle and bottom frames should be provided to fit both round and flat bottom cylinders safely.

3.3	The emergency reserve manifold shall provide an uninterrupted supply of medical oxygen from equally sized high pressure cylinder banks via a suitable arrangement of pressure regulators, providing a constant downstream nominal pipeline gauge pressure of 400 kPa.
3.4	Cylinder bank shall be fitted with an isolation valve to enable continuity of supply in the vent of primary supply failure.
3.5	The manifold control panel shall provide a minimum flow of 1**500 l/min** to the nominal 400 kPa medical oxygen pipeline system.
3.6	There shall be two separate stages of pressure regulation to enable high peak flow rates without a reduction in line pressure.
3.7	All pressure regulators shall be protected from over-pressurisation by relief valves that are vented to atmosphere.
3.8	The line pressure relief valve shall be provided
3.9	A non-return valve shall be provided within a line pressure manifold block and shall provide gas tight isolation in the event of any upstream component failure. The non-return valve shall automatically bring the emergency reserve manifold into service when the primary supply fails.
3.10	The emergency reserve manifold shall be provided with a lockable isolation valve to enable positive tamperproof isolation for maintenance. The emergency reserve manifold shall be supplied fully assembled and tested.
3.11	The manifold system should conform to IS :12827 standard.
II	**VACUUM PLANT**
1	**General**
1.1	The medical gas system contractor shall supply, install and commission the vacuum plant and associated equipment. This shall include a packaged duplex pump and reservoir(s) system complete with all necessary controls, drainage traps, bacterial filters and individual exhaust lines. The vacuum system shall in all respects comply with the recommendation made in HTM 2022/HTM 02-01 stanndards.
1.2	The medical vacuum pipeline system should be designed to maintain a vacuum of at least 300 mm Hg (40 kPa) at each terminal unit during the system design flow tests.List of vacuum outlets are provided to calculate flow requirements.
2	**Vacuum Pump Units**

2.1	The pump installation shall be duplex system consisting of **two identical rotary vane/Reciprocating/Rotary Screw/Scroll pumps** each of which shall be capable of independently producing designed systems flow rate. The pump shall be clearly marked with its performance, both its free air displacement and its volumetric throughput. Each pump should have capacity of minimum **2000 LPM**. Pump should be capable of providing a vacuum of not less than 650 mm Hg (87 kPa).
2.2	The driving motor shall directly drive the pump unit and it shall be manufactured in accordance with HTM 2022/HTM 02-01 recommendations.
2.3	Each pump shall have a built in non-return valve and pressure switch such that inadvertent reversal of the motor will not pressurize the reservoir or the distribution system.Pump should be of reputed make as per international standards.
2.4	The manufacturer of vacuum pump should be ISO 13485: 2003 certified.The copy of certificate should be attached alongwith technical bid.
3	**Control and Instrumentation**
3.1	The vacuum plant control panel shall consist of three separate compartments, two compartments shall hold the motor starters, isolators, ammeters, and hours run-meters, for each pump. The remaining compartment shall house the vacuum switches, status monitoring equipment, delay timer and interlock material (to prevent simultaneous starting of the pumps) and the duty selector switch with automatic change over.
3.2	Indication of vacuum level shall be provided for line vacuum and reservoir vacuum
4	**Reservoir Vaccuum**
4.1	A differential pressure indication shall be provided across the filter and drainage trap assemblies. These indications shall be provided by gauges of at least 100 mm diameter and calibrated in mm Hg. The working pressure of gauges shall not exceed 65% of the full scale range. The duplex installation shall be such that each pump is capable of operating in either the duty mode or the standby mode ensuring that wear is equal to both pumps..
4.2	The vacuum plant shall have alarm conditions as input to the alarm system and these shall be as follows:
	Pressure Fault caused by: Pipeline vacuum less than 360 mm Hg.
5	**Reservoir & Filters**
5.1	The reservoir shall be manufactured in accordance with HTM 2022/HTM 02-01 standard tested to a minimum pressure of 3 bar and the test certificate shall be supplied to the user.

5.2	The reservoir shall be provided with a manual drain valve. The reservoir shall be designed according to the recommendation made on HTM 2022/HTM 02-01.Reservior capacity should not be less than **2000 Litres.**
5.3	A bacterial filter shall be fitted between each pump and the reservoir, which shall have replaceable elements and each shall be capable of passing the total design flow. The filters shall be arranged such that one filter can be taken out for servicing without interrupting or restricting the vacuum service as a whole.
5.4	The filters shall have a penetration not exceeding 0.05% when tested by the sodium flames test in accordance with BS3928. Moisture traps shall also be fitted on each leg. These may be combined with the filter units. The traps shall have removable transparent drain bowls which can be removed without affecting plant operation. The bowls shall be sterilisable by using moist steam at 2.2 bar and 138 degree Celsius in porous load sterilizer.
6	**Vacuum Pump Exhaust**
6.1	The exhaust gas shall be discharged outdoors above the roof level of the plant room, and not in the building in the immediate vicinity, windows and air intakes in order to ensure that the discharge does not constitute a health hazard. Each pump shall have its own exhaust line and each shall be fitted with suitable drain valves and transparent jars at the lowest points. The outlets shall be suitably protected to prevent the ingress of rain, and wind pressure. A weatherproof notice shall be provided at the discharge points which states:"Medical Vaccuum Discharge Point – DO NOT OBSTRUCT." The exhaust system shall be designed so that the back pressure does not exceed 80 mm Hg (1.0 psi) at the design flow rate. A length of flexible pipe work shall be included before the exhaust passes through a wall in order to isolate the building structure from pump vibration. Antivirbation mountings shall be used for the pumps.
7	**Scope**
7.1	The sub-contractor of Medical Gas shall supply, install, test and commission a complete and fully operational medical vacuum plant as per recommendation of HTM 2022/HTM 02 -01 standard.
III	**Oxygen flow meter with Humidifier Bottle**
1	Back Pressure Compensated flow meter should be of accurate gas flow measurement with following feature .
2	Control within a range of 0 – 10 LPM.
3	It meets strict precision and durability standard.
4	The flow meter body is made of brass chrome plated materials.
5	The flow tube and shroud components are made of clear, impact resistant polycarbonate.

6	Inlet filters of stainless steel wire mesh to prevent entry of foreign particles.
7	The humidifier bottle should be made of unbreakable polycarbonate material and autoclavable at 121^{O} Centigrade temperature
8	Should be supplied with suitable connector probe to match with Oxygen outlets.
IV	**Ward Vacuum Unit**
1	Should be of light weight and compact. The unit will consist of-
2	A regulator with 0 – 760 mm gauge.
3	A 600 ml. reusable collection jar, made of unbreakable poly carbonate /poly sulfone material and fully autoclavable at 121 degree centigrade.
4	A wall bracket for mounting the jar assembly on the bedhead panel.
5	The vacuum regulator with instant ON / OFF switch should be infinitely adjustable and with vacuum gauge which will indicate suction supplied by the regulator. Safety trap must be provided inside the jar to safeguard the regulator from overflowing.
6	Should be supplied with suitable connector probe to match with Vacuum outlets.
V	**Gas/Vacuum Outlets**
1	Front loading type terminal outlets should be designed to dispense medical gases (or an inlet for medical vacuum) to the secondary equipment (flow meters, Surgical Tools, Suction regulators, etc.) at the point of use and it should be gas specific so that secondary devices cannot be "attached" to the wrong gas.
2	When not in use, the gas should be in a non-flowing state within the Outlet (Terminal unit) sealed by "O" ring.The adapter when inserted pushes the poppet inside and the gas starts flowing and sealing is ensured by the "O" ring or a seat.
3	The outlets should Quick Connect Type . The outlets should have following features:
4	Push to insert and press-to-release mechanism for probes.
5	Allows plugging of probes from front.
6	Self-sealing valve on disengaging the probe (Quick disconnect)
7	Smooth quite action.
8	Non return valve for on line servicing/ repairing
9	Indexed to eliminate inter-changeability of gas services
10	Color-coded gas specific front plate
11	Flow rate exceeds the requirements of ISO 9170 – 1.
12	Totally leak proof, safe & easy to operate
13	Configurations possible: surface, flush & Bead-head.

14	The terminal outlets should comply with ISO 9170-1:2008 certification
VI	**Copper Pipes**
1	Solid drawn, seamless, deoxidised, non- arsenical, half hard, tempered and degreased copper tubes manufactured to metric outside diameters and should have mechanical properties in accordance with HTM 2022/HTM 02-01.
2	All indigenous copper pipes should be inspected and certified by Third Party Inspecting Agency Lloyds' Register Services before despatch and the pipes will be delivered capped at both ends. Imported Copper pipe should have equivalent certification. Copper Fittings should be as per. HTM 2022/HTM 02-01. All plastic saddles will have brass screws.
a	54 mm OD X 1.2 mm thick
b	42mm OD X 1.2 mm thick
c	28mm OD x 0.9 mm thick
a	22mm OD x 0.9 mm thick
b	15mm OD x 0.9 mm thick
c	12mm OD x 0.7 mm thick
3	Rates of above mentioned copper pipes should be mentioned in the price bid so that variable quantity can be calculated and paid accordingly. Valves and lines additional sizes if required, may be quoted as optional.
VII	**VALVES – LINE VALVES**
1	Line Valves shall be provided for use in plant rooms and to facilitate the isolation of areas or areas where area zone valve are unnecessary. These shall be of the ball valve type and shall be constructed of a nickel plated brass body, PTFE seats and brass chrome plated ball. The valve shall be operated by a manual operating lever by 90^{o} turn . All medical gas line ball valves shall provide a full bore flow and shall be cleaned for oxygen service and fully tested. The valve assembly shall terminate in copper stub pipes to enable brazing directly into the distribution system using the flux less brazing technique. A locking device shall be provided to lock the valve in either the fully open or fully closed position. Line valves shall be located in readily accessible areas of ducts and shafts, however care should to ensure safety to prevent danger from leakage.Line valve installation should be carried out as per HTM 2022/HTM 02-01 standards.
	Valve Size are indicated
a	15mm Ball Valve
b	22mm Ball Valve
c	28 mm Ball Valve
a	42 mm Ball Valve

2	Number of Valves are mentioned in BOQ.Unit rate should be quoted in the price bid so that variable quantity can be calculated and paid accordingly. Valves and lines additional sizes if required, may be quoted as optional.
VIII	**Area Valve Service Units (AVSU)**
1	The Area Valve Service Unit (AVSU) shall provide area isolation facility for use either in an emergency or for maintenance purposes. It shall be possible to insert a physical barrier (spade) on either side of the valve when required without the necessity to totally dismantle the line valve. The area valve service unit shall be fully gas specific, permanently labeled to identify the Medical gas service and shall incorporate gas specific NIST connections to BS5682:1984 on each side of the line valve. Pressure gas services (not vacuum) NIST connections shall incorporate self sealing valves which are normally held closed by gas pressure.
2	The line valve shall be brass ball valve with PTFE seats operated by a quarter turn handle with a pin to prevent over travel in both directions. The ball valve shall be connected by pipes to the distribution system by either top, bottom, side or rear entry pipes.
3	The assembly shall be housed in a valve box which shall be capable of both surface or concealed mounting incorporate a hinged lid which opens through 180 degree, to provide maximum access. The hinged door shall be fitted with a glass panel to enable a visual check on the line valve selected position and for access in an emergency.
4	Area or Zone identification facilities shall be provided. The hinged door shall normally be locked closed and area zone valves installed adjacent to each other shall be operated by different key lock combinations.
5	The area zone valve assembly shall provide for natural ventilation to prevent any localized build up of gas within the valve box.
6	The valve box and door shall have a white finish. Area/Zone service units shall be fitted in readily accessible locations adjacent to the area which they serve and shall be clearly labeled to indicate function, valve position and area. Each valve box shall accommodate only one valve, several valve boxes may however be grouped together within a single housing.
7	**Scope:**
	a. The contractor of Medical gas shall supply, install, test and commission all safety required for the medical gas system safety relief valves as specified in HTM 2022 /HTM 02-01 standards.

	b. The sub-contractor of Medical Gas supply shall install test and commission all area valve and service unit AVSU in the hospital as shown on the drawing and as specified in HTM 2022 /HTM 02-01, to all necessary equipment, pipe work fittings, boxes, accessories, connectors pressure gauges, switches including the zone pressure alarm panel and all related electrical works to have complete and full operational AVSU unit. The contractor shall clearly specify the number of zone wall units comprising of AVSUs area alarm panel pressure switches and pipe works.
	c. The sub-contractor of Medical Gas shall supply, install, test and commission all required valves, check valves for the medical gases and vacuum system.
IX	**Area Line Pressure Medical Gas Alarm**
1	The area line pressure alarm should be micro-processor based digital / analog which monitor the pressures of medical gases like oxygen, compressed air and vacuum levels at a specific area of piped gas system in the hospital. The electronic circuitry should be such that if the pressure / vacuum in the gas pipeline drops below the present limit, the equipment should give an audio-visual alarm. Visual alarm should remain active even after pressing of "Mute" button. It should come to normal condition only when gas pressure / vacuum return to normal level.
2	Three Channel Alarm for Oxygen, Air & Vacuum should have the following features:
3	Digital / Analog Display of Line Pressure for all the services with factory calibrated pressure sensors.
4	Color coded LED Display of Line pressure status (High – Caution – Normal – Caution– Low)
5	Audible Alarm for High & Low pressure condition.
6	Test and Alarm Acknowledge (Mute) facility.
7	Small and compact design.
8	Mounted on a powder coated MS box.
9	Nut & Nipples should be provided for connection with Pneumatic supply line.
10	Low voltage internal operation for safety with input power supply of 230 V,50 Hz AC.
11	Wall mounting facility.
12	High / Low indication with Test facility
X	**INSTALLATION & TESTING**

1	Installation of piping shall be carried out with utmost cleanliness. Only pipes, fittings and valves, which have been degreased and brought in polythene sealed bags, shall be used at site. Pipe fixing clamps shall be of non-ferrous or non-deteriorating plastic suitable for the diameter of the pipe.
2	All pipe joints shall be made using flux less brazing method. Inert gas welding technique must be used by passing Nitrogen gas at the flow of 6 LPM (min.) inside the copper pipes during silver brazing in order to avoid carbon disposition inside the copper pipes. All joints should be made of copper to copper and shall be brazed by silver brazing filler material without flux.
3	Adequate supports shall be provided while laying pipelines to ensure that the pipes do not sag. The spacing of supports shall not exceed 1.5 meter for any size of pipe. Suitable sleeves shall be provided wherever pipes cross through walls / slabs. All pipe clamps shall be non-reactive to copper.
4	After erection, the pipes should be flushed with dry nitrogen gas and then pressure tested with dry nitrogen / Medical Air at a pressure equal to twice the working pressure for a period of not less than 24 hours. All leaks and joints revealed during testing should be rectified and re-tested till the pressure in pipes stands for at least 24 hours.
5	Installation, Testing and Commissioning of Medical gas pipelines should be carried out as per HTM 2022/HTM 0201 standards.
6	All the piping system should be tested in the presence of the engineer or his authorized representative.
XI	**Horizontal Bed Head Panel**
1	It should be made of High Strength Anodised Aluminium Profiles with single railing and should have the following features :
2	Should be powder coated as per the customer's choice.
3	The panel should be designed to have provision to accommodate the following:
a	**Gas Outlets -** Provision for two Oxygen ,two Vacuum and One air outlets
b	**Electrical Sockets / Switches**-at least 6 nos. with individual switches
c	**Data Socket**-RJ 45-01 no
d	Should be supplied with monitor mounting solution
e	Should be supplied with Nurse call switch mounting option.
f	Should be supplied with clamp for mounting ward vacuum unit.
XII	**Colour Coding**
1	All exposed pipes should be painted with two coats of synthetic enamel paint and colour codification should be as per British standards.

a	Oxygen Line--------White Colour
b	Air Line----------Black and White
c	Vacuum Line---------Yellow Colour
	APPROVED MAKES
	Copper tube - Mehta tube
	Vacuum Pump - Ingersoll Rand/Anest Iwata

NOTE: Medical air plant system is not included due to limited budget, air out lets and pipe lines are included. Air plant system can be added later on. Currently consignee has to buy ventilator with compressor for use which are going to be used in MDICU