

**SUPPLY INSTALLATION, TESTING & COMMISSIONING OF
HYDROPNEUMATIC SYSTEMS, WTP, PUMPS, VALVES & FLOW METERS
WORKS**

FOR PROPOSED PERMANENT CAMPUS (PHASE I)

**INDIAN INSTITUTE OF MANAGEMENT UDAIPUR, AT VILLAGE BALICHA,
UDAIPUR.**

SPECIAL CONDITIONS

APPENDIX C – SPECIAL CONDITIONS OF CONTRACT (TECHNICAL)

1. Prices

The prices to be quoted by the tenderer shall include the supply, installation, Testing & commissioning at the site, of all component, ancillary material and other items whatsoever required for carrying out the job to fulfil the intent and purposes as laid down in the specifications and / or the drawings.

The bidders' price shall be deemed to include all accessories and miscellaneous items, components panels, nuts, bolts, clamps, supports etc. as required for proper fixing and / or grouting of equipments and ancillary items. Except for the item where the price is separately indicated. Whether specifically mentioned or not the contractor shall also include, in his price, all taxes duties or other levies (viz. GST etc.) which are legally leviable on equipment. Failure to include all leviable taxes and duties will not entitle the contractor to any extra claims from the Owner.

1) Scope of work

The general nature and the scope of work to be carried out under this contract is indicated in Specifications, Drawings and Schedule of Quantities. The contractor shall carry out and complete the said work under this contract in every respect in conformity with the contract documents and with the direction of and to the satisfaction of the Owners site representative. The contractor shall furnish all labour, materials and equipment (except those to be supplied by the owner) as listed under schedule of quantities and specified otherwise, transportation and incidentals necessary for supply, installation, testing and commissioning of the complete work for Water Supplysystem as described in the specifications and as shown on the drawings and as per site conditions.

This also includes any material, equipment, appliances and incidental work not specifically mentioned herein or noted on the drawings / documents as being furnished or installed, but which are necessary to be performed under this contract. The Water Supplysystem shall comprise of Design supply, installation, testing, commissioning of the following:

2.1 Plumbing system.

2.2 Test reports, list of recommended spares, As-built drawings, operation and maintenance manual for the entire works carried out. (3 Sets and a Soft Copy in C.D.)

2.3 Training of Owners staff.

2.4 Sufficient quantity of steel channels / angle iron supports shall be provided for supports, piping, etc as required, as approved by Engineer in charge / Consultant as per site conditions.

2.5 The bidder should visit the site and familiarize with site conditions.

2) **Service Works Excluded**

3.1 Any kind of civil work (i.e. Man hole, Valve chamber, support for pipe etc.

3) **Project Execution and Management**

The contractor shall ensure that senior planning and erection personnel from his organization are assigned exclusively for this project. They shall have minimum 5 years experience in this type of installation and shall ensure at least one full time engineer who would be exclusively responsible for ensuring strict quality control, adherence to specifications and ensuring top class workmanship for the air conditioning installation including electrical works and controls. The names and details of the engineers proposed to be deployed should be indicated along with their qualifications and experience.

The contractor shall arrange to have mechanized & modern facilities of transporting material to place of installation for speedy execution of work.

4) **Performance Guarantee**

5.1 The contractor shall carry out the work in accordance with the Drawings, specifications, schedule of quantities and other documents forming part of the contract as well as site conditions.

5.2 The contractor shall be fully responsible for the performance of the selected equipment (installed by them) at the specified parameters and for the efficiency of the installation to deliver the required end result.

5.3 The contractor shall guarantee the plumbing as installed. The guarantee shall be submitted in the proforma given in **Annexure I**.

5.4 Complete set of architectural drawings is available in the Architect / Consultant's office and reference may be made to same for any details or information. The contractor shall also guarantee that the performance of various equipments - individually, shall not be less than the guaranteed capacity, while handing over and during the guarantee period.

5) **Bye – Laws and Regulations**

The installation shall be in conformity with the bye-laws, regulations and standards of the local authorities concerned; in so far these become applicable to the installation. But if these specifications and drawings call for a higher standard of materials and / or workmanship than those required by any of the above regulations and standards, then these specifications and drawings shall take precedence over the said regulations and standards. However, if the drawings and specifications require something which violates the bye-laws and regulations, then the bye-laws and regulations shall govern the requirement of this installation.

6) **Fees and Permits**

The contractor shall obtain all permits / licenses and pay for any and all fees required for the inspection, approval and commissioning of their installation if required.

7) **Tender Drawings**

The Water Supply systems drawings listed in this Tender, which may be issued with the tenders, are diagrammatic and indicate arrangement of various systems and the extent of work covered in the contract. These drawings indicate the points of supply and of termination of services and broadly suggest the feasible scheme and routes to be followed.

Contractor shall visit site prior to start-up of work to ensure that the layouts meet and match the structural openings and paths for smooth execution.

All such changes shall however be subjected to the Architect / Consultant approval. **These drawings are not working drawings**. Under no circumstances shall dimensions be scaled

from these drawings. The Architectural / Interiors drawings and details shall be examined for exact location of equipment, controls.

If required, the contractor shall follow the tender drawings in preparation of his shop drawings, and for subsequent installation work. All works of execution should only commence after receipt of the signed & stamped approval of the consultant / client.

8) **Technical Data**

Each tenderer shall upload along with his tender, the technical data, list of makes and data sheets for all items / equipments offered by them. **Failure to upload complete technical data with tenders may result in summary rejection of the tender.**

9) **Shop Drawings**

All the shop drawings shall be prepared on computer through AutoCAD System based on Architectural drawings, site measurements and interior designer's drawings. Within **One** week of the award of the contract, contractor shall furnish, for the approval of the Architect / Consultant, three sets of detailed shop drawings of all equipment and materials including schematic & PLUMBING layouts. These shop drawings shall contain all information required to complete the project as per specifications and as required by the Architect / Consultant / Owner's site representative. These drawings shall contain details of construction, size, arrangement, operating clearances, performance characteristics and capacity of all items of equipment, also the details of all related items of work by other Contractors.

Each shop drawing shall contain tabulation of all measurable items of equipment / materials / works and progressive cumulative totals from other related drawings to arrive at a variation – in – quantity statement at the completion of all shop drawings. Minimum 3 sets of drawings shall be submitted after final approval along with softcopy.

Each item of equipment / material proposed shall be from a standard catalogue product of an established manufacturer strictly from the manufacturers listed in Approved Makes and quoted by the tenderer in technical data.

When the Architect / Consultant make any amendments in the above drawings, the contractor shall supply two fresh sets of drawings with the amendments duly incorporated along with check prints, for approval. The contractor shall submit further four sets of shop

drawings to the owners' site representative for the exclusive use by the Owners site representative and all other agencies. No material or equipment may be delivered or installed at the job site until the contractor has in his possession, the approved shop drawings for the particular material / equipment / installation.

10) Assembly and Inspection

- i. Shop assembly of all component parts shall be made to ensure that all parts are properly fitted to minimize installation problems.
- ii. The Owners reserve the right to inspect any machinery, material and component (herein after collectively called "Equipment") finished or used by the contractor under this contract and may reject which is defective in workmanship or design or otherwise unsuitable for the use and purpose intended or which is not in accordance with the intent of this contract.
- iii. The contractor shall on demand by the Owners, remedy / replace at his own expense any such defective or unsuitable equipment. The contractor shall advise the Owners in advance when equipment is ready for inspection in the contractor's workshop and / or in his sub supplier's workshop.
- iv. The Owners Representative shall at all times have access to all parts of shops where equipment are being manufactured and also shall be provided with all reasonable facilities by the contractor and his sub supplier. None of the equipment to be furnished or used in connection with this contract will be supplied until shop inspection and performance testing, wherever possible, satisfactory to the Owners Representative has been made.
- v. Such shop inspection of the equipment shall not however, relieve the contractor from full responsibility for furnishing the equipment conforming to the requirements of this contract not prejudice any claim, right or privilege which the Owners may have because of the supply of defective or unsatisfactory equipment. Should the Owners waive the right to inspect any equipment, such waiver shall not relieve the contractor from his obligation under this contract.
- vi. Manufacturer's drawings, catalogues, pamphlets and other documents submitted for approval shall be in three sets. Each item in each set shall be properly labelled, indicating the specific services for which material or equipment is to be used, giving reference to the governing section and clause number and clearly identifying in link the items and the operating characteristics. Data of general nature shall not be accepted.
- vii. Samples of all materials shall be submitted to the Owners site representative prior to procurement. These will be submitted in two sets for approval and retention by Owners site representative and shall be kept in their site office for reference and verification till the completion of the project. Wherever directed a mock-up or sample installation shall be carried out for approval before proceeding for further installation.

- viii. Approval of shop drawings shall not be considered as a guarantee of measurement or of building dimensions. Where drawings are approved, said approval does not mean that the drawings supersede the contract requirements, nor does it in any way relieve the contractor of the responsibility or requirement to furnish material and perform work as required by the contract.

- ix. Where the contractor proposes to use an item of equipment, other than that specified or detailed on the drawings, which requires any redesign of the structure, partitions, foundation, piping, wiring or any part of the mechanical, electrical or architectural layouts; all such redesign and all new drawings and detailing required therefore, shall be prepared by the contractor at his own expense and gotten approved by the Architect / Consultant / Owners site representative. Any delay on such account shall be at the cost of and consequence of the contractor.

- x. Where the work of the contractor has to be installed in close proximity to, or will interfere with work of other trades, he shall assist in working out space conditions to make a satisfactory adjustment. If so directed by the Owners site representative, the contractor shall prepare composite working drawings and sections at a suitable scale, not less than 1:50, clearly showing how his work is to be installed in relation to the work of other trades.

- xi. If the contractor installs his work before coordinating with other trades, or so as to cause any interference with work of other trades, they shall make all the necessary changes without extra cost to the owner.

- xii. Within **One week** of approval of all the relevant shop drawings, the contractor shall submit three copies of a comprehensive variation in quantity statement and itemized price list of recommended (by Manufacturers) imported and local spare parts and tools, covering all equipment and materials in this contract. The project manager shall make and also advise owner to initiate action for procurement of spare parts and tools at the completion of project.

11) Erection and Commissioning

The contractor shall carry out the complete erection and commissioning of the work specified under this contract. All the materials shall be moved from their place of storage into the area of installation by the contractor. The contractor shall make their own arrangement to off load materials received at site and to store all material received at site. The Owners shall provide clear storage and working space only. All erection tools and tackles to suit the erection programme shall be provided by the contractor.

All consumables required for erections such as cotton waste, kerosene, oil, emery paper, coil string, bamboos and planks for scaffolding etc. as well as necessary welding / brazing rods, gases etc. shall be provided by the contractor. Protective and finish painting shall be carried out by the contractor. Carbon steel surface shall be thoroughly cleaned before painting. The contractor shall indicate the electricity requirements during erection. The

contractor shall remove all the waste material or rubbish from and about the work site and leave the job thoroughly cleaned up and ready for use.

12) Quiet Operation and Vibration Isolation

All equipment shall operate under all conditions of load without any sound or vibration which is objectionable in the opinion of the Owners site representative. In case of rotating machinery (Pump) sound or vibration noticeable outside the room in which it is installed, or annoyingly noticeable inside its own room shall be considered objectionable. Such conditions shall be corrected by the contractor at their own expense. The contractor shall guarantee that the equipment installed shall maintain the specified Noise levels.

13) Accessibility

The contractor shall verify the sufficiency of the size of the shaft opening, clearances in cavity walls for proper installation of his piping. His failure to communicate in sufficiency of any of the above shall constitute his acceptance of sufficiency of the same. The contractor shall locate all equipment which must be serviced, operated or maintained in fully accessible positions shall be finalized and communicated in sufficient time, to be provided in the normal course of work. Failing this, the contractor shall make all the necessary repairs and changes at his own expense.

15) Materials and Equipment

All materials and equipment shall conform to the relevant Indian Standards and shall be of the approved make and design. Makes shall be strictly in conformity with the list of approved manufacturers as per Approved make list of this tender.

16) Manufacturer's Instructions

Where manufacturer has furnished specific instructions, relating to the material and equipment to be used in this project, not specifically mentioned in these documents, such instructions shall be followed in all cases.

17) Electrical installation

The electrical work related to Water supply system, shall be carried out in full coordination and in total conformity with the control wiring drawings as required and approved by the Architect / Consultant. All Water Supply System equipments shall be connected and tested

in the presence of an authorized representative of the Owner / Consultant. It shall meet the local Electricity board codes and standards.

18) Testing and Commissioning

- a. The Testing of the Water Supply System shall be carried out in details as per guidelines provided in the Specifications of this tender; broadly it shall be as under:
 - i. All types of routines and type tests as required shall be carried out at the works of the contractor or the manufacturers of the components. The Project Managers / Consultants shall be free to witness any or all tests if they so desires.
 - ii. The above tests and procedures are mentioned herein, for general guidance and information only, but not by way of limitation to the provisions of tender conditions of contract and specifications. The date of commencement of all tests listed above shall be subject to approval of the Engineer In-charge and in accordance with the requirements of this specification.
 - iii. The contractor shall supply the skilled staff and all necessary instruments and carry out any test of any kind on a piece of equipment, part of system or on a complete system, if the Engineer In-charge requests such a test for determining specified or guaranteed data, as given in the specification or on the drawings.
 - iv. Any damage resulting from the tests shall be repaired and / or damaged material replaced, to the satisfaction of the Engineer In-charge. In the event of any repair or any adjustment having to be made, other than normal running adjustment, the tests shall be void and shall be recommended after the adjustment or repairs have been completed.
 - v. The contractor must inform the Engineer In-charge when such tests are to be made, giving sufficient notice, in order that the Engineer In-charge or his nominated representative may be present. (All tests should be carried out in the presence of Engineer-in-charge / their Representative). Complete records of all tests must be kept and 3 copies of these and location drawings must be furnished to Engineer In-charge as well as the consultant.
 - vi. The installation shall be tested again after removal of defects and shall be commissioned only after approval by the Owners site representative. All tests shall be carried out in the presence of the representatives of the architect / consultant and Owners site representative.
 - vii. Rejection of Defective System
 - If on test any portion of the plant, equipment or components are 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 Project Managers / Consultants.

- In case the contractor fails to remove the defects, within a period considered reasonable, the Owner reserves the right to take necessary remedial measures through other agencies and all expenses thus incurred would be recovered from the contractor.
- The Owner reserves the right to operate all the equipment and complete system whether or not the plant is taken over after the initial test and commissioning. Any defects found during the initial or running tests shall be removed at a suitable time as decided upon by the Owner and / or their Project manager / Consultants.

19) Completeness of the plant & completion certificate

- The contractor shall provide all the required materials, equipment, ancillary items etc. to install a complete and satisfactory system capable of fulfilling the intent and purpose of the contract whether or not each and every item is mentioned in the specifications and / or drawings. Any shortcomings noticed at any stage shall be made good at no extra cost.
- On satisfactory completion of all testing, commissioning and Performance test, the plant / system shall be considered to be virtually complete for the purpose of taking over by the owner.
- The contractor shall be also responsible for getting the entire electrical installation for system for their scope of work - duly approved by the local authorities concerned, if required and shall bear all expenses, if any, in connection with the same.

20) Completion Drawings

Contractor shall periodically submit completion drawings as and when work in all respects is completed in a particular area. These drawings shall be submitted in the form of two sets of CDs and three portfolios in A1 size (595 x 840mm) each containing complete set of drawings on approved scale indicating the work as built. These drawings shall clearly indicate complete equipment layouts, all concealed piping, valves, and other services. Each portfolio shall also contain consolidated control diagrams and technical literature on all controls. The contractor shall frame under glass, in the air conditioning system, one set of these consolidated control diagrams.

21) Operating instruction & maintenance manual

Upon completion and commissioning of the system the contractor shall submit a draft copy of comprehensive operating instructions, maintenance schedule and log sheets for all systems and equipment included in this contract.

This shall be supplementary to manufacturers operating and maintenance manuals.

Upon approval of the draft, the contractor shall submit three (3) complete bound sets of typewritten operating instructions and maintenance manuals; one each for retention by consultant and owners site representative and two for owners operating personnel. These manuals shall also include basis of design, detailed technical data for each piece of equipment as installed, spare parts manual and recommended spares for 3 years period of maintenance of each equipment.

22) Onsite training

Upon completion of all work and all tests, the contractor shall furnish necessary operators, labour and helpers for operating the entire installation for a period to enable the owner's staff to get acquainted with the operation of the system. During this period, the contractor shall train the owners personnel in the operation adjustment and maintenance of all equipment installed.

23) Maintenance during defects liability period

23.1 Complaints

The Defect Liability period shall be 12 months from the date of certified commissioning by the Engineer-in-charge.

The contractor shall receive calls for any and all problems experienced in the operation of the system under this contract, attend to these within 12 hours of receiving the complaints and shall take steps to immediately correct any deficiency that may exist.

23.2 Repairs

All equipment that requires repairing shall be immediately serviced and repaired. Since the period of Mechanical maintenance runs for two years concurrently with the defects liability period, all replacement parts and labour and consumables shall be supplied promptly free of charge to the owner.

24) Uptime Guarantee

The contractor shall guarantee for the installed system an uptime of 99 %. In case of shortfall in any month during the defects liability period, the defects liability period shall be get extended by a month for every month having shortfall. In case of shortfall beyond the defects liability period, the contract for operation and maintenance shall get extended by a

month for every month having shortfall and no reimbursement shall be made for the extended period.

Each tenderer shall submit along with the tender a detailed operation assistance proposal for the owners site representatives / consultants review. This shall include the type of service planned to be offered during defects liability period and beyond.

25) Power requirement

The contractor shall submit with their tender, their requirements of power at each of their equipment.

26) Necessary Insurance Coverage For :

- i. Third Party
- ii. CIF Value + Custom Duty Paid By The Owner To Cover Mishaps
- iii. Worker Insurance, Provident Fund etc. should be taken up and included in the cost.

27) Safe custody and storage

Safe custody of all equipments supplied by the contractor shall be their own responsibility till the final taking over by the owner. They should therefore, employ sufficient staff for watch and ward at his own expenses. The owner may however, allow the contractors to use the plant room / weather maker / rooms / service area etc. for temporary storage of their equipment if such spaces are ready and available.

28) Variations in Quantities and Tender Drawings

The quantities for the item of works given in the schedule and / or in drawings are for the guidance of the tenderer. The contractor shall be paid on the basis of actual quantities of works carried out. However the contractor shall check these quantities before quoting and will bring to the notice of Consultants / Engineer-In charge for any major variation. The drawings issued with the tender are diagrammatic only and indicate the general arrangement only. The data given in the drawings and specifications is as exact as could be secured but, its accuracy is not guaranteed. Contractor shall carry out their own computations and provide all such equipment, as required to achieve the specified conditions. The contract shall be on works contract basis and the Owner reserves the right to add / delete any items of work during the currency of contract.

29) Safety Codes

The following IS codes shall be followed.

- | | |
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| 1. Safety code for scaffolds and ladders | IS 3696 |
| 2. Code of practice for fire precaution in welding & cutting operations | IS 3016 |
| 3. Code for safety procedures & practices in electrical works | IS 5216 |
| 4. Code of practice for safety & health requirements in electrical
& gas welding & cutting operations | IS 3696 |

Note: In case of a conflict in national and international codes, the stringent of the two shall apply. Codes appearing under Volume 2 shall also be covered by Contractor.

Note: In case of any conflict in the electrical specifications appearing in the PLUMBING tender, the specifications for the referred item (Cable / Starter / Accessories) appearing in the electrical tender shall prevail.

GUARANTEE PROFORMA ANNEXURE 1

PERFORMANCE GUARANTEE FOR COMPLETE SYSTEMS

We hereby guarantee the year round performance of the system which we have installed and commissioned as described below:

For a period of **1 years (One year)** from the date of acceptance of the total installation, WE AGREE TO repair or replace free of cost to the satisfaction of the owner, any or all such work that may prove defective in workmanship, equipment or materials within that period, ordinary wear and tear and unusual abuse or neglect excluded, together with any other work, which may be damaged or displaced in so doing. In the event of our failure to comply with the above mentioned conditions within a reasonable time, after being notified in writing, we collectively and separately, do hereby authorize the owner to proceed to have the defects repaired and made good at our expense, and we shall pay the cost and charges thereof, immediately upon demand and also authorize them to deduct from the security deposit kept with the owner. (the guarantee stand extended for further period of 2 years from the date of failure, if the duration of failure is more than 1 week)

SIGNATURE OF
CONTRACTOR

DATE

SEAL

ANNEXURE-II

PAYMENT TERMS

- (a) Payment Terms
- 60 % of the cost of against receipt of material at site after inspection and acceptance
- 10 % after installation
- 20 % after satisfactory testing & commissioning at site as per tender conditions against the security deposit
- Balance 10% of contract value against handing over after receipt of all completion / as built drawing, test documents / certificates, O & M Manual etc. as per tender specifications.

Prices shall be including all taxes and duties at site rates including services duly commissioned system at site and handed over to client.

- b) Escalation: All rates shall be final and No escalation applicable during Period of contract subject to only statutory variation in taxes
- c) Submission of final bills: 15 days after completion of work and Site certification
- d) Insurance to be availed by the contractor
& Provident / ESI Coverage etc.: As per conditions of contract
- e) Measurement / Billing Process and Certification
- The measurement shall be taken by Contractor jointly with Client / PMC
 - Piping shall be measured as per executed dimensions following linear measurement method only including Elbows / Bends etc.
 - The final quantities measured / reconciled as above shall required Site In-charge's certification attached with final billing by Contractor.