

DOMESTIC TENDER

RFQ/ TENDER DOCUMENT FOR PURCHASE AND INSTALLATION OF FIRE HYDRANT SYSTEM FOR **J N TATA Auditorium** Indian institute of Science Bangalore 560012

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Contact Details:

The Chair, Fire Purchase Committee

Office of Laboratory Safety & Environmental Health (OLSEH),

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2 Short Summary

IISc. Bangalore invites Indian OEM, or its authorized Indian distributor / partner are invited to submit their bid in INR only for purchasing and installation of FIRE HYDRANT SYSTEM with all its accessories for the **J N TATA Auditorium** Building at IISc campus, Bangalore 5600 12.

The bids must be addressed and submitted to:

The Chair, Fire Purchase Committee

Office of Laboratory Safety & Environmental Health (OLSEH),

Room No EG-17-New Chemical Science Building, Indian Institute of Science Bangalore – 560012

Email: -safety.elseh@iisc.ac.in

2.1 Important Information

RFQ Reference Number	RFQ No: IISc/Purchase/FFE/2024-25/03
Availability of RFQ document	RFQ will be available on our IISc website www.iisc.ac.in/tender from 13th AUG 2024. The RFQ may be downloaded from the Tender Section of Indian Institute of Science website by the Bidders. No hard copy of the RFQ will be made available by the IISc.
Last date of submission of any query / reporting any error	03 rd SEP 2024 by 03:00pm. ALL QUERIES SUBMITTED THROUGH EMAIL TO BE ONLY ON Safety.elseh@iisc.ac.in
Due date/time	Bid Submission: 03 rd SEP 2024 by 03:00pm. Late RFQ will not be accepted under any circumstances including postage delay.
Contact person	Safety Officer Mr. M D Rahman Email: Safety.elseh@iisc.ac.in Tel: 080-22933199
Validity of Offer	The offer should be valid for period of 90 days from the last date for submission of the offer

2.2 Important Definitions

Following terms are used in the document interchangeably to mean:

1. IISc means “Indian Institute of Science”.
2. Recipient, Respondent and Bidder, Vendor, means “Respondent to the RFQ Document”.
3. Tender means RFQ response documents prepared by the Bidder and submitted to IISc.

2.3 Disclaimer

1. IISc reserves the right to reject any / all applications without assigning any reason whatsoever.
2. The above dates are tentative and subjected to change without any prior notice or intimation
3. Bidders should check our website www.iisc.ac.in/tender for any changes / addendums to the above dates and / or any other changes/ update to this RFQ). Bidders are requested to keep themselves updated through our said website from time to time.
4. Please note that Financial Bids will be open for only those service providers who qualify in the technical bid stage.
5. This RFQ is not an agreement and is neither an offer nor invitation by the IISc to the prospective Bidder/s or any other person or entity. The purpose of this RFQ is to provide interested parties with information that may be useful to them in the formulation of their bids pursuant to this RFQ.
6. This RFQ may not be appropriate for all persons, and it is not possible for the IISc, its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFQ. While all care has been taken to keep the assumptions, assessments, statements, and information contained in this RFQ as relevant, complete, accurate, adequate, and correct, it may not be taken as final.
7. The bidder must submit the bid as per the terms and conditions of this document. The BOQ is enclosed with this document. The BOQ is prepared based on the drawings of the respective building/floors. Entire system has to be installed as per the above-mentioned drawing. During the time of execution of the work, if there is any change/deviation required, the same has to be put up in writing and approval should be obtained from IISc before carrying out the work. However, the drawing will be provided only to the successful bidder once the contract is finalized in all respect.
8. Once the job is completed the contractor has to prepare an as built drawing and submit the same to IISc, duly signed and approved by our consultant.

2.4 Confidentiality

This document is meant for the specific use by the Company / persons interested to participate in the current tendering process. This document in its entirety is subject to Copyright Laws. IISc expects the bidders or any person acting on behalf of the bidders to strictly adhere to the instructions given in the document and maintain confidentiality of information. The bidders will be held responsible for any misuse of the information contained in the document and liable to be prosecuted by the IISc. In the event of such a circumstance is brought to the notice of the IISc. By downloading the document, the interested party is subject to confidentiality clauses.

3 Technical Requirements

3.1 Introduction

This Request for Quotation document ('RFQ document' or RFQ)/tender document has been prepared for the purpose of selecting Vendors / Service Providers for purchase and installation of FIRE HYDRANT SYSTEM for **J N TATA Auditorium** buildings of IISc. Bangalore.

1. In response, Indian Institute of science seeks a detailed technical and commercial proposal from the experienced service providers having experience in similar type of activity.
2. Initially a contract will be awarded to the successful bidder to supply and installation of the FIRE HYDRANT SYSTEM.

3.2 Eligibility

1. The vendor must have a **minimum of three years' experience** in commissioning and maintenance of the FIRE HYDRANT SYSTEM.
2. It's mandatory that Vendor must be Indian OEM, or its authorized Indian distributor / partner are invited to submit their bid in INR only.
3. In the past three years the vendor should have installed **three** similar systems, (for which the cost of each system should not be less than 30 lakhs) or at least **one single system** for which the cost should not be less than 75 Lakhs in Government/Public sector /Research institutes. Supporting documents should be enclosed.
4. Minimum yearly turnover of Rs.3 crores over last three financial years, for work of similar nature.
5. The Bidder should belong to either Class-1 or Class-2 suppliers distinguished by their "local content" as defined by recent edits to GFR. They should mention clearly which class they belong to in the cover letter. a) Class-1 supplier: Goods and services should have local content of equal to or more than 50%. b) Class-2 supplier: Goods and services should have local content of equal to or more than 20 % and less than 50%.
6. The quotations should be on FOR-IISc Bangalore basis in INR only.
7. Bidders offering imported products will fall under the category of non-local suppliers. They cannot claim themselves as Class-1 local suppliers/Class-2 local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training, and other sales service support like AMC/CMC, etc., as local value addition.
8. **Product Certification:** The products of the applicant should have the latest UL certification (UL 268-7thedition) wherever applicable.
9. **Performance Certificate:** The applicant should submit a "Satisfactory Performance Certificate" from two Companies/Entities where the applicant has done installation/maintenance of Fire systems.
10. **Manufacture authorization:** The certificate of the origin of the country should be enclosed. (The product from China is not acceptable – OEM must furnish a supporting letter for the same).
11. **Registered Office:** The bidder should have a registered office in Bangalore. If the bidder got a registered main office elsewhere in India, should have a full-fledged registered branch office in Bangalore. The branch office should have a technical team who can promptly attend the calls and rectify the faults. Visit costs will not be reimbursed.
12. **Trained and Certified Engineers:** Bidder shall have at least two certified Engineers

permanently placed in Bangalore for the product offered and shall submit the copy of certificates along with the bid.

13. **Supply & Installation:** The applicant should be able to supply and install the products for which empanelment is sought by themselves. No subletting of the work is permissible.
14. **Past Record:** The applicant should not have been blacklisted by any PSU/PSB/Govt. Organization in the past 3 years or services terminated due to poor performance. A certificate be submitted stating that the company/firm or its owner or any sister concern have not been blacklisted. (Annexure A)
15. If IISc has issued a dissatisfactory letter / termination of work contract due to dissatisfactory services to the agency the bid of the company will be rejected.
16. Product warranty should be 1 years except consumables items.

3.3 Scope of Work

1. FIRE HYDRANT SYSTEM for the buildings in **J N TATA Auditorium**.
2. The agency shall supply and install FIRE HYDRANT SYSTEM in the building of **J N TATA Auditorium** IISc Campus, C V Raman Road – Bangalore.
3. At present there is a fire hydrant system which is not working. The new system will be replacing the old system of the building.

3.4 Technical specification of the product:

The technical specification of the product and other accessories are given below.

1. The Vendors should only offer and quote FIRE HYDRANT Systems for the makes mentioned in BOQ. Also, the technical specs must match the description mentioned in the BOQ.

- 3.5 **Work execution** – Details of the building and Method: The details are given below . The clarification, if any required, the same should be clarified during the pre-bid stage . Once the bid is submitted, there should not be any changes.

The building has been broadly divided as follows for drawing and design purposes and accordingly the drawing has been prepared (Enclosed with this note)

- a. Basement
- b. Ground Floor
- c. Floor 1,2,3 and 4
- d. Control Room area, DG and AHU area.

While preparing the design the main hydrant line has been planned at ground floor level with Hydrant points and hose boxes. Further for the protection of the building inside, rubber hose reels are planned. The existing rubber hose reels and pipelines are old and not possible to use. If the old lines are used and if there are leakages, the same will damage the walls of the building. To avoid such possibilities, it has been decided to lay the new line for the rubber hose reels without using the existing pipeline.

The Hydrant lines for outside the building have also been re-designed without using the old lines. The new line has been planned on the side of the building as per the NBC guidelines (6.13. No portion of a protected building should be more than 45 m from an external hydrant, and where this requirement cannot be met, internal hydrants/landing valves should be provided (see IS 3844: 1966). The distance from the building wall to the hydrant point is 2 meter and at the face of the building (Entrance area) it has been kept at 15 Meters (IS 6.9)

It is also decided to lay the hydrant pipeline on the side of the building and not on the other side of the road away from the building (As of now available with the old system, the pipeline is on the other side of the road). This has been done to avoid the obstruction of movement of the vehicles during a fire emergency and to comply with the IS standard mentioned above.

Our technical team has assessed and planned the entire system as per IS Standard (IS13039: 1991 Reaffirmed 2000).

The layout of the hydrant system is given in the drawing. the same will be provided to the selected bidders.

The water source is from an underground sump. Therefore, the suction type of the pump is negative type.

While executing the above work the safety of the people must be taken care of and a proper supervision of the work must be ensured.

Overall requirement of the system:

This section consists of the requirements of supply, installation, testing and commissioning of the fire hydrant system at J N Tata Auditorium - Indian Institute of Science. The points mentioned in this section is not the final requirement but the broad outline of requirements. May get extended at the discretion of INDIAN INSTITUTE OF SCIENCE, if required. The technical specifications are given below:

- a. The Fire Hydrant System shall comprise in this project will be pressurized wet type and Hand Appliances (Hydrant and rubber hose reels) type.
- b. Water from the underground/overground Fire Water Storage Tanks shall be supplied for the hydrant system. The basic source of the water will be filled in the existing water sump. It should be ensured that the water sump is always full and provisioned for a minimum of two hours for fighting the fire.
- c. The Hydrant System shall be provided with a jockey pump to maintain the pressure to the required level all the time.
- d. As the main source of supply of water to the Hydrant System shall be provided with two pump sets, one of which will be diesel engine driven (Standby) and the other electric motor driven (Main pump).

- e. **While installing the new pump sets, the old pumps, electric panels etc. to be dismantled and removed. This is part of the scope of this project. The bidder must quote for the same while quoting the price. However, the old pipelines outside and inside the building need not to be removed.**
- f. The starting and stopping of the Jockey pump shall be automatic based on the pressure switches at preset low and high pressure.
- g. The electric motor driven Hydrant Pump starts automatically at a preset pressure by means of a pressure switch. As soon as the Hydrant Pump starts, the Jockey Pump Stops. If for any reason the electric motor driven Hydrant Pump does not start at the preset pressure or is unable to maintain the pressure, the diesel engine driven Hydrant Pump starts at the preset pressure.
- h. The Hydrant Pump, whether electric motor driven, or the diesel engine driven shall be stopped only manually.
- i. Once the installation is completed the Hydro Testing for the complete system will be carried out
- j. The hose boxes for each hydrant point have been planned within a distance of two meters from the hydrant point.
- k. All the Hydrant points, Hose boxes, Rubber hose reels and fire hydrant hose reels to be marked, sequentially.
- l. Once the project is completed, an as built drawing with all the details to be prepared and kept as final document. The drawing should be prepared by the contractor and submitted to the IISc. the same will be counter checked.
- m. (All the above to be mentioned in the tender document and must be part of the scope of work of the contractor) .

Fire Hydrant pump and pump room:

AUXILIARY PUMPING EQUIPMENT.

This section covers the details or requirements of the auxiliary equipment necessary for the operation of the fire pumps and the wet-riser system.

- The main pump shall be directly driven from the electric motor. The standby pump shall be Diesel driven. There will be a jockey pump to maintain the pressure of the hydrant line.
 - a. **The electrical motor driven main pump:** The electrical motor driven main pump of horizontal centrifugal end suction type with gland packing and capable to deliver 2850LPM at 90MWC. The pump shall be coupled to TEFC motor of suitable HP with speed of 2900 RPM and complete set shall be mounted on common base frame. RCC foundation will be done as recommended by pump manufacturer.
 - b. **Diesel driven standby pump:** The diesel Engine driven common stand by pump, horizontal centrifugal end suction type with gland packing and capable to deliver 2850LPM at 90MWC. The pump shall be coupled to suitable HP of Diesel engine radiator water cooled type with speed of 2100RPM and complete set shall be mounted on common base frame. Batteries & battery leads with stand, Fuel tank (for 6 Hrs. operation) with stand & gauge glass, Fuel piping with valves. The pump will be mounted on RCC foundation as recommended by the pump manufacturer.
 - c. **Jockey Pump:** Jockey pump of horizontal centrifugal end suction type with gland packing and capable to deliver 180LPM at 90MWC. The pump shall be coupled to TEFC motor of suitable HP with speed of 2900RPM and complete set shall be mounted on common base frame. The pump should be mounted on RCC foundation as recommended by pump manufacturer.
 - d. The bearing of all the pumps shall be effectively sealed to prevent loss of lubricant or entry of dust or water. The pump casing shall be designed to withstand 1.5 times the working pressure.
 - e. **Electrical pumps:** The motor shall be squirrel cage A.C. induction type suitable for operation on 415 volts 3 phase 50 Hz, system. The motor shall be totally enclosed fan cooled type conforming to protection clause IP 21 of IS 4691. The class of insulation shall be B, synchronous speed shall be 3000 RPM/1500 RPM. The motor shall conform IS 325-1978 and rated for continuous duty.
 - f. **Motor Starter:** The motor starter shall be automatic star delta type with overload trip, but without under voltage / no volt trip. Starter shall conform to IS 1822-1967.
- Detail description of the pumps:**
- g. **MAIN ELECTRIC FIRE PUMP:** The electric fire pump shall be suitable for automatic operation complete with necessary electric motor and automatic starting gear, suitable for operation on 415 volts, 3 phase, 50 Hz A/C system, Both the motor and the pump shall be assembled on a common base plate of fabricated MS channel type or cast-iron type.
 - h. **Drive:** The pump shall only be direct driven by means of a flexible coupling. Coupling guard shall also be provided.
 - The fire pump shall be horizontal end suction centrifugal type. It shall have a capacity to deliver 171 Cubic meter/Hour, developing adequate head so as to ensure a minimum

pressure of 7 kg. per sq.cm at the highest and the farthest outlet. The delivery pressure at the pump outlet shall be not less than 8 kg. per sq.cm. in any case.

- The pump shall be capable of giving a discharge of not less than 150 percent of the rated discharge, at a head of not less than 65 percent of the rated head. The shut off head shall be within 120 percent of rate head.
 - The pump casing shall be of cast iron to grade FG 200 to IS:210 and parts like impeller, shaft sleeve, wearing ring etc. shall be of non-corrosive metal like bronze / brass / gunmetal. This shaft shall be of stainless steel.
 - The bearing of the pump shall be effectively sealed to prevent loss of lubricant or entry of dust or water.
 - The pump shall be provided with a plate indicating the suction lift delivery head, discharge speed and number of stages. The pump casing shall be designed to withstand 1.5 times the working pressure.
- i. **Motor of the main pump:** The motor shall be squirrel cage A/C induction type suitable for operation on 415 volts 3 phase 50 Hz system. The motor shall be totally enclosed fan cooled type conforming to protection clause IP 21 vide IS-4691. The class of insulation shall be B. The motor shall be rated to continuous duty as per relevant IS and shall have a horsepower rating necessary to drive the pump at 150 percent of its rated discharge.
- j. **Motor Starter:** The motor starter shall be automatic star Delta type conforming to IS:1822-1967. The starter shall not incorporate under voltage or overload trip or single-phase preventer. The starter assembly shall be suitably integrated in the power control panel for the wet riser system.

Note : Each pump shall be provided with vibration isolating pads of appropriate size.

- k. **DIESEL FIRE PUMP:** The diesel pump set shall be suitable for automatic operation complete with necessary automatic starting gear, for starting on wet battery system and shall be complete with all accessories. Both engine and pump shall be assembled on a common bed place, fabricated with mild steel channel.
- l. **Drive:** The pump shall only be directly driven by means of flexible coupling. Coupling guard shall also be provided. The speed shall be 1500/1800 RPM.
- m. **Fire Pump (Diesel):** The fire pump shall be horizontal split casing centrifugal type. It shall have the capacity to deliver 171 Cubic Meter/Hour. The fire pump shall be horizontal end suction centrifugal type. It shall have a capacity to deliver 171 Cubic Meter/Hour as specified, developing adequate head so as to ensure a minimum pressure of 7.5 kg. per sq.cm at the highest and the farthest outlet. The delivery pressure at the pump outlet shall be not less than 8 kg. per sq.cm. in any case.
The pump shall be capable of giving a discharge of not less than 150% of the rated discharge at a head of not less than 65% of the rated head. The shut off head shall be within 120% of the rated head. The shaft shall be of stainless steel. The pump shall be provided with a mechanical seal. The pump casing shall be designed to withstand 1.5 times the working

pressure.

The bearing of the pump shall be effectively sealed to prevent loss of lubricant or entry of dust or water.

- **Diesel Engine:** The engine shall be cold starting type without the necessity of preliminary heating of the engine cylinders or combustion chamber (for example, by wicks, cartridge, heater plugs etc.) The engine shall be multi cylinder /vertical, 4-stroke cycle, water-cooled, diesel engine, developing suitable HP at the operating speed specified to drive the fire pump, Continuous capacity available for the load shall be exclusive of the power requirement of auxiliaries of the diesel engine, and after correction for altitude, ambient, temperature and humidity for the specified environmental conditions. This shall be at least 20% greater than the maximum UP required to drive the pump at its duty point. It shall also be capable of driving the pump at 150% of the rated discharge at 65% of the rated head. The engine shall be capable of continuous non-stop operation for 8 hours. The engine shall have 10% overload capacity for one hour in any period of 12 hours continuous run.
- **Acceleration:** The engine shall accept full load within 15 seconds from the receipt of signal to start. The diesel engine shall conform to B.S. 649/IS 160/IS 10002, all amended up to date.
- **Cooling System:** The engine cooling system shall be a radiator water cooling system. The radiator assembly shall be mounted on the common base plate. The radiator fan shall be driven by the engine as its auxiliary with a multiple fan belt. When half the belt breaks the remaining belts must be capable of driving the fan. Cooling water shall be circulated by means of an auxiliary pump of suitable capacity driven by the engine in a closed circuit.
- **Fuel System:** The fuel shall be gravity fed from the engine fuel tank to the engine driven pump. The engine fuel tank shall be mounted either over or adjacent to the engine itself suitably wall mounted on brackets. The fuel filter shall be suitably located to permit easy servicing.
- **Fuel Tank:** The engine fuel tank shall be welded steel construction (3mm thick) and of capacity sufficient to make the engine run on full load for at least 8 hours. The tank shall be complete with necessary supports, level indicator (protected against mechanical injury), inlet, outlet, overflow connections drain plug and piping to the engine fuel tank. The outlet should be located so as to avoid entry of any sediment into the fuel line of the engine. A semi rotary hand pump filling the engine fuel tank together with hose pipe 5 meter. Long with a foot-valve etc. shall also form part of the scope of work.
- **Lubricating Oil System:** Forced feed Lubricating Oil system shall be employed for positive lubrication. Necessary Lubricating Oil filters shall be provided and located suitably for convenient servicing.
- **Starting System:** The starting system shall comprise of necessary battery / batteries, starter motor of adequate capacity and axle type gear to match with the toothed ring fly wheel. A suitable metallic relay to protect the starting motor from excessively long cranking runs shall be included. The metallic relay protection shall be integrated with the engine protection system.

- **Battery:** The capacity of the battery shall be suitable for meeting the needs of the starting system but not less than 180 AH. The battery capacity shall be adequate for 10 consecutive starts without recharging with cold engine under full compression. The battery should be of the type “Maintenance Free.”
- **Exhaust System:** The exhaust system shall be complete with silencer suitable for indoor installation, and silencer piping including bends and accessories needed. The exhaust pipe shall protrude outside the pump room. The total backpressure shall not exceed the engine manufacturer’s recommendations. The exhaust piping shall be suitably supported, and the pipe used shall be of medium class MS pipe.
- **Engine Shut Down Mechanism:** This shall be manually operated and shall return automatically to the starting position after use.
- **Governing System:** The engine shall be provided with an adjustable governor to control the engine speed with 5% of its rated under all conditions of load up to full load. The governor shall be set to maintain rated pump speed at maximum pump load.
- **Engine Instrumentation:** Engine instrumentation shall include the following:
 - Lubricating Oil Pressure Gauge.
 - Lubricating Oil temperature gauge
 - Water temperature gauge.
 - Water pressure gauge
 - Tachometer
 - Hour meter
 - Starting key

Note: The instrument panel shall be suitably mounted on the engine.

- **Pipe Work:** The piping for the exhaust outlet as well as fuel piping between the fuel tank and the engine shall be Medium class GI/M.S.
- **Anti-Vibration Mounting:** Suitable vibration mounting duly approved by consultant /Project-in-charge shall be employed for mounting the unit so as to minimize transmission of vibration to the structure. (During the installation stage, isolation efficiency achievable shall be clearly indicated in the report, which will be submitted to the consultant/project-in-charge before installation).
- **Battery Charger:** Necessary float and boost charger shall be incorporated in the control section of the power and control panel to keep the battery under trickle condition. Ammeter to indicate the state of charge of the batteries shall be provided.
- **Other Control Components**
 - a. **Pressure Switches:** Pressure switches shall be provided for switching on and off the pressurization pump at present pressures and also for switching off the fire pump at

present pressure. Being the main component for initiating the signal for the operation of the pumps, the pressure settings shall be totally reliable, sturdy in construction and of long life. The pressure settings shall be adjustable. The pressure switches should be set as per the specification given in this note. (Cut off pressure Jockey pump 9 Kg, Starting pressure 8 Kg, Main pump starting pressure 7 Kg cut off Manually and diesel pump starting pressure 6 Kg cut off manually). However, the switches must be capable of setting according to the changed site requirements as and when required.

- i. **Power Supply for Controls:** In order to ensure that the control systems remain co-operational at all times the control system shall be designed for 24 VDC operation fed from the battery. This shall be independent of the starting battery for the engine i.e. battery shall remain trickle charged at all times from the separate battery charger at the control system.
- ii. **Electrical Work and Earthing:** This section covers the detailed requirements of electrical works including earthing, for the materials installation.

➤ Electric power supply shall be terminated in the incoming switch gear of the power and control panel by the Electrical Department of the Client (IISc). All further connections to the various components of the system shall be the responsibility of the contractor, for a complete and working system, satisfying all the functional requirements.
Each pump has one set of control panels.

- **INCOMING**

- i. 2 nos. 630A TPN ACB (50 KA) with mechanical interlock
- ii. 2 Sets of 630 Amps. TPN Al. Bus bars with color coded heat shrinkable PVC sleeves.
- iii. 2 Set of RYB indicating lamps with individual HRC control fuses.
- iv. 2 No. 96 Sq.mm 0-800 Amps. Ammeter with selector switch and suitable rated current transformers.
- v. 2 No. 0-800 96 Sq.mm Voltmeter with selector switch.

- **OUTGOING**

- i. Feeder for main pumps - 2 Nos.
- ii. 1 Nos.250A TP MCCB
- iii. Star delta starter with overload relay, single phase preventor and indicating lamps with ON / OFF push buttons.
- iv. Feeder for Jockey pump - 1 No.
- v. 1 No. 63A TP MCCB
- vi. DOL starter with overload relay, single phase preventor and indicating lamps with ON / OFF push buttons.
- vii. 1 No. Automanual selector switch

DIESEL ENGINE MAIN PUMP 1 No.

a) 20Amps DPMCB - 4 Nos.

b) Battery charger with transformer with rectifier resistance DC ammeter, DC voltmeter, Trickle / booster / off selector switch - 2 Nos.

c) **Indicators:** To have proper visual control of the functionalities of the pump 1 set of indicating lamps for the following must be provided.

1. phase indication
2. battery charger on
3. overload relay

4. DC supply on
5. control switch on
6. Engine fails to start
7. Pump on
8. Low oil pressure
9. High water temperature
10. Auto manual selector switch

d) **Push button control switches:** For the operation purpose of the diesel engine following manual control system to be provided. 1 sets of push button stations for the following:

1. Engine Start
2. Engine Stop
3. Engine - hooter ACK
4. Engine - fault reset

e) **Selector switches** (Engine control, mode selector)-1 No.

f) Auxiliary relays / contactors / timer for sequence operating for starting and stopping of the engine - 1 set.

g) Hooter for audio alarm (Industrial type) - 1 No.

All the components shall be housed in a common cubical made of 16 swg. M.S. sheet with required stiffeners. The panel shall be powder coated of approved color both inside & outside. The panel shall have both bottom & top cable entry provisions and panel shall be mounted on Pedestal of 300 mm height.

Also the panel shall have sufficient (min. 6Nos per pump set) NO/NC contacts for extending the status of fire pumps to the Fire alarm panel.

iii. Power cables: 1100 V GRADE POWER / CONTROL CABLES

The power cables must be FRLS, PVC outer sheath, steel armored, aluminum / copper conductor, 1100v grade power cables with glands etc.

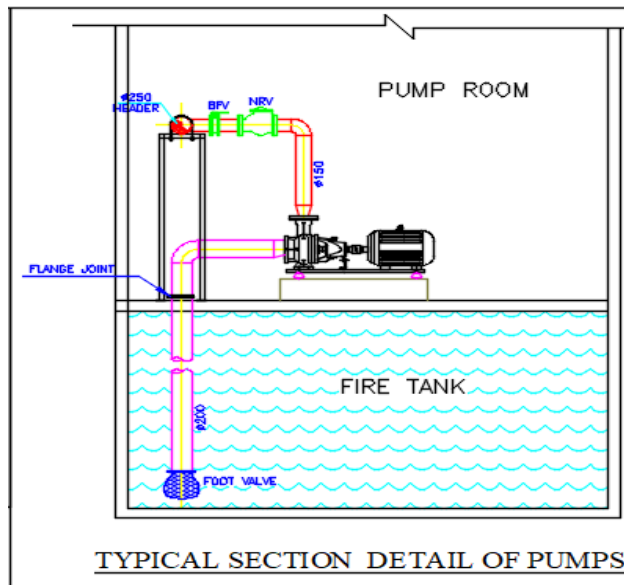
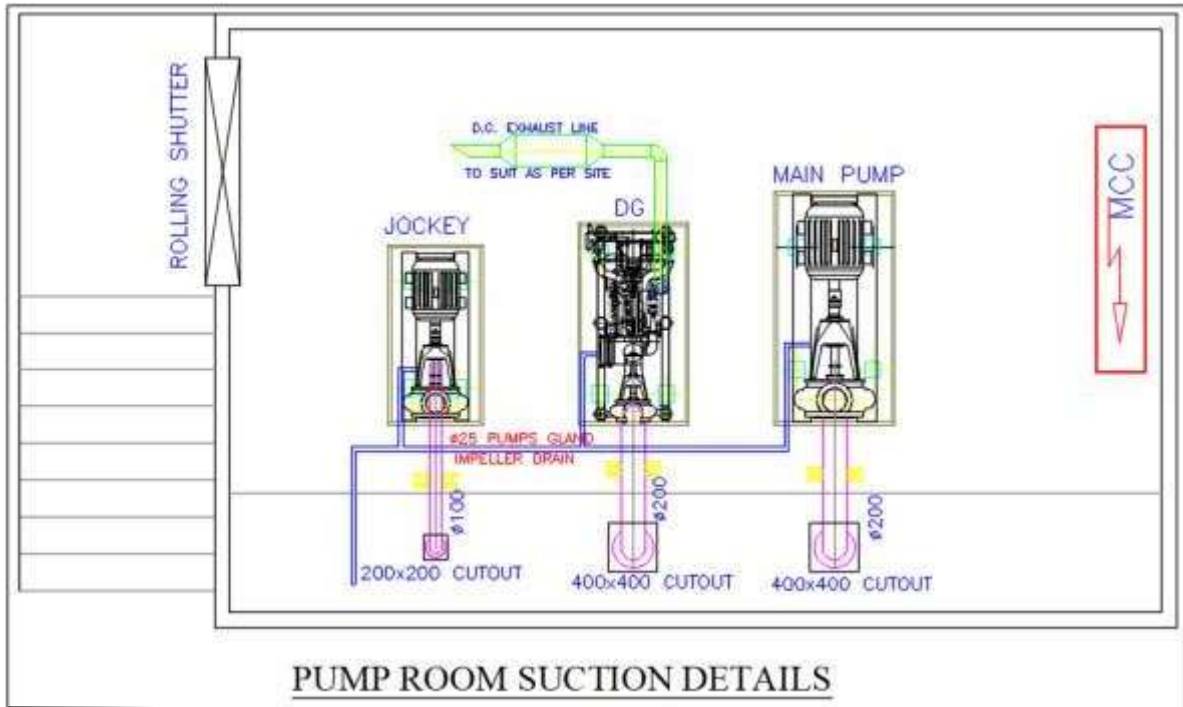
The cables shall be laid in tray (Inside) / Hume pipe / in trenches (Outside) as required basis providing brick and sand protection, refilling and compacting the earth. The minimum size of the cables shall as mention below,

- 3.5C x 120 sq.mm for main pumps
- C x 16 Sqmm.for Jockey pumps
- 12 C x 2.5 Sqmm. For Diesel engines
- 2 C x 2.5 Sqmm.for Instrumentation

iv. CABLE TRAY: The cable tray should be of perforated type G.I.sheet cable tray with necessary angle iron suspension supports, anchor fasteners etc. complete. Maximum height of suspension shall not exceed 500mm.Size of the tray shall be suitable for laying the above-mentioned cables. (40x200x40mm)

v. Earthing strip: G.I. Earthing strips shall be run on floor / ceiling / walls, from the equipment to the nearest Earth pit with necessary accessories as required.
50x6mm thick
25x6mm thick

PIPE WORK: While designing the piping system of the hydrant the following points are taken into consideration.



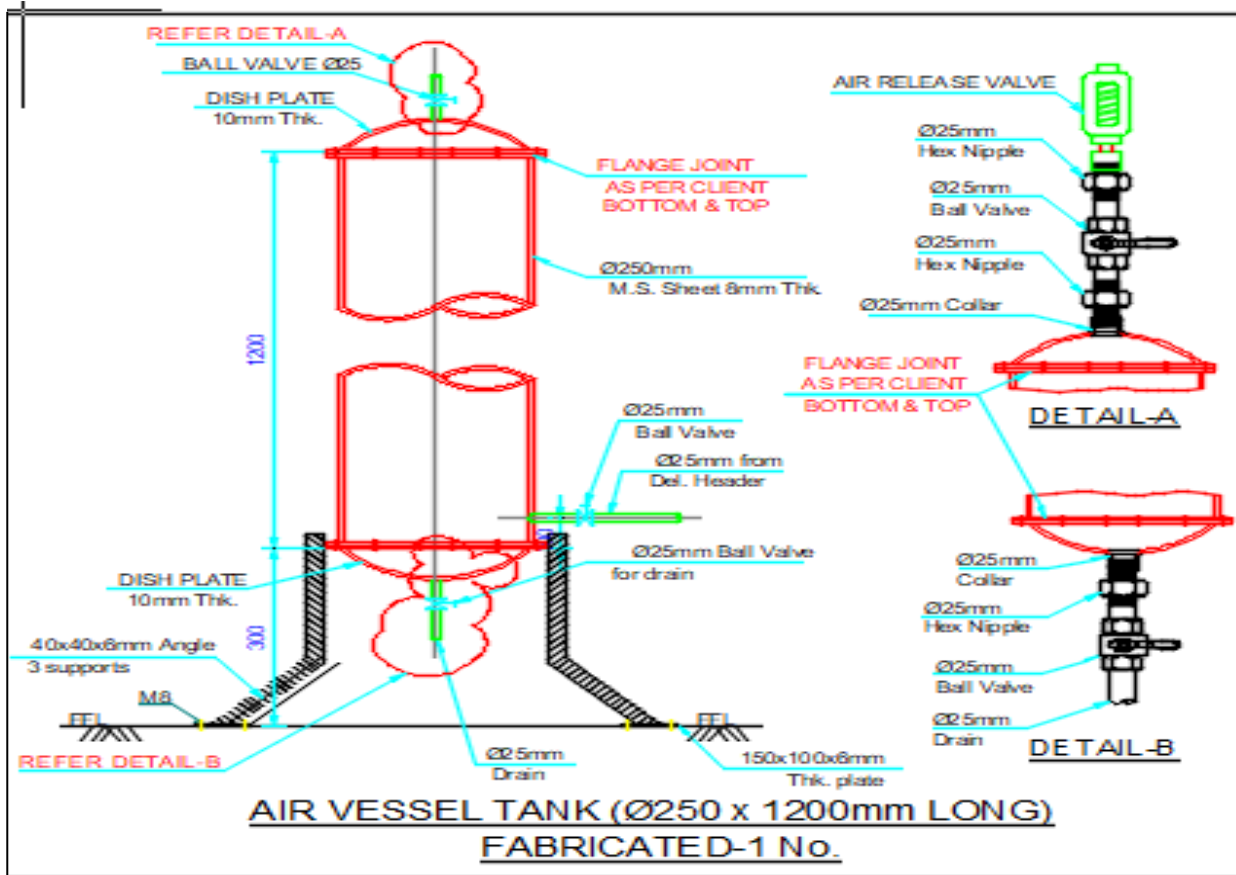
1. PIPES OF SIZE #200 & ABOVE ARE AS PER IS : 3589
2. PIPES UPTO #150 ARE G.L. 'C' CLASS AS PER IS : 1239- PART I & II
3. FITTINGS ARE AS PER IS : 1239- PART-2
4. BASE FRAME IS M.S FABRICATED
5. PIPES SHALL BE PAINTED WITH ONE COAT OF PRIMER & TWO COATS OF ENAMEL PAINT
6. INCOMER CABLING TO FIRE PANEL CLIENT SCOPE.
7. TERMINATION OF D.G. EXHAUST LINE TO BE CO-ORDINATED @ SITE.
8. FOR ALL VALVES TO BE MOUNT TO SUIT SITE CONDITION.

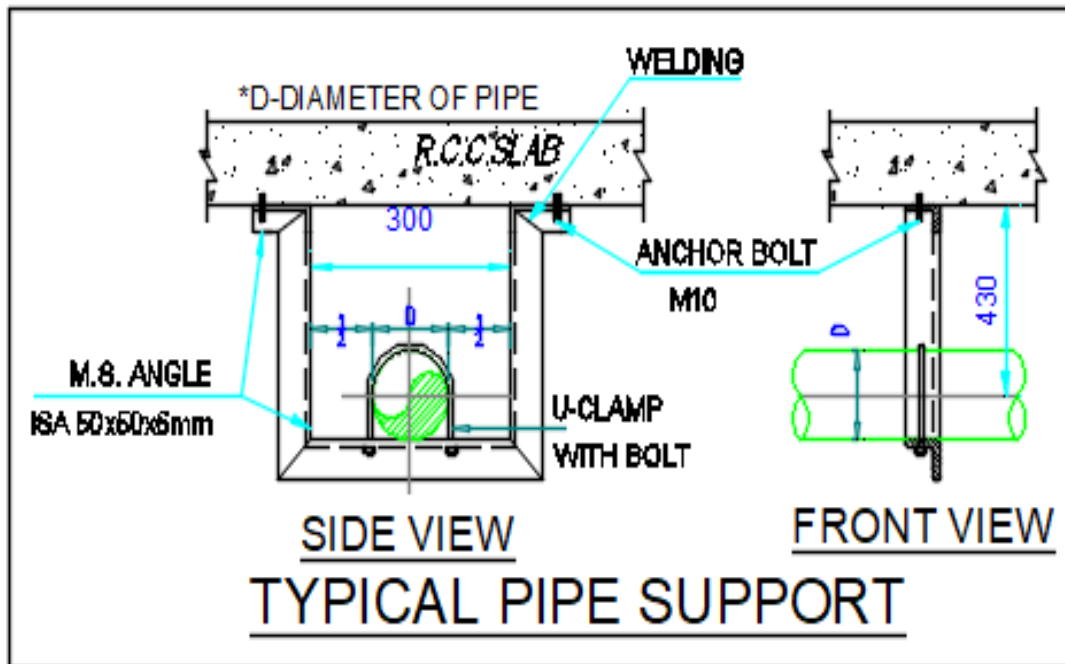
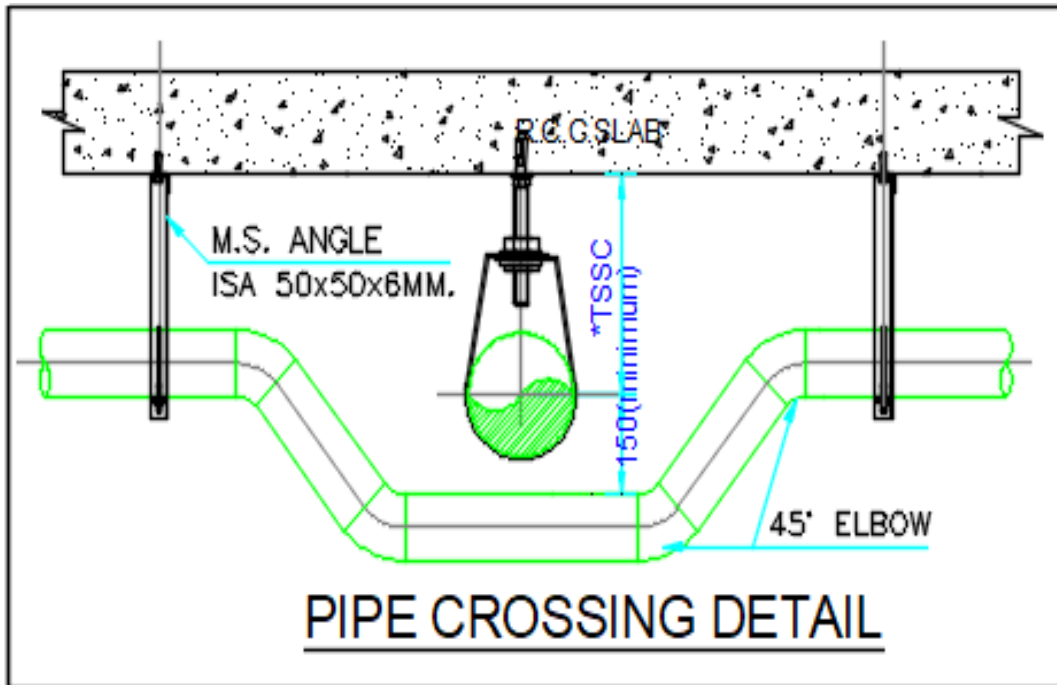
- 1 - MAIN PUMP (ELECTRIC MOTOR DRIVEN)
CAP. 2850 LPM @ 90mWC.
- 2 - COMMON STANDBY PUMP (DIESEL ENGINE DRIVEN)
CAP. 2850 LPM @ 90mWC
- 3 - JOCKEY PUMP (ELECTRIC MOTOR DRIVEN)
180 LPM @ 90mWC.

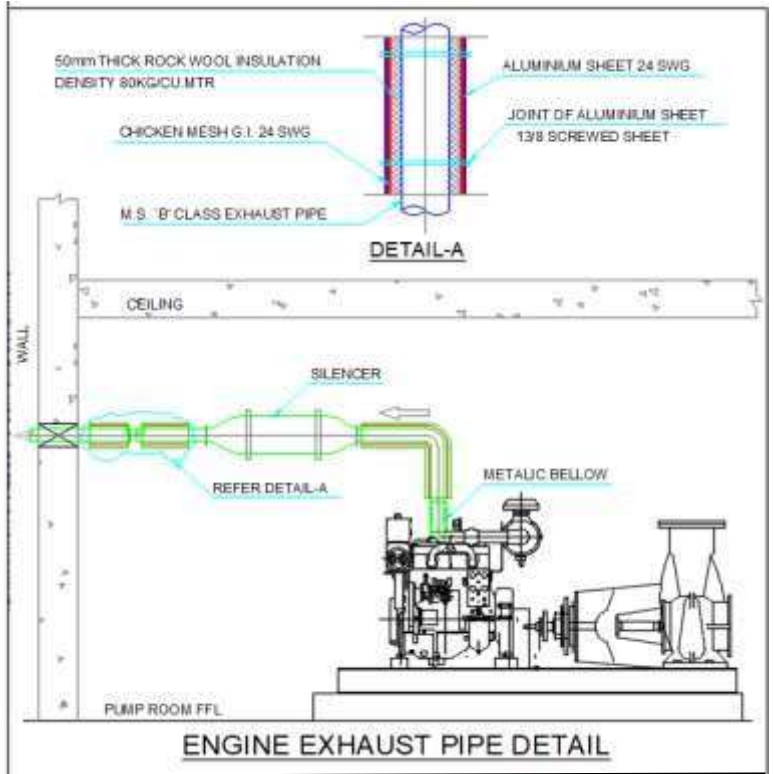
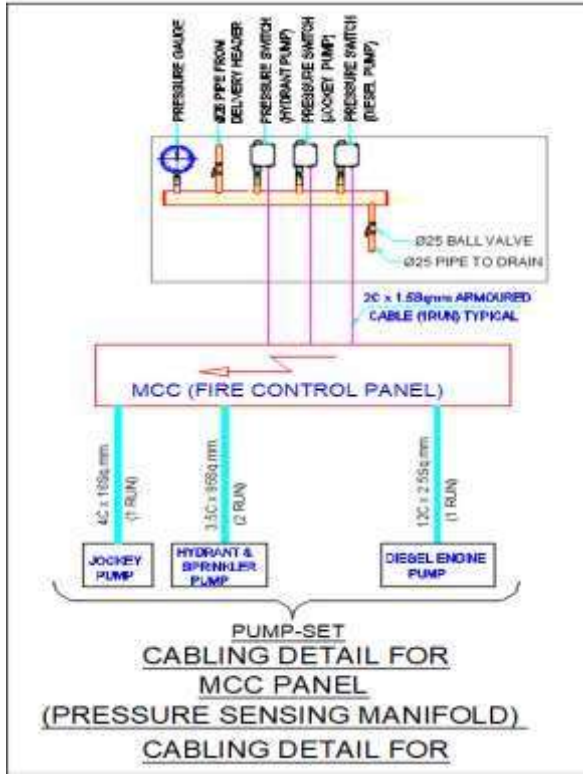
OPERATION SEQUENCE OF PUMPS

PUMP	CUT IN KG./sq.cm.	CUT OFF KG./sq.cm.	LOGIC OF OPERATION
JOCKEY PUMP	8.0	9.0	CUTS OFF WHEN MAIN PUMP IS ON
MAIN PUMP	7.0	MANUALLY	
STANDBY ENGINE DRIVEN PUMP	6.0	MANUALLY	CUTS IN WHEN MAIN PUMPS FAIL

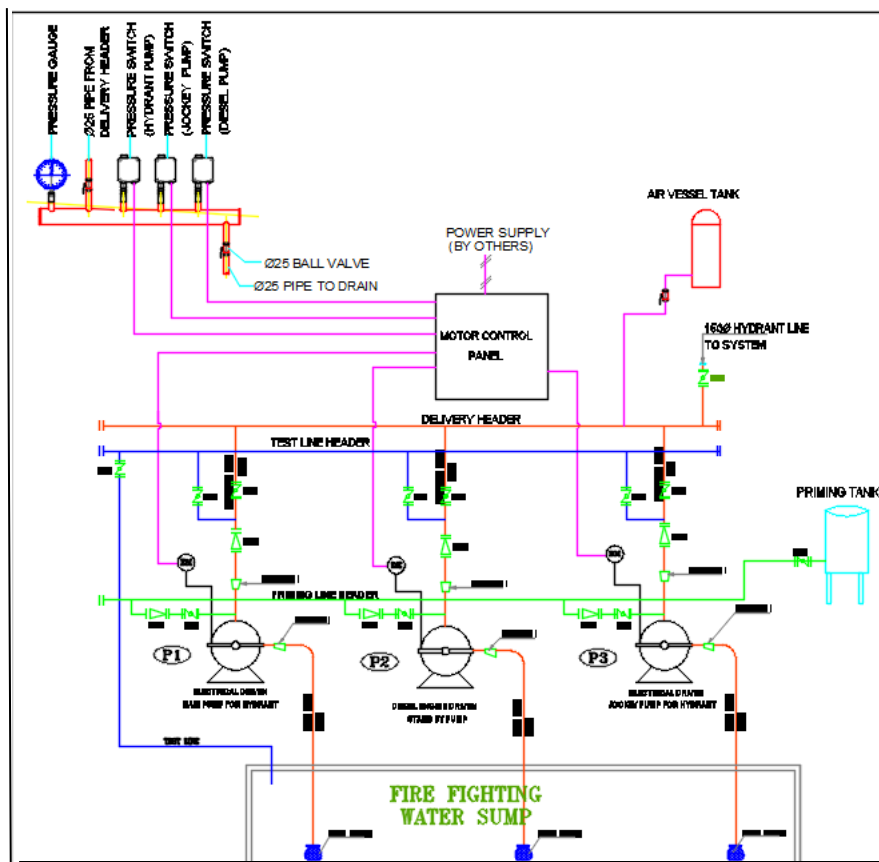
Note : The pressure switches should be capable of changing the above sequence according to the requirement.

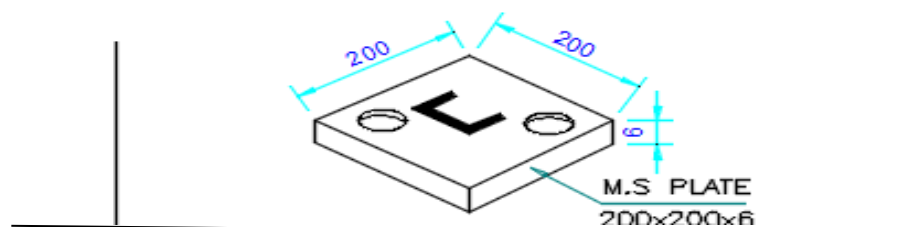
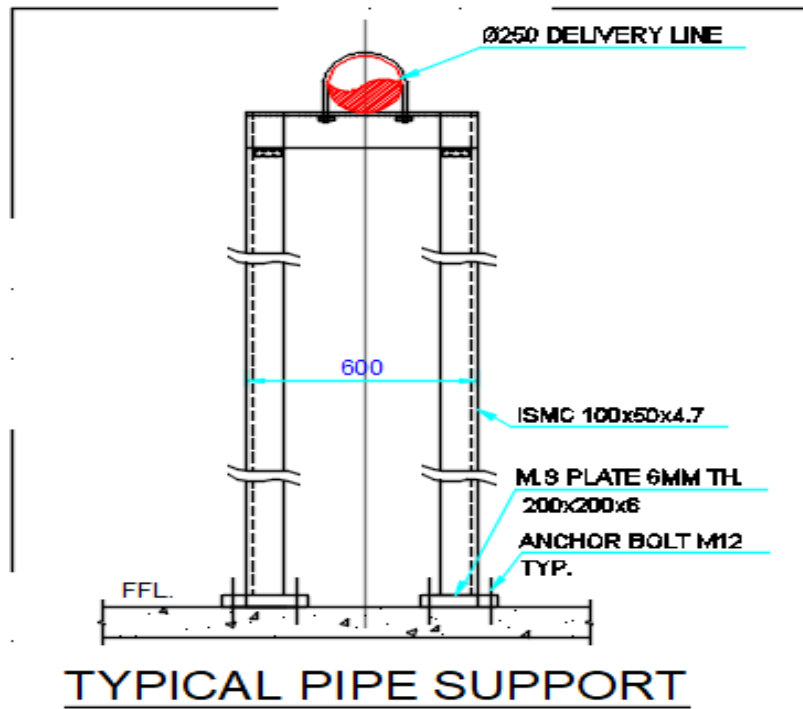
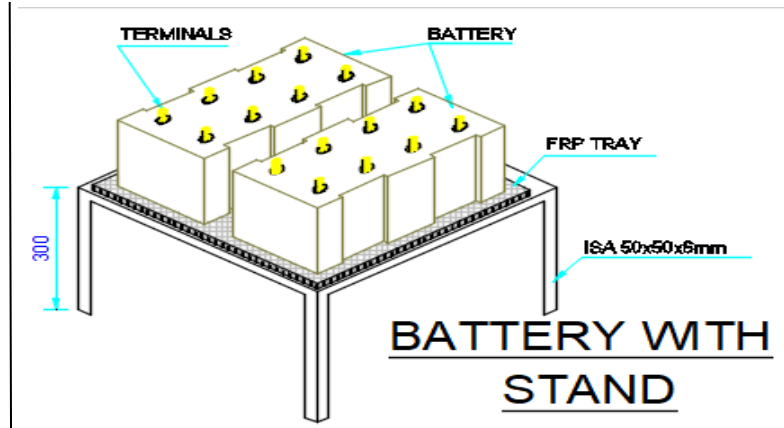


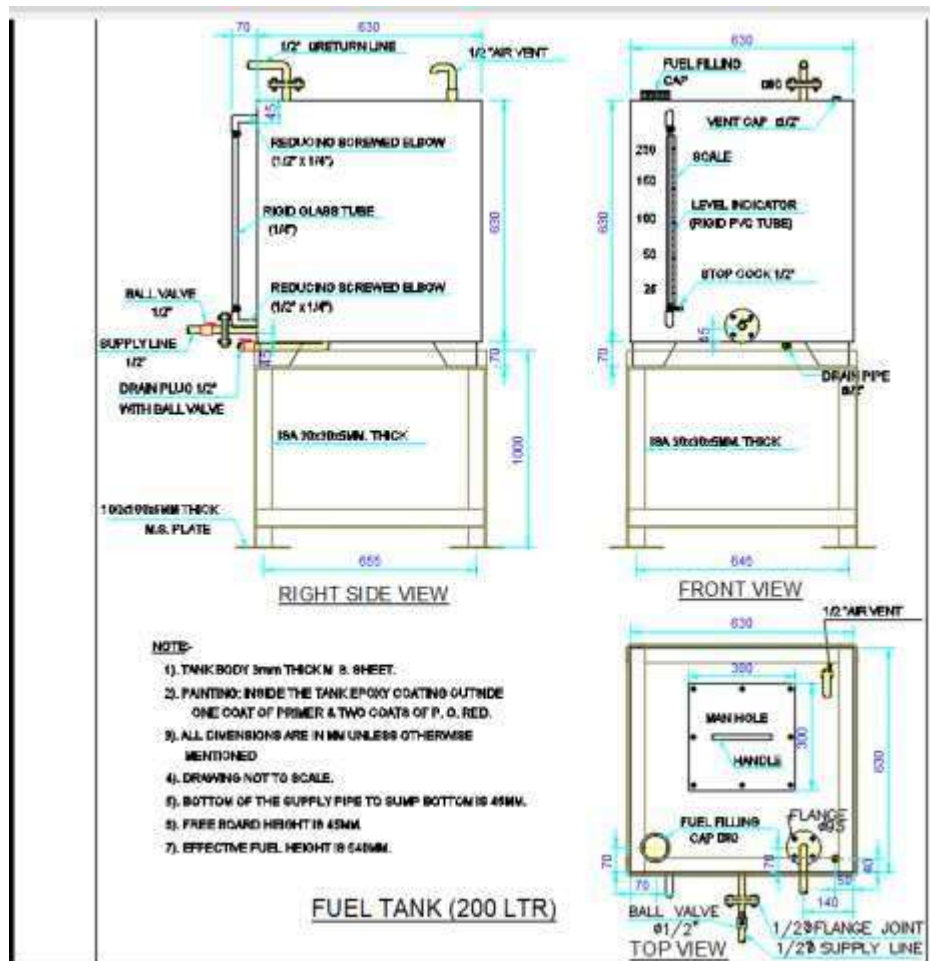




FIRE PUMPROOM SCHEMATIC







b. General Requirements

- All materials shall be of the quality, meeting respective latest IS standards applicable for fire safety systems conforming to the specifications and subject to the approval of the Consultants. (Underground/Over Ground Hydrant Mains – GI (C Class) Heavy grade as per IS 1239 (Part-1)/ IS 3589 (Part-1).
- Pipes shall be fixed in a manner as to provide easy accessibility for repair and maintenance and shall not cause obstruction in shafts, passages etc. and also utmost care should be taken to meet the requirement of aesthetics of the campus.
- ▶ Pipes shall be securely fixed to /anchor blocks while laying over ground (galvanized after fabrication) at intervals specified. Only approved types of anchor fasteners shall be used for RCC slabs and walls / floors etc. While laying the pipes underground, the pipes should be laid one meter below the surface and the chambers for valves should be of 1.5 meter depth. Supporting anchor blocks of specified sizes to be provided at all the bends and "T" junctions for over as well as underground pipes. (PCC Anchor Blocks (1:4:8 Cement, Gravel stone and Sand) – 300 x 300 x 500 mm size (at all bends, tees, etc. For Underground) For over ground each at 5 Mtr distance.

- Valves and other appurtenances shall be so located that they are easily accessible for operations, repairs, and maintenance. All the valves provided for the entire system should have a locking facility.
- Pipes and fittings shall be fixed vertical, horizontal or in slopes as required in a neat workman like manner.
- Pipe accessories such as gauges, meters, control devices, etc. shall have the same working pressure rating as the associated pipe work. All pipe work shall be free from burrs, rust and scale and shall be cleaned before installation. **All personnel engaged in welding operations must possess a certificate of competence issued by an acceptable / recognized authority. The person must be qualified for welding the pressurized pipelines.**

i. Piping

Pipes of following types are to be used:

- Galvanized iron pipes as per IS:1239 heavy grade(for pipes of sizes 150 mm N.B. and below) suitably lagged on the outside to prevent soil corrosion. G.I pipes buried below ground shall also suitably be lagged with 4mm thick protection coating over 2 coats of primer and wrapping with appropriate wrapping material (Coating and Wrapping as per IS 10221).G.I Pipes up to 150 mm dia shall be as per IS: 1239, Part-I (heavy grade) while pipelines above 150 mm dia shall be as per I.S.:3589.
- All pipe clamps and supports shall be fabricated from MS steel sections and shall be factory galvanized before use at site. Welding of galvanized clamps and supports shall not be permitted.
- In case of pipes required to be hanged , the pipes shall be hung by means of expandable anchor fastener of approved make and design. The hangers and clamps shall be fastened by means of galvanized nuts and bolts. The size/diameter of the anchor fastener and the clamps shall be suitable to carry the weight of water filled pipe and dead load normally encountered.
- Hangers and supports shall be thoroughly galvanized after fabrication. The selection and design of the hanger & support shall be capable of carrying the sum of all concurrently acting loads. They shall be designed to provide the required supporting effects and allow pipeline movements as necessary. All guides, anchor braces, dampener, expansion joint and structural steel to be attached to the building/structure trenches etc. shall be provided. Hangers and components for all piping shall be approved by the Consultants. To summaries , the over ground and underground piping shall be laid and secured in such a way that the entire pipeline should able to take the normal load of the pipe , loaded with the water inside the pipe and also the backpressure/jerks during the operations and while closing of the valves after operations.

- The piping system shall be tested for leakages at 2 times the operating pressure or 1.5 time shut-off pressure, whichever is highest including testing for water hammer effects for a period of 4 hr. minimum.
- Flanged joints shall be used for connections for vessels, equipment, flanged valves and also on two straight lengths of pipelines of strategic points to facilitate erection and subsequent maintenance work.
- For pipes underground installation, the pipes shall be buried at least one meter below ground level and shall have 230 mm x 230 mm masonry or concrete supports at least 300 mm high at 3m intervals. Masonry work to have plain cement concrete foundation (1 cement: 4 coarse sand: 8 stone aggregate) of size 380x380x75 thick resting on firm soil.
- Mains below ground level shall be supported at regular intervals not exceeding 3.0 meters and shall be laid at least 2.0 meter away from the building.

Relevant IS Standards :

- ▶ **Size of the Pipes - Ring Main 150 mm , Hydrant connection – Single 80 mm – More than one but up to 4 – 100 mm**
- ▶ **Fittings IS 1239 (Part-2) Heavy Grade**
- ▶ **Depth of Ring Main wherever it is underground – 1 meter below ground level**
- ▶ **Coating and wrapping as per IS 10221**
- ▶ **Distance from Hydrant to Hydrant – 45 meters**
- ▶ **Wall to Hydrant – 2 meters**
- ▶ **Face of the building to Hydrant – 15 meters**
- ▶ **Testing pressure – 150% of the maximum working pressure**
- ▶ **Color – 1 coat of primer and 2 coats of red enamel**
- ▶ **PCC Anchor Blocks (1:4:8) – 300 x 300 x 500 mm size (at all bends, trees, etc. For Underground) For over ground each 5 Mtr.**
- ▶ **C.I Sluice walls – IS 780**
- ▶ **C.I non-return walls – IS 5312**
- ▶ **Valve chamber – 1.2 x 1.2 x 1.5 mtr depth with 600 x 600 mm cast iron man-hole cover (Applicable only for underground)**

c. Piping Installation & Support

Tender drawings indicate schematically the size and location of pipes. Further the Contractor, on the award of the work, shall prepare detailed working drawings, showing the cross-sections, longitudinal sections, details of fittings, locations of isolating and control valves, drain and air valves, and all pipe supports. He must keep in view the specific openings in buildings and other structures through which pipes are designed to pass.

Piping shall be properly supported on, (or suspended from, on stands, clamps, hangers if required) as specified and as required. The Contractor shall adequately design all the brackets, saddles, anchor, clamps and hangers, and be responsible

for their structural stability.

Pipe work and fittings shall be supported by hangers or brackets so as to permit free expansion and contraction. In case of first floor and above floors, risers to be provided, shall be supported at each floor with Galvanised steel clamps. To permit free movement of common piping support shall be from a common hanger bar fabricated from Galvanised steel sections.

d. Pipe hangers shall be provided at the following maximum spacing's:

Pipe Dia (mm)	Hanger Rod Dia (mm)	Spacing between Supports (m)
Up to 25	6	2
32 to 50	6	2.5
65 to 80	8	2.5
80 to 100	10	2.5
125 to 150	10	3.0
200 to 300	12	3.5

The end of the steel rods shall be threaded and not welded to the threaded bolt.

- All pipe work shall be carried out in a proper workman like manner, causing minimum disturbance to the existing services, buildings, roads, and structure. The entire piping work shall be organized in consultation with other agencies at their place of work/site, so that the other services are not disturbed and the aesthetics of the building/building interiors are maintained to the highest order.
- Cut-outs in the floor slab for installing the various pipes area, including road/culvert crossings are indicated in the drawings. Contractors shall carefully examine the cutouts provided and clearly point out wherever the cut-outs shown in the drawings, do not meet with the requirements.
- Pipe sleeves, larger diameter than pipes, shall be provided wherever pipes pass through walls and slab and annular space filled with fiberglass and finished with retainer rings. **In the case of road crossings and underground sleeves provided by way of Hume pipes, the area between the pipe and the sleeve should be filled with sand.** The entry and exit point of the pipe into the sleeve (Hume pipe) should be provided with anchor block support, so that the back pressure/vibration should not damage the pipe inside the sleeve.
- The contractor shall make sure that the clamps, brackets, saddles and hangers provided for pipe supports are adequate or as specified / approved by consultant. Piping layout shall take due care for expansion and contraction in pipes and include expansion joints where required.
- All pipes shall be accurately cut to the required sizes in accordance with relevant BIS codes and burrs removed before laying. Open ends of the piping

shall be closed as the pipe is installed to avoid entrance of foreign matter. Where reducers are to be made in horizontal runs, eccentric reduces shall be used for the piping to drain freely. In other locations, concentric reduces may be used.

- Automatic air valves shall be provided at all high points in the piping system for venting. All valves shall be of 15mm pipe size and shall be associated with an equal size gate valves.

Note : Discharge from the air valves shall be piped through a pipe to the nearest drain or sump. All pipes shall be pitched towards drain points.

e. Pressure Gages : Pressure gauges shall be provided as shown on the approved drawings. Care shall be taken to protect pressure gauges during pressure testing.

f. Welding of the pipes: The welding of the pipe should be according to the standard laid down in NFPA-13 and the welding rod should be complied with E-6013 (Recommended brands are ESSAB or Ador (Advani Oerlikon).

Like welds in all piping systems, fire protection piping welds need to be adequate for the service. NFPA 13

does not require radiographic examination or other expensive inspection of piping system welds, but it does require that the shop fabricator and installing contractor have Welding Procedure Specifications (WPSs) that provide detailed direction to the welder on how to make the weld. It also requires that the welders be qualified to the same standard. (6.5.2.13.2 *Qualification of the welding procedure to be used and the performance of all welders and welding operators shall be required and shall meet or exceed the requirements of AWS B2.1, Specification for Welding Procedure and Performance Qualification*).

g. Pipe Fittings

- Pipe fittings like , tees, elbows, couplings, unions, flanges, reducers etc. and all such connecting devices that are needed to complete the piping work in its totality.
- Mild Steel / Galvanized Iron / Ductile Iron / Cast Iron / Forged steel screwed type fitting shall be used for pipes of 50 mm dia & below.
- Fabricated fittings shall not be permitted for pipes diameters 50mm and below.
- Fabricated fittings used on pipe size 65 mm & above shall be fabricated, welded in workshops. They shall be inspected by Project Manager/Consultant before used in the system. The welding procedures of the workshop should have been approved by the rules for pressure vessels welding/ fabrication system and applicable to hydrant system. For “T” connection, pipes shall be drilled and reamed. Cutting by gas or electrical welding shall not be permitted.

h. VALVES

i. Butterfly Valve

The butterfly valve shall be suitable for waterworks and rated for Pressure

requirement as mentioned in the Schedule of quantities.

The body shall be of cast iron/ or of the material as mentioned in BOQ, meeting to IS:210 in circular shape and of high strength to take the water pressure . The disc shall be heavy duty cast iron/ or of the material as mentioned in BOQ with anti-corrosive epoxy or nickel coating.

The valve seat shall be replaceable of high-grade elastomer EPDM or nitrile rubber with hard backing. The valve in closed position shall have complete contact between the seat and the disc throughout the perimeter. The elastomer rubber shall have a long life and shall not give away on continuous applied water pressure. The shaft shall be EN 8 grade carbon steel.

The valve shall be fitted between two flanges on either side of pipe flanges. The valve edge rubber shall be projected outside such that they are wedged within the pipe flanges to prevent leakages.

ii. **Ball Valve**

The ball valve shall be made forged brass and suitable for test pressure of pipe line. The valve shall be internally threaded to receive pipe connections.

The ball shall be made from brass and machined to perfect round shape and subsequently chrome plated. The seat of the valve body-bonnet gasket and gland packing shall be of Teflon.

The handle shall be provided with PVC jacket. The handle shall also indicate the direction of 'open' and 'closed' situations. The gap between the ball and the Teflon packing shall be sealed to prevent water seeping.

The handle shall also be provided with a lug to keep the movement of the ball valve within 90°. The lever shall be operated smoothly and without application of any unnecessary force.

The valve lever should be provided with a locking facility , so that in case the valve has to be locked in open/closed position , the user should be able to do so.

iii. **Gun Metal Valves**

Gun metal Valves shall be used for smaller dia pipes, and for threaded connections. The Valves shall bear certification as per IS:778

The body and bonnet shall be of gun metal to IS:318. The stem gland and gland nut shall be of forged brass to IS:6912. The hand wheel shall be of cast iron to IS:210. The Hand wheel shall be of high-quality finish to avoid hand abrasions. Movement shall also be easy. The spindle shall be non-rising type.

➤ PAINTING

All Hydrant pipes shall be painted with post office red colour paint. All GI pipes shall first be cleaned thoroughly before application of primer coat. After application of primer coat two coats of enamel paint shall be applied. Each coat shall be given a minimum of 24 hours drying time. No thinners shall be used. Wherever required all pipe headers shall be worded indicating the direction of the pipe and its purpose such as "TO RISER NO.1" etc.

Painting shall be expertly applied; the paint shall not over run on surfaces not requiring painting such as walls, surfaces etc. Nuts and bolts shall be painted black, while valves shall be painted blue.

➤ **Hose pipes, Branch Pipes and Nozzles.**

- a. Hose Pipe: Hose pipe shall be rubber lines woven jacketed and 63mm in diameter. They shall conform to type-2 (Reinforced rubber lined) of IS:639-1979. The hose shall be sufficiently flexible and capable of being rolled.
- b. Each run of hose pipe shall be complete with necessary coupling at the ends to match with the landing valve or with another run hose pipe or with Branch pipe. The couplings shall be of instantaneous spring lock type.
- c. Branch Pipe: Branch pipe shall be of SS/Gunmetal 63mm dia and be complete with male instantaneous spring lock type coupling for connection to the hose pipe. The branch pipe shall be externally threaded to receive the nozzle.
- d. Nozzle: The nozzle shall be of SS or gunmetal, 20mm in internal diameter. The screw threads at the inlet connection shall match with the threading on the branch pipe, the inlet end shall have a hexagonal head to facilitate screwing of the nozzle on to the branch pipe with nozzle spanner.
- e. End couplings, branch pipes, and nozzles shall conform to IS:903-1985, two hoses of 15 mtr. Lengths with couplings shall be provided with each external (yard) hydrant. One nozzle and one branch pipe with coupling shall be provided with each yard hydrant.

➤ **External Fire Hose Cabinet.**

- a. The external fire hose cabinet to accommodate the hose pipes, branch pipe nozzle and the hydrant outlets shall be fabricated from 1.5m sheet steel. This shall be lockable and provided with center opening glazed doors.
- b. The support for hose cabinet shall be of brick work up to a height of 0.5m above ground level/iron legs. The depth of footing for this support shall be a minimum of 50cm below ground level, resting on leveling course of minimum 10cm of PCC (1:5:6). The brick work shall be plastered in cement mortar (1:6). The hose cabinet shall be painted red and stove enameled. The hose boxes can also be fitted on the wall of the building but prior permission from the concerned manager/authority has to be obtained.
- c. **Rubber Hose reels** : The hose reel shall be directly tapped from the riser through a 25mm dia pipe, the drum and the reel being firmly held against the wall by use of dash fasteners. The Hose Reel shall be swinging type (180 degrees) and the entire Drum, Reel etc. shall be as per IS:884. The rubber tubing shall be of approved quality and the nozzle shall be 6mm dia shut off type.

4. Submission of bid

a. ENVELOPE No.1

The envelope for Technical Bid, "ENVELOPE No.1" shall be super scribed, "TECHNICAL BID for OFFER

LETTER for supply and installation of FIRE HYDRANT SYSTEM at the building of **J N TATA Auditorium**- IISc Bangalore-560012.

Shall contain the following: Information as per the Performa "**MANDATORY TECHNICAL REQUIREMENT**" along with copies of the required / supporting documents (Self Attested) as per the **Annexure – B**.

b. ENVELOPE No.2

The envelope containing Financial Bid, "**ENVELOPE No.2**" shall be super scribed "FINANCIAL BID for OFFER LETTER for supply and installation of FIRE HYDRANT SYSTEM at **J N TATA Auditorium** IISc Bangalore-560012. Rates for supply and installation of FIRE HYDRANT SYSTEM at **J N TATA Auditorium** - IISc Bangalore-560012. **(Annexure – C)** given in the Tender Document ***Excluding GST***. Submission of Financial Bid In any format other than the provided format or including any attachment other than the Financial Bid as per the format will not be accepted and the Bid will be rejected.

5. Tender Evaluation

1. Bids will be evaluated based on compliance with eligibility, technical specification, other terms, and conditions stipulated in the tender document.
2. The bids must be submitted in two parts (under two-cover bid system).
3. Technical Bid (in a single file PDF document format)- As per annexure B
4. Financial Bid or Price Bid (As per Annexure-C).
5. The technical bids will be evaluated first. Incomplete information submission shall attract disqualification.
6. The technical bids of all bidders shall be scrutinized and evaluated by IISc based on eligibility criteria and qualifications as per details provided along-with documents by the bidder in their technical bid. IISc may ask for additional clarification / details / documents / technical presentation etc. For this purpose, any date fixed by IISc, will be final and binding. Decision of IISc, regarding technical evaluation and declaration of technically qualified bidders, will be final and binding.
7. Financial Bids (Price Bid) of only those bidders will be opened, who will be declared technically qualified. The decision of IISc, in this regard, will be final and binding.
8. The price bids (submitted as per annexure C) of the technically qualified bidders will be evaluated and declared the lowest one is L1.

6. Terms & Conditions and Other Details

6.1 Cancellation of Bids

- i. IISc reserves the right to reject a tender under any of the following circumstances: -
 1. If this RFQ document is not submitted or submitted without seal & signature of the Vendor in any of the pages.
 2. If Tender Documents are incomplete and /or not accompanied by all stipulated documents.
 3. If any of the terms and conditions and mandatory declarations are not accepted.
 4. If required information with appropriate documents in support of the same is not submitted as per **Annexure (A to D)**.
 5. Agency should have been in the business of **installation and maintenance of FIRE HYDRANT SYSTEM for minimum 3 years**. This period of 3 Years in business should have been completed on the date of application. Proof for previous three years for services provided to any institution preferably PSUs/PSBs and should submit report of satisfactory service from them.
- ii. The IISc reserves the right to accept or reject any Bid in part or in full or to cancel the Bidding process and reject all bids at any time prior to contract award, without incurring any liability to the affected bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the IISc action.

6.2 Validity of Bids:

Bids shall remain valid for a period of 90 Days from the date of opening of the Financial Bid. A bid valid for a shorter period may be rejected by the IISc as non-responsive. Validity of all the eligible bids would be required till the successful bidder/s sign contract with IISc.

6.3 Contacting IISc

6.3.1 No bidder/s shall contact the IISc on any matter relating to its Bid, from the time of opening of RFQ/Tender to the time contract is awarded.

6.3.2 Any effort by the Bidder/s to influence the IISc in its decision on RFQ/Tender evaluation, comparison or contract award may result in rejection of the Bidder's.

6.4 Award and Signing of Contract

6.4.1 IISc will communicate to successful bidder/s (through letter in duplicate by email) that its bid has been accepted. The selected bidder/s have to return the duplicate copy to the IISc within 7 working days duly Accepted, Stamped and Signed by the Authorized Signatory in token of acceptance.

6.4.2 It would be mandatory for L1 Bidder to accept the work awarded by the IISc.

6.4.3 Successful L1 bidder has to provide unconditional Performance Bank Guarantee of 3% of estimated 1 year's contract value from any Schedule Commercial Bank excluding Co- operative Bank. The Performance Bank Guarantee will be deposited at IISc for a period of 1 years and 03 month from the date of commencement of contract.

6.4.4 In case the RFQ is cancelled, IISc reserves the right to take appropriate decision, including calling upof fresh tenders.

6.4.5 MSMEs can seek an exemption to some qualification criteria. IISc follows GFR2017 for such details.

6.4.6 The successful bidder/s shall be required to enter into a contract with the IISc, within 15 days of receipt of formal communication (email or letter) from the IISc about the successful RFQ. Copy of the class 1 board resolution or power of attorney showing that the signatory has been duly authorized to sign the acceptance letter and contract should be submitted. In case the bidder/s fails to enter into contract with the IISc within the stipulated time, IISc reserves the right to cancel the order and cancel the RFQ.

6.4.7 The IISc reserves the right either to invoke the Performance Bank Guarantee or to cancel the purchase order or both if the Bidder/s fail to meet the terms of this Bid or contracts entered in to with them.

6.5 Payment Terms

The terms of payment are as under:

6.5.1 No advance payment against work order.

6.5.2 Payment of bills will be made by the IISc after receiving the consolidated quarterly bills with all reports and documents from Service Provider, within 14 working days of submission of such bill.

6.6 Performance Bank Guarantee

6.6.1 Successful L1 bidder has to provide unconditional Performance Bank Guarantee of 3% of estimated 1-year contract value from any Schedule Commercial bank.

6.6.2 The Performance Bank Guarantee shall be adjusted against any loss, damage, delay expense etc. to the IISc. IISc reserves the right to take appropriate decisions on the adjustment of the Performance Bank Guarantee. In case of failure on the part of the supplier to attend to the defects within a reasonable period, the IISc on its own will get the defects rectified through another vendor at the risk and cost of supplier and repairs rectified through another vendor in such circumstance will not affect the liabilities of the supplier on the warranty for its remaining period nor will it affect the supplier's liabilities on the stipulated Annual Maintenance Contracts.

6.7 Contract Period

The contractor has to complete the contracted work of supply and installation of FIRE HYDRANT SYSTEM within three months or as agreed during the negotiation. The counting of the period will start from the day of issuance of purchase order. In case of any delay without proper reasons, the contractor will be penalized. The penalty clauses will be discussed during the award of contract. The service provider shall be required to enter into an agreement with IISc, based on terms and conditions mentioned in the tender document.

7. Cancellation of Contract

The IISc reserves the absolute right to cancel the contract with the selected bidder/s at any time during the contract period, by giving a written notice of at least one (01) Months, for any valid reason, including but not limited to the following reasons:

1. Delay in execution of orders placed by the IISc.
2. Discrepancies / deviations in the agreed process and / of products.
3. Violation of terms and conditions stipulated in this Bid / Contract.
4. Unsatisfactory performance of the bidder.
5. Any other valid reason.

7.1 IISc Rights

Purchase Committee reserves the right to

- i. Reject any and all responses received in response to the RFQ.
- ii. Waive or change any formalities, irregularities, or inconsistencies in proposal format delivery.
- iii. Amend/ modify terms & conditions of RFQ.
- iv. Extend the time for submission of the RFQ.
- v. Select the most responsive Bidder (in case no Bidder satisfies the eligibility criteria in totality)
- vi. Share the information/ clarifications provided in response to tender by any Bidder, with any other Bidder(s) /others, in any form.
- vii. Re-negotiate the price and terms of the entire contract with the bidder at more favorable terms in case such terms are offered in the industry at that time.
- viii. Cancel the RFQ at any stage, without assigning any reason whatsoever.

7.2 Inspection of Facilities

The applicant should not have any objection to IISc inspecting the site where the similar work is being carried out or already executed by the applicant. IISc may also hold enquiries from past / present clients of the applicant.

7.3 Grievance Redressal

Any vendors have a grievance against a decision or action with regards to the provisions of this RFQ may file a request to the OLSEH, Bangalore at safety.olseh@iisc.ac.in. It may please be noted that the grievance can be filed by only that vendor who has participated in Procurement proceedings in accordance with the provisions of this RFQ.

7.4 Indemnity

The Vendor shall indemnify IISc, and shall always keep indemnified and hold the IISc, its employees, personnel, officers, directors, (hereinafter collectively referred to as "Personnel") harmless from and against any and all losses, liabilities, claims, actions, costs and expenses (including attorneys' fees) relating to, resulting directly or indirectly from or in any way arising out of any claim, suit or proceeding brought against the IISc as a result of:

- 7.4.1 IISc authorized / Bonafide use of the Deliverables and /or the Services provided by Vendor under this assignment; and/or
- 7.4.2 Negligence or willful misconduct of the Vendor and/or its employees, agents, sub-contractors in performance of the obligations under this assignment; and/or
- 7.4.3 claims made by employees or subcontractors or subcontractors' employees, who are deployed by the Vendor, against the IISc; and/or claims arising out of employment, non-payment of remuneration and non- provision of statutory benefits by the Vendor to its employees, its agents, contractors and sub- contractors, or breach of any terms, representation or false representation or inaccurate statement or assurance or covenant or warranty of the Vendor under this assignment; and/or breach of confidentiality obligations of the Vendor; and/or any or all Deliverables or Services infringing any patent, trademarks, copyrights or such other Intellectual Property Rights.
- 7.4.4 IISc shall notify the Vendor in writing as soon as practicable when the IISc becomes aware of the claim and Co-operates with the Vendor in the defense and settlement of the claims.
- 7.4.5 The Vendor shall have sole control of the defense and all related settlement/ negotiations, and IISc will provide the Vendor with the assistance, information and authority reasonably necessary to perform the above.
- 7.4.6 In the event of a successful bidder not fulfilling its obligations under this clause within the period specified in the notice issued by the IISc. IISc has the right to recover the amounts due to it under this provision from any amount payable to the vendor under this assignment.
- 7.4.7 The indemnities under this clause are in addition to and without prejudice to the indemnities given elsewhere in this RFQ.

7.5 Governing Laws

This RFQ and the subsequent contract shall be governed and construed and enforced in accordance with the laws of India. Both Parties shall agree that in respect of any dispute arising upon, over or in respect of any of the terms of this Agreement, only the courts in Bangalore shall have exclusive jurisdiction to try and adjudicate such disputes to the exclusion of all other courts.

7.6 Payment term and condition

Payment will be made 90% on supply of material and 10% **on installation** to be paid after successful completion of work

8. Annexure

a. Annexure A: Offer Letter (On the Agency's Letter Head)

Annexure – A

ENVELOPE - 1 : OFFER LETTER.

To,

The Chairman, Fire Purchase Committee

Office of Laboratory Safety & Environmental Health (OLSEH),

Room No EG-17-New Chemical Science Building Indian Institute of Science Bangalore - 560012

Dear Sir,

Re: RFQ/tender document for Supply and installation of FIRE HYDRANT SYSTEM at the building of **J N TATA Auditorium** - IISc Bangalore-560012.

With reference to the RFQ/Tender document

Having examined the nature and quantum of work relating to the above-mentioned work and having visited and examined the site of the proposed work and having acquired the requisite information relating thereto as affecting the tender invited by you, I / We, the undersigned hereby offer for undertaking Short listing of Service Provider for supplying and installation of FIRE HYDRANT SYSTEM at the building of **J N TATA Auditorium** - IISc Bangalore-560012.

- i. I / We agree to deposit a Performance Bank Guarantee (as per Annexure-D) of 3 % of estimated of 1 year contract value (refundable on expiry of the contract), which in the event of not carrying out the contracted services, as per terms and condition of the tender, shall be forfeited.
- ii. I / We certify that the / our Company / firm or owner or any sister concern have not been Blacklisted by any institution of the Central or State Govt. / PSU/PSB in the past three years on any grounds whatsoever.
- iii. We are complying with all the guidelines issued by the Karnataka Fire Services and State Govt. with regards to Provision & Maintenance of Fire Fighting systems and will also ensure such compliance on any new guidelines issued during the currency of the contract period from time to time.
- iv. We have read the general Terms and Conditions of the Work Contract and agree to abide and comply with the same.

Yours faithfully

Name & Signature of the Vendor with Seal Date:

Place:

Enclosures: As above

b. Annexure B: Vendor Profile (On the Agency's Letter head)

Annexure – B

ENVELOPE - 1: TECHNICAL BID

MANDATORY TECHNICAL REQUIREMENT

S.NO	Description		Information from the Vendor		Annexure
1.	Name and Address of the Firm				Annexure -1
2.	Telephone Nos. & Email Id.				Annexure - 1
3.	Type of Firm: (Sole Proprietorship/Partnership/Ltd. Co./Other)		Copy of Registration certificate		Annexure - 1
4.	Name of Contact Person with contact number in relation to this RFQ:				Annexure - 1
	Company / Firm Registration				
	OEM Details		OEM LETTER as per eligibility criteria		
5.	Address & Tel. No. of the Branch/Service Centre in Bangalore:				Annexure - 1
6.	GST No.		GST copy		Annexure - 2
7.	PAN No, ESI & PF		PAN Card, ESI and PF copy		Annexure - 3
8.	The Turnover of the Firm		Minimum turnover of Rs. 3 crores during Last 3 out of 5 financial years for a work of similar nature.		Annexure - 4
	Year	Turn Over amt. in Lakhs	Audited Balance Sheet (att. Copy)		
	2018-2019				
	2019-2020				
	2020-2021				
	2021-2022				
9.	Name of Banker with address				Annexure - 5
10.	Details of work carried out for previous clients (attach copy)				Annexure - 6
	Year	Name of Organization	Type of Work	Amount	
	(i)				
	(ii)				
	(iii)				
11.	No. of Authorized Technical Staff				Annexure – 7
	Name of person	Qualification	Designation	Total Experience in the Firm	

12.	a) Has your company/firm been ever Blacklisted in past 3 years. Give details if Yes		Annexure - 8
	b) If No, a certificate be submitted stating that the company/firm or its owner or any sister concern have not been so blacklisted by any institution of the Central or State Govt, PSU/PSBs in the past three years or any grounds Whatsoever.		
13.	The vendor must have experience in commissioning and maintenance of fire fighting system in High Rise Buildings of minimum 05 stories. (Attach Copy)		Annexure - 9
14.	Proof of work executed in last 03 years and satisfactory performance certificates		Annexure - 10
15.	Whether any of the family members working with IISc (if Yes, Give Details)	YES/NO	Annexure - 11
16.	Signed copy of Tender document		Annexure-12
17	Product warranty should be 1 years except consumables items.		Annexure-13
18	Whether Section 3 Technical requirement (page no-4 to 6) has fulfilled	Yes/No	Annexure-14

Name & Signature of the Vendor

Date:

Place:

Encl: As above.

c. Annexure C: Financial Bid (On the Agency's Letter Head)

ENVELOPE - 2: FINANCIAL BID

To

The Chairman, Fire Purchase Committee

Office of Laboratory Safety & Environmental Health (OLSEH),

Room No EG-17, New Chemical Science Building, Indian Institute of Science Bangalore – 560012

Dear Sir,

Ref RFQ/Tender for Supplying and installation of FIRE HYDRANT SYSTEM in the building of **J N TATA Auditorium** IISc Bangalore-560012.

We hereby declare that we are abiding by the following terms and condition.

- i. We have gone through the Tender document/RFQ in detail and understood the requirement of the FIRE HYDRANT SYSTEM for **J N TATA Auditorium**) Building in IISc campus. Also, we understood the technical specifications and requirements.
- ii. We understood the terms and conditions mentioned in the tender/RFQ document.
- iii. The terms and condition for release of the payment shall be according to the mutually agreed terms and condition during the final negotiation with the selected bidder.

Note: In case of any discrepancy, total cost quoted in words will be considered. Name &

Signature of the Vendor Seal:

Date:

Place:

Format for submission of the Financial Bid: As shown below

9. BOQ

9.1 FIRE HYDRANT SYSTEM: Financial bid to be submitted based on the BOQ (For IISC Bangalore basis in INR Only) for J N TATA Auditorium - IISC BANGALORE-560012.

SL.NO	DESCRIPTION	UOM	Make	Qty
A	FIRE PUMP ROOM EQUIPMENT			
1.0	Supply, erection, testing & commissioning of electrical motor driven main pump of horizontal centrifugal end suction type with gland packing and capable to deliver 2850LPM at 90MWC. The pump shall be coupled to TEFC motor of suitable HP with speed of 2900 RPM and complete set shall be mounted on common base frame. The quoted rate shall includes providing & fixing of coupling, coupling gaurd, RCC foundation will be done by Civil contractor (as recommended by pump manufacturer) Foundation bolts to be considered by fire vendor etc.	Nos.	Kirloskar/Lubri/Crompton	1.00
2.0	Supply, installation, testing & commissioning of diesel Engine driven common stand by pump, horizontal centrifugal end suction type with gland packing and capable to deliver 2850LPM at 90MWC. The pump shall be coupled to suitable HP of Diesel engine radiator water cooled type with speed of 2100RPM and complete set shall be mounted on common base frame. Batteries & battery leads with stand, Fuel tank (for 6 Hrs. operation) with stand & gauge glass, Fuel piping with valves. The quoted rate shall includes radiator water cooling piping(if required) coupling gaurd and other stanadrd accessories, RCC foundation will be done by Civil contractor (as recommended by pump manufacturer) Foundation bolts to be considered by fire vendor etc.	No.	Kirloskar/Lubri/Crompton	1.00
3.0	Supply, erection, testing & commissioning of electrical motor driven Jockey pump of horizontal centrifugal end suction type with gland packing and capable to deliver 180LPM at 90MWC. The pump shall be coupled to TEFC motor of suitable HP with speed of 2900RPM and complete set shall mounted on common base frame. The quoted rate shall includes providing & fixing of coupling, coupling gaurd, RCC foundation will be done by Civil contractor (as recommended by pump manufacturer) Foundation bolts to be considered by fire vendor etc.	No.	Kirloskar/Lubri/Crompton	1.00
4.0	Supply, erection, testing & commissioning of Footvalve			
	200 dia	Nos	Normex/Zoloto	2.00
	100 dia	Nos		1.00
	Priming Tank - 500 Ltrs capacity	No.	Ashirvad/Sinhex	1.00
	Butterfly valve - 50 dia	No.s	Audco/L &T/ Zolo	3.00
	NRV - 50 dia	No.s	Intervale/Zolotc	3.00
5.0	Control Panel for Fire pumps (CPRI APPROVED)			
	Fabricating & Supply, installing, testing and commissioning of compartmentalised common control panel for Electrical motor driven pumps and Diesel engine driven pumps. Also panel to have compactability to interface with BMS system. Each pump set to have one set of control panel	No.	S R Eletricals	1.00
	INCOMING			
	2 nos. 630A TPN ACB (50 KA) with mechanical interlock			
	2 Sets of 630 Amps. TPN Al. Bus bars with colour coded heat shrinkable PVC sleeves.			
	2 Set of RYB indicating lamps with individual HRC control fuses.			
	2 No. 96 Sq.mm 0-800 Amps. Ammeter with selector switch and suitable rated current transformers.			
	2 No. 0-800 96 Sq.mm Voltmeter with selector switch.			
	OUTGOING			
	Feeder for main pumps - 2 Nos.			
	1 Nos.250A TP MCCB			
	Star delta starter with over load relay, single phase preventor and indicating lamps with ON / OFF push buttons.			
	Feeder for Jockey pump - 1 No.			
	1 No. 63A TP MCCB			
	DOL starter with over load relay, single phase preventor and indicating lamps with ON / OFF push buttons.			
	1 No. Automanual selector switch			
	DIESEL ENGINE MAIN PUMP 1 No.			
	a) 20Amps DPMCB - 4 Nos.			
	b) Battery charger with transformer with rectifier resistance DC ammeter, DC voltmeter, Trickle / booster / off selector switch - 2 Nos.			
	c) 1 set of indicating lamps for the following :			
	1. phase indication			
	2. battery charger on			
	3. over load relay			
	4. DC supply on			
	5. control switch on			
	6. Engine fails to start			
	7. Pump on			
	8. Low oil pressure			
	9. High water temperature			
	10. Auto manual selector switch			
	d) 1 sets of push button stations for the following :			
	1. Engine Start			
	2. Engine Stop			
	3. Engine - hooter ACK			
	4. Engine - fault reset			
	e) Selector switches (Engine control, mode selector)-1 No.			
	f) Auxiliary relays / contactors / timer for sequence operating for starting and stopping of the engine - 1 set.			
	g) Hooter for audio alarm (industrial type) - 1 No.			
	All the components shall be housed in a common cubical made of 16 swg. M.S. sheet with required stiffners (if required). The panel shall be powder coated of approved colour both inside & out side. The panel shall have both bottom & top cable entry provisions and panel shall be mounted on Pedastal of 300 mm height.			
	Also panel shall have sufficient (min. 6Nos per pumpset) NO/NC contacts for extending the status of fire pumps to the Fire alarm panel.			
				Lot
6.0	1100 V GRADE POWER / CONTROL CABLES			
	Supplying, laying, testing & commissioning of FRLS,PVC outer sheath, steel armoured, aluminium / copper conductor, 1100v grade power cables with glands etc.The cables shall be laid in tray / Hume pipe / in trenches/on walls/ floor etc. as required. For cables laid out door the rate shall include earth excavation providing brick and sand protection, refilling and compacting the earth.The rate shall excludes trav & Hume pipes.The minimum size of the cables shall as mentioned below.		Polycab/Univers al	

S.No	Description	UOM	make	Quantity
a	3.5C x 120 sq.mm for main pumps	Rmt		90.00
b	4 C x 16 Sqmm.for Jockey pumps	Rmt		25.00
c	12 C x 2.5 Sqmm. For Diesel engines	Rmt		25.00
d	2 C x 2.5 Sqmm.for Instrumentation	Rmt		36.00
7.0	CABLE TRAY			
	Supplying and fixing of perforated G.I.sheet cable tray with necessary angle iron suspension supports, anchor fasteners etc. complete. Maximum height of suspension shall not exceed 500mm.Size of the tray shall be suitable for laying the above mentioned cables.			
a	40x200x40mm	Rmt	Reputed make	40.00
8.0	G.I. Earthing strips shall be run on floor / ceiling / walls, from the equipment to the nearest Earth pit with necessary accessories as required. (Earth pit shall be executed by other agencies).			
a	50x6mm thick	Rmt	Local	18.00
b	25x6mm thick	Rmt		18.00
09.0	Supplying, installing, testing and commissioning of M.S. Pipes (for suction side of pumps) confirming to IS 3589,6mm thick, with painting, suitable type of supports, anchor fasteners, bolts nuts (Galvanised), clamps, "U" bolte, malleable specials such as Reducers,Tees, elbows, flanges. Including cutting, Welding, fixing in / on walls, ceiling by using suitable supports etc, as per drawings. The quoted rate shall also include for chasing / chipping walls, making bore holes in walls / floor and making them good with filler material and finished in cement mortar etc. complete. MS channel & angle supports required inside pump room (300 kgs per each pumpsets to be considered.)		Jindal star/Tata	
a	250mm nominal dia	Rmt		12.00
b	200mm nominal dia	Rmt		18.00
01.0	Supplying, installing, testing and commissioning of G.I. Pipes confirming to IS 1239 Pt - I Heavy grade with painting, suitable type of supports, anchor fasteners, bolts nuts (Galvanised), clamps, "U" bolte, malleable specials such as Reducers,Tees, elbows, flanges. Including cutting, Welding, fixing in / on walls, ceiling by using suitable supports etc, as per drawings. The quoted rate shall also include for chasing / chipping walls, making bore holes in walls / floor and making them good with filler material and finished in cement mortar etc. complete.		Jindal star/Tata	
a	150mm nominal dia	Rmt		24.00
b	100mm nominal dia	Rmt		18.00
c	80mm nominal dia	Rmt		12.00
d	50mm nominal dia	Rmt		18.00
f	25mm nominal dia	Rmt		36.00
11.0	Supplying, installing, testing and commissioning of C.I. Non-return valves as per IS:5312(PN16) swing check type with required flanges, nuts, bolts and gaskets etc. complete.			
a	150 mm nominal dia	Nos.	Normex/Zoloto	2.00
b	80 mm nominal dia	Nos.	Normex/Zoloto	1.00
12.0	Supplying, installing, testing and commissioning of C.I. butterfly valves (PN 16) as per BS 5155 slim seal standard lever operated type upto 150mm. Above 150mm it shall be gear operated, with required flanges, nuts, bolts etc. complete.		Audco/L &T/Zoloto	
a	200mm nominal dia	Nos.		1.00
b	150mm nominal dia	Nos.		6.00
c	80mm nominal dia	Nos.		1.00
13.0	Supplying, installing, testing and commissioning of Gun metal chrome finished Ball valves with fittings of screwed end type.			
a	15mm dia.	Nos.	Zoloto/Normaex	3.00
b	25 mm dia	Nos.	Zoloto/Normaex	2.00
14.0	Supply, Installation of Flow metre(Electronic type) on Test line to measure 150 % of pump flow and suitable to 150 mm dia and CI butterfly valves as per BS 5155 (PN 16) gear operated type with required flanges, nuts, bolts etc. complete.	No.	Zoloto/Normaex	1.00
15.0	Supply and installation of Pressure switches of suitable range for pumpsets with Ball valves, Fittings like unions / colors / reducers etc.	Set	Indofoss	3.00
16.0	Supply and installation of Pressure gauges of suitable range for pumpsets with Ball valves, siphon, Fittings like unions / colors / reducers etc.	Set	H Guru/Wika	3.00
17.0	Exhaust pipe for Diesel engine of 150 mm dia M.S. Medium grade with mineral wool insulation with aluminum sheet.			
a	150 mm dia M.S. Medium grade with mineral wool insulation with aluminum sheeting.	Rmt		12.00
b	150mm dia M.S. Medium grade shall be laid above ground with structural steel supports.	Rmt		12.00
18.0	Providing, fixing, testing & commissioning of MS air cushion tank on top of each riser fabricated from 6mm thick MS plate, 250 mm in diameter and 1.2 m in height with dished ends fabricated from 8mm thick MS plate with Air release valve and stop cock, flanged inlet connection and drain arrangement with 25mm dia valve, pressure gauge with gun metal stop cock complete with all accessories as required and conforming to IS 4736-1968.	Nos.	Local	1.00
19.0	Supply and installation of Air release valve. 25 mm dia	Nos	New age/ZOLOTO	2.00
20.0	Supply and installation of Ball valve 25 mm dia	Nos	Zoloto	2.00
21.0	Strucural Support	N.s	Sail/Vizag	250.00

B. HYDRANT SYSTEM Requirement

S.No	Description	UOM	make	Quantity
1.0	Supplying, installing, testing and commissioning of G.I. Pipes conforming to IS 1239 Pt - I Heavy grade with painting, suitable type of supports (Shall be fabricated by M.S. Channel / Angle / Flat for above 50 mm dia), anchor fasteners, bolts nuts, clamps, "U" bolte, malleable specials such as Reducers, Fittings, Tees, elbows (above butt welded fitting), flanges. Including cutting, Welding, fixing in / on walls, ceiling by using suitable supports etc, as per drawings. The quoted rate shall also include for chasing / chipping walls, making bore holes in walls / floor and making them good with filler material and finished in cement mortar etc. complete.		Jindal star/Tata	
	a 150mm nominal dia	Rmt		444.00
	b 100mm nominal dia	Rmt		114.00
	c 80mm nominal dia	Rmt		54.00
	d 50mm nominal dia	Rmt		36.00
	e 25mm nominal dia	Rmt		36.00
2.0	Supplying, installing, testing and commissioning of G.I. Pipes conforming to IS 1239 Pt - I Heavy grade with suitable type of supports, malleable specials such as Reducers, Tees, elbows, flanges. Including cutting, Welding as per drawings. The rate quoted should e included with anticorrosive treatment with 4 mm thick polymer corrosion resistant tape as per IS 10221, overlap shall be 15mm minimum.		IWL	
	a 150mm nominal dia	Rmt		12.00
3.0	Supplying, installing, testing and commissioning C.I butterfly valves (PN 16) as per BS 5155 slim seal standard lever operated type upto 150mm. Above 150mm it shall be gear operated, with required flanges, nuts, bolts etc. complete.		Audco/L &T/Zoloto	
	a 150mm nominal dia	Nos.		4.00
	b 100mm nominal dia	Nos.		1.00
	c 80mm nominal dia	Nos.		12.00
4.0	Supplying, erecting and commissioning of Landing Hydrants comprising of the following in the Fire duct;			
	i Single headed hydrant valve as per IS 5290, made of gunmetal with 63 mm dia instantaneous outlet of 80mm dia flanged inlet, Blank caps, chain and hand wheels etc complete.	Nos.	Newage/Newtech/Winco	7.00
	ii Single lengths of 15m long, 63mm dia RRL hose with instataneous couplings and hoses shall be stored in side the hose cabinet.	Nos.	Newage/Newtech/Winco	14.00
	iii 1 no. Gun metal short branch pipe with nozzle.	Nos.	Newage/Newtech/Winco	7.00
	iv Hose reel drum of swinging type with 19mm dia Rubber braided hose of 40 mtr length with Gate valve (upstream) and Shut off nozzle,	Nos.	Monshare/Newage	9.00
	v Fire duct Shutter fabricated out of M.S.sheet and frame, door shall be 900mm x 2100mm x 800mm min. & fixed with 4 mm thick Glass, suitable Rubber beeding and locking arrangement. Quoted rate shall be includes all fasteners etc, and complete shutter shall be powder coated of approved colour both inside and out side.	Nos.	Local	7.00
5.0	Supplying, installing and commissioning of 4 way fire brigade inlet connection with 4 nos. of 63mm dia. built-in Gun metal Non-return valves instantaneous coupling type arranged on 150mm dia. Pipe manifold and connected to wet riser main as well as to Fire water tank. Qouted rate shall be included with C.I. Butterfly valve, C.I. Non-return valve and M.S. cabinet of suitable size with mounting supports etc. complete.	Nos.	Newage/Newtech/Winco	1.00
	5.a 100mm butterfly valve	No.s	Audco/L &T/Zoloto	1.00
6.0	Supplying, installing, testing and commissioning of yard hydrant comprising of the following,			
	a Single headed hydrant valve as per IS 5290, made of gunmetal with 63 mm dia instantaneous out & 80 mm dia fanged inlet, Blank cap, chain and hand wheel etc complete.	Nos.	Newage/Newtech/Winco	10.00
	b Single lengths of 15 M long, 63mm dia RRL hose with instataneous couplings and Hoses shall be stored in side the hose cabinet.	Nos.	Newage/Newtech/Winco	20.00
	c 1 no. Gun metal short branch pipe with nozzle.	Nos.	Newage/Newtech/Winco	10.00
	d M.S. Hose cabinet stand mouted type fabricated out of M.S. sheet of 16 swg. with glass fronted (4mm thick glass with rubber beeding) door and size of the cabinet shall be 600mm x 750 mm x 250 mm Quoted rate shall be includes suitable stand for mounting, all fasteners etc, and cabinet shall be powder coated of approved colour both inside and out side.	Nos.	Local	10.00
	e 80 mm butterfly valve	No.s	Audco/L &T/Zoloto	10.00
7.0	Hume pipe / trench (2 Road crosings)	Mtrs	Local	24.00
8.0	PCC support (pedestal)	No.s		190.00
9.0	MS strucutral support	Kgs	Sail/Vizag	900.00
10.0	Supplying, installing, testing and commissioning of Air Releae valve screwed end type.			
	a 25mm dia.	Nos.	Newage/ZOLOTO	2.00
11.0	25 mm ball valve	Nos.	Zoloto/NVR	2.00
12.0	Dismantling of Existing Pumps and motor, Piping and Panel, cable etc and Hoses in Duct Hydrant pipe inside and outside. Shifting all materials near to 100 mtrs maximum with Crane charges.	Lot		1.00

The format for submitting the financial bid is given below (For IISC Bangalore basis in INR Only)

SL.NO	DESCRIPTION	UOM	Make	Qty	Supply	Installation	Supply Amount	Installation Amount	Total Amount
A	FIRE PUMP ROOM EQUIPMENT								
1.0	Supply, erection, testing & commissioning of electrical motor driven main pump of horizontal centrifugal end suction type with gland packing and capable to deliver 2850LPM at 90MWC. The pump shall be coupled to TEFC motor of suitable HP with speed of 2900 RPM and complete set shall be mounted on common base frame. The quoted rate shall include providing & fixing of coupling, coupling gaurd, RCC foundation will be done by Civil contractor (as recommended by pump manufacturer) Foundation bolts to be considered by fire vendor etc.	Nos.	Kirloskar/Lubi /Crompton	1.00					
2.0	Supply, installation, testing & commissioning of diesel Engine driven common stand by pump, horizontal centrifugal end suction type with gland packing and capable to deliver 2850LPM at 90MWC. The pump shall be coupled to suitable HP of Diesel engine radiator water cooled type with speed of 2100RPM and complete set shall be mounted on common base frame. Batteries & battery leads with stand, Fuel tank (for 6 Hrs. operation) with stand & gauge glass, Fuel piping with valves. The quoted rate shall include radiator water cooling piping(if reqired) coupling gaurd and other standrd accessories, RCC foundation will be done by Civil contractor (as recommended by pump manufacturer) Foundation bolts to be considered by fire vendor etc.	No.	Kirloskar/Lubi /Crompton	1.00					
3.0	Supply, erection, testing & commissioning of electrical motor driven Jockey pump of horizontal centrifugal end suction type with gland packing and capable to deliver 180LPM at 90MWC. The pump shall be coupled to TEFC motor of suitable HP with speed of 2900RPM and complete set shall mounted on common base frame. The quoted rate shall include providing & fixing of coupling, coupling gaurd, RCC foundation will be done by Civil contractor (as recommended by pump manufacturer) Foundation bolts to be considered by fire vendor etc.	No.	Kirloskar/Lubi /Crompton	1.00					
4.0	Supply, erection, testing & commissioning of Footvalve								
	200 dia	Nos	Normex/Zoloto	2.00					
	100 dia	Nos		1.00					
	Priming Tank - 500 Ltrs capacity	No.	Ashirvad/Sintex	1.00					
	Butterfly valve - 50 dia	No.s	Audco/L & T/Zolo	3.00					
	NRV - 50 dia	No.s	Intervolve/Zoloto	3.00					
5.0	Control Panel for Fire pumps (CPRI APPROVED)								
	Fabricating & Supply, installing, testing and commissioning of compartmentalised common control panel for Electrical motor driven pumps and Diesel engine driven pumps. Also panel to have compactability to interface with BMS system.	No.	5 Eletricals	1.00					
	Each pump set to have one set of control panel								
	INCOMING								
	2 nos. 630A TPN ACB (50 KA) with mechanical interlock								
	2 Sets of 630 Amps. TPN Al. Bus bars with colour coded heat shrinkable PVC sleeves.								
	2 set of RYB indicating lamps with individual HRC control fuses.								
	2 No. 96 Sq.mm 0-800 Amps. Ammeter with selector switch and suitable rated current transformers.								
	2 No. 0-800 96 Sq.mm Voltmeter with selector switch.								
	OUTGOING								
	Feeder for main pumps - 2 Nos.								
	1 Nos.250A TP MCCB								
	Star delta starter with over load relay, single phase preventor and indicating lamps with ON / OFF push buttons.								
	Feeder for Jockey pump - 1 No.								
	1 No. 63A TP MCCB								
	DOL starter with over load relay, single phase preventor and indicating lamps with ON / OFF push buttons.								
	1 No. Automanual selector switch								
	DIESEL ENGINE MAIN PUMP 1 No.								
	a) 20Amps DPMCB - 4 Nos.								
	b) Battery charger with transformer with rectifier resistance DC ammeter, DC voltmeter, Trickle / booster / off selector switch - 2 Nos.								
	c) 1 set of indicating lamps for the following :								
	1. phase indication								
	2. battery charger on								
	3. over load relay								
	4. DC supply on								
	5. control switch on								
	6. Engine fails to start								
	7. Pump on								
	8. Low oil pressure								
	9. High water temperature								
	10. Auto manual selector switch								
	d) 1 sets of push button stations for the following :								
	1. Engine Start								
	2. Engine Stop								
	3. Engine - hooter ACK								
	4. Engine - fault reset								
	e) Selector switches (Engine control, mode selector)-1 No.								
	f) Auxiliary relays / contactors / timer for sequence operating for starting and stopping of the engine - 1 set.								
	g) Hooter for audio alarm (Industrial type) - 1 No.								
	All the components shall be housed in a common cubical made of 16 swg. M.S. sheet with required stiffners (if required). The panel shall be powder coated of approved colour both inside & out side. The panel shall have both bottom & top cable entry provisions and panel shall be mounted on Pedastal of 300 mm height.								
	Also panel shall have sufficient (min. 6Nos per pumpset) NO/NC contacts for extending the status of fire pumps to the Fire alarm panel.								
6.0	1100 V GRADE POWER / CONTROL CABLES								
	Supplying, laying, testing & commissioning of FRLS,PVC outer sheath, steel armoured, aluminium / copper conductor, 1100v grade power cables with glands etc.The cables shall be laid in tray / Hume pipe / in trenches/on walls/ floor etc. as required. For cables laid out door the rate shall include earth excavation providing brick and sand protection, refilling and compacting the earth.The rate shall excluds tray & Hume pipes.The minimum size of the cables shall as mentioned below,								
	a) 3.5C x 120 sq.mm for main pumps	Rmt	Polycab/Univers	90.00					

SLNO	DESCRIPTION	UOM	Make	Qty	Supply	Installation	Supply Amount	Installation Amount	Total Amount
	b 4 C x 1.6 Sqmm.for Jockey pumps	Rmt		25.00					
	c 12 C x 2.5 Sqmm. For Diesel engines	Rmt		25.00					
	d 2 C x 2.5 Sqmm.for Instrumentation	Rmt		36.00					
7.0	CABLE TRAY								
	Supplying and fixing of perforated G.I.sheet cable tray with necessary angle iron suspension supports, anchor fasteners etc. complete. Maximum height of suspension shall not exceed 500mm.Size of the tray shall be suitable for laying the above mentioned cables.								
a	40x200x40mm	Rmt	Reputed make	40.00					
8.0	G.I. Earthing strips shall be run on floor / ceiling / walls, from the equipment to the nearest Earth pit with necessary accessories as required. (Earth pit shall be executed by other agencies).								
a	50x6mm thick	Rmt	Local	18.00					
b	25x6mm thick	Rmt		18.00					
090.0	Supplying, installing, testing and commissioning of M.S. Pipes (for suction side of pumps) conforming to IS 3589,6mm thick, with painting, suitable type of supports, anchor fasteners, bolts nuts (Galvanised), clamps, "U" bolte, malleable specials such as Reducers,Tees, elbows, flanges. Including cutting, Welding, fixing in / on walls, ceiling by using suitable supports etc, as per drawings. The quoted rate shall also include for chasing / chipping walls, making bore holes in walls / floor and making them good with filler material and finished in cement mortar etc. complete. MS channel & angle supports required inside pump room (300 kgs per each pumpsets to be considered.)		Jindal star/Tata						
a	250mm nominal dia	Rmt		12.00					
b	200mm nominal dia	Rmt		18.00					
10.0	Supplying, installing, testing and commissioning of G.I. Pipes conforming to IS 1239 Pt - I Heavy grade with painting, suitable type of supports, anchor fasteners, bolts nuts (Galvanised), clamps, "U" bolte, malleable specials such as Reducers,Tees, elbows, flanges. Including cutting, Welding, fixing in / on walls, ceiling by using suitable supports etc, as per drawings. The quoted rate shall also include for chasing / chipping walls, making bore holes in walls / floor and making them good with filler material and finished in cement mortar etc. complete.		Jindal star/Tata						
a	150mm nominal dia	Rmt		24.00					
b	100mm nominal dia	Rmt		18.00					
c	80mm nominal dia	Rmt		12.00					
d	50mm nominal dia	Rmt		18.00					
f	25mm nominal dia	Rmt		36.00					
12.0	Supplying, installing, testing and commissioning of C.I. Non-return valves as per IS:5312(PN16) swing check type with required flanges, nuts, bolts and gaskets etc. complete.								
a	150 mm nominal dia	Nos.	Normex/Zoloto	2.00					
b	80 mm nominal dia	Nos.	Normex/Zoloto	1.00					
12.0	Supplying, installing, testing and commissioning of C.I. butterfly valves (PN 16) as per BS 5155 slim seal standard lever operated type upto 150mm. Above 150mm it shall be gear operated, with required flanges, nuts, bolts etc. complete.		Audco/L &T/Zoloto						
a	200mm nominal dia	Nos.		1.00					
b	150mm nominal dia	Nos.		6.00					
c	80mm nominal dia	Nos.		1.00					
13.0	Supplying, installing, testing and commissioning of Gun metal chrome finished Ball valves with fittings of screwed end type.								
a	15mm dia.	Nos.	Normex/Zoloto	3.00					
b	25 mm dia	Nos.	Normex/Zoloto	2.00					
14.0	Supply, Installation of Flow metre(Electronic type) on Test line to measure 150 % of pump flow and suitable to 150 mm dia and Q butterfly valves as per BS 5155 (PN 16) gear operated type with required flanges, nuts, bolts etc. complete.	No.	Normex/Zoloto	1.00					
15.0	Supply and installation of Pressure switches of suitable range for pumpsets with Ball valves, Fittings like unions / colors / reducers etc.	Set	Indofoss	3.00					
16.0	Supply and installation of Pressure gauges of suitable range for pumpsets with Ball valves, siphon, Fittings like unions / colors / reducers etc.	Set	H Guru/Wika	3.00					
17.0	Exhaust pipe for Diesel engine of 150 mm dia M.S. Medium grade with mineral wool insulation with aluminum sheet.								
a	150 mm dia M.S. Medium grade with mineral wool insulation with aluminum sheeting.	Rmt		12.00					
b	150mm dia M.S. Medium grade shall be laid above ground with structural steel supports.	Rmt		12.00					
18.0	Providing, fixing, testing & commissioning of MS air cushion tank on top of each riser fabricated from 6mm thick MS plate, 250 mm in diameter and 1.2 m in height with dished ends fabricated from 8mm thick MS plate with Air release valve and stop cock, flanged inlet connection and drain arrangement with 25mm dia valve, pressure gauge with gun metal stop cock complete with all accessories as required and conforming to IS 4736-1968.	Nos.	Local	1.00					
19.0	Supply and installation of Air release valve. 25 mm dia	Nos	New age/ZOLOTO	2.00					
20.0	Supply and installation of Ball valve 25 mm dia	Nos	Zoloto	2.00					
21.0	Strucural Support	N.s	Sail/Vizag	250.00					

B Hydrant system

SL.NO	DESCRIPTION	UOM	Make	Qty	Supply	Installation	Supply Amount	Installation Amount	Total Amount
1.0	Supplying, installing, testing and commissioning of G.I. Pipes conforming to IS 1239 Pt - I Heavy grade with painting, suitable type of supports (Shall be fabricated by M.S. Channel / Angle / Flat for above 50 mm dia), anchor fasteners, bolts nuts, clamps, "U" bolts, malleable specials such as Reducers, Fittings, Tees, elbows (above butt welded fitting), flanges. Including cutting, Welding, fixing in / on walls, ceiling by using suitable supports etc, as per drawings. The quoted rate shall also include for chasing / chipping walls, making bore holes in walls / floor and making them good with filler material and finished in cement mortar etc. complete.		Jindal star/Tata						
	a 150mm nominal dia	Rmt		444.00					
	b 100mm nominal dia	Rmt		114.00					
	c 80mm nominal dia	Rmt		54.00					
	d 50mm nominal dia	Rmt		36.00					
	e 25mm nominal dia	Rmt		36.00					
2.0	Supplying, installing, testing and commissioning of G.I. Pipes conforming to IS 1239 Pt - I Heavy grade with suitable type of supports, malleable specials such as Reducers, Tees, elbows, flanges. Including cutting, Welding as per drawings. The rate quoted should include with anticorrosive treatment with 4 mm thick polymer corrosion resistant tape as per IS 10221, overlap shall be 15mm minimum.		IWL						
	a 150mm nominal dia	Rmt		12.00					
3.0	Supplying, installing, testing and commissioning C.I butterfly valves (PN 16) as per BS 5155 slim seal standard lever operated type upto 150mm. Above 150mm it shall be gear operated, with required flanges, nuts, bolts etc. complete.		Audco/L &T/Zoloto						
	a 150mm nominal dia	Nos.		4.00					
	b 100mm nominal dia	Nos.		1.00					
	c 80mm nominal dia	Nos.		12.00					
4.0	Supplying, erecting and commissioning of Landing Hydrants comprising of the following in the Fire duct: i Single headed hydrant valve as per IS 5290, made of gunmetal with 63 mm dia instantaneous outlet of 80mm dia flanged inlet, Blank caps, chain and hand wheels etc complete. ii Single lengths of 15m long, 63mm dia RRL hose with instantaneous couplings and hoses shall be stored in side the hose cabinet. iii 1 no. Gun metal short branch pipe with nozzle. iv Hose reel drum of swinging type with 19mm dia Rubber braided hose of 40 mtr length with Gate valve (upstream) and Shut off nozzle.		Newage/Newtec h/Winco						
	i	Nos.		7.00					
	ii	Nos.		14.00					
	iii	Nos.		7.00					
	iv	Nos.	Monshare/Newage	9.00					
	v Fire duct Shutter fabricated out of M.S. sheet and frame, door shall be 900mm x 2100mm x 800mm min. & fixed with 4 mm thick Glass, suitable Rubber beeding and locking arrangement. Quoted rate shall include all fasteners etc, and complete shutter shall be powder coated of approved colour both inside and out side.	Nos.	Local	7.00					
5.0	Supplying, installing and commissioning of 4 way fire brigade inlet connection with 4 nos. of 63mm dia. built-in Gun metal Non-return valves instantaneous coupling type arranged on 150mm dia. Pipe manifold and connected to wet riser main as well as to Fire water tank. Quoted rate shall include with C.I. Butterfly valve, C.I. Non-return valve and M.S. cabinet of suitable size with mounting supports etc. complete.	Nos.	Newage/Newtec h/Winco	1.00					
5.a	100mm butterfly valve	No.s	Audco/L &T/Zoloto	1.00					
6.0	Supplying, installing, testing and commissioning of yard hydrant comprising of the following, a Single headed hydrant valve as per IS 5290, made of gunmetal with 63 mm dia instantaneous outlet & 80 mm dia fanged inlet, Blank cap, chain and hand wheel etc complete. b Single lengths of 15 M long, 63mm dia RRL hose with instantaneous couplings and Hoses shall be stored in side the hose cabinet. c 1 no. Gun metal short branch pipe with nozzle. d M.S. Hose cabinet stand mouted type fabricated out of M.S. sheet of 16 swg. with glass fronted (4mm thick glass with rubber beeding) door and size of the cabinet shall be 600mm x 750 mm x 250 mm Quoted rate shall include suitable stand for mounting, all fasteners etc, and cabinet shall be powder coated of approved colour both inside and out side. e 80 mm butterfly valve		Newage/Newtec h/Winco						
	a	Nos.		10.00					
	b	Nos.		20.00					
	c	Nos.		10.00					
	d	Nos.	Local	10.00					
	e	No.s	Audco/L &T/Zoloto	10.00					
7.0	Hume pipe / trench (2 Road crossings)	Mtrs	Local	24.00					
8.0	PCC support (pedestal)	No.s		190.00					
9.0	MS structural support	Kgs	Sail/Vizag	900.00					
10.0	Supplying, installing, testing and commissioning of Air Release valve screwed end type. a 25mm dia.	Nos.	Newage/ZOLOTO	2.00					
11.0	25 mm ball valve	Nos.	Zoloto/NVR	2.00					
12.0	Dismantling of Existing Pumps and motor, Piping and Panel, cable etc and Hoses in Duct Hydrant pipe inside and outside. Shifting all materials near to 100 mtrs maximum with Crane charges.	Lot		1.00					
TOTAL (excluding taxes)							0.00	0.00	0.00

9.2 Annexure D: Format for Performance Bank Guarantee

To be submitted by the successful bidders after placement of the purchase order.

Annexure-D

To

The Registrar, Indian Institute of Science (IISc), Bangalore – 560 012, Karnataka India

Subject: Performance Bank Guarantee (PBG)

Reference: IISc Purchase Order No. _____, dated _____

Dear Sir,

We hereby issue a Bank Guarantee as follows: -Bank Guarantee No. _____

Amount of Guarantee Rs _____ Date _____

Guarantee covers from : _____ To _____ Last Date for Lodgment of claim _____

This deed of guarantee executed by the [Name of Bank] having its Central Office at [location] and amongst other places a branch at [local branch location] (hereinafter referred to as "The Bank") in favour of The Registrar, Indian Institute of Science, Bangalore – 560 012 (hereinafter referred to as IISc) for an amount of not exceeding Rs. [Amount] (Rupees [Amount in words] only) at the request of M/s [Vendor] (hereinafter referred to as "Supplier").

IISc has entered into an agreement with Vendor; vide IISc Purchase Order No. [PO Number] dated [date] with vendor to carry out Annual maintenance contract of fire hydrant and sprinkler system at Indian Institute of Science, Bangalore as per their above order, the Supplier agreed to execute a Bank Guarantee for 3 % of the total order value viz. Rs. [Amount] (Rupees [Amount in words] only) towards performance Security / performance guarantee obligation for a period of 1 years from [start date] to [end date]

We, the [Bank Name], [Branch] (hereinafter referred to as a Guarantor) at the request of the supplier, irrevocably undertake to indemnify and to keep indemnify IISc, without any demur to the extent of Rs. [Amount] (Rupees [Amount in words] only) in the event of the aforesaid Supplier failing to comply the Warranty / contractual Obligations as per the agreed terms to the full satisfaction of the Company as mentioned in the IISc. Purchase order.

The Guarantor guarantees that in the event of the said Supplier failing to abide by any of the conditions referred in tender document / purchase order/ performance of the equipment / Machinery / service, etc. this Bank shall pay to Indian Institute of Science, Bangalore on demand and without protest or demur Rs. [Amount] (Rupees [Amount in words] only).

Guarantor, further agrees that the guarantee herein contained shall remain in full force and affect during the period that would be taken for the performance of the equipment and / or services as

stated in the Purchase Order issued by IISc and that it shall continue to be enforceable till the completion of the period and certified that warranty and contractual obligations have been fully carried out by the supplier and accordingly discharges the Guarantee subject. However, IISc shall have no right under after the expiry of the Guarantee on **[end date]**. Guarantor undertakes not to revoke this Guarantee, during its currency except with the previous consent of IISc. in writing.

Notwithstanding anything contained herein, the liability of the Guarantor under the Bank Guarantee shall not exceed Rs. **[Amount]** (Rupees **[Amount in words]** only). The guarantee shall remain in force until, unless a demand or claim under the guarantee is made on our Bank in writing on or before **[end date]** all your rights under the said guarantee be forfeited and we shall be relieved and discharged from all liabilities there under. Guarantor is liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if IISc serve upon us a written claim or demand on or before expiry of date,

i.e. **[end date]**. This Guarantor further agrees that the decision of Indian Institute of Science, Bangalore as to whether the said Supplier has committed a breach of any of the conditions referred in tender document

/ purchase order shall be final and binding. This Guarantor further agrees that the claims if any, against this Bank Guarantee shall be enforceable at branch office at **[local branch location]**.

Details of the Guarantor are given below:

Name of the Bank	
Branch Name	
Branch Code	
IFSC Code	
E-mail Id	
Phone / Mobile No.	

Seal & Signature of the Bank