



## Standard Bidding Document

<b>Name of Work</b>	<b>Supply, Installation, Testing and Commissioning of Fire hydrant system for Multi storeyed flats (28 nos) G+6(Single Block) at Sarwal for Estates Department Jammu</b>
<b>District</b>	<b>Jammu</b>
<b>Estimated Cost</b>	<b>22.00 lacs</b>
<b>Unit</b>	<b>Mechanical Unit Jammu</b>
<b>Time of Completion</b>	<b>03 months</b>



# J&K PROJECTS CONSTRUCTION CORPORATION LTD.

(A Union Territory of J&K Govt. Undertaking)

OFFICE OF DEPUTY GENERAL MANAGER, MCHANICAL UNIT, JAMMU

E-NIT No: MECH/J/NIT/03 of 2020-2120

Dated: 29-04-2020

On behalf of Managing Director, Jammu & Kashmir Projects Construction Corporation Ltd., the Deputy General Manager, Mechanical Unit JKPCCLtd., Jammu invites e-tenders from dealers /eligible contractors having experience in execution of similar nature of work, for execution of below mentioned job:

Name of Work	Estimated Cost	Earnest Money	Cost of bid Documents	Period of Completion
Supply, Installation, Testing and Commissioning of Fire hydrant system for Multi storeyed flats (28 nos) G+6 (Single Block) at Sarwal for Estates Department Jammu.	Rs. 22.00 Lacs	Rs. 0.44 Lacs	Rs. 1000/-	03 months

## Scope of work:

Supply, Installation, Testing and Commissioning of Fire hydrant system for Multi storeyed flats (28 nos) G+6 (Single Block) at Sarwal for Estates Department Jammu.

## GENERAL CONDITIONS:-

### A. INVITATION:-

For and on behalf of the Managing Director JKPCCLtd., Jammu e-tenders are hereby invited from dealers /eligible contractors having experience in execution of similar nature of work.

### B. INSTRUCTIONS TO TENDERERS:-

1. The NIT Consisting of qualifying information, eligibility criteria, specifications, Bill of Quantities can be seen/downloaded from the departmental website [www.jktenders.gov.in](http://www.jktenders.gov.in) from Dt: 01-05-2020 from 1600 Hrs to Dt: 21-05-2020 upto 1400 Hrs.
2. The pre bid meeting will be held on date 11-05-2020 at 1300 Hrs in the office chambers of Deputy General Manager, Mechanical Unit JKPCCLtd., Jammu and any correspondence after the pre-bid meeting shall NOT be considered.
3. The Bids shall be deposited in electronic format on the departmental website [www.jktenders.gov.in](http://www.jktenders.gov.in) from 11-05-2020 to 21-05-2020 upto 1400 Hrs.

4. The complete bidding process will be **online**.
5. That the bids shall be strictly uploaded on the prescribed website and after opening the financial bid, only L1 bidder shall have to submit any required documents in hard copy.
6. The cost of tender shall be deposited by the prospective bidders **through banking mechanism** as per the following Bank details:-
  - i) **Name of Bank:- J&K Bank Ltd**
  - ii) **Account Title:- Financial Controller JKPCC Ltd (Current Account).**
  - iii) **Account No:- 0084010100002408**
  - iv) **Branch:- New Secretariat Road Srinagar.**
  - v) **IFSC Code:- JAKOPROMPT**
  - vi) **SWIFT Code:- JAKABBINRSGR-Optional**
1.
  - a) The bidder shall only upload scanned copy of payment acknowledgement slip. Similarly the Earnest Money shall be duly pledged to Deputy General Manager, Mechanical Unit JKPCC Ltd., Jammu and upload only a scanned copy of the Certificate on the Website.
  - b) **The tender cost deposited and EMD made for e-NIT/55 dated 03-03-2020 for the same work shall be considered for this NIT also.**
  - c) However, before allotting the work or issuing the allotment order, the lowest bidder shall have to submit the original certificate, CDR/FDR/Bank Confirmation advice.
2. If the office happens to be closed on the date of receipt of the bids as specified, the bids will be received on the next working day at the same time and venue.
3. The Technical bids shall be opened online on **22-05-2020 at 1200 Hrs** in the Office chambers of Deputy General Manager, Mechanical Unit JKPCC Ltd., Jammu.
4. A bidder shall not be permitted to bid for works in the jurisdiction of officer responsible for award and execution of contract in which his or his spouse's near relative (defined as first blood relations, and their spouses) is posted as unit Accountant or as an officer in any capacity between the grades of General Manager and Dy. General Manager (both inclusive).
5. No engineer of Gazetted rank or other Gazetted officer employed in Engineering or Administrative duties in an Engineering department of the State Government is allowed to work as a supplier for a period of two years after his retirement from Government service, without Government permission. This contract is liable to be cancelled if either the supplier or any of his employees is found any time to be such a person who had not obtained the permission of the government as aforesaid before submission of the tender or engagement in the contractor's service.
6. This office reserves the right to cancel any or all the tenders without assigning any reason thereof and conditional tenders shall be out rightly rejected.

7. Any other information regarding e-tendering process can be had from the Office Deputy General Manager, JKPCC Ltd., Mechanical Unit, Jammu at **Mobile no. 9419121510** or **e Tendering Cell on Mob No. 9419139825**.
8. **To qualify for award of the contract, each bidder should upload the following documents:-**
- A. Cost of tender document **through Banking Mechanism as per Instructions to bidders Clause 6.**
- B. EMD in the shape of CDR/FDR/Bank Confirmation Advice only and **bids without requisite EMD shall be considered as NON-RESPONSIVE .**
- C. The registered dealer/firm/contractor should have valid:-  
a) PAN No    b) GST registration c) ESI & EPF (latest return copy along with registration to be uploaded).
- D. Certificate from any agency (Govt/PSU) for at least one work of successful Design, Manufacture, Supply, Erection /Installation, Testing & Successful Commissioning of Fire Fighting System amounting to 17.60 lacs OR two similar works of amounting to 13.20 lacs each OR Three similar works amounting to 8.80 lacs each **during the previous 07 years (prior to 05/2020). Performance certificate of the user/s may be furnished.**
- E. An affidavit on a judicial stamp paper affirming the following information:-  
a) That the bid shall remain valid for the period of 90 days from the date of opening of bid.  
b) That all the terms and conditions, Technical Specifications and BOQ of the tender document are acceptable to the firm.  
c) That the firm has not been declared bankrupt by any financial institution and nor blacklisted by any Govt. Department during the previous three years.  
d) That the firm is having a service office at Jammu at ----- ( Upload Address proof) OR if found lowest, the firm shall set up a service centre at Jammu for better after sales service and maintenance of the equipments.  
e) That information furnished in the bidding document is correct to the best of my knowledge and belief and nothing has been concealed.

**C. INSTRUCTION TO BIDDERS REGARDING E-TENDERING PROCESS**

- a) The interested bidder can download the bid from the website <http://jktenders.gov.in>. Bidders are advised to download bid submission manual for the help of bid submission process from the Downloads option as well as from **Bidders Manual Kit** on website <http://jktenders.gov.in>
- b) To participate in bidding process, bidders have to get digital signature certificate card as per information technology Act- 2000, to participate in online bidding. This certificate will be required for digitally signing the bid. Bidders can get above mentioned digital signature certificate card from any approved vendors. The bidders who already possess valid digital signature certificates card, need not to procure new digital signature certificate card.

- c) **The bidders have to submit their bids online in electronic format with digital signature. The bids proposed without digital signature will not be accepted.**
- d) Bids will be opened online as per time schedule.
- e) Before submission of online bids, bidders must ensure that scanned copy of all the necessary documents have been attached with bid.
- f) The department will not be responsible for delay in online submission due to any reasons.
- g) All required information for bid must be filled and submitted online. The bidder should recheck his online document before submission on line otherwise damaged/ corrupt document shall not be considered in any case.
- h) Bidders are advised to use My Documents area in their user on e-tendering portal to store important documents which are used in all tenders like GST Certificate, sales Tax clearance Certificate etc and attach these certificates as Non Statutory Documents while submitting their bids.
- i) Bidders are advised not to make any change in BOQ (Bill of Quantities) contents/ specifications or its name. In no case they should attempt to create similar BOQ manually. The BOQ downloaded should be used for filling the net item rate inclusive of all taxes and it should be saved with the same with the same name as it contains.
- j) Bidders are advised to scan their documents at 100 DPI (Dots per inch) resolutions with Black and white, JPEG scan properly. Convert scanned images to PDF.
- k) The guidelines for bidders to submit bid online can be downloaded from website <http://jktenders.gov.in> **(Download option)**.

**Deputy General Manager**  
Mechanical Unit JKPCC Ltd.,  
Jammu

## General Conditions of Contract

### 1. Scope of Contract :

The contractor shall carry out and complete the said work/ supplies in every respect in accordance with this contract and under the directions of and to the satisfaction of the Engineer in-charge. The Engineer In-charge may in his discretion and from time to time issue written instructions, details, directions and explanations which are hereunder collectively referred to as "Engineer In-charge" instruction in regard to :-

- a) The variation or modification of the quality or quantity of works/ supplies or omission or substitution of any work.
- b) Any discrepancy between the schedule of quantities and/or specifications.
- c) The removal and/or re execution of any works executed by the contractor.
- d) The amending and making good of any defects. The contractor shall forthwith comply with and duly execute any work / supplies comprised in such Engineer in-charge instructions provided always that verbal instructions, directions and explanations given to the contractor or his representative upon the works/ supplies by the Engineer In charge shall if involving a variation, be confirmed in writing by the contractor within 14 days. And if not dissented from in writing within a further 7 days by the Engineer in-charge, such shall be deemed to be the Engineer In-charge instructions within the scope of the contract.

### 2. Time of completion :-

The time of completion of the job will be **within 03(three) months** from the date of completion of pump house and fire tank and shall be in tandem with the completion of allied works (civil and electrical works).

### 3. Damage for Non Completion :

If the contractor fails to complete the works/ supplies by the date stated in the appendix or within any extended time and the Engineer In-charge certifies in writing that in his opinion the same ought reasonably so to have been completed, the contractor shall pay or allow to the employer the sum named in the appendix as 'liquidated damages' for the period during which the said works/ supplies shall so remain incomplete and the employer may deduct such damage from any moneys due to the contractor.

### 4. Force Majeure :

The right of the contractor to proceed with the work/ supplies shall not be terminated because of any delay in the completion of the work/ supplies due to unforeseeable causes beyond the control and without the fault or negligence of the contractor, including but not limited to natural calamity, or of the public enemy, restraints of a sovereign state, firms, floods, unusually serve weather and act of the employer.

### 5. Delay and Extension of Time :

In the opinion of the Engineer In-charge the works/ supplies be delayed:

- a) By force majeure.
- b) By reasons of civil commotion, location combination of workers on strike or lock-out affecting any of the building trades.
- c) In consequence of the contractor for not having received in due time necessary instructions from the Engineer In-charge for which he shall have specifically applied in writing.
- d) By reasons of Engineers In-charge' instructions. The Engineers In-charge shall make a fair and reasonable extension of time for completion of the contract works/ supplies.

In case the physical progress of the work/ supplies is delayed as compared to the time schedule referred to above due to reasons which are beyond the control of the contractor, or due to force majeure conditions, or due to delays owing to other agencies, strike or lock-out, the contractor shall apply in writing for extension of the time for completion of the work/ supplies, stating clearly the reasons for the delay, period of delay and the extension of time desired. The owner on satisfying himself that the reasons for delay are really beyond the control of the contractor, may grant extension of time for the completion of work/ supplies. No payment or compensation shall be made to the contractor in the event of the owner is not in a position to allow the contractor to do the work on specific days and time due to whatsoever reason. Such delays are only for the consideration of extension of time. On no account any compensation shall be made to the contractor for extension of time due to delay made by the owner. However the liquidated damages from the contractor can be recovered on account of delay from his side for completion.

6. **Prices :**

The prices to be quoted by the intending tenderer shall include the supply and installation of all equipment at site, ancillary material and other items whatsoever required for carrying out the job to fulfill the intent and purpose as laid down in the specifications whether specifically mentioned or not. The prices/rates quoted shall be inclusive of **GST**, all taxes, Entry tax, duties, packing, forwarding, freight, transit insurance and all other levies as applicable by the Central as well as State Government. Failure to include all other taxes and duties will not entitle the contractor to any extra claims from the employer. The contractor's rates shall remain firm and fixed during the currency of the contract. **However any statutory variation in taxes as per notifications issued by the State/Central Govt. shall be allowed under rules.**

7. **Maintenance Manuals etc :**

Prior to the completion of work the contractor shall furnish to the employer (3) three sets of a comprehensive manual, describing all components, furnish a list of spare parts and settings forth in details the instructions for the operation and maintenance of the equipment .

Any special tools required for the operation or the maintenance of the Fire Fighting System, shall be supplied free of cost.

## **8. Testing and handing over :**

The contractor shall complete the following before handing over:

- a) **Preparation of working drawings on the basis of actual site conditions and getting approval of the Engineer In Charge.**
- b) **Getting tested by and approval of the installation by the Local Fire Authority after completion of work.**
- c) Supply of necessary spare parts during the commissioning stage.
- d) **Before release of final payment the allottee shall produce NOC from local fire authorities regarding safety, suitability of the system installed.**
- e) On the completion of work the contractor shall arrange to carry out various initial tests, in the presence of and to the complete satisfaction of the Engineer in-charge or his representative. Any defects or shortcomings found during the tests shall be speedily rectified or made good by the contractors at his own expense.

In case if test readings are not satisfactory, contractor shall carry out all modifications required to bring the unit up to the level of acceptability within a period, not exceeding 10 days from the date test readings are rejected and failure to do so, will entitle the clients to forfeit the Security Deposit.

## **9. Copies of bill**

Contractor shall submit all bills and vouchers in Duplicate

## **10. Defects liability**

The complete work shall be guaranteed against defective materials and workmanship for a period of 12 months from the successful commissioning of the Fire Fighting System. This however, shall not impair the validity of any action according to any law enforced for any non-performance of any work under this contract. If any part of work is found unsound or defective during the defect liability period, the contractor shall repair and make good the same, within a reasonable time, at his own risk, responsibility and cost. Any delay in such repairing and making good by the contractor, shall entitle the Employer to do it at the contractors entire risk, cost and responsibility

## **11. Rejection of Defective Plant :**

- a) If on test any portion of the Fire Fighting System is found to be defective or not fulfilling the intent or the meaning of the specifications, the same shall be replaced or repaired to the entire satisfaction of the Engineer In-charge.
- b) In case the contractor fails to remove the defects, within a period considered reasonable by the Engineer in-charge, the JKPCC reserves the right to take necessary remedial measures through other agencies and all expenses thus incurred would be recovered from the contractor.

## **12. Variation**

The J.K.P.C.C. shall be entitled to make any variation of the quantity of the works/ supplies or any part there of, that may, in his opinion, be necessary and for that



purpose, or if for any reason it shall, in his opinion be desirable, he shall have power to order the contractor to **do within the estimated amount at the approved rates.**

13. **Contract Specification**

Before execution of contract, the contractor shall check all specification and shall within ten days report any errors, discrepancies or omissions discovered therein to Engineer-in-Charge and obtain appropriate clarifications on the same. Any adjustment made by the contractor without prior approval of JKPCC shall be at his own risk and cost.

14. **Liquidated damages**

i) 0.25% ( zero point two five percent ) of contract value for every week of delay after the schedule date of completion of work for the incomplete/balance quantity and value of the work in the contract.

(ii) Total Amount of Recovery shall be maximum 5 % (Five percent) of contract value.

15. **Specifications**

The Specifications lay down minimum Standards of equipment and workmanship. And the tenderer should execute the job strictly as per technical specifications mentioned in the BOQ of the tender document/Brochure of the equipment uploaded.

16. **Maintenance of the system and Training of Personnel :**

The successful bidder shall have to operate the plant after commissioning by the staff trained for the purpose for 6 months and nothing extra shall be paid. The contractor shall also train the JKPCC's personnel, to operate the system and carry out routine checks, during the period of testing and commissioning. If found necessary, the supplier shall train such personnel at his works at no extra cost to the employer.

17. **Completeness of the work/ job :**

i. The contractor shall provide all required materials, equipment, ancillary items, etc., to install the Fire Fighting System capable of fulfilling the intent and purpose of the contract, whether or not each and every item is mentioned in the specifications. Any shortcomings noticed at any stage shall be made good at no extra cost.

ii. **Watch and ward**

Watch and ward of the machinery/equipment supplied during execution shall be included in the scope of contract and any damage to the machinery/equipment during transportation, handling, erection shall be borne by the contractor itself without any extra claim to the department.

18. **Guarantee :**

a) The contractor shall guarantee that all the material, and components supplied, fabricated, designed and installed by him on Fire Fighting System, shall be free from

defects due to faulty design material and/or workmanship, that the unit shall perform satisfactorily and the efficiency of all the components shall not be less than the values laid down in the specifications and the capacities, shall be at least equal to those specified.

- b) The period of the guarantee shall be minimum (12) Twelve months after the Fire Fighting System, is successfully commissioned during which period if any or all components found to be defective shall be replaced or repaired free of charge and any short comings found in the system as specified shall be removed at no extra cost. The contractor shall provide the necessary personnel and tools for fulfilling the above guarantee. **However, the warranty period shall be reckoned from the date of handing over the system to the project authorities.**
- c) If the defects are not removed with in a reasonable time, the employer may arrange to do so at the contractor's risk and cost, without prejudice to any other rights.

19. **Terms of payment :**

80% payment shall be paid against supply and installation of equipment/components at site and its verification by the Engineer In charge. 10% of the contract value shall be paid on successful testing and commissioning of the system and Final 10 % payment shall be released on production of NOC from local Fire authorities.

20. **Bank Guarantee :**

The firm shall execute bank guarantee of any scheduled bank in favour of Dy. Deputy General Manager, Mechanical Unit JKPCC Ltd. Jammu amounting to 10% of the value of the contract after the issue of the Allotment order and will be released after warranty period is over.

21. **After Sales Service :**

The firm shall provide free services during the guarantee period and give prompt attention to any complaint of consignee at short notice. The firm shall provide service and spares for the said equipment /system at the mutually acceptable terms and conditions after expiry of the guarantee period of 12 months.

22. **Arbitration :**

In case of any dispute arising at any time between the Contractor and the Corporation, the same shall be referred to the Deputy General Manager, Mechanical Unit,, JKPCC Ltd., who may give decision on such a dispute himself or request the Government to nominate any other officer of the Government for arbitration. Decision of the Deputy General Manager, Mechanical Unit, or the officer nominated by the Government shall be final and binding on both the parties.

23. **Agreement :**

The firm shall execute an agreement with the corporation within 15 days from the date of allotment of work.

24. **Insurance**

The successful contractor shall take out contractor all risk (AR) insurance policy in the name of the contractor and the original policy shall be deposited with the Department.

25. **Tender document fees & Earnest Money:-**
- a) Any bid not accompanied by **Tender document fees** acknowledgement slip & **Earnest Money, Pledged in favour of** Deputy General Manager, Mechanical Unit JKPCC Ltd., Jammu shall be rejected by the Employer as non-responsive.
  - b) The earnest Money of the successful Bidder will be released when the Bidder has signed the Agreement and furnished the required performance security
26. **Fundamental breach of contract will include:-**
- a) Continuous stoppage of Work for a period of 30 days without authorization of Engineer in-charge.
  - b) Contractor is declared bankrupt.
  - c) Any evidence of involvement of contractor in corrupt practices.
  - d) Contractor delays the completion of work beyond stipulated time of completion.
  - e) Pursuant to the process of termination of defaulted contract, the employer reserves the right to invite fresh tender for the balance work at the risk and cost of defaulter contractor.
  - f) If In case contractor failed to start /complete the work, within the stipulated time period, his CDR/Earnest Money/PBG shall be forfeited after termination of the contract. Besides, defaulting contractor shall be debarred from taking works in JKPCC Department at least for one year.
27. **MAJOR LABOUR LAWS APPLICABLE TO ESTABLISHMENT ENGAGED IN BUILDING AND OTHER CONSTRUCTION WORK**  
Compliance with Labour Regulation Laws of UT of J&K.
28. **Specification/Quality Control**  
All items of works shall conform to specifications as per IRC/MORTH/NBO/CPWD/SSR/ Any other prescribed specifications.
29. **Insurance**  
Insurance cover to Labour / Machinery / Work / Plant material / Equipment by the contractor shall be mandatory.
30. **Laws Governing the Contract**  
The contract shall be governed by Laws of the land.
31. **Court's Jurisdiction**  
In case of any disputes/differences between contractor and Department the jurisdiction shall be J&K UT.
32. **Any other item, not included in the scope of work but necessary for completion of work shall be deemed to be included in the scope of work.**
33. **All other terms and conditions are as same as are in vogue in JKPCC Ltd.**

**Deputy General Manager**  
Mechanical Unit JKPCC Ltd.,  
Jammu

## **TECHNICAL SPECIFICATIONS**

### **SCOPE OF WORK**

Work under this contract consist of furnishing labour, materials, equipment and appliances necessary and required to completely do all works relating to the fire protection system as described here-in-after and shown and the drawing, consisting of:

Supply, installation. Testing and commissioning of:

- a) Fire hydrant system including Fire Pumps and ancillary equipments.
- b) Preparation of working drawings on the basis of actual site conditions and getting approval of the Engineer In Charge.
- c) Supply of necessary spare parts during the commissioning stage.

### **INTERPRETATION**

In interpretation of specification, the following order of decreasing importance shall be followed:

- i) Statutory Rules & regulation.
- ii) Building Bye-Laws.
- iii) National Building codes
- iv) NFPA/TAC Codes.

Matters not covered by the specifications given in this contract, as a whole shall be covered by relevant and latest Indian Standard Codes. If such codes on a particular subject have not been framed, the decision of the engineer-in-charge shall be final and binding.

### **SPECIFICATIONS**

Work shall be carried out strictly in accordance with the specification attached to the tender.

Works not covered in the specifications shall be carried out as per relevant Indian Standard code of Practice/Specifications of Materials.

### **MATERIALS**

All materials used on this work shall be new, conforming to the specifications.

Materials shall conform to the technical specification and /or the latest Indian Standards Specifications as amended up to date and carry certification mark, wherever so required.

All materials used on the project shall be approved by the Owner.

Contractor may be required to purchase such materials of particular make or from a particular source if in the opinion of the owner the same is necessary and required for the proper and reasonable compliance of the specifications and in the interest of better quality of work.

### **REFERENCE POINTS.**

Contractor shall provide permanent bench marks, flag tops and other reference points for the proper execution of work and the same shall be preserved till the end of the work.

All such reference points shall be in relation to the levels and locations given on the architectural and contact drawing.

### **REFERENCE DRAWINGS.**

The contractor shall maintain one set of all drawings issued to him as reference drawings. These shall not be used on site.

All corrections, deviations and changes made on the site shall show on these reference drawings for final incorporation in the completion drawings. All changes so made shall be initialed by the owner

### **INSPECTION AND TESTING OF MATERIALS.**

Contractor shall be required to produce manufacturer's test certificates for the particular batch of materials supplied to him. The test carried out shall be as per the relevant Indian Standards.

Any weights or sizes given in the tender having changed due to metric conversion, the nearest equivalent sizes accepted by Indian Standards shall be acceptable without any additional cost. The decision of the owner shall be final and binding on the contractor.

### **ELECTRICAL WORKS**

Electrical work done under this contract shall be executed by licensed wiremen under the supervision of licensed electrical supervision as per requirements of the Indian Electricity Act..

Contractor shall obtain the approval of all electrical installation done under this contract from the appropriate competent authority before the installation is commissioned.

### **TESTING**

Piping system shall be tested as specified under the relevant clause of specifications and shall be performed in the presence of the Owner/Engineer I/C. All pipes/piping loops after erection shall be subjected to hydrostatic testing at a pressure of 11kg/cm<sup>2</sup> or 1.5 times the working pressure, whichever is higher, to detect any leakage. A proper record of various test carried out jointly should be maintained at the contractor's end.

All materials and equipment found defective shall be replaced and the whole work again tested to meet the requirements of the specifications, at the cost of the contractor.

Contractor shall perform all such tests may be necessary and required by the local authorities to meet the municipal or other bye laws in force at his own cost. Contractor has to obtain a approval for the complete layout of piping/equipment erected.

Contractor shall provide free of cost all labour, equipment and materials for the performance of the test.

### **WELDING.**

The welding procedure, types of electrodes etc. shall be in accordance with the following IS specifications.

Welding Procedures IS:823

Welding Electrodes IS:814, but of approved makes only.  
Testing of welders IS:817

Only welders fulfilling the requirements of IS: 817 and approved by the owner shall be employed by the contractor.

### **JOINTING MATERIAL (GASKET)**

Gasket, for use in between flanged joints, to be of CAF as per IS-2712, thickness as specified in B.OQ.

### **PAINTING**

All above ground pipes, pipe fittings, hose cabinets structural steel work pipe supports etc shall be painted as per specifications given below.

Painting shall be done only after the completion of fabrication work and testing.

The instructions of paint manufacturer shall be followed as far as possible otherwise the work is to be done as directed by the owner.

All cleaning materials, brushes, tools and tackles, painting, material etc. shall be arranged by the contractor at site in sufficient quantity.

All rust, dust shall scales, welding slag or any other foreign materials shall be removed fully so that a clean and dry surface is obtained prior to painting. And other oily containment shall be removed by use of a solvent prior to surface cleaning.

First coat of primer paint must be applied by brush on dry clean surface immediately or in any case within 3 hours of such cleaning.

Primer Paints- one coat (minimum thickness 100 microns) self-priming epoxy mastic.

Finishing Coats:-

- a) For Pump Rooms- 2 coats (thickness minimum 50 microns each) of epoxy paint, fire red shades as per IS:5.
- b) For other than pump Rooms- 2 coats of synthetic enamel paint, fire red shade as per IS:5.

### **COATING WRAPPING FOR UNDERGROUND PIPES.**

All underground piping shall be protected by coating and wrapping as per the following procedure.

The materials and workmanship shall in general confirm to IS: 10221, 1982 or as directed by the owner/ engineer I/C.

Cleaning- the pipes shall be thoroughly cleaned by dust, rust will scales, oil, grease etc. by stiff wire brush and scrappers. The surface shall be coated with the black Japan bitumen paint.

Tart should be wrapped around pipes and one coat of black Japan Bitumen paint to be provided.

### **INSPECTION AND TESTING SCHEDULE**

#### **ABBREVIATIONS USED:**

DC DIMENSIONAL CHECKING

MTC MATERIAL TEST CERTIFICATE (CHEMICAL ANALYSIS AND PHYSICAL PROPERTIES)

HTC HYDRAULIC/ PRESSURE TEST CERTIFICATE

NDT NON-DESTRUCTIVE TEST-10% OF FIELD JOINT TO BE RADIOGRAPHED

Sl.No.	Item	DC	MTC	HTC	Remarks
1.	Pipe	*	*	*	Test pressure as per specification.
2.	Fittings	*	*	*	
3.	Flange	*	*	*	
4.	Bolting	*	*	*	
5.	Gasket	*	*	*	Body test at 1.5 times PN with valve open seat test at pressure equal to PN (with valve closed).
6.	Valves	*	*	*	
7.	Fire hydrant	*	*	*	Contractor to furnish manufacturer's test certificate.
8.	Hose Pipes	*	*	*	
9.	Branch Pipes	*	*	*	
10.	Fire Pumps	*	*	*	

## **SPECIFICATIONS FOR PUMPS AND ANCILLIARY EQUIPMENT**

### **SCOPE OF WORK**

Work under this section shall consist of furnishing all labour, materials, equipment and appliances necessary and required to completely install electrically / diesel engine operated pumps for fire hydrant installations as required by the drawings and specified herein after or given in the schedule of quantities.

Without restricting to the generality of the fore-going the pumps and the ancillary equipment and shall include the following.

- a. Electrical/diesel operated pumps with motors/diesel engine, base plate and accessories.
- b. Pump suction and delivery headers, valves air vessel and connections.
- c. Pressure gauges/ Pressure switch.
- d. Electrical switchboards, wiring cabling, cable tray, control panel and properly connecting to earthing system.

### **GENERAL EQUIPMENT**

Pumps shall be installed true to level on suitable concrete foundations. Base plate shall be firmly fixed by foundation bolts properly grouted in the concrete foundation.

Pumps and motors should be truly aligned with suitable instruments.

All connections shall be standard flanged type with appropriate number of bolts.

Manufacturer instructions regarding installation connections and commissioning shall be followed with respect to all pumps, switchgear and accessories.

## **FIRE PUMPS**

Centrifugal, split casing, horizontal pumps should be selected as per IS. Pump should have the following specifications:

Shut off head should not exceed 120% of rated head. Pump shall develop not less than 65% of rated head at 150% of rated capacity. These conditions are strictly complied with.

Pumps shall be provided with pressure gauge with isolation cock on the delivery side.

In case of motor driven pump, the motor rating should be adequate to drive the pump at 150% of rated discharge.

## **MAIN PUMP FOR HYDRANT**

Manual start arrangement shall be made.

## **ELECTRIC MOTORS**

Electrically driven pumps shall be provided with totally enclosed fan cooled induction motors suitable for fire pumps with IP 55 enclosure.

The motors should be rated not to draw more than 4.5 times the starting current.

Motors shall be at least equivalent to the horsepower required to drive the pump at 150% of its rate discharges.

The motors shall be wound for class F-insulation and windings shall be vacuum impregnated with heat and moisture resisting varnish, glass fiber insulated.

## **AIR VESSEL**

The contractor shall provide one air vessel fabricated from 8mm MS plates with 10mm dished ends and suitable supporting legs. Each air vessel shall be provided with a 80mm dia, flanged connection from pumps, one 25mm dia, drain with valve, one gun metal water level gauge and 25mm sockets for pressure switches. The vessel shall be 250mm dia x 1500mm high and tested to 14kgs./Sq.cm. pressure.

The fire pumps shall operate on drop of 1 kg./Sq.cm. pressure in the mains. The pump operating sequence shall be arranged in a manner to start the pumps automatically but should be stopped by starter push buttons only.

## **MOTORS AND STARTERS FOR FIRE PUMPS**

The starters Shall be of DOL type. The motors should have double sq. cage or other provision to limit the starting current to 4 times the full load current.

## **PAINTING OF ALL STEEL WORK**

The steel used for fabrication of electrical/panels/equipment should be stove enameled as per the detailed specification given below:



- a) **Degreasing**  
All the steel components, to be painted should be effectively cleaned by alkaline degreasing.
- b) **Pickling**  
Oxide scale rust formations are to be removed in a hot bath of sulphuric acid. Putting of the surface is to be prevented by the use of pickling in havigtors.
- c) **Cold Rinsing**  
The parts are then to be washed with cold water to remove all traces of acidic solution.
- d) **Phosphating**  
In order to attain durable paint coating the metal surface is to be given phosphating treatment by development a phosphate layer on the surface. Preferably hot grenadine solution is to be used in the phosphating plant.
- e) **Pessivating**  
This process is to be carried out be using deodilate solution.
- f) **Drying**  
The treated parts should then b dried in a hot chamber in dust free atmosphere to ensure that they are absolutely clear and dry before the paint is applied.
- g) **Primer Coating**  
The treated and dried parts are to be sprayed with high corrosion resistance primer.
- h) **Stove Drying**  
The primer coating is to be backed in an electrically heated, air circulated area type storing over.
- i) **Finishing coat**  
The finishing paint coat is to be applied by spraying two coats of 15-micron thickness powder coated paint of approved shade.

## **CABLES**

Contractor shall provide all power and control cables from the motors control center to various motors and control devices, of ratings as per IS:3961.

All power and wiring cables shall be aluminum conductor PVC insulated armoured and PVC sheathed of 1.1 KV grade. Control cables and power cables of 2.5 sq.mm or less shall be of copper armoured. Cables and wires shall comply with requirements of IS:5831,694,9130,7098 (I) & 1554 as the case may be.

All cables shall have stranded conductors. The cables shall be supplied in drums as far as possible and hear the manufacturer's identification mark.

All cable joints shall be made in a approved manner as per accepted practice.

## **CABLES TRAYS**

Cable trays shall be 2 mm thick GI/CRCA powder coated as per approved shade of client. Sheet steel ladder type/perforated cable trays including fixing along wall/ ceiling complete with MS rod/flat hangers directly grouted in walls/ceiling etc. as required. The sizes shall be as follows and as directed by the owner.

## **SPECIFICATION FOR FIRE HYDRANT SYSTEM**

- 1) Work under this section shall consist of furnishing all labour, materials, equipment and appliance necessary and required to completely install wet riser fire hydrant system as required by the drawings and specified hereinafter or given in this schedule of quantities.
- 2) Without restricting to the generality of the foregoing, the fire hydrant system shall include the following:

- a) Mild steel mains including vales, hydrants and all other accessories.
- b) Mild steel pipe fire risers within the building.
- c) Landing valves, synthetic hosepipes, hose reels, hose cabinets, fire brigade connections, connection to pumps, appliances and pressure reducing devices.
- d) Excavation, anchor blocks and valve chambers.

#### **GENERAL REQUIREMENTS:**

- 1) All materials shall be of the best quality conforming to the specifications and subject to the approval of the employer.
- 2) Pipes and fittings shall be fixed truly vertical, horizontal or in slopes as required in a neat workmanlike manner.
- 3) 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.
- 4) Pipes shall be securely fixed to walls and ceilings by suitable clamps at intervals specified. Only approved type of anchor fasteners shall be used for RCC ceiling and walls.
- 5) Valves and other appurtenances shall be so located that they are easily accessible for operations, repairs and maintenance.
- 6) The tenderer is required to submit test certificates issued by OEM for main components e.g. motors, Pumps, DG set, M.S. pipes and fire extinguishers etc as per latest Regulation codes.

#### **PIPES AND FITTING:**

##### **FOR INTERNAL WORK:**

- A. All pipes within the building in exposed locations and shafts including connections buried under floor shall be ERW mild steel tubes conforming to IS: 12369 (heavy class) up to 150 mm AB and IS: 3589 above 150 NB's with screwed or welded joints as specified by the engineer in charge. Welded joints should be tested for any leakage.
- B. Fittings or 50 mm or below shall be forged steel with socket weld ends of approved makes. For 65mm and above shall be W.I/M.S with but weld ends.

#### **JOINTING**

Gasket, for use in between flanged joints to be of CAF as per IS-2712, thickness as specified in BOQ.

#### **EXCAVATION:**

- 1) Excavations for pipeline shall be in open trenches to levels and grades shown on the drawings or as required at site. Pipeline shall be buried to a minimum depth of 1 to 1.5 meter or as shown on the drawings.
- 2) Wherever required contractor shall support all trenches or adjoining structures with adequate supports to prevent landslides.
- 3) On completion of testing and painting, trenches shall be refilled with excavated earth in 15-cm layers and compacted.
- 4) Contractor shall dispose off all surplus earth within the site.

#### **VALVES**

- 1) Butterfly valve 80 mm dia and above erected shall be cast iron double flanged type spindle of stainless steel. Sluice valve shall confirm to and marked IS Class PN-10.

- 2) Valves on MS pipe 50mm and below shall be heavy pattern gunmetal valves (with cast iron wheel) tested to 20kg/sq.cm. Pressure. Valves shall conform to and marked IS: 778.
- 3) Check valves shall be cast iron double flanged conforming to IS: 5312-1975 with cast iron steel body and stainless steel internal trims.

## **HYDRANT SYSTEM**

### **EXTERNAL HYDRANT**

Contractor shall provide external hydrants. The hydrants shall be controlled by a Cast iron sluice valve. Hydrants shall have Instantaneous type 63-mm dia outlets. The hydrants shall be of gunmetal and flange inlet and single outlet conforming to IS 5290-1983 with G.I. duck foot bend and flanged riser of required height to bring the hydrant to correct level above ground.

Contractor shall provide for each external fire hydrant two nos. of 63 mm dia 15 meter long synthetic fiber non percolating hose pipe with gunmetal male and female instantaneous type coupling machine wound with copper wire hose to ISS 636 type B and coupling to IS 903 with IS certification), gunmetal branch pipe with 16 mm nozzle to IS 903-1984.

### **INTERNAL HYDRANTS**

Contractor shall provide on each landing and other locations as shown on the drawings on single headed gunmetal landing valve with 63mm dia outlets and 80mm inlet IS 5290-1969) with individual shut off valves and cast iron wheels. Landing valves shall have flanged inlet and instantaneous type outlet.

Instantaneous outlets for fire hydrants shall be of standard pattern approved and suitable for fire brigade hose. Contractor shall provide for each internal fire hydrant station four numbers of 63mm dia 7.5 meter long synthetic non percolating hose pipes with gunmetal male and female instantaneous type coupling machine wound with G.I. wire (hose to IS 636 type B and couplings to IS 903 with IS certification), fire hose reel, gunmetal branch pipe with nozzle IS 903 fireman's axe. Each hose box shall be, after thorough cleaning of surface, painted as per General Technical Specifications. The words FIRE HOUSE to be painted on the inner face of the glass.

### **FIRST AID HOSE REELS**

Contractor shall provide standard fire hose reels with 20mm dia high pressure rubber hose of 30 metres length with gunmetal nozzle with 5mm bore, and control valve, shut of nozzle connected wall mounted on circular hose reel of heavy duty mild steel construction and cast iron brackets. Hose reel shall conform to IS 884-1989. The hose reel shall be connected directly to MS Pipe rise through and independent connection.

### **PRESSURE GAUGES**

All pressure gauges shall be of dial type with bourdon tube element of SS-316. the gauge shall be of reputed make. The dial size shall be 150-mm dia and scale division shall be in metric units marked clearly in back on a white dial. The range of pressure gauge shall be 0 to 12kg./sq.cm.

All pressure gauges shall be complete with isolation cock, nipples, trail pipes etc.

### **PRESSURE SWITCHES**

The pressure switch shall be industrial type single pole double through electric pressure switch designed for starting or stopping of equipment when the pressure in system drops or exceeds the pre-set limits. It shall comprise of a single pole changeover switch, below element assembly and differential spindle.

All the pressure switches shall have ¼” B.S.P. (f) inlet connections and screwed cable entry for fixing cable gland.

The electric rating of the switch shall be as under:

<u>Type of supply</u>	<u>Voltage</u>	<u>Non-Inductive</u>	<u>Inductive</u>
A.C	110-308	10Amp	6Amp
D.C	24-250	12Amp.	12 Watts

### **FIRE BRIGADE CONNECTION**

The contractor shall provide as shown on drawing gunmetal four ways collecting head with 63mm dia instantaneous type Inlets with built in check valve and 100/150 mm dia. Outlet connection to the fire main grid and for tank filling collecting head shall conform to IS:904-1965.

### **AIR VALVES**

The contractor shall provide 25mm dia screwed inlet cast iron single acting air valve on all high points in the system.

### **DRAIN VALVE**

THE CONTACTOR SHALL PROVIDE 25MM DIA ms Pipe to IS:1239 (heavy class) with brass ball valve for draining any water in the system in low pockets as shown in drawings or as directed by the owner.

### **VALVE CHAMBERS**

JKPCC shall provide shall suitable brick masonry chambers in cement mortar 1:5 (1cement:5 coars sand) on cement concrete foundations 150mm thick 1:5:10 (1 cement 5 fine sand:10 graded stone aggregate 40 mm nominal size) 15mm thick cement plaster inside and outside finished with a floating coat of neat cement inside with cast iron surface box approved by fire brigade including excavation, back filling, complete. It is the responsibility of the contractor to ensure that structure constructed is as per his requirement .

Valve chamber shall be of the following size:

For depths 130cm and beyond 120x120cms.

Weight of C.I. frame and cover shall be 30 kg.

### **PIPE PROTECTION**

See Clause on Painting and Coating/Wrapping’ under General Technical Specifications.

### **PIPE SUPPORTS**

All pipes shall be adequately supported from ceiling or walls by means of anchor fasteners by drilling holes with electrical drill in an approved manner as recommended by manufacturer of the fasteners.

All supports/clamps fabricated from MS structural e.g. rods, channels, angles and flats shall be painted as described in specifications for “Painting” under General technical Specification.

Wherever inserts are not provided the contractor shall provide anchor fasteners. Anchor fasteners shall be fixed to walls and ceiling b y drilling holes with electrical drills in an approved manner as recommended by the manufacturer of the fasteners.

## **TESTING**

All piping in the system shall be tested to a hydrostatic pressure of 11.0kg/sq.cm or 1.5times the working pressure. Which ever is higher, without drop in pressure for at least 2 hours.

Rectify all leakages, make adjustments and reset as required and directed.

## **HOUSE CABINETS:**

Provide doors/hose cabinets for internal/external hydrants respectively fabricated from 16 gauge MS sheet with double glass front door and locking arrangement, with breakable glass key access arrangement, duly painted red as per specifications fixed to wall/floor as per site conditions. The cabinet shall have a separate chamber to stave a key with breakable glass as per approved design. Hose cabinets shall be hinged double door partially glazed with locking arrangement, painted as per General technical Specification with 'FIRE HOSE' written on it prominently. Samples of hose cabinet for indoor and outdoor works shall be got approved from owner before production/delivery at site.

For external hydrants the hose cabinets shall be fabricated from 1-gauge thick MS sheet with double shutter glass front door and locking arrangement with breakable glass key access arrangement. The cabinet shall have 'FIRE HOSE' written on it prominently. Sample of hose cabinet shall be got approved from the Owner before installation at the site.

## **MEASUREMENT**

Mild steel pipes shall be measured per linear of the finished length along the center line and shall include all fittings (including flanges), welding, jointing, clamps for fixing to walls or hangers, anchor fasteners and testing.

Butterfly valves, check valves and full way valves shall be measured by numbers and shall include all items necessary and required for fixing and as given in the specification/ schedule of quantities.

Landing valves hose cabinets, synthetic non-percolating fire hose pipes, First-aid fire hose reels (With gunmetal full way valves) and gunmetal branch pipes shall be measured by numbers and shall include all items necessary and required for fixing as given in the specification/ schedule of quantities.

Suction and delivery headers shall be measured per liner meter or finished length and shall include all items as given in the schedule of quantities.

Painting/wrapping/coating of headers, pipes shall be included in the rate for pipes and no separate payment shall be made.

Brick masonry chambers shall be measured by number and shall include all items as given in the schedule of quantities/ specifications.

No additional payment shall be admissible for cutting holes or chases in walls or floors, making connections to pumps, equipment and appliances.

**Deputy General Manager**  
Mechanical Unit JKPCC Ltd.,  
Jammu

**LIST OF APPROVED MAKES (Fire Systems)**

<b>S.No:</b>	<b>Description</b>	<b>BRAND NAME/ MANUFACTURER</b>
1	GI/MS Pipes	Jindal,Tata, Prakash Surya
2	Sluice /NRV	Kirloskar,Leader,Zoloto,Kartar
3	Ball Valve	CIM, RB, Zoloto,Kartar,
4	Air Release Valve	Kirloskar, Zoloto,Kartar
5	Fire Hydrant valve / Hose Box	Newage,Getech, Minimax,
6	RRL Hose	Jayshree,BRG,Getech
7	Branch Pipe	Getech,Newage ,Minimax
8	SS Coupling	Getech,Newage, Minimax
9	Pumps	Kirolskar,K&B, Mather & Platt.
10	Fire Extinguishers	Minimax, Attack fire, Getech, Ceasefire
11	Rubber Tube for Hose reel	DUNLOP,Jyoti,Padamani,Dozz
12	Hose reel drum	Newage,Getech,Minimax
13	Draw out connection/ FBD	Newage,Minimax, Getech
14	Pressure switch	Indfoss,Switzer,Verma Trafag
15	Pressure Gauge	H.Guru,Fiebig,Pricol
16	Cables/wire	RRKabel, KEI,Gloster,Havell's,Polycab
17	PVC/MS conduit	BEC,/AKG/ any ISI mark
18	Fire alarm accessories	Agni, Godrej, Honeywell
19	Switch Gear	L&T,Havell's ,Schnider,Siemens,Legrand
20	Battery	Exide,Emron,Prestolite
21	Strainer	Zoloto, Sant,Kartar
22	Sprinklers	Grinnell,DSS,TYCO

23	Installation valve	Grinnell, HD,Getech
24	Flow Switches	Grinnell, System sensor
25	Signage	Glo-sign,Agni,Mr. Lite
26	Butterfly valve/Check valve	Audco,Zoloto,Kartar, Getech
27	Fireman's Axe	Minimax,Newage,Getech
28	Motors	ABB,Kirloskar,Siemens,Crompton
29	Engine	Cummins,KOEL,Kirloskar
30	Fastener	Hilti, Fisher, any reputed brand
23	Installation valve	Grinnell, HD,Getech
24	Flow Switches	Grinnell, System sensor
25	Signage	Glo-sign,Agni,Mr. Lite
26	Butterfly valve/Check valve	Audco,Zoloto,Kartar, Getech
27	Fireman's Axe	Minimax,Newage,Getech
28	Motors	ABB,Kirloskar,Siemens,Crompton
29	Engine	Cummins,KOEL,Kirloskar
30	Fastener	Hilti, Fisher, any reputed brand

- Note:-**
- 1. The successful bidder shall plan site visits and submit the shop drawings before execution of the work.**
  - 2. The successful bidder shall provide manufacturer's test certificates of the main components such as motors, Pumps, Diesel Engine set, M.S. pipes and fire extinguishers etc as per latest Regulation codes.**

**Deputy General Manager**  
Mechanical Unit JKPCC Ltd.,  
Jammu