



Office of the Director
INDIRA GANDHI INSTITUTE OF MEDICAL SCIENCES.

SHEIKHPURA, PATNA – 800 014 (Bihar, India)
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(To be uploaded on websites)

(Tender Notice No: IGIMS / EC/ EW/ 07/ 2023-24)

Memo No. 668/ EC/EW/2023

Date : 14 .11 .2023

TENDER NOTIFICATION FOR ELECTRICAL WORK

Rates of **Non-Schedule items** in two bid systems (Technical and Price Bid) are invited through e-tendering process from eligible and experienced firms registered in any government organization under which similar nature of works are carried out. Intending bidders must be registered with e-procurement cell on www.eproc2.bihar.gov.in. After registration bidders will get user ID, password and digital signature which will provide an opportunity and eligibility to take part in e-tendering process.

S I N O	Name of work	Estimated cost ₹	Tender Processing fee ₹	Cost of blank tender /BOQ ₹	Earnest Money Deposit ₹	Comple tion period of the work
1	“Comprehensive Annual Maintenance Contract (CAMC) of Fire Hydrant System, Sprinkler System with Pumps, Fire Extinguisher cylinders ,Fire Alarms, Smoke & heat Detectors and related accessories in Annexe block ,Ward Block, diagnostic block ,Polyclinic Block, OPD ,Emergency & trauma, Engineering & Dental Building as well as Suppression System installed in various Distribution ,LT & HT Panels in 200KVA Old Substation , 33KVA New Substation & various Buildings in Hospital area & Low pressure water mist system installed for 500 KVA Indoor Transformer , 1000 KVA Outdoor Transformer, Co2 Based Fire Suppression system for DG Set with Spares & consumable etc. all complete”	-	As per generated by www.eproc2.bihar.gov.in	Rs. 5,000.00	1,00,000	36 months
Date for obtaining BOQ (Only on www.eproc2.bihar.gov.in)			25 /11 / 2023			
Date & Time of Pre-bid meeting for any Queries			02 /12/ 2023 at 11:00 PM in Conference Hall, IGIMS, Patna			
Reply of Pre-bid Queries (Only on www.eproc2.bihar.gov.in and www.igims.org)			Till 05 / 12 / 2023			
Last Date & Time for uploading of complete tender Document(on www.eproc2.bihar.gov.in)			16 /12/ 2023 up to 11:00 PM			
Last Date & Time for submission of complete tender Document Hard copy at Director’s Office IGIMS through Regd. /speed post/courier.			18 /12/ 2023 up to 3:00 PM			
Date & Place of opening of Tender (Technical bid only on www.eproc2.bihar.gov.in)			Conference Room IGIMS, Patna 19/ 12/2023 at 3:00 PM			
Date & Place of Opening of Tender (Price bid only on www.eproc2.bihar.gov.in)			Date of opening of Price bid of Technically viable tender shall be intimated only through www.eproc2.bihar.gov.in and on Institute web site www.igims.org			

Details of the tender can be seen and downloaded from Institute website: www.igims.org and www.eproc2.bihar.gov.in. Undersigned reserve the right to accept/reject any or all tenders without assigning any reason. Prospective bidders are advised to regularly visit www.igims.org and www.eproc2.bihar.gov.in for Corrigendum/Amendments etc. if any will be notified on this portal only and no separate advertisement will be made.

Particulars in brief:

Authority to sanction the tender: Director, IGIMS, Sheikhpura, Patna-8000014.

Any Contractor with valid registered under, CPWD, BCD, Energy Department, Railway, autonomous bodies, PSUs or in any government organization under which similar nature of works are carried out.

Tender shall be carried out only through e-tender procedure at the website (www.eproc2.bihar.gov.in). For any information regarding e-tender procedure, bidder may contact at Help Desk **eProc2.0 Help Desk Address: mjunction services limited RJ Complex, 2nd Floor, Canara Bank Campus, Khaipura, Ashiana Road, P.S. - Shastri Nagar, Patna 800 014, Bihar and may contact also on **Toll Free Number: 1800 572 6571, Email Id: eproc2support@bihar.gov.in****

Bidder desiring to participate in the tender shall have to get registered with e-procurement. Necessary registration forms are available at the website. Bidder will get user id and password by registration. Bidder shall have to obtain DSC (Digital Signature Certificates) also. Bidder shall be able to participate in tender using user id, password, DSC and internet.

Bidder shall have to obtain (download) tender papers and submit (upload) their bids at the website www.eproc2.bihar.gov.in

Prescribed forms filled up at specified places and necessary documents must (in hard copy) be submitted in office of the Director, IGIMS, Patna on or before the stipulated time by Regd./Speed Post/Courier. Information regarding tender opening or any corrigendum regarding tender shall be available at the website only. In case of non submission of tender documents in hard copy as per eligibility criteria and technical bid sheet the bidder will be non responsive.

The cost of tender document is non-refundable and Earnest money to the tender may be submitted through bank guarantee / internet payment Gateway/ Internet Banking. All EMD should be pledged to Director IGIMS, Patna, as per provisions of EPROC2 of BELTRON. (Related site www.eproc2.bihar.gov.in) Any query regarding this may be clarified with To Free No. 18005726571 or E-mail ID eproc2suood@bihar.gov.in. All Original document Acknowledgement Of amount deposit towards value of Quantity Bill and original copy of BG (Bank Guarantee) to be deposited as EMD or receipt of amount deposited in online mode (Whichever is applicable) if is Mandatory to submit to the Accounts Section, Indira Gandhi Institute of Medical Sciences, Patna-14 before the scheduled, date and time of opening of technical bid. Otherwise tender will be not valid.

The Bid validity period of 120 days from the date of submission of tender/quotation.

Tender/quotation processing fee (Non Refundable as per NIT- is mandatory to be paid through on line mode i.e. Internet payment gateway (credit/debit card, net banking, NEFT/RTGS).

Bids along with necessary on line payment must be submitted through e-procurement postal www.eproc2.bihar.gov.in before the date & time specified in the N.I.T. The department does not take any responsibility for the delay/non submission of tender, quotation/ non reconciliation of on line payment caused due to non availability of internet connection, network traffic /holidays or any other reason.

Regarding any information of the proposed work, bidder should contact the Executive Engineer (Electrical), IGIMS, Patna on any working day, before submission of bid.

The undersigned has right to extend or cancel the Bids without declaring any reason.

1. INSTRUCTION TO TENDERERS

Bidders has to submit hard copy of tender in sealed envelopes containing all related documents (hard copy) of Technical bid super scribed as "Technical Bid" and Price bid super scribed as "Price Bid" in two separate envelopes , both containing in third envelope super scribed as "Bid for **(E-Tender Notice No: IGIMS / EC/ EW/ 07/ 2023-24)**This must reach to the office of the undersigned through Registered post/ Speed post/Courier Services only on or before the last submission day and time of tender as mentioned in Tender Notice . IGIMS takes no responsibility for the delay or loss in transit of any document related to this Tender.

IGIMS reserves the right to accept or reject any application without assigning any reason or incurring any liability whatsoever.

Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders on his own cost, to acquaint themselves from the nature of the work and nature of the ground and sub-soil, the form and nature of the site, the means of access to the site, the volume of work involved, 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 work tender. The bidder shall be deemed to have full knowledge of the site, nature of work etc, whether he inspects it or not. It is to note that and no extra charges for complete work either in civil electrical or mechanical work, etc will be paid to the contractor. Any misunderstanding or otherwise shall be allowed. The work to be awarded by this tender shall be treated as indivisible works contract.

IGIMS reserves the right to inspect the works intimated to have been completed by the applicant and reject any prospective application without assigning any reason.

The tender for the works shall remain open for acceptance for a period of 120 days from the date of opening of tenders.

2. Completion period

The completion period indicated in the tender documents is for the Comprehensive annual maintenance work and handing over of the entire job to the satisfaction of the Engineer - in - charge or his authorized representative.

3. CAMC Period

All the items covered in the BOQ, shall carry minimum twelve months Onsite Comprehensive Warranty, commencing from the date of completion of entire job. The CAMC services have to be provided at IGIMS, Patna-14. The repairing / rectification, if any of the items under comprehensive maintenance must be done at site only.

The bidder should submit along with the technical bid, the detailed plan for providing installation and warranty services at site. Prompt and efficient after sales service must be free within the warranty period.

The bidders must have name, signature , date & seal should appear on each page of the Tender Document which is required to be submitted with technical bid in the form of hard copy.

The bidder shall be responsible for the delivery of the spare/material/ equipment to site and shall include in his bid all the necessary arrangements for transport, loading and off-loading (including cranes, lifting tackles, wire rope, winches, slings, etc. All the necessary arrangement along with material for installation, testing and commissioning to complete the work will be contractor's responsibility. IGIMS will not accept any claims for additional costs in this regard.

If the contractor or his workmen or employees shall break, deface, injure, or destroy any part of a building, road kerb, fence, enclosure, water pipes, cables, drains, electric or telephone posts, wires, etc. The contractor shall make the same good at his own expenses. IGIMS may cause the same to be made good by other workmen and deduct the expenses of which IGIMS decision is final.

4. Safety

The successful bidder shall follow the Safety Code and Model Rules for the Protection of health and sanitary arrangement for Workers.

The quality of all the materials to be utilized by the successful bidder must be get approved by the Executive Engineer Electrical before utilizing it.

The successful bidder has to submit daily progress report of the work to the Executive Engineer Electrical while execution of the work.

5. Eligibility Criteria:

- a. Experience certificate of work done not less than 80% value of single work or two work of 50% value or three work of 40% value of estimated amount and IT Return in the last three years ending march 2021.
- b. Bidder should be having all the necessary documents like eligible experienced contractors / firms registered under , CPWD , BCD, Energy Department, PESU, Railway or in any government organization under which similar nature of work has been carried ,GST, PAN, Registration, experience etc. He must enclose the Self attested photocopies with notarized of these documents.
- c. Notarized copy of Valid Electrical License in the name of the bidder or its associate, issued from the competent government licensing authority.

6. This Notice Inviting Tender (NIT) shall form a part of the contract document. The successful bidder/contractor, on acceptance of his tender by the Accepting Authority, shall, sign the contract agreement within 15 days from the stipulated date of start of the work.

7. The contractor shall submit the program for execution of work, get it approved from the Electrical Executive Engineer and strictly adhere the same for the timely completion of the project work before start of the work.

8. The rate for all items of work shall include the cost of all labour, materials and all other inputs involved in the execution of the complete work and nothing extra on any account will be paid to the agency other than his quoted rates.

9. While installing or commissioning the contractor or his authorized representative should always be available at the site of work to take instructions from department officers and ensure proper execution of work.

10. The contractor shall maintain in good condition all work executed till the completion of entire work allotted to the contractor. No payment will be made to the contractor for damages caused by rains, floods or any other natural calamity, whatsoever during the execution of the work. The contractor shall be fully responsible for any damage to the Owners property and to the work for which the payment has been advanced to him under the contract during the execution of the works.

11. The malba /garbage, removed from the site shall be disposed off by the contractor at any suitable place as directed by the Engineer-In-Charge.

12. Material must be properly packed against any damage and insured up to the destination. The material should be directly dispatched to the installation site at IGIMS, Patna -14.

13. All the expenses involved in delivering, unloading etc. the equipment at our site, shall be borne by the Bidder. All aspects of safe delivery shall be the exclusive responsibility of the Bidder. IGIMS will have the right to reject the component/equipment supplied, if it does not comply with the specifications at any point of installation, inspection and testing, EMD is liable to be forfeited and bid is liable to be rejected, if the bidder withdraws or amends impairs or derogates from the tender in any respect within the validity period of the tender.

14. If any equipment/material or part thereof is lost or rendered defective during transit, the supplier shall immediately arrange for the replacement of damaged equipment or part thereof, as the case may be, at no extra cost.

15. Rates should be quoted towards Supply at site, Unloading, Erection, Commissioning, Testing and Maintenance of Supplies / Materials given under BOQ, accordingly by giving the basic price, GST, Service Tax, etc. wherever applicable.
16. Along with slandered deduction, 1% labour cess will be deducted of the completed work as per prevailing Bihar state government rules.
17. IGIMS shall have the sole right to assess the performance of the tendered equipment(s) /components, primary / intermediate and or final, and reject the same without assigning any reason / explanation to the bidder if the performance is found to be unsatisfactory. The decision of IGIMS will be final and binding on the contractor.
18. Price basis should be FOR IGIMS Patna only. The quoted price will be considered firm and no price escalation will be permitted.

19. SECURITY DEPOSIT

- a. The amount of Security Money shall be 10% (Ten Percent) of the work order Value- and deduction/deposit shall be made in following manner.
 - b. On acceptance of tender, it will be obligatory to deposit Initial Security money @ 5%, (EMD=2% and ISD =3%) of the amount of the approved tender. Five Percent of the accepted/agreed value, which has to be deposited by the contractor to IGIMS Patna and remain with IGIMS till expiry of warranty period. Balance 5% (Five Percent) Security Money shall be deducted from each running account bill of work done under this work order.
20. Security deposit shall be refunded after expiry of warranty period 12 months after the date of issue of work order and satisfactory performance provided there are no defects in work and removed all surplus material, rubbish, scrap from site. The Security deposit shall be totally non-interest Demand Draft, if furnished, shall also not entail any liability towards bank interest, money or bank charges etc. on IGIMS.

21. Payment

The payment will be released on quarterly basis for CAMC after submitting the bill with the copies of logbook registers and service reports. Complaints will be register through verbally, telephonically, social media, written etc. All complaints will be maintained in daily log book by the agency for the breakdown maintenance and service reports for the scope of work mentioned in the Annexur-1 shall be satisfactory carried out which should be duly signed by Engineer in charge.. Security deposit will be released after 12 months from the date of wok order. All the payment shall be made on actual measurement basis.

22. The contractor shall clear the site thoroughly of all scaffolding materials, rubbish and scrap etc. left out of his work and dress the site around the building to the satisfaction of the Engineer before the work is considered as complete.
23. The quoted rate shall be complete in all respects including the cost of all materials, labour, tools & plants, machinery etc. IGIMS shall not be supplying any material, labour, plant etc.
24. The contractor has to ensure co-ordination with Institute authorities to maintain the smooth functioning / operation of existing Institute timing without disruption during the execution of work. This may require working rescheduling the normal working hours, working in restricted period etc. Nothing extra shall be payable on this account.
25. Stacking of materials and excavated earth including its disposal shall be done as per the directions of the Electrical Executive Engineer. Double handling of materials or excavated earth if required shall have to be done by the contractor at his own cost.
26. In the case of any tender where unit rate of any item/ items appear unrealistic, such tender will be considered as unbalanced and in case the bidder is unable to provide satisfactory explanation such a tender is liable to be disqualified and rejected.
27. On account of security consideration, some restrictions may be imposed by the security staff on the working and movement of men and materials etc. The contractor shall be bound to follow all such restrictions/ instructions and he shall organize his work accordingly. No claim on this account, whatsoever, shall be payable.
28. The contractor shall be responsible for completing the work and for satisfying all terms and conditions of the Contract without any extra payment over his quoted rates unless otherwise specified. The contractor shall quote his rates for various items of work accordingly and no claim whatsoever shall be entertained for any incidental or extra work involved in the execution of the work as per nomenclature of the item and the specifications indicated in the tender documents.

Penalty Clause: Uptime Guarantee 350 days working, if the uptime guarantee fall behind 350 days then Penalty is one day equal to one week extension of Comprehensive maintenance period.To avoid these situation contractor are advised to deploy sufficient number of Plants, Tools, spares or any consumables necessarily in the Institute.

29. Technical Bid shall contain:

Non-Refundable cost of required B.O.Q. amounting to the respective Column as per NIT.

Refundable Earnest Money Deposit (EMD) amounting to the respective Column as per NIT.

Forwarding letter clearly indicating the documents attached therein submitted in the first cover

Notarize copy of experienced contractors / firms registered in appropriate class under, CPWD, BCD, Energy Department, PESU, Railway or in any government organization under which similar nature of work has been carried. Manufacturer/ Authorised dealers/distributers/Agent may also can submit their offer.

Notarize copy of Registered Partnership deed if the tenderer is a partnership firm and power of attorney.

Notarize copy Permanent Account Number.

Notarized copy of Annual Turnover certificate issued from the registered Chartered Accountant for last three financial Years.

Notarize copy of valid GST Certificate with updated Challan.

Notarize copy of Valid Electrical Contractor License/ supervisor license of the suitable class in the name of the bidder or its associate, issued from the competent government licensing authority, for electrical work. In case of bidder's associate holds the license, the contractor has to submit an affidavit that all the electrical work will be carried out under supervision of electrical license holder.

Notarize copy of experience certificate/s of similar nature and magnitude of work carried out by the Contractor in Last 5(Five) Years in any government department only. The last five years will be counted from the month of publish of this Tender.

Notarize copy of technical personnel to deploy at site for smooth functioning during maintenance period.

Notarize copy of List of Tools, Plants, Machineries, Spares immediately available for use on the respective work.

Notarize copy of Character certificate issued from Competent authority.

Notarized copy of P.F and E.S.I registration Certificate with updated challan.

The Bidder should submit original Notarized certificate on Rs.1000.00 non-judicial stamp that it has not been blacklisted, debarred, declared non-performer or expelled by Union Govt/State Govt / PSU's during the last 5 years,

The Bidder should submit original Notarized certificate on Rs.1000.00 non-judicial stamp that "In case any ambiguity is noticed in the documents submitted at any stage, we shall be entirely responsible and liable for any action as deemed fit under the law" shall be submitted by the Firm/Agency with Technical bid. The absence of Certificate, the Bid is liable to be rejected.

Note:

Similar nature of work means "AMC/ CAMC/ Operation & Maintenance/Repair including SITC for Fire Hydrant System, Sprinkler System with Pumps, Fire Extinguishers cylinders ,Fire Alarms, Smoke Detectors, Glow Sign Board etc.

Quoted rate by the agency must include all complete works including deputed sufficient manpower having experience at working with Fire Fighting equipments, Supply, Installation of spare parts, freight taxes, contractor profit etc. all inclusive.. If extra manpower/s is/are required as per the instruction of Executive Engineer (Electrical) then the agency will have to make available depending upon the work loads. **Agency has to comply with the provision of contract Labour (Regulation and Abolition) Act 1970 and contract labour (Regulation and Abolition) central rules 1971 and minimum wages act and rules thereof central and state Governments** The interested agency is advised to visit the site at IGIMS, Patna before quoting their rate, so that to understand the scope of work at site. Accommodations for manpower will be the responsibility of contractor and Institute will not provide these facilities The interested agency is advised to visit the site at IGIMS, Patna before quoting their rate, so that to understand the scope of work at site. Accommodations of manpower will be the responsibility of contractor and Institute will not provide these facilities. Details of installations and Scope of work is enclosed at Annexure -1.

Special Terms and Conditions

- a) FR wiring shall be used everywhere inside/outside all panels/equipment/building.
- b) Copper material (strip, plate, etc.) shall have conductivity greater than 95% in all applications.
- c) Each Earth conductor (for earthing) shall not left bare it will be through ISI mark PVC pipes to avoid corrosion & mechanical injuries.
- d) Failure on the part of the client to inspect or to reject after inspection any work, which later proves to be defective, shall not relieve the Contractor from warranties, commitments and obligations, which he undertakes under this contract. The Contractor is solely responsible for the accuracy, quality and completeness of his work and supply.
- e) The Contractor shall include and provide for securely protecting and packing the equipment in accordance with the best established practices so as to protect the contents from damage during transit, storage, exposure to heat, moisture or rain. Notwithstanding the above, the Contractor shall be entirely responsible for loss, damage or deterioration to the materials occasioned by faulty, defective or insecure packing.
- f) If required obtaining approvals from Electrical Inspector, Local Electricity Supply Authority and all other statutory authorities for the complete scope of work is contractor's responsibility. It is not the intent to specify completely here in all aspects of design constructional and constructional features of equipment and details of the work to be carried out nevertheless, the equipment and work shall conform in all respects to high standards of engineering, design and workmanship

and shall be capable of performing and continuous commercial operation in a manner acceptable to the owner who are interpret the meaning of the specifications and drawing and shall have right to reject or accept any work or material which in his assessment is not complete to meetings requirement of these specifications and or applicable codes and standards mentioned elsewhere in these specifications.

g) All sundry fittings, accessories, hardware items, foundation bolts, termination lugs for electrical connections as required, and all other sundry items is included in the quoted price. The materials/spares parts, tools and equipment required during the work are not in the BOQ that will have to be provided by the agency

h) The Contractor shall arrange all the materials and labour required for inspection of equipment or for any testing to be carried out at his works or at site/Facory. Notice for such inspection/presence for testing shall be given to the Electrical Executive Engineer by the Contractor at least fifteen (15) days in advance.

i) Notwithstanding approval of tests or equipment by the Electrical Executive Engineer the contractor shall be required to perform site tests and prove the correctness of ratings and performance of equipment/machinery and materials supplied and installed by the contractor as per the contract specifications and conditions. Engineer-in-Charge shall reserve the right to reject any equipment/machinery/material should it, on tests after erection, be found not to comply with contract specifications. Engineer-in-Charge shall have full power to order the material or work to be tested by an independent agency at the electrical Contractor's expense in order to prove soundness & adequacy.

j) All quantities indicated in BOQ are tentative which may vary as per site conditions. Contractor has to verify quantities before procuring the material.

k) All materials and equipment shall be brand new. On arrival of the materials at site they shall be inspected and tested by the Electrical Executive Engineer and his representative shall at all reasonable time have free access to the site of assembly. They shall have full powers to examine the materials and workmanship of the equipment at the contractor works or at any other place from where the material or equipment is obtained. The contractor shall give every facility to the engineer-in-charge and his representatives and necessary help for inspection, examination & testing of the materials. Original test certificates of the manufacturer's shall be submitted by the Contractor for all major equipment before they are accepted by the Engineer-in-Charge. Acceptance of any material or equipment shall in no way relieve the Contractor of his responsibility for meeting the requirements of the contract.

l) Electrical work done under this contract shall be executed by licensed men under the supervision of licensed electrical supervisor as per the Indian Electricity act.

m) Contractor shall obtain the approval of all electrical installation done under this contract from the appropriate competent authority before the installation and commissioning if required as per rules.

n) All tools and tackles required for handling of equipment and materials at site of works as well as for their assembly, erection, commissioning and also necessary test instruments shall be the responsibility of the contractor.

o) The Contractor shall provide for the tendered equipment comprehensive warranty for parts as well as labour for a period of 36 months against any manufacturing defect/faulty workmanship. In case any defect arises during maintenance period, the Contractor should replace/rectify the same at its own cost at site/works.

p) The respective bidders must have a local registered office in Bihar with a service team. If not complying with this, it could lead to disqualification of the bidder.

ANNEXURES-1

Following are the List of items available in the institute (old hospital area) i.e in Annexe Block, Ward Block, Diagnostic Block, Main OPD , New Medical College area , Core Area, polyclinic Block , Emergency area, Engineering Block & Medical Record Room etc . All the Fire fightings and Alarm system related to fire safety are included in this Comprehensive Maintenance work. It may be possible that some items may be missed out in the following item description. Prospective Bidders are advised to inspect these areas so that to understand the details of the items which are to be covered under CAMC before quoting the rate.

Sr no.	ITEM DESCRIPTION
	PART-A (CAMC)
	<u>FIRE EXTINGUISHERS OF ALL TYPE</u>
1	CAMC of ABC dry powder stored pressure squeeze grip Type Fire Extinguisher, ISI Mark (IS:15683), operating temperature (+5)° C to (+55)° C for Class 2A & 21B type of Fire filled with MAP ABC Powder, Complete in all respect, Capacity— 6 Kg.
2	CAMC of ABC dry powder stored pressure squeeze grip Type Fire Extinguisher, ISI Mark (IS:15683), operating temperature (+5)° C to (+55)° C for Class 2A & 21B type of Fire filled with MAP ABC Powder, Complete in all respect, Capacity— 4.5&5 kg
3	CAMC of Clean Agent store pressure squeeze grip Type Fire Extinguisher, filled with NAF P-I V, Complete in all respect, Capacity — 2 Kg.
4	CAMC of co, stored pressure squeeze grip Type Fire Extinguisher, ISI Mark (IS:15683), operating temperature (-30)° to (55)° C for Class 13B type of Fire, fitted with 1 Mt. Hose & PVC Horn, Complete in all respect, Capacity — 4.5 Kg.
5	CAMC of co, stored pressure squeeze grip Type Fire Extinguisher, ISI Mark (IS:15683), operating temperature (-30)° to (55)° C for Class 13B type of Fire, fitted with 1 Mt. Hose & PVC Horn, Complete in all respect, Capacity — 2 Kg.
6	CAMC of CO2 stored pressure wheel Type vale Fire Extinguisher, ISI Mark (IS 2878), fitted with 1 Mtr. Hose, Horn & Trolley Handle, Complete in all respect, Capacity — 6.5 Kg.
7	CAMC of Water CO2 Type Fire Extinguisher, ISI Mark (IS:13385), Mounted on Trolley Wheel ,complete with G.M. Cap Hose, Gas Cartridge 300 Gms, Complete in all respect, Capacity – 50 Ltrs.
8	CAMC of Water CO2 Type Fire Extinguisher, ISI Mark (IS:13385), Mounted on Trolley Wheel ,complete with G.M. Cap Hose, Gas Cartridge 300 Gms, Complete in all respect, Capacity – 9 Ltrs.
9	CAMC of ABC dry powder stored pressure squeeze grip Type Fire Extinguisher, ISI Mark (IS:15683), operating temperature (+5)° C to (+55)° C for Class 2A & 21B type of Fire filled with MAP ABC Powder, Complete in all respect, Capacity— 2 Kg.
10	CAMC of Mechanical Foam (AFFF) Type Fire Extinguisher, ISI Mark (IS:13386), Mounted on Trolley Wheel, Complete with 300 Gms Gas Cartridge, ISI Mark (IS:4947) and IS Mark Refill (IS:4989) Part-II, Complete in all respect, Capacity – 50 Ltrs.
11	CAMC of Mechanical Foam (AFFF) Type Fire Extinguisher, ISI Mark (IS:13386), Mounted on Trolley Wheel, Complete with 300 Gms Gas Cartridge, ISI Mark (IS:4947) and IS Mark Refill (IS:4989) Part-II, Complete in all respect, Capacity – 9 Ltrs.
12	CAMC of M.S. Fire Bucket Stand with G.I. sheet stand shade (Four bucket hanging facility in each stand) 9ltr
	<u>FIRE HYDRANT SYSTEM</u>
1	CAMC of M.S. Pipe including all fittings like coupling, bends, elbows, offsets, blind flanges, plugs, tees, flanges, etc. welding joints (all type) as required, supports, cutting holes and chases in brick or RCC walls or floors, with painting and making good complete. Pipes should be welded joint (all type), Pipes conforming to I.S. :1239
a	80 mm dia.
b	100 mm dia.
c	150 mm dia.
2	CAMC of S. S. Landing Valve (hydrant valve) conforming to IS:5290 with 63 mm dia instantaneous female coupling on the

	outletflanges, nuts, bolts, washer and gasket complete as per specification. ISI marked), Single Outlet.
3	CAMC of First aid fire hose reel wall mounting swinging type fitted with 20 mm dia x 30 m long high pressure hose with PVC shut-off nozzle conforming to IS:884-1969
4	CAMC of 63 mm dia 15 mtr. Long Rubberized fabric lined hose (RRL) including G.M. male and female instantaneous type coupling, machine wound with copper wire complete in all respects. Hose shall confirm to IS:636 Type A 051 marked)
5	CAMC of standard short size S. S. Short Branch Pipe with nozzle 16 mm dia outlet with standard instantaneous type 63 mm dia Male coupling. (ISI marked)
6	CAMC of Fire hose cabinet fabricated from M.S. Sheet with single or double front door and locking arrangement, Red painted including suitable supports to place 900 mm above ground level, approximately size 30" x 24" x 10" (to house two length of canvas hose with couplings & branchpipe for external I internal hydrants) .
7	CAMC of cast iron dual plate wafer type Non return valves of PN. 1.0 including nuts, bolts. 1.5 mm thick compressed asbestos gasket including matching flanges etc. complete.
a	80 mm dia.
b	100 mm dia.
c	150 mm dia.
8	CAMC of C.I. Butter fly valves PN 1.0 complete with bolts, nuts 1.5 mm thick compressed asbestos gasket companion flange etc. complete.
a	80 mm dia.
b	100 mm dia.
c	150 mm dia.
9	CAMC of resilient rubber lined single arch vibration eliminators suitable for raw water up to 45°C temperature, working pressure 8.8 kg/cm ² and test pressure of 14 kg/cm ² for :-
a	•80 mm dia.
b	•100 mm dia.
10	CAMC of C. I. Two way Fire brigade inlet breaching head as per IS:904 specification tested for 20 kg/cm ² with 63 mm dia instantaneous type inlet and 150 / 100 mm dia flanged outlet with built-in check valve for Fire brigade connection to fire risers including companion flanges, including nuts, bolts & washers etc.
11	CAMC of dial type Pressure gauge IPS 100,with isolation cock and copper pipe at hydrant point
12	CAMC of dial type Pressure gauge and pressure switch IPS 200, with isolation cock and copper pipe at hydrant station and hydrant point
13	Providing & fixing M.S. 150 mm dia. Air cushion tank with air release valve, complete in all respect.
14	CAMC of heavy duty PVC insulated, PVC Armored aluminum conductor cable including necessary support clamps and connection lugs complete in all respects.
a)	Power Cable 4core X 25 Sqmm
15	Terrace Pump : Supplying an' fixing 'Kirloskar' make horizontal end suction Pump, Model : DB — 50/16 with Bronze Impeller, S. S. Shaft head, 3 Phase 415 Volt TEFC AC Motor, Mechancial Seal coupling & Base plate AVM Pads
	Capacity : 900 L.P.M.
	Head : 35 Mtr.
	HP : 12.5 HP
	RPM : 2900
16	CAMC of dust & vermin proof cubicle type Motor control panel fabricated form powder coated 18 SWG MS sheet complete with incoming main MCCBs, fully taped aluminum bus bar, volt meter, rotary selector switch for reading voltage between phases. Amp. Meter with selector, 3 phase indication light, 3 phase preventions of suitable, auto / manual off selector, color coded internal wiring form main to bus bar, complete in all respect.
	Panel for Terrace Fire Pump
17	CAMC of of PVC Water Tank of Capacity — 2000 Ltr., complete in all respect.
18	CAMC of of G.I. Tata pipe for filling water in PVC Water Tank, complete in all respect :-
a	50 mm dia.
b	40 mm dia.
19	CAMC of gun metal gate valve with C.I. wheel of approved quality (screwed end) :
a	40 mm nominal borel,
b	50 mm nominal bore
20	CAMC of ball valve (brass) of approved quality, High or low pressure, with plastic floats complete :
a	25 mm nominal bore
<u>TERRACE LEVEL – FIRE PUMP</u>	

1	<p>CAMC of electric driven terrace pump suitable for automatic operation of horizontal end section centrifugal type synchronous speed of 2900 rpm TEFC confirm Capacity 450 LPM at 3.5 Kg./Cm2 delivery pressure for fire hydrant network. CAMC of following integrated cubicle type dead front extensible sheet steel control panel. The panel shall be suitable for 440 volts, 50cycles, 4 wire supply The following components and accessories shall be mounted with in each control panel. One no 60 amps TP incoming MCCB with the following: 0-500 volts 96 x96 square mm voltmeter with selector switch and control fuses- 1 SET 0-100 amps 96 x96 square mm ammeter with CT's and selector switch- 1 SET Phase indicating lamp with toggle switches. Indication lamps for ON/OFF/TRIP status Outgoing Feeders / Starters as below: 60 ATP MCCB with star / delta as starter suitable for 15 HP motor for Down comer Pump - 1 Set Provision in control panel to connect flow switch for automatic operation of roof fire pumps.</p>
2	CAMC of resilient rubber lined single arch vibration eliminators suitable for raw water up to 45 deg. C temperature, working pressure 8.8 Kg/cm2 and test pressure 14 Kg/c m2 for :-
a	150 mm dia
3	CAMC of fire brigade inlet connection (fire department connection) consisting of 4 Nos. 63 mm dia instantaneous inlet arranged on a 50 mm dia header, 1 No. 150 mm diameter sluice valve, 1 No. 150mm dia. Non-return
4	<p>CAMC of of hydrants all complete as required and as approved (at roof level). Internal hydrants/landing valves generally as specified and all complete with: 63mm dia single outlet landing valve IS marked with suitable size bolts, nuts, washers and gaskets. Landing valve shall be as per IS code. 63mm reinforced rubber hoses (RRL) with male and female SS coupling, IS marked- 15 m as per IS code. standard short size SS branch pipe with nozzle of 20mm nominal bor outlet with instaneous type 63 mm dia coupling complete as per IS code.</p>
5	CAMC for, fabrication & laying heavy grade IS marked black mild steel piping complete with all fittings, pipe supports, clamps etc. as approved with welded jointing for external hydrant system. These pipes shall be provided with 2mm thick weather proof.
a	100 nominal bore
6	CAMC of Butterfly Valves with mating flanges generally as specified all complete.
a	150 nominal bore
7	CAMC for laying cast iron non-return valve IS marked with flanges generally as specified complete.
a	150 nominal bore
8	CAMC of C.I. flanged single air valves size 25mm with 25mm SS isolation valve etc. all complete.
9	CAMC of heavy grade (Class C) IS marked black mild steel piping complete with all forged fittings, pipe supports, clamps, painting etc. as approved with threaded and welded jointing for Wet Riser System.
	Note: a. Threaded joint upto 50 mm diameter pipe. Welded joint above 50mm diameter pipe.
a	150 mm nominal bore (Class C)
b	100 mm nominal bore (Class C)
c	80 mm nominal bore (Class C)
<u>FIRE ALARM SYSTEM</u>	
1	CAMC of Conventional automatic Fixed cum rate of rise temperature type Heat Detector, 12 / 24 volt D.C., visual alarm indicator (LED's) "Blink-Green" in stand by and "Study-Red" in alarm complete in all respect with base as required, EN / LPCB listed / a roved

2	CAMC of Conventional automatic Optical / Photoelectric type Smoke Detectors of photo-optic sensing chamber, 12 / 24 volt D.C., visual alarm indicator (LED's) "Blink-Green" in stand by and "Study-Red" in alarm complete in all respect with base as required, EN / LP
3	CAMC of response indicators with dual LED suitable for operation on 12/24 volts D.C., sheet steel / Polymer housing suitable for surface/recess mounting including making connections with wires complete in all respect
4	CAMC of Addressable type Manual Call Points as per specifications. The manual call point should have an indicator, which should "blink" in stand by condition.
5	CAMC of Electronic Hooters housed in sheet steel / Polymer housing suitable for wall / ceiling and surface / recess mounting including making connections with wires complete in all respects and as per specifications.
6	CAMC of Digitally addressed having addressable features (Capable of giving individual address of each detector) Fire Alarm Control and indicating panel, microprocessor based with RS 485 communication, pulser, timer for dual stage alarm facility complete with indicators
a	2 Zone Panel
b	4 Zone Panel
c	8 Zone Panel
d	16 Zone Panel
7	CAMC of microprocessor based Networkable Analogue Addressable upto 200 nodes 4 Loop with 4 loop card Fire Alarm Control Panel with 640 character LCD Display, the Panel Should be equiped with sufficient nos. of loop
8	CAMC of Analogue Addressable Heat sensor having removable high performance chamber with Twin fire LED's allow 360 degree veiwing, lock mechanism (sensor to base), Variable sestivity, Electronically addressed, appr
9	CAMC of electronically Addressable multi sensor detector with microprocessor in head and including the base with LED etc. as required. (CEASE FIRE Cat no-CF-ACA-E)
10	CAMC of Analogue Addressable Loop powered Wall Sounder providing 8 Volume levels & 51 Tones with a maximum o/p of upto 102 dB(A) with low current consumption, can be fitted on Isolator Type Base which is fully comp
11	CAMC of Analogue Addressable Manual Call Point ESP Analogue Addressable Protocol having status LED for Alarming & standby mode, Electronically addressed, approved by LPCB. (CEASE FIRE CAT NO- CF-HCP-E)
12	CAMC of Analogue Addressable Response Indicator, approved by LPCB.
13	CAMC of ABC Clean Agent store pressure squeeze grip type fire extinguisher filled with NAF P-IV, complete in all respect

FIRE PUMP HOUSE

1	CAMC Motor Driven Main Fire Pump suitable for auto operation & consisting of following: complete in all respect as required.
	Motor Rating (HP) : 180
	Capacity (LPM) : 2850
	Rated speed (rpm)/ Pole : 1480
	Total Dynamic Head (Mtr) : 175
2	CAMC of Diesel Engine Driven Fire Pump suitable for auto operation and consisting of following: complete in all respect as required.
	Motor Rating (BHP) : 168
	Capacity (LPM) : 2850
	Rated speed (rpm)/ Pole : 1800
	Total Dynamic Head (Mtr) : 175
3	CAMC of Electric Driven Pressurization Pump (Jockey Pump) suitable for auto operation and consisting of following: complete in all respects as required.
	Motor Rating (HP) : 12.5

	Capacity (LPM) : 180
	Rated speed (rpm)/ Pole : 2880
	Total Dynamic Head (Mtr) : 175
4	CAMC of Electrical Fire Motor Control Panel
	<u>FIRE SPRINKLER SYSYEM</u>
1	CAMC of Sprinklers Std/Quick response
<u>PART – B Providing & Fixing or Replacement of Required items</u>	
1	Safety Lock for fire extinguishers
2	Discharge horn for CO2 fire extinguishers
3	Discharge pipe for CO2 fire extinguishers
4	Discharge pipe for ABC dry powder fire extinguishers
5	Wall Bracket for portable fire extinguishers
6	Trolley for CO2 fire extinguishers
7	Trolley for Water CO2 & Mechanical Foam 50 Ltrs. Capacity fire extinguishers
8	Discharge pipe for Water CO2 & Mechanical Foam 50 Ltrs. Capacity fire extinguishers
9	Squeeze grip valve for ABC & Clean Agent fire extinguishers
10	Valve for CO2 fire extinguishers
11	Smoke Detector & Fire Alarm System Rate :-
12	Conventional automatic Optical / Photoelectric type Smoke Detectors of photo-optic sensing chamber, 12 / 24 volt D.C., visual alarm indicator (LED's) "Blink-Green" in stand by and "Study-Red" in alarm complete in all respect with base as required, EN / LPCB listed / approved. (Make : System Sensor)
13	Conventional automatic Fixed cum rate of rise temperature type Heat Detector, 12 / 24 volt D.C., visual alarm indicator (LED's) "Blink-Green" in stand by and "Study-Red" in alarm complete in all respect with base as required, EN / LPCB listed / approved (Make : System Sensor)
14-•Addressable type Manual Call Points as per specifications. The manual call point should have an indicator, which should "blink" in stand by condition. (Make : Agni Suraksha –ASES or equivalent)
15	Electronic Hooters housed in sheet steel / Polymer housing suitable for wall / ceiling and surface / recess mounting including making connections with wires complete in all respects and as per specifications
17	Response indicators with dual LED suitable for operation on 12/24 volts D.C., sheet steel / Polymer housing suitable for surface/recess mounting including making connections with wires complete in all respects. (Make : Agni Suraksha - ASES)
18	4 Zone Conventional Fire Alarm Panel
19	8 Zone Conventional Fire Alarm Panel

20	16 Zone Conventional Fire Alarm Panel
21	Addressable Fire Alarm Panel
22	Multi sensor – Addressible
23	Strobe Sounder
24	PVC insulated 151 marked twin core FRLS wire
a.	2 x 1.5 sq mm
b.	4 x 1.5 sqmm
25	Battery 7AH 12V
26	MS Pipe
a	150mm dia
b	100mm dia
c	80mm dia
27	Hydrant Valve
28	Hose reel Complete Set
29	Hose Box
30	RRL Hose 15mtrs with SS coupling - Type A
31	Branch Nozzle SS
32	Butterfly Valve
a	150mm dia
b	100mm dia
c	80mm dia
33	Non-Return Valve (Single Flapper)
a	150mm dia
b	100mm dia
c	80mm dia
34	Pressure Gauge
35	Pressure Switch
36	Hose Box Glass
37	Hydrant Spindle Set
38	Ball Valve
a)	25mm
39	Hydrant Washer
40	Hydrant Lug
41	Hydrant Adopter
42	Coupling Cap of Hydrant Valve
43	Refilling of ABC dry powder , Capacity -2Kg
44	Refilling of ABC dry powder , Capacity -6 Kg
45	Refilling of C02 Extinguisher, Capacity – 2 Kg

46	Refilling of C02 Extinguisher, Capacity – 4.5/5 Kg
47	Refilling of C02 Extinguisher, Capacity – 6.5 Kg
48	Refilling of C02 Extinguisher, Capacity – 9 Kg
49	Refilling of mechanical foam (AFFF), Capacity – 50 ltrs
50	Refilling of mechanical foam (AFFF), Capacity – 9 ltrs
51	Sprinkler

COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT (CAMC) of Fire Suppression System installed in various distribution LT , HT panels in various areas of Hospital ,Low pressure water mist system installed for 500 KVA Indoor Transformer & 1000 KVA Outdoor Transformer , Co2 Based Fire Suppression system for DG Set

<u>Sr no.</u>	<u>ITEM DESCRIPTION</u>
1	<p>Inspection/Checking including pressure gauge, automatic detection tube and its supports , pressure switch , auxiliary devices, end of line adaptor , cylinder mounting bracket, refilling of nitrogen & gas refilling for Fire Suppression System.</p> <p>CAMC Capacity -Set of 5Lb Capacity NOVEC 1230 DLP Assembly</p>
2	<p>Inspection/Checking including pressure gauge, automatic detection tube, supports , pressure switch , auxiliary devices, end of line adaptor .cylinder mounting bracket, refilling of nitrogen & gas refilling for Fire Suppression System.</p> <p>CAMC of Capacity -Set of 2.5Lb Capacity NOVEC 1230 DLP Assembly</p>
3	CAMC of Low pressure water mist system installed for 500 KVA Indoor Transformer.
4	CAMC of Low pressure water mist system installed for 1000 KVA outdoor Transformer.
5	CAMC of Co2 Based Fire Suppression system for DG Set

Contractor shall obtain NOC from the local fire authority with respect to work in a year as required. However the statutory fees in this regard shall be deposited by the institute on the submission of bill details and co-ordination with the local fire authority shall be done by the contractor.

In Above mentioned items, some type of equipments/items may have not been mentioned above as well as some items which are not in working condition, non-repairable and requires replacement. Hence prospective bidders are advised to inspect the site to get aware about total no. of Fire equipments appliances available in the mentioned hospital area and quote accordingly.

-- Scope of Work – Annexure-2

1. The bidder/agency which is selected after tender process will have to Repair/Maintenance (Planned Preventive Maintenance) the Fire Alarm System & Fire Fighting System on regularly monthly basis.
2. The break down, if any, shall be attended by the agency within 2 hours minimum and 4 hour maximum of lodging of any complaints related to Fire fighting equipments via telephonically to the number/e-mail or letter to the contact number , email address & address respectively provided by the agency .
3. Whenever there is requirement of any kind of materials or any part relating to Fire Fighting & Fire Alarm system the agency shall provide such materials or part without any delay within 12hrs for minor material and upto 24hrs for major material.
4. The agency shall always keep the Fire System/Pump Room site clean.
5. All materials provided by the agency should be either BIS certified or should be certified by the agency designated for the purpose by appropriate Government.
6. Whenever the agency sends any person (Technician/Engineer) to attend the complaint/rectification than such person shall sign in a log book maintained for office records.
7. Uniform, Identity Cards, Name Plates and identity cards have to be provided to each and every Staff by the contractor.
8. All Tools, Plants, and equipments to carry out the Fire work at site are to be provided by the Contractor free of cost.
9. All materials or any part(s) of Fire system which is required to remove any deficiency or defect in the functioning of Fire system shall be provided by the agency free of cost.
10. The agency shall provide the maintenance of Pump Room diesel Generators Set at least once in a month.
11. The agency shall do the Fire Mock Drill of Fire System at least once in a Quarter.
12. The agency shall also train the housekeeping & maintenance staff deployed for firefighting job, in addition to this the agency shall provide training to Staff & Officers of IGIMS, Patna.
13. The agency shall ensure that Fire Department provides the NOC/Renewal of Fire system to the hospital.
14. Monthly inspection of the entire extinguisher including checking their tubes, discharge, hose pipes, nozzle, clamp etc, checking of weight for loss of mass in gas type extinguisher and to keep a record of the same.
15. To ensure proper operation & maintenance of safety and firefighting equipment installed and carry out the fire fighting/rescue operation in case of fire or accident inside the complex area.
16. Service report and register must be got signed after every service by the engineer in charge designated by the IGIMS for such purpose.
17. To perform any additional special tests as required by the local fire codes.
18. Report any incidence of breakout of fire in the form of fire record to IGIMS, Patna To organize and impart training to the occupants of building in First Aid, Fire fighting, using Fire Extinguisher and building evacuation during emergency situation.
19. Call fire brigade in case of break out of Fire and provide assistance to fire service/Fire Fighters in case of breakout of Fire.
20. The Engineer/Technician of contractor/vendor shall visit monthly on said building and perform service/maintenance work of Fire Detection, Fire Hydrant & Sprinkler, Fire Extinguisher and PA system as per prescribed detail.
21. The Contractor/Vendor shall be responsible for any injuries to the work or workmen, to persons, animals or things and for all damages to the structural and / or decorative part of property which may arise from the maintenance/servicing of fire hydrant & sprinkler system of said buildings.
22. The contractor/vendor shall submit monthly maintenance/service report with all details to IGIMS Engineer incharge and it will be verified/ signed by hospital staff.
23. The contractor/vendor shall maintain the data sheet of the equipment of Fire Detection, Fire Hydrant & Sprinkler system, Fire Extinguisher and PA system & all under CAMC.

24. Fire Extinguisher (Co2 Type, ABC Type, and Foam Type):-

- CAMC also covers refilling of Extinguishers (annually or if used before of expiring/empty).
- Pressure is at recommended level or not.
- Nozzle, Pipe or other discharging paths are not hindered in any way.

- The pin & tamper seal are intact.
- Check full weight (Quarterly basis).
- Shaking of dry powder type to prevent powder from setting/packing
 - Certification of all types of fire extinguisher following its inspection, maintenance/refilling etc.
- To arrange for proper placement of extinguisher after inspection/ maintenance/ refilling and/or subsequent to its use during fire drills/demonstration etc.
- To maintain record/history card of inspection and maintenance done on each extinguisher.

25. Fire Hydrant & Sprinkler System

- Checking and operating of all Fire Pumps, electric panels. Check noise, vibration and temperature of pumps
- Checking, Oiling and Servicing of all fire hydrant outlets, sluice valves, butterfly valves, air release valve and alarm valves, fire hoses, fire hose box, Hose reels, pressure gauge, pressure switch, alarm gauge etc..
- Replacing of gasket & Washer (if leakage/faulty are noticed)
- Checking of batteries, fan belt, temperature gauge, Fuel gauge etc. of diesel generator fire pump.
- Polishing of all gun metals items like hydrant outlet, branch pipe on quarterly basis.
- Recalibration of all measuring instrument like pressure switch, pressure gauge etc. and greasing of pump shaft and sluice valve/butterfly valve on quarterly basis.
- Full running discharge test of fire hydrant & sprinkler system (At least 10 minute)
- Testing of sprinkler bulb, Earthing system, NRV, Foot Valves, Oil Filter, air Filter, engine oil etc. on quarterly basis.
- Fire water network including hydrants and water monitors.
- Monthly discharges test from at least one external hydrant and one internal hydrant (Preferably from top floor or terrace) by attaching single length of fire hose, with nozzle to check automatic staging of pump with hydrant operation.

26. Hydrant Wet Riser System:

A-MAINTENANCE AND OPERATION OF WET RISER SYSTEM Objective: - To keep the entire system fully operational and functional at all times. In case full system cannot be kept functional for unavoidable reason as much as possible, the installation shall be retained functional by isolating the defective section.

MAINTENANCE REQUIREMENT OF SYSTEM COMPONENTS -For maintaining firefighting system following points are to be taken care of: - To ensure the availability of water in UG tank 24 hrs. To ensure the piping system is free from leakage. Any portion found to be leaking is to be isolated, rectified and connected with healthy system in shortest possible time. To ensure all pumps are in good running condition. Any pump found to be defective is to be isolated by closing valves and attended immediately and put in to service in minimum time. To ensure availability of power for electrical pumps, working of starters, switchgear and other electrical components. To ensure healthiness of diesel engine starting system, battery voltage, battery charger and availability of adequate diesel for engine operation. To check all landing valves of internal and external hydrants, isolating valves and replace the defective ones whenever necessary.

PERIODICAL TESTING: For achieving the objective and meeting the requirement of periodical testing and checking the system is essential. Various activities and their duration have been tabulated in Table 1.

- Visual/Physical Check weekly to check washers, couplings, valve logo wheel check nuts etc. monthly visual check of Hose/Hose Box for any damage rot/rust etc. Monthly hose reel by actual actuation.
- Pump/Jockey Pump: Weekly physical check/greasing of nipples.
- Automatic start:-Monthly check to test automatic start of Jockey Pump at present pressure and auto stop of Jockey Pump at present pressure.

27. Pumps and Control:

- Starter contacts cleaning twice a month,
- Insulation resistance test of pump, motor circuit etc.
- Any other inspection as contained in manufacturers' literature for pumps & controls.

28. Fire detector and alarm:

- Monthly visual check of each detector.
- Quarterly cleaning of smoke /heat detector (removal of dirt, if any)
- Quarterly actuation of smoke detector by turn-at least one detector in each floor to be subjected to test.
- Circuit test/panel test for fault and fire condition every month, for fault test and every quarter for fire condition
- Manual test of public address system.

29. Fire Detection, Suppression & Protection System

- Fire Detection, Suppression & Protection System comprise of fire alarm system, smoke detectors, fire extinguishers, sprinklers, wet riser system with fire hydrants (at each floor & around the building on the ground floor), fire doors, fire evacuation plan with signage, fire escape etc. and these are provided in the buildings as per extant provisions of National Building Code (NBC) & Local Bye Laws so that the building is free from any fire hazard.
- Proper maintenance of all electro-mechanical installations in the building is an essential part of fire safety precautions as such these should be checked, inspected and tested periodically in accordance with relevant extant provisions of BIS/NBC/CPWD specifications to ensure their full functionality and operational readiness at all times.
- Prominent display of the following relevant information at strategic locations is indispensable from fire safety considerations:
 - External board (preferably illuminated) to indicate fire pump room.
 - Painted boards in fire pump room and control room, indicating telephone numbers and names of engineers, nearest Fire brigade station, nearest hospital etc.
 - Marking of fire lift at each landing and also the floor numbers and of locations of main switchgear/substation for ready identification.
 - Locations of internal hydrants by illuminated sign boards, if the same are not readily identifiable from the main lobby areas.
 - Painted board at each floor lobby indicating important instructions and fire escape to the occupants as part of full proof evacuation plan in the event of fire in the building.
 - Proper upkeep of maintenance records is very important. Log books are to be maintained to record the log readings such as pressure, current, voltage, operating (testing) periods etc. Maintenance register should indicate actual compliance to the maintenance schedule item wise. Major repairs or replacements should be recorded in the history book for future referencing.
 - Note the belt site, lubricant oil brand name and grade and similar particulars of other such consumables in the front page of maintenance register for engine and pumps so as to ensure that only the materials of proper quality is used in maintenance.
 - Batteries have certain limited life (3 or 4 years) and it also depends on the usage and rates of charging/discharging etc. The voltage readings give a fair Indication in this regard. Check with manufacturer concerned before deciding on replacement.
 - Certain periodicities have to be finalized for various maintenance activities on components like fire detectors, control panels, hydrants etc. in order to achieve compliance to these prescribed periodicities, each of these components may be divided into convenient numbers to carry out the respective activities. For example, if all control panels are to be cleaned weekly and there are 10 such panels, 2 panels may be cleaned every day in sequential order so that all the 10 panels are cleaned once a week. This should be programmed in advance to avoid inconvenience.
 - Every maintenance operation involving operation of sounders in the building should be done after displaying notice in advance to the occupants so as to avoid panic during testing.

30. FIRE SPRINKLER SYSTEM

Sprinkler Valves: All the parts of the Sprinkler Valve is to be stripped open and inspected for any wear and tear / damage, parts after maintenance is to be fixed back only after approval of Engr- In-Charge. Any part / component found defective is to be replaced.

- Any problem faced is to be rectified and test is to be carried out.
- Preparation of maintenance report and submitting to safety department.
- Leakage test of the sprinkler system should be checked

31. FIRE PUMP HOUSE

- Check pump suction, discharge and bypass valves to ensure they are open and piping is free of leaks. (In most cases, valves should be locked.)
- Automatic Start Test the automatic start by opening a test line to reduce system pressure.

- For Diesel Engines Run the engine at rated speed for at least 30 minutes & for Electric Motors Check operation of the starting devices, and allow the pump to run for at least 10 minutes. Pump Controller, temperature, amps Monthly Tests ■
- Check level and specific gravity of the diesel engine battery electrolyte.
- Check for corrosion of diesel engine battery terminals and condition of cable lines and connections, Change engine oil.

32. FIRE SUPPRESSION SYSTEM

- a) Check/test/inspect the indicator position for all the cylinders.
- b) Check/test/inspect the hooter/alarm
- c). Check/test/inspect the pressure gauge, pressure switch.
- d). check/test/inspect the automatic detection tube and its supports.
- e). check/test/inspect the auxiliary devices, cylinder mounting Bracket.
- f). Nitrogen refilling when required..
- g). If in any case a cylinder shows the loss in agent quantity of more than 5% or loss in pressure of more than 10% it should be refill or replace.

33. Low pressure water mist system installed for Transformer

- a).Detecting and initiating devices de-energize the transformer.
- b).Detecting and initiating devices trigger a fire water release
- c).All components of the control circuitry operate correctly.
- d).Motors, pumps, solenoids, and valves operate correctly.
- e).Water is delivered to the discharge nozzles.
- f).Nozzles are free of debris.
- g).Containment system drain valves operate correctly.
- h).All alarms, heat indicators function properly.
- i). Non functional or above repair nozzles to be replaced .
- j). Any required items like motors, pumps, solenoids or any component of control circuitry to be replaced if not functional or above repair.

34. Co2 Based Fire Suppression system for DG Set

- a). Carbon dioxide storage is connected to discharge piping and actuators.
- b). All manual actuators are in place and tamper seals are intact.
- c). Nozzles are connected, properly aligned, and free from obstructions and foreign matter.
- d). Detectors are in place and free from foreign matter and obstructions.
- e). The system control panel is connected and showing the “normal-ready” condition.
- f). the pressure gauge shows normal pressure, that the tank shutoff valve is open, and that the pilot pressure supply valve is open. Liquid level gauge should be observed. If at any time a container shows a loss of more than 10 percent, it should be refilled unless the minimum gas requirements are still provided.
- g). Discharge nozzle should be inspected/checked and replaced when required.
- h). Solenoid valve should be inspected/checked and replaced when required.
- i).pressure gauge should be checked/inspected and replaced when required.
- j). manifold & Discharge Pipe with Support & fittings , Structure and pipe support for gas Suppression System should be checked/inspected and replaced when necessary.

Daily routine checks

- Keep the pump room dry as wet flooring may turn slippery, invite growth of mosquitoes and cause an unhealthy environment.
- Clean the pump room. Wipe out dirt from external surface of equipment & ensure that the approach to pump room and ventilation openings in pump room are free.
- Where a priming tank is provided, it should be ensured that it is full.
- Check to ensure that the selector in control panel is in AUTO mode.
- Record the readings of voltage of supply, battery voltage at engine and at control panel and pressure of water in the system at pump room and at the top most floor. Record also the current if any electric motor is run.
- Observe whether there is any external sign of leakage in internal piping network and damage to yard hydrants and attend to the same immediately so as to pressure drop in the system.
- Check for water leakage and sprinkler function.

Weekly checks of fire pump room

- The starting and stopping of pressurization pump should be checked through operation of the test valve (so that water flows back to the pump). Record the pressure reading of both the operations to ensure that generated pressure in the system is in order.
- While conducting the above said test check, the pumps should be run one by one for 5 minutes each and any abnormality such as excessive noise & vibration, burning smell from cable end, warming of bearing surface etc. should be observed for taking remedial actions.
- Check the alarm systems in the pump room.
- Check the level of electrolyte in the battery of the engine and top up with distilled water as necessary Check also its specific gravity, if the battery needs charging (as can be judged by the cell voltage) arrange for its charging early and also examine whether trickle charger is defective.

Weekly checks of Wet Riser components:

- Clean the Internal hydrant points at all floors. See that these spaces are not misused for dumping rubbish or for storage
- Look for damages to or pilferages of components including the front glass cover of door and attend as required.
- Look for leakages in the piping system within the building Attend as required for example bolts at joints may need tightening, gasket at joints may need replacement etc.
- Visually inspect the roof tank and pump for down comer (it provided) for any defects to take timely actions.

Monthly checks on coxing and pumps

- Check engine radiator for air restriction if any and clean the same if required. Check the condition of drive belts, hose and radiator cap.
- Clean the battery terminals and apply grease to prevent corrosion. Check specific gravity of the electrolyte.
- Check the exhaust system for leakage, corrosion and vibration. See whether the exhaust smoke is not very dark.
- Check that there are no restrictions to air flow in air cleaner.
- Check that oil heater is functional.
- Check coupling with pumps for any sign of fatigue.
- Lubricate bearings of motors and pumps as required. Check the gland seal in pumps for leakages and tighten as necessary.
- Check also the water level in the static tank.

Auto operation of wet riser

- All hydrants, internal and external, should be operated to check the operational readiness of the system. For this purpose, open the hydrant valve of one hydrant at a time and stop the pump after 1 or 2 minutes of operation. Take due precaution to see that there is no flooding of areas within the building during testing. Water should be directed towards drains.
- While checking the internal hydrants, verify the free turning of fire hose reel. Lubricate if necessary

Six monthly checks on system components

- Roll out the hose pipes in an open space and test for leakage by filling with water. After the test, wash the hose and suspend free from an upper floor vertically in shade (not sunshine) so as to drain and dry evenly. When fully dry inside and outside, brush the external surface and roll up evenly with the female coupling end at the centre so that roll out for fire-fighting operation is quick without twisting Alternatively the hose may be folded at mid length and rolled up evenly from the fold so that both the male and female couplings will be on the periphery.
- Check the integrity of all gate valves, in the pump room, internal and external hydrants and elsewhere in the wet riser/sprinkler system Lubricate if required.
- Clean the sprinkler heads externally and also the sprinkler bulbs carefully to make them free from dirt. See that the sprinkler heads are correctly repositioned after cleaning.
- Look for corrosion of metallic surfaces including GI components used for earthing system. Clean up and treat the corroded surfaces with appropriate anti-corrosive paint.
- Inspect the electrical control panel and starters to see that all power/control contacts are clean, all terminations are sound and all fuses are intact. Inspect all cable end terminations in the fire protection system, including control cables and tighten as required.
- Check and change filters of diesel oil, engine oil, coolant and air cleaner element of the engine after checking total hours of operation vis-a-vis manufacturer's recommendation.

Annual checks

- Drain out static tank, clean and fill up with fresh water. If there is no sedimentation, algae etc. found, this can be done once in 2 years also.
- Flush out the entire piping network in sprinkler system and check that the pipes are clear. Charge the system again.
- Check condition of strainer, foot valve (where provided), suction line hardware etc. Attend as required.
- Check pump shaft alignment, and condition of and vibration mountings for all the pump sets(i.e. with their drives).
- Paint all external Surfaces, machine base plates, hydrants (not the couplers), pipes, supports etc. Take care to see that the sprinkler bulbs and spray outlets are not painted up, check also display boards installed for fire safety at strategic locations.
- Inspect the fuel tank for any sedimentation. Clean up if required.
- Conduct Megger test on all cabling mains and control wiring motors and earth test. Earth test is to be done in summer and Megger test during monsoon).
- Replace the engine oil as per hours of operation and recommendation of the manufacturer.

Weekly inspection of Fire Alarm System (FAS)

- Clean all the control panels, sounders and call boxes.
- While cleaning each panel, verify whether any fault indication lamp is on. If it is on with or without an alarm, investigate and rectify the fault.
- Check whether all panel lamps are regulated by the "panel lamp test button" in each panel.
- Check that the system operates under mains failure condition by switching of the mains supply to the C & I panel and testing any zone for fault/fire condition from the zonal panel. Confirm also that the audio visual alarm comes up in the C & panel. Restore mains supply after the test.
- Log all the panel instruments in C & I panel.
- Maintenance free Battery should be used preferably.

Check on control panel operation

- All Zonal (sector) panels and C&I panel should be checked once a month.
- Repeater panels if any should also be checked once a month.
- To check to confirm and ensure that the operation of the system in each zone through the test button in zonal (sector) panel is happening. The check should confirm initiation of audiovisual indication in the zonal (sector) panel concerned and in the C&I panel and also in relevant sounders.
- Check the talk back system from both ends and also PA system of C & I panel.
- Check that the Air-conditioning/ventilation blowers are automatically switched off when fire condition is simulated by the Test button in the zonal (sector) panel. It is likely the A/C system is not interconnected with the fire alarm system in many installations. Get the interconnection done for all such (sector) panel at the earliest to avoid hazard.
- Check the battery condition from the log book readings of voltage. Check the charger, if there is any problem. Check battery terminal and replace old grease with fresh grease to prevent corrosion. Consult manufacturer for replacement after 3 to 4 years of battery life.

Six monthly checks on Fire Alarm System (FAS)

- All five detectors should be cleaned. Do not blow in heavily into the detector. Use a proper suction device. Never leave a detector have without replacement of the detector. Restore the zonal panel if it was switched off for this cleaning operation.
- Check the satisfactory operation of the system by an artificial fire in a bucket; keep required extinguishers before this test as precaution.
- Megger test the wing of FAS

Check on associated items

- Check all fire exit lights for satisfactory operation Clean/replace lamps as may be necessary
- Check whether the fire lift is operational and the Fireman's switch is intact
- Inspect the building to ensure that the following are complied with
- There is no temporary wiring in the building.
- There are no joints in the supply cord for window type AC units or office equipment.
- There is no bare wiring (without metallic conduit or channel cover) over the flooring.
- Heaters are not used in record rooms.
- The space in front of SDs and other distribution switch boards is kept free
- See if the system of switching of supply to the building in the evenings (off) and mornings (on) is being followed strictly as fixed in consultation with user departments.
- In single occupancy buildings, have a joint inspection of the installation with the authorized officer of the client department.

Schedule of Maintenance

Preventive Maintenance-Per Month (12 visits) The preventive Maintenance is to be carried out in such a manner that overall functioning & reliability of the Chiller plants with their low sides are not affected during the period of contract.

(a) Breakdown Maintenance - (Unlimited) The BreakdownMaintenance is to be carried out during 24x7 and 365 days of a year. It covers all type of major breakdown which include repair and replacement of assemblies, components etc.

(b) Response time - **Minimum 2 hours and Maximum 4 hours** The contractor must be ready to provide round the clock emergency services at a short notice.

Required parts to be replaced should be done within 24 hrs after the received complaint.

Note: All the spare parts as and when required to get repair /replacement will be covered under this Comprehensive Maintenance period for Fire Hydrant System, Sprinkler System with Pumps, Fire Extinguishers

ANNEXURES-3

Price Bid

Rates of **Non-Schedule items** in two bid systems (Technical and Price Bid) are invited through e-tendering process from eligible and experienced firms registered in any government organization under which similar nature of works are carried out. Intending bidders must be registered with e-procurement cell on www.eproc2.bihar.gov.in. After registration bidders will get user ID, password and digital signature which will provide an opportunity and eligibility to take part in e-tendering process.

Sl No:	Item Descriptions	Unit	Qty	Rate/Unit	GST applicable	Amount
1)	1st year Repair/Replacement & "Comprehensive Annual Maintenance Contract (CAMC) of Fire Hydrant System, Sprinkler System with Pumps, Fire Extinguisher cylinders ,Fire Alarms, Smoke & heat Detectors and related accessories in Annexe block ,Ward Block, diagnostic block Polyclinic Block, OPD ,Emergency & trauma, Engineering & Dental Building as well as Suppression System installed in various Distribution ,LT & HT Panels in 200KVA Old Substation , 33KVA New Substation & various Buildings in Hospital area & Low pressure water mist system installed for 500 KVA Indoor Transformer , 1000 KVA Outdoor Transformer, Co2 Based Fire Suppression system for DG Set with Spares & consumables etc. all complete."	Each	Lot			
2)	2nd year "Comprehensive Annual Maintenance Contract (CAMC) of Fire Hydrant System, Sprinkler System with Pumps, Fire Extinguisher cylinders ,Fire Alarms, Smoke & heat Detectors and related accessories in Annexe block ,Ward Block, diagnostic block, Polyclinic Block, OPD ,Emergency & trauma, Engineering & Dental Building as well as Suppression System installed in various Distribution ,LT & HT Panels in 200KVA Old Substation , 33KVA New Substation & various Buildings in Hospital area & Low pressure water mist system installed for 500 KVA Indoor Transformer , 1000 KVA Outdoor Transformer, Co2 Based Fire Suppression system for DG Set with Spares & consumables etc all complete."	Each	Lot			
3)	3rd year "Comprehensive Annual Maintenance Contract (CAMC) of Fire Hydrant System, Sprinkler System with Pumps, Fire Extinguisher cylinders ,Fire Alarms, Smoke & heat Detectors and related accessories in Annexe block ,Ward Block, diagnostic block, Polyclinic Block, OPD ,Emergency & trauma, Engineering & Dental Building as well as Suppression System installed in various Distribution ,LT & HT Panels in 200KVA Old Substation , 33KVA New Substation & various Buildings in Hospital area & Low pressure water mist system installed for 500 KVA Indoor Transformer , 1000 KVA Outdoor Transformer, Co2 Based Fire Suppression system for DG Set with Spares & consumables etc all complete."	Each	Lot			

Note:

Quoted rate by the agency must include all complete works including deputing sufficient manpower having experience at working in areas of all type of Fire Fighting Equipments, supply and installation of all type of Fire Fighting Equipments, spare parts, freight taxes, contractor profit etc. all inclusive. The interested agency is advised to visit the site at IGIMS, Patna before quoting their rate, so that to understood the scope of work at site. Accommodations of Supervisor will be the responsibility of contractor and Institute will not provide these facilities.

Details of Installations and Scope of Work is enclosed at Annexure -1.

Name and Address of the Firm:

Signature of authorized agency:

Seal of the Firm:

Memo No. 668/EC/EW/2023

Copy forwarded to : Dy. Director (Adm.), IGIMS, Patna: For publication of the Tender Notice in daily newspapers.

**Sd/-
Director,
I.G.I.M.S. – Patna.
Date: 14.11.2023**

**Director,
I.G.I.M.S. – Patna.**