

**INVITATION OF TENDERS for  
PACKAGE V(R2)  
FOR  
SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF  
HEAT PUMP BASED WATER HEATING SYSTEM FOR HOSTELS UNDER PHASE  
II CONSTRUCTION OF IIITD CAMPUS AT OKHLA-III  
NEW DELHI-110020**



INDRAPRASTHA INSTITUTE of  
INFORMATION TECHNOLOGY **DELHI**



**ARCHITECTS**



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**PROJECT MANAGEMENT  
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**Indraprastha Institute of Information Technology, New Delhi (IIIT-Delhi)**

DATED: 20.12.2017

**TENDER NOTICE**

**Name of work: Supply, Installation, Testing and Commissioning of Heat Pump Based Water Heating System at IIITD campus at Okhla-III New Delhi-110020**

Location : Hostel Blocks H1, H2, G1, G2 , and B1

**1. SCOPE OF WORK**

**Package V(R2) - Heat Pump based water heating System at IIITD campus at Okhla-III New Delhi-110020.**

SITC of Heat Pump based water heating system for, Two New hostel blocks H1 block (G+10), H2block (G+10) & three hostel extension blocks G1 block (G+5) ,G2 block (G+5) ,B1 block (G+6) with maximum capacity of 450 students per hostel block. The work shall be carried out in parallel and coordinated with all other agencies for other packages under execution/ yet to be executed/awarded as per agreed datelines of the individual blocks.

Estimated Cost	Rs. 1 Crore
Earnest Money	Rs. 1,00,000/- (Rupees one lakhs only)
Performance Guarantee	5% of Tendered Value. (50% of the PBG will be released after completion of work and balance 50% after successful completion of Defects Liability Period as part of SD will be released on satisfactory completion of the works certified by Competent Authority).
Security Deposit	Security Deposit / Retention money shall be Five percent (5%) of the value of executed works and will be deducted from each and every payment made to the contractor against running account bill submitted for the work done at site. 50% of retention money will be released along with the payments of final bill and balance 50% will remain with Employer until the Defects Liability period is successfully over.

Tender Fee	Rs. 1000/- (One thousand only). Those who had applied earlier for PQ and submitted the tender fee need not resubmit the fee.
Time Allowed	6(six) Months
Date & Time of issue of tender documents	20th Dec2017
Pre-bid Meeting	On 27th Dec 2017 at 1130 Hrs in the Boardroom, Indraprastha Institute of Information Technology Delhi, at Okhla Phase -III New Delhi-110020
Last Date of Submission of Tender Date & Time	On 3rd Jan 2018 up to 1500 Hrs in the office of Chief Engineer/Registrar, Indraprastha Institute of Information Technology Delhi, at Okhla Phase -III New Delhi-110020
Date & Time of Opening of Tender Documents	On 3rd Jan 2018 at 1530 Hrs in the office of Indraprastha Institute of Information Technology Delhi, at Okhla Phase -III New Delhi-110020
Defect Liability period	12 months from date of completion.
Liquidated damages	In case of delay on account of reasons attributable to the Contractor Liquidated Damages shall be levied. The amount of Liquidated Damages payable by the Contractor to the Employer would be 0.25% of the value of order for each calendar day of delay subject to a maximum of 5% of the value of order after which Employer reserves the right to terminate the contract without prejudice to the rights of the Employer.

CE, IIIT-Delhi, Okhla, New Delhi-110020 on behalf of Registrar, IIIT-Delhi invites sealed item rate tenders from eligible contractors for similar works.

Tender documents can be downloaded from IIITD website <https://www.iiitd.ac.in/tenders> and submitted with non-refundable DD of Rs. 1000/- in favour of **IIIT Delhi Collections** as cost of tender.

Earnest Money Deposit (EMD) shall be accepted only in the form of Demand Draft or Pay Order or drawn in favor of **IIIT Delhi Collections**, from any Scheduled bank/FDR of a scheduled Bank/ BG as

- 1) The tenders shall be placed in sealed envelopes with a name of work and due date written on the envelope and addressed to the Registrar/CE, IIITD. Complete tender documents shall be submitted by the approved contractors in **two envelopes**. **1<sup>st</sup> envelope** shall contain the earnest money in the shape of Demand Draft / Pay Order of a scheduled Bank requisite shape as per condition & eligibility criteria and cost of tender as stated above in case of the downloaded version.

The applications not supported with requisite experience certificates, valid GST Registration certificate, TIN no. and PAN No in **Envelope-1** shall not be entertained. Those who had already submitted the documents and tender cost in previous prequalification stage need not resubmit the same. However, any additional information can be submitted by them with the financial bid as deemed fit by the tenderer along with the EMD.

- 2) The **2<sup>nd</sup> Envelope-2** shall contain the financial bids including Priced Schedule of Quantities, Form of Tender, Conditions of Tender, Articles of Agreement, Brief Specifications, Condition of contract, Drawings all duly signed by the authorized signatory of the firms.

All these envelopes are to be put in a single envelope duly super-scribed the name of work, and addressed to Registrar/CE (IIITD) and with their address. In case the tenderer does not fulfill the laid down eligibility criteria or fails to deposit the earnest money in prescribed form, financial bid shall not be opened.

Tenderers shall seal the tender affix their initials and put stamp on each and every page of tender document before submission. The tender of the contractor, who submits in-complete tender document or submits more than one tender for one work, shall not be considered at all.

Tenders will be received by the CE up to 3.00 P.M on 03.01.2018 and will be opened by him or his authorized representative in the office of Registrar, IIITD on the same day at 3.30 P.M.

First the Technical Bids will be opened and screened. The bids shall be examined whether the EMD is in order and the bidder meets the minimum eligibility criteria specified above. Those bidders whose EMD is in order, meets the minimum eligibility criteria, has submitted all the required documents and meet the technical requirements shall be considered for opening of financial bid. Conditional tenders would not be accepted. Financial bids in respect of contractors who do not fulfill above criterion shall not be opened.

- 3) No Xerox / certified copies of tenders shall be accepted, if submitted these tenders shall be rejected.

**2. MINIMUM ELIGIBILITY REQUIREMENTS**

Intending firms/contractors/manufacturers applying for tender should comply with the following minimum requirements.

Joint ventures are not accepted.

- a) Specialized and experienced vendors in manufacturing heat pump based water heating system and have executed similar works should have completed following successfully by or before period ending 30th Nov 2017:

Satisfactorily completed three similar works each costing not less than Rs. 0.28 crores during last 7 years

OR

Satisfactorily completed two similar works each costing not less than Rs. 0.42 crores during last 7 years

OR

Satisfactorily completed one similar work each costing not less than Rs. 0.56 crores during last 7 years

Similar works means supply, installation, testing and successful commissioning of Heat Pump based water heating systems; custom built and suitably installed at site for major educational institutional complex / software-IT parks / office campuses, multi storied buildings successfully with high quality of workmanship and finish complete. They should also have capacity to execute comprehensive AMC for 5 years as required and provide a replacements /spares as required.

- b) Preferably may have Satisfactorily completed one similar work costing not less than Rs 0.28 Crores with some Central Government Department/State Government Department/Central Autonomous Body State Autonomous Body / Central Public-Sector undertaking. State Public Sector undertaking /City Development Authority/Municipal Corporation of City formed under any Act by Central/State Govt. and published in Central/State Gazette.
- c) Shall have an average annual financial gross turnover of Rs. 0.7Crores on similar works during the last three consecutive financial years ending 31st March 2017. Further, the financial price updating of 7% per annum shall

- be applied to the turnover of the Previous Years to bring them to 2016-2017 Price Level.
- d) Photographic evidence of works/supplies executed may also be attached.
  - e) Shall not have incurred any loss in more than two years during the last five years ending 31st March 2017.
  - f) Shall have a solvency of Rs. 0.28 crores. The applicant shall submit in original/attested copy, the solvency certificate, not older than three months prior to 30th Nov 2017, issued by any nationalized/scheduled bank, in original.
  - g) The firm/contractor must have its own workshop for fabrication of equipments/systems and the same could be inspected by IIITD if required.
  - h) The firms/contractors who don't have their registered office/service centre at Delhi/Gurgaon/Faridabad/Noida/Ghaziabad must have their functional/operational office /workshop/service centre in National Capital Region in operation for at least last two years for their works being done in NCR (two years as on 30th Nov 2017).
  - i) The reputed firms shall preferably have valid registration in appropriate class for carrying out similar works with CPWD/PWD/MES/Railways/Other Govt/Statutory bodies/Reputed MNC/private agencies. The Tenderer shall hold ISO certification ISO: 9001:2008
  - j) The applicant shall be the OEM or through its authorized dealer. OEM can submit its application through only one of its authorized dealers and submission of applications through more than one dealer is not admissible. Their Authorized dealer's applications shall be submitted with supporting letter from the OEM.
  - k) The Tenderer should be in business of supplying, installation, and commissioning testing of Heat Pump based water heating system for minimum 3 (three) years as on 30<sup>th</sup> Nov 2017.
  - l) Must not have ever been barred/blacklisted by any organization/ body from tendering for public/ private projects in India.
  - m) Other Criteria as at Section 6 Clause 7.

## CONDITIONS

1. The time allowed for carrying out the construction work will be **6 months** from the 7<sup>th</sup> day after the date of written orders to commence the work.
2. The site for the work is available.
3. During execution of works, because of some unforeseen circumstances to enable him to complete the work as per terms of the contract, shall not relieve the contractor from any liability or obligations under the contract and he shall be responsible for the acts, defaults and neglects of any sub-contractor, his agents or workmen as fully as if they were the acts, defaults or neglects of the contractor, his agents or workmen.
4. The Contractor shall be required to deposit an amount equal to 5% of the tendered value of the work as performance guarantee in the form of an irrevocable bank guarantee bond of any scheduled bank or State Bank of India in accordance with the form prescribed or in the form of fixed deposit receipt etc. within 4 days of the issue of letter of acceptance. The performance guarantee shall have the validity up to contract period + defect liability period of 1 year from date of satisfactory completion and handing over of the project.
5. Tenderers are advised to inspect and examine the site and its surrounding at their own cost and satisfy themselves before submitting their tenders as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risk, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed. The tenderer shall be responsible for arranging and maintaining at own cost all materials, tools and plants, water, electricity, access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specification of the work to be done, local condition and other factors having a bearing on the execution of the work.
6. The Accepting Authority (IITD) does not bind himself to accept the lowest or any other tender and reserves to him/herself the authority to reject in whole or part, any or all of the tenders received without the assignment of any reason. All tenders in which any of the prescribed conditions are not fulfilled or for any condition including that of conditional rebate is put forth by the tenderer shall be summarily rejected.



7. Canvassing, whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the contractor who resort to canvassing will be liable to rejection.
8. The Accepting Authority reserves to himself the right of accepting the whole or any part of the tender and the tender shall be bound to perform the same at the rates quoted.
9. Tenders shall remain open for acceptance for a period of 60 days from the date of opening of the tenders. If any tenderer withdraws his tender before the said period for issue of letter of acceptance, whichever is earlier or makes any modification in the terms and condition of the tender which are not acceptable to the IIITD, then IIITD shall, with out prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money absolutely besides black listing of the tenderer.
10. The notice-inviting tender shall form a part of the contract document. The successful tenderer/contractor shall, sign the necessary contract documents consisting of the notice inviting tender, all the documents including additional conditions, specification and drawings, if any forming the tender as issued at the time of invitation of tender and acceptance thereof with any correspondence leading thereto within the time specified in the letter communicating the acceptance of the tender. In case of delay, the earnest money may be forfeited and the tender cancelled or the contract enforced as per the terms of the tender and the invitation to tender and the tenderer shall thus be bound by the condition of contract even though the formal agreement has not been executed and signed within the specified time by the tenderer.
11. The work shall be carried out as per general of conditions of contract for central PWD works 7/8 (Tender Contract) and form part of the agreement/document.
12. Contract is liable to be terminated by the IIITD without payment of any compensation, if subsequent to the acceptance of tender the contractor is black-listed by, or enters into partnership of employs any black listed contractor of the IIITD or any other department, or Govt. or its, undertakings.
13. Cost of Bidding
  - 13.1 The bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will in no case be responsible and liable for those costs.
14. Clarification of Bidding Documents
  - 14.1 A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing/mail at the Employer's address indicated in the invitation to bid not later than 3 days before the Date of Submission of Tenders.  
Email- [admin-project@iiitd.ac.in](mailto:admin-project@iiitd.ac.in)

15. Currencies of Bid and Payment

15.1 The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees. All payments will be invariably made in Indian Currency (Indian Rupees.)

16. PROTECTION OF ENVIRONMENT AND OTHER LAWS:

The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

During continuance of the contract, the contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and other local Acts/ Laws/ rules made there under, regulations, notifications and bye-laws of local authorities or any other law, bye-laws, regulations that may be passed or notification that may be issued in this respect in future by the State/ Local authority.

For and on behalf of the  
REGISTRAR  
Indraprastha Institute of Information Technology,  
New Delhi

**TENDER**

I/We have read and examined and understood the notice inviting tender, schedule, A, B, C, D, E & F, Specifications applicable, drawings & Designs, General Rules and Directions, Conditions of Contract, clauses of contract, special conditions, Schedule of Rate & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work. I / We hereby tender for the execution of the work specified for the IIITD within the time specified in Schedule ' F ', viz., schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in Rule - 1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respect in accordance with, such conditions so far as applicable.

We agree to keep the tender open for sixty (60) days from the due date of its opening and not to make any modifications in its terms and condition.

A sum of Rs..... Rupees

(.....)

has been deposited in demand draft of a scheduled bank issued by a scheduled bank as earnest money. If I / we, fail to furnish the prescribed performance guarantee within prescribed period, I / we agree that the said Director, IIITD or his successors in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I / we fail to commence work as specified, I / we agree that Director, IIITD or his successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, up to maximum of the percentage mentioned in Schedule ' F ' and those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form. Further, I / We agree that in case of forfeiture of earnest money or both Earnest Money & Performance Guarantee as aforesaid, I / We shall be debarred for participation in the re-tendering process of the work.

I / We hereby declare that I / we shall treat the tender documents drawings and other records connected with the work as secret / confidential documents and shall no communicate information / derived there from to any person other than a person to whom I / we am / are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

Dated. ....

Witness:

Address:

Occupation:

Signatures of Contractor

Postal Address

## **LETTER OF SUBMISSION**

The REGISTRAR/CE  
Indraprastha Institute of Information Technology, Delhi  
Okhla Phase-III  
(Behind Govind Puri Metro Station)  
New Delhi-110020.

I/We, the undersigned, have read and examined in detail, the specifications and all bidding documents and hereby declare that:

### **Price and Validity**

1. All the rates quoted in our proposal are in accordance with the terms and conditions as specified in the bid document. All the prices and other terms and conditions of this proposal are valid for a period of 60 calendar days from the date of opening of bid.
2. We do hereby confirm that our bid prices inclusive of all taxes, duties, royalties etc. including, labour cess, ESI, EPF, Green Tax, Service Tax or any other Tax /GST as applicable.
3. We hereby declare that if any tax law is altered, we shall pay the same.

### **Earnest Money**

We have enclosed EMD in the form of demand draft no....., dated.....favoring IIT, Delhi Collections payable at New Delhi issued / drawn on .....Bank for Rs. 1,00,000/-Rupees One lacs only), as desired.

### **Deviations**

We declare that all the works shall be performed strictly in accordance with the technical specifications and other tender conditions with no deviations.

### **Qualifying Data**

We confirm that all information/data have been submitted as required in tender document.

We hereby declare that our proposal is made in good faith, without collusion for fraud and the information contained in the proposal is true and correct to the best of our knowledge and belief. I/We agree that in case any information is found to be incorrect the tender is liable to be rejected at any point of tendering process.

Bid submitted by us is properly sealed and prepared so as to prevent any subsequent alteration and replacement.

We understand that you are not bound to accept the lowest or any bid you may receive.

Thanking you,

Yours faithfully,

(Signature and seal of Tenderer with name, designation and contact no.)

**ACCEPTANCE**

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of Registrar, IIITD for a sum of

Rs. ----- (Rupees -----  
-----)

The documents referred to below shall form part of this contract Agreement:-

- NIT
- Proforma for Agreement
- Additional conditions.
- Special conditions
- Schedule of Quantities &
- Drawings
- General conditions of contract for CPWD Works-2014 with up to date correction slip

For & on behalf of  
Registrar  
IIIT-D

Signature.

.....

Dated.....

Designation.....

## SCHEDULES

### SCHEDULE 'A'

Schedule of quantities (BOQ) : Enclosed

### SCHEDULE 'B'

Schedule of materials to be issued to the contractor NIL

### SCHEDULE 'C'

Tools and plants to be hired to the contractor NIL

### SCHEDULE 'D'

Extra schedule for specific requirements/ documents for the work, if any, NIL

### SCHEDULE 'E'

Schedule of component of Cement, Steel, other materials, Labour etc. for price escalation. NIL

### CLAUSE 10 CC

Component of Cement - expressed as percent of total value work, N / A

Component of Steel-expressed as percent of total work. N / A

Component of civil (except cement & steel) / Electrical construction Materials-expressed as percent of total value of work. N / A

Component of labour-expressed as per cent of total value of work. N / A

Component of P.O.L. - expressed as percent of total value work. N / A

### SCHEDULE 'F'

Reference to Latest General Conditions of contract.

### General Rules & Direction:

Officer inviting tender: Registrar (IIITD)

### Definitions

2(v) Engineer-in-Charge CE

2(viii) Accepting Authority DIRECTOR, IIITD

2(x) Percentage on cost of materials and labour to cover all overheads and profits.	15%
2(xi) Standard Schedule of Rates	DSR-2016
2(xii) Department	IIITD
9(ii) Standard CPWD contract Form	CPWD form 8 -2010 with up to date correction slips.

**Clause 1**

- (i) Time allowed for submission of Performance Guarantee From the date of issue of letter of acceptance 4 days
- (ii) Maximum allowable extension beyond the period (Provided in (I) above) 7days

**Clause 2**

Authority for fixing compensation under clause 2. Director, IIITD

**Clause 2A**

Whether clause 2A shall applicable No

**Clause 5**

Number of days from the date of issue of letter Acceptance for reckoning date of start 7 days

Time allowed for construction 6 months

**Clause 6, 6A**

Clause applicable - (6 or 6A) Clause 6A

**Clause 7**

Gross work to be done together with net payment /adjustment or advance for material collected, if any since the last such payment for being eligible to interim payment. Rs 15Lakhs.

**Clause 10A**

List of testing equipment to be provided by the contractor at site lab.

As required

**Clause 10 B (ii)**

Whether Clauses 10B (ii) (iv) shall be applicable  
-----do-----10B(iii) -----

Yes  
No

**Clause 10CA Escalation**

**Not Applicable**

**Clause 10CC Escalation**

**Not Applicable**

**Clause 11**

Specification to be followed for execution of work

CPWD Specifications 2009,  
Part I & II with Up-to-date  
correction slips

**Clause 12**

Deviation limit beyond which clauses 12.2 & 12.3 shall  
Apply for building work

No limits

**Clause 16**

Competent Authority for deciding reduced rates.

Director, IIITD

**Clause 17**

Contractor liable for Damages defects during  
maintenance period

Applicable

**Clause 18**

List of mandatory machinery, tools & plants to be  
requirement.  
deployed by the contractor at site

As per the site

**Clause 36(i)**

Requirement of Technical Representative (s)

As per requirement.

**Clause 25**

Arbitration Clause

As per special conditions



### SECTION-3

#### 1. PARTICULARS/STRUCTURE&ORGANISATION OF THE FIRM/COMPANY

1.1	Name of Firm/Company	
1.2	Address(s): Registered Office: Head Office: Branch Office(s):	
1.3	Telephone No : Mobile / Landline(s): Contact Person(s) : Telex No.: Fax No : E-mail :	
1.4	Legal Status of the applicant: Type of Company <i>(Attached copies of original document defining legal status):</i> <i>(Please attach a copy of the Registration Certificate of the Company)</i>	(a) An individual (b) A proprietary Firm (c) A Firm in Partnership (d) A Limited Company / Corporation (*Please tick accordingly)
1.5	Particulars of registration with various government bodies (attached attested photocopies) Organization/ place of registration. (1) (2) (3)	Registration No.
1.6	Name and Titles of directors and officers with designation to be concerned with this work.	

1.7	Designation of individual authorized to act for the organization.	
1.8	Was the applicant ever required to suspend supplies for a period of more than 6 months continuously after commencement of supplies? If so, give the name of the project and reason of suspension of work.	
1.9	Has the applicant or any constituent partner in case of partnership firm ever abandoned the awarded work before its completion? If so, give the name of the project and reason of abandonment.	
1.10	Has the applicant or any constituent partner in case of partnership firm ever debarred/black listed for tendering in any organization at any time? If so, give the details.	
1.11	Has the applicant or any constituent partner in case of partnership firm ever been convicted by a court of law? If so, give details.	
1.12	In which field of HEAT PUMP based water heating Systems the applicant has specialization and interest?	
1.13	Any other information considered necessary but not included above.	

**Signature of applicant**

## **2.0 FINANCIAL CAPACITY**

2.1 Credit Facilities/Overdrafts

Name of Bank	Credit Facilities/Overdrafts

2.2 Financial Standing of the last 3 years (as on 31/3/2017);

Length of Establishment	
Shareholder's Fund	

	Year ____	Year ____	Year ____
Authorized Capital			
Paid Up Capital			
Net Worth			
Turnover			
Net Profit/Loss after Tax			
Current Assets			
Current Liabilities			

*Note: To attach complete annual reports with corresponding Statement of Profit & Loss Account certified by chartered accountants and a certified copy of the audited Balance Sheet for the last 3 (three) years as on 31-03-17.*

2.3 **Financial Information**

- 1) Financial Analysis - Details to be furnished only supported by figures in balance sheet. Profit and loss account for the last 3 years duly certified Chartered Accountant as submitted by the applicant to the Income Tax Dept. (copies to be attached) years.

		31/3/2017	31/3/2016	31/3/2015
(i)	Gross Annual turnover			
(ii)	Net Profit / Loss after tax			

- 2) Financial arrangements for carrying out the proposed work.

Following certificates are enclosed:

- a. ....
- b. Solvency certificate from Scheduled Bank / Bankers of the applicant in prescribed form as below;

## FORM OF BANKERS CERTIFICATE FROM A SCHEDULED BANK

This is to certify that to the best of our knowledge and information that M/S Shri.\_\_\_\_\_ having marginally noted address , customer of our bank are/is respectable and can be treated as good for any engagement upto a limit of Rs.\_\_\_\_\_ (Rs.\_\_\_\_\_)

This certificate is issued without any guarantee or responsibility on the bank or any of the officers.

Signature  
(C.A. with seal)

Signature  
(Applicant)

Signature  
(For the Bank)

### NOTE:

1. Bankers Certificate should be on letter head of the bank sealed in cover addressed to authority calling Pre-Qualification applications.
2. In case of Partnership Firm, certificate should indicate names of all the partners as recorded with the Bank.

## **SECTION-4**

### **TABLES FOR INFORMATION/ANNEXURE**

#### **3.0 PARTICULARS OF PROJECTS COMPLETED DURING THE LAST SEVEN YEARS as on 30<sup>th</sup> Nov 2017.**

3.1 Submit details as per Table A.

#### **4.0 PARTICULARS OF CURRENT PROJECTS IN PROGRESS/AWARDED**

4.1 Submit tabulation in the format as per Table B

#### **5.0 PARTICULARS OF SIMILAR PROJECTS COMPLETED IN THE LAST SEVEN YEARS as on 30<sup>th</sup> Nov 2017.**

5.1 Submit tabulation in the format as per Table C, C1/C2/C3

#### **6.0 PARTICULARS OF PERSONNEL AND TOOLS AND EQUIPMENT**

6.1 Submit tabulation in the format as per Table D and E

#### **7.0 SUBMIT NAMES OF QUALIFIED PERSONNEL RESPONSIBLE FOR COORDINATION PROPOSED FOR THE PROJECT**

#### **8. OTHER SUPPORTING DOCUMENTS**

- Copy of Certificate of Registration in case of registration with CPWD/MES/Railways/P&T/AIR/State PWD etc.
- Copy of registration certificate for GST, works contract tax, PF, ESI, labour license and others related to construction works by Central/State Govt. and NCT of Delhi.
- Solvency certificate from a nationalized/scheduled bank & balance sheet
- Copy of ISO certificates,
- Copy of sole ownership / partnership deed /.

**TABLES FOR INFORMATION/ANNEXURE**

**TABLE A - DETAILS OF ALL WORKS OF CLASS/ NATURE COMPLETED DURING THE LAST SEVEN YEARS ENDING LAST DAY OF THE MONTH 30<sup>th</sup> Nov 2017**

S. No.	Name of work/ project and location (Give brief of nature of work)	Owner or sponsoring <u>organization</u> and designation of officer signing agreement	Cost of works in crores of rupees Estimated cost <u>put to tender</u> Tendered Cost	Stipulated date of start as per <u>agreement</u> Actual date of start	Stipulated date of <u>completi on</u> Actual date of completi on	Litigation/ Arbitration Pending / in progress with details*	Name and Address and Phone no. of officer to whom reference maybe made	Give brief reason for delay in executi on	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

\* Indicates gross amount claimed and amount awarded by arbitrator

**Signature of applicant(s)**

**TABLE-B: PARTICULARS OF CURRENT PROJECTS IN PROGRESS/AWARDED**

**- PARTICULARS OF PROJECTS UNDER EXECUTION OR AWARDED**

S.No.	Name of work/ project and location (Give brief of nature of work) Role in project (as main contractor or NSC, State name of main contractor)	Name of client Owner or sponsoring organization	Cost of works in crores of rupees Estimated cost put to tender Tendered Cost	Stipulated date of start as per agreement Actual date of start	Stipulated date of completion	Up to date percentage progress of work	Slow progress if any and reasons thereof	Name and Address/ Phone no. of officer to whom reference maybe made	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

Certified that the above list of works is complete and no work has been left over and that the information given is correct.

**Signature of applicant**

**TABLE-C: PARTICULARS OF SIMILAR PROJECTS COMPLETED IN THE LAST SEVEN YEARS**

**- DETAILS OF ALL WORKS OF SIMILAR CLASS COMPLETED DURING THE LAST SEVEN YEARS ENDING LAST DAY OF THE MONTH AS ON 30<sup>th</sup> Nov 2017**

S. No.	Name of work/project and location (Give brief of nature of work)	Owner or sponsoring organization name and designation of officer signing agreement	Cost of works in crores of rupees Estimated cost put to tender Tendered Cost	Stipulated date of start as per agreement Actual date of start	Stipulated date of completion Actual date of completion	Litigation/ Arbitration Pending in progress with details*	Name and Address and Phone no. of officer to whom reference maybe made	Give brief reason for delay in execution	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

**Signature of applicant(s)**



**FORM OF PERFORMANCE REPORT OF WORKS (REFERRED TO IN TABLE 'A' & 'B')**

1. Name of work/Project and location
2. Agreement Number
3. Estimated cost put to tender
4. Tendered Cost
5. Stipulated date of start
6. Date of completion
  - a) Stipulated date of completion
  - b) Actual date of completion
7. Amount of compensation levied for delayed completion, if any
8. Amount of reduced rate items, if any
9. Performance of work
  - a) Quality of work - very good/ good/ fair/ poor
  - b) Financial soundness - --do--
  - c) Technical proficiency - --do--
  - d) Resourcefulness - --do--
  - e) General Behavior - --do--

Dated:

- to be signed by Executive Engineer in case of Government Department
- General Manager in case of Public Sector Undertaking
- Owner in case of Private

**Table C1 - Detailed information of at least one similar completed work for Minimum value of 0.56 Crores each during the last 7 years ending 30th Nov 2017**

**Project name:**

**Client:** (Name and Address, contact Number of officer to whom reference can be made)

**ROLE IN PROJECT**

(As Main Contractor, if not, state name of Main Contractor with address)

**Architect:**

Name:

Address:

Contact No.:

**Consultants:**

Name:

Address:

Contact No.:

**Project description:**

1. Heat Pump based water heating System

**Estimated Cost put to tender cost:**

**Tender Cost:**

**Actual Cost:**

1. **Project duration (as per contract):** (in months)
2. **Stipulated date of start(dd/mm/yy):**
3. **Stipulated date of Completion (dd/mm/yy):**
4. **Actual date of Completion**
5. **Actual duration (Months):**
6. **Reasons for delay (if any):**

**Certificates to be attached:**

Original or attested copies of letter of award of work and completion certificate mentioning name of work, Estimated cost put to Tender, Tendered Cost, Stipulated period of Completion, Actual period of Completion. Client name & Address, Location of work, Stipulated start and completion date, Actual Start and Completion date, Reasons for Delay (if any), Nature of Work etc.

**Table C2 - Detailed information of at least two similar completed work for Minimum value of 0.42 Crores each during the last 7 years ending 30<sup>th</sup> Nov 2017**

**Project name:**

**Client:** (Name and Address, contact Number of officer to whom reference can be made)

**ROLE IN PROJECT**

(As Main Contractor, if not, state name of Main Contractor with address)

**Architect:**

Name:

Address:

Contact No.:

**Consultants:**

Name:

Address:

Contact No.:

**Project description:**

1. Heat Pump based water heating System

**Estimated Cost put to tender cost:**

**Tender Cost:**

**Actual Cost:**

1. **Project duration (as per contract):** (in months)
2. **Stipulated date of start(dd/mm/yy):**
3. **Stipulated date of Completion (dd/mm/yy):**
4. **Actual date of Completion**
5. **Actual duration (Months):**
6. **Reasons for delay (if any):**

**Certificates to be attached:**

Original or attested copies of letter of award of work and completion certificate mentioning name of work, Estimated cost put to Tender, Tendered Cost, Stipulated period of Completion, Actual period of Completion. Client name & Address, Location of work, Stipulated start and completion date, Actual Start and Completion date, Reasons for Delay (if any), Nature of Work etc.

**Table C3 - Detailed information of at least three similar completed for Minimum value of Rs 0.28 Crores each during the last 7 years ending 30<sup>th</sup> Nov2017**

**Project name:**

**Client:** (Name and Address, contact Number of officer to whom reference can be made)

**ROLE IN PROJECT**

(As Main Contractor, if not, state name of Main Contractor with address)

**Architect:**

Name:

Address:

Contact No.:

**Consultants:**

Name:

Address:

Contact No.:

**Project description:**

1. Heat Pump based water heating System

**Estimated Cost put to tender cost:**

**Tender Cost:**

**Actual Cost:**

1. **Project duration (as per contract):** (in months)
2. **Stipulated date of start(dd/mm/yy):**
3. **Stipulated date of Completion (dd/mm/yy):**
4. **Actual date of Completion**
5. **Actual duration (Months):**
6. **Reasons for delay (if any):**

**Certificates to be attached:**

Original or attested copies of letter of award of work and completion certificate mentioning name of work, Estimated cost put to Tender, Tendered Cost, Stipulated period of Completion, Actual period of Completion. Client name & Address, Location of work, Stipulated start and completion date, Actual Start and Completion date, Reasons for Delay (if any), Nature of Work etc.

**TABLE D - LIST/DETAILS OF TOOLS AND EQUIPMENT**

S.no	Name of equipment	Quantity	Ownership Status			Current Location	Remarks
			Personally owned	Leased	To be purchased		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

**Signature of applicant(s)**

**TABLE-E: PROPOSED PERSONNEL FOR THESE PROJECT- DETAILS OF TECHNICAL & ADMINISTRATIVE PERSONNEL TO BE EMPLOYED FOR THE WORK**

S. No.	Designation	Total number	Numbers available for this work	Names	Qualification	Professional experience and details of work carried out	How these would be involved in this work	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

**Signature of applicant(s)**

**TABLE F - LIST OF SUB-CONTRACTORS FOR SPECIALISED WORKS**

S.NO.	SUB-CONTRACT WORKS	NAME OF CONTRACTOR	YEAR ESTABLISHED	PROJECTS OF SIMILAR NATURE
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Note: Copies of the proposed Sub-Contractor's printout of ROC and BCA Certification of Registration must be submitted

**SECTION-5**

**APPENDIX 1**

**Confidentiality Agreement**

Indraprastha Institute of Information Technology, Delhi (Institute) would like to invite you to submit a Tender Application for Heat Pump based water heating system Works Contractor has to fill in the detail which may contain or involve information, which Institute considers confidential, trade secret, proprietary and/or sensitive.

In order to proceed, please acknowledge that you will regard and preserve as confidential, all information of Institute/Company, its parent, subsidiary and affiliated companies, as well as customers and Consultants of these companies, which is disclosed to, or otherwise obtained by you in whatever form, in connection with this matter. You agree to receive and maintain all such information in trust and confidence, and you will not, without first obtaining written consent, disclose to any person, company or enterprise, or use for your own benefit or the benefit of others (directly or indirectly), any such information. At any time and upon our request, you agree to either return or destroy the originals (and all copies) of such information, documents and/or materials, which are in your possession or under your control.

It should be emphasized that proceeding in this manner does not and will not create, convey or transfer any interest or rights and should not be construed to create a contractual relationship or otherwise obligate either party beyond the terms of this letter. Information will not be considered confidential, trade secret, proprietary or sensitive only to the extent that it is or becomes publicly available through no wrongful act of yours, or if you rightfully receive it from a third party, without restriction.

Please acknowledge your understanding and agreement with the contents of this Confidentiality Agreement by signing and returning this document with your proposal.

Accepted and Agreed To: On behalf Contractor /Firm (Applicant)

Signature with date	
Name & Designation	
Date:	



## SECTION-6

### INFORMATION AND INSTRUCTIONS FOR APPLICANTS FOR TECHNICAL BID

#### 1. General:

- 1.1 Letter of Transmittal Section-1 and Forms/Tables for deciding eligibility for Prequalification are given in Section-3.
- 1.2 All Information called for in the enclosed forms should be furnished against the relevant columns in the Forms / tables. IF for any reason information is furnished on a separate sheet, this fact should be mentioned against the relevant column. Even if no information is to be provided in a column, a "Nil" or "No Such Case" entry should be made in the column. If any particular/query is not applicable in case of the applicants. It should be stated as "not applicable". The applicants are cautioned that not giving complete information called for in the application forms or not giving it in clear forms or making any change in the furnished forms / tables or deliberately suppressing the information may result in the applicant being summarily disqualified. Applications made by telegrams or telex and those received late will not be entertained.
- 1.3 The application should be type written and each page signed and stamped.
- 1.4 Overwriting should be avoided. Correction if any should be made by neatly crossing out, initialing, dating, and rewriting. Pages of the Tender document are numbered. Additional sheets if any added by the contractor should also be numbered by him. They should be submitted as a package with signed letter of transmittal.
- 1.5 References information and certificates from the respective clients certifying suitability, technical know-how or capability of the applicant should be signed by an officer not below the rank of Executive Engineer or equivalent in case of Govt. Dept. / G.M. for Public Sector undertaking and owner in case of Private Company.
- 1.6 The applicant may furnish any additional information which he thinks is necessary to establish his capabilities to successfully complete the envisaged work. No information shall be entertained after submission of Tender document unless it is called for by the employer.
- 1.7 Any information furnished by the applicant found to be incorrect immediately or at a later date would render him liable to be debarred from tendering / taking up of work in the Institutions.

- 1.8 The tender document in prescribed form duly completed and signed should be submitted in a sealed cover. The sealed cover super-scribed for **“Tender for “Package V (R2) - Heat Pump based water heating System at IIITD campus at Okhla-III New Delhi-110020”** shall be received by the Registrar or his authorized representative up to **3.00 PM on 3.01.2018**. Documents submitted in connection with tender will be treated confidential and will not be returned.
- 1.9 Applicants may request clarifications of the Project requirements and Tender document, if any, in writing and email to admin-project@iiitd.ac.in. Any clarification given will be forwarded to all those who have applied/submitted for Tender. No request for clarification will be considered after 27th Dec 2017.

## **2. Definitions**

- 2.1 In this document the following words and expressions have the meaning hereby assigned to them
- 2.2 Institute means the IIIT Delhi acting through Registrar /Chief Engineer/ Architects M/s Sikka Associates Architects and PMC M/s SYConE. Applicant means the individual, proprietary firm, partnership firm, limited company, private public corporation.
- 2.3 “Year” mean “Financial Year” unless stated otherwise.

## **3. Method of Application**

- 3.1 If the applicant is an individual the application shall be signed by him above his full type written name and current address
- 3.2 If the applicant is a proprietary firm the application shall be signed by the proprietor above his full type-written name and the full name of his firm with its current address.
- 3.3 If the applicant is a Partnership firm, the application shall be signed by all the partners of the firm above their full type written names and current addresses or alternatively by a partner holding Power of Attorney for the firm. In this latter case a certified copy of the Power of Attorney should accompany the application. In both cases a certified copy of partnership deed and current address of all the partners of the firm should accompany the application.
- 3.4 If the applicant is a limited company or a corporation, the application shall be signed by a duly authorized person holding Power of Attorney for signing the application accompanied by a copy of the Power of Attorney. The applicant should also furnish a copy of the Memorandum of Association and Articles of Incorporation duly attested by a Public Notary.

#### **4. Final Decision-Making Authority**

The Institute reserves the right to accept or reject any application and to annul the Tender process and reject all applications at any time, without assigning any reason whatsoever without incurring any liability to the applicants.

#### **5. Particulars Provisional**

The particulars of the work given are Provisional. They are liable to change and must be considered only as advance information to assist the applicant in preparation of tender documents only.

#### **6. Site Visit**

The applicant is advised to visit the site of work at his own cost and examine it and its surroundings to satisfy himself, collect all information that he considers necessary for proper assessment of the prospective assignment.

#### **7. Initial Criteria for eligibility**

7.1 The applicant must meet the minimum prequalification requirements in the General Instructions and Conditions.

7.2 The bidding capacity of the contractor should be equal to or more than the estimated cost of the work. The bidding capacity shall be worked out by the following formula;

$$\text{Bidding Capacity} = (A.N.2) - B$$

Where A=maximum value of the construction work executed in any one year during the last five years taking into account the completed as well as works in Progress.

N= number of years prescribed for completion of work for which pre-qualification application has been invited.

B=Value of the existing commitments and ongoing works to be completed during the period of completion of work for which pre-qualification has been invited.

7.3 The applicant should own required Equipment for timely execution of the work. Else he should certify that he would be able to manage the equipment by hiring etc and submit the list of firms from whom he proposes to hire.

7.4 The applicant should have sufficient number of Tech and Admin employees for the Proper execution of the contract. The applicant should submit a list of those employees stating clearly how these would be involved in the work.

8. The applicants Performance for each work completed in the last seven years and in hand should be certified by an officer not below the rank of Executive

Engineer in case of Govt. Dept / G.M for Public Sector and owner in Private Sector.

## 9. Evaluation criteria for Tender

9.1 For the purpose of Tender applications will be evaluated in the following manner

9.1.1 The initial criteria prescribed in Para 7.1 to 7.5 above in respect of on presence of similar class of works be scrutinized and applicant's eligibility for Tender for the work be determined.

9.1.2 The applicants qualifying the initial criteria / minimum Tender requirements will be evaluated for following criteria by scoring methods on the basis of details furnished by them:

- |                                                                                   |                  |
|-----------------------------------------------------------------------------------|------------------|
| (a) Financial strength (Section-3 (2)                                             | Maximum 20 marks |
| (b) Experience in similar nature<br>of work during last seven years (Table A/B/C) | --Do--           |
| (c1) Performance of Works (Table C1/C2/C3)<br>Time                                | Maximum 25 marks |
| (c2) Performance of Works (Table C1/C2/C3)<br>Quality                             | Maximum 15 marks |
| (d) Plant & Machinery (Table D)                                                   | Maximum 10 marks |
| (e) Personal Establishments (Table E)                                             | Maximum 10 marks |

9.2 Even though an applicant may satisfy the above requirements he would be liable to disqualification if he has:

- Made misleading or false information or deliberately suppressed the information in his tables. Statements and enclosures required in the Tender documents.
- Record of poor performance such as abandoning work not properly completing the contract or financial failures / weaknesses etc.

## 9. Organization Information

Applicant is required to submit the following information in respect of his organization.

- (a) Name and postal address, Telephone, Telex Numbers, Fax, E-mail etc.
- (b) Copies of original documents defining the legal status, place of Registration and Principal places of business.
- (c) Names and titles of Director and officers to be concerned with the work with designation of individuals authorized to act for the organization.
- (d) Information on any litigation in which the applicant was involved during the last Five Years, including current litigation
- (e) Authorization for employer to seek detailed references
- (f) Number of Technical and Admn. Personnel / Employees in Parent Company, Subsidiary Company and how these would be involved in this work.

## 10. Plan and Equipment

Details of any other Plants and Equipment required for the work (not included) in the list and available with the applicant may also be indicated.

## 11. Letter of Transmittal

The applicant should submit the letter of transmittal attached with Tender documents

## 12. Tender Submission

After evaluation of Tender applications, a list of qualified agencies will be prepared. Thereafter pre-qualified agencies only would be invited to submit tenders for the work.

### 13.1 Award Criteria

The employer reserves the right, without being liable for any damages or obligation to inform the applicant to:

- (a) Amend the scope and value of contract to the applicant
- (b) Reject any or all of the applications without assigning any reason
- (c) Award works of part or whole of the Contract or different items of works/supplies to different vendors from amongst the shortlisted vendors depending on the samples selected/approved by the IIITD Committee

**13.2** Any effort on the part of the applicant or his agent to exercise influence or to pressurize the institute would result in rejection of his application. Canvassing of any kind is prohibited.

## SPECIAL CONDITIONS

1. In the event of the tender being submitted by a firm, it must be signed by a person duly authorized through a power of attorney issued by all the partners and a certified copy of the power of attorney should be enclosed with the forwarding letter or separately by each member thereof, or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power of attorney authorizing him to do so and such power of attorney shall be produced with the tender and it must disclose that the firm is registered under the Indian partnership Act.  
Each and every signature given shall be separately witnessed. A Contractor or a contractor who himself / themselves has/have tendered or who may tender for the work shall not witness the tender of another person for the same work. Failure to observe this condition would render tenders of the contractors tendering as well as witnessing the tenders liable for summary rejection.
2. The conditions for item rate tender only will be applicable as given in general conditions of contract for central PWD works 2010. As mentioned there in also, in event no rate has been quoted for any items leaving space bolts in figure (s), word(s) and amount blank, it will be presumed that the contractor has included the cost of this/these item(s) in other item(s) and rate for such items will be considered as zero and work will be required to be executed accordingly.
3. Rates quoted as percentage below/above in the tender will be summarily rejected.
4. It must be understood that the work has to be completed as per the time provided in the contract and as such time is the essence of the contract.
5. The quantities furnished in the bills of quantities are only probable quantities liable to alternation by omission, deduction or addition, and it would be clearly understood that the contract is **not a lump sum contract** and the IIITD do not, in any way, assure the tenderer or guarantee that the said probable quantities are correct or that the work would correspond thereto. Payments will be regulated on the actual quantities of work authorizedly done and measured at the accepted rates. No claims due to change in quantities (+ or -) will be entertained. The drawings, forming parts of complementary installations work specifications and the bills of quantities, of the contract, are explanatory of and are to one another, representing together the works / to be carried out. If neither the drawings nor the specifications nor the accepted bills of quantities include any part/parts the intention to include which is nevertheless clearly inferred and which are obviously necessary for the proper completion of the works/ installations, all such parts shall be supplied and executed by the contractor at no extra charge. Anything contained in one or another of

- (a) the drawings, (b) the specifications and (c) the accepted bills of quantities and not found in the others will be equally binding as if it were contained in each of them.
6. No alterations, which are made by the tenderer in the drawings, specifications, conditions or probable quantities accompanying this notice will be recognized and if any such alterations are made the tender, will be invalid. Conditional tenders will however be liable for rejection.
  7. The tenderer must obtain for himself on his own responsibility and at his own expense all the information necessary, including risks, contingencies and other circumstances to enable him to make a proper tender and to enter into a contract with the IIITD. He must examine the drawings, specifications, conditions and so on and must inspect the site of work, examine the nature of the ground and the subsoil (so far as is practicable) and acquaint himself with local conditions, means of access to the work, storage facilities or areas for staff colony, the nature of the work, in fact all matters pertaining thereto before he submits his tender.
  8. The tenderer shall also bear all expenses in connection with the preparation and submission of his tender and attendance for subsequent negotiations/clarifications.
    - (I) Omission, neglect or failure on the part of the tenderer to obtain requisite and reliable information on any matter affecting his tender, the contract and the construction, completion, maintenance, (dismantling and disposal) of the work shall not relieve the tenderer whose tender is accepted from any liability in respect of the contract.
    - (II) The tenderer whose tender is accepted shall not be entitled to make any claim for increase in the rates quoted and accepted excepting in pursuance of any specific provision in the contract.
  9. The Contractor, upon award of work, shall furnish the following details for the approval of the Engineer in charge:
    - 9.1. The names of manufacturers of specialized items such as patented water proofing systems / materials
    - 9.2. The makes and types of fittings, materials, subject to the makes and type stipulated in the specifications, which he proposes to use in the work.
    - 9.3. The details of licenses granted to him and/or to professional qualified and/or licensed technical personnel on his staff who will be engaged on the work (and submit, if called for, the licenses for inspection by the Officer in charge in consultation with Engineer in charge).
    - 9.4. Only approved agencies/ skilled workers shall be deployed to carry out requisite specialized items of work. The Officer/ Engineer in charge's decision in consultation with Architect's/ in this regard



shall be binding to all the parties concerned.

10. The rates quoted in the bills of quantities shall unless specified otherwise will be for all heights, depths deemed to be for finished work in-situ/ item by item as provided for, and shall include cost for all necessary material and labours, all necessary tools and plants and machinery, sheds, marking out, clearing site, etc. and for all taxes, GST and any other tax or duty levied by Government, Central or Local, or Local Authority, if any as applicable.
  - 10.1. The rates shall be firm and not be subject to any variations in exchange rates, in taxes, duties etc. in railway freight and the like including labour conditions, etc. The rates are not subject to escalation.
11. It will be the sole responsibility of the contractor to procure all the equipments/ materials and other materials required for the work.
13. The IIITD further reserves the right to delete or reduce at any time, any section of the bills of quantities with out assigning any reasons whatsoever there for and no claim will be entertained in this regard.
14. The tenderer whose tender is accepted is bound to execute formal agreement with the IIITD within one week of the date of intimation of award of work in accordance with the draft agreement which will include conditions of tender, form of tender (general conditions of contract for central PWD works 2010), Articles of Agreement, Bills of quantities, Conditions of contract, Special conditions if any, the drawings and specifications, but his liability under the contract shall commence from the date of written order to commence work whether the formal agreement is drawn or not.

The Contractor shall bear all expenses in connection with the execution of the said agreement including fees for stamping and registration of documents as required.
15. The Security Deposit will bear no interest what so ever until the date of release.
16. a) The contractor, upon award of work, shall submit a memorandum of procedure giving the outline of his general scheme, programme and time table, in the form of a chart that shall be scrutinized and approved (with modifications as necessary), which shall become the approved programme for execution. The approved programme shall be the basis for assessment of comparative progress under the relevant conditions of contract.
  - (b). Over and above, the contractor has to supply programme chalked out showing important milestones to be achieved and the progress actually achieved compared with, the target of the same in the programme and shortfall, if any planned for being made up in the programme for next month.

17. (a) The work in general shall conform to the CPWD Specifications 2009 with up to date correction slips & any other latest civil specification published by CPWD, New Delhi and the "Specifications for works".  
(b) In case items not covered by the general specifications referred above, reference shall be made to the appropriate I.S. Code.  
(c) Should there be any difference in the particular specifications of individual item of work and the description of item as given in the Schedule of quantity, the latter shall prevail, which will be as per the relevant drawing.  
(d) In case of any work for which there is no specification in I.S. specifications or in the specifications forming part of tender documents or in case there is any variation, such work shall be carried out in all respects in accordance with the instructions to be issued by the Engineer in charge.
18. On acceptance of the tender the Contractor shall in writing and at once inform the IIITD and the Architects the name of his accredited representative(s) who will be responsible to take instructions from the Architects / Officer in Charge.  
The work of any part of it shall not be transferred, assigned or sublet without the written consent of the IIITD.
19. The Contractor shall be required to co-operate and work in co-ordination with and afford reasonable facilities for such other agencies / specialists / interior designers / consultants as may be employed by the Architects / Project Management Consultant/ Officer in Charge on other works / sub-works in connection with the project/scheme of which this work forms a part.
20. The Contractor shall get the necessary insurance done for their personal employed/ company insurance, third party insurance, marine insurance, all risk insurance or any other insurance as required.
21. The Contractor shall make arrangements of carrying water and electricity beyond one point where same shall be provided and recovery @1% of the cost of works shall be effected accordingly.
22. The Contractor is required to comply with all Acts of Government relating to labour, safety, environment and other Rules and Regulations made there under from time to time and to submit at the proper times all particulars and statements required to be furnished to the appropriate Authorities.
23. **Delay and extension of time**  
If in the opinion of the Architect/PMC/Owner the Work is delayed:
  - a) By force majeure, or
  - b) By reason of any exceptionally inclement weather, or
  - c) By reason of proceedings taken or threatened by or dispute with adjoining or neighboring owners or public authorities arising otherwise than through the Contractor's own default, or

- d) By the works or delays of other Contractor or tradesmen engaged or nominated by the Owner or the Architect/PMC and not referred to in the Schedule of Quantities and/or Specification, or
  - e) By reason of Architect's/PMC/Owner Instructions to delay work, or
  - f) By reason of civil commotion, local combination of workmen or strike or lock-out affecting any of the building traders, or
  - g) In consequence of the Contractor not having received in due time necessary Instructions from the Architect/PMC/Owner for which he shall have specifically applied in writing,  
Then the Architect/PMC/Owner shall make a fair and reasonable extension of time for completion of the Contract Work; in case of such strike or lock-out the Contractor shall, as soon as may be, give written notice thereof to the Architect/PMC/Owner, but the Contractor shall nevertheless constantly use his endeavors to prevent delay and shall do all that may reasonably be required to the satisfaction of the Architect to proceed with the work.
24. Failure by Contractor to comply with Architect's Instructions  
If the Contractor after receipt of written notice from the Architect requiring compliance fails within ten days to comply with such further drawings and/or Architect's Instructions the Owner with the consent of the Architect may employ and pay other persons to execute any such work whatsoever that may be necessary to give effect thereto, and all costs incurred in connection therewith shall be recoverable from the Contractor.
25. **Termination or Abridgment of Contract by the Owner**
- a) If the Contractor being an individual or a Firm commit any 'Act or Insolvency' or shall be adjudged an Insolvent or being an Incorporated Company or Society shall have an order for compulsory winding up made against it or pass an effective resolution for winding up voluntarily or subject to the supervision of the Court and of the Official Assignee of the Liquidator in such acts of insolvency or winding up shall be unable within seven days after notice to him requiring him to do so, to show to the reasonable satisfaction of the Architect that he is able to carry out and fulfill the Contract, and to give security therefore, if so required by the Architect, or
  - b) If the Contractor (whether an individual, Firm, Incorporated Company or Society) shall suffer execution to be issued, or
  - c) Shall suffer any payment under this Contract to be attached by or on behalf of any or the creditors of the Contractor, or
  - d) Shall assign or sublet this Contract without the consent in writing of the Architect/PMC first obtained, or
  - e) Shall charge or encumber this Contract or any payments due or which may become due to the Contractor there under, or

- f) If the Architect/PMC shall certify in writing to the Owner that the Contractor:
- i) Has abandoned the Contract, or
  - ii) Has failed to commence the works, or has without any lawful excuse under these Conditions suspended the progress of the works for 14 days after receiving from the Architect/PMC/Owner written notice to proceed, or
  - iii) Has failed to proceed with the works with such due diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or
  - iv) Has failed to remove materials from the site or to pull down and replace work for seven days after receiving from the Architect written notice the said materials or work were condemned and rejected by the Architect under these conditions, or
  - v) Has neglected or failed persistently to observe and perform all or any of the acts, matters or things by this Contract to be observed and performed by the Contractor for seven days after written notice shall have been given to the Contractor requiring the Contractor to observe or perform the same, or
  - vi) Has to the detriment of good workmanship or in defiance of the Architect's/PMC Instructions to the contrary sub-let any part of the Contract,
26. Then and in any of the said cases the Owner with the written consent of the Architect/PMC may, notwithstanding any previous waiver, after giving seven days' notice in writing to the Contractor, determine the Contract, but without hereby affecting the powers of the Architect or the obligations and liabilities of the Contract the whole of which shall continue in force as fully as if the Contract had not been so determined and as if the works subsequently executed had been executed by or on behalf of the Contractor. The costs of these works are therefore recoverable from the Contractor. And further, the Owner under instructions of the Architect, by his Agents or servants may enter upon and take possession of the works and all plants, tools, scaffolding, sheds, machinery, steam and other power utensils and materials lying upon the premises or the adjoining lands or roads, and use the same as his own property or may employ the same by means of his own servants and workmen in carrying on and completing the works or by employing any other Contractor or other person or persons to complete the Work, and the Contractor shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other Contractor or other person or persons employed for completing and finishing or using the materials and plant for the Work. When the Work shall be completed or as soon thereafter as

- convenient the Architect shall give a notice in writing to the Contractor to remove his surplus materials and plant, and should the Contractor fail to do so within a period of 14 days after receipt thereof by him, Owner shall sell the same, and shall give credit to the Contractor for the amount realized. The Architect shall thereafter ascertain and certify in writing what (if anything) shall be due or payable to or by the Owner for the value of the said plant and materials so taken possession of by the Owner and the expense or loss which the Owner shall have been put to in procuring the works to be completed, and the amount, if any, owing to the Contractor and the amount which shall be so certified shall thereupon be paid by the Owner to the Contractor or by the Contractor to the Owner, as the case may be, and the certificate of the Architect shall be final and conclusive between the parties.
27. If at any time after the commencement of the work the Owner shall for any reason whatsoever not require the whole thereof, as specified in the tender, to be carried out, but need to abridge the Contract, the Owner shall give notice in writing of the fact to the Contractor who shall have no claim to any payment or compensation which he might have derived from the execution of the work in full, but which he did not derive in consequence of the whole amount of the work not having been carried out. The Contractor shall in this case, however, be entitled to payment for the work already executed by him in accordance with the agreed rates. The Owner shall also take over all building materials as might have been ordered for the work, but orders for which cannot be canceled, if delivered within a reasonable time, and shall pay for them at cost price. The Contractor shall also be allowed to remove his tools and plants from the site.
28. Termination of Contract by Contractor
- a) If payment of the amount payable by the Owner under Certificate of the Architect /PMC for beyond two months from date of issue of certificate due to reason not attributable to the contractor.
  - b) The Owner commits any 'Act of Insolvency', or
  - c) If the Owner (being an individual, or firm) shall be adjudged an Insolvent, or (being an Incorporated Company or Society) shall have an order made against him or pass an effective resolution for winding up, either compulsorily or subject to the supervision of the Court or voluntarily, or if the Official Assignee or the Owner shall repudiate the contract, or if the Official Assignee or the Liquidator in any such winding up shall be unable within fifteen days after notice to him requiring him so to do, to show to the reasonable satisfaction of the Contractor that he is able to carry out and fulfill the Contract and to make all payments due, and to

- become due there under and, if required by the Contractor, to give security of the same, or
- d) If the works be stopped for three months or more under a continuous spell under the order of the Architect /PMC or the Owner or by any injunction or other order of any Court of Law,
29. Then and in any of the above said (Clause28) cases the Contractor shall be at liberty to determine the Contract by notice in writing to the Owner, through the Architect, and he shall be entitled to recover from the Owner payment for all works executed and cost of the material supplied and lying at site for the purpose of the Contract as on the said day of the termination. No other claim for idle labour, loss of overheads , profits shall be entertained nor shall any other claim on account of the delay in completion of the work /availability of site/ unwarranted conditions whatsoever shall be tenable, even if it is caused by circumstances beyond the Contractor's control.

### **30. Procedure for Settlement of Disputes**

#### **30.1 Engineer's Decision**

If a dispute of any kind whatsoever arises between IIIT-Delhi and the contractor in connection with, or arising out of , the contract or the execution of the works, whether during the execution of the works or after their completion and whether before or after any repudiation or other termination of the contract, including any dispute as to any opinion, instruction, determination, certificate or valuation of the engineer, the matter in dispute shall, in the first place, be referred in writing to the engineer, with a copy to all parties. Such reference shall be made within one (1) month of arising of any such dispute and state that it is made pursuant to this clause. No later than one (1) month after the day on which he received such reference the engineer shall give notice of his decision to IIIT-Delhi and the contractor. Such decision shall state that it is made pursuant to the reference under this clause.

Unless the contract has already been repudiated or terminated, the contractor shall in every case, continue to proceed with the works with all due diligence and the contractor and IIIT-Delhi shall give effect forthwith to any / every such decision of the engineer unless and until the same shall be revised, as hereinafter provided, in an amicable settlement or an arbitral award. If either IIIT-Delhi or the contractor be dissatisfied with any decision of the engineer, or if the engineer fails to give notice of his decision on or before one (1) month after the day on which he received the reference, then either IIIT-Delhi or the contractor may within a further period of one (1) month from the day on which it / they receive(s) the

notice of such decision, or on the day on which the said period of notice of / for decision expired, as the case may be, give notice to the other party, with copy for information to the engineer, of its / their intention to commence arbitration. Such notice shall establish the entitlement of the party giving the same to commence arbitration, as hereinafter provided, as to such dispute and no arbitration in respect thereof may be commenced unless such notice is given. If the engineer has given notice of his decision as to a matter in dispute to IIIT-Delhi and the contractor and no notification of intention to commence arbitration as to such dispute has been given by either IIIT-Delhi or the contractor as herein provided, the said decision shall become final and binding upon IIIT-Delhi and the contractor.

**30.2. Amicable Settlement**

Where notice of intention to commence arbitration as to a dispute has been given in accordance with sub-clause 22.1, arbitration of such dispute shall not be commenced unless an attempt has first been made by the parties to settle such dispute amicably. Provided that, unless the parties otherwise agree, arbitration may be commenced on or after one (1) month from the day on which notice of intention to commence arbitration of such dispute was given, whether or not any attempt at amicable settlement thereof has been made or result achieved.

**30.3. Arbitration**

Any dispute in respect of which:

- a) the decision, if any, of the engineer has not become final and binding pursuant to the first sub-clause above,
- b) amicable settlement has not been reached within the period stated in the second sub-clause above,

shall be finally settled, unless otherwise specified in the contract, by arbitration to be held in New Delhi in English, under the provisions of the Arbitration and Conciliation Act 1996, including any statutory reenactment(s)/amendment(s) thereof and Rules made thereunder, by the arbitrator. The Director of the Institute shall appoint one person as the sole arbitrator. Either party shall be limited in the proceeding before such arbitrator to evidence or arguments put before the engineer for the purposes of obtaining the said decision pursuant to the first sub-clause herein. No such decision shall disqualify the engineer from being called as a witness and giving evidence before the arbitrator on any matter whatsoever relevant to the dispute. Arbitration proceedings shall not be commenced prior to the completion of the works, unless any major pre-requisite criticality is discerned by the arbitrator, and the obligations of IIIT-Delhi, the

engineer and the contractor shall not be altered by reason of the arbitration. The works shall not be stopped on account of the said process of arbitration and the contractor shall not be relieved of his responsibilities for the completion of the work under any circumstances whatsoever.

**31.2. Contractor to provide everything necessary**

The Contractor shall provide everything necessary for the proper execution of the Work according to the intent and meaning of the Drawings, Schedule of Quantities and Specifications taken together whether the same may or may not be particularly shown or described therein provided that the same can reasonably be inferred there from, and if the Contractor finds any discrepancy in the Drawings or between the Drawings, Schedule of Quantities and Specification he shall immediately and in writing refer the same to the Architect who shall decide which is to be followed.

**31.3. Materials and Workmanship to conform to Descriptions**

All materials and workmanship shall so far as procurable be of the respective kinds described in the Schedule of Quantities and/or Specification and in accordance with the Architect's Instructions, and the Contractor shall upon the request of the Architect furnish him with all invoices, accounts, receipts and other vouchers to prove that the materials comply therewith. The Contractor shall at his own cost arrange for and/or carry out any test of any materials which the Architect may require.

**31.4. Assignment and Sub-letting**

The whole of the works included in the Contract shall be executed by the Contractor and the Contractor shall not directly or indirectly transfer, assign or underlet the Contract or any part share thereof or interest therein without the written consent of the Architect, and no undertaking shall relieve the Contractor from the full and entire responsibility of the Contract or from active superintendence of the Work during its progress.

**31.5. Removal of improper work**

The Architect shall, during the progress of the Work, have the power to order the removal, from the Site or works within such reasonable time or times as may be specified in the order, of any materials which in the opinion of the Architect are not in accordance with the Specification or the Instructions of the Architect, the substitution of proper materials, and the removal and proper re-execution of any works executed with materials or workmanship not in accordance with the Drawings, Specifications or



Instructions and the Contractor shall forthwith carry out such order at his own cost. In case of default on the part of the Contractor to carry out such order, the Owner shall have the power to employ and pay other persons to carry out the same, and all expenses consumed thereon or incidental thereto as certified by the Architect shall be borne by the Contractor, or may be deducted by the Owner from any moneys due or that may become due to the Contractor.

### ADDITIONAL CONDITIONS

1. General conditions of contract for Central PWD Works 7/8 (Tender of Form) shall be part of the agreement.
2. The work shall be carried out strictly as per CPWD specifications 2009, Part I & II with up to date correction slips. Wherever no specification is available in the above said document, drawings and specifications supplied with bill of quantities shall be applicable
3. The Contractor shall have to clear the site for the work of all overlying rubbish /garbage/dumped refuse material prior to commencement of the work in case required at no extra cost. The contractor shall take approval from the Engineer /Officer in Charge in writing for collection and stacking of materials.
4. The contractor must follow CPWD Safety Code as provided in general conditions of contract for CPWD Works.
5. Any damage done by the contractor or his workmen to any existing work during the course of execution of the work shall be made good by him at his own cost.
6. Contractor shall clear the site thoroughly of all rubbish etc. left out of his materials immediately on completion of the work and properly keep the site clean around the building to the satisfaction of the Engineer- in-Charge.
7. The preference of the codes will be IS codes.
8. The rates are inclusive of all staging, material and labour as required for the works. The items in the bill of quantities include all the materials, labour, and installation, complete as a finish items unless otherwise stated.
9. Unless specifically mentioned otherwise, quoted Rates shall be deemed to include work to be carried out at all curvatures, heights, depths, inclinations and locations, and in wet/foul locations, as and when they are encountered. The rates quoted for the various works as specified in the Priced Schedule of Quantities are work in all types of soils/rock and prevailing Site conditions including earth work, excavation, shoring, execution of various other items of work, i.e., laying of pipes, joining, concreting, masonry, plastering, etc. in and under water and dewatering as required. Nothing extra is payable on this account.
10. All security precautions shall be taken during dismantling work. The site shall be fenced /barricaded with suitable material during construction period. No payment shall be made for fencing/barricading work. Fencing/barricading shall be done immediately after possession of site and shall be removed after completion of construction period
11. No space on site/otherwise for labour huts shall be provided by IIITD, cost of same shall be borne by contractor.
12. The general condition of contract for Central P.W.D. Works has reference of various laws /acts /rules. The settlement of any disputes and

arbitration, only Indian arbitration and conciliation act 1996 shall be applicable.

13. In case any specific brand of material has been specified either the same brand or of approved make of same specifications shall be used. The contractor shall take approval in advance for all such materials.
14. Costs for all materials and labour for the preparation of samples, market research, etc. shall be borne by the Contractor within his quoted Rates and nothing extra shall be payable for this. The works shall not be proceeded with without approval of the sample. In case sample is rejected and works cannot be proceeded with the IIITD shall be at liberty to terminate the contract and the Contractor shall have no claim for the works under such circumstances whatsoever.
15. The contractor should take utmost care to avoid any damage to the existing flooring, electrical works/cables, telephone cables, false ceiling, sprinkler system, fire alarm, terrace waterproofing walling, piping etc. in place. In case of any damage, it would be the responsibility of the contractor to restore the same immediately.

CORRIGENDUM TO FORM 7/ 8 / 9 (CPWD) MUST BE READ ALONG WITH THE PAMPHLET

S.No	FOR	READ
1	Government of India/Owner	Indraprastha Institute of Information Technology Delhi
2	C.P.W.D. or Government or Department	Indraprastha Institute of Information Technology Delhi
3	CPWD -7/8/9	CPWD 7/8/9
4	President / President of India	Chairman, BOG,IIITD
5	Chief-Engineer	Director, IIITD
6	Superintending Engineer	CE, IIITD
9	Administration Head	Registrar, IIITD
11	CPWD Code, Paragraph '90	Shall be applicable to IIITD works
12	DSR'2016	Shall be applicable to IIITD works
13	CPWD specifications 2009 part - I& II	Shall be applicable to IIITD works
14	DSR (Internal) 2014 for Electrical works	Shall be applicable to IIITD works
15	CPWD specifications (Internal) 2007 for Electrical works	Shall be applicable to IIITD works
16	DSR External 2013 for Electrical works and specifications	Shall be applicable to IIITD works
17	Provision of Section 12 Sub-Section (i) of the works man	Shall be applicable to IIITD works

	compensation	
18	CPWD safety Code framed from time to time	Shall be applicable to IIITD works
19	CPWD maternity benefits to labour	Shall be applicable to IIITD works
20	Model Rules of the protection of health and sanitary appointment for workers employed by CPWD	Shall be applicable to IIITD works
21	CPWD contractor labour Regulations	Shall be applicable to IIITD works

## SPECIFICATIONS:

### 1. GENERAL:

- 1.1. Without forgoing the requirements of the conditions of Tender and the Conditions of Contract the works in general shall conform to the "Specifications 2009" published by CPWD, New Delhi and the "Specifications for works" stated in this tender. In case items not covered by the general specifications referred above, reference shall be made to the appropriate I.S. Codes. If there is any difference in the particular specifications of individual item of work and the description of item as given in the Schedule of quantity, the latter shall prevail. In case of any work for which there is no specification in I.S. specifications in the specifications forming part of tender documents or in case there is any variation, such work shall be carried out in all respects in accordance with the instructions to be issued by the Engineer-in-charge. The term Officer in Charge appearing in the specifications shall mean supervisor and be in Charge of the work or his authorized representative as the context may demand. All corrections to "Specifications 2009" or latest revisions of I.S. Code/ Specification shall be deemed to apply to this contract.
  - 1.1.1. Materials bearing ISI certification mark certification shall be given highest preference for use in the works. Where the Contractor is required to do, perform, execute (etc.) any work or service or the like, it shall be deemed to be at his own cost. Absence of terms providing, Supplying, installing, fixing, etc. shall not even remotely entitle the Contractor to any additional payment there for
  - 1.1.2. The rates accepted in the Schedule of Quantities apply to all floors, heights, depths, leads, lifts, spans, sizes, shapes, locations, etc. unless a distinction has been included in the very Schedule.
  - 1.1.3. The Specifications and the Schedules may have been divided into various sub-heads for convenience only. This does not limit applicability of one to the other nor does it absolve the Contractor of his responsibility to complete any trade / item of work as reasonably inferred from one or more of such sub-heads.
  - 1.1.4. The Schedule of Quantities is not necessarily based on "Schedule of Rates - Delhi 2016 or any of its later/ earlier versions. Hence the Schedule of Quantities shall be read and construed according to explanations given herein and intentions gathered there from. A mere parallel drawn form the said Schedule of Rates shall therefore not form a basis for a variation and, or additional payment.
  - 1.1.5. All work under this contract is deemed to be performed above subs soil water level. However, removal of water collected from rains and the like shall be treated as part of contractual risk/obligation.
  - 1.1.6. Screws, bolts, nuts, washers, hold fasts, lugs, anchors, clamps, plugs, suspenders, brackets, straps and fasteners of the like are

deemed to be included in the rates of various items unless the Schedule of Quantities expressed a different intention.

- 1.1.7. Resetting any displacements, making good holes/chases and such other incidental jobs are included in rates of respective items for which these are required.

**2. DRAWINGS, SPECIFICATIONS, INTERPRETATIONS ETC.:**

In general, drawings shall indicate the dimensions, positions and type of construction, the specifications shall stipulate the qualities and the methods and performance criteria, and the schedule of quantities shall indicate the provisional quantities and the rates for each item of work. However, the above documents being complementary, what is called for by any one shall be as binding as if called for by all. In case of contradictory requirements between specifications and schedule of quantities, the requirements given in the schedule of quantities shall prevail.

Special conditions being mainly an amplification of General Conditions, they shall be read in conjunction with each other.

Work indicated on the drawings and not mentioned in the schedule of quantities or specifications or vice versa, shall be deemed as though fully set forth in each. Work not specifically detailed, called for, marked or specified, shall be the same as similar parts that are detailed, marked or specified.

**Special Note**

**Though every care is taken while preparing this document to cover all necessary matters, specifications, general conditions, special conditions, provisions for smooth and complete execution of work, however in case of any omission in the tender/ contract document, latest correction slips of general conditions of contract for CPWD works 2010 will be the reference manual but not in supersession to aforesaid conditions.**

**SCHEDULE OF QUANTITIES ENCLOSED AS ANNEXURE-I**

**MAKES OF MATERIALS ENCLOSED AS ANNEXURE-II**

**SPECIFICATIONS ENCLOSED AS ANNEXURE-III**

**SCHEDULE OF QUANTITIES**

**ANNEXURE-I**

<b>S.NO</b>	<b>Block</b>	<b>SUMMARY</b>	<b>Total Cost</b>	<b>GST</b>	<b>Total incl taxes</b>
<b>1</b>	<b>G1</b>	Hot water rated ouput volume - 700 Ltr/Hr			
<b>2</b>	<b>G2</b>	Hot water rated ouput volume - 700 Ltr/Hr			
<b>3</b>	<b>B1</b>	Hot water rated ouput volume - 700 Ltr/Hr			
<b>4</b>	<b>H1</b>	Hot water rated ouput volume - 1500 Ltr/Hr			
<b>5</b>	<b>H2</b>	Hot water rated ouput volume - 1500 Ltr/Hr			
		<b>TOTAL AMOUNT</b>			



**PROJECT : INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY, NEW DELHI**  
**SUBJECT : BILL OF QUANTITIES FOR HEAT PUMP (GIRLS HOSTEL G1)**

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>A)</b>	<b>AIR SOURCE HEAT PUMP FOR GENERATING HOT WATER</b>				
1	Providing, fixing, testing and commissioning of Heat pumps using energy heat source from ambient air to Hot water, of High efficiency and energy saving operation, capable of heating water at 55 <sup>o</sup> to 60 <sup>o</sup> C with silent operation (the sound level should not exceed 65 dB). The Heat Pump shall have LCD display control panel with built in diagnostic and troubleshooting information and an inbuilt cycle for defrosting in case icing occurs on evaporator including all other mounting, fitting and controls, all interconnecting wiring/cabling between heat pump and electric panel etc complete in all respect with but not limited to following specifications.				
	TECHNICAL SPECIFICATIONS FOR EACH UNIT				
i)	Hot water rated ouput volume - 700 Ltr/Hr				
ii)	Power Supply V/Ph/Hz : 400~440V/3 PH/50Hz				
iii)	Suggested Maximum output water temperature in Deg C : 55 <sup>o</sup> to 60 <sup>o</sup> C				
iv)	ambient temperature range in Deg C : -5 <sup>o</sup> C~43 <sup>o</sup> C				
v)	Type of Fan : Low Noise axial fan				
vi)	Suggested Noise level: DBA <63				
vii)	Suggested COP: 4.62				
	(Technical detail as per attached Annexure - I to be filled. Technical details and shop drawings to be approved before procurement)				
	No of Pumps (1 W+1S)	Nos.	2		
<b>2</b>	<b>Hot Water Storage Tank</b>				
	Providing, fixing ,testing and commissioning the Hot Water Storage Tank of following Capacity consisting of S.S 304/316 cylindrical shape clarifier tank. (inlet temperature of hot water storage tank 60-65 deg.C) suitable for minimum 4 Kg /Sqm working pressure. Tank shall be provided with water flow meter, inlet / outlet, overflow, drain connection with MH cover, 6 mm thick SS tank, pressure relief valves, pressure gauge at inlet / outlet with isolation cock, thermometer at inlet / outlet, ball Valve, safety valve,check valve etc. The complete system to be tested to a pressure of 10 Kg/cm2 complete in all respects including temperature indicators, thermostat and other required accessories. Tank shall be insulated with 100 mm thick crown 150 grade & 50 mm rock wool pads of approved quality and cladded with 24 SWG aluminium sheet cladding.				
	TANK CAPACITY - 4000 Ltr.	Nos.	1		

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>3</b>	<b>Hot Water Recirculation Pumps in Heat pump and tank.</b>				
	Providing, fixing ,testing and commissioning suitable complete horizontal/ vertical multistage centrifugal pumping set having stainless steel (SS 304) impellers & shaft and single mechanical seal with pumps suitable for 415 Volts, 3 Phase 50 cycles A.C Supply complete with all standard accessories including , M.S.channel, base plate complete with vibration isolators, isolating valve on suction and discharge, non return valve on discharge, pressure gauges with stop cock and dial type thermometer on suction or discharge.(suitable for hot water temperature up to 85 deg C.) The pump 2 No (1 working+1standby) complete with Control Unit Panel for automatic Cold & Hot water circulation, manifolds , as per the approval of Project-in-charge complete with base frame, necessary foundation as per requirement				
	No of Pump - 2 (1W+1S)				
	Flow - 1000 LPH Per Pump				
	Head - 15 M	Set	1		
<b>4</b>	<b>Hot Water Return Pump</b>				
	Providing, fixing ,testing and commissioning suitable complete horizontal/ vertical multistage centrifugal pumping set having stainless steel (SS 304) impellers & shaft and single mechanical seal with pumps suitable for 415 Volts, 3 Phase 50 cycles A.C Supply complete with all standard accessories including , M.S.channel, base plate complete with vibration isolators, isolating valve on suction and discharge, non return valve on discharge, pressure gauges with stop cock and dial type thermometer on suction or discharge.(suitable for hot water temperature up to 85 deg C.) The pump 2 No (1 working+1standby) complete with Control Unit Panel for automatic Cold & Hot water circulation, manifolds , as per the approval of Project-in-charge complete with base frame, necessary foundation as per requirement				
	No of Pump - 2(1W+1S)				
	Flow - 1000 LPH Per Pump				
	Head - 15 M	Set	1		

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>5</b>	<b>Hydropneumatic Pump</b>				
	Supply, Installation, Testing & Commissioning of complete composite hydropneumatic system consisting of horizontal /vertical multistage centrifugal pump having stainless steel SS-304 stage casing and SS 304 impellers with stainless steel SS-304 shaft as per IEC standards and GJL250 cast iron suction & discharge casing with single mechanical seal and pressurised tank of suitable capacity as per manufacturer calculation, complete with all standard accessories including pressure switch, pressure gauges, non-return & isolating valves on suction and delivery side with nuts, bolts & washer including mild steel flanges, where ever required with 3 mm thick rubber insertion, with necessary protection and operational devices i.e alternate pumping operation and shut-off during dry running conditions etc. with suitable electrical motor to be operated on 210/220 OR 400/440 volt 50 cycle AC supply, suitable for following duty and with total no. of pumps - 2 nos.(1 working+1standby) complete with Control Unit Panel, manifolds & chassis, as per the approval of Project-in-charge complete complete with M.S fabricated base frame, nuts and bolts bolted to cement concrete foundations complete as per requirement.				
	No of Pump - 2(1W+1S)				
	Flow - 1000 LPH Per Pump				
	Head - 15 M	Set	1		
<b>6</b>	<b>Electrical Panel:</b>				
	Providing, fixing ,testing and commissioning for M.S fabricated power coated electrical control panel main switch Ampere Voltage Frequency indicator cum controller, MCCB for Heat pump, DOL Starter for recirculation pump and Hot water Return pump & Hydropneumatic Pump for with contactors and over load relay, ON/OFF switch Heat pumps and recirculation pumps. 63 amp rating TP Module case circuit brakers with neutral link, 4 Bars tinned Aluminium bus bar, LED Type induction light, TIC (temperature indicator controller for tank with sensor), 63 amp TPA MCCB for heat pump with indicators, Auto dual starter motor and pump. Each shall have Auto / Manually selected switch overload relay, single /three phasing preventor, ON/OFF trip indicator lamp and timer for recirculation pump,Hot water return pump& cold water supply pump complete in all respects and other accessories to make the item operationable.	Set	1		
	<b>Sub Total</b>				
	Add GST @18%				
	<b>TOTAL</b>				

**PROJECT : INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY, NEW DELHI**  
**SUBJECT : BILL OF QUANTITIES FOR HEAT PUMP (GIRLS HOSTEL G2)**

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>A)</b>	<b>AIR COOLED HEAT PUMP FOR GENERATING HOT WATER</b>				
1	Providing, fixing, testing and commissioning of Heat pumps using energy heat source from ambient air to Hot water, of High efficiency and energy saving operation, capable of heating water at 55 <sup>0</sup> to 60 <sup>0</sup> C with silent operation (the sound level should not exceed 65 dB). The Heat Pump shall have LCD display control panel with built in diagnostic and troubleshooting information and an inbuilt cycle for defrosting in case icing occurs on evaporator including all other mounting, fitting and controls, all interconnecting wiring/cabling between heat pump and electric panel etc complete in all respect with but not limited to following specifications.				
	TECHNICAL SPECIFICATIONS FOR EACH UNIT				
i)	Hot water rated output volume - 700 Ltr/Hr				
ii)	Power Supply V/Ph/Hz : 400~440V/3 PH/50Hz				
iii)	Suggested Maximum output water temperature in Deg C : 55 <sup>0</sup> to 60 <sup>0</sup> C				
iv)	ambient temperature range in Deg C : -5 <sup>0</sup> C~43 <sup>0</sup> C				
v)	Type of Fan : Low Noise axial fan				
vi)	Suggested Noise level: DBA <63				
vii)	Suggested COP: 4.62				
	(Technical detail as per attached Annexure - I to be filled. Technical details and shop drawings to be approved before procurement)				
	No of Pumps (1 W+1S)	Nos.	2		
<b>2</b>	<b>Hot Water Storage Tank</b>				
	Providing, fixing ,testing and commissioning the Hot Water Storage Tank of following Capacity consisting of S.S 304/316 cylindrical shape clarifier tank. (inlet temperature of hot water storage tank 60-65 deg.C) suitable for minimum 4 Kg /Sqm working pressure. Tank shall be provided with water flow meter, inlet / outlet, overflow, drain connection with MH cover, 6 mm thick SS tank, pressure relief valves, pressure gauge at inlet / outlet with isolation cock, thermometer at inlet / outlet, ball Valve, safety valve,check valve etc. The complete system to be tested to a pressure of 10 Kg/cm2 complete in all respects including temperature indicators, thermostat and other required accessories. Tank shall be insulated with 100 mm thick crown 150 grade & 50 mm rock wool pads of approved quality and cladded with 24 SWG aluminium sheet cladding.				
	TANK CAPACITY - 4000 Ltr.	Nos.	1		

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>3</b>	<b>Hot Water Recirculation Pumps in Heat pump and tank.</b>				
	Providing, fixing ,testing and commissioning suitable complete horizontal/ vertical multistage centrifugal pumping set having stainless steel (SS 304) impellers & shaft and single mechanical seal with pumps suitable for 415 Volts, 3 Phase 50 cycles A.C Supply complete with all standard accessories including , M.S.channel, base plate complete with vibration isolators, isolating valve on suction and discharge, non return valve on discharge, pressure gauges with stop cock and dial type thermometer on suction or discharge.(suitable for hot water temperature up to 85 deg C.) The pump 2 No (1 working+1standby) complete with Control Unit Panel for automatic Cold & Hot water circulation, manifolds , as per the approval of Project-in-charge complete with base frame, necessary foundation as per requirement				
	No of Pump - 2 (1W+1S)				
	Flow - 1000 LPH Per Pump				
	Head - 15 M	Set	1		
<b>4</b>	<b>Hot water Return pump</b>				
	Providing, fixing ,testing and commissioning suitable complete horizontal/ vertical multistage centrifugal pumping set having stainless steel (SS 304) impellers & shaft and single mechanical seal with pumps suitable for 415 Volts, 3 Phase 50 cycles A.C Supply complete with all standard accessories including , M.S.channel, base plate complete with vibration isolators, isolating valve on suction and discharge, non return valve on discharge, pressure gauges with stop cock and dial type thermometer on suction or discharge.(suitable for hot water temperature up to 85 deg C.) The pump 2 No (1 working+1standby) complete with Control Unit Panel for automatic Cold & Hot water circulation, manifolds , as per the approval of Project-in-charge complete with base frame, necessary foundation as per requirement				
	No of Pump - 2(1W+1S)				
	Flow - 1000 LPH Per Pump				
	Head - 15 M	Set	1		

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>5</b>	<b>Hydropneumatic Pump</b>				
	Supply, Installation, Testing & Commissioning of complete composite hydropneumatic system consisting of horizontal /vertical multistage centrifugal pump having stainless steel SS-304 stage casing and SS 304 impellers with stainless steel SS-304 shaft as per IEC standards and GJL250 cast iron suction & discharge casing with single mechanical seal and pressurised tank of suitable capacity as per manufacturer calculation, complete with all standard accessories including pressure switch, pressure gauges, non-return & isolating valves on suction and delivery side with nuts, bolts & washer including mild steel flanges, where ever required with 3 mm thick rubber insertion, with necessary protection and operational devices i.e alternate pumping operation and shut-off during dry running conditions etc. with suitable electrical motor to be operated on 210/220 OR 400/440 volt 50 cycle AC supply, suitable for following duty and with total no. of pumps - 2 nos.(1 working+1standby) complete with Control Unit Panel, manifolds & chassis, as per the approval of Project-in-charge complete complete with M.S fabricated base frame, nuts and bolts bolted to cement concrete foundations complete as per requirement.				
	No of Pump - 2(1W+1S)				
	Flow - 1000 LPH Per Pump				
	Head - 15 M	Set	1		
<b>6</b>	<b>Electrical Panel:</b>				
	Providing, fixing ,testing and commissioning for M.S fabricated power coated electrical control panel main switch Ampere Voltage Frequency indicator cum controller, MCCB for Heat pump, DOL Starter for recirculation pump and Hot water Return pump & Hydropneumatic Pump for with contactors and over load relay, ON/OFF switch Heat pumps and recirculation pumps. 63 amp rating TP Module case circuit brakers with neutral link, 4 Bars tinned Aluminium bus bar, LED Type induction light, TIC (temperature indicator controller for tank with sensor), 63 amp TPA MCCB for heat pump with indicators, Auto dual starter motor and pump. Each shall have Auto / Manually selected switch overload relay, single /three phasing preventor, ON/OFF trip indicator lamp and timer for recirculation pump,Hot water return pump& cold water supply pump complete in all respects and other accessories to make the item operationable.	Set	1		
	<b>Sub Total</b>				
	Add GST				
	<b>TOTAL</b>				

**PROJECT : INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY, NEW DELHI**  
**SUBJECT : BILL OF QUANTITIES FOR HEAT PUMP (BOYS HOSTEL B1)**

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>A)</b>	<b>AIR COOLED HEAT PUMP FOR GENERATING HOT WATER</b>				
1	Providing, fixing, testing and commissioning of Heat pumps using energy heat source from ambient air to Hot water, of High efficiency and energy saving operation, capable of heating water at 55 <sup>0</sup> to 60 <sup>0</sup> C with silent operation (the sound level should not exceed 65 dB). The Heat Pump shall have LCD display control panel with built in diagnostic and troubleshooting information and an inbuilt cycle for defrosting in case icing occurs on evaporator including all other mounting, fitting and controls, all interconnecting wiring/cabling between heat pump and electric panel etc complete in all respect with but not limited to following specifications.				
	TECHNICAL SPECIFICATIONS FOR EACH UNIT				
i)	Hot water rated ouput volume - 700 Ltr/Hr				
ii)	Power Supply V/Ph/Hz : 400~440V/3 PH/50Hz				
iii)	Suggested Maximum output water temperature in Deg C : 55 <sup>0</sup> to 60 <sup>0</sup> C				
iv)	ambient temperature range in Deg C : -5 <sup>0</sup> C~43 <sup>0</sup> C				
v)	Type of Fan : Low Noise axial fan				
vi)	Suggested Noise level: DBA <63				
vii)	Suggested COP: 4.62				
	(Technical detail as per attached Annexure - I to be filled. Technical details and shop drawings to be approved before procurement)				
	No of Pumps (1 W+1S)	Nos.	2		
<b>2</b>	<b>Hot Water Storage Tank</b>				
	Providing, fixing ,testing and commissioning the Hot Water Storage Tank of following Capacity consisting of S.S 304/316 cylindrical shape clarifier tank. (inlet temperature of hot water storage tank 60-65 deg.C) suitable for minimum 4 Kg /Sqm working pressure. Tank shall be provided with water flow meter, inlet / outlet, overflow, drain connection with MH cover, 6 mm thick SS tank, pressure relief valves, pressure gauge at inlet / outlet with isolation cock, thermometer at inlet / outlet, ball Valve, safety valve,check valve etc. The complete system to be tested to a pressure of 10 Kg/cm2 complete in all respects including temperature indicators, thermostat and other required accessories. Tank shall be insulated with 100 mm thick crown 150 grade & 50 mm rock wool pads of approved quality and cladded with 24 SWG aluminium sheet cladding.				
	TANK CAPACITY - 4000 Ltr.	Nos.	1		

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>3</b>	<b>Hot Water Recirculation Pumps in Heat pump and tank.</b>				
	Providing, fixing ,testing and commissioning suitable complete horizontal/ vertical multistage centrifugal pumping set having stainless steel (SS 304) impellers & shaft and single mechanical seal with pumps suitable for 415 Volts, 3 Phase 50 cycles A.C Supply complete with all standard accessories including , M.S.channel, base plate complete with vibration isolators, isolating valve on suction and discharge, non return valve on discharge, pressure gauges with stop cock and dial type thermometer on suction or discharge.(suitable for hot water temperature up to 85 deg C.) The pump 2 No (1 working+1standby) complete with Control Unit Panel for automatic Cold & Hot water circulation, manifolds , as per the approval of Project-in-charge complete with base frame, necessary foundation as per requirement				
	No of Pump - 2 (1W+1S)				
	Flow - 1000 LPH Per Pump				
	Head - 15 M	Set	1		
<b>4</b>	<b>Hot water Return pump</b>				
	Providing, fixing ,testing and commissioning suitable complete horizontal/ vertical multistage centrifugal pumping set having stainless steel (SS 304) impellers & shaft and single mechanical seal with pumps suitable for 415 Volts, 3 Phase 50 cycles A.C Supply complete with all standard accessories including , M.S.channel, base plate complete with vibration isolators, isolating valve on suction and discharge, non return valve on discharge, pressure gauges with stop cock and dial type thermometer on suction or discharge.(suitable for hot water temperature up to 85 deg C.) The pump 2 No (1 working+1standby) complete with Control Unit Panel for automatic Cold & Hot water circulation, manifolds , as per the approval of Project-in-charge complete with base frame, necessary foundation as per requirement				
	No of Pump - 2(1W+1S)				
	Flow - 1000 LPH Per Pump				
	Head - 15 M	Set	1		



S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>5</b>	<b>Hydropneumatic Pump</b>				
	Supply, Installation, Testing & Commissioning of complete composite hydropneumatic system consisting of horizontal /vertical multistage centrifugal pump having stainless steel SS-304 stage casing and SS 304 impellers with stainless steel SS-304 shaft as per IEC standards and GJL250 cast iron suction & discharge casing with single mechanical seal and pressurised tank of suitable capacity as per manufacturer calculation, complete with all standard accessories including pressure switch, pressure gauges, non-return & isolating valves on suction and delivery side with nuts, bolts & washer including mild steel flanges, where ever required with 3 mm thick rubber insertion, with necessary protection and operational devices i.e alternate pumping operation and shut-off during dry running conditions etc. with suitable electrical motor to be operated on 210/220 OR 400/440 volt 50 cycle AC supply, suitable for following duty and with total no. of pumps - 2 nos.(1 working+1standby) complete with Control Unit Panel, manifolds & chassis, as per the approval of Project-in-charge complete complete with M.S fabricated base frame, nuts and bolts bolted to cement concrete foundations complete as per requirement.				
	No of Pump - 2(1W+1S)				
	Flow - 1000 LPH Per Pump				
	Head - 15 M	Set	1		
<b>6</b>	<b>Electrical Panel:</b>				
	Providing, fixing ,testing and commissioning for M.S fabricated power coated electrical control panel main switch Ampere Voltage Frequency indicator cum controller, MCCB for Heat pump, DOL Starter for recirculation pump and Hot water Return pump & Hydropneumatic Pump for with contactors and over load relay, ON/OFF switch Heat pumps and recirculation pumps. 63 amp rating TP Module case circuit brakers with neutral link, 4 Bars tinned Aluminium bus bar, LED Type induction light, TIC (temperature indicator controller for tank with sensor), 63 amp TPA MCCB for heat pump with indicators, Auto dual starter motor and pump. Each shall have Auto / Manually selected switch overload relay, single /three phasing preventor, ON/OFF trip indicator lamp and timer for recirculation pump,Hot water return pump& cold water supply pump complete in all respects and other accessories to make the item operationable.	Set	1		
	<b>Sub Total</b>				
	Add GST @18%				
	<b>TOTAL</b>				

**PROJECT : INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY, NEW DELHI**  
**SUBJECT : BILL OF QUANTITIES FOR HEAT PUMP (HOSTEL H1)**

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>A)</b>	<b>AIR COOLED HEAT PUMP FOR GENERATING HOT WATER</b>				
1	Providing, fixing, testing and commissioning of Heat pumps using energy heat source from ambient air to Hot water, of High efficiency and energy saving operation, capable of heating water at 55 <sup>o</sup> to 60 <sup>o</sup> C with silent operation (the sound level should not exceed 65 dB). The Heat Pump shall have LCD display control panel with built in diagnostic and troubleshooting information and an inbuilt cycle for defrosting in case icing occurs on evaporator including all other mounting, fitting and controls, all interconnecting wiring/cablings between heat pump and electric panel etc complete in all respect with but not limited to following specifications.				
	<b>TECHNICAL SPECIFICATIONS FOR EACH UNIT</b>				
i)	Hot water rated output volume - 1500 Ltr/Hr				
ii)	Power Supply V/Ph/Hz : 400~440V/3 PH/50Hz				
iii)	Suggested Maximum output water temperature in Deg C : 55 <sup>o</sup> to 60 <sup>o</sup> C				
iv)	ambient temperature range in Deg C : -5 <sup>o</sup> C~43 <sup>o</sup> C				
v)	Type of Fan : Low Noise axial fan				
vi)	Suggested Noise level: DBA <63				
vii)	Suggested COP: 4.62				
	(Technical detail as per attached Annexure - I to be filled. Technical details and shop drawings to be approved before procurement)				
	No of Pumps (2 W+1S)	Nos.	3		
<b>2</b>	<b>Hot Water Storage Tank</b>				
	Providing, fixing ,testing and commissioning the Hot Water Storage Tank of following Capacity consisting of S.S 304/316 cylindrical shape clarifier tank. (inlet temperature of hot water storage tank 60-65 deg.C) suitable for minimum 4 Kg /Sqm working pressure. Tank shall be provided with water flow meter, inlet / outlet, overflow, drain connection with MH cover, 6 mm thick SS tank, pressure relief valves, pressure gauge at inlet / outlet with isolation cock, thermometer at inlet / outlet, ball Valve, safety valve,check valve etc. The complete system to be tested to a pressure of 10 Kg/cm2 complete in all respects including temperature indicators, thermostat and other required accessories. Tank shall be insulated with 100 mm thick crown 150 grade & 50 mm rock wool pads of approved quality and cladded with 24 SWG aluminium sheet cladding.				
	TANK CAPACITY - 6500 Ltr.	Nos.	2		

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>3</b>	<b>Hot Water Recirculation Pumps in Heat pump and tank.</b>				
	Providing, fixing ,testing and commissioning suitable complete horizontal/ vertical multistage centrifugal pumping set having stainless steel (SS 304) impellers & shaft and single mechanical seal with pumps suitable for 415 Volts, 3 Phase 50 cycles A.C Supply complete with all standard accessories including , M.S.channel, base plate complete with vibration isolators, isolating valve on suction and discharge, non return valve on discharge, pressure gauges with stop cock and dial type thermometer on suction or discharge.(suitable for hot water temperature up to 85 deg C.) The pump 3 No (2 working+1standby) complete with Control Unit Panel for automatic Cold & Hot water circulation, manifolds , as per the approval of Project-in-charge complete with base frame, necessary foundation as per requirement				
	No of Pump - 3 (2W+1S)				
	Flow - 1500 LPH Per Pump				
	Head - 15 M	Set	1		
<b>4</b>	<b>Hot water Return pump</b>				
	Providing, fixing ,testing and commissioning suitable complete horizontal/ vertical multistage centrifugal pumping set having stainless steel (SS 304) impellers & shaft and single mechanical seal with pumps suitable for 415 Volts, 3 Phase 50 cycles A.C Supply complete with all standard accessories including , M.S.channel, base plate complete with vibration isolators, isolating valve on suction and discharge, non return valve on discharge, pressure gauges with stop cock and dial type thermometer on suction or discharge.(suitable for hot water temperature up to 85 deg C.) The pump 3 No (2 working+1standby) complete with Control Unit Panel for automatic Cold & Hot water circulation, manifolds , as per the approval of Project-in-charge complete with base frame, necessary foundation as per requirement				
	No of Pump - 3(2W+1S)				
	Flow - 1500 LPH Per Pump				
	Head - 15 M	Set	1		
<b>5</b>	<b>COLD WATER SUPPLY PUMP</b>				
	Supply, Installation, Testing & Commissioning of complete composite hydropneumatic system consisting of horizontal /vertical multistage centrifugal pump having stainless steel SS-304 stage casing and SS 304 impellers with stainless steel SS-304 shaft as per IEC standards and GJL250 cast iron suction & discharge casing with single mechanical seal and pressurised tank of suitable capacity as per manufacturer calculation, complete with all standard accessories including pressure switch, pressure gauges, non-return & isolating valves on suction and delivery side with nuts, bolts & washer including mild steel flanges, where ever required with 3 mm thick rubber insertion, with necessary protection and operational devices i.e alternate pumping operation and shut-off during dry running conditions etc. with suitable electrical motor to be operated on 210/220 OR 400/440 volt 50 cycle AC supply, suitable for following duty and with total no. of pumps - 3 nos.(2 working+1standby) complete with Control Unit Panel, manifolds & chassis, as per the approval of Project-in-charge complete complete with M.S fabricated base frame, nuts and bolts bolted to cement concrete foundations complete as per requirement.				
	No of Pump - 3(2W+1S)				
	Flow - 1500 LPH Per Pump				
	Head - 15 M	Set	1		
<b>6</b>	<b>Electrical Panel:</b>				
	Providing, fixing ,testing and commissioning for M.S fabricated power coated electrical control panel main switch Ampere Voltage Frequency indicator cum controller, MCCB for Heat pump, DOL Starter for recirculation pump and Hot water Return pump & Hydropneumatic Pump for with contactors and over load relay, ON/OFF switch Heat pumps and recirculation pumps. 63 amp rating TP Module case circuit brakers with neutral link, 4 Bars tinned Aluminium bus bar, LED Type induction light, TIC (temperature indicator controller for tank with sensor), 63 amp TPA MCCB for heat pump with indicators, Auto dual starter motor and pump. Each shall have Auto / Manually selected switch overload relay, single /three phasing preventor, ON/OFF trip indicator lamp and timer for recirculation pump,Hot water return pump& cold water supply pump complete in all respects and other accessories to make the item operationable.	Set	1		
	<b>Total</b>				
	Add GST				
	Net cost of the system				

**PROJECT : INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY, NEW DELHI**  
**SUBJECT : BILL OF QUANTITIES FOR HEAT PUMP (HOSTEL H2)**

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>A)</b>	<b>AIR COOLED HEAT PUMP FOR GENERATING HOT WATER</b>				
1	Providing, fixing, testing and commissioning of Heat pumps using energy heat source from ambient air to Hot water, of High efficiency and energy saving operation, capable of heating water at 55 <sup>0</sup> to 60 <sup>0</sup> C with silent operation (the sound level should not exceed 65 dB). The Heat Pump shall have LCD display control panel with built in diagnostic and troubleshooting information and an inbuilt cycle for defrosting in case icing occurs on evaporator including all other mounting, fitting and controls, all interconnecting wiring/cabling between heat pump and electric panel etc complete in all respect with but not limited to following specifications.				
	TECHNICAL SPECIFICATIONS FOR EACH UNIT				
i)	Hot water rated ouput volume - 1500 Ltr/Hr				
ii)	Power Supply V/Ph/Hz : 400~440V/3 PH/50Hz				
iii)	Suggested Maximum output water temperature in Deg C : 55 <sup>0</sup> to 60 <sup>0</sup> C				
iv)	ambient temperature range in Deg C : -5 <sup>0</sup> C~43 <sup>0</sup> C				
v)	Type of Fan : Low Noise axial fan				
vi)	Suggested Noise level: DBA <63				
vii)	Suggested COP: 4.62				
	(Technical detail as per attached Annexure - I to be filled. Technical details and shop drawings to be approved before procurement)				
	No of Pumps (2 W+1S)	Nos.	3		
<b>2</b>	<b>Hot Water Storage Tank</b>				
	Providing, fixing ,testing and commissioning the Hot Water Storage Tank of following Capacity consisting of S.S 304/316 cylindrical shape clarifier tank. (inlet temperature of hot water storage tank 60-65 deg.C) suitable for minimum 4 Kg /Sqm working pressure. Tank shall be provided with water flow meter, inlet / outlet, overflow, drain connection with MH cover, 6 mm thick SS tank, pressure relief valves, pressure gauge at inlet / outlet with isolation cock, thermometer at inlet / outlet, ball Valve, safety valve,check valve etc. The complete system to be tested to a pressure of 10 Kg/cm2 complete in all respects including temperature indicators, thermostat and other required accessories. Tank shall be insulated with 100 mm thick crown 150 grade & 50 mm rock wool pads of approved quality and cladded with 24 SWG aluminium sheet cladding.				
	TANK CAPACITY - 6500 Ltr.	Nos.	2		

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>3</b>	<b>Hot Water Recirculation Pumps in Heat pump and tank.</b>				
	Providing, fixing ,testing and commissioning suitable complete horizontal/ vertical multistage centrifugal pumping set having stainless steel (SS 304) impellers & shaft and single mechanical seal with pumps suitable for 415 Volts, 3 Phase 50 cycles A.C Supply complete with all standard accessories including , M.S.channel, base plate complete with vibration isolators, isolating valve on suction and discharge, non return valve on discharge, pressure gauges with stop cock and dial type thermometer on suction or discharge.(suitable for hot water temperature up to 85 deg C.) The pump 2 No (1 working+1standby) complete with Control Unit Panel for automatic Cold & Hot water circulation, manifolds , as per the approval of Project-in-charge complete with base frame, necessary foundation as per requirement				
	No of Pump - 3 (2W+1S)				
	Flow - 1500 LPH Per Pump				
	Head - 15 M	Set	1		
<b>4</b>	<b>Hot water Return pump</b>				
	Providing, fixing ,testing and commissioning suitable complete horizontal/ vertical multistage centrifugal pumping set having stainless steel (SS 304) impellers & shaft and single mechanical seal with pumps suitable for 415 Volts, 3 Phase 50 cycles A.C Supply complete with all standard accessories including , M.S.channel, base plate complete with vibration isolators, isolating valve on suction and discharge, non return valve on discharge, pressure gauges with stop cock and dial type thermometer on suction or discharge.(suitable for hot water temperature up to 85 deg C.) The pump 2 No (1 working+1standby) complete with Control Unit Panel for automatic Cold & Hot water circulation, manifolds , as per the approval of Project-in-charge complete with base frame, necessary foundation as per requirement				
	No of Pump - 3 (2W+1S)				
	Flow - 1500 LPH Per Pump				
	Head - 15 M	Set	1		

S. No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs.)
<b>5</b>	<b>COLD WATER SUPPLY PUMP</b>				
	Supply, Installation, Testing & Commissioning of complete composite hydropneumatic system consisting of horizontal /vertical multistage centrifugal pump having stainless steel SS-304 stage casing and SS 304 impellers with stainless steel SS-304 shaft as per IEC standards and GJL250 cast iron suction & discharge casing with single mechanical seal and pressurised tank of suitable capacity as per manufacturer calculation, complete with all standard accessories including pressure switch, pressure gauges, non-return & isolating valves on suction and delivery side with nuts, bolts & washer including mild steel flanges, where ever required with 3 mm thick rubber insertion, with necessary protection and operational devices i.e alternate pumping operation and shut-off during dry running conditions etc. with suitable electrical motor to be operated on 210/220 OR 400/440 volt 50 cycle AC supply, suitable for following duty and with total no. of pumps - 3 nos.(2 working+1standby) complete with Control Unit Panel, manifolds & chassis, as per the approval of Project-in-charge complete complete with M.S fabricated base frame, nuts and bolts bolted to cement concrete foundations complete as per requirement.				
	No of Pump - 3 (2W+1S)				
	Flow - 1500 LPH Per Pump				
	Head - 15 M	Set	1		
<b>6</b>	<b>Electrical Panel:</b>				
	Providing, fixing ,testing and commissioning for M.S fabricated power coated electrical control panel main switch Ampere Voltage Frequency indicator cum controller, MCCB for Heat pump, DOL Starter for recirculation pump and Hot water Return pump & Hydropneumatic Pump for with contactors and over load relay, ON/OFF switch Heat pumps and recirculation pumps. 63 amp rating TP Module case circuit brakers with neutral link, 4 Bars tinned Aluminium bus bar, LED Type induction light, TIC (temperature indicator controller for tank with sensor), 63 amp TPA MCCB for heat pump with indicators, Auto dual starter motor and pump. Each shall have Auto / Manually selected switch overload relay, single /three phasing preventor, ON/OFF trip indicator lamp and timer for recirculation pump,Hot water return pump& cold water supply pump complete in all respects and other accessories to make the item operationable.	Set	1		
	<b>Total cost of the project</b>				
	Add GST				
	Net Cost of the System				

**LIST OF APPROVED MAKES OF MATERIALS**

<b>S. No.</b>	<b>Materials</b>	<b>IS No.</b>	<b>Brand Name</b>
1.	G.I. pipes	1239 Pt-I	JINDAL HISSAR JINDAL STAR
2.	G.I. Fittings	1879 (Part I to X)	UNIK K. S
3.	Heat pump and Tank		INTER SOLAR/VENUS/ AO SMITH
4.	C.I double flanged non-return valve	5312	KIRLOSKAR LEADER AIP
5.	Ball Valve		SKS ZOLOTO
6.	Butterfly Valve	13095-1991	AUDCO KSB AIP
7.	“Y” Type/ Bucket type Strainer	4308	SANT/ ZOLOTO/AIP/LEADER
8.	Insulation		CAREFLEX/KAIFLEX/ARMAFLEX/THERMAFLEX
9.	Panel		ADVANCE/CONQUERENT DIAMOND/MILESTONE
10.	Switch gear		L&T SIEMENS ABB HAVELS
11.	Digital temp indicator		SELEC NEUTRONICS AUTONIX
12.	Water Supply Pumps		GRUNDFOS KSB WILOW
13.	Pressure Gauge		FIEBIG H. GURU

PROJECT : INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY, NEW DELHI

SUBJECT : TECHNICAL SPECIFICATIONS FOR HEAT PUMP

S. NO.	DESCRIPTION	TECHNICAL SPECIFICATIONS / DETAILS AS PER VENDOR				
		GIRLS HOSTEL (G1 BLOCK)	GIRLS HOSTEL (G2 BLOCK)	BOYS HOSTEL (B1 BLOCK)	HOSTEL (H1 BLOCK)	HOSTEL (H2 BLOCK)
1	Rated Heating capacity (In Ltr/Hr)					
2	Output Water temperature (0°C)					
3	Heating capacity (KW & KCAL/HR)					
4	Make / Model of Heat Pump					
5	Power Input (KW)					
6	Compressor scroll /Refrigerant					
7	COP					
8	Operation noise level					
9	Water Proof Class					
10	Weight of Heat pump					
11	Any other details					