



**MANOHAR PARRIKAR INSTITUTE FOR
DEFENCE STUDIES AND ANALYSES**
मनोहर पर्रिकर रक्षा अध्ययन एवं विश्लेषण संस्थान

Supply, Installation, Testing and Commissioning of Cooling Tower at Manohar Parrikar Institute for Defence Studies and Analyses .

Item	Supply, Installation, Testing and Commissioning of Cooling Tower at Institute's Main Office Building, New Delhi -110010
e-Tender no
Mode Of Tender	Through Government e- marketing system (Gem) (Online Part I - Techno-Commercial Bid and Part II - Price Bid)
Date of NIT available to parties to download	From 11:00 AM of 15 September , 2022
Tender Fees	Rs – Nil
Pre-Bid meeting	11:00 hrs on 30th September , 2022
Earnest Money Deposit	Rs. 50000/- by D.D.in favour of Manohar Parrikar Institute for Defence Studies and Analyses , New Delhi -110010
Last date of submission of EMD	Till 2:00 PM on October 11, 2022
Date of Starting of e-Tender for submission of on line Techno-Commercial Bid and price Bid at GEM	4:00 PM of September 15, 2022
Date of closing of online e-tender for submission of Techno-Commercial Bid & Price Bid	2:00 PM of October 11, 2022
Date & time of opening of Part-I (i.e. Techno-Commercial Bid) Part-II Price Bid: Date of opening of Part II i.e. price bid shall be informed separately	3:00 PM of October 11, 2022

*** Tenderers desirous of attending pre bid meeting should inform or send queries by 16:00Hrs of September 30th , 2022 to gavathi.idsa@nic.in

**Name of the work: Supply, Installation, Testing and Commissioning of Cooling Towers
for MP-IDSA , Main Office Building, New Delhi-110010**

PART I

Name of the Tenderer: _____

Address: _____

Date of Pre-Bid Meeting: 11.00 AM on September 30, **2022**

Date of Submission: 02:00 PM on October 11, **2022**

Date of opening of Part 1 on October 11, **2022 at 3:00 PM**

Notice inviting e-Tender

Supply, Installation, Testing and Commissioning of Cooling Tower at Institute's Main Office Building, New Delhi through GEM – E-tender

1. Online Tenders by **E-Tendering (GEM)** process are invited for above work at Main Office Building, MP-IDSA The work is estimated to cost Rs.30.92 Lakhs including of GST as per general market survey and is to be completed within 75 days from the date of work order.
2. All the Pre-Qualification papers shall be uploaded on GEM site. Same will be downloaded after bid opening date for examination by the Institute. One Set of hard copy (alongwith EMD) to be submitted in tender box kept at reception
3. The Earnest Money Deposit (EMD) in the form of DD/Irrevocable Bank Guarantee/proof paid by NEFT shall be submitted in sealed cover addressed by name to **MP-IDSA , Shankar Vihar, Delhi Cantt-110010** so as to reach up to **2:00 PM** on October 11, 2022 superscripted as “EMD forSITC of Cooling Tower at MP-IDSA Main Office Building, Delhi Cantt, New Delhi-110010.
4. Online tenders will be allowed to view /download to all firms from 11 AM of September 15, 2022. **The firms which do not comply with the following pre-qualification criteria and do not submit EMD, will not be considered for opening of their tender Part-II**

Pre Qualification Requirement for General Contractor

- i. **The intending tenderer must be a Manufacturer having minimum 5 years of experience in carrying out Cooling Towers installation works for office buildings/commercial premises. The similar work* should have been completed on or before September 30 , 2022.**
- ii. **The intending tenderer must and have executed successfully similar works*, during last five years ending on March 31, 2022 as under:**
 - (a) **Three works each costing not less than the amount equal to 40% of the estimated cost**

OR
 - (b) **Two works each costing not less than the amount equal to 50% of the estimated cost**

OR
 - (c) **One work costing not less than the amount equal to 80% of the estimated cost.**
- iii. **Minimum yearly Average turnover of 100% of the estimated cost during last 3 financial years supported by audited financial statements.**
- iv. **Should have service setup at the place of proposed work in Delhi-NCR for rendering after sales service (The Proof of Service setup such as Electricity bill/Telephone bill/ Rent Agreement .etc. along with authorization letter (if applicable) is to be enclosed) in Part- I of the tender).**

Pre Qualification Requirement for MSME Bidders

- (i) **The intending tenderer must be a Manufacturer having minimum 3 years of experience in carrying out Cooling Towers installation works for office buildings/commercial premises. The similar work* should have been completed on or before October 11 , 2022.**
- a. **The intending tenderer must and have executed successfully similar works*, during last three years ending on March 31, 2022 as under:**
- i. **Three works each costing not less than the amount equal to 25% of the estimated cost**
OR
- ii. **Two works each costing not less than the amount equal to 40% of the estimated cost**
OR
- iii. **One work costing not less than the amount equal to 60% of the estimated cost.**
- b. **Minimum yearly Average turnover of 85% of the estimated cost during last 3 financial years supported by audited financial statements.**
- c. **Should have service setup at the place of proposed work in Delhi-NCR for rendering after sales service (The Proof of Service setup such as Electricity bill/Telephone bill/ Rent Agreement .etc. along with authorization letter (if applicable) is to be enclosed) in Part- I of the tender).**
- d. **MSME Bidders are exempted to deposit EMD , in case the bidders is registered within relevant category .**

***Similar Works means - Works of Supply, Installation, Testing and Commissioning of Cooling Towers.**

General Information

- (i) The contractors shall upload the following information/documents on GEM site to satisfy the Institute about their eligibility

(a)	Composition of the firm	Full particulars (whether contractor is an individual, or a partnership firm, or a company etc.,) of the composition of the firm of contractors in details should be submitted along with name(s) and address (es), of the partner's copy of the Articles of Association/ Power of Attorney/other relevant document.
(b)	Work experience & Completion of similar works of specified value during the specified period	Copies of the detailed work orders for the qualifying works indicating date of award, value of awarded work, time given for completing the work, etc. and the corresponding completion certificates indicating actual date of completion and actual value of executed similar works should be enclosed in proof of the work experience. The details along with documentary evidence of previous experience, if any, of carrying out works for the autonomous bodies/Govt Department at any place should also be given.
(c)	Turnover	Audited financial statements for last three financial years i.e. 2019-20, 2020-21 and 2021-22 along with a certificate of Chartered Accountant indicating the turnover for these financial years. In case Audited balance sheet of 2021-22 is not available then preceding 3 years shall be considered.
(d)	Name(s) and address(es) of the Bankers.	Written Information about the names and addresses of their bankers along with full details, like names, postal addresses, e-mail IDs, telephone (landline and mobile) nos., fax nos., etc.
(e)	Details of bank accounts	Full particulars of their bank accounts, like account no. type, when opened etc., should be given.
(f)	Name(s) and address(es) of the Clients and their present contact executives	Written information about the names and addresses of their clients along with full details, like names, postal addresses, e-mail IDs, telephone (landline and mobile) nos., fax nos. etc., of the contact executives (i.e. the persons who can be contacted at the office of their clients by the Institute in case it is so needed) should be furnished
(g)	Details of completed works	The client-wise names of work(s), year(s) of execution of work (s), awarded and actual cost (s) of executed work (s), completion time stipulated in the contract (s) and actual time taken to complete the work (s), Name(s) and full contact-details of the officers/authorities/departments under whom the work(s) was/were executed should be furnished.

(h)	Details of Service setup	Address and contact details of the service set up at the place of proposed work or nearby metro for Rendering after sales service.
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- (ii) In the event of intending tenderer's failure to satisfy the Institute with the required document, the Institute reserves the right to refuse to participate in tendering process.
- (iii) A pre-bid meeting of the intending tenderers will be held **on September 30th , 2022 at 11.00 AM** at MP-IDSA, Main Office Building, Delhi Cantt. The duly filled in tender documents shall be uploaded on GEMsite till **2:00 PM** on October 11, 2022 in addition to deposit hardcopy and EMD in tender box kept at reception .
- (iv) Tender forms can be downloaded for viewing from the GEM website w.e.f 15th September 2022 from 11:00AM.
- (v) EMD of INR 50000.00 (Rupees Fifty Thousand only) in the form of Demand Draft favoring MP-IDSA / NEFT as per details in schedule of tender or an irrevocable Bank Guarantee issued by a scheduled Bank .
- (vi) Tenderers shall submit all the information and the documents as mentioned above . After examination, if any of the tenderer is not found to possess the required eligibility, their tenders will not be accepted by the Institute for further processing.
- (vii) Part I of the tenders will be opened on-line at **3:00 PM on October 11, 2022** in the presence of the authorized representative of the tenderers who choose to be present. Part-II (Price bid) shall be opened of the eligible tenderer on a subsequent date which will be intimated to the tenderers in advance.
- (viii) The applicants/tenderers have to submit/upload:-
 - a. Client's certificate from their clients for whom they have carried out "eligible works" in terms of the eligibility (Pre-qualification) criteria explained in this notice.
 - b. TDS certificates incase of Private Organizations .

The client's certificate shall be accepted only when the same is signed by an official of the rank of Executive engineer/Superintendent Engineer or equivalent in respect of a Government/Semi Government organization or a PSU and only when they are supported by adequate proof of payment received by the contractor for the work done by him. The client's certificate issued by the private organizations shall also accompany Tax Deducted at Source (TDS) certificates. Applications/tenders uploaded without the above certificates may be rejected. MP-IDSA shall have the right to independently verify these certificates.

The Institute shall evaluate the said reports before opening of price bid of the tenders. If any tenderer is not found to possess the required eligibility for participating in the tendering process at any point of time and/or his performance reports received from his clients and are found unsatisfactory, the Institute reserves the right to reject his offer even after opening of Part-I of the tender. The Institute is not bound to assign any reason for doing

so.

- (ix) The Institute is not bound to accept the lowest tender and reserves the right to accept either in full or in part any tender. The Institute also reserves the right to reject all the tenders without assigning any reason there for.

Col Rajeev Agarwal

Assistant Director (Admin)

Date :

Place :

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Section I
FORM OF TENDERS

To
The Assistant Director
Manohar Parrikar Institute for Defence Studies and Analyses ,
Shankar Vihar ,Delhi Cantt
New Delhi - 110010.

Dear Sir,

We have examined specifications, designs and schedule of quotation relating to the works specified in the memorandum herein after having visited and examined the site of the works specified in the said memorandum and in accordance in all respects with the specifications, designs and instructions in writing referred to in conditions of tender, the Articles of Agreement, Special Conditions. Schedule of Quantities and Condition of Contract and with such materials as are provided forby and in all other respects in accordance with such condition of contract and with such materials as are provided with such conditions so far as they may be applicable.

MEMORANDUM

(a)	Description of the works	Supply, Installation, Testing and Commissioning of Cooling Tower at Institute's Main Office Building, Shankar Vihar, Delhi Cantt-110010
(b)	Estimated Cost	Rs.30.92 lakhs Incl of GST
(c)	Mode of payment	As per clause 3.29 of General Instruction to Contractors.
(d)	Earnest Money	Rs.50000.00
(e)	Time allowed for completion of work	2.5 months (Two and half months) from the date of award of the work order.

2. We also agree that our tender will remain valid for acceptance by Institute for 90 days from the date of opening of Part -1 of the tender and this period of validity can be extended for such period as may be mutually agreed between the Institute and us in writing. We also agree to keep the Bank Guarantee towards earnest money valid during the entire period of validity of tender.
3. If this tender is accepted, I/we hereby agree to abide by and fulfil the terms and provision of the said conditions of Contract annexed hereto, so far as they may be applicable, or in default thereof to forfeit and pay to the MP-IDSA the amount mentioned in the said conditions.

4. I/We understand that you reserve the right to accept or reject any or all the tender either in full or in part without assigning any reason therefore.
 - 5 The tender is submitted in two parts. Part I contains all commercial terms and conditions and technical particulars and Part II contains only the price bid .
- . We are enclosing a list of our clients with complete details as given in the details of tenderers.

For and on behalf of M/s. _____
(Signature with seal)

Name _____
Designation _____
Place _____
Date _____

(Certified true copy of the Power of Attorney of the above signatory should be enclosed).

Witnesses

(1) Signature with name, address and date _____

(2) Signature with name, address and date _____

Details of Tenderers

A. Particulars of Firm

Sr. No.	Particulars	To be filled by Tenderer
1.	Whether Original Equipment Manufacturer	
	Or Authorized Dealer / subsidiary of foreign company (Please submit the certificate of authority)	Indicate Yes/No for certificate of authority)
2.	Composition of the firm (Whether partnership / proprietorship /Public Ltd.)	
3.	Names of the proprietor/ partners / Directors of the firm	
4.	GST Number	
5.	Address of the Firm	
	Telephone	
	Email	
	Fax	

B. The details of bankers are as below:

Sr. No.	Particulars (submit the crossed cancelled cheque)	To be filled by tenderer
1	Name of the Bank	
2	Branch Address	
3	Telephone and fax number	
4	Name of the contact person	
5	Credit facility / overdraft facility enjoyed by firm from the Bank	
6	The period from which the firm has been banking with Bank	

C. Prequalification Criteria :

Following are our Clients for whom we have executed "eligible" works during last 5 years as per the eligibility criteria (Please submit the documentary evidence in support of)

Sr. No.	Details	Client (1)	Client (2)	Client (3)
1	Name of the Client Organization / Firm:			
	Address :			
	Name of the Contact Person:			
	His/her Mobile No. :			
	His/her Fax No.:			
	His/her Telephone No/s.:			
	His/her e-mail ID:			
2	Name of the "eligible" work with brief particulars			
3	Work order No. and date			
4	Cost of the "eligible" work as per work order / letter of award:			
5	Date of commencement			
6	Stipulated date of completion			
7	Actual date of completion			
8	Amount of compensation levied by the client for delayed completion, if any:			
9	Gross value of the work completed and paid for :			

Sr. No.	Details	Client (1)	Client (2)	Client (3)
10	Whether the tenderer has been engaged by the Client for maintenance under Annual Maintenance Contract (AMC) of the commissioned system (please state Yes or No)			

D. Please also provide following details with supporting documents as per prequalification criteria:

1	Work experience in years (please submit old work order of any amount at least 5 years from the date of publish of this tender)	
2	Turnover of the firm for the last 3 years (year wise) and submit the documentary evidence in support of the same duly certified by Chartered Accountant	
	(a) 2021-22	
	(b) 2020-21	
	(c) 2019-20	

E. Service set up details in Delhi/NCR

Note : All the details must be filled in the tender documents only. No separate annexure will be accepted. Only Submit documents in support of details filled above.

Signature of Tenderer with stamp/Date

Section II

ARTICLES OF AGREEMENT

ARTICLES OF AGREEMENT made the Day of
Between the Assistant Director , Admin, Manohar Parrikar Institute for
Defence Studies and Analyses , Shankar Vihar, Delhi cant-
110010 hereinafter called "the Employer" of the one part and
..... (Hereinafter called "the Contractor")
of the other part.

WHEREAS the Employer intends to supply, install, test and commission the cooling tower.
AND WHEREAS the Contractor has agreed to execute upon and subject to the Conditions set
herein and to the Conditions set h in the Special Condition and in the Schedule of Quantities
and Condition of contract (all of which are collectively) hereinafter referred to as (the said
Conditions) the works shown upon the said Drawing and/or described in the said specification
and included in the Schedule of Quantities at the respective rates therein set amounting to
the sum as therein arrived at or such other sum as shall become payable there under
(hereinafter referred to as "the said Contract Amount.)

NOW IT IS HEREBY AGREED AS FOLLOWS:

- 2.1 In consideration of their said contract amount to be paid at the times and in the manner set, in the said Conditions execute and complete the work as per approved Drawings and described in the said specifications and the Schedule of Quantities.
- 2.2 The Employer shall pay the Contractor the said Contract Amount, or such other sum as shall become payable, at the times and the manner specified in the said, Conditions.
- 2.3. The said Conditions and Appendix thereto shall be read and construed as forming part of this Agreement, and the parties hereto shall respectively abide by, submit themselves to the said Conditions and perform the agreements on their part respectively in the said Conditions contained.
- 2.4. The plans, agreement and documents mentioned herein shall form the basis of this Contract.
- 2.5 This Contract is neither a fixed Lumpsum Contract nor a Piece Work Contract but is a Contract to carry out the work in respect of SITC of cooling tower at Main Office Building, MP-IDSA , New Delhi to be paid for according to actual measured quantities at the rates contained in the Schedule of Rates and Probable quantities or as provided in the said Conditions.
- 2.6 The Contractor will cater for all relevant facilities and requirement for carrying out of all works relating to Supply, Installation, testing and commissioning of cooling tower.
- 2.7 The Employer reserves to itself the right or altering the Drawings and nature of the work by adding to or omitting any items of work or having portions of the same carried out without prejudice to this Contract.
- 2.8. Time shall be considered as the essence of this Contract and the Contractor hereby agree

to commence to work soon after the site is handed over to him or from tenth day after the date of issue of formal work order as provided for in the said Conditions

Whichever is later and to complete the entire work within specified time period subject nevertheless to the provisions for extension of time.

- 2.9 All payments by the Employer under this contract will be made only at MP-IDSA, Shankar Vihar , Delhi Cantt-110010.
- 2.10 All disputes arising out of or in any way connected with this agreement shall be deemed to have arisen at New Delhi and only Courts in New Delhi shall have jurisdiction to determine the same.
- 2.11 **Non-Disclosure clause:** The Bidder shall not disclose directly or indirectly any information, materials and details of the Institute's infrastructure/systems/equipment etc., which may come to the possession or knowledge of the Bidder during the course of discharging its contractual obligations in connection with this agreement, to any third party and shall at all times hold the same in strictest confidence. The Bidder shall treat the details of the contract as private and confidential, except to the extent necessary to carry out the obligations under it or to comply with applicable laws. The Bidder shall not publish, permit to be published, or disclose any particulars of the works in any trade or technical paper or elsewhere without the previous written consent of the Employer. The Bidder shall indemnify the Employer for any loss suffered by the Employer as a result of disclosure of any confidential information. Failure to observe the above shall be treated as breach of contract on the part of the Bidder and the Employer shall be entitled to claim damages and pursue legal remedies. The Bidder shall take all appropriate actions with respect to its employees to ensure that the obligations of non-disclosure of confidential information under this agreement are fully satisfied. The Bidder's obligations with respect to non- disclosure and confidentiality will survive the expiry or termination of this agreement for whatever reason.
- 2.12 That the several parts of this Contract have been read by the Contractor and fully understood by the Contractor.

If the Contractor is a Partnership or an individual IN WITNESS WHEREOF the Employer and the Contractor have set their respective hands to these presents and two duplicates hereof the day and year first hereinabove written.

If the Contractor Is a company. IN WITNESS WHEREOF the Employer has set its hands to these presents through its duly authorised official and the Contract has caused its common seal to be affixed here unto and the said two duplicates hereof to be executed on its behalf, the day and year first hereinabove written.

SIGNATURE CLAUSE

SIGNED AND DELIVERED by the
 MP-IDSA by the hand of
 Shri.....
 (name and designation)
 in the presence of

Witness -
 (1).....

Address.....

(2).....

Address.....

SIGNED AND DELIVERED by

..... in the presence of

Witnesses

(1).....

Address.....

(2).....

Address.....

The COMMON SEAL OF

Was hereupto affixed pursuant to the resolutions passed by it's Board of Directors at the meeting held on in the presence of -

(1).....

(2).....

Directors who have signed these presents in token thereof in the presence of -

(1).....

(2).....

SIGNED AND DELIVERED by the Contractor by the hand of Shri.....

.....

If the party is a partnership firm or an individual should be signed by all or on behalf of all the partners.

If the contractor signs under its common seals, the signature clause should tally with the sealing clause in the Articles of Association.

If the Contractor is signing by the hand of power of attorney, whether a duly constituted Company or individual.

Section III

GENERAL INSTRUCTIONS TO CONTRACTORS AND SPECIAL CONDITIONS

- 3.1 (GEM Tender)E- Tenders in two parts are invited for said work from eligible contractors, only those tenderers who qualify as above will be eligible to tender for the work. A Tender submitted by a firm which is found to be not satisfying any of the above criteria will be liable for rejection.
- 3.2 The tender for the above work is in two parts i.e. Part-I containing technical specifications of equipment, and the terms and conditions (Rates and amounts of items shall not appear anywhere in this part) and Part-II containing only rates of items.
Following Scan signed document need to be uploaded on GEM site on relevant tender.
1. Signed copy of Part I of the tender.
 2. Eligible criteria documents (Work order copy, TDS certificate, Turnover details) Client certificate,)
- (a) Each of the tender documents should be signed by the person or persons submitting the tender in token of his/their having acquainted himself/themselves with the General Conditions of Contract, Specifications, Special Conditions etc. as laid down. Any tender with any of the documents not signed will be rejected.
- (b) The Tender submitted on behalf of a firm/company and shall be signed by all the partners of the firm or by a partner who has the necessary authority on behalf of the firm to enter into the proposed contract, otherwise the tender may be rejected by the bank.

3.3 Clarifications:

- (a) If firms are required to clarify any point / clause of the tender, they may email to the officers as mentioned at important information at Section I.

Earnest Money Deposit (EMD) To Be Submitted By The Tenderers

- 3.4 Intending tenderers shall pay as earnest money the sum of INR **50000.00** by NEFT or demand draft drawn on any of the scheduled Bank in favour of the MP-IDSA, New Delhi. Tender without EMD will not be accepted. The earnest money will be returned to the tenderer if his tender is not accepted but without any interest. The earnest money of successful tenderer will be returned after completion of the work.
- 3.5 Earnest Money deposit of the bidders under Category of MSEs are exempted.
EMD shall be forfeited if the Bidder:
- (i) Makes misleading or false representations in the forms, statements and attachments submitted, has suppressed any material information, details of any legal proceedings pending in the court which might otherwise have created any impact on the eligibility criteria; or
 - (ii.) Withdraws his Bid during the period of Bid validity; or does not sign the contract after award of Contract.

- (iii) Has been blacklisted by any Government agency and the blacklisting is still in force.
- (iv). If bidder fails to complete the work.

- 3.6 On receipt of intimation from the Institute of the acceptance of his/their tender, the successful tenderer shall be bound to implement the contract and within fourteen days thereof the successful tenderer shall sign an agreement in accordance with the draft agreement and the Schedule of Conditions but the written acceptance by the MP-IDSA of a tender will constitute a binding contract between the MP-IDSA and the person so tendering whether such formal agreement is or is not subsequently executed.
- 3.7 As security for due fulfillment of the terms and the obligation of the contract, the successful tenderer shall furnish a Bank Guarantee (03% of contract value).
- 3.8 All compensation or other sums of money payable by the Contractor to the Employer under the terms of this Contract may be deducted from his earnest money and the security deposit if the amount so permits and the contractor shall, unless such deposit becomes otherwise payable, within ten days after such deduction make good in cheque/ digital transfer , the amount so deducted.
- 3.9 The tenderers shall furnish full details of eligible similar works carried out by them during the last 05 years, as per the Performa included in this tender. The Institute will inspect one or all the works and satisfy itself about the performance of the installed equipment including the quality and reliability of the service rendered before opening Part II of the tenders. Thereafter, the Institute at its discretion will consider or reject any or all the tenders without assigning any reason thereof.
- 3.10 The Contractor shall carry out all the work strictly in accordance to technical specification and scope of the work, details and instructions of the Estate Manager .
- 3.11 The rates quoted shall be firm and shall not be subjected to variations in exchange variation in labour, transport. The rates shall be quoted for complete work, i.e. supply, installation, testing and commissioning of the equipment and shall include charges for all taxes, duties, levies, consumable, labour, transport, loading unloading of the material at site, insurance for transit, storage as also workmen compensation & 3rd party liability policies, erection etc. No concessional for any levies will be issued by the Institute . Similarly, no import license will be issued by the MP-IDSA. Equipment, if required to be imported shall be arranged to be imported against the contractor's own import license. All payments will be made at New Delhi and will be in Indian Rupees only.
- 3.12 Tenderer other than Original Equipment Manufacturer (OEM) need not to apply .Only OEM is allowed to participate in the tender . In case of Cooling Tower from outside the Country , they should submit the authorization letter from the OEM to participate in the tender and undertaking for extending after sales service support.**
- 3.13. The tenderer must obtain on own responsibility and at own expenses, all the information which may be necessary for filling up the tender or entering into a contract and must examine the Drawings and must inspect the site of the work and acquaint himself with

all local conditions, means of access to the work, nature of the work and all matters pertaining thereto.

3.14. Evaluation of tenders:

- Eligible Tenders (Those qualify in Part I of tender) will be evaluated on the basis of capital cost of the work and net cost. Tender will be awarded on least cost basis.

3.15. Defect Liability Period (DLP)

- a) The equipment/system supplied shall be guaranteed against all types of defects for at least a period of one year (defect liability period/ DLP) from the date of handing over of the equipment/system to the Institute.
- b) Any defects in the system/sub-assemblies found within the guarantee period/DLP shall be rectified / replaced by the tenderer free of cost.

3.16 Insurance

The contractor shall take all insurances before dispatching the system from the factory to our site at his cost to cover all kinds of risks from the date of scheduled commencement of works till handing over the system to the Institute .

3.17 The tender shall be accompanied by leaflets/literatures giving complete technical & constructional details, makes of components of the equipment offered. Tenderers are advised to visit the site of installations and acquaint themselves of the site conditions before tendering. Tenderers should be specific and offer comments only if their system differs from the Institute's detailed specifications/ features in any manner. A write up of working of the system as a whole and the individual components shall also be enclosed. The successful tenderer, on completion of the work, shall furnish two sets of schematic and layout drawings and maintenance manuals.

3.18 Time allowed for carrying out the work as mentioned in the Memorandum and Section I shall be strictly observed by the Contractor and it shall be reckoned from the written order to commence the work, is issued. The work shall throughout the stipulated period of the Contract be proceeded with all due diligence and if the Contractor fails to complete the work within the specified period, he shall be liable to pay compensation as defined in tender document. Before commencing the work, tenderer shall prepare a detailed work program which shall be approved by the Estate Manager.

3.19 The Contractor shall not be entitled to any compensation for any loss suffered by him because of delays in commencing or executing of the work, whatever the cause of delays may be, including delays arising out of modifications to the work entrusted to him or in any sub-contract connected therewith or delays in awarding contracts for other trades of the project or in commencement or completion of such works or in procuring Government controlled or other building materials or in obtaining water and power connections for construction purposes or for any other reason whatsoever and the Employer shall not be liable for any claim in respect thereof. The Employer does not accept liability for any sum besides the tender amount, subject to such variations as are provided for herein.

- 3.20. The successful tenderer is bound to carry out any minor items of work necessary for the completion of the job even though such items are not included in the quantities and rates. Schedule of instructions in respect of such additional items and their quantities will be issued in writing with the prior consent in writing of the Employer.
- 3.21. The Contractor must bear in mind that all the work shall be carried out strictly in accordance with Specifications and also in compliance of the requirements of the Government rules and regulations and to the requirements of the Indian Electricity Rules and no deviation on any account will be permitted.
- 3.22. Before dispatching the equipment to site, the equipment may be inspected by the Institute's Technical officers at the manufacturer's site and then cleared for shipment. The contractor shall at his own expense, offer to the Inspector all reasonable facilities as may be necessary for satisfying himself, that the equipment/execution of work is being and/or have been manufactured/executed in accordance with specifications laid down in the particular specifications attached to this tender document. The Institute's Engineer shall have full and free access at any time during the execution of the contract to the Contractor's works or site in case of execution of work for the purpose aforesaid, and he may require the contractor to make arrangements for inspection or work or any part thereof or any material at his Premises or at any other place specified by the Institute's Engineer and if the contractor has been permitted to employ the service of a sub-contractor, reserve to the Institute's Engineer a similar right.
- This will however, not in any way absolve the contractor of his responsibility about proper performance of the system/components after erection & commissioning at the designated site.
- 3.24 Cost of Inspection: - The contractor shall provide, without any extra charge, all materials, tools, labour and assistance of every kind which the Institute's may demand of him for any test/inspection and examination which he shall require to be so made on the contractor's premises and shall bear and pay all costs attendant thereon. However, cost of traveling, boarding and lodging, of Institute's representative to the site of inspection shall be borne by the Institute.
- 3.25 Method of Testing: - The Institute's Engineer shall have the right to put all the equipment and materials forming part of the same or any part thereof to such tests as he may think fit and proper. The contractor shall not be entitled to object on any ground whatsoever to the method of testing adopted by the Estate Manager.
- 3.26 Inspector Authority to certify performance: - The Institute's Engineer shall have the power:
- a) Before any equipment or part thereof are submitted for inspection to certify that they or any portion thereof are not in accordance with the contract owing to adoption of any unsatisfactory method of manufacture;
 - b) To reject any equipment or parts submitted as not being in accordance with the specification;
 - c) To reject the whole of the equipment tendered for inspection, if after inspection of such portion thereof as he may in his discretion think fit, he is satisfied that the same is unsatisfactory; and

- d) To mark the rejected equipment or parts with a rejection mark so that it may easily be identified if re-submitted.

3.27 Consequence of rejection: If the equipment or its part thereof, being rejected by the Estate Manager , the contractor fails to make satisfactory supplies or rectify the faulty work thus executed within the stipulated period of delivery/completion period, the Institute shall be at liberty to:

- i) Allow the contractor to re-submit the equipment or parts in replacement of those rejected, within a time to be specified, the contractor bearing the cost of freight if any, on such replacement without being entitled to any extra payments on that account; or
- ii) Purchase/execute or authorise the purchase/execution of quantity/work of the equipment or parts rejected or others of a similar description (when equipment or parts exactly complying with specifications are not in the opinion of the Institute which shall be final, readily available) to the contractor at his risk and cost and without affecting the contractor's liability as regards supply under the contract; or
- iii) Cancel the contract and purchase/execute or authorise the purchase/execution of the equipment or others of a similar description (when equipment or parts exactly complying with specifications are not in the opinion of the Institute , which shall be final, readily available) at the risk and cost of the contractor. In the event of action being taken under such clause (b) above or this clause the provision of delivery clause apply as far as applicable.

3.28 Institute's decision as to rejection is final: - The Institute's decision as regards the rejection shall be final and binding on the contractor subject to contractor's appeal.

3.29 The following terms of payment shall be applicable to this contract:

- 50 % of the quoted rate pro-rata against delivery of all materials after checking at site and Submission of the following documents:
 - i) Manufacturer's Inspection and Test Certificates
 - ii) Contractor's Certificate that all components, parts, sub systems, consumables etc. for successful installation, commissioning and testing of the systems including maintenance have been received at site in good condition and if any shortfall is noticed during installation, commissioning and testing they will be supplied free to the Institute.
- 45% of the quoted rate after successful completion of the work as per tender condition and submitting the Bank Guarantee of 3 % of the contract amount valid till completion of the work.
- 5% of the contract amount after completion of one year's defect liability period.

3.30 The entire work shall be completed within 75 days from the date of work order failing which liquidated damages @ 0.25 % of the contract amount per week with an upper ceiling of 10% of the contract amount, will be levied.

3.31 The successful tenderer shall execute an agreement with the Institute on stamp

paper within fourteen days of receipt of letter of acceptance. However, the issue of letter of acceptance by the Institute shall be construed as a binding contract, as though such an agreement has been executed and all the terms and conditions shall apply on this contract.

- 3.32 The tenderer shall furnish the name and address of the Bankers with whom they normally Bank. They shall also furnish the name and addresses of their recent clients for whom they have carried out similar works/supplies in the recent past, along with full details like the cost and capacity of the system/machine supplied, the date of the supply etc.
- 3.33 The Institute reserves the right to accept or reject any or all the tenders either in full or in part without assigning any reasons thereof.
- 3.34 The Contractor shall strictly comply with the provision of safety code annexed hereto.
- 3.35 The scope of work shall include the following:
Supply, assembling, factory inspection of Cooling Tower & Delivery of equipment to Institute 's site at Main Office Building, New Delhi- 110010 including packing, handling, transporting, loading/unloading at site, erection, commission, testing of Cooling Tower.
- 3.36 The tenderer should indicate in his tender the complete description of the working of the system / sub systems and their power requirements with all relevant brochures / literature etc. in addition to those called for in the Technical specifications.
- 3.37 The Tenderer shall carefully check the specifications and shall satisfy himself that the equipment offered is suitable as per the Institute's Technical Specifications.
- 3.38 Tenderer shall supply all tools, plants, scaffolding, labour and consumables etc as required for installation, testing and commissioning of the Cooling Tower.
- 3.39 The tenderer shall state clearly in his tender the standard tools, spare parts which he will supply free of cost when installing the equipments and handover same to the Institute after completion of the work.

3.40 Validity of Tender

The Tender along with the prices shall remain valid initially for a period of 90 days from the date of opening of Part I of tender, which period may be further extended by mutual agreement in writing by the Tenderer and the Tenderer shall not cancel or withdraw the tender during this period.

Lowest Tender Not Necessarily To Be Accepted

- 3.41 The Bank is not bound to accept the lowest or any tender or to assign any reason for non-acceptance.
- 3.42 The tenderer whose tender is not accepted shall not be entitled to claim any costs,

charges, damages and expenses of and incidental to or incurred by him through or in connection with his submission of tenders, even though Institute may elect to modify/withdraw the tender

- 3.43 If the invitation to Tender is withdrawn or cancelled by the Institute, which shall have the right to do so at any time, the Bank Guarantee/EMD will be discharged.
- 3.44 On award of contract, the successful tenderer shall furnish a Bank Guarantee of an amount equal to 3% (Three percent) of the contract value in the format prescribed by the Institute towards security deposit for the due fulfilment of the contract. This Bank Guarantee towards security deposit shall be valid for the period of completion of the contract.
- 3.45 All compensation or other sums of money payable by the Contractor to the Employer under the terms of this Contract may be deducted from the security deposit, if the amount so permits unless the contractor deposits such amounts in cash within ten days of issue of demand notice by the Bank.
- 3.46 The contractor shall submit a **Bar Chart** for completion of the work within the contractual completion period from day of issue of work order. Such chart shall include all activities like the date of supply of material at site, item wise completion of work etc., and obtain the approval of the Institute.
- 3.47 The responsibility and safety of the materials stored will be with the contractor. No accommodation will be provided for any worker by the Institute. Contractor has to make his own arrangement to ensure safety of the supplied material .
- 3.48 The Tenderer shall go through the terms and conditions given in the general conditions of contract herewith and his offer shall be strictly in line with the terms specified therein. No deviation from the terms and conditions specified shall be acceptable. Each page of the tender documents should be signed for his / their having acquainted himself / themselves in the general conditions of contract, Technical specifications, etc.
- 3.49 The tender submitted on behalf of a firm shall be signed by all the partners of the firm or a partner who has the necessary authority on behalf of the firm to enter into the proposed contract. Otherwise the tender may be rejected.
- 3.50 On receipt of intimation from the Institute of the acceptance of his/their tender, the successful tenderer shall be bound to implement the Contract and within fourteen days thereof, the successful tenderer shall sign an agreement in accordance with the draft agreement. Notwithstanding the signing of the agreement the written acceptance by the MP-IDSA of a tender in itself will constitute a binding agreement between the MP-IDSA and the person so tendering, whether such contract is or is not subsequently executed.
- 3.51 The contractor shall not assign the contract to any other person/firm. He shall not sublet any portion of the contract except with the written consent of the Employer. In case of breach of these conditions, the Employer may serve a notice in writing on the Contractor rescinding the contract whereupon the security deposit shall stand forfeited to the

Employer, without prejudice to his other remedies against the Contractor.

3.52 Language

The Tender including all labels in drawings, documents, catalogues etc. shall be in English.

3.53 Right to Accept Part Tender

The Institute reserves the right to accept the tender either in whole or in part at the same prices quoted by the Tenderer.

Other Issues

3.54 Adherence to Specifications

The Contractor shall carry out all the work strictly in accordance with the approved drawing, detailed specifications and instructions of the Estate Manager. If in the opinion of Estate Manager, nominal changes have to be made to suit the site condition, the Contractor shall carry out the same without any extra charge.

3.55 Acquaintance with the site of work

The tenderer must obtain for himself on his own responsibility and at his own expense, all the information which may be necessary for the purpose of making a tender and for entering into a contract and must examine the drawings, inspect the site of the work, and acquaint himself with all local conditions, means of access to the work, nature of the work and all matters appertaining thereto. The Employer's decision in such cases shall be final and shall not be open to arbitration.

3.56 Schedule of Quantity

A Schedule of Probable Quantities in respect of each work and Specifications accompany these Special Conditions. The Schedule of Probable Quantities is liable to alteration by omissions, deductions or additions at the discretion of the Employer. Each tender should contain not only the rates but also the value of each item of work entered in a separate column and all the items should be totaled in order to show the aggregate value of the entire tender.

3.57 The rates quoted in the tender shall include all charges for scaffoldings, watch and word, protection of all erections, matters or things and the Contractor shall take down and remove any or all such centering, scaffolding etc. as occasion shall require or when ordered so as to do, and fully reinstate and make good all matters and things disturbed during the execution of work and to the satisfaction of the Institute .

3.58 Not entitled for any compensation

The contractor shall not be entitled to any compensation for any loss suffered by him on account of delays in commencing or executing the work, whatever the cause of delays may be, including delays arising out of modifications to the work entrusted to him or in any sub-contract connected therewith or delays in awarding contracts for other trades of the project or in commencement or completion of such works. The

Employer does not accept liability for any sum besides the tender amount, subject to such variations as are provided for herein.

3.59 Bound to carry all items of work

The successful tenderer is bound to carry out all items of work necessary for completion of the job even though such items are not included in the quantities and rates. Schedule of instruction in respect of such additional items and their quantities will be issued in writing by the Institute.

3.60 Contractor should make his own arrangement of tools, ladders, scaffolding, loading – unloading of the material at site of installation etc.

3.61 Contractor should remove all the debris (if any) from the site and take it away from Institute's premises at their own cost.

3.62 **Power Supply:** The employer shall provide power from the existing source at site. The contractor has to arrange for distribution of power from the aforesaid source and the work related thereto shall be with the approval of Estate Manager.

3.63 **Escalation:** No escalation and payment due to increase in prices/wages will be made to the contractor. The rates quoted shall remain firm throughout till completion of the work and nothing extra beyond the quoted rates shall be paid for whatsoever reason.

3.64 **If any accessories, parts, works which are not mentioned above but are required to complete the work of installation of cooling tower, are in the scope of the tenderer.**

I/We have understood all the above-mentioned conditions and they are acceptable to me/us.

Place:

Seal and Signature of the Tenderer

Date:

Safety Code

Necessary protective and safety equipments shall be provided by the contractor to the Site Engineer, workers and supervisory staff and used at site.

1. First Aid: First-aid appliances, including adequate supply of sterilized dressings and cotton wool, shall be maintained in a readily accessible place.
2. Injured Person: The injured person shall be taken to a public hospital without loss of time, in cases where the injury necessitates hospitalization.
3. Strong Scaffolding: Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from ground.
4. No Portable Single Ladder: No portable single ladder shall be over 8 meters in length, the width between the side rails not less than 30 cm (clear) and the distance between two adjacent rungs shall not be more than 30 cm. When a ladder is used, an extra mazdoor shall be engaged for holding the ladder.
5. Excavated Material: The excavated material shall not be placed within 1.5 meters of the edge of the trench or half of the depth of the trench, whichever is more. All trenches and excavations shall be provided with necessary minimum height shall be one meter.
6. Openings in floor: Every opening in the floor of a Building or a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be one meter.
7. Debris: No floor, roof or other part of the structure shall be as over-loaded with debris or materials as to render it unsafe.
8. Protective Wear: Workers employed on mixing and handling material such as asphalt, cement, mortar or concrete and lime mortar shall be provided with protective footwear and rubber hand-gloves.
9. Eye Shield and gloves: Those engaged in welding works shall be provided with welder's protective eye-shields and gloves.
10. No lead contains in point: No paint containing lead or lead products shall be used except in the form of paste or readymade paint.
11. Face Mask: Suitable face masks should be supplied for use by the workers when the paint is applied in the form of spray or surface having lead paint dry rubbed and scrapped.
12. Equipments in good condition: Hoisting machines and tackles used in the work, including their attachments, anchorage and supports shall be in perfect condition.
13. Durable and strong Ropes: The ropes used in hoisting or lowering material or as a means of suspension shall be of durable quality and adequate strength and free from defects.

Section IV - The Conditions Hereinafter Referred To

4.1 Interpretation Clause

1. In construing these Conditions, the Specifications, Schedule of Quantities and Contract Agreement, the following words shall have the meanings herein assigned to them except where the subject or context otherwise required.

- (a) "Employer" Shall mean Manohar Parrikar Institute for Defence Studies and Analyses and shall include its assigns and successors.
- (b) "Contractor" (in the case of a partnership) "Contractor" shall mean _____ and _____ trading in the name and style of _____ and having a place of business at _____ and shall include the partners for the time being of the said firm and the legal representatives of a deceased partner.
- (in the case of individual) "Contractor" shall mean Shri _____ trading in the name and capacity of _____ and shall include his heirs, successors and legal representatives.
- (in the case of Company) "Contractor" shall mean _____ a company incorporated under _____ and having its registered office at _____ and shall include its successors and assigns.
- (c) "Site" Shall mean the site of the contract works including any Building and erections thereon and any other land (inclusively) as aforesaid allotted by the Employer for the Contractor's use.
- (d) "This Contract" Shall mean the Articles of Agreement, the Special Conditions, the Conditions, the Appendix, the Schedule of Quantities and Specifications etc. attached hereto and duly signed.

- (e) “Estate Manager” The term “Estate Manager” shall mean the person appointed and paid by the Employer to inspect the works. The Contractor shall afford the Estate Manager every facility and assistance for inspecting the works and materials, and for checking and measuring time and materials. Neither the Estate Manager nor any representative of the Institute shall have power to set out works or to revoke, alter, enlarge or relax any requirements of the Contract, or to sanction any day work, additions, alterations, deviations, or omissions, or any extra work whatever, except in so far as such authority may be specially conferred by a written order of the Institute .
The Estate Manager or any representative of the Institute shall have power to give notice to the Contractor or his representative of non-approval of any work or materials and such work shall be suspended or the use of such materials shall be discontinued. The work will, from time to time, be examined by the Institute's representative but such examination shall not in any way exonerate the Contractor from the obligation to remedy any defects which may be found to exist at any stage of the works or after the same is Completed. Subject to the limitation of this clause the Contractor shall take instructions only from the Institute's Authorized Representative.
- (f) “Notice in writing” Or written notice shall mean a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received) by registered post or e mail to the last known private or business address to have been Received when in the ordinary course of post, it would have been delivered.
- (g) “Net Prices” If in arriving at the contract amount, the Contractor shall have added to or deducted from the total of the items in the Tender any sum, either as a percentage or otherwise, then the net price of any item in the tender shall be the sum arrived at by adding to or deducting from the actual figure appearing in the Tender as the price of that item a similar percentage or proportion of the sum so added or deducted by the Contractor the total amount of any Prime Cost items and provisionalsums of money shall be deducted from the total amount of the tender. The expression “net rates” or “net prices” when used with reference to the contract or accounts shall be held to mean rates or prices so arrived at.
- (i) “The works” Shall mean the Supply and Installation and Commissioning of cooling tower for Institute’s Main Office Building for the Employer at New Delhi as provided herein.

4.1 **Scope of Contract**

The Contractor shall carry out and complete the said work in every respect in accordance with this Contract and with the directions of and to the satisfaction of the Employer. The Employer may in his absolute discretion and from time to time issue further drawings

and/or written instructions, details, directions and explanations, which are hereafter collectively referred to as "Employer's Instructions" in regard to :

- (a) The variation or modification of the design, quality or quantity of works or the addition or omission or substitution of any work.
- (b) Any discrepancy in the Drawings or between the Schedule of Quantities and/or Drawings and/or Specifications.
- (c) The removal from the site of any materials brought thereon by the Contractor and the substitution of any other material therefor.
- (d) The removal and/or re-execution of any works executed by the Contractor.
- (e) The dismissal from the works of any persons employed thereupon.
- (f) The opening up for inspection of any work covered up.
- (g) The amending and making good of any defects under Clause 19 hereof.

The Contractor shall forthwith comply with and duly execute any work comprised in such Employer's instructions provided always that verbal instructions, directions and explanations given to the Contractor or his representatives upon the works by the Employer shall, if involving a variation, be confirmed in writing by the Contractor within seven days, and if not dissented from in writing within a further seven days by the Employer, such shall be deemed to be Employer's instructions within the scope of the Contract.

4.2 Variations to be approved by Employer

The Contractor shall submit a statement of variations giving a quantity and rates duly supported by analysis of rates, vouchers etc. The rates on scrutiny and final acceptance by the Employer shall form a supplementary tender. The Employer shall not be liable for payment of such variations until these statements are sanctioned by it.

4.3 Drawings, Schedule of Quantities & Agreement

The Contract shall be executed in triplicate and the Contractor shall be entitled to one executed copy for his use. Before the issue of the final certificate to the Contractor, he shall herewith return to the Employer, all Drawings and Specifications to the Institute.

4.4 Contractor to provide everything necessary at his cost

The Contractor shall provide at his cost, everything necessary for the proper execution of the works 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 Specifications, he shall immediately and in writing refer same to the Employer who shall decide which is to be followed.

4.5 Authorities, Notices and Patents

- 4.6.1 The Contractor shall conform to the provisions of any Act of the Legislature relating to the works, and to the regulations and bye-laws of any authority, and of electric supply and other companies and/or authorities with whose systems, the installation is proposed to be connected and shall, before making any variations from the Drawings or Specifications that may be necessitated by so conforming, give to the Employer, written notice, specifying the variation proposed to be made and the reason for making it and apply for instructions

thereon. In case the Contractor shall not receive such instructions within ten days, he shall proceed with the work conforming to the provisions, regulations or bye-laws, in question, and any variation so necessitated shall be dealt with under Clause No.13 thereof.

- 4.6.2 The Contractor shall bring to the attention of the Employer, all notices required by the said Acts, regulations or bye-laws to be given to any authority and pay to such authority, or to any public office, all fees that may be properly chargeable in respect of the works, and lodge the receipts with the Employer.
- 4.6.3 The Contractor shall indemnify the Employer against all claims in respect of rights, and shall defend all actions arising from claims, and shall himself pay all royalties, license Fees, damages, cost and charges of all and every sort that may be legally incurred in respect thereof.

4.6 Setting out of works

The Contractor shall set out the works and shall be reasonable for the true and perfect setting out of the same and for the correctness of the positions, levels, dimensions, and alignment of all parts thereof. If at any time any error in this respect shall appear during the progress of the works within a period of one year from the completion of the works, the Contractor shall, if so required, at his own expense, rectify such error to the satisfaction of the Employer.

4.7 Materials and workmanship to conform the descriptions

All materials and workmanship shall so far as procurable be of the respective kinds described in the Schedule of Quantities and/or Specifications and in accordance with the Employer's instructions, and the Contractor shall upon the request of the Employer 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 carryout any test of any materials which the Employer may require.

4.8 Contractor's superintendence and representative on the works

The Contractor shall give all necessary personal superintendence during the execution of the works, and as long thereafter as the Employer may consider necessary until the expiration of the "Defects Liability Period" stated in tender. The Contractor shall also during the whole time the works are in progress, employ a competent representative who shall be constantly in attendance at the works while the men are at work. Any directions, explanations, instructions or notices given by the Employer to such representative shall be held to be given to the Contractor.

4.9 Dismissal of Workmen

The Contractor shall on the request of the Employer, immediately dismiss from the works, any person employed thereon by him who may, in the opinion of the Employer, has committed act of misconduct and such persons shall not be again employed on the works .

4.11 Access to Works

The Employer and their respective representatives shall at all reasonable times have free access to the works and/or the workshops, factories or other places where materials are lying of from which they are being obtained and the Contractor shall give every facility to the Employer and their representatives necessary for inspection and examination and test of the materials and workmanship. No person not authorized by the Employer except the representatives of public authorities shall be allowed on the works at anytime.

4.12 Assignments and Sub-letting

4.12.1 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 under-let the Contract or any part share thereof or any interest therein without the prior written consent of the Employer, and no undertaking shall relieve the Contractor from the full and entire responsibility of the Contract or from active superintendence of the works during their progress.

4.12.2 No alteration, omission or variation shall vitiate this Contract but in case the Employer thinks proper at any time during the progress of the works to make any alterations in or additions to or omissions from the works or any alteration in the kind or quality of the materials to be used therein and shall give notice thereof in writing under his hand to the Contractor, the Contractor shall alter, add to or omit from, as the case may be, in accordance with such notice but the Contractor shall not do any work extra to or make any alterations or additions to or omissions from the works or any deviation from any of the provisions of the Contract, Stipulation, Specifications or Contract Drawings without the previous consent in writing of the Employer and the value of such extras, alterations, additions or omissions shall in all cases be determined by the Employer, with the prior approval in writing of the Employer in accordance with the provisions of tender hereof, and the same shall be added to or deducted from the Contract Amount, as the case may be, accordingly.

4.13 Schedule of Quantities

The Schedule of Quantities, unless otherwise stated, shall be deemed to have been prepared in accordance with the Standard Method of Measurement.

Any error in description or in quantity or in omission of items from the Schedule of Quantities shall not vitiate this contract but shall be rectified and the value thereof as ascertained hereof, shall be added to, or deducted from, the Contract Amount (as the case may be) provided that no rectification of errors, if any, shall be allowed in the Contractor's Schedule of Rates.

4.14 Sufficiency of Schedule of Quantities

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the prices stated in the Schedule of Quantities and/or the Schedule of Rates and Prices which rates and prices shall cover all his obligations under the Contract, and all matters and things necessary for the proper completion of the works.

4.15 Measurement of Works

4.15.1 The Assistant Estate Manager may from time to time intimate to the Contractor and the Employer that he requires the works to be measured, and the Contractor shall forthwith attend or send a qualified Agent to assist the Assistant Estate Manager in taking such measurements and calculations and to furnish all particulars or to give all assistance required by any of them.

4.15.2 If the Contractor does not attend or neglect or omit to send such Agent, then the measurement taken by the Assistant Estate Manager shall be taken to be correct measurements of the works. Such measurements shall be taken in accordance with the Mode of Measurement detailed in the Specifications.

4.15.3 The Contractor or his Agent may at the time of measurement take such notes and measurements as he may require.

4.16 Prices for extra etc. ascertainment of

4.16.1 The Contractor may, when authorized by Employer, add to, omit from, or vary the works shown upon the drawings, or described in the Specification, or included in the Schedule of Quantities, but the Contractor shall make no addition, omission or variation without such authorization or direction. A verbal authority or direction by the Employer shall, if confirmed by him in writing seven days, be deemed to have been given in writing

4.16.2 No claim for any extra shall be allowed unless it shall have been executed under provisions of written permission from Institute hereof with the concurrence of the Employer as herein mentioned. Any such extra is herein referred to as authorized extra and shall be made in accordance with the following provisions.

- (a) The net rates or prices in the original tender shall determine the valuation of the extra work where such extra work is of similar character and executed Under similar conditions as the work priced therein.
Rates for all items, wherever possible, should be derived out of the rates given in the Priced Schedule of Quantities.
- (b) The net prices of the original tender shall determine the value of the items omitted, provided if omissions vary the conditions under which any remaining items of works are carried out, the prices for the same shall be valued under sub-clause (c) hereof.
- (c) Where the extra works are not of similar character and/or executed under similar conditions as aforesaid or where the omissions vary the conditions under which any remaining items of works are carried out or if the amount of any omission or additions relative to the amount of the whole of the Contract works or to any part thereof shall be such that in the opinion of the Employer the net rate or price contained in the Priced Schedule of Quantities or tender or for any item of the works involves loss or expense beyond that reasonably contemplated by the Contractor or is by reason of such omission or addition rendered unreasonable or Inapplicable, the Employer shall fix such other rate or price as in the circumstances he shall think reasonable and proper.

The measurement and valuation in respect of the Contract shall be completed within the "period of final measurement" stated in the tender document .

4.17 Unfixed materials when taken into account to be the property of the Employer

Where in any Certificate (of which the Contractor has received payment) the Employer has included the value of any unfixed materials intended for and/or placed on or adjacent to the works, such materials shall become the property of the Employer and they shall not be removed except for use upon the works, without the written authority of the Employer. The Contractor shall be liable for any loss of or damage to such materials.

4.17.1 Removal of improper work

All works in course of execution or executed in pursuance of the contract shall all this be accessible to the inspection and supervision of the employer shall either himself be present to receive the orders/instruction or a responsible officer deputed for the purpose.

The Employer shall, during the progress of the works, have power to order in writing from time to time the removal from the works within such reasonable time or times, as may be specified in the order, of any materials which in the opinion of the Employer are not in accordance with the Specifications or the instructions of the Employer, the substitution of proper materials, and the removal and proper re-execution of any work executed with materials or workmanship not in accordance with the Drawings and Specifications or instruction, 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 Employer shall have the power to employ and pay the other persons to carry out the same, and all expenses consequent thereon, or incidental thereto shall be borne by the Contractor, or may be deducted by the Employer from any money due, or that may become due, to the Contractor.

4.18 Defects after virtual completion

Any defect, shrinkage, settlement or other faults which may appear within the "Defects Liability Period" stated in the Appendix hereto, within 12 months from the date of commissioning of the system, arising in the opinion of the Employer from materials or workmanship not in accordance with the contract, shall upon the directions in writing of the Employer, and within such reasonable time as shall be specified therein, be amended and made good by the Contractor, at his own cost and in case of default, the Employer may employ and pay other persons to amend and make good such defects, other faults, and all damages, loss and expenses consequent thereon or incidental thereto shall be made good and borne by the Contractor and such damage, loss and expenses shall be recoverable from him by the Employer or may be deducted by the Employer from any moneys due or that may become due to the Contractor, or the Employer may in lieu of such amending and making good by the Contractor deduct from any money due to the Contractor a sum to be determined by the Employer equivalent to the cost of amending such work and in the event of the amount retained under Clause 4.32 hereof being insufficient, recover the balance from the Contractor, together with any expenses the Employer may have incurred in connection therewith. Should any defective work have been done or material supplied by any Sub-Contractor employed on the works who has been nominated or approved by the Employer hereof, the Contractor shall be liable to make good in the same manner as if such work or material had been done or supplied by the Contractor and been subject to the provisions of this Clause hereof. The Contractor shall remain liable under the provision of this Clause, notwithstanding the signing of any certificate or the passing of any accounts, by the Employer.

4.19 Certificate of virtual completion and Defects Liability Period

The works shall not be considered as completed until the Employer has certified in writing

that they have been virtually completed. The Defects Liability Period shall commence from the date of such Certificate.

4.20 Insurance in respect of damage to person and property

4.20.01 The Contractor shall be responsible for all injury to persons, animals or things, and for all structural and decorative damage to property which may arise from the operation or neglect of himself or of any nominated Sub-Contractor or any employee or either, whether such injury or damage arises from carelessness, accident or any other cause whatever, in any way connected with the carrying out of this Contract. This Clause shall be held to include inter alia any damage to Buildings, whether immediately adjacent or otherwise, and any damage to roads, streets, footpaths, bridges or ways as well as all damage caused to the Buildings and works forming the subject of this Contract by frost, rain wind or other inclemency of weather. The Contractor shall indemnify the Employer and hold him harmless in respect of all and any expenses arising from any such injury or damage to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under any Acts of any legislature or otherwise and also in respect of any award of compensation or damages consequent upon such claim.

4.20.02 The Contractor shall reinstate all damage of every sort mentioned in this Clause, so as to deliver up the whole of the Contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.

4.20.03 The Contractor shall indemnify the Employer against all claims which may be made against the Employer by any member of the public or other third party in respect of anything which may arise in respect of the works or in consequences thereof and shall at his own expense arrange to effect and maintain, until the virtual completion of the Contract, with an approved Office a Policy of Insurance in the joint names of the Employer and the Contractor against such risks and deposit such Policy or Policies with the Employer from time to time during the currency of this Contract. The Contractor shall also similarly indemnify the Employer against all claims which may be made upon the Employer whether under the Workmen's Compensation Act or any other statute in force during the currency of this contract or at Common Law in respect of any employee of the Contractor or any Sub-Contractor and shall at his own expenses effect and maintain, until the virtual completion of the Contract.

4.20.4. The Contractor shall be responsible for any liability which may be excluded from the Insurance Policies above referred to and also for all other damages to any person, animal or property arising out of and incidental to the negligent or defective carrying out of this Contract. He shall also indemnify the Employer in respect of any costs, charges or expenses arising out of any claim or proceedings and also in respect of any award of compensation or damages, arising therefrom.

4.20.5 The Employer shall be entitled to deduct the amount of any damage, compensation, costs, charges and expenses arising or accruing from or in respect of any such claims or damage from any or all sums due or to become due to the Contractor, without prejudice to the Employer's other rights in respect thereof. The Contractor shall insure the works at his cost and keep them insured until the virtual completion of the work, against loss or damage by

fire also.

4.21 Date of Commencement and Completion

The Contractor shall be allowed admittance to the site on the "Date of Commencement" stated in the Appendix hereto or such later date as may be specified by the Employer and he shall thereupon and forthwith begin the works and shall regularly proceed with and complete the same (except such painting or other decorative work as the Employer may desire to delay) on or before the "Date of Completion" stated in the Appendix subject nevertheless to the provisions for extension of time hereinafter contained.

4.22. Damages for Non-completion

If the Contractor fails to complete the works by the date stated in the Appendix Here in before, Referred to or within any extended time and the Employer certifies in writing that in his opinion the same ought reasonably to have been completed, the Contractor shall pay the Employer the sum named in the Appendix as "Liquidated Damages" for the period during which the said works shall so remain incomplete and the Employer may deduct such damages from any money due to the Contractor.

4.23 Delay and Extension of Time

If in the opinion of the Employer, the works be delayed (a) by force majeure or (b) by reason of any exceptionally inclement weather or (c) by reason of Employer's instructions hereof or (d) in consequence of the Contractor not having received necessary instruction in due time, from the Employer for which he shall have specifically applied in writing or (e) from other causes which the Employer may certify as beyond the control of Contractor .

4.24 Failure by Contractor to comply with Employer's instructions

If the Contractor after receipt of written notice from the Employer requiring compliance within ten days fails to comply with such further drawings and the Employer 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 by the Employer or may be deducted by him from any moneys due to the Contractor.

4.25 Termination of Contract by the Employer

If the Contractor being an individual or a firm commits any "act of insolvency", or shall be adjudged an insolvent or being an Incorporated Company 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 the Official Assignee of the Liquidator, in such acts of insolvency or winding up, as the case may be, shall be unable, within seven days after notice to him requiring him to do so, to show the reasonable satisfaction of the Employer that he is able to carry out and fulfill the Contract and to give security therefore, if so required by the Employer.

Or if the Contractor (whether an individual, firm or Incorporated Company) shall suffer execution or other process of Court attaching property to be issued against the Contractor,

Or shall suffer any payment under this Contract to be attached by or on behalf of any of the creditors of the Contractor,

Or shall assign or sublet this Contract without the consent in writing of the Employer first had obtained,

Or shall charge or encumber this Contract or any payments due or which may become due to the Contractor hereunder,

Or if the Employer determine that the Contractor

- 4.25.01 has abandoned the Contract, or
- 4.25.02 has failed to commence the works, or has without any lawful excuse under those Conditions suspended the progress of the works for 14 days after receiving from the Employer notice to proceed, or
- 4.25.03 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
- 4.25.04 has failed to remove materials from the site or to pull down, and replace work for seven days after receiving written notice that the said materials or work were condemned and rejected by the Employer under these Conditions or
- 4.25.05 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.

Then and in any of the said cases, the Employer may notwithstanding any previous waiver, after giving seven day's notice in writing to the Contractor, determine the Contract and liabilities of the Contractor, the whole of which shall continue in force 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 and further, the Employer by his agents or servants may enter upon and take possession of the works and all plant, tools, scaffoldings, machinery and materials lying upon the Estate or the adjoining lands or roads, and use the same as his own property or may employ the same by means of his servants and workmen in carrying on and completing the works or by employing any other Contractor or other person or persons to complete the works, and the Contractor or other person or persons employed for completing and finishing or using the materials and plant for the works. when the works shall be completed or as soon thereafter as convenient, the Employer 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 twenty days after receipt thereof by him, the Employer may sell the same by public auction, and give credit to the Contractor for the net amount realized. The Employer shall thereafter ascertain in writing under his hand what (if anything) shall be due or payable to, or by the Employer, for the value of the said plant and materials so taken possession of by the Employer and the expense or loss which the Employer 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 thereupon be paid by the Employer to the Contractor or by the

Contractor to the Employer, as the case may be, and the decision of the Employer shall be final and conclusive between the parties.

4.26 Termination of Contract by Employer

- 4.26.1 If payment of the amount payable by the Employer shall be in arrears and unpaid for thirty days after notice in writing requiring payment of the amount as aforesaid shall have been

given by the Contractor to the Employer or if the Employer shall repudiate the Contract, or if the works be stopped for three months under the order of the Employer or by any injunction or other order of any Court of Law, then and in any of the said cases, the Contractor shall be at liberty to determine the Contract by notice in writing to the Employer and he shall be entitled to recover from the Employer, payment for all works executed and for any loss he may sustain upon any plant or materials supplied or purchased or prepared for the purpose of the Contract.

4.26.2 In arriving at the amount of such payment, the net rates contained in the Contractor's original Tender shall be followed, or where the same may not apply, valuation shall be made in accordance with prevailing rules.

4.27 Certificates and Payments

4.27.1 The Contractor shall be paid by the Employer from time to time by installments under Interim Certificate to the Contractor on account of the works executed, work to the approximate value named in the Appendix as "Value of work for Interim Certificates" (or less at the reasonable discretion of the Employer) has been executed in accordance with this Contract, after which time the installments shall be upto the full value of work, subsequently so executed and fixed in the Building. The Employer may, at his discretion, include in the Interim Certificate such amount as he may consider proper on account of materials delivered upon the site by the Contractor for use in the works. And when the works have been virtually completed and the Employer shall have certified in writing that they have been completed, the Contractor shall be entitled to the payment of the Final Balance in accordance with the Final certificate to be issued in writing by the Employer at the expiration of the period referred to as "the Defects Liability Period" in the Appendix hereto from the date of Virtual Completion or as soon after the expiration of such period as the works shall have been finally completed and defects made good according to the true intent and meaning hereof, whichever shall last happen, provided always that the issue by the Employer of any certificate during the progress of the works at or after their completion shall not relieve the Contractor from his liability under Clause 4. 20 nor relieve the Contractor of his inability in cases of fraud, dishonesty or fraudulent concealment relating to the works or materials or to any matter dealt within the Certificate, and in case of all defects and insufficiencies in the works or materials, which a reasonable examination would not have disclosed. No Certificate shall of itself be conclusive evidence that any works or materials, to which it relates, are in accordance with the Contract neither will the Contractor have a claim for any amounts which the Employer might have been certified in any interim bill and paid by the Employer and which might subsequently be discovered as not payable and in this respect the Employer's decision shall be final and binding.

4.27.2 The Employer shall have power to withhold any Certificate if the works or any parts thereof are not being carried out to his satisfaction.

4.27.3 The Employer may by any Certificate make any correction in any previous certificate which shall have been issued by him.

4.27.4 No certificate or payment shall be issued if the Contractor fails to insure the works and keep them insured till the issue of the Virtual Completion Certificate.

4.27.5 Payments shall be made within the period named in the Appendix as "Period for honoring Certificates" after such Certificates have been delivered to the Employer.

4.28 Delayed Payment

Any amounts payable by the Employer to the Contractor if not paid within the "Period for honoring Certificates" named in the Appendix, carry interest at the rate named in the Appendix as the "Rate of interest for delayed payment" from the date upon which such sum ought to have been paid by the Employer until the payment.

4.29 Matters to be finally determined by Employer

The decision, opinion, direction, Certificate (except for payment), with respect to all or any of the matter (which matters are herein referred to as the excepted matters) shall be final and conclusive and binding on the parties hereto and shall be without appeal. Any other decision, opinion, direction, Certificate or valuation of the Employer or any refusal of the Employer to give any of the same shall be subject to the right of arbitration and review in the same way in all respects (including the provision as to opening the reference) as if it were a decision of the Employer.

4.30 Settlement of dispute by arbitration

In case of any dispute or difference arising out of or in connection with or in carrying out of the work (whether during the progress of the work or after completion and whether before or after the determination, abandonment or breach of contract) except as to any of the excepted matters provided hereunder the parties hereto, shall first endeavor to settle such disputes or differences amicably. If both the parties fail to reach such amicable settlement, all the disputes or differences shall be finally settled by arbitrators as provided herein.

In case of failure of such amicable settlement by the parties, then either party may within 28 days of such a failure give a written notice to the other party requiring that all matters in dispute or difference be arbitrated upon. Such written notice shall specify the matters which are in dispute or differences of which such written notice has been given and no other matter shall be referred to the arbitration of a single arbitrator to be appointed by both the parties or in case of disagreement as to the appointment of a single arbitrator, the appointment of two arbitrators (one to be appointed by each party) and an umpire to be appointed by the arbitrators. The provisions of Arbitration and Conciliation Act, 1996 or any statutory modification or re-enactment thereof and rules framed there under from time to time shall apply to such arbitrations.

In the event of the Arbitrator or any one of the Arbitrators, as the case may be, dying, neglecting, refusing to act or resigning or being unable to act for any reason or the award being set-aside by the Court for any reason it shall be lawful for the parties to appoint another Arbitrator in the manner provided herein above.

The venue of arbitration shall be New Delhi , INDIA.

The Arbitrator or Arbitrators appointed under this Schedule shall hold the arbitration proceeding jointly and shall have the power to extend the time to make the award with the consent of the parties.

Pending reference to arbitration and award thereon, the parties shall make all endeavor to complete the work in all respects as herein contracted and all disputes, if any, will finally be settled in the arbitration.

Upon every or any such references to the arbitration, as provided herein the cost of and incidental to the reference and award respectively shall be, at the discretion of the Arbitrator or Arbitrators or the Umpire, as the case may be, who may determine the amount thereof. The Arbitrator, Arbitrators or Umpire, as the case may be, shall give reasoned award in respect of each item of disputes which shall be final and binding on both the parties. It is agreed that the Contractor shall not delay the carrying out of the work by reason of any such matter, question or dispute being referred to arbitration, but shall proceed with the work with all due diligence and shall, until the decision of the Arbitrators, as the case may be, is given, abide by the terms and conditions of the contract herein, as also instructions with regard to the actual carrying out of the work herein contracted and no award shall relieve the Contractor of his obligations to adhere strictly to the terms and conditions of the contract herein as also instructions with regard to the actual carrying out of the work. The Bank and the Contractor hereby also agree that arbitration under this schedule shall be a condition precedent to any right of action, under the Contract.

In case during the arbitration proceedings, the parties mutually settle, compromise or compound their dispute or difference, the reference to arbitration and the appointment of the Arbitrator or Arbitrators, or Umpire, as the case may be, shall be deemed to have been revoked and the arbitration proceedings shall stand withdrawn or terminated with effect from the date on which the parties file a joint memorandum of settlement thereof with the Arbitrator or Arbitrators or the Umpire, as the case may be.

For the purpose of this clause, the expression "excepted matters" shall mean and refer to all or any of the matters under Scope of work, Contract price, Delivery Schedule & Final Acceptance certificate.

4.31 Right of technical scrutiny of final bill

The Employer shall have a right to cause a technical examination of the works and the final bill of the Contractor including all supporting vouchers, abstracts etc. to be made at the time of payment of the final bill. If as a result of this examination or otherwise, any sum is found to have been overpaid or over-certified, it shall be lawful for the Employer to recover the sum.

4.32 Employer entitled to recover compensation paid to workmen

If, for any reason, the Employer is obliged, by virtue of the provision of the Workmen's Compensation Act, 1923, or any statutory modifications or re-enactment thereof to pay compensation to a workman employed by the Contractor in execution of the works, the Employer shall be entitled to recover from the Contractor the amount of compensation so paid, and without prejudice to rights of the Employer under the said Act. The Employer shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by the Employer to the Contractor under this Contract or otherwise. The Employer shall not be bound to contest any claim made against it under the said Act, except on the written request of the Contractor and upon his giving to the Employer full security to the satisfaction of the Employer for all costs for which the Employer might become liable in consequence of contesting such claim.

4.33 Abandonment of Works

At any time after acceptance of the tender, the Employer shall, for any reasons whatsoever,

not require the whole or any part of the works to be carried out, the Employer shall give notice in writing to the Contractor who shall have no claim to any payment of compensation or otherwise whatsoever on account of any profit or advantage which he might have derived from the execution of the whole works.

4.34 Right of Employer to terminate Contract in the event of death of Contractor, if individual

Without prejudice to any of the rights or remedies under this Contract, if the Contractor, being an individual, dies, the Employer shall have the option of terminating the Contract without incurring any liability for such termination.

4.35 Marginal Notes

The headings catch lines hereto and, in the annexures, hereto are meant only for convenience of reference and shall not in any way be taken into account in the interpretation of these presents and the annexures hereto.

Section (V)

Appendix Hereinbefore Referred To

1.	Defects Liability Period	Twelve months from the date of Virtual Completion Certificate.
2.	Period of Final Measurement	3 months
3.	Date of Commencement	From the date of issue of work order.
4.	Date of Completion	75 days after issue of work order.
5.	Liquidated damages at the rate of	0.25% of the contract value per week subject to a maximum of 10% of the contract value.

SECTION VI

(Appendix I)

Check List

Tender For Supply, Installation, Testing and Commissioning of Cooling Tower for MP-IDSA Main Office Building at New Delhi

Commercial Conditions

Sr. No.	Description	Bank's Terms	Acceptance of Institute's terms (YES/NO)
1	Validity	90 days	
2	EMD	Rs.50000.00	
3	Bank Guarantee	BG of 3 % of the contract amount should be submitted before start of the work and it should be valid till the period of the contract.	

Part II should not contain any terms and conditions but only priced bill of quantity. Terms and conditions, if any, incorporated in Part II, will not be valid or considered.

Place
Date

Signature of Contractor

Name
Designation
Seal of the firm



**MANOHAR PARRIKAR INSTITUTE FOR
DEFENCE STUDIES AND ANALYSES**
मनोहर पर्रिकर रक्षा अध्ययन एवं विश्लेषण संस्थान

**— Manohar Parrikar Institute for Defence Studies and Analyses ,
intends to install Cooling Tower for Institute's Main office
building .**

Introduction:

The work covers supply, installation, testing and commissioning of 600 TR Cooling Tower & the other allied works as detailed in the technical specifications.

The units and systems proposed to be supplied shall be complete & technically fulfilling the submitted / desired criteria and any part not mentioned in this document but essential for the work and operation of the Cooling Towers as a whole shall be included in the scope of work and offered as a part of the complete package. The tenderer shall clearly indicate during Pre- bid meeting such additional equipment/components if any with all technical details.

The total responsibility for the guaranteed operation of individual unit and the system as a whole rests with the tenderer as regards the ratings, performance reliable and trouble-free working. The tenderer shall visit and ascertain site conditions, existing structures and other obstructions if any. The work has to be carried out in an existing office Building without causing inconvenience to the normal working of the Institute. The tenderer will consider suitably for these exigencies in his offer and no extra claims will be entertained later on these grounds. The tenderer shall clearly indicate the make of various equipments or components offered by him.

Section (VI)

Standards, codes and regulations

The codes, regulation as detailed below shall be followed in this contract wherever applicable. In case of discrepancy between the provision in the codes regulation and the consultants specifications, the stringent of the two will be the applicable for this contract.

1.	Safety code for air conditioning (revised amendment 1)	IS659:1964 (reaffirmed 1991)
2.	Steel for general structural purpose	IS2062:1992
3.	Welding	IS3589
4.	Copper alloy gate globe check valve for water lines	IS778:1980
5.	Butterfly valve	IS13095:1991
6.	Steel pipe flanges	IS6392
7.	Gaskets	IS638:1979 (reaffirmed 1993)
8.	Mild steel tubes and fittings	IS1239: Part I & II
9.	Dual plate check valve for water lines	AP194
10.	Colour code for the identification of pipe lines	IS2379:1963
11.	PVC insulated electric cables for working volts upto & including 1100 volts	IS1554 (Part I)
12.	HRC cartridge fuse links upto 650 volts	IS2208:1976
13.	Inspection and testing of installation	IS732 (Part III):1979
14.	Specification for three phase induction motor	IS325
15.	PVC insulated (heavy duty) cables for workingvoltage upto 1.1 KV and upto 11KV grade respectively.	IS694:1977 (Part I & II)
16.	Code of practice for electrical wiring installations	IS732:1989
17.	Code of practice for earthing	IS3043:1966
18.	Horizontal centrifugal pumps	IS1620
19.	Bourden tube pressure and vacuum gauges	IS3624
20.	Glossary of terms used in refrigeration and air conditioning	IS3615
21.	Circuit breaker AC	IS2516:1980 (Part I & II)
22.	Contactors for AC for voltage upto 1100 Volts	IS2959:1975
23.	Low voltage switchgear and control gear assemblies	IS8623:1993 (Part I & II)
24.	Specification for cable glands	IS4821
25.	Code of selection, installation & maintenance of switchgear and control gear	IS10118:1982 (Part I & II)
26.	Conduits for electrical installations	IS9537:1981 (Part I to IV)
27.	Permissible limits of noise level for relating electrical machines	IS12065:1987
28.	Code of practice for installation and maintenance of motors	IS3106:1966
29.	Centrifugal fans (1 st revision)	IS894:1987(reaffirmed 1991)
30.	Electrically welded steel pipes for water, gas and sewage	IS3589
31.	Gun metal gauge, globe and check valves for general purposes	IS778
32.	Axial flow fans	IS3588:1987 (reaffirmed 1991)

On the Letter Head of company/firm/organization

Ref. No. _____

Date: _____

Assistant Director , Admin,
MP-IDSA Shankar Vihar, Delhi Cantt-110010

Dear Sir,

Name of Work: Client's Certificate regarding performance of the Contractor

We confirm that M/s. (Name of the contractor) have carried out the following work/s for us.

Other particulars are given below for your perusal and record:

Sr. No.	Particulars	Comments of the Client
1	Name of the eligible work with brief particulars	
2	Work order No. and date	
3	Project/work cost	
4	Date of commencement of work	
5	Stipulated date of completion	
6	Actual date of completion	
7	Details of compensation levied for delay (indicate amount), if any	
8	Gross amount of the work completed and paid for	
9	Performance Report :	Outstanding / Very Good / Good / Fair / Satisfactory / Poor
	(ii) If firm is maintaining the system under Annual Maintenance Contract (AMC). Indicate grading for performance of AMC	
10	Comments of the Client on the capabilities of the M/s. _____ (Indicate Grading): Outstanding / Very Good / Good / Fair / Satisfactory / Poor	
	(a) Technical proficiency	

	(b) Financial soundness	
	(c) Mobilization of Manpower	
	(d) General Behavior	
11	Any other information which you consider will help us in making our decision.	

Office Seal of the Client

Yours faithfully,

(Signature of the Responding Officer*)
For S.E.(E) / Executive Engineer (E)

Note:

** Responding Officer should be of the Rank of Superintending / Executive Engineer in respect of a Government/Semi- Government organization or a PSU*

** Responding Officer should be of the Rank of General Manager in respect of Private organizations*

** The matter written in italic not to be printed on the final Performance Certificate*

Section (VII)

Technical Specifications

7 Scope

1. Supply , Installation , testing and commissioning of 600 TR capacity having 02 cells. The work preparation of civil structure as per drawing attached , shifting of fire line , commissioning of Cooling tower including connected pipes, B/F Valves, strainers, supports etc. without damages to any other equipments. The work to be carried out in such a way that the operation of the air conditioning should not be hampered.

The work includes connection of motors , cable lying from existing plant with required cable trays , Starter alongwith required pipelines, valves and M.S. I beam channel for foundation confirming to the specification mentioned/ approved with the site requirement.

7.1 Specifications

7.1.1 FRP Induced Draft Counter Flow Cooling Towers

Tower shall be suitable for outdoor installation. The cooling tower shall be vertical Induced draft counter flow in fiber-glass reinforcement plastic construction complete with fan, motor, spray section, eliminators, steel supports, cold water basin etc. It should be non-organic, non-wrapping, non-rusting, unaffected by water or dissolved chemicals and shall have adequate strength to withstand the operating conditions of temperature, pressure, wind etc. A cooling tower should have G.I. mesh between the FRP casing and basin with opening door and easy walkway for the cooling tower basin.

7.1.2 Side Casing

The side casing shall be made out of FRP with smooth surface. It shall have sufficient structural strength to withstand high wind velocities and vibration. The casing shall be installed in the fiber glass reinforced basin. The tower shall have FRP panels reinforced with embedded steel frame.

7.1.3 Cold Water Basin

The Cold Water Basin shall be a deep fiber glass reinforced sump on which cooling tower super structure shall be supported.

Basins fittings shall include the following:

- (i) Bottom Outlet.
- (ii) Screened suction assembly fixed to the basin.
- (iii) Drain at underside of suction, suction side sheet.
- (iv) Overflow fixed to inside of casing side sheet.
- (v) Ball type automatic brass make-up water valve with plastic float and a quick fill connection.

7.1.4 Distribution System

Hot water distribution system shall comprise of headers and branch arms system or headers and

hot water basin with nozzles. The warm water should flow through external piping into a chamber at the top of the tower. The splash box should be provided to prevent the incoming water from spilling out of the basin and help to provide uniform water distribution. The water should flow by gravity from the fiberglass basin through nozzles to the fill.

7.1.5 Fillings

The Fillings shall be made of virgin PVC rigid film in cross fluted design and arranged in square rectangular form and shall be elevated from the floor of the cold water basin to facilitate cleaning and easy replacement. They shall be arranged in such a manner to ensure negligible resistance to air flow and to eliminate back water spots and prevent fouling trough scales that may form. In order to reduce carry-over losses through entrainment of moisture drops in air stream, PVC drift eliminators shall be installed. The fill should include both louvers and drift eliminators & the louvers should prevent water from escaping the fill sheets to assure proper & efficient heat transfer throughout wide variations in the airflow. The HDG steel structural tubes shall suspend, support & stabilize the fill in position & should also hold the fill sheets above the cold water basin floor to simplify the cleaning of the basin. Suitable screens between the side of the cold water basin & the base of the fill should be provided to prevent foreign materials in the circulating water flow & should be easily removable. Drift loss should be less than 0.2 % of the circulated water quantity.

7.1.6 Mechanical Equipment

The Fan shall be heavy duty propeller type made of FRP, light-weight rotor fitted with multiple aero foil blades. The entire fan assembly shall be statically balanced. The Fan shall be direct driven by totally enclosed fan-cooled weather proof motor conforming to IP-55 and suitable for 400 Volts +/- 10%, 3 phase, 50 hertz +/- 6% AC supply. Fan shall be protected by fan guard of galvanized steel mesh and shall be easily accessible for inspection and maintenance. The mechanical equipment assembly shall be adequately supported on a rugged steel base welded to tubular support assuring vibration-free support. Fan guard shall be provided to prevent birds from nesting during idling periods. All fans shall be direct drive with low RPM suitable for low noise application. Steel ladder shall be provided in such a manner and location as necessary to give safe and complete access to all parts of tower requiring inspection. Ladder shall be made of 40mm x 40mm x 7mm angle iron sides and 16 mm straps and shall be bolted to the tower on the top and grouted in masonry at the bottom end. Suitable hand rails and working platform made from galvanized and double flanged steel shall be provided on the top of cooling tower for easy inspection and maintenance works.

7.1.7 Performance Data

The complete drawing, specification of the cooling tower, performance rating and power consumption at varying outdoor wet bulb temperatures shall be submitted. Cooling tower shall be field tested for capacity and performance testing after installation.

7.1.8 Piping

All pipes shall be new, approved make and shall be installed with proper support, suspended from clamps, hangers, M.S. channels as per site requirement. Piping work shall be carried out with the minimum disturbance to the other works on the site.

7.1.9 Pipe Fittings

(a) General

The pipe fittings for screwed piping shall be malleable iron and for piping with welded joints shall be of weld-able quality. Also the fittings shall be suitable for same pressure ratings as for the piping system. All bends up to sizes 150 mm dia. shall be of heavy duty readymade.

All bends in sizes 200 mm and above shall be fabricated from the same dia. and thickness of pipe in at least four sections and having a center in radius of at least 1.5 times diameter of pipes. Fittings such as tees, reducers etc. shall be from the same pipe and at least of length twice the diameter of the pipe.

The dead ends are to be formed with flanged joints and 6 mm thick blank between flange pair for 150 mm and over in case where a future extension is to be made. Otherwise blank end disc 6 mm thicknesses are to be welded with additional stiffness from 50mm x 50 mm

M.S. heavy angles. For sizes above 350 mm all ends larger than 400 mm dia. shall have dished ends and tested.

(b) Flanges

All flanges shall be of mild steel as per IS: 6392/71 (with latest amendments) & shall be slip on type welded to the pipes. Flanged thickness shall be to suit Class II pressure. 3 mm thick gasket shall be used in between the flanges. Flanged pair shall be used on all such equipments which are required to be isolated or removed for service for example condenser/chilled water pumps, chilling m/c. Cooling Tower etc.

(c) Butterfly Valves

Butterfly valves shall be ISI marked and of PN 1.0 rating as per IS 13095 preferably with fixed linear design to suit duty and flanges as per IS 6392 Table "E" Valves of sizes 32 mm and above diameter shall be made of cast iron close end body, cast iron epoxy coated disc. Nitrile Seat and **SS 410 Stem** with Teflon bush. **All valves shall be supplied with factory test reports.**

7.2 Testing of Pipe System

- a) All tools, tackles, labor etc. shall be arranged by contractor.
- b) All pipes shall be tested hydraulically at 1.5 times the maximum operating pressure or 10 Kg/cm² whichever is higher for the period of 24 hours.
- c) In case piping is tested in parts, this section shall be securely sealed and capped during testing.

7.3 Painting

For FRP cooling towers, the contractor shall obtain approval from Institute for available colours for the casing panels. The cooling tower shall be procured of the colour strictly in accordance with approval of Institute's representative and should have a striking finish.

Painting Work of piping and M.S. Structures / supports

Type of paints - The paint shall be readily mixed enamel paint of ICI, Asian or approved make only. The paint shall be supplied in accordance with the quality of surface covered as per manufacturer's recommendations for specific application.

Application - All piping/I Beam/supports and other M.S. parts etc. shall be given two coats paint after applying two coats of zinc chromate primer as approved by the Bank's Engineer.

7.4 Equipment Selection Data

Location: Backside of Library between open Gym and Transformer.

Type: Induced draft FRP Counter flow

Entering water temperature: 96.8° F

Leaving water temperature: 89.6° F

Quantity: 1 Nos.

7.5 Damages made while carrying out the work:

Any damages made to the Institute's property by the contractor while carrying out the entire work will be made good as per the original by the contractor at his own cost.

Section (VIII)

Measurements

8.1 Cooling Tower:

A complete cooling tower unit with fan, motor, fills and all other supporting and foundation accessories with opening door and easy walkway for the cooling tower basin.

8.1 Piping Work

The length of piping shall be measured along its centre line from flange to flange including bends, elbows, tees etc. All such fittings/accessories shall be treated as part of piping work. While taking the measurements special fittings such as any type of valve, non-return valve and strainers will be excluded.

Flanges shall not be measured, as they form part of piping work.

For thermo wells and pressure gauge sockets no measurement shall be done separately.

All kinds of supports, hangers etc. shall be part of piping work and no extra measurement shall be done.

8.2 Electrical cabling work

All power cables/control cables shall be measured on linear basis in meters.

No extra price shall be paid on account of end termination of control cables which includes thimble etc. Power cable end termination and connection shall form part of cable gland item and hence shall not be measured separately. All spacers, saddles, cable tray etc. shall be laid as per directives of Institute within quoted cost of the cable.

8.3 Steel supports

No extra price shall be paid on account of supports required for piping, and cabling work(except for cable trays).

Approved make of material

1.	Cooling Tower Type	Induced draft counter flow.
2.	Motors for cooling tower	Bharat Bijlee, Crompton, NGEF, Batliboy, Siemens,ABB
3.	Water piping	GST,ITC,Jindal,TATA
4.	Butterfly valve	Audco, Cresent, Advance
5.	Pot strainer	Audco, Advance
6.	Vibration Isolators	Emerald, Dunlop
7.	Electrical cables/wires	Polycab / Finolex

Section (IX)

Details of the Cooling Tower

The cooling tower shall be selected for the following parameters:

(a)	Capacity of Cooling Tower	600 TR
(b)	Number of Cells	Two
©	Capacity of each cell at operating WB temperature	300 TR (Heat Rejection)
(d)	Type of cooling tower	FRP Induced Draft
(e).	Approach temperature ° C Atmospheric temperature WB	4.8 27.2 deg.C
(f)	Cooling across tower	4 deg.C
(g)	Material of fan	FRP blades/Hub-Aluminim
(h)	Type of motor	Squirrel cage TEFC
(i)	Type of starter	L&T make Star Delta
(j)	Colour of cooling tower	To be approved by Institute

Technical Details of the cooling tower

Sr.No.	Description	Unit	Details
1.	Type of Cooling tower		Induced draft counter flow
2.	Dimensions (W x L x H)		(6000x5400x3300) Mm
3.	Tear Weight	kg	4620 Kg
4.	Operating Weight	kg	9500 Kg (approx.)
5.	Basin capacity	Litres	9000 Litres
	Fan type		Axial flow
6.	Fan material		FRP Blades and hub cast Aluminum alloy
7.	Fill material / type		Virgin rigid PVC fills
8.	Drift Eliminators		Pvc extruded C Class
9.	Splash Cap		Polypropylene
10.	No of Fans	Nos	02
11.	Fan Diameter	mm	2100
12.	Motor Type		Squirrel cage Induction Motor, Extended shaft
	Mounting		Flange Mounted
	Electricals Characteristics		415V/3PH/50 Hz
	Class of Insulation		F Class
	Motor rating		12.5 HP/720 RPM
	Enclosure type		TEAO-WP with IP-55 protection
	Winding Temperature Rise		70 C
	Bolts, nuts and washers		Electroplated
	Base Frame		MS
13.	Evaporation Loss % of total water in circulation		0.75
14.	Drift loss % of total water circulation		0.05
15.	Total make up water % of total water in circulation		0.8
16.	Water Flow rate (total)	USGPM	2400
17.	Hot water Temperature	C	36.4
18.	Cold water Temperature	C	32.2
19.	Design wet bulb temperature	C	28.3
20.	Wetted Surface area	M2	4723
21.	Design range	C	4.2
22.	Design Approach	C	3.9
23.	Fill Flute size	mm	12
24.	Hot water Inlet size	mm	4x150
25.	Cold water outlet size	mm	4x150
26.	Overflow connection	mm	40

PRICED BILL OF MATERIAL

Supply, Installation, Testing and Commissioning of Cooling Tower for Institute's Main Office Building at Delhi Cantt-110010

Sr. No.	Description	Unit	Qty	Rate	Amount
1	Supply, installation, testing and commissioning of Modular induced draft counter flow F.R.P. cooling tower of 600 T.R. capacity (Energy Efficient & Low Noise) heat rejection capacity with FRP body and base, water spray headers, cooling tower fills, fan with motor, supporting base frames, inlet valve with float assembly, Connection with Makeup tanks, overflow with drain connection with valve and complete with fan, fan motor. Capacity shall be suitable for above TR load as per ambient temperatures specified. The Work includes vibration isolators, strainers, instrument of any type. Rates should be inclusive of all taxes, transportation, loading, unloading, labour etc.	Nos	1		
	Rate in words:				
2.	<u>Structural Work</u>				
2.1	Supply fabrication and installation of cooling tower base frame for the permanent location by welding of MS Structural Steel (ISMB : Indian Standard Medium Weight Beam) of minimum size of 150 mm x 75 mm x 5 mm with 10mm base plate and bottom plate for installation of above 1 no. of Cooling tower of 600 TR Rates should be inclusive of all taxes, transportation, loading unloading, labour etc.	Job	01		
2.2	Preparation of Concrete Structure as per Annexure-1. (please see drawings attached)	Job	01		
	<u>Pipe Lines</u>				
3	Supply and installation of following sizes of M.S 'C' class heavy duty (6 mm wall thickness) pipes of approved make with ISI mark for condenser water inlet, outlet and equalizer line with necessary support with vibration isolating arrangement etc.as per detailed specifications. Rates should be inclusive of all taxes, transportation, loading unloading, labour etc.				

3.1	75 mm Dia for Drain	RMT	20		
	Rate in words:				
3.2	150 mm Dia	RMT	10		
3.3	250 mm Dia	RMT	30		
	Rate in words:				
4.	<u>Valves</u>				
	Supply and installation of Butterfly Valves of approved make with water type Cast Iron body, Ductile Iron Disc with Nylon coated,SS- 431 Stem, EPDM Integrally molded Liner, Hand Lever/GearBox for 200 mm and above PN 16.				
4.1	75 mm Butterfly Valve	Nos	02		
	Rates in words:				
4.2	150 mm Butterfly Valve	Nos	04		
	Rate in words:				
4.3	250 mm Butterfly valve (gear type)	Nos	02		
	Rates in words				
4.4	Supply and Installation of 250 mm NRV with Strainers, etc .	Nos	02		
5.	Electrical Installation				

5.1	<p>Fabrication, supply installation and commissioning of motor control cubicle panel for 2 Nos. C.T. fan motors of 12.5/15 HP each, made out of 14/16 gauge CRCA sheets. The panel shall be painted by 7 tank process thoroughly. It shall be manufactured as per relevant I.S specifications. It shall have different compartments with dust, vermin proof doors and insulated knobs. The panel shall consist of the following:-</p> <p>a) 1Nos - 125 Amps, 440 V TPN Incoming switch fuse unit with HRC fuses – 1 set.</p> <p>b) 2 Nos - 63 Amps, 440 V TPN Incoming switch fuse unit with HRC fuses.</p> <p>c) 2 Nos - L & T make star delta fully automatic starters for 12.5 HP/15 HP 3 phase motors complete with ON- OFF push button including lamps, internal wiring by proper size copper wires etc.</p> <p>d) 1 Lot - Suitable size electrolytic copper bus bars on insulated supports.</p> <p>e) 1 set - 0-500 V Voltmeter with selector switch control fuse etc.</p> <p>f) 1 set - 0-200 Amps Ammeter with CTS & selector switch control fuse etc.</p> <p>The work Includes connection from main Panel from HVAC Plant .</p>	Job	01		
5.2	Supply and Installation of Electrical Cable from Starter Panel to Cooling Tower 3C x 6 sqmm Copper Armoured cable. The rates should be inclusive of end termination of the said cable.	RMT	200		
	Rate in words:				
5.3	Supplying & fixing of 2mm thick GI Cable Tray cover of size 150 mm wide x50mm height perforated cable trays with GI thread rods & clamps.	RMT	100		
5.4	Supply and Installation of 2 run x 8 SWG GI wire earthing	RMT	140		
	Rate in words:				
A	Capital Cost				

1. Bidders may note that all above work is including of painting.
2. The work includes freight charges, lifting, loading, unloading.

Seal of company

Signature

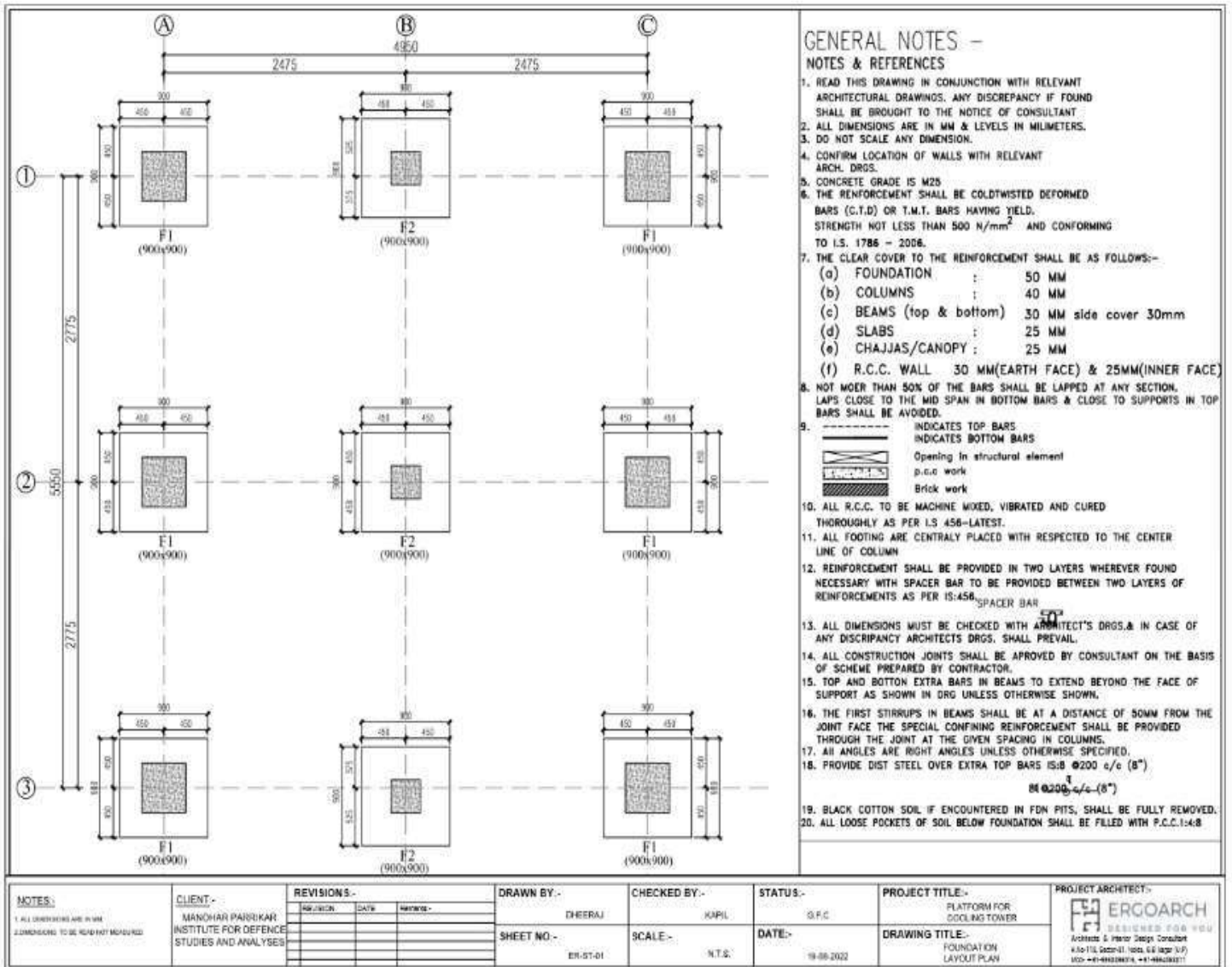
Item wise Rates for COOLING TOWER PLATFORM at Manohar Parrikar-IDSA.

Anexure-1

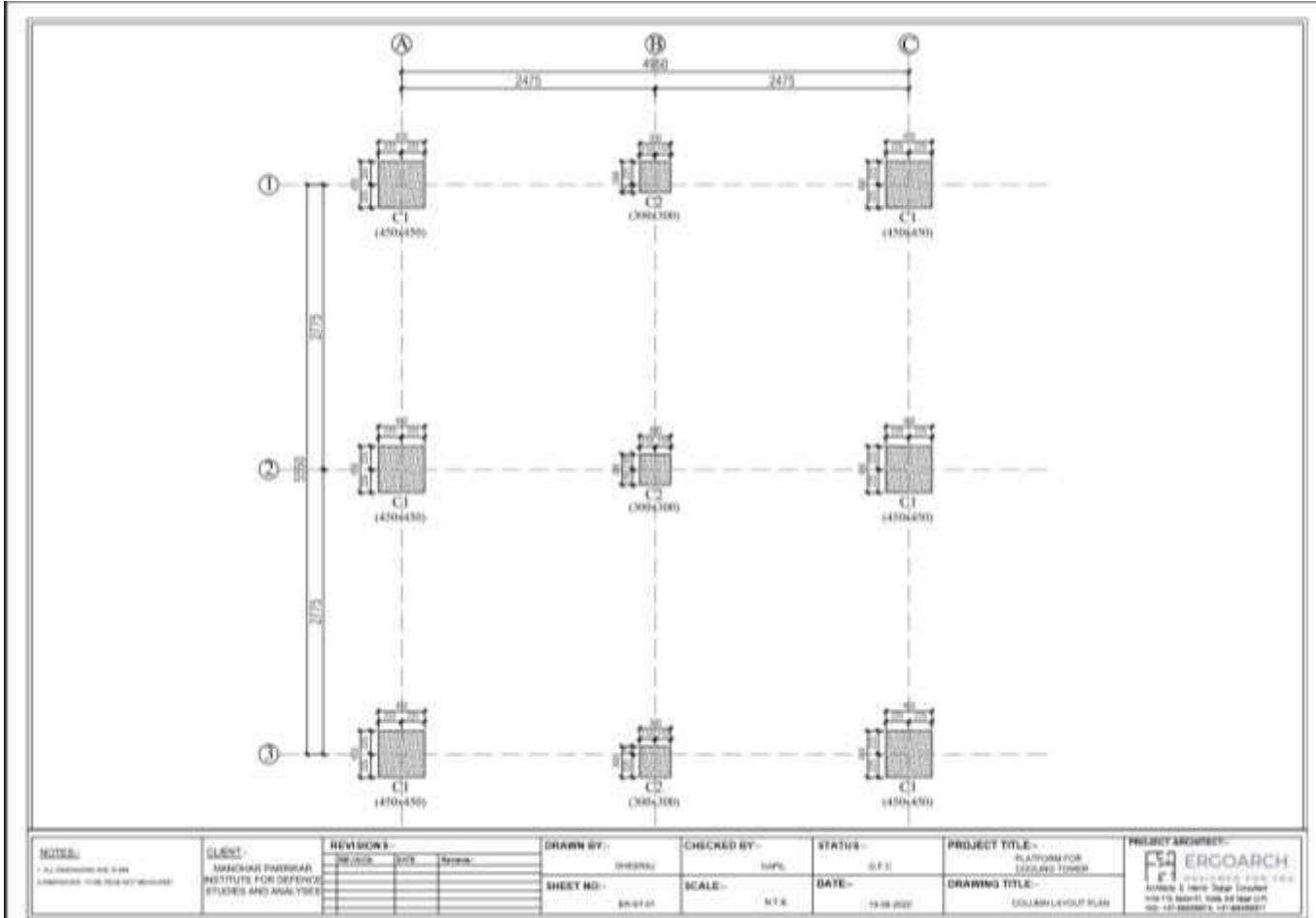
S.No	Description of Item	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
1	EARTH WORK				
A)	Excavation				
	Earth work in excavation in all kinds of soil (excluding rock and boulders) in foundations trenches, column pits, pile caps etc. including dressing of sides and ramming of bottom, disposing surplus earth within the premises in a manner as directed by the Architect including side fills in layers not exceeding 150mm thick (compacted) including watering, ramming, consolidating and dressing etc.including all lead & lift.				
	Excavation for Foundation	27.5	Cum.		
B)	Earth back filling				
	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation and beam etc., consolidating each deposited layer by ramming,watering,brick ballast and reday for plain cement concrete etc, lead up to 50mt. and lift upto 1.5 mt.	20	Cum.		
2	CONCRETE WORK- PLAIN & REINFORCED				
A)	Plain Cement Concrete Work				
	Providing & laying in position plain cement concrete with 40mm and down size graded stone aggregate as base or sub-base for foundation and plinth beam etc., including form-work and shuttering. The mix proportion shall be by volume, de-watering if required.				
	1:4:8 (1 Cement : 4 Coarse sand : 8 Aggregate)	1.55	Cum.		
B)	Making plinth protection 75 mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 100 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.				
	PCC-1:2:4 (1 Cement : 2 Coarse sand : 2 Aggregate)	3.75	Cum.		
	Brick Ballast	4.25	Cum.		
C)	Reinforced Cement Concrete Work				

	Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge.				
	Concrete upto plinth level	3.55	Cum.		
	Concrete above plinth level	4.35	Cum.		
D)	Steel and Reinforcement				
	Steel reinforcement bar (FE-500) for reinforced cement concrete work including straightening, cutting, bending, placing in position and binding all complete upto plinth level. Approved make of steel reinforcement bar, TATA, SAIL or equivalent.				
	16mm Dia. (TMT) Steel reinforcement	615	Kg		
	12mm Dia. (TMT) Steel reinforcement	225	Kg		
	8mm Dia. (TMT) Steel reinforcement	195	Kg		
E)	Form Work				
	Providing & Centering and shuttering including strutting, propping etc. and removal of form for Foundations, footings, plinth beam, etc. for mass concrete.	60	Sq.mt		
F)	Existing Fire Line Shifting				
	Providing & Laying new fire pipe line to replace with the existing fire line. Fire pipe line obstructing the cooling tower platform shall only be replaced.		LumSum		
		Total Amount			

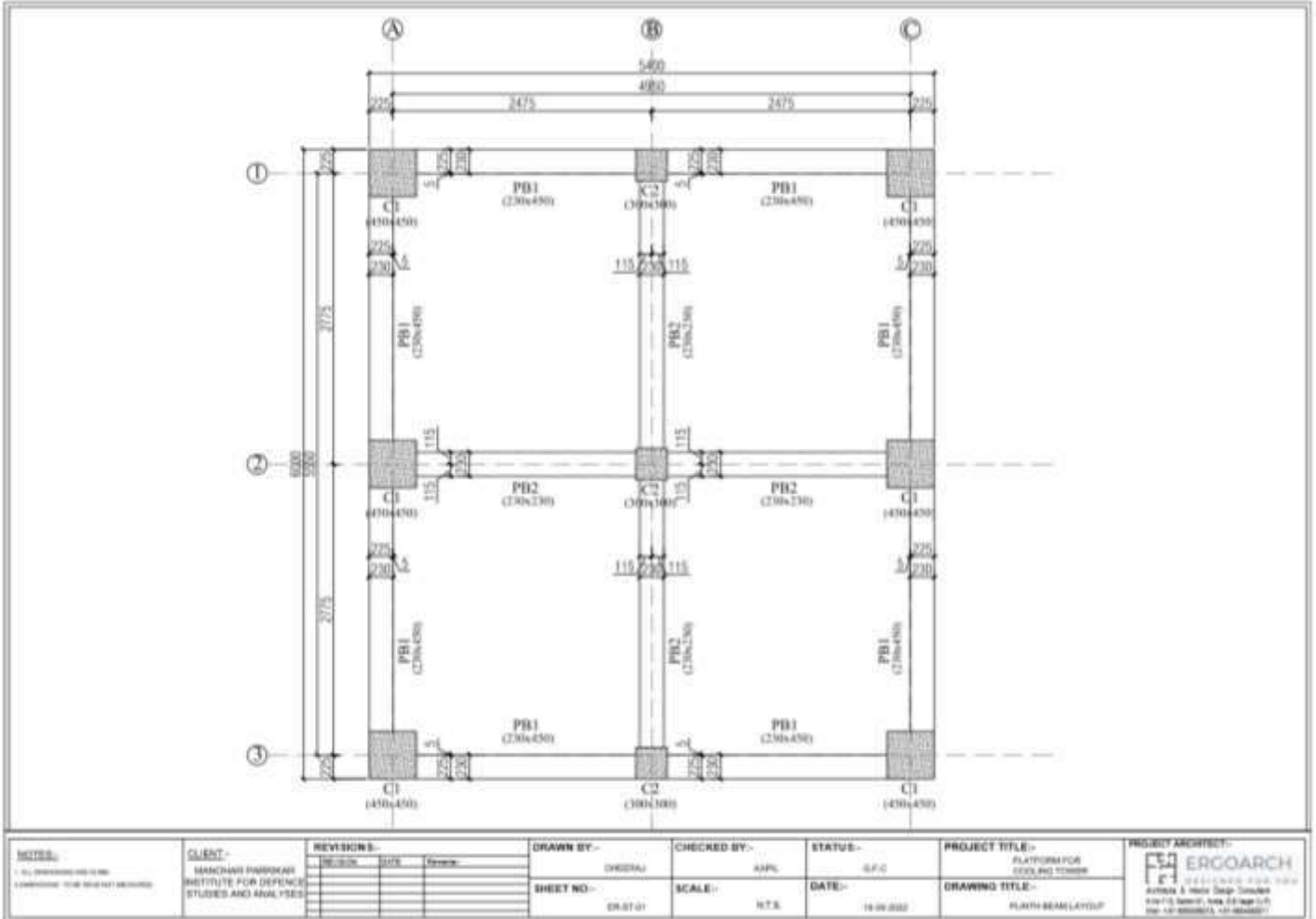
FOUNDATION LAYOUT PLAN



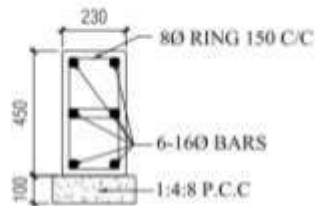
COLUMN LAYOUT PLAN



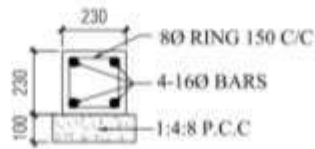
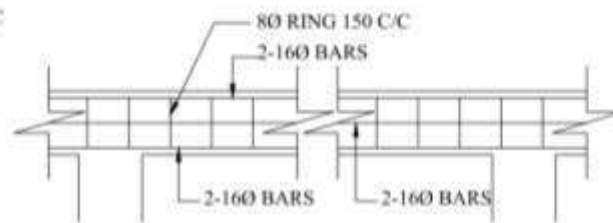
PLINTH BEAM PLAN



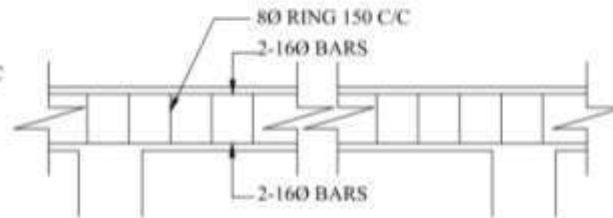
PLINTH BEAM DETAIL



PB1 DETAIL

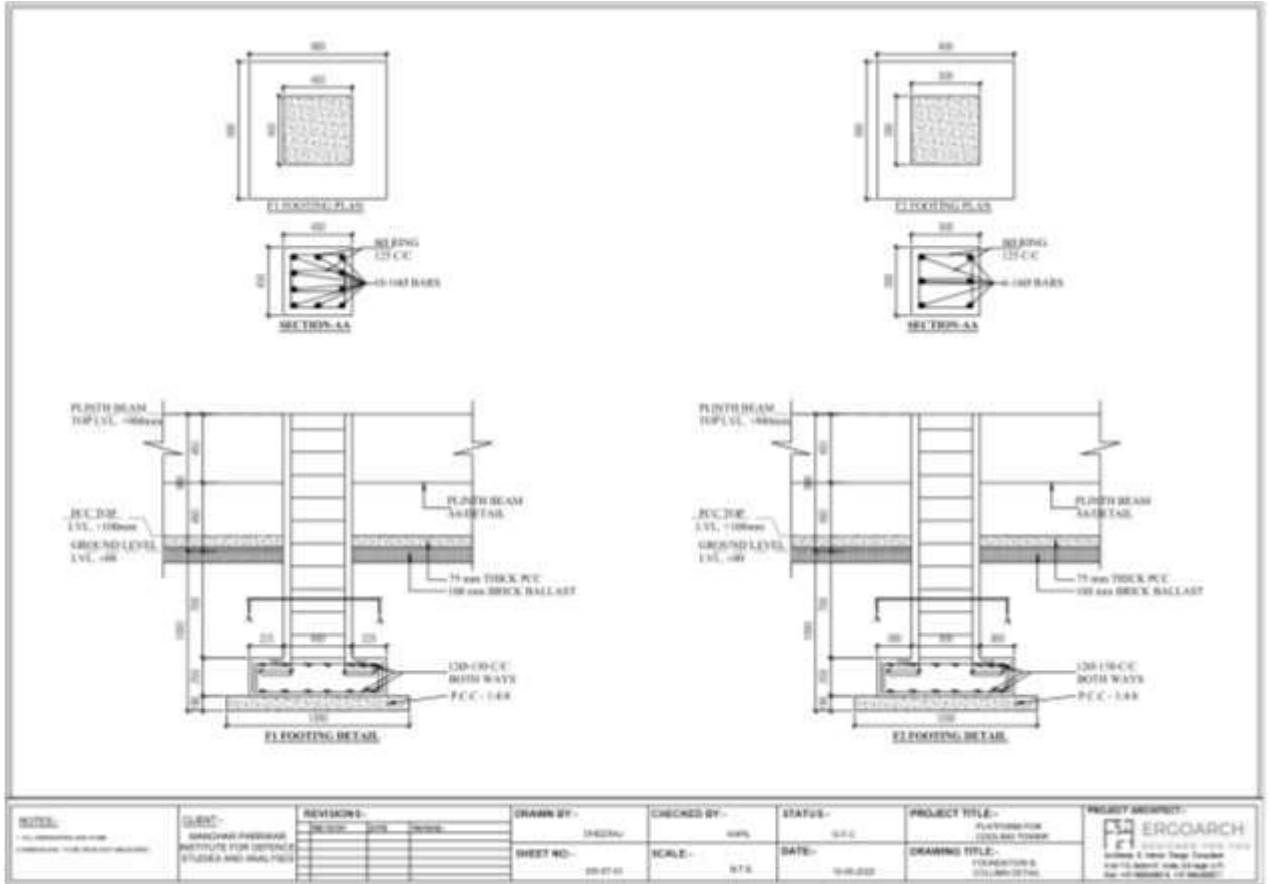


PB2 DETAIL



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FOUNDATION & COLUMN DETAIL



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			SHEET NO.: 00/01	SCALE: N.T.S.	DATE: 12-08-2022	DRAWING TITLE: FOUNDATION (E1, E2)	