

**SAFDARJUNG HOSPITAL & VMMC
NEW DELHI**

TENDER

FOR

**PROVIDING
OPERATION & MAINTENANCE SERVICES
AT**

**EMERGENCY BLOCK
SAFDARJUNG HOSPITAL & VMMC
NEW DELHI**

**CONSULTANT
HSCC (INDIA) LTD
(A GOVERNMENT OF INDIA ENTERPRISE)
Plot No. 6-A, Block-E, Sector-1, NOIDA (U.P.) – 201 301
PHONE: 0120-2540153 FAX: 0120-2542447
URL: <http://www.hsccltd.co.in>**

**SAFDARJUNG HOSPITAL & VMMC
New Delhi**

Tender No. HSCC/MAINT/ SJH-EB/2017

Dated: 09.04.2018

Safdarjung Hospital & VMMC, New Delhi through HSCC (India) Ltd invites sealed tenders, from eligible contractors/ firms for providing Operation and Maintenance Services for the following works:

Sl. No	Name of Work	Estimated Cost (Rs.)	EMD (Rs.)	Period of Completion	Sale of Tender	Date of Submission & Opening of bid.
1.	Operation & Maintenance of services at Emergency Block at Safdarjung Hospital, New Delhi.	450 Lakhs	9 Lakh	12 Months	11.04.2018 to 24.04.2018 Upto 13:00 Hrs	24.04.2018 by 15:00 Hrs & opening of bid 24.04.2018 at 15:30 Hrs

For details in regard of eligibility, bid security, purchase & submission of bid document, please refer detailed NIT on HSCC website <http://www.hsccltd.co.in> or e-tender portal <http://www.tenderwizard.com/HSCC> or www.eprocure.gov.in or www.cpp.nic.in Pre bid meeting shall be held on 16.04.2018 at 11:00 Hrs at the office of HSCC (India) Ltd, E(6) A, Sector-1, Noida-U.P. Safdarjung Hospital/HSCC reserves the right to accept or reject any application without assigning any reason or incurring any liability whatsoever.

Prospective bidders are advised to regularly scan through HSCC website as corrigendum/amendments etc, if any, will be notified on the company's website and separate advertisement will not be made for this.

**MS Safdarjung Hospital
New Delhi**

**SAFDARJUNG HOSPITAL & VMMC
New Delhi**

Tender No. HSCC/MAINT/ SJH-EB/2017

Dated: 09.04.2018

NOTICE INVITING TENDER (NIT)

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The bidder would be required to register at HSCC e-tender portal <http://www.tenderwizard.com/HSCC>. The bid document is available online from **11.04.2018** for submission of the bids, the bidder is required to have Digital Signature Certificate (DSC) from one of the authorized Certifying Authorities

Complete set of Bid documents has been made available at HSCC website <https://www.hsccltd.co.in> and e-tender portal <http://www.tenderwizard.com/HSCC>. The interested Contractors/firms may download and check their eligibility for the work. Interested contractors/firms may also see the complete set of Bid documents which have been kept at the dispatch counter of HSCC corporate Office at E-6(A), Sector 1, Noida (UP) – 201301.

The documents to be uploaded online are listed at Enclosure V

The Bid document fee is Rs.5000/- (Rs. Five thousand Only) (non-refundable) payable in the form of Cash/Demand Draft in favour of HSCC (India) Ltd. payable at New Delhi/Noida. Interested applicants/Contractors/Firms may either (i) purchase the Bid document in person from the office of HSCC (India) Ltd.,Noida on any working day as mentioned above on written request mentioning the name & description of work against payment of Bid Document fee as above, or (ii) download the document from the website(s) as mentioned above. In case the Bid document is downloaded from the website, the bidder should submit the Bid document fee as above along with the Bid in Envelope No.1.

Complete set of Tender Documents comprising of Volume- I, II has been made available at e-tender portal <http://www.tenderwizard.com/HSCC> Interested applicant contractors/firms may like to attend the pre bid meeting which will be held at 11:00 hrs at Corporate Office of HSCC (India) Ltd on **16.04.2018**.

The Bids should be submitted complete in all respects along with the details of Bid document fee (in case of Bid documents downloaded from website(s)) and Bid security on or before the due date and time as mentioned above at HSCC Corporate Office, E-6(A), Sector 1, Noida – 201301.

Safdarjung Hospital/HSCC reserves the right to accept or reject any application without assigning any reason or incurring any liability whatsoever.

Prospective bidders are advised to regularly scan through HSCC e-tender portal <http://www.tenderwizard.com/HSCC> as corrigendum/amendments etc., if any, will be notified on this portal only and separate advertisement will not be made for this.

**MS Safdarjung Hospital
New Delhi**

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INSTRUCTIONS TO THE TENDERERS

1. Sealed offers under two bids system in the prescribed forms are invited from eligible tenderers for providing Operation and Maintenance services detailed in this bid document.
2. The amount of earnest money deposit (EMD) shall be Rs. 9,00,000/- (Rupees Nine Lakh only) in the form of DD/Pay Order from a scheduled bank drawn in favour of HSCC(I) Ltd. payable at New Delhi/ Noida or Bank Guarantee in favour of "HSCC (India) Ltd." as per Form B, having validity for six months or more from the last date of receipt of tenders or any extension thereof. The Bank guarantees should be irrevocable and operative for a period of six months or more from the last date of receipt of tenders or any extension thereof.
3. Tender form shall be complete in all respect. Incomplete tenders or tenders without E.M.D shall be treated as invalid.
4. Last date of submission of tender is 24.04.2018 upto 15.00 Hrs
5. Date and time of opening of tender is 24.04.2018 at 15.30 Hrs.
6. Each and every page of the tender documents should bear the stamp and signature of the authorized representative. Format I & II enclosed shall be filled without exception. The tenderer shall also enclose the latest Income Tax Clearance Certificate and proof of VAT/works Contract Tax Registration/GST Registration where applicable.
7. A power of attorney in favour of person signing the bid should also be submitted.
8. The rates for each and every item shall be quoted in Figure and words. In case of any discrepancy in rates, the rates written in words shall prevail.
9. The envelope containing tender document shall be sealed and bear the name of work and the name and address of the tenderer.
10. The Competent Authority of SAFDARJUNG HOSPITAL/ HSCC (I) Ltd., reserves the right to accept or reject any tender or all tender without assigning any reason.
11. Conditional tenders are liable to be rejected.
12. The site for the work is available and can be seen on any working days during office hours by contacting HSCC/Safdarjung Hospital New Delhi.

Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A Bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The Bidder shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a Bid by a Bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc., if any, will be issued to him by the Employer and local conditions and other factors having a bearing on the execution of the work.

13. The tender for the work shall remain open for acceptance for a period of one hundred twenty days (120 days) from the date of opening of tender,
14. These instructions shall form a part of the contract document.
15. The EMD of unsuccessful tenderers shall be refunded within one month after the award of work to the successful tenderer.
16. Rates quoted shall be firm and fixed and are inclusive of cost of manpower, material, machinery, tools and plant consumable etc., complete and include all taxes (including, GST), duties and levies, insurance etc. no escalation of whatsoever nature shall be payable.
17. The successful Bidder would be required to establish its office within the site of the work in the space provided by the Safdarjung Hospital.

18. Eligibility criteria:

The applicant should meet the following minimum criteria for prequalification:

1. The Experience should be in the name of bidding company and not in the name of subsidiary/ associate/ group company etc.
2. Experience of having successfully completed works during the last seven years ending previous day of last date of submission of tender :
 - A.
 - i. One similar completed work of value not less than the amount equal to 80% of the value for electrical works or Centralized HVAC works or complete building works
 - ii. Two similar completed work of value not less than the amount equal to 60% of the value for electrical works or Centralized HVAC works or complete building works
 - iii. Three similar completed work of value not less than the amount equal to 40% of the value for electrical works or Centralized HVAC works or complete building works.

“Similar Works” shall mean a Project comprising Construction of any Multistoried RCC framed structure (minimum G+3 storied) including internal & external finishing & services like plumbing, electrical, HVAC & external development works etc of value not less than Rs 165 Crores or Execution of Electrical works of value not less than 35 Crores or Execution of Centralized HVAC works of value not less than 22 Crores.

OR

- B. Having experience of operation / Maintenance of building with associated services such as electrical, HVAC, Fire Fighting, Plumbing, etc
 - i. One similar completed work of value not less than the amount equal to 80% of estimated cost for O&M works
 - ii. Two similar completed work of value not less than the amount equal to 60% of estimated cost for O&M works.

- iii. Three similar completed work of value not less than the amount equal to 40% of estimated cost for O&M works

A certificate from client for completion of similar works along with work orders must be submitted by the bidder for each work order along with the application.

Own works/ work under the same management/ own certification of the bidders shall not be considered for prequalification.

3. The tenderer should have substantially in house manpower to cover requirements of Formats III.
4. Average Annual financial turnover during the last 3 financial years ending 2016-17 should be at least 4.5 Cr (copies of balance sheets signed by CA to be submitted).
5. **Profit / loss:** The Company should have a positive Net Worth and should have occurred loss in not more than two (02) years in last Five years ending FY 2016-17. This should be duly certified by the Chartered Account.
6. **Solvency Certificate:** Solvency of the amount equal to 40% of the estimated cost of the work.
7. The value of 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 the last date of receipt of applications for tender.
8. The O&M work includes a number of specialized Electrical/ Mechanical/ Electronic/ Medical Engineering services to be executed by engaging Specialized agencies as provided for in CPWD works Manual 2007/ approved makes specified in Technical Specifications

Some of the Specialized Services are:-

- Modular OTs
- Medical Gases Manifold System
- Incinerator
- Boiler
- IT works
- STP/ WTP
- Horticulture

- HVAC
- Electrical

9 This being a composite tender, the Bidder must associate with himself agencies eligible for specialized services for which an affidavit/undertaking as per format enclosed at Annexure – VIII, should be submitted along with the Technical Bid.

19. **Submission of bids:** proposals should be submitted in three separate envelopes namely, Bid Security/EMD (Part A), 'Technical Bid' (Part B) and 'Financial Bid' (Part C).

I- Tender Fee & Bid Security/EMD - Part A

S.No	Name of Document	Reference Volume of Tender	Mode of Submission
01	Original Non-refundable Demand Draft of Rs. 5,000/- (Tender Fee) in favour of HSCC (India) Ltd payable at Noida/Delhi	Vol.- I	In Original & Copy Online
02	Original bid security / EMD	Vol.- I	In Original & Copy Online
03	AFFIDAVIT on the Non-Judicial Stamp Paper of Rs. 100/- as per the format attached (Annexure -IX)	Vol.- I	In Original & Copy Online

Above document to be submitted in the office of "Chief General Manager (PG-II), HSCC (India) Ltd., Plot no. E-6(A), Sector-1, Noida (U.P) Pin 201301"; before date and time fixed for opening of bid either by registered post or by hand failing which the bid will be declared non-responsive

II-TECHNICAL PACKAGE - Part B

S. No	Name of Document	Reference Volume of Tender	Mode of Submission
1.	Letter of Application /Form of Bid	Vol.- I	Online
2	All amendment(s)/addendum(s)/ Corrigendum(s) /Clarification(s) issued, if any, duly authenticated by digital signature	Vol.- I	Online
3	Brief Description of the Firm as per Format I enclosed	Vol.- I	Online
4	Documents regarding constitution of Bidder including copy of Certificate of Registration.	Vol.- I	Online
5	Experience of carrying out works of Similar Nature as per Format II enclosed.	Vol.- I	Online

6	Copies of Works Contract Tax/VAT registration/GST Registration/License or undertaking in this regard that the bidder will get registered with the relevant authorities in case the work is awarded to them	Vol.- I	Online
7	Power of attorney in favour of person signing the bid	Vol.- I	Online
8	In-house manpower to cover requirements of Formats III.	Vol.- I	Online

III-FINANCIAL PACKAGE - Part C :

S. No	Name of Document	Reference Volume of Tender	Mode of Submission
1	Financial bid (Bill of Quantities – Volume- II)	Vol II	Online

The Contractor must ensure to fill up price against each item of BOQ .

Please note that the price should not be indicated in any of the documents submitted except financial bid (Price bid). Non-compliance shall entail rejection of the Bid. Any addition, modification, alteration etc if observed in any of the bid documents at any stage the bid shall be summarily rejected.

20. **Evaluation of Technical Bids:** The Envelope No.1 shall be opened first and checked for the presence of the requisite EMD and Tender Document Fee (in case of tender documents downloaded from the website). The Technical Bid of bidders, whose EMD is found in order shall be opened and will be evaluated by the HSCC(I) Ltd. to ascertain the best-evaluated bid for the complete work/services. The Bidders should take care to submit all the information sought in prescribed formats.

a. Firm's relevant experience and strength – Profile of agency, registration details, experience of similar works, annual turnover, total manpower employed.

b. Qualification/Related experience.

21. **Financial Bid:** The financial bid of the tenderers, whose technical bid is found to be suitable, will be opened in the presence of the tenderers, who choose to attend the opening of financial bid. Minimum two-day notice will be given to tenderer for this purpose.

22. Award of work:

- i. The selection of the agency will be at the sole discretion of the HSCC/SAFDARJUNG HOSPITAL who reserve the right to accept or reject any or all the tenders without assigning any reason.
- ii. The contract for the Annual Operation and Maintenance shall be awarded to the qualified responsive tenderer who has quoted lowest.
- iii. Upon evaluation of offers the notification on award of contract will be intimated to the successful tenderer.

TECHNICAL BID (PART A)

Format I

BRIEF DESCRIPTION OF THE FIRM

(with an outline of the experience of the firm for similar works during last three years)

- a) Name of the firm.
- b) Year of registration.
- c) Type of firm (Individual/Proprietary/Limited Company or any other)
- d) In house facilities available in following fields.

A. For Construction

S.No.	Fields	Manpower with more than 10 years experience	Manpower with 5 to 10 years experience	Manpower with lesser than 5 years experience
1.	Mechanical Work			
2.	Pipe work & water supply etc.			
3.	Electrical works			
4.	HVAC System			

B. For Maintenance

S.No.	Fields	Manpower with more than 10 years experience	Manpower with 5 to 10 years experience	Manpower with lesser than 5 years experience
1.	Mechanical Work			
2.	Pipe work & water supply etc.			
3.	Electrical works			
4.	HVAC System			

Provide documents in support of the details provided in the above format, failing which the authenticity of the information may not be accepted

Format II

EXPERIENCE OF COMPANY

(Experience of relevant and similar work of Construction etc /Maintenance of Mechanical works / PHE System/ Electrical works/ Ventilation System/ Horticulture Operations construction, pipe laying/annual Repair and Maintenance completed during last three years preceding December, 2017 and on going works) Use separate sheet for each work.

1.	Project title & Location:	
2.	Name of the Client and Address:	
3.	Describe area of Participation (Specific Work done/Services rendered by the applicant)	
4.	Period of Work Done/Services rendered for the project	
5.	Total cost of work/AMC cost	
6.	Date of start of the work and the present status	
7.	Any other details	

NOTE::

Supporting documents like certificates from the client in support of each of the above projects to be furnished.

Format III

MANPOWER DEPLOYMENT SCHEDULE

A. The following minimum skilled manpower is to be deployed in daily shifts as mentioned against each:

S.N.	Designation	Number of person				
		G shift	A Shift	B Shift	C Shift	Total
1	Supervisor (overall)	1	0	0	0	1
2	HVAC Works					
	J.E./ Supervisor (Mech.)	1	0	0	0	1
	Operator		1	1	1	3
	Mechanic	1	1	1	0	3
	Maintenance Electrician		2	2	2	6
	Helper		2	2	2	6
3	Electrical Works					
	A.E./Supervisor (Electrical)	1	0	0	0	1
	Wiremen/Electrician for ESS Maintenance		2	2		4
	Helper		1	1		2
	Electrician cum DG Operator		1	1	1	3
	Access control/CCTV/PA/FDA/ Telephone Technician	1				1
	BMS operator		1	1	1	3
	Helper		1	1	1	3
	Lift Operator	4				4
	Lift Mechanic	1	0	1	0	2
4	Plumbing & Fire fighting					
	Supervisor (Fire fighting & Plumbing)	1	0	0	0	1
	Pneumatic pump Operator		1	1	1	3
	Helper		1	1	1	3
	Plumber for fire fighting and internal, external services		1	1	1	3
	Helper		1	1	1	3
	STP/ETP Operator		1	1	1	3
	Helper		1	1	1	3
	Fire men	1	2	2	1	6
5	Gardner	4				4
6	Computer Operator	1	0	0	0	1

Note:- Only licensed / certified electricians/operators shall be deployed. Preferably the other skilled worker deployed shall also be licenced/certified.

The above mentioned man power is bare minimum which contractor has to deploy at site, however if the system demands more than the contractor has to deploy the more manpower as per the requirement.

All the above staff of the contract shall wear uniform and badges identifying their category and name in English and local language.

- General (G) Shift (8.30AM to 5.30PM)
- Morning (A) Shift (6.00AM to 2.00PM)
- Second (B) Shift (2.00PM to 10.00PM)
- Night (C) Shift (10.00PM to 6.00AM)

Form A-Form of Bid and Appendix

FORM OF BID

Name of the Work: Operation & Maintenance of services at Emergency Block at Safdarjung Hospital, New Delhi.

To

**M.S, Safdarjung Hospitals, New Delhi,
C/o Chief General Manager (PG-II),
HSCC (India) Ltd.,
E-6(A), Sector 1,
Noida – 201301**

Sub : Submission of Proposal

Having visited the Site, ascertained the Site conditions and examined the General Conditions of Contract as well as Specific Conditions of Contract, Notice Inviting Bids, Instructions to Bidders etc. and addenda for the above project, we the undersigned, are pleased to submit our technical and financial Bid along with relevant documents.

1. We acknowledge that the Appendix forms an integral part of the Bid.
2. While preparing this Bid, we have gathered our own information and conducted our own inquiry/survey to our satisfaction and we did not rely solely on the information provided in the Bid Documents. We shall not hold Safdarjung /HSCC responsible on any account in this regard.
3. We undertake, if our Bid is accepted, to commence the works within the stipulated time and to complete the whole of the works comprised in the Contract within the stipulated time calculated from the start date
4. If our Bid is accepted, we will furnish a bank guarantee as Performance security for the due performance of the Contract. The amount and form of such guarantee or bond will be in accordance with as given in the General Conditions of the Contract.
5. We are aware that in the event of delay in execution of the Project, beyond the agreed timelines due to reasons attributable to us, liquidated damages shall be recovered from us.
6. Our Bid is valid for your acceptance for a period of 120 days from the last date of submission of the Bid as per the Bid Documents or any extension thereto.
7. We agree to the Conditions of Contract and Particular Conditions of Contract and the terms and conditions mentioned in the Bid Documents.
8. We declare that the submission of this Bid confirms that no agent, middleman or any intermediary has been, or will be engaged to provide any services, or any other item of work related to the award of this Contract. We further confirm and declare that no agency commission or any payment, which may be construed as an agency, commission has been, or will be, paid and that the Bid price does not include any such amount. We acknowledge the right of Safdarjung, if it finds anything to the contrary, to declare our Bid to be non-compliant and if the Contract has been awarded to declare the Contract null and void.

9. We understand that you are not bound to accept the lowest or any Bid you may receive.
10. If our Bid is accepted, we understand that we are to be held solely responsible for the due performance of the Contract.
11. We enclose;
 - a. All documents as per the checklist
 - b. DD/Bank guarantee for Rs _____ (Rupees _____ only) issued by _____ (name of the bank) valid until _____ towards EMD.

- Note :
- i. The Appendix forms part of the Bid
 - ii. Bidders are required to fill up all the blank spaces in this form of Bid and Appendix.

Dated this.....day of.....**2017**

Signature

Name..... in the capacity of

duly authorized to sign Bids for and on behalf of.....

Address

.....

.....

Witness – Signature

Name

Address

.....

.....

MAINTENANCE COMPLAINT REGISTER

S.No.	Date & Time	Complainant	Nature of complaint	Complaint attended Date & Time	Remarks	Signature of Contractor

FORMAT FOR EMD/BID SECURITY

(To cover payment of Bid Security and Conditions of Contract)

(On a stamp paper of appropriate value from any Nationalised Bank or Scheduled Bank)

To

M/s HSCC (India) Ltd.,
Plot No. 6(A), Block E, Sector 1,
NOIDA - 201 301.

Dear Sir,

In consideration of your agreeing to accept Bank Guarantee for Rs.
(Rupees) in lieu of
payment from M/s having its /their
registered office at
(hereinafter called the Bidder) towards Bid Security in respect of your Tender no.
..... calling for Tender for
at and for due fulfilment of the terms and conditions
of the said Tender, we hereby undertake and agree to indemnify and keep you indemnified
to the extent of Rs (Rupees
.....).

In the event of any loss or damages, costs, charges or expenses caused to or suffered by you
by reason of any breach or non observance on the part of the Bidder of any terms and
conditions of the said Tender, we shall on demand and without cavil or argument, and
without reference to the Bidder, irrevocably and unconditionally pay you in full satisfaction
of your demand the amounts claimed by you, provided that our liability under this
guarantee shall not at any time exceed Rs
(Rupees).

This guarantee herein contained shall remain in full force and till you finalise the Tender
and select the Tender as per your choice and it shall in the event of the said Bidder being
selected and entrusted with the said work, continue to be enforceable till the said Bidder
executes the Agreement with you and commences the work as stipulated under the terms
and conditions of the said Tender have been fully and properly carried out by the said
Bidder and accordingly discharges the guarantee.

We also agree that your decision as to whether the Bidder has committed any breach or non
observance of the terms and conditions of the said Tender shall be final and binding on us.

We under take to pay the Consultant any money so demanded by the Consultant notwithstanding any dispute or disputes raised by the Contractor(s) in any suit or proceedings pending before any Court or Tribunal relating thereto, our liability under this present being absolute and equivocal.

The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the Contractor(s) shall have no claim against us for making such a payment.

This guarantee shall continue to be in full force and effect for a period of **120 days from the date of submission of Bid plus 30 days claim period.**

We shall not revoke this guarantee during its currency except with your previous consent in writing. This guarantee shall not be affected by any change in Constitution of our bank or of the Bidder firm. Your neglect or forbearance in the enforcement of the payment of any money, the payment whereof is intended to be hereby secured or the giving of time for the payment hereto shall in no way relieve us our liability under this guarantee.

Dated this day of 2017

Yours faithfully,

For

Signature & seal of the Bank (Authorised Signatory)

PROFORMA FOR PERFORMANCE BANK GUARANTEE

(On a stamp paper of appropriate value from any Nationalised Bank or Scheduled Bank)

To,

M/S HSCC (India) Ltd.
Plot No. 6 (A), Block E, Sector – 1,
NOIDA -201301

Dear Sir,

In consideration of the (SAFDARJUNG HOSPITAL), New Delhi (hereinafter called 'Employer') which expression shall include his successor and assignees represented by his Consultant, M/s. HSCC (India) Ltd., Plot No. 6(A), Block – E, Sector - 1, Noida, Uttar Pradesh – 201 301 (hereinafter called HSCC) having awarded to M/s. _____ (hereinafter referred to as the said Contractor or 'Contractor' which expression shall wherever the subject or context so permits include its successors and assignees) a Contract No _____ in terms inter alia, of the _____ Letter No. _____ dated _____ and the General Conditions of Contract and upon the condition of the Contractor's furnishing Security for the performance of the Contractor's obligations and discharge of the Contractor's liability under and in connection with the said Contract upto a sum of Rs. _____ (Rupees _____ only) amounting to _____ percent of the total Contract value.

1. We, _____ (hereinafter called 'The Bank' which expression shall include its successors and assignees) hereby jointly and severally undertake to guarantee the payment to the Employer in rupees forthwith on demand in writing and without protest or demur or any and all moneys payable by the Contractor to the Employer in respect of or in connection with the said Contract inclusive of all the Employer's losses and damages and costs, (inclusive between attorney and client) charges and expenses and other moneys anywise payable in respect of the above as specified in any notice of demand made by the Employer to the Bank with reference to this guarantee upto an aggregate limit of Rs. _____ (Rupees _____ only).
2. We, _____ Bank Ltd. further agree that the Employer shall be sole judge of and as to whether the said Contractor has committed

any breach or breaches of any of the terms and conditions of the said Contract and the extent of loss, damage, cost, charges and expenses caused to or suffered by or that may be caused to or suffered by the Employer on account thereof and the decision of the Employer that the said Contractor has committed such breach or breaches and as to the amount or amounts of loss, damage, costs, charges and expenses caused to or suffered by the Employer from time to time shall be final and binding on us.

3. The Employer shall be at liberty without reference to the Bank and without affecting the full liability of the Bank hereunder to take any other Security in respect of the Contractor's obligations and liabilities hereunder or to vary the Contract or the work to be done thereunder vis-a-vis the Contractor or to grant time or indulgence to the Contractor or to reduce or to increase or otherwise vary the prices of the total Contract value or to release or to forbear from enforcement of all or any of the Security and/or any other Security(ies) now or hereafter held by The Employer and no such dealing(s) reduction(s) increase(s) or other indulgence(s) or arrangements with the Contractor or release or forbearance whatsoever shall absolve the bank of the full liability to the Employer hereunder or prejudice the rights of the Employer against the bank.
4. This guarantee shall not be determined or affected by the liquidation or winding up, dissolution, or change of constitution or insolvency of the Contractor but shall in all respects and for all purposes be binding and operative until payment of all monies payable to the Employer in terms thereof.
5. The bank hereby waives all rights at any time inconsistent with the terms of this guarantee and the obligations of the Bank in terms hereof shall not be anyway affected or suspended by reason of any dispute or disputes having been raised by the Contractor stopping or preventing or purporting to stop or prevent any payment by the Bank to the Employer in terms hereof.
6. The amount stated in any notice of demand addressed by the Employer to the Bank as liable to be paid to the Employer by the Contractor or as suffered or incurred by the Employer on account of any losses or damages or costs, charges and/or expenses shall be conclusive evidence of the amount so liable to be paid to the Employer or suffered or incurred by the Employer as the case may be and shall be payable by the Bank to The Employer in terms hereof.
7. This guarantee shall be a continuing guarantee and shall remain valid and irrevocable for all claims of the Employer and liabilities of the Contractor arising upto and until midnight of_____.

8. This guarantee shall be in addition to any other guarantee or Security whatsoever that the Employer may now or at any time anywise may have in relation to the Contractor's obligations/or liabilities under and/or in connection with the said Contract, and the Employer shall have full authority to have recourse to or enforce this Security in preference to any other guarantee or Security which the Employer may have or obtain and no forbearance on the part of the Employer in enforcing or requiring enforcement of any other Security shall have the effect of releasing the Bank from its full liability hereunder.
9. It shall not be necessary for the Employer to proceed against the said Contractor before proceeding against the Bank and the Guarantee herein contained shall be enforceable against the Bank notwithstanding that any Security which The Employer may have obtained or obtain from the Contractor shall at the time when proceedings are taken against the said bank hereunder be outstanding or unrealised.
10. We, the said Bank undertake not to revoke this guarantee during its currency except with the consent of the Employer in writing and agree that any change in the constitution of the said Contractor or the said bank shall not discharge our liability hereunder.
11. We, _____ the said Bank further that we shall pay forthwith the amount stated in the notice of demand notwithstanding any dispute/difference pending between the parties before the arbitrator and/or that any dispute is being referred to arbitration.
12. Notwithstanding anything contained herein above, our liability under this guarantee shall be restricted to Rs. _____ (Rupees _____) and this guarantee shall remain in force till _____ and unless a claim is made on us within 3 months from that date, that is before _____ all the claims under this guarantee shall be forfeited and we shall be relieved of and discharged from our liabilities there under.

Dated _____ day of _____ 2017

For and on behalf of Bank.

Issued under seal :

CONTRACT AGREEMENT FORMAT

This Agreement made the _____ day of _____ 20_____ at between (SAFDARJUNG HOSPITAL), New Delhi (*hereinafter* called "The Employer") represented by M/s HSCC (India) Ltd who enters into this Agreement of the one part and M/s (hereinafter called "The Contractor") of the other part.

Whereas the Employer is desirous that certain works should be executed by the Contractor, viz _____ ("the Works") and has accepted a Bid by the Contractor for the execution and completion of the works and the remedying of any defects therein.

Now this Agreement witnessed as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz :

1.	Notice Inviting Tender & Instructions to Tenderers	
2.	General Conditions of Contract	
3.	Particular conditions of Contract along with Enclosure I, II, III & IV	
4.	Specifications	

3. In consideration of the payments to be made by the HSCC (India) Ltd. acting as Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity with the provisions of the Contract in all respects.
4. The Employer hereby covenants to pay the Contractor through HSCC (India) Ltd. in consideration of the execution and completion of the Works and the remedying of defects therein the Contract Price or such other sum

as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

In Witness whereof the parties hereto have caused this Agreement to be executed the day and year first before written.

Signed, Sealed, and Delivered by the Said

Binding Signature of HSCC (India) Ltd. for and on behalf of (SAFDARJUNG HOSPITAL), New Delhi.

Binding Signature of Contractor

In the presence of

Witness (1) :

Witness (2) :

CHECK – LIST**CHECK LIST OF DOCUMENTS TO BE SUBMITTED WITH THE BID
TECHNICAL PACKAGE - Part A**

S.No	Name of Document	Reference Volume of Tender	Mode of Submission
01	Original Non-refundable Demand Draft of Rs. 5,000/- (Tender Fee) in favour of HSCC (India) Ltd payable at Noida/Delhi	Vol.- I	In Original & Copy Online
02	Original bid security / EMD	Vol.- I	In Original & Copy Online
03	AFFIDAVIT on the Non-Judicial Stamp Paper of Rs. 100/- as per the format attached (Annexure -VII)	Vol.- I	In Original & Copy Online

Above document to be submitted in the office of “Chief General Manager, HSCC (India) Ltd., Plot no.E-6(A), Sector-1, Noida (U.P) Pin 201301”; before date and time fixed for opening of bid either by registered post or by hand failing which the bid will be declared non-responsive.

II-TECHNICAL PACKAGE - Part B

S. No	Name of Document	Reference Volume of Tender	Mode of Submission
1.	Letter of Application	Vol.- I	Online
2	All amendment(s)/addendum(s)/ Corrigendum(s) /Clarification(s) issued, if any, duly authenticated by digital signature	Vol.- I	Online
3	Brief Description of the Firm as per Format I enclosed	Vol.- I	Online
4	Documents regarding constitution of Bidder including copy of Certificate of Registration.	Vol.- I	Online
5	Experience of carrying out works of Similar Nature as per Format II enclosed.	Vol.- I	Online
6	Copies of Works Contract Tax/VAT/GST registration/License or undertaking in this regard that the bidder will get registered with the relevant authorities in case the work is awarded to them	Vol.- I	Online
7	Power of attorney in favour of person signing the bid	Vol.- I	Online
8	In-house manpower to cover requirements of Formats III.	Vol.- I	Online

III-FINANCIAL PACKAGE - Part C :

S. No	Name of Document	Reference Volume of Tender	Mode of Submission
1	Financial bid (Bill of Quantities – Volume- II)	Vol II	Online

Note: - All documents as above to be submitted on line. In addition (a) Original non refundable Demand Draft of Rs.5,000/- (Rs. Five thousand only) as cost of bid, in favour of “ HSCC India Limited “ payable at Noida/Delhi (b) Original Bid Security **Rs 9,00,000/- (Rupees Nine Lakh Only)** in the form of DD/Pay Order/ Bank Guarantee from a scheduled bank drawn in favour of HSCC(India) Ltd. payable at New Delhi/ Noida to the office of Chief General Manager, HSCC (India) Ltd., Plot no. E-6(A), Sector-1, Noida (U.P) Pin 201301, before date and time fixed for opening of bid either by registered post or by hand failing which the bid will be declared nonresponsive.

On the Non-Judicial Stamp Paper of Rs.100/-

AFFIDAVIT

I / We (Name of Person / Persons who presenting the affidavit) M/s.....
(Name of Contractor's Firm / Company)..... (executing as a company /firm) who fulfill all the formalities who filling the affidavit works as a firm / Company, by this affidavit certify / certified that **HSCC (India) LTD., Noida** by inviting tender information Tender No. for (Name of work)for Dated..... in the capacity of inviting to the Tenders in tender documents, regarding the following information in certificates / documents presented, in that I / we personally agreed that we given all the information, documents & certificates are true to our belief and I / we are fully responsible as :-

- (1) It is to certify that all the information given in this affidavit are true and correct.
- (2) that I / we presented by us,
 - (a) Amount submitted for Processing fees and EMD in the form of Demand Draft & BG and relevant Documents are true, and certified & corrected by the Bank.
 - (b) Information given regarding with the Financial Qualifications & Annual Turnover is true & correct.
 - (c) Information given regarding with the deferent Physical Qualification is true.
 - (d) Information regarding Work in Hand is true.
- (3) I / We have not been **Black Listed / Debarred** by Govt. of India / any Government of State Govt. / Department of State Govt.

(4) that, My / Our Firm's / Company's No relative / any nearest relative is working in this firm.

OR

Nearest relative works as follows:-

Name Post Present Post-Establishment

(5) that, the **No Criminal Case** has been registered or ongoing by any court against me / our / firm.

Certified by Public Notary
With their Seal & Sign

Signature
with seal

UNDERTAKING

We do hereby undertake to engage a specialised agency after approval of HSCC (India) Ltd. for undertaking the execution of works of (_____ Name of the project _____) whose minimum qualification shall be as under:

- (i) Average Annual Financial Turnover during the last three financial years, i.e., 2009-10, 2010-11 & 2011-12, should be at least 30% of the estimated price of the works
- (ii) Experience of having successfully completed similar works during last 5 years ending last day of month previous to the one in which applications are invited should be either of the following:
 - a. Three similar completed works costing not less than the amount equal to 40% of the estimated cost .
or
 - b. Two similar completed works costing not less than the amount equal to 60% of the estimated cost.
or
 - c. One similar completed work costing not less than the amount equal to 80% of the estimated cost.
- (iii) We shall be solely responsible for successful execution of the work.

Authorized Signatory of bidder

GENERAL CONDITIONS OF CONTRACT

Definitions and Interpretation

1. Definitions

(a) In the Contract (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:

- i) "Employer" means the M.S SAFDARJUNG HOSPITAL and the legal successors in title to M.S SAFDARJUNG HOSPITAL.
- ii) "Engineer" means the person appointed by HSCC to act as Engineer for the purposes of the Contract.
- iii) "Contractor" means an individual or firms (proprietary or partnership) whether incorporated or not, that has entered into contract (with the employer) and shall include his/its heirs, legal representatives, successors and assigns. Changes in the constitution of the firm, if any shall be immediately notified to the employer, in writing and approval obtained for continued performance of the contract.

- (b)
 - i) "Contract" means these conditions, the Specification, the Bill of Quantities, the Tender, the Letter of acceptance, the Contract Agreement (if completed) and such further documents as may be expressly incorporated in the Letter of Acceptance or Contract Agreement (if completed).
 - ii) "Specification" means the specification of the Works included in the Contract and any modification thereof.
 - iii) "Drawings" means all the completion drawings, calculations and technical information of a like nature provided by the Engineer to the Contractor under the Contract and all drawings, calculations, samples, patterns, models, Repair and Repair and Maintenance services manuals and other technical information of a like nature

- submitted by the Contractor and approved by the Engineer.
- iv) “Bill of Quantities” means the priced and completed bill of quantities forming part of the Tender.
 - v) “Tender” means the Contractor’s priced offer to the Employer for the execution and completion of the Works and the remedying of any defects therein in accordance with the provisions of the Contract, as accepted by the Letter of Acceptance. The word Tender is synonymous with “Bid” and the words “Tender Documents” with “Bidding Documents”.
 - vi) “Letter of Acceptance” means the formal acceptance of the tender by SAFDARJUNG HOSPITAL/HSCC (I) Ltd on its behalf.
 - vii) “Contract Agreement” means the contract agreement (if any) referred to in (b) (i) above.
 - viii) “Appendix to Tender” means the appendix comprised in the form of Tender annexed to these Conditions.
- (c)
- i) “Commencement Date” means the date upon which the Contractor receives the notice to commence the works.
 - ii) “Time for Completion” means the time period for which the contract of Repair and Operation and Maintenance Services has been awarded by the employer to the contractor.
- (d) “Taking Over Certificate” means a certificate issued by employer evidencing successful completion of the awarded work.
- (e)
- i) “Contract Price” means the sum stated in the Letter of Acceptance as payable to the Contractor for the execution and completion of the Works and the remedying of any defects therein in accordance with the provisions of the Contract.
 - ii) “Retention Money” means the aggregate of all monies retained by the Employer.
- (f)
- i) “Work” means the Work to be executed in accordance with the

contract.

- ii) "Site" means the places provided by the Employer for Operation and Maintenance Services.
- iii) "Cost" means all expenditure properly incurred or to be incurred, whether on or off the Site, including over head and other charges but does not include any allowance for profit.

ENGINEER

2. Engineer's Duties and Authority

- (a) The Engineer shall carry out the duties specified in the Contract.

3. Custody and Supply of Drawings and Documents

The Drawings shall remain in the sole custody of the Employer/Engineer, but copies as required thereof shall be provided to the Contractor free solely for the purpose of this contract.

4. Sufficiency of Tender

The Contractor shall be deemed to have based his Tender on the data made available by the Employer and on his own inspection and examination of this site conditions.

5. Contractor's Employees

The Contractor shall provide on the Site qualified and experienced technical staff in connection with the Operation and Maintenance services and Repair of the Works and the remedying of any defects therein.

6. Engineer at Liberty to Object

The Engineer shall be at liberty to object to and require the Contractor to remove forthwith from the Works any person provided by the Contractor who, in the opinion of the Engineer, misconducts himself, or is incompetent or negligent in the proper performance of his duties, or whose presence on Site is otherwise considered by the Engineer to be undesirable, and such person shall not be again allowed upon the Works without the consent of the Engineer. Any person so removed from the Works shall be replaced as soon as possible by a qualified person approved by the Engineer.

7. Safety, Security and Protection of the Environment

The Contractor shall, throughout the execution and completion of the Works and the remedying of any defects therein:

- i) Have full regard for the safety of all persons entitled to be upon the Site and keep the Site (so far as the same is under his control) and the Works (so far as the same are not completed or occupied by the Employer) in an orderly state appropriate to the avoidance of danger to such persons, and
- ii) Provide and maintain at his own cost all lights, guards, fencing, warning signs and watching, when and where necessary or required by the Engineer or by any duly constituted authority for the protection of the Works or for the safety and convenience of the public or others, and
- iii) Take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods.

8 Damage to Persons and Property

The Contractor shall, except if and so far as the Contract provides otherwise, indemnify the Employer against all losses and claims in respect of :

- (a) death of or injury to any person caused by his own acts or omissions, or
- (b) loss or damage to any property:

Which may arise out of or in consequence of the Operation and Maintenance of the works and the remedying of any defects therein, and against all claims, proceedings, damages, costs, charges and expenses whatsoever in respect thereof.

9. Accident or injury to Workmen

The Employer shall not be liable for or in respect of any damages or compensation payable to any workman for death or injury resulting from any act or default of the contractor. The Contractor shall indemnify and keep indemnified the Employer against all such damages and compensation and expenses whatsoever in respect thereof or in relation thereto.

10. Evidence and Terms of Insurance

The Contractor shall take out appropriate insurance to cover his work and workers and staff employed by him fully. The contractor shall provide evidence to the Engineer/Employer as soon as practicable after the respective insurance have been taken out but in any case prior to the start of work at the Site that insurance required under the Contract have been effected.

11. Compliance with Statutes, Regulations

The Contractor shall conform in all respects, including by the giving of all notices and the paying of all fees, with the provision of:

- (a) Any National or State Statute, Ordinance, or other Law, or any regulation, or bye-law of any local or other duly constituted

authority in relation to the operation and Maintenance Work.

- (b) The rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the Works, and the Contractor shall keep the Employer indemnified against all penalties and liability of every kind for breach of any such provision.
- (c) Any changes required for approval due to revision of the local laws.

12. Time for Completion

The Operation and Maintenance work shall be for a period of one year or as mentioned in the letter of commencement and shall start from the date issue of letter commencement and shall stand terminated after the expiry of one year.

13. Extension of Time

The Operation and Maintenance contract may be extended on the written mutual consent of both Employer and Contractor for a further period of one year. However, employer reserves its right to terminate the Operation and Maintenance and Maintenance contract by giving 15 days notice at any time during the currency of the contract if the services of the agency are not satisfactory as per the opinion of employer or its representative.

14. Defect Identification and its rectifications

The Contractor shall immediately attend the defects and complaints noticed at site. The Contractor shall provide and develop a system for regular Operation and Maintenance of all the services which includes defects identifications and its immediate rectification so, that services are not effected. It shall be the sole responsibility of the Operation and Maintenance agency that all the services are kept in functional condition round the clock during the currency of the contract.

15. Liquidated Damages for Delay

If the Contractor fails to attend any complaint or defect in the response time indicated in Annexure – D due course of time and if in the opinion of engineer delay is on the part of Operation and Maintenance agency, the employer can impose liquidated damages on the contractor as detailed in the particular conditions.

16. Contractor's Failure to Carry out Instructions

In case of default on the part of the Contractor in carrying out Operation and Maintenance the Employer/Engineer shall be entitled to employ and pay other persons to carry out the same and if such work, in the opinion of the Engineer, the Contractor was liable to do at his own cost under the Contract, then all costs consequent thereon or incidental thereto shall be determined by the Engineer and shall be recoverable from the Contractor by the Employer, and may be deducted by the Employer from any monies due or to become due to the Contractor.

17. Variations

The Employer/Engineer shall make any variation of the form, or quantity of the Works or any part thereof that may, in his opinion, be necessary and for that purpose, or if for any other reason it shall, in his opinion, be appropriate, he shall have the authority to instruct the Contractor to do and the Contractor shall do any of the following:

- i) increase or decrease the quantity of any work included in the Contract,
- ii) Add or delete any building within/to the scope of work within the campus of Safdarjung Hospital.

The Contractor has to carry out all the works at the rate, terms and conditions contained in the Contract.

The quantities given in the Bill of Quantities are estimated quantities. The quantity of any particular item may vary to any extent.

Valuation of increase / decrease of any building with in the campus of Safdarjung Hospital shall be derived based on quoted price for similar item / prorate basis.

The Contractor shall execute any items of work not provided for in the Bill of Quantities on the instructions of the Engineer. The rates for such items shall be worked out based on the CPWD norms/DAR. The current market rates shall be taken to derive the rates of the DSR/DAR based items. Incase the item is not available in the DSR/ DAR, the rates for the same shall be derived based on the market rates.

MEASUREMENT

18. Works to be Measured for BOQ items

The Engineer shall determine by measurement of the value of actual work done in accordance with the Contract and the Contractor shall be paid proportionately. Part rate shall be made for any part of BOQ items not fully executed. Engineer shall decide the breakup of lumpsum items and the part rate applicable for any particular item which shall be final and binding.

19. Method of Measurement

The works shall be measured as per CPWD/IS norms except otherwise provided in the Contract.

CERTIFICATES AND PAYMENTS

20. Monthly Statements

The Contractor shall submit a bill in 3 copies to the Engineer by 7th day of each month for the work executed up-to the end of previous month in tabulated form approved by the Engineer, showing the amounts to which the Contractor

considers himself to be entitled. The bill must be supported with the following documents:-

- (a) Certified bill of work done..
- (b) Details of defects/complaints attended and rectified within time.
- (c) Details of complaints attended late.
- (d) Test certificates of materials used and tests carried out for quality control as required by the specifications and the Engineer.
- (e) Biometric attendance details of the manpower deployed during the month.

21. Deduction of Income Tax

The amount to be deducted towards the advance income tax shall be at the rate applicable.

22. Monthly Payments

The Contractor shall submit monthly bill complete in all respects by the 7th day of each month. The Engineer shall clear the bill and certify due amounts for payment within 15 days.

23 Retention Money

Retention money @ 10 % (ten percent) shall be deducted from each monthly bill subject to the maximum of 5% (Five Percent) of the contract price after approval by engineer. 50% of the total retention money will be released after successful completion of one year maintenance & balance 50% will be released within one month thereafter.

24. Performance Guarantee

Within two weeks of award of work, the Contractor shall submit a Performance Security equivalent to 5% of the contract value for proper performance of the Contract in the format enclosed as Enclosure III.

The performance guarantee shall be valid for the duration of the contract period plus 60 days.

The performance security can be encashed by the Employer to recover any amount which is payable by the Contractor to the Employer on any account for a cause arising out of the contract.

25. Correction of Certificates

The Engineer may by any Interim Payment Certificate make any correction or modification in any previous Interim payment Certificate which has been issued by him, and shall have authority, if any work is not being carried out to his satisfaction, to omit or reduce the value of such work in any Interim Payment Certificate.

26. Final Certificate

Within 28 days after receipt of the Final Statement, and the written discharge, the Engineer shall issue to the employer (with a copy to the Contractor) a Final Certificate stating:

- (a) The amount which, in the opinion of the Engineer, is finally due under the Contract, and
- (b) After giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled under the Contract.

27. Default of Contractor

27.1 If the performance of the contract and is not satisfactory and not corrected within 15 days of receiving notice, then employer shall be at liberty to terminate the contract and get the work executed through other means at the risk and cost of the Contractor.

27.2 In the event of termination of the contract, employer shall be at liberty to get

balance work done at the risk and cost of the contractor and due payment of the contractor, if any, shall be released after the completion of whole of the works.

28. Amicable Settlement of Dispute

The party shall use their best efforts to settle amicably all disputes arising out of or in connection this contract or the interpretation thereof.

29. Arbitration

Any dispute and differences relating to the meaning of the specifications, designs, drawings and instructions herein before mentioned and as to the quality of workmanship of materials used in the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions or these conditions or otherwise concerning the works or the execution or failure to execute the same whether arising during the progress of the work or after the completion or abandonment thereof in respect of which amicable settlement has not been reached shall be referred to the Sole Arbitration of the M.S. SAFDARJUNG HOSPITAL who shall proceed as per the Arbitration Act, 1996.

29.1 The work under the contract shall continue, during the Arbitration proceedings.

29.2 The award of the Arbitrator shall be final, conclusive and binding on both the parties.

29 Interpretation

In interpreting these conditions of Contract, singular also means plural, male also means female, and vice-versa. Headings and cross-references between clauses have no significance. Words have their normal meaning under the language of the Contract unless specifically defined.

30. Language and Law

The language of the Contract is English. The jurisdiction of the Contract shall be with the Hon'ble High Court at New Delhi.

31 Communications

Communication between parties which are referred to in the conditions are effective only when in writing.

32 Contractor's Risks

All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract are the Contractor's risks.

33 Insurance

The following insurance cover is to be provided by the Contractor in the joint names of the Employer and the Contractor for the period from the Start date to the end of the Completion Period:

- a. Cover against damage to other people's property caused by the Contractor's acts or omissions;
- b. Cover against death or injury caused by the Contractor's acts or omissions to:
 - i. Anyone authorized to be on the site;
 - ii. Third parties who are not on the site;
 - iii. Cover against damage to the works and materials arising due to the performance of the services under the Contract.

Policies and certificates of insurance are to be produced by the Contractor to the Engineer

If the Contractor does not produce any of the policies and certificates required, the Employer may effect the insurance for which the Contractor should have produced the policies and certificates and recover the premiums it has paid from the payments due to the Contractor.

33 Contractor to execute the works:

The Contractor is to execute the works in accordance with the Contract and the specifications.

34 Approval of samples of all the BOQ items and materials is to be taken from the Engineer/Client. All material shall be of reputed and standard makes.

35 Instructions

The Contractor shall carry out all the instructions of the Engineer.

36.0 Site information's

Contractor/agency/firms at his own cost shall provide Vehicle/Car of good running condition inclusive of all services like driver, consumables and maintenance etc at any time for exclusive use of engineer/HSCC round the clock during the currency of the contract to HSCC as per requirements given by the Engineer and a telephone/Mobile with STD/recharge facility.

37.0 Rates

The rates in the bid shall be for complete items of work inclusive of all taxes including GST, ESI, PF, statutory charges and all other charges for items contingent to the work, such as, packing, forwarding, insurance, freight and delivery at Site for the materials to be supplied by the Contractor, watch and ward of all materials for the Internal & external, Electrical Installation testing & commissioning work including water & power for successful installation, testing & commissioning work at Site etc.

PARTICULAR CONDITIONS OF CONTRACT

- CPWD specifications with upto date correction slips shall be followed. For the items which are not covered under CPWD specifications; the special conditions/B.I.S. specifications shall apply. In this regard the decision of Engineer-in-Charge shall be final.
- Wherever any reference is made of any Indian Standards, it shall be taken as reference to the latest edition with all amendments/revision issued there upto the date of receipt of tender.
- Unless otherwise specified, the agreement rates for all items of work of the schedule of quantities are for all heights, depths, leads and lifts involved in the execution of work.
- Other agencies working at site will also simultaneously execute the work entrusted to them and the contractor shall offer necessary co-operation wherever required to other agencies.
- On account of security consideration, there could be some restrictions on the working hours, movement of vehicles for transportation of materials. The contractor shall be bound of follow all such restrictions and adjust the programme for execution accordingly.
- The work shall be carried out in a manner complying in all respects with the requirements of relevant byelaws of the local bodies, labour laws, minimum wages act, workmen compensation act and other statutory laws enacted by Central Govt as well as State Govt.
- All malba/rubbish/silt/waste/garbage etc. generated due to any operation & maintenance work from Emergency Block and other open spaces whatsoever shall be disposed off on daily basis by the contractor to the specified common disposal point and nothing extra shall be paid on this account. After the collection of full truck load of the said malba, the same shall be disposed of by the contractor to the authorized municipal dhalao/dumping ground. In case of non-removal/disposal in the specified period, a sum of Rs. One Thousand per day shall be recovered from the contractor.
- All materials, T & P consumable and contingent articles required for the work shall be arranged by the contractor. Materials used shall be in order of preferences
 - (i) As per list of approved makes of materials attached.
 - (ii) Under the Nomenclature of the item.
 - (iii) ISI marked.
 - (iv) CPWD specifications.
 - (vi) Direction of the Engineer-in-Charge.
- The contractor shall make all safety arrangements required for the labour engaged by him at his own cost. All consequences due to negligence or due to lapse of security/safety or otherwise shall remain with the contractor. The Employer shall not be responsible for any mishap, injury, accident or death of the contractor's staff. No claim in this regard shall be entertained /accepted by the Employer/Engineer.

- Contractor shall be fully responsible for any damages caused to the building structure, fitting or any other articles etc. done by the contractor or his workman during the execution of the work shall be made good by the contractor at his own cost.
- For non-compliance or partial compliance of satisfactory execution of items, the Engineer reserves his rights to levy compensation in accordance with the scale of non-conformity and the reserves his rights to levy compensations in accordance with the scale of non-conformity and the period for which this non-conformity continues. However the total amount of this compensation for the whole contract shall not exceed 10% of the Contract value of this contract. This shall be without prejudice to other remedies available to Engineer under this contract to take action against the contractor.
- In the case of discrepancy between the Bill of Quantities, the specifications / the following order of preferences shall be observed:-
 - (i) Description of Schedule of Quantities
 - (ii) Additional specifications and special conditions, if any.
 - (iii) Contract clauses of General conditions of contract.
 - (iv) CPWD specifications.
 - (v) Indian standards specification/BIS.
 - (vi) Sound engineering practice or manufacturers' specifications.

Any references made to any Indian standards specifications in these shall imply to the latest version of that standard, including such revisions/amendments as issued by the Bureau of Indian standards up to last date of receipt of tenders. The contractor shall keep at his own cost all such publications of relevant Indian standards applicable to the work at site.

- The contractor shall have to carry out the work other than day to day maintenance according to programme given by the Engineer or his representative. The contractor shall not carry out any work in any building without permission of Engineer. The contractor shall adhere to this programme failing which he shall be wholly responsible. No claim for idle labour on any account shall be entertained. The contractor shall depute his representative daily to the site of work. His name and signature shall be attested by the contractor for record in the department.
- Old doors, windows, floors, furniture, Electrical and other fitting shall be cleaned from all splashes, dust, dirt and mortars etc. The rate for the white washing/colour washing/distempering/painting etc. include the cost of removal of splashes and paint marks.
- The Complaint Service /Enquiry Center will operate in full from 8.30 AM to 5.00 PM on all working days except Sundays and Gazette Holidays. Additional arrangements shall be made for registration and attending emergent complaints related to Civil/Electrical/HVAC/Horticulture services on Sundays & Gazette holidays & also from 6AM to 9AM and 5 PM to 10 PM on all days and shall be well equipped with the following;

- Telephone facility
- Furniture.
- Computerized system

- Complaints shall be made in the format (Enclosure-I).
- A complaint register (format at Enclosure-II) shall be maintained in the Repair and Maintenance Office of the contractor in which all complaints received shall be documented.
- Minimum number of work men/staff to be deployed shall be as given at Format III.
- The contractor shall take immediate action to attend to any complaint assigned to him through site order book/verbal instructions from Engineer or on telephones from occupants. In all cases he shall attend the complaint in the specified duration as mentioned below :-
 - a. No delay complaints – Complaints of emergent nature such as electricity not being available. Plumbing or sewerage systems not working etc. are to be attended to immediately or at least within 6 hours of receipt of the complaints.
 - b. Minor Complaints – Complaints relating to the trades of mason and carpenter are to be attended within 24 hours.
 - c. Major Complaints – Complaints other than no delay and minor complaints. Such complaints are to be attended within shortest reasonable time which shall not be more than 7 days in any case in consultation with the Engineer.
- Necessary registers/complaint- attendance books duly machine numbered shall be maintained by the contractor in respect of complaints received and shall be got signed by the occupants/concerned officer, after attendance.
- In case of failure to meet these deadlines a compensation of Rs. 500/- (Rs. Five Hundred only) per complaint per day will be levied from his bills/Security Deposit for each default to attend the complaints assigned to him. The decision of Engineer regarding correctness of complaint shall be final and binding.
- The labour deployed for attending complaints should carry necessary tool kit, container (Tasla), required for mixing any cement sand or other material and should carry with them water bottle and waste bag for collection of minor rubbish material if received during attending the complaints, so that the site of work shall remain neat and clean.
- Formats of Performance Guarantee and Contract Agreement are at Enclosure III and IV respectively
- All Repair and Maintenance related complaints shall be attended to within times specified in Annexure-D failing which a recovery of Rs. 100 per event per hour shall be made from the subsequent payment certificate of the contractor.
- The Sewer man shall ensure that all lines are maintained in a clean condition by carrying out preventive cleaning of all lines at least once each month.
- Diesel for Operating DG set to be supplied free of cost by Safdarjung Hospital. Log book to be maintained by the contractor & to be submitted duly certified by client
- As the work will have to be carried out in building and area in use the contractor shall ensure:-
 - a) That the normal functioning of SAFDARJUNG HOSPITAL activity is not effected as far as possible.
 - b) That the work is carried out in an orderly manner without noise and obstruction to flow of traffic.

- c) That all rubbish etc. is disposed off at the earliest and the place is left clean and orderly at the end of a each days work.
- d) The Contractor shall ensure that his Repair and Maintenance staff is qualified and licensed for their part of work. He shall be responsible for their conduct. The staff should behave in a courteous manner. The contractor shall be held responsible for any loss or damage to SAFDARJUNG HOSPITAL property arising out of the work under Contract.
- The contractor shall ensure safety of his workers and others at site of work and shall be responsible for any consequence arising out of execution of the Repair and Maintenance work.
 - When instructed to do so, the contractor shall ensure proper record keeping and storing of irreparable/dismantled material.
 - Water and electricity shall be made available free of cost at near by source of work. The contractor has to make his own arrangement for use of the same including drawing temporarily lines etc. The responsibility for following relevant rules, regulations and laws in this regard shall be entirely that of the contractor.
 - No residential accommodation shall be provided to any of the staff engaged by the contractor. The contractor shall also not be allowed to erect any temporary set up for residence of his staff in the campus.
 - The Supervisor(s) who are employed by the Contractor shall be present at the site from **8:30 AM to 5:30 PM** on all working days and shall carry mobile telephone(s) to enable the Engineer to have easy and quick communication. Nothing extra shall be paid to the contractor on this account and his quoted rates for various items under this contract will be inclusive of this obligation.
 - Staff employed by the contractor shall be well behaved, Polite & courteous. Any complaint against staff on behaviour shall be taken very seriously and such staff shall be replaced by the contractor on demand from Engineer. The decision of Engineer shall be final and binding in this case.
 - Contractor shall be fully responsible for any damages caused to any property by him or his staff in carrying out the work and the same shall be rectified by the contractor at his own cost.
 - VAT/WCT/Income Tax/GST/other taxes as applicable shall be recovered from the contractor's bill.
 - Chases, holes & drilling works etc. shall be done using only power operated tools.
 - The contractor shall engage computer literate staff that should be able to use computerized complaints receiving and monitoring system. The contractor will have to arrange and maintain computers along with peripherals and consumables at his own cost.
 - The contractor shall provide his mobile number or the mobile number of his representative to the Engineer for ease of communication with the controlling staff.
 - The contractor shall have registration with Employee's Provident Fund Commissioner and Employee's State Insurance Corporation for safeguarding interest of his workmen. He shall obtain all other necessary approvals form statutory bodies as per law in force.
 - The contractor will arrange & store all the materials at Enquiry office, required for attending day to day maintenance complaints for at least 3 months or as decided by Engineer, throughout agreement period.

- The contractor will maintain attendance records of the staff which can be checked by the Engineer or his officers as & when required
- The following facilities shall be made available to the agency:-
 - A Suitable Space for use as Complaint/Service Centre by the Contractor.
 - All furniture etc required for contractor's staff shall be arranged by the contractor at his own cost.
 - Electricity/Water connection
 - The Contractor shall restore back the premises and other articles provided by the Employer to the contractor at the time of closure of the contract in good condition.

ADDITIONAL PARTICULAR CONDITIONS OF CONTRACT

For the services to be operated and maintained by the Contractor for which lump-sum amounts have been quoted, the following shall apply:-

Horticulture:-

The garden, lawns, potted plant etc. shall be taken over after listing out the same. The same shall be maintained for the contract period. During this period, all inputs like manure, replacement of plant, watering, clearing weeds, trimming, housekeeping etc. including all material labour and tools, replacement plants etc shall be provided so that the garden is maintaining in a neat and healthy condition. The same shall be handed back to Safdarjung. in such condition at the end of the contract period.

Operation of HVAC system:

The plant/Air-conditioners shall be taken over by the Contractor after recording the total no. of plant and equipments and Air Conditions in each location and their make, model, running condition etc. The same shall be maintained and run by the Contractor for the contract period providing all required inputs and including all operational staff and manpower complete.

After completion of the maintenance period, the same shall be handed over back to SAFDARJUNG HOSPITAL in the same condition in which they were taken over, normal wear and tear accepted.

Fire Fighting and Alarm System:-

The systems, equipments etc. shall be taken over recording the details of the fire fighting and alarm system and their running conditions. During the operation period, the same shall be maintained by the Contractor providing all material, labour and T&P etc. required. The same shall be maintained to the satisfaction of the concerned statutory authorities and clearances obtained from them as per requirements. The systems shall be handed over in the same conditions as it was taken over, normal wear and tear accepted.

Operation and Maintenance of Sub-stations, Pumping systems and DG sets etc.:

All the above plant and equipments etc. shall be taken over after recording the complete details of make, date of manufacture etc. including their running conditions.

During the contract period, the same shall be operated and maintained by the Contractor including supply of all spares, materials, labour, T&P etc. and including consumables like Engine oil, transformer oil etc. complete. The maintenance and operation shall meet all the requirements of the concerned statutory authorities. At the end of the Contract Period, the equipment/system shall be handed over back to SAFDARJUNG HOSPITAL, in the condition in which they were taken over, normal wear and tear accepted.

NOTE:

All breakdowns/faults shall be attended to immediately and rectified promptly.

Only genuine/original spare parts shall be used while carrying out the maintenance work.

Any major repair involving overhaul of engine, rewinding of motors, replacement of major components like compressor etc. is excluded from the scope of work and shall be paid for on actuals. However, if the repairs/replacement arises out of negligence of the Contractor or his staff, the same shall be carried out by the Contractor at his own cost. Prior approval of the Engineer is to be obtained for any such major repair/replacement.

The Contractor shall depute qualified and experienced staff for running and maintenance of the Systems/Equipments.

The Contractor shall follow all instructions conveyed to him by the concerned SAFDARJUNG HOSPITAL officials regarding maintenance of the above.

SPECIFICATIONS FOR OPERATION OF HVAC SYSTEM, AND ALLIED ACCESSORIES INSTALLED IN EMERGENCY BLOCK SAFDARJUNG

1.0 LIST OF MAJOR EQUIPMENTS OF THE HVAC PLANT AND SYSTEMS AT SSB BLOCK, SAFDARJUNG

<u>Sl.No.</u>	<u>Major Items</u>	<u>Qty.</u>	<u>Manufacturer</u>	<u>Capacity</u>
1.	Chilling machines	03 nos	York	500 TR
2.	Cooling Towers	03 nos	Advance	700 TR
3.	Hot water Generator	04 nos 03 nos	KEPL KEPL	300KW 200KW
4.	Chilled water pump (Primary)	04 nos	Xylem	1200 usgpm
5.	Chilled Water pump (Secondary)	03 nos	Xylem	1800 usgpm
6.	Condenser water Pump	04 nos	Xylem	1500 usgpm
7.	Hot Water pump	03 nos	Xylem	200 usgpm
8.	Double Skin AHU with accessories(FM)	56 nos	Zeco	Various Capacities
9.	CSU	3 nos.	Zeco	Various Capacities
10.	Fan coil Unit	76 nos.	Zeco	Various Capacities
11.	Centrifugal Fan	51 nos	Siwent	Various Capacities
12.	Axial Fan	129 nos	Kruger	Various Capacities
13.	Inline	51 nos	Ostberg/Crompton	Various capacities

- | | | | |
|-----|---|--------|-----------|
| 14. | Air Washer | 01 nos | 25000 CFM |
| 15. | LT panel, MCC panel
Distribution Panel,
Starter panels for HVAC | 01 Lot | SPC |
| 16. | Air-conditioning ducting
covered with different
thickness of insulation
boards Aluminum sheet
etc & its accessories
like galvanized sheet
metal fire dampers with
solenoid valves & outlets,
air grilles etc | 01 Lot | |
| 17. | Piping (MS)
network for water
circulation, insulated with
polyurethane insulation
along with necessary
fitting i.e. bends, tees,
reducer flanges, butterfly
valves, balancing valves,
non return valves, gate
valves & Y- strainers etc.
and expansion tanks. | 01 Lot | |
| 18. | Desk type control
console with indicating
lamps with internal wiring
and control wirings | 01 Lot | |

2.0 SCOPE OF WORK FOR HVAC

The Scope of work as mentioned below are the minimum expected from the contractor. Any other work required for operation (Not covered under DLP) in proper way as per the operation and maintenance manuals of respective equipments and as per good engineering practices will be required to be done under this scope of work. Ensure the safety of the equipments and personals using it.

Successful bidder will make Performa for recording the following minimum work schedule / parameters and show to HSCC/ Client to ensure proper accomplishment of these tasks.

The scope of work shall include but not limited to smooth running, Operation and Maintenance of Heating Ventilation and Air conditioning systems (HVAC) as given in brief as above in 1.0. This shall include smooth running of the plants in three shift (or as specified), starting up of the plants, changeovers, shutdowns, inspection and record keeping, checking of refrigerant, Air distribution, purging operations, adjusting fresh air, operating pumps, valves, cooling towers, operation of individual Air Handling Units (AHU), Ceiling Suspended Units (CSUs), FCUs, motor control centers etc., inspection of filters/coils and their cleaning, topping up of oil, water, preventive maintenance & cleaning of all the equipments etc. in the systems as per the normal operating standards as specified by the manufacturer and as directed by Engineer-In-Charge to maintain operating conditions of the systems.

A. WORK TO BE DONE ON EVERY DAY BASIS:

1. The readings of the suction and discharges pressure, oil pressure, oil & gas level, suction and discharges pressure of pumps, Voltmeters & Ammeters etc shall be checked and recorded in the LOG-BOOK (provided by contractor as per Formats) on hourly basis. Necessary corrective actions are to be taken if the readings are not normal.
2. To check all the electrical motors and their bearings for abnormal noise / heating and to take necessary action if found abnormal.
3. To check the water level in the make-up water tank in the Cooling Towers and check functioning of float valve. See proper function of the Cooling Towers. Chemical dosing, water hardness checking, chloride checking and recording with remedial / corrective actions.
4. To drain out water and clean the AC Plant Room / Cooling Towers/AHU`s etc as and when required / scheduled.
5. The inside ambient conditions i.e. DB, WB & RH of all the AHU`s shall be recorded on hourly basis. Filters of the AHU`s/ Fresh Air inlet etc are to be cleaned regularly as per schedule. The FINE/ HEPA Filters installed at different places are to be given special attention.
6. The temperature of each room shall also be measured for any corrective action and these are to be recorded in log-book.
7. To keep the machine rooms equipment such as chilling plant area, AHU`s, Exhaust fans neat and clean including their room floor, wall ceiling etc. in an orderly manner.
8. Any other work required by the equipment manufacturer/supplier/client for proper functioning.
9. All the complaints shall be attended within stipulated time after receiving it by phone / SMS or in complaint register format and rectified in totality to the entire satisfaction of the complainant and engineer or his representative.

However complaint related to any emergency work has to be attended immediately without loss of time.

B. WORK TO BE DONE ON WEEKLY BASIS:

1. To check the refrigeration system.
2. To clean all the strainers and the filters of the Cooling Towers.
3. To check the lugs/thimbles/ terminal points of the electrical motor, switches, starters single phase preventors and the indication lights .etc
4. To check the alignment / looseness of all the belts driven equipment and rectify if required.
5. Filters of AHU`s/ Fresh Air inlet etc. are to be cleaned regularly as per services maintenance schedule.
6. Check water distribution.
7. Check float valve operation in water tank and expansion tank.
8. Check and clean air filters.
9. Check belt tension and alignment.
10. Check pump gland.
11. Check solenoid valve.
12. Clean water strainers.

C. WORK TO BE DONE ON MONTHLY BASIS:

1. To check the gland / seal, coupling of Pumps and Cooling Towers.
2. To check the solenoid valve, safety controls Mechanical, Electrical/ Electronics and the inter-locking of the various equipments.
3. To check and clean the nozzles of the Cooling Towers and to clean the basin and sump of Cooling Towers. Look for water escaping from sides or from overflow and take remedial measures.
4. Blow out motor dust.
5. Check all settings and test operation of all safety controls.
6. To check the Drain pan of AHUs and clean.

D. WORK TO BE DONE AFTER EVERY THREE MONTH:

1. To check and lubricate (if required) the bearing of the motors and keep the proper record.
2. To check the foundation bolts of the Pumps and motors and to take the necessary action if required.
3. To check and reset the relays and controls, and to maintain the proper record. Carry out servicing of the main switches/ACBs as required. To tighten all screws, nuts, bolts of the Electrical Power / control system.
4. Check the quantity of Air flow from various out lets in each Room/ Area as per drawing and do adjustments of dampers etc as and when required.

E. WORK TO BE DONE HALF YEARLY:

1. Clean water strainer in chilled water circuit.
2. Check the overload by measuring the amperage, check anti-recycle timer and operation of the electrical interlock, and voltage across the compressor terminal.
3. To tighten the clamps of cooling tower blades.
4. Cleaning of starters of all motors during winter shutdown.
5. De-scale water tubes in condensers.
6. Check the functioning of all controls and reset if requires.
7. Clean the cooling tower fills.
8. Check all strainers.
9. Clean cooling coil fins.

F. WORK TO BE DONE YEARLY:

1. Check dampers operation for freeness in operation clean and lubricate.
2. Check for obstructions loose boards fallen insulation on air ducts.
3. Check all wirings for loose contacts and rectify.
4. Clean baskets of pot strainers and "Y" strainers for AHU's.
5. Drain all water from pipe lines and fill fresh water. Do not keep water lines without water.
6. Change the oil in oil sump. Change filters and check oil temperature controls.
7. Inspect starter contracts are shield, transformer, and motor terminals, check connection in starter, tighten motor terminal control circuit terminals.
8. Inspect, calibrate and adjust all safety and operating controls including low temperature and high- pressure cut outs, motor protector, oil pressure control, and fan temp control to original specifications.
9. Chemical cleaning of cooling coils twice in a year during winter shutdown after six months.
10. Meggar all the motors & electrical panels during winter shutdown.
11. Calibration of all temperature gauges, pressure gauges, RTDs and sensors and submitting of certificates for record.
12. Cleaning the evaporator if required.

H. Special Requirements:

Where ever required specialized filters have been used in the inlet air systems of the HVAC Plant. Special maintenance and cleaning has to be done on it. These filters have to be changed (filters included in scope) as per schedule/ system requirement, as and when required.

At a minimum, the following tests should be performed:-

1. Hepa Filter Media
2. Filter Frame Leak Test
3. Air flow velocities, Air changes, Pressure differential.

It is recommended these tests be performed by a qualified technician who is familiar with the methods.

After the initial certification and recommendations these tests of calibration/ Validation shall be re-certified at a minimum on an annual basis and the contractor will submit the calibration/validation reports to HSCC /Client for record.(for HEPA Filters only)

- I. **LOG-BOOK** for recording of parameters related to HVAC systems shall be provided and maintained by the contractor showing the complete working done on the HVAC systems and it should be made available to the engineer-in-charge of HSCC.
- J. **All maintenance materials** such as Lube oil, Refrigerant / Gas, oil filter, fuel filter, electric contactor, indicating lamps, HRC fuse, relays and all spares of chillers, AHU`s different type of Air filters, water chemicals, water testing chemicals etc shall be provided by the contractor for the HVAC Plant system. All spares parts and materials used shall be genuine and of same make and type as installed and a minimum quantity of spares, refrigerants and materials for routine maintenance shall be kept at site to minimize time of maintenance. The contractor has to keep all equipment well maintained of whole HVAC Plant system so as to give proper output at all times.
- K. **Tools and equipments** required for proper operation for whole systems with their allied accessories etc. shall be provided by the contractor.
- L. **Deployment of manpower:-** As per manpower deployment schedule i.e. FORMAT III. The manpower should be technically qualified and well experienced to operate the systems and attend to the related works of these systems. Any other manpower required shall also be made available by the contractor for proper functioning and will be in the scope of contractor. Proper supervision of contractor`s senior engineers has to be provided to oversee the whole work for the smooth operation and maintenance services as and when required but at least monthly which shall be recorded in the Log-Book.
- M. **Qualification of Manpower:-**The contractor should deploy the manpower as per the following qualifications:-
 - a) Supervisor diploma in mechanical / HVAC with 3 years experience in operation and maintenance of HVAC system.

- b) Operator cum mechanic ITI in 'Air-conditioning and refrigeration' or Mechanical with min 3 years Experience in this field.
 - c) Electrician ITI in electrician with min 3 years experience in same field.
 - d) Helper – with 1 years experience in relevant field.
- N.** The HVAC Plant systems, which are installed, will be required to run in three shifts (including Saturdays, Sundays and Public holidays etc) depending upon requirements.

- O.** Care shall be taken so that the HVAC Plant systems do not lead to major breakdown. If any breakdown takes place the whole component has to be replaced/ rectified to bring it to the original condition immediately.

In the event of any breakdown, the same will be rectified immediately as per response time failing which such rectifications will be done at the risk and cost of the contractor including all incidental expenses at actual without any justification of items. Engineer In-charge decision shall be final.

P. List of Spares/ consumables which are to be kept in stock by the contractor at Site.

1. HRC Fuses of all the rating required.
2. Contactors and relays.
3. V-belt of various sizes as per site requirement.
4. Indicators Lamp including holders for various electrical panels/D Bs etc.
5. Grease and lubricating oil required for lubrication of mechanical parts of the equipments.
6. A minimum stock of the various size/ rating filters and HEPA-filters.
7. A minimum stock of the refrigerant is to be kept at site.
8. Different sizes of ball bearings for the motors, blowers etc to be kept at site.
9. Lugs/thimbles/brass compression glands/cable jointing kits etc required for the cables of any size.
10. CTC/contact cleaning compounds required for cleaning of contacts periodically.
11. Handle/Knobs of the switch fuse/fuse switch units.
12. Toggles switches of the panels.
13. Important motors of different sizes for AHUs in critical areas to be kept as spare or as decided by HSCC / Client.
14. Pressure gauges / temperature gauge.
15. RTDs, Pressure transducers and various Sensors.
16. Water testing and treatment chemicals for maintenance of water quality in

both the water circuits.

NOTE: This list of consumables/ spares can be extended based on experience during operation and maintenance services as per site requirements.

Q. Bidder has to maintain the equipments installed at site in good working conditions. In case the equipments / component get defective same shall be repaired /replaced in accordance with performance standards/specified response time mentioned in the contract. Also entire installation shall be handed to the new agency in good working condition when directed by Client / Engineer. The details of items to be repaired /replaced under this scope of HVAC works are indicated as below. Engineer In-charge decision will be final:-.

Sl.	Name of Equipment/Capacity.	Repairable Items	Replacement items wherever required
1.	Chiller Machines	Motor rewinding, Compressor repair	Electrical cards, Sensors, solenoid valves, flow switch, Gas pump, Refrigerant and oil, display cards, connectors, RTD, pressure sensor, temp sensor, oil level sensor, fuses, contactors, relays, SPP, fasteners, safety controls and safety valves, Insulation, switchgears, refrigerant piping and fittings, .
2.	Condenser pumps	Motor rewinding.	Seal, bearing, coupling, Impeller, connection plate, fuses, contactor, relays, SPP, fasteners, vibration isolators, pressure gauge, painting.
3.	Chilled water pumps (primary)	Motor rewind	Seal, bearing, coupling, Impeller, connection plate, fuses,

		ing, straine rs, Insulat ion	contactor, relays, SPP, fasteners, vibration isolators, pressure gauge, painting.
4.	Chilled Water Pump with VFD (Secondary)	Motor rewind ing, straine rs, Insulat ion	Seal, bearing, coupling, Impeller, connection plate, fuses, contactor, relays, VFD Cards ,SPP, fasteners, vibration isolators, pressure gauge, painting.
5.	Cooling Towers (300 TR)	Motor rewind ing, straine rs, fan balanc ing,	Fan blades, bearings, gear box, Sprinkler, Fills, Nozzles, float valves, treatment chemicals, water hardness and chloride checking kit, Isolator switch, fasteners, gear Oil, lubrication oil, painting.
6.	Air handling Units.(Double skin/ unitary/ CSU)	Motor rewind ing, VCD, Fire Damp er.	Fan blades, valves, actuators, Shaft, bearing, cooling coil, V – belts, double skin filter, VFD, VCD, canvass connection, nut bolt, thermostat, control wiring, fresh air damper, bird screen , louvers, mixing / diverting / modulating valve, humidifier element, humidistat, geysersstat, contactor , strip heaters, fasteners, vibration isolators, suspension arrangement.
7.	FCU	Motor windin g	Motor, shaft, cooling coil, solenoid valves, actuators, thermostat, control wiring, fasteners.

8.	Hot water Generators.	Any contact point.	Element, Electric circuit, Switch thermostats, safety valves, ammeter, voltmeter, control relays, contactors, painting.
9.	Propeller/ Inline / Centrifugal / Axial/ventilation/ smoke extraction fans.	Motor rewinding, fan Balancing	Capacitors, mounting plate, Fan blades, louvers, bird screens, shaft, bearing , V – belt, damper, fda interlocking relays, contactors, starters, pulley, painting, FDA system interlocking relays, actuator and control panel.
10.	AC Panel, MCC PANELS, Starter Panels, Control console	ACBs	Push buttons, Contactors, fuses, lugs, relays, thermal over load relays, indicator lamp, holder, connector, SPP, compression gland, cables and jointing kit of various sizes, CTs, voltmeter, ammeter, selector switch, TPN FCU, MCCB, control wiring, door handle, knob, door lock arrangement, Insulators, screws, fasteners, flexible cables, control wiring, door gaskets.
11.	Air-conditioning duct complete with all accessories		All the required works with spares such as damper, VCD, grilles, diffusers, air registers, vanes, GSS sheets.
12.	Piping network complete with expansion tanks		All the required works with spares, valves ,Strainers, pressure gauges, temp gauges, RTDs, Butterfly , ball valve, and balancing valves, NRVs, Y-strainers,

			air vents, pressure gauges, temperature gauges, hangers, supports, flanges, gaskets, bends, Tee, reducers, welding works , patch painting
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Note: The items mentioned above (s.no.1 to12) are just indicative. However, the contractor has to repair / replace items which are required for operation & maintenance of equipments in working condition without any extra cost.

The contractor shall ensure proper temperature in air-conditioned space as per season (Summer / Winter/Monsoon), periodical maintenance and cleaning of grilles/diffusers at all floors/cooling towers/AHU filters, AHU rooms etc and periodical painting of all equipments pipe lines etc as per requirement or as directed by Engineer –in-charge.

S) The Contractor will submit the detailed preventive maintenance schedules in accordance with the above mentioned guidelines, within one Week of award of contract, for the approval of Engineer-In-Charge. The approved schedule has to be followed in true spirit and deviation, if any, will be decided by the Engineer-in-Charge.

Operational requirement, in brief, includes plant start up, plant change over, plant shut down, routine inspection, record keeping, checking and adjusting the air distribution system as per normal optimum operating standards as specified by manufacturer and as directed by Engineer-in-charge.

Additional S C C for HVAC system

1. The bidders are required to visit the site to see the actual installations for themselves to assess the quantum of work involved before submitting the tender. Once the tender is submitted, it will be presumed that the bidder has seen and understood the complete work involved for each of the system.
2. **Pre-qualifications Criteria: -**
 - a) The contractor should be presently rendering their services for operation and maintenance of similar works i. e. operation and comprehensive maintenance of similar HVAC Plant Systems of not less than 3X500TR capacity of centrifugal type chilling machines along with allied accessories etc. for complete HVAC system, in any Government Sector or large reputed Private Sector enterprises, for at least last three consecutive years satisfactorily. Necessary relevant documents to this effect shall be enclosed.
3. **Applicable Law:**
 - 3.1 The contract shall be interpreted in accordance with the Laws of the Union of India. Contractor shall be solely responsible for compliance of all labour laws, payment of fair wages/ salaries and allowances to his personnel that might become applicable under any new act, law or order of Government of State / Centre. HSCC/Client shall have no liability whatsoever in any manner.
 - 3.2 Minimum wages act to be complied with - The contractor shall comply with all the provisions of the Minimum Wages Act, 1948, and Contract Labour (Regulation and Abolition) Act, 1970, amended from time and rules framed hereunder and other labour laws affecting contract labour that may be brought into force from time to time.
4. **Penalty clause applicable:**
 - a) If the standby unit (in part or full) of HVAC system of any building fails, the contractor shall repair the unit within 48 hours time and make the same ready for operation. For the purpose of penalty clause, one unit will comprise of the compressor, condenser, chiller, cooling water pump and chilled water pump. If the contractor fails to repair the standby unit within 48 hours, the following penalty will be imposed:-
 - 1% of the monthly HVAC charges of corresponding item of schedule of rates quoted by the contractor will be deducted for delay of each day beyond 48 hours of breakdown.

While the standby unit is not available and if any other running unit of the same system (in part or full) fails, the following penalty will be imposed:

- 2% of the monthly HVAC charges of corresponding item of schedule of rates quoted by the contractor will be deducted for failure of working unit per day including the day of failure.

For not maintaining the prescribed temperature & humidity limits:

- For First 24 hours at the rate of 0.5% per day of the monthly HVAC charges of corresponding item of schedule of rates quoted by the contractor.
- Beyond 24 hours at the rate of 1% per day of the monthly HVAC charges of corresponding item of schedule of rates quoted by the contractor.
Minimum stock of refrigerant: If the contractor fails to keep the minimum stock of refrigerant as required for the HVAC systems, the following penalty will be imposed:
- 1% of the total monthly HVAC charges quoted by the contractor will be deducted for a shortfall of every cylinder per week or part thereof. However, this penalty will not be charged for periods less than one week.

b) FOR MANPOWER:

A minimum of 06 nos. of manpower in plant room and floors shall be available in the shift operations and maintenance failing which the following penalty will be imposed:

1% per week per person absentee of the total monthly HVAC charges payable for the month beyond one week of absentee. However the total maximum penalty imposed, during the month, under all above clauses shall be restricted to the total monthly charges payable, which shall be inclusive of charges towards HVAC systems.

However, total penalty charged on account of all of the above shall not be more than 5% of the total contract value.

5. The contractor shall make his own arrangement for tools and tackles, refrigerant, testing equipments like gas leakage detection torch, vacuum pumps, charging unit etc, and all other materials/tools including spares, filters and lubricants required for the completion of maintenance work of HVAC systems.

6. The routine maintenance jobs are to be carried out during the timings from 09:00 Hrs. to 18:00 Hrs. on all working days. However, permission may be granted for extending the timings for specific task on the request of the contractor.
7. The responsibility of HSCC / Client will be to make 3 phase power available up to MCC panel. To rectify the control circuit or wiring problem related to the main panel / control console desk / instrument panel of HVAC systems will be responsibility of the contractor. The necessary follow-ups with the agencies will be in the scope of contractor.
8. The contractor will be responsible to run the units as required failing which penalty as specified in the relevant penalty clause will be imposed. In case of non-availability of spares which are to be procured and kept at site by the contractor, penalty clause will be applicable.
9. In case, any fault, such as burning of electrical motor or compressor seizure/damage etc the contractor will have to make good the losses either by repair or by replacement as the case may be. HSCC / Clients decision shall be binding on the contractor in this regard.
10. On the expiry of the contract, the contractor will have to handover all the HVAC system with associated accessories in good running condition, with all equipments charged with refrigerant/ lubricants up to the required/specified operating pressure/level failing which the same will be performed by HSCC / Client on its own or through any other agency and the cost of the same, including transportation charges, overheads etc., will be deducted from the pending bills/security deposit of the contract.
11. If any part of HVAC system is not attended with in stipulated period of breakdown, HSCC / Client will be at liberty to repair the said part from any other agency or by its own and the amount spent on such repair work, including transportation charges, overheads, etc. will be deducted from the bill of the contractor. This will be in addition to the imposition of Penalty to the contractor as specified in the Penalty Clause.

12. SCOPE OF WORK IN GENERAL

Besides above, the contractor will attend to all break downs promptly within the prescribed time limits, failing which the Contractor is liable to attract Penalty as described in the Penalty Clause. All the technical details regarding air conditioning unit, operation details, procedures of maintenance

or any other clarification, can be taken from Engineer-in charge as and when required.

13. Contractor shall maintain records and log sheets in the format as specified by Engineer-in-charge .Log book / log sheet shall be arranged by the contractor at his own cost.

14. Scope of supply:

The contractor shall supply equipments/ spares/ refrigerants and lubricating oils for the central HVAC systems plants installed and package air conditioners. The electric power supply and water required for the running of the air conditioning systems will be supplied by HSCC / Client free of cost.

The scope of supply for contractor shall include but not limited to supply of all the spares, refrigerant, consumables, water treatment chemicals, test equipments, tools & tackles, manpower and any other item required to run/maintain the HVAC system.

The contractor shall always maintain a min stock of SPARES, CONSUMABLES, CHEMICALS, Refrigerant at site as per maintenance manuals of respective equipments and as directed by Engineer-In-charge.

Any other item not specifically mentioned above but required to complete the jobs in totality shall be in the contractor's scope of supply.

**Log book for plant room
Shift Timing**

TIME	Suction Pressure	Discharge pressure	Voltage	AMP	FLA %	A		B				C						Remarks			
						Chilled Water temp	Chilled Water Pressure	Condenser Water Temp	Condenser Water Pressure	Suc Temp	Disch temp	Oil temp	Oil pressure	Ref lev e	CD WP	CT	CH WP				
						In	Out	In	Out	In	Out	In	Out								
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					
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22																					
23																					
24																					
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					

Work Done in Shift A

Work Done in Shift B

Work Done in Shift C

**Log book for AHUs
Shift Timing**

TIME	Chilled Water temp		Hot Water Pressure		Noise Level	Belt tension	Filter condition	Temp			Supply Zone		AMP	Remarks
	In	Out	In	Out				DB	WB	RH	TEMP	RH		
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
1														
2														
3														
4														
5														
6														
7														
8														

Work Done in Shift A

Work Done in Shift B

Work Done in Shift C

REGISTRATION OF COMPLAINT

Date

Name of work:

Sl. No.	Description of complaint	Nature	Complaint by whome	Specific Location	Register of complaint		Attendance of Complaint		Complaint done by		Remark by Client
					Date	Time	Attended by	Expected Date and time	Attended by	Actual date and time	

**Signature
Sup. Contractor**

**Signature
J.E.**

**Signature
Clerk**

Satisfactorily attended:-

**Signature
Client**

**Signature
Rep HSCC**

Date

FORMAT FOR COMPLAINT REGISTER

Name of work: HVAC day to day maintenance

Sl. No.	Description of complaint	Complaint by whom	Specific Location	Register of complaint		Attendance of Complaint		Signature	
				Date	Time	Attended by	Expected Date and time	Contractor	Complainant

TECHNICAL SPECIFICATION: ELECTRICAL WORKS

1. Scope of work: -Electrical

The agency will be responsible for operation/ maintenance of following electrical items/ works:

- Maintenance of Internal Electrification works including all light fixtures, switches, Power Points (5A, 15A Sockets & 20A Industrial Sockets), MCB Distribution Boards, MCBs, Ceiling Fans, Wall Bracket Fans, Exhaust Fans, Wiring, Cabling etc. complete
- Maintenance of External Lighting including External Poles, Light Fixtures, Control Box, Cabling, feeders pillars, bollard light fixtures, gate light (post top lanterns) etc. complete
- Operation and maintenance of 1000 KVA Diesel Generator Sets- 4 numbers with Synchronization Panel.
- Operations and maintenance of 26 Passenger Lifts– 2 Nos (6 Stops and 6 landing) and 6 nos (12 stop and 12 landings).
- Operation and maintenance of Transformer (11 KV/0.433KV, 2.5 MVA – 3 nos)
- Operation and maintenance of 7 panel Board of 630 A HT Panel
- Operation and maintenance of LT Panel having 3 no. ACB incomer of 4000 A, 2 no. bus coupler of 3200 Amp., The ACBs are EDO, microprocessor based O/L, S/C, E/F & instantaneous trip, and different out goings in the form of ACB &MCCB as installed at site.
- Operation and maintenance of Capacitor Panel: 800 KVAR with APFC relay, capacitors, timers, MCCBs etc complete as installed at site
- Operation of other MV panels as installed at site at different locations.
- Maintenance of Manual Fire Alarm System installed in different buildings including FDA panel, manual call points.
- Material required for the minor maintenance of all the items will be arranged by the Contractor. Nothing will be paid for such minor material.
- Tools and tackles to carry out the maintenance will be provided by the contractor.
- Printed log books to be provided by the contractor.
- The contractor should keep all the equipments in good working condition.
- If something gets damaged i.e. civil work etc during the maintenance work, Contractor has to rectify the same at his own cost.
- Special items used for the upkeep of ESS will paid on actual.
- For DG set ‘B’ checks included in AMC, however other components will be paid on actual.
- For the lifts AMC one mechanic and one helper will reside in premises round the clock.
- Following Tools and tackles to carry out the maintenance will be provided by the contractor.

Plier all type, Test Lamp, Tong Tester, Multi meter, Magger, Screw driver set all types, Spencer set all type, Phase Tester, Phase sequence Tester, Drill machine including Hammer drill. Etc. or any other tools tackles required for successful maintenance of electrical work shall also be arranged by the contractor.

Scope of the work as mentioned below is the minimum expected from the contractor in order to keep the equipments in good working condition:

1. Fire Detection and Alarm System. (Manual type)

1.1. Work to be done on daily basis:

1. Checking of battery
2. General check-up of the entire system
3. Checking of current & voltage of the panel
4. General checking of all Manual Call points.
5. Replacement of defective parts in the fire panels.

1.2 Work to done on half yearly basis:

1. Checking of functioning of entire FDA system.
2. Checking of MCP against proper functioning.
3. Replacement of defective parts in the panel

1.4 Work to be done on yearly basis

- a. Replacement of battery if required.
- b. All the checks as mentioned in half yearly basis.
- c. Any other checking required as per manufacturer's recommendations

2.0 D.G SETS.

2.1 Work to be done on daily basis:

1. Specific gravity, water level and voltage of batteries.
2. Cleaning of battery terminal, if required
3. Running of DG sets at least for 5 minutes every day in winter season
4. Checking of oil level in day tank
5. Physical inspection of DG set & AMF panel
6. Lub oil level in the DG set.
7. General cleaning of DG set if required.
8. General inspection of cooling towers, pumps etc.
9. Temperature of inlet & out let water in CT.
10. Ph of CT water.

2.2 A log Book is to be maintained on regular basis by the contractor duly signed by Engineer Incharge. The log book should contain minimum following data entry or as specifies by the manufacturer.

1. Specific Gravity of battery
2. Voltage of battery
3. Electrical parameter of the DG set like Current, voltage, frequency, p.f, KW, KWh, KVA etc
4. Diesel level in day tank
5. lub oil level.
6. Running hours of the DG set
7. Water temperature.
8. Room temperature
9. Noise level
10. Lub oil pressure
11. Consumption of diesel

2.3 Work to be done on monthly basis:

1. 'B'/'C' checks as per manufacturers instructions.
2. Cleaning of strainers in the fuel line.
3. Watering of earth pits.

2.4 Work to be done on half yearly basis:

1. Safety checks of the DG sets
2. Operation of all the relays
3. Checking of electrical panels

3. Checking & cleaning of contacts of ACB, relays etc.
4. Checking of safety interlocks
5. Checking of functionality of relay and calibration if required.
6. Checking of insulation resistance
7. Checking of earth resistance.
8. Cleaning of cooling tower
9. Tighten the blades of cooling tower.
10. Any other checking required as per manufacturer's recommendations

2.5 Work to be done on yearly basis:

- 1 Repeat half yearly work
- 2 Change the battery, if required.
- 3 Any other checking required as per manufacturer's recommendations

3.0 ELECTRICAL INSTALLATION OF SUBSTATION:

3.1 Work to be done on daily basis:

General inspection of HT panel, transformers and related equipments including the following:

1. Level of oil in conservator of the transformer
2. Colour of silica gel in the breather of the transformer.

3.2 Work to be done on yearly basis

1. The dielectric strength of the transformer oil to be checked once in a year.
2. Function/ tripping through the relays to be checked once in a year.

3.3 A log Book is to be maintained on regular basis for **HT sub-station** duly signed by the Engineer. The log book should contain minimum following data entry:

- 1 HT voltage
- 2 Current
- 3 Frequency
- 4 Winding temperature of transformer
- 5 Level of the oil in the conservator of the transformer
- 6 Colour of the silica gel in the breather of the transformer
7. Remarks

3.4 A separate log Book is to be maintained on regular basis for **LT panel** duly signed by contractor and Engineer of the client. The log book should contain minimum following data entry to be filled up **on hourly basis:**

1. Total current on incomer

2. Voltage on incomer
3. Current of different out going feeders in R, Y & B phase
4. Power Factor

3.4 Work to be done on half yearly basis:

1. Safety checks of the Panels
2. Operation of all the relays
3. Checking of electrical panels
4. Checking & cleaning of contacts of ACB, relays etc.
5. Checking of safety interlocks
6. Checking of functionality of relay and calibration if required.
7. Checking of insulation resistance
8. Checking of earth resistance.
9. Any other checking required as per manufacturer's recommendations
10. Watering of earth pits

3.5 Work to be done on yearly basis:

1. Repeat half yearly work.
2. Thorough cleaning of panels after arranging the shut down of the panels.
11. Any other checking required as per manufacturer's recommendations

4.00 LIST OF APPROVED MANUFACTURERS

1.	Battery:	Panasonic/Hitachi/Cummins/Exide
2.	Automatic Battery Charger:	Max Power/ Voltstat/
3	ACB	L &T 'U' Power(Omega)/ Siemens 3WL/ ABB/ Legrand(DMX)/ Schneider (NW- Master Pact)/GE- Entelligentuard
4	Moulded Case Circuit Breaker	L &T – (D sine/DL) / Siemens-VA/ ABB-TMA/ Schneider (Compact NSX)/Legrand-DPX
5.	Power/auxiliary Contactors, timers, Relay, starters	ABB/ Schneider/ L&T/ Siemens
6.	AMF Relay	wood ward/ Control & switchgear/
7.	SFU with HRC	L&T/ Siemens/ ABB/ Schneider/GE
8.	Change over switches/Isolators	Schneider / Siemens/ABB/GE/L&T
9.	Instruments (Analog & Digital)	Conzerve/ L&T/ AE/ Siemens/ Minilec/ Rishab/ Schneider/ABB
10	Timers	Legrand/ L&T/ Siemens/ ABB BCH
11	Cast resin current Transformers:	AE/ Kappa//L&T/ Rishab
12	Selector Switches:	L&T-Salzer/KAYCEE/ Siemens
13	Push button, Indicating Lamps LED:	L&T-Esbee/Siemens/Schinder/Veshno/RAAS/ Rishab
14	Rubber Mats:	ISI marked
15	Auto manual changeover switches (3Way)	Kaycee/L&T/ Schnieder/Siemens

- **Equivalent makes can be added with price adjustment with the approval of Engineer-in-charge**

16	MCB distribution Boards	L &T/Hager/Legrand/ Siemens/ Schneider/GE /Havells/ HPL/Philips/MDS
17	RCCB/MCB	L & T / Legrand-DX3/ Siemens / Schenider –Acti 9/GE/ Hager/HPL/Philips/Havells/MDS
18	HT/LT- XLPE cables	CCI/ Universal/Finolex/ Rallison

19	Copper Control cable	CCI/ Universal/Finolex/ Rallison
20	Compression Glands & Lugs	Comet/ Dowells
21	PVC Tape	Steel Grip
22.	Cable Jointing kit	Raychem/3M
23.	Cable Trays/ Raceways	OBO/ Legrand/ Cooper/BEC
24	Terminal Strips	Elmex
25	Light fitting	Philips / GE/ Crompton Greaves/
26	Fancy lights	Kesalec Schreder/ Decon/ and above light fixture against s.no.-33.
27	LED light fitting & Fixture	Philips / GE/ Crompton Greaves/SYSKA
28	Lamps	Philips/ GE/CG/ SYSKA
29	MS conduit	BEC/ AKG/ Steel Kraft
<p>• Equivalent makes can be added with price adjustment with the approval of Engineer-in-charge</p>		
30	PVC conduit	Supreme/Prince/Finolex/
31	Conduit accessories MS & PVC	ISI marked
32	Copper conductor PVC insulated wires, Co-axial , Telephone wires & cables	Finolex/ Havells/ L&T/ RR cable/ Skytone / Rallison/Batra Henlay/ Bonton/
33	Additional make for telephone wire & cable	Delton
34	Modular Switches & sockets Outlets	Legrand-Myrius or Anti bacterial/L&T Oris/ Schneider -Livia / Philips -Sleek
35	Metal clad Socket outlets With boxes	L & T /Hager/ Siemens/ Schneider/ ABB/Legrand /HPL
36	Lighting protection	Erico/Galaxy electrode /Earth plus
37	UPS system	Schneider- MG , APC/ Etone Power ware/ Emerson
38	High Mast poles	Crompton Greaves/ Bajaj /Phillips

39	Electronic Ballast	Philips/ GE/Crompton
40	Ceiling fans	Crompton Greaves/ Orient/ Usha
41	PC with CPU and monitor etc	HP/ Compaq/Del
42	Printer	Hp
43	Auto Transfer switch	Cummins/Emerson/Panasonic
44	Public address system	Bosch/ Bose/ Honey well /Harman/
45	CCTV camera	Honeywell/ Pelco /Bosch/Sony/Axis
46	LCD/LED Monitor	Sony/Panasonic/Samsung/ Toshiba
47	Fire Detection System Addressable	Honeywell-Notifier-Esser/Edward/Cooper fire alarm system/Bosch/ Siemens

- **Equivalent makes can be added with price adjustment with the approval of Engineer-in-charge**

48	FDA Conventional	Honeywell/Bosch /Cooper fire alarm system
49	Portable fire extinguisher	Minimax/Ceasefire/
50	EPABX system	Avaya/ Siemens-unify/Alcatel/Cisco
51	Nurse Call bell system	Honeywell/Schreak/ Rauland
52	Capacitor	Epcos, Schenider, L&T, Ducati
53	APFC Relay	Epcos, L&T, Biluk, Ducati
54	Occupancy Sensor	Philips/ Honeywell/ Schneider/Lutron/Legrand
55	BMS, field devices etc	Honeywell-Trend/L&T-Atmos/Siemens/Schneider
56	Lighting Control	Lutron/ Philips/ ABB/ Schneider/ Legrand
57	Chemical Earthing	OBO Bettermann / Erico/Furse / Ingesco/JMV
58	Access Control System	Honeywell-Pro-3000/Schneider/Lenel/Cardex
59	CAT 6 UTP, CAT 6A UTP/STP, Optical Fibre-cable	Molex/Systimax/Panduit

- **Equivalent makes can be added with price adjustment with the approval of Engineer-in-charge**

ANNEXURE-C

SPECIFICATIONS FOR MGPS AND ALLIED ACCESSORIES AND OPERATION THEATRES INSTALLED IN EMERGENCY BLOCK AT SAFDARJUG HOSPITAL, NEW DELHI

1.0 LIST OF MAJOR EQUIPMENTS OF THE MGPS

<u>Sl.No.</u>	<u>Major Items</u>	<u>Qty.</u>	<u>Manufacturer</u>	<u>Capacity</u>
1.	Air Compressor	5 nos	Atlas Copco	255 SCFM
2.	Vacuum Unit	04 Nos	BUSCH S.A	330 CFM
3.	AGSS	01 No.	PENLON	
4.	Automatic Control Panel	03 Nos	PENLON	2000LPM 700 LPM 500 LPM
5	Pressure Reducing Stn	2 Nos		
6.	Drier Assembly	1 No		
7.	Filter Assembly	1 No		
8.	Receiver	6 Nos		
9.	Valve Box			
10.	Line Valve			
11.	Alarm		PENLON	
12.	Master Alarm		PENLON	
13.	Bed Head Panel			
14.	Gas & Air Outlet		PENLON	
15.	Accessories:-			
	i) Flow Meter		PENLON	
	ii) Ward Vacuum Unit			
	iii) Theatre Vacuum Unit			
16.	Electric Control Panel	-1 No.		
17.	LMO Tank with accessories	-1 No.	INOX	10KL

**SPECIFICATIONS FOR OPERATION OF MGPS, AND ALLIED ACCESSORIES
INSTALLED IN EMERGENCY BLOCK AT SAFDARJUG HOSPITAL, NEW
DELHI**

**1.0 LIST OF MAJOR EQUIPMENTS OF THE OPERATION THEATRE AND
SYSTEMS**

<u>Sl.No.</u>	<u>Major Items</u>	<u>Qty.</u>	<u>Manufacturer</u>	<u>Capacity</u>
1.	Ceiling OT Light (LED) I) Camera II) Flat Monitor	15	Trilux	
2.	Anesthetic Pendant	15	Trilux	
3.	Surgeon Pendant	15	Trilux	
4.	Gas Outlet		Penlon	
5.	Surgeon Control Panel	15	Trilux	
6.	X-Ray Viewer	15		
7.	Digital Display Monitor	15	Scape	
8.	Hermetically Sealed Door	15	Metaflex	
9.	Hermetically Sealed Window			
10.	Writing Board	15		
11.	Peripheral Light		Philips	
12.	PR Damper	15		
13.	Laminar Flow System with HEPA	15	Trilux	
14.	Supply and Return Air Duct			
15.	Distribution Board	15		
16.	Copper Pipeline		Maxflow	
17.	PVC Flooring		Tarkett	
18.	Flat Monitor			
19.	Ceiling OT Light (Halogen)	2		
20.	Scrubber			
21.	Wall & Ceiling Panel (SMS)		Trilux	

22.	Integration and Data Management system of OT	2	Stryker
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3.0 SCOPE OF WORK FOR MGPS & OTs & Integrated OTs

The Scope of work as mentioned below are the minimum expected from the contractor. Any other work required for operation in proper way as per the operation and maintenance manuals of respective equipments and as per good engineering practices will be required to be done under this scope of work. Ensure the safety of the equipments and personals using it.

Successful bidder will make Pro-forma for recording the following minimum work schedule / parameters and show to HSCC/ Client to ensure proper accomplishment of these tasks.

The scope of work shall include but not limited to smooth running, Operation and Maintenance of Medical Gas manifold System (MGPS) including LMO tank Operation Theatres (OTs) & Integrated OT as given in brief as above in 1.0.& 2.0 This shall include smooth running of the plants & OTs & Integrated OTs in three shift (or as specified), starting up of the plants, changeovers, shutdowns, inspection and record keeping, checking of gases and Liquid Oxygen, Air and Gas distribution and Vacuum generation, purging operations, Pressure reducing station, operating Compressors, Vacuum Unit & AGSS, valves, Strainers, Gas Outlets, Alarms, Driers, operation of LMO(Liquid Medical Oxygen) Tank, Automatic Gas Control Panel, motor control centers etc., inspection of filters/Driers and their cleaning, topping up of oil, water, preventive maintenance & cleaning of all the equipments etc of MGPS and OTs and Integrated OT and operation of MGPS/ OTs & Integrated OTs as per the normal operating standards as specified by the manufacturer and as directed by Engineer-In-Charge to maintain operating conditions of the systems. The primary objective of the bidder is to ensure safe and reliable MGPS and their efficient Operation and use as per HTM2022 PART B standards. Staff responsible for operation and maintenance should be aware of the activities necessary to ensure the continued safe operation of the system and what action should be taken in an emergency. The authorised person (MGPS/ OTs and Integrated OTs) in particular should take a lead in explaining to users the function of the system and will have to be adequately trained and informed about the system. Operator will be responsible for safe cylinder handling, storage and transportation in case of MGPS. Any work involving alterations, extensions or maintenance work on the system should be subject to the permit-to-work procedure as per HTM standards in case of MGPS and Gas pipelines for OTs.

The operators should ensure a trouble free supply at the outlets at the required pressure. They should Monitor the consumption of O₂ & N₂O on hourly basis and monitor of Surgeon Control Panel in OT 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 HEPA filter status 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 MGPS/ OTs and Integrated OTs. It is the mandatory responsibility of the contractor to conduct training sessions of adequate level to the workforce to keep them fit for handling the MGPS plants and associated systems and OTs and Integrated OTs. 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 HTM for details like responsibilities for MGPS.

For MGPS, external safety and fire precautions Refer Section: 9,HTM 2022 Part B

Maintenance Refer Section: 10 ,HTM 2022 Part B For : Organization : General Work Procedures : Competency of Contractor's staff : Test equipment : Records : Emergency callout procedures : Responsibility of the user to monitor the services : Specific maintenance checks : Medical Vacuum Bacterial filter change : Schedule of Maintenance service : General safety requirements

A. WORK TO BE DONE ON EVERY DAY BASIS:

1. The readings of the suction and discharges pressure, oil pressure, oil & gas level, suction and discharges pressure of Compressors and at the outlets, Voltmeters & Ammeters etc shall be checked and recorded in the LOG-BOOK (provided by contractor as per Formats) on hourly basis. Necessary corrective actions are to be taken if the readings are not normal.
2. To check all the electrical motors and their bearings for abnormal noise / heating and to take necessary action if found abnormal.
3. To check functioning of valves and drain valves. See proper function of the Air Compressors, Vacuum Units & AGSS and recording with remedial / corrective actions.
4. To drain out air and clean the Compressed air and Vacuum system in the Plant Room as and when required / scheduled.
5. The pressure of the outlets and leakage at the outlet in the system shall be recorded on daily basis. Filters of the Air Compressor and Vacuum unit etc are to be cleaned as per schedule. The HEPA Filters installed at OT are to be given special attention.
6. The temperature, Pressure and RH of each OT room shall also be measured for any corrective action and these are to be recorded in log-book.
7. The machine rooms equipment such as Air Compressor, Vacuum Unit, AGSS, Air Receivers Exhaust fans have to be made neat and clean including their room floor, wall ceiling etc. in an orderly manner.
8. To check Surgeon Control Panel, Digital Display Monitor and all the equipment in OT and Integrated OT including Laminar system, doors and window of the OT for abnormal noise/heating/change of pressure/malfunctioning and to take necessary action if found abnormal.
9. Any other work required by the equipment manufacturer/supplier/client for proper functioning.
10. All the complaints shall be attended within stipulated time after receiving it by phone / SMS or in complaint register format and rectified in totality to the entire satisfaction of the complainant and engineer or his representative. However complaint related to any emergency work has to be attended immediately without loss of time.

B. WORK TO BE DONE ON WEEKLY BASIS:

1. To check pressure at gas/air/vacuum outlets and Safety valve and Burning Disc set at LMO area.
2. To check and clean the standard fitting area of LMO Tank
3. To clean all the strainers and the filters of the Compressed air and Vacuum system.
4. To check the lugs/thimbles/ terminal points of the electrical motor, switches, starters single phase preventers and the indication lights .etc

5. To check the alignment / looseness of all the belts driven equipment and rectify if required.
6. Filters and Driers of Compressors/Vacuum unit etc. are to be cleaned regularly as per services maintenance schedule.
6. To Check Gas, vacuum and air distribution.
7. To Check Line valve, Valve Box and Alarms.
8. To Check and clean air filters and Driers.
9. To Check belt tension and alignment.
10. To Check gland.
11. To Check solenoid valve.
12. To Clean strainers.
13. To check and clean the accessories of LMO Tank
14. To check and clean Automatic Control Panel
15. To check Surgeon control panel and Monitors
16. To check door & window
17. To check Scrub station

C. WORK TO BE DONE ON MONTHLY BASIS:

1. To check the gland / seal, coupling of Vacuum Pumps.
2. To check the solenoid valve, safety controls Mechanical, Electrical/ Electronics and the inter-locking of the various equipments.
3. Blow out motor dust.
4. Check all settings and test operation of all safety controls.
5. To check the Drain of Receivers and clean.
6. To check and clean the accessories of LMO Tank
7. To check LMO tank and Vaporizer and their accessories and valves.
8. To check Pendants
9. To check OT Lights
10. To check Integration
11. To Check Pass Box
12. To Check Sealed door and Window
13. To check Scrub station
14. To check Peripheral lights

D. WORK TO BE DONE AFTER EVERY THREE MONTH:

1. To check and lubricate (if required) the bearing of the motors and keep the proper record.
2. To check the foundation bolts of the Vacuum Pumps, Air Compressors, AGSS, LMO Tank and motors and to take the necessary action if required.
3. To check and reset the relays and controls, and to maintain the proper record. Carry out servicing of the main switches/ACBs as required. To tighten all screws, nuts, bolts of the Electrical Power / control system.
4. To Check the pressure at various outlets as per drawing and do adjustments of valves and Pressure reducing stations etc as and when required.
5. To Check HEPA Filters
6. To check OT Lights
7. To check Integration
8. To Check Pass Box
- 9.. To Check door and Window
10. To check Scrub station

11. To check Peripheral lights

E. WORK TO BE DONE HALF YEARLY:

1. To Check the overload by measuring the amperage, check anti-recycle timer and operation of the electrical interlock, and voltage across the compressor terminal.
3. To Clean of starters of all motors during winter shutdown.
4. To Check the functioning of all controls and reset if requires.
5. To Check all strainers and valves.
6. To Check HEPA Filters
7. To check OT Lights
8. To check Integration
9. To Check Pass Box
10. To Check door and Window
11. To check Scrub station
12. To check antistatic PVC floor
13. To check Peripheral lights
14. To check Wall and Ceiling Panel

F. WORK TO BE DONE YEARLY:

1. To Check dampers operation for freeness in operation clean and lubricate.
2. To Check for obstructions loose boards fallen insulation on air ducts.
3. To Check all wirings for loose contacts and rectify.
4. To Change filters and check oil temperature controls.
5. Inspect starter contracts are shield, transformer, and motor terminals, check connection in starter, tighten motor terminal control circuit terminals.
6. Inspect, calibrate and adjust all safety and operating controls including low temperature and high- pressure cut outs, motor protector, oil pressure control, and fan temp control to original specifications.
7. Chemical cleaning of cooling coils twice in a year during winter shutdown after six months.
8. Meggar all the motors & electrical panels during winter shutdown.
9. To Calibrate of all temperature gauges, pressure gauges, RTDs and sensors and submitting of certificates for record.
10. To Clean of the valves.
11. To Check OT Light
12. To Check Pendants
13. To check Laminar Flow system
14. To check door & window
15. To check antistatic PVC floor
16. To check Scrub station
17. To check Peripheral lights
18. To check Wall and Ceiling Panel

H. SPECIAL REQUIREMENTS:

HEPA filters of Laminar flow systems. Special maintenance and cleaning/replacement has to be done on it. These filters have to be changed

(filters included in scope) as per schedule/ system requirement, as and when required.

At a minimum, the following tests should be performed:-

1. Hepa Filter Media
2. Filter Frame Leak Test
3. Air flow velocities, Air changes, Pressure differential.

It is recommended these tests be performed by a qualified technician who is familiar with the methods.

After the initial certification and recommendations these tests of calibration/ Validation shall be re-certified at a minimum on an annual basis and the contractor will submit the calibration/validation reports to HSCC /Client for record.(for HEPA Filters only)

- I. **LOG-BOOK** for recording of parameters related to MGPS systems/Modular OT shall be provided and maintained by the contractor showing the complete working done on the MGPS/ OTs & Integrated OTs and it should be made available to the engineer-in-charge of HSCC.
- J. **All maintenance materials** such as Lube oil, Gas, oil filter, electric contactor, indicating lamps, HRC fuse, relays and all spares of compressors, Vacuum pumps, filters, etc shall be provided by the contractor for the MGPS/ OTs & Integrated OTs. All spares parts and materials used shall be genuine and of same make and type as installed and a minimum quantity of spares and materials for routine maintenance shall be kept at site to minimize time of maintenance. The contractor has to keep all equipment well maintained of whole MGPS Plant / OTs & Integrated OTs so as to give proper output at all times.
- K. **Tools and equipments** required for proper operation for whole systems with their allied accessories etc. shall be provided by the contractor.
- L. **Deployment of manpower:-** As per manpower deployment schedule i.e. FORMAT III. The manpower should be technically qualified and well experienced to operate the systems and attend to the related works of these systems. Any other manpower required shall also be made available by the contractor for proper functioning and will be in the scope of contractor. Proper supervision of contractor's senior engineers has to be provided to oversee the whole work for the smooth operation and maintenance services as and when required but at least monthly which shall be recorded in the Log-Book.
- M. **Qualification of Manpower:-**The contractor should deploy the manpower as per the following qualifications:-
 - a) **Supervisor**(Diploma in Electrical/mechanical) with 5-10 years experience in installation, operation and maintenance
 - b) **Operator cum technician** with 3-5 years experience in the same field or ITI.
 - d) **Helper** – with 3 years experience in relevant field and 8th standard.
- N. The MGPS/OTs & Integrated OTs which are installed, shall be required to run in three shifts (including Saturdays, Sundays and Public holidays etc as 24 x 7)
- O. Care shall be taken so that the MGPS/OTs & Integrated OTs do not lead to major

breakdown. If any breakdown takes place the whole component has to be replaced/ rectified to bring it to the original condition immediately.

In the event of any breakdown, the same shall be rectified immediately as per response time failing which such rectifications shall be done at the risk and cost of the contractor including all incidental expenses at actual without any justification of items. Engineer In-charge decision shall be final

P. List of Spares/ consumables which are to be kept in stock by the contractor at Site.

1. HRC Fuses of all the rating required.
2. Contactors and relays.
3. V-belt of various sizes as per site requirement.
4. Indicators Lamp including holders for various electrical panels/D Bs etc.
5. Grease and lubricating oil required for lubrication of mechanical parts of the equipments.
6. A minimum stock of the various size/ rating filters and HEPA-filters.
7. A minimum stock of the refrigerant is to be kept at site.
8. Different sizes of ball bearings for the motors, blowers etc to be kept at site.
9. Lugs/thimbles/brass compression glands/cable jointing kits etc required for the cables of any size.
10. CTC/contact cleaning compounds required for cleaning of contacts periodically.
11. Handle/Knobs of the switch fuse/fuse switch units.
12. Toggles switches of the panels.
13. Important motors of different sizes in critical areas to be kept as spare or as decided by HSCC / Client.
14. Pressure gauges / temperature gauge.
15. RTDs, Pressure transducers and various Sensors.
16. LED Bulbs for OT ceiling light
17. MED light for peripheral light
18. Gas Outlets
19. Line valves, Pressure gauges
20. Oxygen Flow meter & ward vacuum unit

NOTE: This list of consumables/ spares can be extended based on experience during operation and maintenance services as per site requirements.

Q. Bidder has to maintain the equipments installed at site in good working conditions. In case the equipments / component get defective same shall be repaired /replaced in accordance with performance standards/specified response time mentioned in the contract. Also entire installation shall be handed to the new agency in good working condition when directed by Client / Engineer. The details of items to be repaired /replaced under this scope of MGPS & OT works are indicated as below. Engineer In-charge decision will be final.:-.

Sl. No.	Name of Equipment/Capacity.	Qty	Repairable Items	Replacement items wherever required
1.	Compressed air system	5	Motor rewinding, Compressor repair	Electrical cards, Sensors, solenoid valves, flow switch, Gas pump, and oil, display cards, connectors, RTD, pressure sensor, temp sensor, oil level sensor, fuses, contactors, relays, fasteners, safety controls and safety valves, Insulation, switchgears, Copper piping and fittings, .
2.	Vacuum pumps	4	Motor rewinding.	Seal, bearing, coupling, Impeller, connection plate, fuses, contactor, relays, fasteners, vibration isolators, pressure gauge, painting.
3.	AGSS	2	Motor rewinding,	Seal, bearing, coupling, Impeller, connection plate, fuses, contactor, relays, fasteners, vibration isolators, pressure gauge, painting.
4.	Automatic Hermetically sealed sliding door	15	Motor rewinding, Microprocessors Gear box	Seal, bearing, coupling, Impeller, connection plate, fuses, contactor, relays, fasteners, painting.
5.	Sealed Window	13	Motor rewinding, Replacement of blinds	Bearings, switch, fasteners, painting. Toughened glass & Remote control switch
6.	Vaporizer of LMO tank	1	Motor rewinding, VCD, Fire Damper.	Valves, Vaprizer
7.	Safety Valves LMO tank	Lot	Cleaning	Valves, actuators, fasteners.
8.	Pendants	26	Any contact point.	Element, Electric circuit, Switch painting.
9.	Propeller/ Inline / Centrifugal / Axial/ ventilation/ smoke extraction fans.	6	Motor rewinding, fan Balancing	Capacitors, mounting plate, Fan blades, louvers, bird screens, shaft, bearing , V – belt, damper, fda interlocking relays, contactors, starters, pulley, painting, FDA system interlocking relays, actuator and control panel.
10.	LMO tank	1	Cleaning and calibration	Cryogenic valves, Regulators, Safety valves, Insulator of tank and accessories
11.	Scrubber	15	Plumbing	Thermostat, filters, relay, contact point, copper pipe, electric circuits, switches, wiring and Sensors, Tap, faucet

12.	AC Panel, MCC PANELS, Starter Panels, Control console	01 Lot	ACBs	Push buttons, Contactors, fuses, lugs, relays, thermal over load relays, indicator lamp, holder, connector, SPP, compression gland, cables and jointing kit of various sizes, CTs, voltmeter, ammeter, selector switch, TPN FCU, MCCB, control wiring, door handle, knob, door lock arrangement, Insulators, screws, fasteners, flexible cables, control wiring, door gaskets.
13.	Copper piping complete with all accessories	01 Lot		All the required works with spares such as Alarms, Valve Box, Outlets, Brackets and fittings
14.	Ceiling OT light	17		LED/Halogen bulbs, flexible cables, control wiring, relays, indicator lamp, holder, connector, SMPS and mechanical parts.
15	Automatic Control Panel	3		Valves, Regulators, Electronic Control

Note: The items mentioned above (s.no.1 to14) are just indicative. However, the contractor has to repair / replace items which are required for operation & maintenance of equipments in working condition without any extra cost.

The contractor shall ensure proper pressure and vacuum at the outlets in the hospital as per requirement, periodical maintenance and cleaning of valves at all floors/LMO tank, Plant rooms etc and periodical painting of all equipments pipe lines etc as per requirement or as directed by Engineer – in-charge.

S) The Contractor will submit the detailed preventive maintenance schedules in accordance with the above mentioned guidelines, within one Week of award of contract, for the approval of Engineer-In-Charge. The approved schedule has to be followed in true spirit and deviation, if any, will be decided by the Engineer-in-Charge.

Operational requirement, in brief, includes plant start up, plant change over, plant shut down, routine inspection, record keeping, checking and adjusting the air distribution system as per normal optimum operating standards as specified by manufacturer and as directed by Engineer-in-charge.

T) Routine Activity for MGPS

1) Oxygen plant

Checking oxygen pressure and liquid level

Entering details in the log

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 working

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

5.0**SPECIALIZED SERVICES**

5.1	Minor nature of complaint e.g. replacement of fuses, indicators, contact cleaning ,lubrication of bearings, etc.	2 Hr
5.2	Outlet pressure not proper in any room/zone, Monitor/Light inside OT is not functioning, OT door/window	1 day
5.3	Medium rectification works like Motor belt replacement, pressure and temp gauge replacement, sensors replacement, coupling replacement of pumps, replacement of shaft seal of pumps ,bearing replacement, impeller replacement, relay contact point change, electric circuits rectifications of panels, elements, filter changing, Pass Box repair, X-Ray viewer repair.	1 day
5.4	Major rectification works like rewinding of motors, ,replacement of equipment, overhauling of equipments, PVC floor and repairing of equipment	2 days
5.5	Non functionality of MGPS/LMO system due to major break down in compressor/LMO tank.	7 days or as specified by the manufacturer

Additional S C C for Operation and Maintenance of MGPS and OTs & Integrated OTs

1. The bidders are required to visit the site to see the actual installations for them to assess the quantum of work involved before submitting the tender. Once the tender is submitted, it will be presumed that the bidder has seen and understood the complete work involved for each of the system.
2. **Pre-qualifications Criteria: -**
 - a) The contractor should be presently rendering their services for operation and maintenance of similar works i. e. operation and maintenance of similar MGPS/ OTs & Integrated OTs of not less than 500 bedded hospital for complete MGPS and at least 10 Nos Operation Theatres, in any Government Sector or large reputed Private Sector enterprises, for at least last three consecutive years satisfactorily. Necessary relevant documents to this effect shall be enclosed.
3. **Applicable Law:**
 - 3.1 The contract shall be interpreted in accordance with the Laws of the Union of India. Contractor shall be solely responsible for compliance of all labour laws, payment of fair wages/ salaries and allowances to his personnel that might become applicable under any new act, law or order of Government of State / Centre. HSCC/Client shall have no liability whatsoever in any manner.
 - 3.2 Minimum wages act to be complied with - The contractor shall comply with all the provisions of the Minimum Wages Act, 1948, and Contract Labour (Regulation and Abolition) Act, 1970, amended from time and rules framed hereunder and other labour laws affecting contract labour that may be brought into force from time to time.
4. **Penalty clause applicable:**
 - a) If the standby unit (in part or full) of MGPS/ OTs & Integrated OTs of hospital fails, the contractor shall repair the unit within 48 hours time and make the same ready for operation. For the purpose of penalty clause, one unit will comprise of the Compressor, Vacuum Pump, LMO tank, Automatic Control panel and AGSS for MGPS and One unit will comprise of OT Ceiling light, Pendants, Door, Laminar flow system and Surgical control panel and Integration system for OT. If the contractor fails to repair the standby unit within 48 hours, the following penalty will be imposed:-
 - 1% of the monthly MGPS/ OTs & Integrated OTs charges of corresponding item of schedule of rates quoted by the contractor will be deducted for delay of each day beyond 48 hours of breakdown.

While the standby unit is not available and if any other running unit of the same system (in part or full) fails, the following penalty will be imposed:
 - 2% of the monthly MGPS/ OTs & Integrated OTs charges of corresponding item of schedule of rates quoted by the contractor will be deducted for failure of working

unit per day including the day of failure.

For not maintaining the availability of prescribed gases and air at the outlets at the working pressure at the outlets for MGPS and prescribed Lux level for OT ceiling light, peripheral light and Laminar air flow rate inside OT and integration of OT:

- For First 24 hours at the rate of 0.5% per day of the monthly MGPS/ OTs & Integrated OTs charges of corresponding item of schedule of rates quoted by the contractor.
- Beyond 24 hours at the rate of 1% per day of the monthly MGPS/ OTs & Integrated OTs charges of corresponding item of schedule of rates quoted by the contractor.

b) FOR MANPOWER:

A minimum manpower as mentioned in the manpower deployment schedule in MGPS/OTs & Integrated OTs shall be available in the shift operations and maintenance failing which the following penalty will be imposed:

1% per week per person absentee of the total monthly MGPS/ OTs & Integrated OTs charges payable for the month beyond one week of absentee. However the total maximum penalty imposed, during the month, under all above clauses shall be restricted to the total monthly charges payable, which shall be inclusive of charges towards MGPS/ OTs & Integrated OTs.

However, total penalty charged on account of all of the above shall not be more than 5% of the total contract value.

5. The contractor shall make his own arrangement for tools and tackles, testing equipments and all other materials/tools including spares, filters and lubricants required for the completion of operation and maintenance works of MGPS/ OTs & Integrated OTs.
6. The routine maintenance jobs are to be carried out during the timings from 09:00 Hrs. to 18:00 Hrs. on all working days. However, permission may be granted for extending the timings for specific task on the request of the contractor.
7. The responsibility of HSCC / Client will be to provide 3 phase/Single phase power available up to MCC panel. To rectify the control circuit or wiring problem related to the main panel / control console desk / instrument panel of MGPS and OTs & Integrated OTs will be responsibility of the contractor. The necessary follow-ups with the agencies will be in the scope of contractor.
8. The contractor shall be responsible for operation and maintenance as required failing which penalty as specified in the relevant penalty clause will be imposed. In case of non-availability of spares which are to be procured and kept at site by the contractor, penalty clause will be applicable.
9. In case, any fault, such as burning of electrical motor or compressor or any other equipment seizure/damage etc the contractor shall have to make good the losses either by repair or by replacement as the case may be. HSCC / Clients decision shall be binding on the contractor in this regard.

10. On the expiry of the contract, the contractor will have to handover all the MGPS system/OTs & Integrated OTs with associated accessories in good running condition, with all equipments charged with lubricants up to the required/specified operating pressure/level failing which the same will be performed by HSCC / Client on its own or through any other agency and the cost of the same, including transportation charges, overheads etc., will be deducted from the pending bills/security deposit of the contract.

11. If any part of MGPS/OTs & Integrated OTs are not attended within stipulated period of breakdown, HSCC / Client will be at liberty to repair the said part from any other agency or by its own and the amount spent on such repair work, including transportation charges, overheads, etc. will be deducted from the bill of the contractor. This will be in addition to the imposition of Penalty to the contractor as specified in the Penalty Clause.

12. SCOPE OF WORK IN GENERAL

Besides above, the contractor will attend to all break downs promptly within the prescribed time limits, failing which the Contractor is liable to attract Penalty as described in the Penalty Clause. All the technical details regarding air conditioning unit, operation details, procedures of maintenance or any other clarification, can be taken from Engineer-in charge as and when required.

13. Contractor shall maintain records and log sheets in the format as specified by Engineer-in-charge. Log book / log sheet shall be arranged by the contractor at his own cost.

14. Scope of supply:

The contractor shall supply equipments/ spares/ lubricating oils for the central MGPS systems/OTs & Integrated OTs installed. The electric power will be provided by the Client at free of cost.

The scope of supply for contractor shall include but not limited to supply of all the spares, consumables, test equipments, tools & tackles, manpower and any other item required to run/maintain the MGPS /OTs & Integrated OTs.

The contractor shall always maintain a minimum stock of SPARES & CONSUMABLES, at site as per Operation and maintenance manuals of respective equipments and as directed by Engineer-In-charge/Client.

Any other item not specifically mentioned above but required to complete the jobs in totality shall be in the contractor's scope of supply.

MANPOWER DEPLOYMENT SCHEDULE

A. The following minimum skilled manpower is to be deployed in daily shifts as mentioned against each in MGPS:

S.N.	Designation	Number of person				Total
		G shift	A Shift	B Shift	C Shift	
	Supervisor	1				1
	MGPS Works					
	Plant Operator cum Technician		3	3	3	9
	Helper		1	1	1	3
	OT & Integrated OT					
	Operator cum Technician		2	2	2	6

Note:- Supervisor for operation and maintenance for MGPS and Operation Theatre may be the supervisor of all other services. Only licenced / certified for Operator cum Technician with experience as mentioned in the above clause shall be deployed.

ADDITIONAL PARTICULAR CONDITIONS OF CONTRACT

Operation & Maintenance of MGPS system and OTs and Integrated OTs:

The plant, and Gas bank rooms and LMO tank system shall be taken over by the Contractor after recording the total no. of plant rooms and OTs and Integrated OTs in each location and equipments and their make, model, running condition etc. The same shall be maintained and run by the Contractor for the contract period providing all required inputs and including all operational staff and manpower complete.

After completion of the Operation and maintenance period, the same shall be handed over back to Safdarjung Hospital in the same condition in which they were taken over, normal wear and tear accepted

“ANNEXURE-D”

SPECIFICATIONS FOR OPERATION OF WHOLE FIREFIGHTING SYSTEM/PLUMBING SYSTEM WITH THEIR ELECTRIC AND DIESEL PUMPS & ALLIED ACCESSORIES Etc. INSTALLED IN EMERGENCY BLOCK AT SAFDARJUNG HOSPITAL, NEW DELHI.

1. The bidders are required to visit the site to see the actual installations for themselves to assess the quantum of work involved before submitting the tender. Once the tender is submitted, it will be presumed that the bidder has seen and understood the complete work involved for each of the system.
2. **Applicable Law:**
 - 2.1 The contract shall be interpreted in accordance with the Laws of the Union of India. Contractor shall be solely responsible for compliance of all labour laws, payment of fair wages/ salaries and allowances to his personnel that might become applicable under any new act, law or order of Government of State / Centre. HSCC/Client shall have no liability whatsoever in any manner. The Contractor has to show the proof of payment of fair wages to his workers as and when asked for the same by HSCC/ Client.
 - 2.2 Minimum wages act to be complied with - The contractor shall comply with all the provisions of the Ministry Wages Act, 1948, and Contract Labour (Regulation and Abolition) Act, 1970, amended from time and rules framed hereunder and other labour laws affecting contract labour that may be brought into force from time to time.
- 3.0 **LIST OF MAJOR FIRE FIGHTING AND PLUMBING SYSTEM TO BE OPERATED**

Sl.No.	Major Items	Qty.	Unit
1.	Water closet(IWC & EWC),vitreous china wash basin, counter wash basin, beveled edge mirror of superior glass, towel rail, C.P. brass liquid soap container, toilet paper holder, CP brass twin coat hook, stainless steel grab bar, urinal, Infra red controlled electrically operated automatic flushing cistern urinals and hand drier, flushing cistern, Lab sinks etc.	1	Set
2.	Soil, Waste, Rain water and vent pipes- Centrifugally cast (spun) iron S&S pipes and fittings, Lab waste pipes- HDPE pipes class-PE 110/90 mm dia/ Lab floor traps	1	Set
3.	Water Supply- CPVC/GI Pipes complete with fittings and accessories (15 mm to 100 mm dia)	1	Set

4.	<p>Sewerage and Drainage-</p> <ul style="list-style-type: none"> i) Gully trap ii) Brick masonry manhole iii) Non-pressure NP2 pipe/SW pipe 	1	Set
5.	<p>External water supply, water treatment</p> <ul style="list-style-type: none"> i) G.I. pipes complete with G.I. fittings(32 to 100mm dia) ii) Multi-level indicator cum controller for automatic operations of various pumps-(with appropriate size) <ul style="list-style-type: none"> a) Vertical Online/ Horizontal Centrifugal pumps <ul style="list-style-type: none"> 1. Treated water and Raw Water transfer pump- 450LPM & 35 M Head- 2 nos. 2. Softner feed pump- 750 LPM & 65 M Head – 2 nos. 3. Domestic Pumps 750 LPM & 65 M Head – 2 Nos b) Submersible drainage pump 500LPM &18M Head (14 nos.) iii) RO- 600LPH(2 nos) & water cooler (10nos)- 40LPH iv) Solar hot water system with recirculation system- 25000 LPD capacity v) Soft water generation system- 45000 LPH capacity, Water filtration system- 27000 LPH capacity, SS pipe lab water supply system, HDPE lab waste disposal system vi) ACF Activated Carbon Filter- 27000LPH vii) Softner -45000LPH 	1	Set
6.	Rain water harvesting	3	Set

7.	Fire fighting system with i) Wet riser (8 nos.) ii) Yard hydrant (6 nos.) iii) Terrace tank of 20000ltrs. (1 nos.) iv) UGT (2 no.) v) Landing valve (52 nos.) vi) Sprinkler system (entire building) vii) Fire extinguisher -192 nos. b) Electric driven fire pump of 2850LPM and 85 M head (2 no.) & 4500LPM(40 M head) c) Diesel engine driven pump of 2850LPM and 85 M head (1 no.) d) Centrifugal Jockey pump of 180LPM and 85M head (1 no.) & 280LPM and 85M head (1 no.) e) Water curtain electrical driven fire pump 4500LPM & 85M head (1 No) viii) fire alarm system ix) Glowing exit sign board single x) Fire alarm and detector system xi) Water Curtain (2 Zone) xii) Fire finder tube with clean agent gas cylinder	1	Set
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The contractor shall ensure proper maintenance of existing plumbing and fire fighting system, periodical cleaning of water tank, change of washer, rain water harvesting structure, manhole, basement sump drain, fire fighting system etc and periodical painting of all equipments as per requirement or as directed by Engineer –in-charge.

SCOPE OF WORK FOR FIRE FIGHTING AND PLUMBING WORK

The Scope of work as mentioned below are the minimum expected from the firm / agency / contractor including necessary assistance during break down maintenance. Any other work required for operation in proper way as per the operation and maintenance manuals of respective equipments and as per good engineering practices will be required to be done under this scope of work while ensuring the safety of the equipment and personal using it. Successful bidder will make Performa for recording the following minimum work schedule / parameters and show to HSCC/ Client to ensure proper accomplishment of these tasks. For plumbing work internal water supply and sewerage will be maintained by appointing his specialized staff. The scope cover all work related to operation and functioning of all PHE & fire fighting system and assistance Coordination with maintenance agency for proper functioning of systems .

A. WORK TO BE DONE ON EVERY DAY BASIS:

1. The readings of the suction and discharges pressure, oil pressure, oil & gas level, Voltmeters & Ammeters etc shall be checked and recorded in the LOG-BOOK (provided by firm/agency/contractor) on hourly basis. Necessary action is to be taken if the readings are not normal.
2. To check all the electrical motors and their bearings for abnormal noise / heating

- and to take necessary action if found abnormal.
3. To check the water level in the water tanks and check functioning of float valve.
 4. To drain out water and clean the Basement/Pump Room etc as and when required / scheduled.
 5. The functioning of each toilet shall also be checked for any corrective action and these are to be recorded in log-book.
 6. To keep the pump rooms equipment neat and clean including their room floor, wall ceiling etc. in an orderly manner.
 7. Any other work required by the equipment manufacturer/supplier/client for proper functioning.
 8. Operation of pump, filters, softner, Backwash of filters, regeneration of softner by suitable chemical & UV maintenance

B. WORK TO BE DONE ON WEEKLY BASIS:

1. To check the battery of hand drier, sensor, hand drier, loose screws etc.
2. To clean all the strainers on plumbing fixtures/fittings.
3. To check the lugs/ thimbles/ terminal points of the all electrical motor, switches, starters single phase preventers and the indication lights .etc
4. To check the alignment / looseness of all the belts driven equipment etc. if required.
5. Yard hydrant, fire hose cabinet etc. are to be cleaned regularly as per services maintenance schedule and pump shall be operated at least once in a week.
6. Listing of broken and misplaced plumbing and fire fighting item if any. Check the functioning of all plumbing and fire fighting fixtures and fitting/system and record the same.

C. WORK TO BE DONE ON MONTHLY BASIS:

1. To check the gland / seal, coupling of Pumps and engine.
2. To check the solenoid valve, safety controls Mechanical, Electrical/ Electronics and the inter-locking of the various equipments and fire fighting systems.
3. To check and clean the sprinkler head, solar panel & effectiveness of solar system.
4. To manually inspect the leakage inside the building and in the soil/waste/vent pipes.

D. WORK TO BE DONE AFTER EVERY THREE MONTH:

1. To check and lubricate (if required) the bearing of the motors and keep the proper record.
2. To check the foundation bolts of the Pumps and motors and to take the necessary action if required.
3. To check and reset the relays and controls, and to maintain the proper record. Carry out servicing of the main switches/ACB,s as required. To tighten all screws, nuts, bolts.
4. Check the quantity of flow rate of various equipments such as R.O., water cooler etc., testing of raw and treated water from approved laboratory as per drawing/technical specification of system and do adjustments in the system to meet the requirement.
5. Check/clean the probe of level controller. Replace the battery of all sensors fitting if required.

E. WORK TO BE DONE HALF YEARLY:

1. Clean water strainer from plumbing and fire fighting system.
2. Check the overload of functioning of all pumps by measuring the amperage, check anti-recycle timer and operation of the electrical interlock.
3. To tighten the clamps/nut bolt of the system.
4. Change the filter/cartridge, membrane of R.O. system and clean the water cooler tank.

F. WORK TO BE DONE YEARLY:

1. Check the water quality from RO etc. for its requisite quality.
2. Check the condition of all plumbing and firefighting equipment for its operation life and functioning.
3. Clean all wirings for loose contacts.
4. Clean baskets of pot strainers and “Y” strainers for pumps.
5. Drain all water from pipe lines of fire fighting system and fill fresh water. Do not keep water lines without water.
9. Chemical cleaning of all tanks (water storage), twice in a year.
10. Painting of all exposed pipe fitting, fixture for weather protection.

G. OTHER WORK:

1. Oil/ chemical to be provided as and when required for proper functioning of water treatment system.
2. Any other requirement to keep the whole plumbing and fire fighting systems in proper, healthy running condition as per operation and maintenance manual of various equipments.

H. SPECIAL REQUIREMENTS:

The water supply shall be operational even during maintenance period. Leakages/seepage if any shall be attended within two hour of report. Flooding and back flow and blockage in sewers, waste water line, and storm water drain shall be attended within one hour.

It is recommended these performed by a qualified technician who is the familiar with the methods.

The fire fighting system shall be remained operational for 24 hour on automatic operation mode. For maintenance only part shut down will be allowed for very short time for which maintenance agency has to obtain the written permission for changing part system from auto mode to manual mode, the permission will be only for limited time to attend the same.

- I. LOG-BOOK for recording of parameters related to the functioning of plumbing and fire fighting system, water quality test shall be provided and maintained by the firm/ agency /contractor showing the complete working and maintenance done and it should be made available to the engineer-in-charge of HSCC / Client. Formats for keeping the operation and maintenance record may be prepared after discussion with Engineer-in-charge/client in line with CPWD.

- J. Tools and equipment required for proper operation for whole plumbing/fire fighting systems.

- K. Deployment of manpower:-** As per manpower deployment schedule i.e. FORMAT III. One operator for firefighting system and one plumber to operate the plumbing system and pump etc. shall be available along with the helper.
- L.** Care shall be taken so that the plumbing and fire fighting systems do not lead to major breakdown. In the event of any breakdown, the same will be rectified immediately failing which such rectification will be done at the risk and cost of the firm/ agency/ contractor. Similarly, if any breakdown takes place due to negligence of firm/ agency/ contractor, the whole component has to be replaced/ rectified to bring it to the original condition immediately at the contractor's cost.
- M.** For maintaining record/plumbing and fire fighting system, agency will have proper qualified adequate manpower along with all supporting equipment otherwise a deduction of 2000/- per day will be made for not proved the same.

ADDITIONAL TERMS AND CONDITION (RUNNING OPERATION OF SEWAGE TREATMENT PLANT & WATER SUPPLY SYSTEM)

1. The contractor's staff shall be well conversant with the running of pump sets/water supply/sewage treatment plant systems. The staff shall be responsible to clean their equipments and environments.
2. Logbook for pump set shall be maintained in proper form and shall be kept up to date. It should be duly signed by the contractor's staff in order to keep proper monitoring. The instruction of the Engineer or his superior officer shall be recorded in the logbook.
3. To extend coordination with New Delhi Municipal Corporation/ CSEB regarding supply of electricity/ water, so that the water supply is not adversely affected.
4. Any damage caused to the pump set, WTP/STP/, L.T. Panels / control panel or its accessories due to carelessness of the contractor's staff or any shall have to be made good by the contractor at their own cost and nothing extra shall be paid on this account.
5. The operator must possess minimum qualifications. The contractor has to submit the proper experience certificate & the contractor shall be fully responsible for safety of their staff employed at site.
6. The cost of Sundry material like Soap, duster, dhoti, cotton, waste and log book, uniform and shoes & badges has to be borne by contractor.
7. Nothing extra towards T&P will be paid.
8. Generally the contractor has to depute the staff as given in Format III. But the duty hours can be changed as per discretion of the Engineer. The above staffs are minimum requirement, the contractor shall depute more staff as and when situation arises, for which no extra cost shall be made. In no case the contractor shall reduce this staff strength, otherwise recovery shall be affected. The duty timing can be changed as per direction of the Engineer.
9. In case of absence of any staff from duty without providing suitable replacement, the consequential cost of the labour shall be recovered from the contractor and the contractor will have no claim from the department. Engineer's decision in this regard shall be final and binding.
10. The operator employed by the contractor shall remain employee of the firm, for all purpose and have no claim for employment in the Safdarjung/HSCC.

ANNEXURE E

RESPONSE TIME

Sl. No.	Type of complaint	Max permissible time for attendance of complaint from notice of complaint
1.0	HVAC	
1.1	Minor nature of complaint e.g. replacement of fuses, indicators, contact cleaning, lubrication of bearings, etc.	2 Hr
1.2	Temp- humidity not proper in any room/zone, sound in grilles/diffusers, adjusting of dampers, Air balancing in one room	3 Hrs
1.3	Medium rectification works like AHU belt replacement, pressure and temp gauge replacement, sensors replacement, coupling replacement of pumps, replacement of shaft seal of pumps, bearing replacement, impeller replacement, relay contact point change, electric circuits rectifications of panels, elements or hot water generator, filter changing.	6 Hrs
1.4	Major rectification works like rewinding of motors, blower shaft replacement, cooling coil replacement, overhauling of equipments, balancing of entire HVAC system.	24 Hrs or as specified by the manufacturer
1.5	Non functionality of HVAC system due to major break down in chillers.	24 Hrs or as specified by the manufacturer
2.0	Electrical	
2.1	Evacuation of person from the lift	10 min

2.2	Minor nature of complaints like replacement/repairing of tubelight, choke, power points, light points , switch, indicators of panels, socket, MCB, electronic regulators, capacitors of ceiling fans etc.	3 Hrs
2.3	Medium rectification works like street light replacement,Circuit breaker maintenance etc.	4 Hrs
2.4	Major rectification works like rewinding of motors, ceiling fans replacement, D G set maintenance, lift maintenance, FDA , PA system and specialised auditorium services	24 Hrs or as specified by the manufacturer

3.0 PHE

3.1	Minor nature of complaint e.g. replacement of washers, bib cock, entire tap, Jali for waste pipe, changing of small parts and repair parts.	2 Hrs
3.2	Medium rectification works like urinal sensors, replacement of sanitary fixtures, flush valve, hand drier, valves, unions, manhole cover, towel rail, plumbing leaks and clogging	6 Htrs
3.3	Major rectification works like replacing soil, waste, rain water, vent pipes and water supply pipes, overhauling of pumps, motor winding etc.	24 Hrs or as specified by the manufacturer

4.0 CIVIL

	Minor nature of complaints like rectification repairing of door, door closers, door locks, floor spring, renewing of alum beading/gasket of glass panes, window friction stay etc.	3 Hr
	Medium rectification works like replacement of glass panes with wooden fillets, renewing glass panes with nails, aluminum handles, door hinge repairs,	2 days
	Major rectification works like repairing of poly carbonate sheet, str. Glazing, sand stone replacement, kota stone	7 days or as specified by the manufacturer

**SAFDARJUNG HOSPITAL & VMMC
NEW DELHI**

TENDER

FOR

**PROVIDING
OPERATION & MAINTENANCE SERVICES
AT**

**EMERGENCY BLOCK SAFDARJUNG
HOSPITAL & VMMC NEW DELHI**

Bill of Quantities (BOQ)

**CONSULTANT
HSCC (INDIA) LTD
(A GOVERNMENT OF INDIA ENTERPRISE)
Plot No. 6-A, Block-E, Sector-1, NOIDA (U.P.) – 201 301
PHONE: 0120-2540153 FAX: 0120-2542447
URL: <http://www.hsccltd.co.in>**

Project Name: Operation & Maintenance of services at Emergency Block at Safdarjung Hospital, New Delhi.

SUMMARY OF Operation & Maintenance & Repairs Emergency Block Safdarjung Hospital

S. No.	Description	Amount
A	Civil	
1	Comprehensive Maintenance (Part A)	0.00
2	Horticulture (Part B)	0.00
3	Miscellaneous Items (Part C)	0.00
	Total (Part A+Part B +Part C)	0.00
B	PHE & Fire	
	AMC Items (charges for one year) for PHE & Fire	
a)	Fighting	
	A-Fire Fighting System	0.00
	B. PNEUMATIC PUMP (WATER SUPPLY)	0.00
	C. SOLAR WATER HEATING SYSTEM	0.00
	D. Under Ground Tank, Pumps Rooms, Tubewells, etc	0.00
	E.Operation and maintance Cost for STP,ETP	0.00
	Sub total (a)	0.00
b)	Providing and fixing Serviceable matereal required for Maintainance	
	Sanitary Fixtures	0.00
	SOIL, WASTE ,VENT AND RAIN WATER PIPES	0.00
	WATER SUPPLY	0.00
	SEWARAGE & DRAINAGE	0.00
	FIRE FIGHTING SYSTEM	0.00
	Automatic Sprinkler System	0.00
	Sub Total (b)	0.00
	Sub head PHE & Fire-Total (a+b)	0.00
	Total (A+B)	0.00
C)	Electrical works	
	Comprehensive Maintenance	0.00
	Special Repairs	0.00
	AMC Charges	0.00
	Operation Charges	0.00
	Total Electrical	0.00
D	HVAC	0.00
E	MGMS/OT	0.00
	Grand Total	0.00

Item No	Description Of Item	Qty	Unit	Rate in Fig Rs.	Rate in Words	Amount in fig Rs.
A	PART A: MAINTENANCE					
1	Carrying out comprehensive maintenance Works, upkeep and attending day to day complaints of Emergency Block, Safdarjung Hospital. The approximate area of construction is 40000 sqm spread over a total area of approx. 2.7 acres.					
	Internal and External Works					
i	Maintenance and repair of all works in above buildings including but not limited to internal and external plaster, flooring, masonry work, repair of BB coba, RCC work upto an area of 2.5 sqm, Tile flooring/dado/stone flooring, existing false ceiling, internal and external stone cladding, structural glazing, Khurras, CC gola, sealing of leakages from roofs, floor, traps, WC/P traps and joints of pipes and fittings, gully traps and manholes and restoration of existing finishing in the affected area.					
ii	Carpentry/Aluminium/Steel work of all kinds including Maintenance, repairing and fixing of damaged doors, windows, ventilators of steel/wood/ PVC/ Aluminium etc. at all floors and fixing of necessary fittings wherever required to keep them in proper functional conditions works of doors/windows, providing nails on the walls, door window fitting etc.					
iii	Change of glass panes, wherever required.					
iv	Maintenance and cleaning of chajjas, roofs, expansion joints, etc. and removing cobwebs, beehives, vegetation including malba etc. to the authorized dumping ground to the entire satisfaction and as per the direction of the Engineer/Client					
v	Maintenance of external development works like external roads, footpaths, parking, boundary wall etc.					
vi	Welding by electrical plant including transportation of electrical welding plant at site to weld broken grills, hinges, doors, windows, gates, railings and any other steel work of dwelling units, parks, boundary walls, guest house etc. complete as per direction of the Engineer/Client.					
viii	Comprehensive maintenance of plumbing system including Supply and replacement/Repair of non functional broken sanitary fixture or repair of the non functional part of sanitary fixtures of the entire residential complex & maintaining all the plumbing fixture & plumbing system in good functional condition including repair of leakages and making openings in walls if required and making good the same complete as per instruction of engineer-in-charge/client.					
viii	Maintenance of sewerage, drainage system and desilting of gully traps etc. within the campus like opening/cleaning of choked sewer pipes, drains, manholes, gully traps, wash basins, sinks and other fittings and fixtures, etc. at all floors and vertical stacks of sewer pipes, rain water drainage pipes, rain water spout etc of all sizes to keep sewerage and drainage system functional including disposal of silt, malba, waste, garbage etc. to the authorized dumping ground complete including Regular cleaning of Drains, pipes, sewerage & Drain Line up to Municipal disposal points Gully traps, manholes to ensure that there is no blockage including maintaining minimum requisite T & P material required for cleaning / maintenance, manpower (plumber, Sewer man, sewer/Drain cleaner, Helper, & consumables such as washer, lead, M.seal, nut, dash fastener, lubricant, tools etc. Proper functioning of the plumbing system & maintaining the record for the same.					
ix	Maintenance of water supply grid and valves in the entire campus to keep the water supply system efficient and operational at all times complete to the entire satisfaction and as per direction of the Engineer/Client					
x	Changing of pipes and traps, Manholes including covers of drains/manholes, pipe trap, man hole cover required to be replaced be paid separately etc.					
xi	Maintenance and repair of plumbing system for the entire campus (internal and external works) including stopping leakages or overflows of water from PVC/RCC overhead tanks and water cisterns and replacement of the bib cock, stop cock, pillar cock, fittings, ball cocks etc. to keep the entire water supply system efficient and functional to the entire satisfaction and as per the direction of the Engineer/Client.					
xii	Cleaning of RCC/PVC water storage tanks (Overhead/Underground) by adopting six stage process, i.e., dewatering, sludge removal, high pressure cleaning, vacuum cleaning, anti-bacterial spray and ultra violet radiations i/c mentioning the date of cleaning and next due date of cleaning on each tank, Arrangement of suitable de-watering pump for drainage of pump room & lift pits as per requirement complete to satisfaction of Engineer/Client					
xiii	The scope also includes attending to the overflow/float valves of overhead water tanks, including replacement if required and operation of valves, pumps, etc.					

xiv	The rate quoted shall include the cost of manpower, T&P like a welding machine, assorted screwdrivers/pliers, ladders, drills, etc., scaffolding, consumables, cement, sand, grit, stone aggregate and disposal of unserviceable debris/melba outside the building compound at municipal dumping ground/place and nothing extra shall be paid. Cost of tiles, stone, door,doors fittings, pipe , main hole covers, Aviation light ,wiring , Bell , Switchs, Shocket, light fixtures, condenser, traps, fan plumbing & electrical fittings and fixtures, glass panes, MCB/ MDB, Fan/regulators, tube lights/bulbs, conduits, switches, condenser, bell, modular, plastic wiring light fixtures etc. shall be payable separately on actual					
xv	The quoted cost will include manpower for day-to-day maintenance and all other items/works mentioned in additional specifications of contract document.					
xvi	The agency/bidder shall visit the site.The agency has to take over the building as on basis any initial repair/replacement of materials if any required will be attended and no extra payment shall be made for the same. The cost of the same will be included in the the quoted rate. The agency has to take his own assessment and make themselves familiar with the existing setup/system provided before bidding.					
A	Maintenance Cost. Minimum Manpower to be provided 1 Mason, 1 Carpenter, 2 Plumber, and total 3 helpers, 1 Supervisor with 1 Computer Operator in all shifts as required to attend above work. To attend the complains/work as per above scope of work agency has to engage additional man power without any additional payment on need basis to meet out the response time.					
	TOTAL PART A	12	per job per month			0.00
	Part B-Horticulture					
1	Scope of work for horticulture operation includes plantation & maintenance of any type of existing grass, shrubs, trees, (cost of pots, rose plants, grass/shrubs/trees, uprooting of grass etc from open ground area more then 50 sqm is payable separately) and their maintenance by deploying adequate no. of experienced Malis and one head Mali for eight working hours daily and supplying all materials in sufficient quantity required to properly maintain the horticulture like fertilizers, manure, granules, vermi-compost, bone meal, neem cake, NH3/SO4/Urea, DAP, pesticides, good earth, seasonal flower seeds, plants, grass, flower pots, all tools & plants required for the above work, shrubs, trees etc. all complete.					
a	Minimum 4 malis to be provided.					
	TOTAL PART B	12	per job per month			0.00
	Part C-Miscellenous Items					
	Procurement of following building materials required on day to day basis:					
1	Float glass sheet of nominal thickness 4 mm (weight not less than 10 kg/sqm)	20.00	sqm			0.00
2	Float glass sheet of nominal thickness 5.5 mm (weight not less than 13.50 kg/sqm)	50.00	sqm			0.00
3	Anodised Aluminium butt hinges 125x75x4 mm	30.00	each			0.00
4	Anodised Aluminium tower bolt (barrel type) 250x10 mm	30.00	each			0.00
5	Anodised Aluminium tower bolt (barrel type) 150x10 mm	30.00	each			0.00
6	Anodised Aluminium handles 125 mm with plate 175 x 32 mm	30.00	each			0.00
7	Anodised Aluminium handles 100 mm with plate 150 x 32 mm	30.00	each			0.00
8	Kota stone slab 20 mm to 25 mm thick (semi-polished)	30.00	sqm			0.00
9	Common burnt clay F.P.S. (non modular) bricks class designation 7.5	2000.00	each			0.00
10	Udaypur green/Jaiselmer marble slab plain 18 mm thick	30.00	sqm			0.00
11	Aluminium hanging floor door stopper with twin rubber & stopper	30.00	each			0.00
12	Hydraulic door closer tubular type Aluminium section body	20.00	each			0.00
13	Granite of any colour, 18 mm thick (slab area upto 0.50 sqm)	30.00	sqm			0.00
14	Raj nagar plain white marble (table rubbed and polished) 18 mm thick (slab area upto 0.50 sqm)	20.00	sqm			0.00
15	Ceramic Glazed Tiles 1st quality minimum thickness 5mm in all colours shades and designs except burgundy, bottle green, black	20.00	sqm			0.00
16	Ceramic Glazed Tiles 1st quality 300 x 300 mm in all shades and designs of White, Ivory, grey, Fume Red brown etc.	50.00	sqm			0.00
17	Vitrified floor tile 60x60 cm	100.00	sqm			0.00
18	Precast C.C. Kerb stone M - 25	10.00	cum			0.00
19	Interlocking C.C. paver block (60 mm thick, M-30)	30.00	sqm			0.00
	TOTAL PART(C)					0.00
B	PHE & Fire					
a	AMC Items (charges for one year) for PHE & Fire Fighting					
	A. FIRE FIGHTING SYSTEM					

	Annual Maintenance Cost (AMC) for entire fire fighting system, pumps, maintaining plumbing systems and agency will maintain minimum requisite manpower & small material such as washer, lead, M.seal, nut, dash fastener, lubricant, tools etc will be included in the cost & allied systems with requisite manpower for requirement of the same as per instruction of engineer-in-charge & all small consumables part, etc required for proper functioning of the system & maintaining the record for the same, complete in all respect .	12	Job Per Month			0.00
	B. PNEUMATIC PUMP (WATER SUPPLY)					
	Annual Maintenance Cost (AMC) for pneumatic pumps (water supply), maintaining plumbing systems and agency will maintain minimum requisite manpower & small material such as washer, lead, M.seal, nut, dash fastener, lubricant, tools etc will be included in the cost & allied systems with requisite manpower for requirement of the same as per instruction of engineer-in-charge & all small consumables part, etc required for proper functioning of the system & maintaining the record for the same, complete in all respect .	12	Job Per Month			0.00
	C. SOLAR WATER HEATING SYSTEM					
	Annual Maintenance Cost (AMC) for complete Solar water heating system, Cleaning and maintaining Solar Water heater system and plumbing systems and agency will maintain minimum requisite manpower & small material such as washer, lead, M.seal, nut, dash fastener, lubricant, tools etc will be included in the cost & allied systems with requisite manpower for requirement of the same & all small consumables part, etc required for proper functioning of the system & maintaining the record for the same, complete in all respect as per instruction of engineer-in-charge (as per scope of work Attached).	12	Job Per Month			0.00
	D. Under Ground Tank, Pumps Rooms, Tubewells, etc					
	Daily operation of Water Treatment Plant, softeners, pumps (of water supply, WTP, ETP/STP), Tubewells, etc. with requisite manpower for requirement of the same as per instruction of engineer-in-charge & all small consumables part, etc required for proper functioning of the system & maintaining the record for the same, complete in all respect .	12	Job Per Month			0.00
	E.Operation and maintenance Cost for STP,ETP					
	Testing charges of Raw and treated effluent for all the required parameter from approved lab (after defect and liability period)	6	Set			0.00
	Providing chemical and consumables for satisfactory operation of STP etc. completed in all respect excluding cost of electricity and manpower and spare parts during defect liability period i.e. 1 year	12	month			0.00
	Providing (operator & one Helper) i.e. manpower to operate the STP in each shift. In case the additional manpower required for proper operation, the same will be considered as part of this item only.					
	Helper - 1 no./day(in each shift)	12	Month			0.00
	technical operator - 1 no./day(in each shift)	12	Month			0.00
	AMC of all equipments, components and spares of STP after one year defect liability period.The consumables will be reimbursed by owner as per actual cost.	1	Year			0.00
	SubTotal(O & M)					0.00
	Total					0.00
	b Providing and fixing Serviceable material required for Maintenance					
2.00	SANITARY FIXTURES					
2.01	Providing & Fixing water closet squatting pan (Indian W.C. pan) with 100 mm sand cast iron P or S trap, 10 litre low level white P.V.C. flushing cistern with manually controlled device (handle lever) conforming to IS: 7231 with all fittings & fixture comp					
a)	White vitreous china Orissa pattern W.C. pan of size 580 x 440 mm with integral type foot rests	2	Each			0.00
2.02	Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white PVC flushing cistern with manually controlled device conforming to IS 7231 with all fittings & fixture complete including a					
a)	W.C. pan with ISI white solid plastic seat & lid.	2	Each			0.00
2.03	Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous flushing cistern and C.P. flush bend with fittings & C.I. brackets. 40mm flush bend, overflow arrangement with sp					
a)	W.C. pan with ISI white solid plastic seat & lid.	2	Each			0.00

2.04	Extra for Providing & fixing flush valve dual flow with 32 mm control cock with elbow & wall flange for wall hung WC Complete in all respect instead of flushing cistern	5	Each			0.00
2.05	Providing and fixing white vitreous China flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standard flush pipe and C.P. brass enreaders with brass unions					
a)	One urinal basin with 5 litre white PVC automatic flushing cistern	1	Each			0.00
2.06	Extra for providing and installing INFRA-RED controlled electrically operated (220V, AC mains) automatic flushing system of approved make instead of urinals with flushing cistern, comprising of :					
	Light sensing device fixed in recessed metallic box with tamper resistant stainless steel outer case.					
	Solenoid valve housed in a recessed metallic box with openable cover mounted at high level (at desired height from finished floor level) complete with interconnecting control wiring in recessed PVC conduit. between solenoid valve and sensing unit inclu.	1	Each			0.00
2.07	Providing and fixing wash basin with C.I. brackets, 15mm C.P. brass pillar taps, 32mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever required.					
a)	White vitreous china FLAT BACK WASH BASIN size 550x 400 mm with single 15mm C.P. brass pillar tap.	1	Each			0.00
2.08	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS 13983 with C.I. brackets and stainless steel plug 40 mm including painting of fittings and brackets, cutting and making good the walls wherever required.					
a)	610x510 mm bowl depth 200 mm.	1	Each			0.00
2.09	Providing and fixing white vitreous china laboratory sink with C.I. brackets, C.P. brass chain with rubber plug 40 mm C.P. brass waste and 40 mm brass trap with necessary C.P. brass unions complete including painting of fittings and brackets, cutting and					
a)	Size 600x450x200 mm	1	Each			0.00
2.10	Providing and fixing toilet paper holder .					
a)	Vitreous china	5	Each			0.00
2.11	Providing and fixing PTMT liquid soap container 109 mm wide, 125 mm high and 112 mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour weighing not less than 105 gms.	5	Each			0.00
2.12	Providing and fixing health faucet with tube and hiik chrome of approved make as approved by engg. incharge	20	Each			0.00
2.13	Providing and fixing soap tray with CP brass lid and brackets fixed to wooden cleats with CP brass screws.	20	Each			0.00
2.14	Providing and fixing brass coat hook of approved quality and make complete with material of fixing	10	Each			0.00
2.15	Extra for providing and fixing white vitreous china oval shape wash basin in place of normal wash basin with CI/MS brackets painted white, 15 mm CP brass pillar taps, 32 mm CP brass waste of standard pattern. including painting of fittings and brackets cu					
a)	Counter top oval shape wash basin size 550x470 mm with centre tap hole, single 15 mm CP brass swan neck type pillar tap	1	Each			0.00
2.16	Providing & fixing solid state fully hygienic no touch hand drier of approved make rated for continuous repeat usage with solid state time delay LSF protection, with independent ambient light level & seasonal control temperatures including providing neces	1	Each			0.00
TOTAL CARRIED TO SUMMARY						0.00
3.00	SOIL, WASTE ,VENT AND RAIN WATER PIPES					
3.01	Providing and fixing soil, waste and vent pipes.					
a)	150 mm dia. Centrifugally cast (spun) iron socketed pipe as per IS:3989	5	Meter			0.00
b)	100 mm dia. Centrifugally cast (spun) iron socketed pipe as per IS:3989	5	Meter			0.00
c)	75 mm dia Centrifugally cast (spun) iron socketed pipe as per IS:3989	2	Meter			0.00
3.02	Providing and fixing M.S holder-bat clamps of approved design to Sand Cast iron/ cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) inc					
a)	for 150 mm dia. pipe	5	Each			0.00

b)	for 100 mm dia. pipe	5	Each			0.00
c)	for 75 mm dia. pipe	5	Each			0.00
3.03	Providing and fixing bend of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete.					
a)	150 mm					
	Sand cast iron S&S as per IS-3989	2	Each			0.00
b)	100 mm					
	Sand cast iron S&S as per IS:3989	10	Each			0.00
3.04	Providing and fixing plain bend of required degree.					
a)	150 mm					
	Sand cast iron S&S as per IS-3989	5	Each			0.00
b)	100 mm					
	Sand cast iron S&S as per IS:3989	25	Each			0.00
c)	75 mm					
	Sand cast iron S&S as per IS:3989	5	Each			0.00
	sand cast iron S&S as per IS-3989	17	Each			0.00
3.05	Providing and fixing single equal plain junction of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete.					
a)	100x100x100mm					
a.ii)	sand cast iron S&S as per IS-3989	10	Each			0.00
3.06	Providing and fixing single equal plain junction of required degree.					
a)	100x100x100 mm Centrifugally cast (spun) iron S & S as per IS- 3989	10	Each			0.00
b)	150x150x150 mm Centrifugally cast (spun) iron S & S as per IS- 3990	5	Each			0.00
3.07	Providing and fixing Double equal junction of required degree					
a)	100x100x100 x100mm Centrifugally cast (spun) iron S & S as per IS- 3989	5	Each			0.00
3.08	Providing and fixing single unequal plain junction of required degree					
a)	100 x 100 x 75mm Centrifugally cast (spun) iron S&S as per IS- 3989	8	Each			0.00
b)	150x150x100mm Centrifugally cast (spun) iron S&S as per IS- 3989	5	Each			0.00
3.09	Providing and fixing Double unequal junction of required degree					
a)	150x150x100 x100mm Centrifugally cast (spun) iron S & S as per IS- 3989	5	Each			0.00
3.1	Providing & fixing terminal guard					
a)	100 mm					
a))	sand cast iron S&S as per IS-3989	5	Each			0.00
b)	75 mm					
b))	sand cast iron S&S as per IS-3989	3	Each			0.00
3.11	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	150 mm	25	Each			0.00
b)	100 mm	25	Each			0.00
c)	75 mm	25	Each			0.00
3.12	Providing and fixing trap of self cleansing with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors:					
a)	100 mm inlet and 100 mm outlet					
a i)	Sand cast iron S&S as per IS-3989	10	Each			0.00
3.13	Painting sand cast iron/ centrifugally cast (spun) iron soil, waste vent pipes and fittings with paint of any colour such as chocolate, grey, or buff etc. over a coat of primer (of approved quality) for new work:					
a)	150 mm diameter pipe	10	Meter			0.00
b)	100 mm diameter pipe	10	Meter			0.00
c)	75 mm diameter pipe	10	Meter			0.00
3.14	Providing and fixing C.P. brass bottle trap for wash basin including CP waste fittings complete 32 mm dia complete in all respect of approved quality.	5	Each			0.00
3.15	Providing and fixing C.P. brass bottle trap for urinal basin including CP waste fittings complete 40 mm dia complete in all respect of approved quality.	5	Each			0.00
3.16	Providing & fixing PVC waste pipe for sink including PVC Waste fitting complete Flexible pipe					

	40 mm dia	5	Each			0.00
3.17	Providing and fixing G.I.(heavy class) pipes and fittings conforming to IS: 1239 clamps and hinges including cutting chases and holes and making good the walls and ceiling for waste pipes from wash basins, urinals,kitchen sink and equipment waste connecti					
a)	32 mm nominal bore	10	Meter			0.00
b)	40 mm nominal bore	10	Meter			0.00
c)	50 mm nominal bore	10	Meter			0.00
3.18	Providing and fixing unplasticised-PVC pipe clips of approved design to unplasticised-PVC rain water pipes by means of 50x50x50 mm hard wood plugs, screwed with M.S screws of required length including cutting brick work and fixing in cement mortar 1:4/1					
a)	110mm	10	Each			0.00
3.19	Providing and fixing on wall face unplasticised-PVC (working pressure 6kg per sqm cm) rain water pipes conforming to IS: 4985 including all fitting & accessories jointing with seal ring conforming to IS:5382 leaving 10mm gap for thermal expansion.					
a)	(i) Single socketed pipes 110 mm diameter	10	Meter			0.00
3.2	Making khurras 45 X 45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate of 20 mm nominal size) over PVC Sheet 1 m X 1m X 400 micron, finished with 12 mm cement plaster 1:3 and a coat of nea	43	Each			0.00
3.21	Providing & fixing to the inlet mouth of rain water pipe CI grating 15 cm dia & weighing not less than 440 gms.					
a)	For 110 OD pipe	5	Each			0.00
3.22	Providing and fixing cast brass clean out /Floor clean out plug with suitable insert keys for opening male threaded joint fixed to G.I.socket complete (cleanout to be flushed with floor finish)					
	100 mm dia / 150 mm dia	5	Each			0.00
	110 mm OD	10	Meter			0.00
3.23	Providing & fixing 125mm dia stainless steel cockroach trap with all accessories complete as per drawing.	5	Each			0.00
3.24	Providing and fixing dash fastner made of rust proof plated steel for holding the soil/waste supply pipes complete in all respect					
	Dash fastner for pipe more than 25 mm dia to 150 mm dia pipe of size 25 mm dia and 75 mm long minimum & shall be capable of taking 6 tonnes load and also include the supporting angles 35x35 mm/steel structures as per drawing.	25	Each			0.00
3.25	Providing and laying cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) 80 mm thick all-round the SCI/centrifugally S&S pipe diameter.					
	100 mm dia	5	Metre			0.00
TOTAL CARRIED TO SUMMARY						0.00
4.00	WATER SUPPLY					
4.01	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & Internal work- Exposed on wall					
a)	15 mm nominal outer dia pipes	5	Meter			0.00
b)	20 mm nominal outer dia pipes	5	Meter			0.00
c)	25 mm nominal outer dia pipes	25	Meter			0.00
d)	32 mm nominal outer dia pipes	5	Meter			0.00
e)	40 mm nominal outer dia pipes	10	Meter			0.00
f)	50 mm nominal outer dia pipes	5	Meter			0.00
4.02	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & Concealed work including cutting chases and making good the walls etc.					
a)	15 mm nominal outer dia pipes	25	Meter			0.00
b)	20 mm nominal outer dia pipes	10	Meter			0.00
c)	25 mm nominal outer dia pipes	10	Meter			0.00

d)	32 mm nominal outer dia pipes	10	Meter			0.00
e)	40 mm nominal outer dia pipes	10	Meter			0.00
f)	50 mm nominal outer dia pipes	10	Meter			0.00
4.03	Providing & fixing Gi pipes complete with fittings & clamps including cutting & making good the wall etc					
a)	32 mm dia	5	Meter			0.00
b)	40 mm dia	5	Meter			0.00
c)	50 mm dia	5	Meter			0.00
4.04	Providing and fixing gun metal ball valve with of approved quality (screwed end)					
a)	15 mm nominal bore	5	Each			0.00
b)	20 mm nominal bore	5	Each			0.00
4.05	providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)					
a)	25 mm nominal bore	5	Each			0.00
b)	32 mm nominal bore	5	Each			0.00
c)	40 mm nominal bore	5	Each			0.00
d)	50 mm nominal bore	5	Each			0.00
e)	65 mm nominal bore	5	Each			0.00
f)	80 mm	2	Each			0.00
4.06	Providing and fixing C.I. butterfly valve complete bolts, nuts rubber insertions etc.					
a)	100 mm	1	Each			0.00
b)	150 mm	1	Each			0.00
4.07	Providing and fixing unplasticised PVC connection pipe with brass unions: 45 cm length					
	15 mm nominal bore	25	Each			0.00
4.08	Providing and fixing C.P. brass shower rose with 15 or 20 mm inlet					
a)	15 mm diameter	10	Each			0.00
4.09	Painting CPVC/G.I. pipes and fittings with synthetic enamel white paint over a ready mixed priming coat, both of approved quality for new work					
a)	15 mm nominal outer dia pipes	10	Meter			0.00
b)	20 mm nominal outer dia pipes	10	Meter			0.00
c)	25 mm nominal outer dia pipes	10	Meter			0.00
d)	32 mm nominal outer dia pipes	5	Meter			0.00
e)	40 mm nominal outer dia pipes	50	Meter			0.00
f)	50 mm nominal outer dia pipes	20	Meter			0.00
4.10	Painting G.I. pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality:					
b)	40mm dia	10	Meter			0.00
c)	50 mm dia	10	Meter			0.00
4.11	Providing and fixing C.P. brass bib cock of approved quality.					
a)	15 mm nominal bore	10	Each			0.00
4.12	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms.					
a)	15 mm nominal bore	10	Each			0.00
4.13	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to IS:8931					
a)	15 mm nominal bore	10	Each			0.00
4.14	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931.					
a)	15 mm nominal bore	10	Each			0.00
4.15	Providing and fixing PTMT ball cock of approved quality, colour and make complete with Epoxy coated aluminium rod with L.P./H.P.H.D. plastic ball.					
a)	50 mm nominal bore, 242 mm long weighing not less than 1240 gms	1	Each			0.00
4.16	Extra for providing wash basin mixer pillar tap in place of normal pillar tap	5	Each			0.00
4.17	Providing & fixing sink mixer with swivel casted spout complete in all respect	5	Each			0.00
4.19	Providing & fixing Gi Pipes complete with Gi fittings including trenching & refilling Etc.					
a)	80 mm dia nominal bore	10	Meter			0.00

4.20	Providing and fixing garden hydrant of approved quality and make complete in all respect	5	Each			0.00
4.21	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including, cutting and threading the pipe etc. complete including obtaining approval of drainage and for connection from DIB/Municipal corporation	1	Each			0.00
	50 to 150 mm nominal bore					
	65 mm dia	5	Each			0.00
4.22	Providing and fixing double seal type D.I. Manhole cover of 560 mm clear internal diameter of over all heavy duty with locking arrangement complete in all respects.	2	Each			0.00
TOTAL CARRIED TO SUMMARY						0.00
5.00	SEWARAGE & DRAINAGE					
5.01	Providing laying and jointing glazed stoneware pipes grade 'A' with stiff mixture of cement mortar in the pro-portion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete.					
a)	100 mm diameter	25	Meter			0.00
5.02	Providing and laying non-pressure NP2class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete.					
a)	250 mm diameter	50	Meter			0.00
b)	300 mm diameter	25	Meter			0.00
TOTAL CARRIED TO SUMMARY						0.00
6.00	FIRE FIGHTING SYSTEM					
6.01	Supply,Installation, Testing & Commissioning of: Gun-metal ISI marked oblique pattern hydrant landing valve with 80 mm dia flanged inlet and 63 mm dia instantaneous type female outlet complete with gunmetal cap and G.I. chain twist release tap					
a	Single headed landing valve	1	Each			0.00
6.02	Providing 63mm dia 15 m long reinforced rubber lined hose pipe conforming to IS: 636-1992 Part-II with gunmetal male & female coupling wire wound with pipe as required.36.5 M long high pressure Hose Reel tubing as per IS:444 with Gun-Metal shut-n	1	Each			0.00
6.03	Providing and fixing 63mm dia 15 m long canvas hose pipe complete with gunmetal male & female coupling wire wound with the pipe The pipe shall confirm to IS: 4927.	6	Each			0.00
6.04	Supply,Installation, Testing & Commissioning of Controlled Percolating (CP) Hose ISI marked (IS:8423) 63 mm dia x 15 m long complete with instantaneous type gunmetal 63 mm dia, ISI marked Male & Female couplings (IS:903) bound and rivetted to hose pipe wi	5	Each			0.00
6.05	Supply,Installation, Testing & Commissioning of Gun-metal 63mm dia short size branch pipes with 20 mm dia nozzles with 63mm instantaneous coupling ISI marked (IS: 903).	5	Each			0.00
6.06	Providing and fixing Fire hose cabinet with glazed door shutter and frame with hold fasts (frame fabricated from 40 x 40 x 5mm and shutter from angle) 2100 mm high x 1200 mm wide x 600mm deep with locking arrangement, 4mm thick glass with M.S. flats inc	5	Each			0.00
6.07	Providing and fixing stand post type hose cabinet for external hydrant of size (750 x 600 mm x 300 mm) fabricated from 1.6 mm thick SS sheet having openable glazed door shutter with 4mm thick glass suitable to accommodate hydrants, 2 Nos. canvas hose pipe bearing ISI mark Under IS:639-992 type B (not less then 30 Meter length) and branch pipe including necessary locking arrangements, painting inside and external part shall be natural polished in matt finish including SS 304 angle stand and PCC foundation 1:2:4 complete with locking arrangement and inbuilt key box	11	Each			0.00
6.08	Supply,Installation, Testing & Commissioning of Gun-Metal Fire Brigade connection (Suction collecting head) consisting of 4/3 nos. 63 mm dia instantaneous type male coupling with built-in check valves and 150 mm dia flanged outlet complete with bolts. n Four way fire brigade connection	1	Each			0.00
6.09	Providing, fixing jointing and testing of Heavy (class -C) G.I. pipes as per relevant IS :1239/4736 with special accessories like tees, elbow, gesket, flanges, flanged joints, rubber insertion nuts and bolts including earth work excavatin and trenching wr					
a	150 mm dia (FLANGED JOINT)	5	Metre			0.00
b	80 mm dia (FLANGED JOINT)	5	Metre			0.00

a	25 mm dia nominal bore	10	Each		0.00
6.10	Providing and fixing dial type pressure gauge with ball valve and pipe at hydrant station.				
	Dial diameter 100 mm, calibration 0-15 kg/sqcm	1	Each		0.00
	Sub Head Total				0.00
7	Automatic Sprinkler System				
7.01	Providing & fixing brass quartzoid sprinklers (UL approved) of 15 mm dia size, suitable for sustaining the pressure on the seat & water hammer effect. The type & temperature rating shall be as follows :				
a)	Pendent / Upright/ Side wall type, 68 C, Chrome plated With cp cover	25	Each		0.00
7.02	Supply, Installation, Testing & Commissioning of CI dual plate type non-return valves (PN 1.6) complete with 2 Nos. matching flanges, rubber insertion, nuts, bolts and washer etc. of following sizes.				
a	150 mm dia	1	Each		0.00
b	100 mm dia	1	Each		0.00
7.03	Providing and fixing cast iron body IS: 210 FG 200 and double flange gear simple operation type butterfly valve conforming to IS: 13095 with SS304 disc and shaft NITNLE rubber replaceable seat of the following size complete with bolts, nuts, washers and rubber insertions as per specification.				
a	150 mm dia	1	Each		0.00
b	100 mm dia	1	Each		0.00
7.04	Providing and Fixing water flow switches (Vane type) including tamper switch and accessories, complete as required, with potential free contact with 2 Nos. NONC.				
a	80 to 150 mm dia	1	Each		0.00
7.05	Heavy class G.I. pipes conforming to IS with accessories like tees, elbows, flanged joints, rubber insertion, nuts, bolts or welded joints including fixing the pipe with suitable flat iron strip clamps/brackets, structural members, dash fastener, cuttin				
a	150 mm dia (FLANGED JOINT)	5	Metre		0.00
b	100 mm dia (FLANGED JOINT)	5	Metre		0.00
c	80 mm dia (FLANGED JOINT)	5	Metre		0.00
d	65 mm dia	5	Metre		0.00
e	50 mm dia	5	Metre		0.00
f	40 mm dia	5	Metre		0.00
g	32 mm dia	5	Metre		0.00
h	25 mm dia	5	Metre		0.00
	Sub Head Total				0.00
	Grand total				0.00

SUMMARY OF Electrical -Operation & Maintenance & Repairs Emergency Block Safdarjung Hospital		
	Item	Amount
PART-A		
	Comprehensive Maintenance	0.00
PART- B		
	1) Special Repairs	0.00
	2) AMC Charges	0.00
	3) Operation Charges	0.00
	TOTAL	0.00

Estimates Comprehensive Maintenance of internal electrification sytem installed at Emergency Block for Safdarjung Hospital, New Delhi

S. No.	Description of Items	Qty	Unit	Rate in figure (Rs.)	Rate in words (in Rs)	Amount (Rs.)
1	Comprehensive Maintenance, up-keeping, attending day to day complaints and rectification of all electrical installations in Emergency block at safdurjung etc. round the clock including Sundays and Holidays. Installations comprises of internal electrification, external electrification, distribution board, main board and all type of light fixtures like brass bracket, flourescent fitting, CFL fittings, gate light, lawn/compound light, streat light, security light etc. and electrical appliances and gadget like geysers, ceiling fan, exhaust fan, fresh air fan and pump set etc. including repairing of these fixtures and gadget, repainting etc. as and where ever required and as per attached terms and conditions. Two electrician and One helper should be available in each A and B shifts at site office for the Maintenance of above work.	12	Months			0.00
	NOTE:- All complaints and work executed shall be properly recorded in the complaint register and documented. This register shall be kept at site office/service centre and abstract of daily complaint received/attended shall be recorded in the register and compiled list of monthly complaint shall be submitted on first day of every succeeding month. Attendance register of staff deputed shall be maintained and kept at site office and duty chart of worker shall be displayed at site office/service centre.					
	TOTAL					0.00
	Special Repair					
1	Supplying of following size of FRLS PVC insulated copper conductor, single /flexible core cable .					
a	1.5 Sq. mm	2000	Metres			0.00
b	2.5 Sq. mm	2000	Metres			0.00
c	4.0 Sq. mm	1000	Metres			0.00
d	6.0 Sq. mm	1000	Metres			0.00
e	10.0 Sq. mm	1000	Metres			0.00
f	16.0 Sq. mm	1000	Metres			0.00
2	Supply of telephone wiring of un armoured 2 pair 0.5 mm dia copper PVC condutor wiring of following sizes in the existing conduit. The replaced wire will be FR cable of reputed make.					
	2 pair	100	Metre			0.00
3	Supplying of following sizes of steel conduit along with accessories .					
a	20 mm	50	Metres			0.00
b	25 mm	50	Metres			0.00
c	32 mm	50	Metres			0.00
4	Supplying of following sizes of PVC conduit along with accessories .					
a	20 mm	50	Metres			0.00
b	25 mm	50	Metres			0.00
c	32 mm	50	Metres			0.00
5	Supplying metal box of following sizes (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in the front including painting etc. as reqd.					
a	180 mm x 100 mm x 60 mm deep	10	Nos.			0.00

6	Supplying 3mm thick phenolic laminated sheet cover in the existing metal switch board alongwith screws, washer i/c dismantling the existing sheet etc. as required.	2	Sq mtrs.			0.00
7	Supplying of following modular switch, socket & accessories on the existing modular plate and switch box including connections but excluding modular plate etc. as reqd.					
a	5/6 amps switch	50	Nos.			0.00
b	2 way 5/6 amps switch	50	Nos.			0.00
c	15/16 amps switch	20	Nos.			0.00
d	3 pin 5/6 amp socket outlet	20	Nos.			0.00
e	6 pin 15/16 amp socket outlet	20	Nos.			0.00
f	20 amp switch/ SP MCB	10	Nos.			0.00
g	20 amp socket	10	Nos.			0.00
h	Telephone socket outlet (RJ-11)	10	Nos.			0.00
i	Stepped type electronic fan regulator	10	Nos.			0.00
j	Blanking plate (modular)	50	Nos.			0.00
k	Bell push	10	Nos.			0.00
l	TV Antenna Socket Outlet	10	Nos.			0.00
m	RJ-45 Socket Outlet	10	Nos.			0.00
8	Supplying call bell/buzzer suitable for D.C/A.C.single phase,230 volts, complete as reqd.	5	Nos.			0.00
9	Rewinding of 1200 mm ceiling fan including removing and further installation. Rewinding will carry 6 months gurantee	20	Nos.			0.00
i	Change of bearing of 1200 mm ceiling fan including removing and further installation	20	Nos.			0.00
ii	Replacement of capacitor for 1200 mm ceiling fan	20	Nos.			0.00
10	Rewinding of 900 mm ceiling fan including removing and further installation. Rewinding will carry 6 months gurantee	20	Nos			0.00
i	Change of bearing of 900 mm ceiling fan including removing and further installation	20	Nos			0.00
ii	Replacement of capacitor for 900 mm ceiling fan	10	Nos			0.00
11	Rewinding of 225 mm exhaust fan including removing and further installation Rewinding will carry 6 month guarantee	50	Nos			0.00
i	Change of bearing of 225 mm exhaust fan including removing and further installation	50	Nos			0.00
ii	Replacement of louver of 225 mm exhaust fan	50	Nos			0.00
iii	Change of capacitor for exhaust fan	8	Nos			0.00
		50				
12	Painting of ceiling fan in installed position with one or more coats of spray painting with synthetic enamel paint of approved brand and manufacture to give an even shade, i/c cleaning of surface with detergent etc. as reqd.	50	Nos			0.00
13	Supplying following rating / series 240 volts miniature circuit breaker suitable for lighting and other loads / inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as reqd.					
a	6 to 32 amp Single Pole 'C' Series	50	Nos.			0.00
b	25 Amps Double pole C- series.	50	Nos			0.00
c	32 Amps Double pole C- series.	50	Nos			0.00
d	32 Amps Double pole C- series (Modular)	50	Nos.			0.00
e	40 Amps Double pole C- series.	50	Nos			0.00

f	25 A Four Pole C- series.	50	Nos.		0.00
g	32 A Four Pole C- series.	50	Nos.		0.00
h	40 A Four Pole C- series.	50	Nos.		0.00
i	63 A Four Pole C- series.	50	Nos.		0.00
14	Supply following ELCB/ RCCB in the existing MCB DB of 30/ 100 mA rating				
a	25 A DP	40	Nos.		0.00
b	32 A DP	50	Nos.		0.00
c	40 A DP	40	Nos.		0.00
d	25 A Four Pole	52	Nos.		0.00
e	32 A Four Pole	50	Nos.		0.00
f	40 A Four Pole	50	Nos.		0.00
g	63 A Four Pole	50	Nos.		0.00
15	Supply of following thermal magnetic MCCB / components in the existing panels . The MCCB/components will be of same make as installed or approved equivalent. 25 ka /35 ka /50 ka rating				
i	FP MCCB 63 Amp ,	1	Nos.		0.00
ii	FP MCCB 100 Amp	1	Nos.		0.00
iii	FP MCCB 125 Amp	1	Nos.		0.00
iv	FP MCCB 160 Amp	1	Nos.		0.00
v	FP MCCB 200 Amp	1	Nos.		0.00
vi	FP MCCB 250 Amp	1	Nos.		0.00
vii	FP MCCB 320 Amp	1	Nos.		0.00
viii	FP MCCB 400 Amp	1	Nos.		0.00
ix	FP MCCB 500 Amp	1	Nos.		0.00
x	FP MCCB 630 Amp	1	Nos.		0.00
16	Supply of following components in existing electrical panels/ air circuit breakers/ starters/APFC etc. The components will be of same make and model as installed or approved equivalent.				
i	Fixed contacts 630- 1600 Amp ACB	1	Set		0.00
ii	Moving contacts 630- 1600 Amp ACB	1	Set		0.00
iii	Arc Chutes 630- 1600 Amp ACB	1	Nos		0.00
iv	Differet type of coils each used in ACB like closing, tripping etc	1	Nos		0.00
v	Rack-in rack-out handle for ACB	1	Nos		0.00
vi	Spare contact kit for 32 amp TP contactor similar to existing kit.	1	Nos		0.00
vii	Spare contact kit for 60 amp TP contactor similar to existing kit.	1	Nos		0.00
viii	Spare contact kit for 100 amp TP contactor similar to existing kit.	1	Nos		0.00
ix	Auto/ Manual selector switch	1	Nos		0.00
x	10 KVAR capacitor bank, Extra heavy duty	1	Nos		0.00
xi	25 KVAR capacitor bank, Extra heavy duty	1	Nos		0.00
xii	50 KVAR capacitor bank, Extra heavy duty	1	Nos		0.00
xiii	Off delay timer similar to existing timer	1	Nos		0.00
17	Supply of light fixtures. The makes and model should be same as installed or approved equivalent.				
i	18 watt tube light	50	Nos		0.00
ii	36 watt fluorescent light lamp (tube)	50	Nos		0.00
iii	28 watt tube light TL-5	25	Nos		0.00
iv	Starter for fluorescent fixture	50	Nos		0.00
v	Electronic balast for fluorescent fixture	50	Nos		0.00
vi	Copper bound ballast for fluorescent fixture	50	Nos		0.00

vii	Copper bound ballast for CFL	20	Nos			0.00
viii	9 watt CFL	50	Nos			0.00
ix	11 watt CFL	50	Nos			0.00
x	13 watt CFL	50	Nos			0.00
xi	18 watt CFL	50	Nos			0.00
xii	36 watt CFL	50	Nos			0.00
xiii	50 watt halogen lamp	10	Nos			0.00
xiv	150 watt HPSV lamp	10	Nos			0.00
xv	Ignitor for 150 watt HPSV Lamp	10	Nos			0.00
xvi	Complete gear box for 150 watt HPSV Lamp	20	Nos			0.00
xvii	Housing for post top light fixture Philips HPS 360, Sonara or approved equivalent	50	Nos			0.00
xviii	12 volt transformer for halozen lamp	50	Nos			0.00
xvix	LED light Aura-I/II	50	no.			0.00
18	Painting of street light pole with silver grey or as approved by site incharge. Including paint and labour.	50	Nos.			0.00
19	Supply of heat shrinkable straight through joints of the following LT cables of 1.1 Kv					
a	3.5 C x 25 Sq mm	2	set			0.00
b	3.5 C x 50 Sq mm	2	set			0.00
c	3.5 C x 70 Sq mm	2	set			0.00
d	3.5 C x 95 Sq mm	2	set			0.00
e	3.5 C x 120 Sq mm	2	set			0.00
f	3.5 C x 185 Sq mm	2	set			0.00
g	3.5 C x 300 Sq mm	2	set			0.00
h	4 C x 16 Sq mm	2	set			0.00
20	Supply of 11 kv grade hand gloves	4	Nos.			0.00
21	Supply of 440 V grade hand gloves	4	Nos.			0.00
22	Supply of First aid box as per Indian Red Cross Society details.	2	Nos.			0.00
23	Replacement of existing 12 V battery for starting of DG set with new against buy back of the old battery	2	Nos.			0.00
24	PVC Tape (Make: Stealgrip)	100	Nos.			0.00
25	CTC for cleaning of rust (500 ml)	30	Nos.			0.00
26	All types of lugs upto 16 sqmm	200	No.			0.00
	TOTAL					0.00
	AMC Electrical					
	Annual comprehensive maintenance charges for the following items installed at site. The CAMC will be done by OEM or his authorised service provider. The bidder is required to quote the annual cost of the CAMC inclusive of his professional charges for arranging the same. The detailed break-up of CAMC charges for each equipment / system to be enclosed separately					
	Charges for the first year of CAMC					
	26 Passenger Lifts					

	Comprehensive Annual Maintenance including all material and labour for 26 passenger lifts having speed of 1 MPS, having center opening for passenger lift and telescopic opening for hospital lift ss scratch proof finish, VVVF, etc.complete as installed and having following stopes and landings:				
	6 stops and 6 landings	2 Nos			0.00
	12 stops and 12 landings	6 Nos			0.00
	Escalators				
	Comprehensive Annual Maintenance including all material and labour for Escalators having Vertical Height-6550 mm angle-30 and speed of .5 MPS	2 Nos			0.00
	Comprehensive Annual Maintenance including all material and labour for Escalators having Vertical Height-4050 mm angle-35 and speed of .5 MPS	6 Nos			0.00
	DG Set Charges for annual maintenance				
	Annual Maintenance including all labour for 1000 KVA DG set including Synchronization panel, day tank and associated pumps pipe lines etc, power & control cable, accoustics enclosure, heat exchanger etc complete including 'B' checks as per the manufacturer's recommendations/ requirements	4 Nos			0.00
	UPS Charges for annual Maintenance				
	UPS of 300 KVA				
	Annual Maintenance including all labour for 300 KVA UPS system, True Online double conversion and fully Microprocessor Controlled UPS system with IGBT based Rectifier with input pf 0.98 and minimum 95 % overall efficiencyetc complete as per the manufacturer's recommendations/ requirements (n+1 configuration)	1 Set			0.00
	Addressable FDA System				
	Comprehensive Annual Maintenance including all material and labour for 8 loop microprocessor based addressable type networkable Fire Detection & Alarm system with LCD display, complete as installed at the site including smoke detector-850 nos.,Heat detector-300 nos., laser base smoke detector -6 no., RI-300 no.,MCP-36,hooter-36,isolator module-30,Monitor Module-10 etc.	1 Lot			0.00
	PUBLIC ADDRESS SYSTEM.				
	Comprehensive Annual Maintenance including all material and labour for 6 zone master announcement along with talk back system, Amplifier console complete as installed at the site including Speakers-320.1,PC based graphical facility monitoring system etc.	1 Lot			0.00
	CCTV				
	Comprehensive Annual Maintenance including all material and labour for CCTV system installed at site including CCTV 600 TVL Verifocal ,dome camera with 2.8-10 mm lens- 130 nos, IR fixed camera-4 no.,PTZ -4no. DVR 16-channel-18no., 32" monitor-8 no., with all accessories, cabling etc complete as installed at site.	1 Lot			0.00
	EPABX System				
	Comprehensive Annual Maintenance including all material and labour for the 32 bit microprocessor based fully digital EPABX system having 8 trunk line, 140 analog extensionsin, 24 digital extention expendable type complete as installed at the site.	1 Lot			0.00
	Access Control System				
	Comprehensive Annual Maintenance including all material and labour for Micro processor based access control system engineered with biometric & smart card reader, smart cards-200 no. including PC, Boom barrier, electromagnetic lock etc. i.e. complete access control system as installed at site.	1 Lot			0.00
	BUILDING AUTOMATION SYSTEM:				
	Comprehensive Annual Maintenance including all material and labour for Building management System including PC, DDC controller, Field Devices, input sensor etc i.e. complete system as installed at site.	1 Lot			0.00
	NURSE CALL BELL SYSTEM				
	Comprehensive Annual Maintenance including all material and labour for microprocessor based Nurse Call Bell system consisting of 40 way-2 nos.,32 way-4 nos., 16 way-4 nos., 08 way-1 no nurses station i.e. complete nurse call bell system as installed at site.	1 Lot			0.00
	LIGHTING CONTROL SYSTEM:				
	Comprehensive Annual Maintenance including all material and labour for Lighting control System including DALI dimming controller-5 no. daylight sensor-04 no. occupancy senser-10 no. , etc i.e. complete system as installed at site.	1 no.			0.00
	TOTAL				0.00
	Operation				
	Operation charges for following system through deployment of qualified manpower as per suggested minimum manpower chart. The charges will be all inclusive. Contractor has to follow all maintenance requirement as per tender conditions				
	Operation charges for one year				

Round the clock operation of electrical sub-station & DG set through minimum defined manpower in SCC					
Operation of lift round the clock through minimum defined manpower in SCC					
Operation FDA & PA in A ,B &C shift through minimum defined manpower in SCC			Per job		
Operation BMS, Solar System in A ,B &C shift through minimum defined manpower in SCC	12	per month			0.00
Total					0.00
Total For Electrical					0.00

BOQ for Operation and Comprehensive Annual Maintenance Contract with material and labour for HVAC works of Emergency Block at Safdarjung, Delhi						
Sl. No.	Description	Qty	Unit	Rate(Rs.)	Rate in Words(Rs.)	Amount(Rs.)
1	Day to day Operation and comprehensive Maintenance in three shifts including Minimum manpower as per specifications, materials, spares,consumables,tools, equipments and pesonals for operation and maintenance (routine,preventive and breakdown) of entire HVAC System complete comprising of water cooled chillers, pumps and motors, cooling towers, hot water generators, AHUs, FCUs, Exhaust fans piping networks, filters, valves, strainers , insulations, duct work systems , air devices, control dampers, firedampers and various electricals panels with their accesories complete as per specifications, standard Operation and Maintenance manuals of equipments and standard practices.					
1.1	Per year of the contract as above	12	Month			0.00
2	Comprehensive Annual Maintenance charges including material, labour, spares,tools, equipments and pesonals of entire HVAC System complete on CAMC basis comprising of water cooled chillers,chilled water and condenser water pumps and motors, cooling towers, hot water generators, AHUs,FCUs and exhaust fans with their accesories complete as per specifications, standard Operation and Maintenance manuals of equipments and standard practices.	1	Lumpsum for one year			0.00
3	Add or deduct of manpower for 8 hrs shift basis as per tender requirement					
3.1	HVAC Supervisor	30	Days			0.00
3.2	Operator	30	Days			0.00
3.3	Maintenance mechanic	30	Days			0.00
3.4	Maintenance electrician	30	Days			0.00
3.5	Helper	30	Days			0.00
	TOTAL COST FOR HVAC WORKS					0.00

BOQ for Operation and Comprehensive Annual Maintenance Contract with material and labour for MGMS works of Emergency Block at Safdarjung, Delhi						
S.No.	Description of Items	Unit	Qty.	Rate in Figure (Rs)	Rate in words (rs)	Amount (Rs)
1	MGPS					
	Day to day Operation and Maintenance in three shifts including Minimum manpower as per manpower development schedule, materials, spares, consumables, tools, equipments and personals for operation and maintenance (routine, preventive and breakdown) of entire MGPS complete comprising of Air Compressors, Vacuum Unit and Motors, Air Receivers, AGSS, Dryers, Filters, Strainers, Exhaust fans, Pressure Reducing Station, Copper Piping networks, valves, Valve Boxes, Alarms, and various electrical panels with their accessories (including associated switchgears) complete as per specifications, standard Operation and Maintenance manuals of equipments and standard practices.					
1.1	(Refer Annexure-A)	Per month	12			0.00
2	Operation Theatre(15) & Integrated Operation Theatre(2)					
	Day to day Operation and Maintenance in three shifts including manpower, as per manpower development schedule, materials, spares, consumables, tools, equipments and personals for operation and maintenance (routine, preventive and breakdown) of entire OT & Integrated OT System complete comprising of Surgical OT LED light with Camera & Monitor, Pendants, Peripheral light, Surgeon Control Panel, X-Ray Viewer, Monitors, Hermetically sealed door & Window, Antistatic PVC flooring, Wall & Ceiling Panel and Laminar flow system, Ducting network, HEPA filters, PRD, Pass Box, Digital Display Monitors, Audio Visual Communications, Central Control System, PTZ Camera and DB with other accessories of OT. The bidder is required to quote the annual cost of the AMC.					
2.1		Per month	12			0.00
	Total					0.00

Operation & Maintenance & Repairs Emergency Block Safdarjung Hospital**Overall Summary**

Name of Bidder M/s :-

Sl.No	Head	Amount Quoted in Figures	Discount in %age	Discount Amount Rs.	Net Quoted Amount Rs
1	Civil	0.00		0.00	0.00
2	Electrical	0.00		0.00	0.00
3	HVAC	0.00		0.00	0.00
4	MGMS & OT	0.00		0.00	0.00
Total Amount Quoted					0.00
In words:-					