



TAMILNADU WAREHOUSING CORPORATION
(A Govt. of Tamilnadu Sponsored Undertaking)
Guindy, Chennai-600 032.

PRICE TENDER DOCUMENT

NAME OF WORK : Construction of Computer room and Record Room in Third Floor, Tamil Nadu Warehousing Corporation, Head Office Building at No. 82, Anna Salai, Guindy, Chennai – 600 032.

Last date of receipt of tender : **27-09-2022**

E.M.D. to be remitted : **Rs. 38,100 /-**

Mode of E.M.D. to be remitted : The E.M.D. will be remitted in the shape of Demand Draft in favour of Tamil Nadu Warehousing Corporation, Chennai – 32 obtained in the Nationalized and Scheduled Banks. Other mode of payment will not be accepted.

TOTAL NUMBER OF PAGES:

TENDER CONDITIONS	57 Pages
SCHEDULE – A	16 Pages
PLANS	1 No.

NUMBER OF ITEMS IN SCHEDULE "A" : 42 (Forty Two) Items Only

TENDER SHALL BE SUBMITTED ON OR BEFORE 15.00 HRS ON: 27.09.2022.

Signature of the
Contractor\Tenderer

Construction Engineer,
TNWC, Chennai - 32

Annexure**PARTICULARS TO BE FURNISHED BY THE TENDERER**

1	Name of the Tenderer and Address	
2	Name of work	
3	Date of Tender	
4	Total value of tender.	
5	Details about EMD enclosed for this tender and its validity.	
6	Registered class of the Tenderer in PWD with monetary limit	
7	Recent works executed (details about name and place of work, value of work etc. should be furnished)	
8	Recent works executed (details about name and place of work, value of work etc. should be furnished)	
9	Command of labour in brief	
10	Turnover of previous year (particulars for period of three consecutive years to be furnished)	
11	Whether GST No is enclosed.	
12	In case of registered co-operative societies they should furnish name for the nominee with their credentials details at the time of tender itself. They should also certify that the nominee of the society is not a registered contractor in the Department.	
13	Technical Assistant details 1. Technical Assistant details (i). Name Qualification certificate Experience certificate (ii). Name Qualification certificate Experience certificate Or Name If retired civil Engineer, Designation And date of retirement (copy may be enclosed)	
14	If any other details.	

Note : The consent letter from the Technical Assistant proposed to be employed should be furnished and enclosed with the tender

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FOR SPECIAL ATTENTION OF THE CONTRACTOR

1. Proof of registration as Contractors registered in Class – II with a monetary limit of up to Rs.75.00 lakhs (or) Class IV with a monetary limit of Rs. 50.00 Lakhs to Rs. 2.00 Crores as pr G.O. (Ms) No. 37, PW (G2) Department, dated: 17.06.2022 in TNPWD / other State Government Department / State Government Undertakings, as a contractor shall be attached with the tender.
2. GST certificates shall be enclosed with the tender.
3. EMD will be received in the shape as detailed in Sl. No.3 of tender notice.
4. Security Deposit should be in the shape of DD in favour of Tamil Nadu Warehousing Corporation, Chennai – 32 obtained in the Nationalised / Scheduled Banks or in the form of IRREVOCABLE BANK GUARANTEE valid for 17 months after receiving work order as per the form prescribed by the Department, only, Other form of EMD and security deposit will not be accepted vide G.O. Ms. No.227, dated 13.04.82 and G.O. Ms. No. 283, Public Works (G2) Department, dated 21.05.99.
5. The following particulars shall also be furnished by the contractor with the value.
 - a. List of details of works executed by the contractor with the value.
 - b. Annual turnover of the contractor for the last five years. Necessary electronically filed copy of IT return along with Chartered Accountant Balance Sheet should be furnished.
6. The lowest tenderer when informed that his tender is under consideration shall have to furnish PERT chart in the proper form within a week from the date of receipt of letter calling to PERT chart. The pert chart should conform with departmental time schedule for the completion of the work furnished in the tender notice. If the pert chart is not received within a week from the date of receipt of communication his tender will not be considered.
7. The tender document will be issued from this office on request by the tenderer on payment of required fee, those who have satisfied sufficient minimum eligibility criterias.

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SPECIAL INSTRUCTIONS TO THE TENDERERS

1. The tenderers should carefully go through the schedules and quote their rates for all items.
2. The rates should be filled in neatly in figures and words and taking into account the metric unit specified in the tender, scrubbing, over writing and erasing should be avoided as far as possible. If corrections and over writings are occurred, should be authenticated by the tenderers by providing initials.
3. The amount for each item of work should be worked out and furnished. Proper care must be taken in working out the amount of each item of work taking into account unit for which the rate is quoted and the quantity of work to be done under the item.
4. The total of each page should be noted at the end of each page and carried over to every page and the grand total value of work should be worked out and shown at the end.
5. The tender should be submitted along with a covering letter giving full details as stated in the tender notice.
 - i. Details of the earnest money deposit as per details in item No.4 of tender notice
 - ii. Electronically filed IT return for the current year should be submitted along with the tender.
 - iii. Details of previous works done by the tenderer covering the cost of work agreement amount and date, the Department in which the work was carried out etc. so as to assess the previous experience of the tenderer and also make an easy reference to their record of work. Year wise details should be furnished so as to see that those tenderers have minimum experience of major buildings.
 - iv. List of various machinery and other equipment at the tenders disposal for use in the execution of work.
 - v. **The tender form vide Appendix II (a) (LS Contract) should be filled in while submitting the tender. The tenders submitted without filling up the tender form are liable to be rejected. The Appendix II (a) (LS Contract) form typed in the letter pad or in separate sheets and appended with the tender could not be considered.** The rates should be filled up and the amount to be filled up in the respective columns and the Grand total arrived should be filled in the above form. If the rates for any of the individual items not filled up and the total amount not filled in the above form will not be considered.
 - vi. The tenders must be submitted in a fullsize cover there by duly signed all the conditions, plans and schedules issued as tender document.

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Minimum Eligibility Criteria

Tenderers must achieve the minimum eligibility criteria for the following items.

1. a) The tenderer should be Registered in Class – II with a monetary limit of up to Rs.75.00 Lakhs (or) Class IV with a monetary limit of Rs. 50.00 Lakhs to Rs. 2.00 Crores as per G.O. (Ms) No. 37, PW (G2) Department, dated: 17.06.2022 in PWD or any other State Government Departments or State Government Undertakings.
- b) The Electrical Contractors can also participate in the tender as per G.O. (Ms). No. 16, Public Works (G2) Department, dated.17.01.2018). However a minimum qualification Criteria should be satisfied.
- 2) Renewal of Registration for the current year based on the outcome of orders of PWD.
- 3) The tenderer should be in the same name and style for the past 5 years.
- 4) A Certificate obtained from the employer not below the rank of Executive Engineer / Project Officer having executed the similar nature of work / building work in a single agreement at least for the value of Rs.28.50 Lakhs in any one year of the preceeding 5 years.
- 5) The annual Turnover of atleast Rs.85.00 Lakhs should have been achieved in any one year of the preceeding 5 years. The Electronic filing of IT copy along with Chartered Accountant Balance Sheet should be furnished for the past 5 years.
- 6) The copies of IT Registration, PANCARD and GST Registration.

The attested copies of the above documents should be produced along with the tender documents.

For Non Government works of similar nature, the applicant should have satisfactorily completed at least one building work or Godown construction work with value not less than Rs. 28.50 Lakhs (Rupees Twenty eight point five lakhs only) under a single agreement in any Non-Government / Private Organizations in any one of the preceding “FIVE” years. The value of single work executed shall be brought at current price level with the cumulative weightage at a rate of 10% per annum.

The Experience Certificate for similar nature for Private works shall contain following details.

- a. Name of work
- b. Location of the work
- c. Name / Designation of the Employer / Owner
- d. Awarded Value of work as per Agreement with agreement No.
- e. Completed value of work as per Agreement

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- f. Stipulated period of contract as per agreement
- g. Date of commencement of work
- h. Date of actual completion of work
- i. Reasons for delay in completing the work, if any
- k. Overall performance of the work executed.
- l. Any litigation in between the employer and the tenderer.

In addition to the above, the Executive Engineer of PWD / other Government Departments / Quasi Governments / Corporation under his / her jurisdiction not below the rank of Executive Engineer (or) Project Engineer, shall issue a genuineness certificate for the private work executed by the applicant, after his / her personnel inspection and based on local enquiry.

The Tender Inviting Authority shall verify, satisfy and confirm the certificate issued by the Executive Engineer / Project Engineer as stated above for the private work executed by the applicant, whether the contract amount has been reflected in the Assessment Year of the Income Tax Statement of the applicant. The same should be furnished along with Pre-Qualification tender proposal for consideration by the Tender Accepting Authority.

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APPENDIX -1 TENDER NOTICE (L.S.CONTRACT)

- 1 On behalf of the Tamilnadu Warehousing Corporation, Chennai - 600032. Sealed tenders will be received by the Construction Engineer, TNWC at his office up to **3.00 PM.** on **27-09-2022** for the work of, **Construction of Computer room and Record Room in Third Floor, Tamil Nadu Warehousing Corporation, Head Office Building at No. 82, Anna Salai, Guindy, Chennai – 600 032.**
 - 1.1 The Tender should be in the prescribed form obtainable from the office of the Managing Director, TNWC, Chennai-600032. The Construction Engineer, TNWC will open the tenders at **3.30 p.m.**, at the place and on the date aforementioned.
 - 1.2 The tenderers or their authorised representatives are expected to be present at the time of opening of tenders. The tender receiving Officer will, on opening each tender, prepare a statement of the attested and unattested correction therein and hand it over to the tenderer concerned and initial all corrections in the presence of the tenderer. If any of the tenderers or their agents finds it inconvenient to be present at the time, then in such a case, the tender receiving Officer will, on opening the tender of the absentee tenderer, make out a statement of the unattested correction and communicate it to him. The absentee tenderer shall then accept the statement of corrections without any question whatsoever.
2. Tenders must be submitted in the cover along with the schedule duly sealed and should be addressed to the Construction Engineer, TNWC, Chennai, the name of the tenderer with their address and the name of the work being noted on the cover.
 - 2.1 If the tender is made by an individual, it shall be signed with his full name and his address shall be given. If a firm makes it, a member of the firm, who shall also sign his own name, shall sign it with the co-partnership name and the name and address of each member of the firm shall be given. If the tender is made by a corporation, a duly authorized officer who shall produce with his tender, satisfactory evidence of his authorization shall sign it. Such tendering Corporation may be required, before the contract is executed, to furnish evidence of its corporate existence.
3. Each tenderer must also send a electronically filed IT return filing copy and GST Registration Certificate from the appropriate authority in the form prescribed therefor. The certificate will be valid for one year from the date of issue for all tenders submitted during the period.

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- 3.1 In the case of proprietary or partnership firm it will be necessary to produce the certificate aforementioned for the proprietors and for each of the partners as the case may be.
- 3.2 If the tenderer is a registered contractor and if he had already produced a certificate for the current year during the Calendar year in which the tender is made, it will be sufficient, if particulars regarding the previous occasion on which the said certificate was produced are given.
- 3.3 All tenders received without a certificate as aforementioned will be summarily rejected.
4. Each tenderer must pay, as Earnest Money, a sum of **Rs. 38,100/- (Rupees Thirty eight thousand and one hundred only)** Which is to be remitted in the form of Demand Draft in favour of Tamilnadu Warehousing Corporation, Chennai-32 drawn in Nationalised Bank. Tenders submitted without Earnest Money Deposit will be summarily rejected. This earnest money will be refunded to the unsuccessful tenderers on application, after intimation is sent of rejection of the tender or at the expiration of three months from the date of tender, whichever is earlier. The earnest money retained in the case of the successful tenderer will not carry any interest. It will be dealt with as provided in the tender.
5. (i) **The tender will remain valid for a period of ninety days from the last date for receipt of tender.** The validity period can be extended further, if the contractor gives his consent in writing, specifying the period of extension.
- (ii) The tenderer whose tender is under consideration shall attend the Office of the Construction Engineer before the end of the period specified by written intimation to him. If the tenderer fails to attend the office before the end of the specified period, his tender will not be considered. He shall forthwith upon and intimation being given to him of acceptance of his tender, by the Officer duly authorized in this behalf, hereinafter called “the Accepting authority” must agree for the payment of Security Deposit at 2% of the value of contract in one lump sum i.e. by taking into account of the amount of earnest money deposit, already deposited with the tender, it would be sufficient to pay The balance amount to make up the 2% of the value of contract, for the purpose of security deposit. The security deposit together with earnest money deposit and the amount with held according to clause 64-1 of General conditions to the contract, shall be retained as Security for due fulfillment of contract.
- (iii) On receipt of written communication of acceptance of tender if the tenderer fails to pay the requisite security deposit within the period specified in the written communication or backs out from the tender or withdraws his tender, the earnest money deposit shall be forfeited to the Corporation.

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- (iv) If the contractor fails to carry out the contract, after paying the requisite deposits, then he will be liable for the excess expenditure if any incurred to complete the work as contemplated in the General conditions to the contract.
 - (v) It shall be expressly understood by the tenderer that on receipt of written communication of acceptance of tender from the accepting authority, there emerges a valid contract between the Corporation and the tenderer, for execution of the work. For this purpose, the tender documents, i.e., tender notice, tender offered by the contractor, General conditions to the contract, special conditions to the contract, written communication of acceptance of tender etc..., shall constitute a valid contract, and that will be the foundation of the rights of both the parties to the contract.
6. The tenderer shall examine clearly the Tamilnadu Building Practice and also the general conditions to contract contained therein. The unit rates quoted by the tenderer shall be for finished work in situ. He shall also carefully study the drawings and additional specifications and all the documents connected with the contract. The Tamilnadu Building Practice and other documents connected with the contract such as specifications, plans, descriptive specification sheet regarding materials etc., can be seen at any time between 10.00 A.M. and 5.45P.M. on office days in the office of the Construction Engineer, TNWC, Chennai-32. A copy of the set of contract documents can also be had on payment of the required amount.
 7. The tenderer's attention is directed to the requirements for materials under the clause "Materials and Workmanship" in the general conditions to the contract, Materials conforming to the I.S.I. standards only shall be used on the work, and the tenderer shall quote his rates accordingly.
 8. Every tenderer is expected before quoting his rates, to inspect the site of the proposed work. He should also inspect the quarries and satisfy himself about the quality and availability of materials. The names of quarries and kilns etc. where from certain materials are to be obtained will be given in the descriptive specification sheet. The best class of materials to be obtained from the quarries or other source defined, shall be used on the work. In every case the materials must comply with the relevant standard specifications. Samples of materials as called for in the standard specification or in this tender notice or as required by the Construction Engineer in any case shall be submitted for the Construction Engineer's approval before the supply to site of work begun. If the contractor, after examination of the source of materials defined in the descriptive specification sheet is of the opinion that materials complying with the standard or other specifications of the contract cannot be obtained in quality or sufficient quantity, from the source defined in the descriptive specification sheet, he shall so state in his tender and state wherefrom he intends to obtain materials, subject to the approval of the Construction Engineer.

The Corporation will not, however, after acceptance of contract rate, pay any extra charges for lead or for any other reason, in case the contractor is found later on to have

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misjudged the materials available. Attention of the contractor is directed to the 'General conditions to the contract regarding payment of seigniorage, tolls etc.,'

9. The tenderer's particular attention is drawn to the Sections and clause in the General conditions to the contract dealing with:
 1. Test, inspection and rejection of defective materials & Work.
 2. Carriage.
 3. Construction plant.
 4. Water and Lighting
 5. Cleaning up during progress and for delivery.
 6. Accidents.
 7. Delays.
 8. Particulars of payment.

The contractor should closely peruse all the specification clauses which govern the rates, which he is tendering.

10. A schedule of quantities accompanies this tender notice. It shall be definitely understood that the Corporation does not accept any responsibility for the correctness or completeness of this schedule and that this schedule is liable to alterations by omissions, deductions or additions at the discretion of the Construction Engineer, TNWC or as set forth in the conditions of contract. The tenderer will, however, base his lump sum tender on this schedule of quantities. He should quote specific rates for each item in the schedule and the rates should be in Rupees and in sums of five paise. The rates should be written both in words and figures and the units in words. The tenderer should also show the totals of each item, and the grand total of the whole contract and quote in the tender a lump sum for which he will undertake to do the whole work subject to the conditions of contract, such lump sum agreeing with the total amount of schedule 'A'. This schedule accompanying the lump sum tender shall be written legibly and free from erasures, over writings or initialing, dating and rewriting.
11. The Tenders offering a percentage reduction from or increase on the estimate amount (except in the case of tender called for specifically under the percentage rate tender system) and those not submitted in proper form and in due time will be rejected. Rate or lump sum amounts for items not called for shall not be included in the tender. No alteration which is made by the tenderer in the contract form, the conditions of contract the drawings, specifications or quantities accompanying same will be recognized and if any such alterations are made, the tender will be void.
12. The tenderer should work out his own rates, without reference being made to the Public Works Department current scheduled rates or the Estimate.
13. The attention of the tenderers is directed to the contract requirements as to the time of beginning work, the rate of progress and the dates for the completion of the whole work and its several parts. The following rate of progress and proportionate value of work

done from time to time as will be indicated by the Construction Engineer's certificate of the value of work done, will be required. Date of commencement of this programme will be the date on which the site (or premises) is handed over to the contractor.

Period after date of Commencement		Percentage of work completed based on contract lumpsum amount.
I	Month	10 %
II	Month	20 %
III	Month	30 %
IV	Month	45 %
V	Month	55 %
VI	Month	65 %
VII	Month	80 %
VIII	Month	90 %
IX	Month	100 %

NOTE: The periods to be entered in column 1 for the purpose of defining the rate of progress as may be fixed by the Construction Engineer to suit each case.

The Price Escalation Clause is not applicable for this work

TNBP Vol. II - General conditions of Contract

H. DATE OF COMMENCEMENT, COMPLETION, DELAYS, EXTENSION, SUSPENSION OF WORK AND FORFEITURE

Clause – 55. Date of commencement and completion:

55.1 On notification of possession of the site (or premises) being given to the contractor by letter registered for acknowledgement as provided in Clause 9.1. sub para, he shall forthwith begin the work, shall regularly and continuously proceed with them, and shall complete the same (except for painting or other work which, in the opinion of the Construction Engineer, it may be desirable to delay) by the date of completion, as defined in the “ Articles of Agreement” subject nevertheless, to the provisions of extension of time mentioned in the next clause. The contractor shall under no circumstances be entitled to claim any damages from Government if he incurs any expenses or liabilities to payment under the contract before the date of commencement defined above. The contractor shall have the right to withdraw from the contract and obtain refund of his security deposit if such intimation of handing over the site is delayed more than two months from date of acceptance of the agreement by competent authority.

The work should be commenced immediately after possession of site is given. The contractor has got a right to withdraw from contract if the handing over of site is delayed by more than two months, from the date of acceptance of agreement.

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Clause – 56. Delays and extension of time :

- 56.1 No claim for compensation on account of delays or hindrances to the work from any cause whatever shall be except as hereinafter defined.

Reasonable extension of time will be allowed by the Construction Engineer or by the Officer competent to sanction the extension for unavoidable delays, such as may result from causes which in the opinion of the Construction Engineer are undoubtedly beyond the control of the contractor. The Construction Engineer shall assess the period of delay or hindrance caused by any written instruction issued by him at twenty five percent in excess of the actual working period so lost. If any time the Construction Engineer is of the opinion that there has been avoidable delays and the contractor fails to maintain the rate of progress specified in the articles of agreement, it shall be lawful for the Construction Engineer to impose penalty or order forfeiture from the Deposit sanction the extension of time for such delays, provided however, the penalty and forfeiture shall be governed as per Clause 57.2 and 57.3.

- 56.2. In the event of the Construction Engineer failing to issue necessary instructions and thereby causing delay and hindrance to the contractor the latter shall have the right to claim an assessment of such delay by the higher authority. The Contractor shall lodge in writing to the Construction Engineer a statement of claim for any delay or hindrance referred to above within fourteen days from its commencement, otherwise no extension of time will be allowed.
- 56.3 Whenever, authorised alterations or additions made during the progress of the work are of such nature in the opinion of the Construction Engineer as to justify an extension of time in consequence thereof, such extension of time will be granted in writing by the Construction Engineer or other competent authority when ordering such alterations or additions.
57. Delays in commencement, or progress or neglect of work or suspension of works by the Contractor and forfeiture of Earnest Money, Security Deposit and Withheld amounts.
- 57.1 Time shall be considered as the essence of the contract. If at any time, the Construction Engineer, shall be of the opinion that the contractor is delaying commencement of the work as defined in the tabular statement, Rate of Progress in the Articles of Agreement or the contractor fails to maintain the Rate of Progress in the Articles of Agreement plus any extension of time, or the contractor shall suspend the works, or sublet the work or a portion thereof without the sanction of the Construction Engineer or violates any of the provisions of the contract the Construction Engineer shall so advise the contractor and at the same time demand compliance. If the contractor neglects to comply with such demand within seven days after receipt of such notice, it shall then or at any time be lawful for the Construction Engineer to impose a penalty or forfeiture on this contractor from the deposit or to determine the contract.

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- 57.2 The penalty or forfeiture referred to in Clause 57-1 shall not exceed 5% of the value of the work executed and is imposed in cases where the contractor is allowed to proceed with the whole or part and complete the whole or such part of the works. The penalty or forfeiture imposed by the Construction Engineer under this clause is however subject to modification or waiver at the absolute discretion of any authority higher in rank than the Construction Engineer.
- 57.3 It shall be a further right of the Construction Engineer to give any part of the work to any other contractor at his discretion or have it done departmentally in order to maintain the rate of progress and the contract shall then be determined for only that portion of the work given to the other contractor or done departmentally. The forfeiture under Clause 57.2 will in these circumstances be applied and any excess expenditure incurred on this account shall be recovered from the original contractor.
- 57.4 Determination of the contract referred to in Clause 47.1 shall carry it the forfeiture of the Security Deposit. After determining the contract, the Construction Engineer shall have the right to give any part of the work to any other contractor in the unexecuted portion of the contract, in which case any expenses which may be incurred in excess of such amount which would have been aid to the original contractor if the whole work had been executed deducted from any money due to him by the Corporation under this contract or any other account what so ever. Provided, also that if the expenses incurred by the Corporation are less than the account payable to the contractor at his agreement rates, the difference will not be paid to the contractor.
- 57.5 In the event of anyone of the above clauses being adopted by the Construction Engineer, the contractor shall have not compensation for any loss sustained by him by reason of his having purchased or processed any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of contractor, and in case action is taken under any of the provisions aforesaid, the contractor shall not be entitled to be paid any sum for any work actually performed under the contract unless and until the Construction Engineer has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.
- 57.6 In the event of the Construction Engineer putting in force all or any of the powers vested in him under the clause 57.4, he may if he so desires after giving a notice in writing to the contractor take possession of the works, and site and all such plants and materials thereon (or any ground contiguous thereof) and all such plant and materials as above mentioned shall thereupon be at the disposal of the Corporation absolutely for the purpose of completing the work. After such notices shall have been given, the contractor shall not be at liberty to remove from the sited of works or from the ground contiguous thereto any plant or materials belonging to him which shall have been placed thereon for the purpose of the above work. Corporation shall not be able to make any payment to the contractor on account of use of such plant for the completion of the works, under the provisions herein before contained. On taking possession of

the materials and stores belonging to the contractor or procured by the contractor and intended to be used for the execution of the work or any part thereof, the contractor shall be paid for the same in account, at the contract rates, to be certified thereof shall be final, otherwise, the Corporation may give notice in writing to the contractor to remove any of his plant or materials from the site and not required for any completion of the works, if such plant and or materials are not removed within fourteen days after notice, shall have been so given, the Corporation may remove and sell the same, holding the proceeds less the cost of removal and sale, to the credit of the contractor. The certificate of the Construction Engineer as the expense of any such removal and sale, shall be final and binding on the contractor.

14. No part of the contract shall be sub-let without written permission of the Construction Engineer, nor shall transfer be made by power of attorney, authorizing other to receive payment on the contractor's behalf.
15. If further information is required, the Construction Engineer of the TNWC will furnish such information, but it must be clearly understood that tenders must be received in order and according to instructions.
16. The Construction Engineer or other sanctioning authority reserves the right to reject any tender or all the tenders without assigning the reasons thereof.
17. The tenderers who are themselves are not professionally qualified shall undertake to employ qualified technical personnel at his cost to look after the work. The tenderer should state in clear terms whether they are professionally qualified or whether they undertakes to employ technical personnel required by the Corporation, specified in the schedule below for the work. In case the selected tenderer is professionally qualified or has undertaken to employ technical personnel under him, he should see that the technically qualified personnel are always at the site of the work during working hours personally checking all items of works and paying extra attention to such works as may demand special attention e.g. reinforced concrete works etc.

Employment of Technical personnel:

S.No.	Value of Contract	Qualification and No. of Technical Assistants to be employed
(1)	(2)	(3)
i)	upto Rs. 1.00 lakh	No Technical Assistant need to be employed. If situation and nature of work warrants a Diploma holder in Civil Engineering or a retired Junior Engineer may be employed.
ii)	Rs. 1.00 lakh to Rs. 5.00 lakhs	One Diploma holder in Civil Engineering or not less than one retired Junior Engineer.

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| iii) | Rs. 5.00 lakhs to
Rs. 10.00 lakhs | One B.E. (Civil) or equivalent Degree holder or not less than one retired Sub Divisional Officer (A.E.E. or A.D.E.) or one Diploma holder with three years experience. |
| iv) | Rs. 10.00 lakhs to
Rs. 25.00 lakhs | One B.E. (Civil) or equivalent Degree holder with three years experience in Civil Engineering works or not less than one Retired Sub-Divisional Officer plus one Diploma holder in Civil Engineering or two Diploma holders in Civil Engineering with three and five years experience respectively. |
| v) | Rs. 25.00 lakhs to
Rs. 50.00 lakhs | One B.E. (Civil) or equivalent Degree holder with three year experience or not less than one retired Sub-divisional Officer (retired A.E.E. or A.D.E.) plus two Diploma holders in Civil Engineering or two retired Junior Engineers. |

ALTERNATIVE

One B.E. (Civil) or equivalent Degree holder with three years experience or not less than one retired Sub-Divisional Officer and one more B.E. (Civil) or equivalent degree holder

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| vi) | Above Rs 50.00 lakhs. | One B.E. (Civil) or equivalent Degree holder with ten years experience. two Diploma holders in Civil Engineering with three years experience respectively. |
|-----|-----------------------|--|
- i) A penalty of Rs.2000/- P.M. for Diploma holder and Rs.5000/- P.M. for Degree holder be levied in case of default on the part of contractors in following the norms laid down above.
 - ii) The employment of Technical Assistants would be based only on the value of contract Engineers with Mechanical Engineering qualification and retired from Civil Engineering Departments are also suitable to supervise the Civil Engineering works because of their experience in Civil Engineering field.

NOTE: In case the contractor who is professionally qualified is not in a position to remain always at the site of work and to pay extra attention to such work as may demand special attention (e.g. R.C.C. work etc) he should employ technically qualified men as prescribed above.

18. A tenderer submitting a tender which the tender accepting authority consider excessive and/ or indicative of the insufficient knowledge of current prices or definite attempt at profiteering will render himself liable to be debarred permanently from tendering or for such period as the tender accepting authority may decide.

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19. The tender rates should be based on the controlled price for materials if any fixed by the Govt. or the reasonable price permissible for the tenderer to charge a private purchaser under the provision of clause 8 of Boarding and Profiteering Prevention Ordinance 1943 as amended from time to time and on similar principles in regard to labour and supervision in the construction.
20. The contractor should offer employment to ex-toddy as far as possible. The number of ex-toddy tappers to whom he can so offer employment should be mentioned in the tender and he should undertake in the contract to offer such employment to such number.
21. The contractor shall comply with the provisions of the Apprentices Act, 1961 and the rules and orders issued there under, from time to time. If he fails to do so, his failure will be breach of the contract and the competent authority, may at his discretion, cancel the contract or invoke any of the penalties for the breach of contract provided in the conditions of contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the Act. Contractor shall, during the currency of the contract, ensure engagement of the apprentices in the categories mentioned below who may be assigned to him by the Director of Employment and Training State Apprenticeship Advisor, Tamilnadu. The contractor shall train them as required under the Apprentices Act, 1961, and the rules made thereunder and shall be responsible for all obligations of the employer under the said Act including the liability to make payments to the apprentices as required under the said Act.

Value of contract	Category	Number to be appointed
Rs.1 lakh and upto Rs.3 lakhs	1. Building Constructor	1
	2. Brick layer	1
Above Rs.3 lakhs & Upto Rs.10 lakhs	1. Building Constructor	1
	2. Brick layer	1
	3. Diploma Holder in Civil Engineering.	1
Above Rs.10 lakhs & Upto Rs.50 lakhs	1. Building Constructor	1
	2. Brick layer	1
	3. B.E.(Civil) or equivalent Degree holder	1

Unless the contractor has been exempted from engagement of apprentice by the Director of Employment and Training/State Apprenticeship Advisor, a certificate to the effect that the contractor had discharged his obligation under the said Act, satisfactorily should be obtained from the Director of Employment and Training/State Apprenticeship Advisor and the same should be produced by the contractor for final payment in the settlement of the contract.”

Signature of the
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22. The contractor should employ one I.T.I. Trained mason for every ten masons or parts thereof. In case of non-availability of I.T.I. trained masons the contractor should obtain the prior approval of the Construction Engineer concerned before proceeding the contract with the other kinds of masons.
23. Additional Security to be furnished for the lesser rates.

On evaluation of the tender, if it is found that if the overall quoted amount of the tender is less than 5 % to 15 % of the value put to tender, the contractor shall pay an additional security at 2 % of the estimated value. If the tender discount exceeds 15 % to 20 %, the contractor shall pay an additional security deposit of 50 % of the difference between the quoted amount and estimate amount. Failure to furnish the additional security deposit within 15 days from the dated of receipt of acceptance order and executed the agreement shall entail cancellation of award contractor and forfeiture of EMD furnished. The additional Security Deposit will be refunded after the completion of work.

24. In case of contracts for construction of building either permanent or semi – permanent buildings, a sum equivalent to 2.5% of the value of work done will be retained with the Corporation for a period of one year reckoned from the date of completion of the work in order to enable the Corporation Officers to watch the effect of all seasons on the work done by the contractor. The amount to be retained with the Corporation will be refunded only on expiry of one year period referred to above and on execution of indemnity bond by the contractor for a further period of four years. The Contractor shall be liable to set right all defects arising out of his faulty exception or sub-standard work noticed during the above five years period at his cost.

The **Security Deposit** in the shape of DD in favour of Tamil Nadu Warehousing Corporation, Chennai – 32 obtained in the Nationalised / Scheduled Banks or in the form of irrevocable Bank Guarantee with 17 months validity after receiving work order as required there for in the approved form of Nationalised / Scheduled Banks with Manager's Signature dated seal will only be accepted on receipt of written confirmation (if required) from the authority concerned if required. The Security Deposit will be refunded to the Contractor after six months of the completion of work.

25. The contractor is bound by all the conditions of the clauses of the General conditions of contract amended from time to time.

Signature of the
Contractor\Tenderer

Construction Engineer,
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APPENDIX II (a) – TENDER (L.S.CONTRACT)

To

The Managing Director,
Tamil Nadu Warehousing Corporation,
Chennai-600 032.

Sir,

I / We do hereby tender and if this tender be accepted undertake to execute the following Works viz
.....
.....
as shown in the drawings and described in the specification, deposited in the office of the Managing Director, with such variations by way of alterations of, additions to and omission from the said Works and method of payment as are provided for in the conditions of contract of the sum of Rupees
.....
..... or such other sum as may be arrived at under the clause of the “General conditions to the contract” relating to “payment on lumpsum basis or by final measurements at unit prices.”

2. If we have also completed the priced list of items in schedule ‘A’ annexed (in words and figures) for which I/We agree to execute the Work and receive payment on measured quantities as per the General conditions to the contract.
3. I/We hereby distinctly and expressly declare and acknowledge that before the submission of my or our tender, I/We have carefully followed the instructions in the tender notice and have read the Tamilnadu Building Practice and the General conditions to the contract therein and the Tamilnadu Building Practice addenda volume, and If we have made such examination of the contract documents and of the plans, specifications, quantities and of the location where the said work is to be done and such investigation of the Work required to be done and in regard to the materials required to be furnished as to enable me/us to thoroughly understand the intention of same and the requirement, covenants, stipulations and restrictions contained in the contract and in the said plans and specifications; and distinctly agree that I/We will not hereafter make any claim or demand upon the Corporation based upon or arising out

Signature of the
Contractor\Tenderer

Construction Engineer,
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of any alleged misunderstanding or misconception or mistake on my/our part of the said requirements, covenants, stipulations, restrictions and conditions.

4. I/We being a registered Public Works Department contractor enclose an Income Tax verification certificate/have already produced an income tax verification certificate during the current calendar.

Year in respect of

(here particulars of the previous occasions on which the certificates was produced should be given). The legal address of the contractors for service of all letters and notices will be as follows

.....

5. (i) (a) I / We enclose herewith a valid form for the payment of the sum of rupees* as earnest money not to bear interest.

(i) (b) I / We have paid Rs.*

(Rupees

Only) as against the E.M.D. of Rs.*.....(Rupees

..... only)

6. If my/our tender is not accepted, this sum shall be returned to me/us on my/ our application when intimation is sent to me/us of rejection or at the expiration of three months from the date of this tender, whichever is earlier. If my/our tender is accepted, the earnest money shall be retained by the Corporation as Security for the due fulfillment of contract If upon intimations being given to me/us by the authority by the TNWC (hereinafter called “the accepting authority”) of acceptance tender. I/We fail to make the additional security deposit, then I/We agree to the forfeiture of earnest money deposit. Any notice required to be served on me/us hereunder shall be sufficiently served on me/us if delivered to me/us personally or forwarded to me/us by post to (Registered or ordinary) or left at my/our address given herein. Such notices shall, if sent by post be deemed to have been served on me/us at the time when in due course of post, it would be delivered at the address to which it is sent.
7. I/We fully understand that on receipt of communication of acceptance of tender from the accepting authority, there emerges a valid contract between me/us and the TNWC and the tender documents i.e., tender notice, tender with schedules General conditions

Signature of the
Contractor\Tenderer

Construction Engineer,
TNWC, Chennai - 32

to the contract and special conditions of the tender, communication of acceptance of tenders shall constitute the contract for this purpose and be the foundation of rights of both the parties, as defined in clause (iv) of the tender notice, provided that, it shall be open to the accepting authority to insist on execution of any written agreement by tenderer, if administratively considered necessary or expedient.

8. I acknowledge of being bound by all conditions of the clauses of the General condition to the contract and all specifications for items of works described by a specification number in Schedule 'A'.
9. In consideration of the payment of Rs...../- (Rupees
.....) or such other sum as may be arrived at under the clause of the General conditions to the contract, relating to payment on lumpsum basis or by final measurement at unit prices, I/We agree, subject to said conditions to execute and complete the works shown upon the said drawing serially numbered from I to inclusive (Schedule B) and described in the specifications (Schedule C) and to the extent of probable quantities shown in the Schedule-A with such variations by way of alteration of, additions to or deductions from the said works and method of payment there for as are provided for in the said conditions.
10. The term "Construction Engineer" in the said conditions shall mean the TNWC Officer having Jurisdiction for the time being over the work who shall be competent to exercise all the powers and privileges reserved herein favour of the Corporation with the previous sanction of or subject to ratification by the competent authorities in case where such sanction or ratification may be necessary.
11. I/We agree that the time shall be considered as the essence of this contract and to commence the work as soon as this contract is accepted by the competent authority as defined by the Tamilnadu Public Works Department Code and the site (or premises) is handed over to me/us provided for in the said conditions and agree to complete the work within. 6 (six) months from the date or such handing over the site (or premises) and to show progress as defined in the tabular statement "Rate of progress" subject nevertheless to the provisions for extension of time contained in clause 56 of the general conditions to the contract appended to the Tamilnadu Building Practice.
12. I/We agree that upon the terms and conditions of this contract being fulfilled and performed to the satisfaction of the Construction Engineer, the security amount deposited by me/us as herein before executed on such portion thereof as I/We may be entitled to under the said conditions be paid back to me/us provided in clause 64 of the General conditions to the contract of TNBP Vol.- II.

Signature of the
Contractor\Tenderer

Construction Engineer,
TNWC, Chennai - 32

13. I am/we are professionally qualified and my/our qualifications are as follows.

.....

.....

I/We in pursuance of clause of tender notice undertake to employ the following technical staff for supervising the work and will see that one of them is always at site during working hours personally checking all items of works and paying extra attention to such works as may require special attention (e.g.) Reinforced cement concrete.

Name of Technical Staff
Proposed to be employed

Qualification and
Experience

14. I/We agree that the arbitrator for fulfilling the duties set forth in the arbitration clause of the General conditions to the contract shall be the person so appointed by the Managing Director, Tamilnadu Warehousing Corporation, Chennai-32, in his sole discretion.

Signature of the
Contractor/Tenderer

Construction Engineer,
TNWC, Chennai - 32

15. In pursuance of negotiation with the Construction Engineer, TNWC, I/We agree to reduce the rates for the items in the schedule as follows:

Sl.No.	Item No. in the Schedule	Reduced rate per unit

16. On behalf of the TNWC, the above tender for a value of Rs.....
 (Rupees)
 is accepted on this dayof.....
 foritems only.

Signature of the witness in full
 and address with name in block
 letters

Signature of the
 Contractor\Tenderer

Construction Engineer,
 TNWC, Chennai - 32

ANNEXURE TO TENDER NOTICE SCHEDULE - A

Schedule of Rates and Approximate Quantities

- a) The quantities here given are those upon which the lumpsum tender cost of the work is based but they are subject to alterations, omissions, deduction or additions as provided for in the conditions of this contract and do not necessarily show the actual quantities of work to be done. The unit rates noted below are those governing payment of extras for deductions omissions according to the conditions of the contract as set forth in the General conditions to the contract of the Tamilnadu Building Practice and other conditions or specifications of this contract.
- b) It is to be expressly understood that the measured work is to be taken net (not withstanding any custom or practice to be contrary) according to the actual quantities when in place and finished according to the drawings or as may be ordered from time to time by the Construction Engineer and cost calculated by measurement or weight at the respective prices, without any additional charges for any necessary and contingent works connected therewith. The rates quoted are for works in site and complete in every respect.
- c) The description given in schedule - A are to indicate the item of work only and need not be constructed as full specification. The quoted rate shall be for carrying out the item as per standards and specifications described in the relevant MOST and TNBP specifications. The contractor shall take no advantage of any apparent error or omission in the Schedule - A description.

Item	Probable Quantity	Description of works.	TNBP No.	Rate	Unit	AmountNo.
------	----------------------	--------------------------	-------------	------	------	-----------

(Vide separate sheet attached)

Date :

- The second Sub-Division of this Column (ie) column 3 is for entering description in words such as numbers, cubic metre, kg etc.

Signature of the
Contractor\Tenderer

Construction Engineer,
TNWC, Chennai - 32

SCHEDULE - B

List of Drawings,

Supplemental List

Note : All drawings to be signed by the contractor as well as the Officer entering into the contract

As referred to in the specifications including the general conditions to the contract of Tamilnadu Building Practice

Serial	Drawing	Description	Serial	Drawing	Description	Date on
No	No		No			which
						the Drawing
						was supplied

-----...

Signature of the
Contractor\Tenderer

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TNWC, Chennai - 32

SCHEDULE - C

List of specifications for the various items of works supplementing those described in Schedule -A by standard specification numbers.

1. The Contractor shall employ the following technical staff for supervising the work and shall see that one of them is always at site during working hours, personally checking all items of work and paying extra attention to such works as may demand special attention eg. Reinforced Concrete work etc.

Name of the members of the

Qualifications

Technical staff to be employed

Note : 1. In case the contractor is himself professionally qualified, the above specification should be suitably altered and in cases where the contractor selected has not given an undertaking to employ qualified men, it should be scored out,

Note : 2. Additional specifications, if any, which have to be entered in Schedule 'C' should be entered below item (1) above and numbered continuously.

Signature of the
Contractor/Tenderer

Construction Engineer,
TNWC, Chennai - 32

SPECIAL CONDITIONS

Amendment for inclusion of additional clauses 56-4, 56-5 and 56-6 to the General conditions of contract, TNBP Volume II

CLAUSE 56-4

In case where the Government under the terms of the contract with the contractor are liable to supply any materials, articles of things to the contractor for the performance by him of his part of the contract, the Executive Engineer, may at his absolute discretion extend the time within which such materials, articles or things may be supplied by the Government and the Government may supply to the contractor such materials articles or things within the time so extended without any liability on their part to compensate the contractor by reason of the extension of time for the supply of the materials articles of things.

CLAUSE 56-5

In cases where the Government under the terms of the contract are liable to supply any materials, articles or things to the contractor for the performance by him of his part of the contract and the Government for any reason are unable to supply such materials, articles or things either within the time specified in the contract or within the time extended under Clauses 56-4. The Executive Engineer, may, at his discretion or at the request of the contractor, determine the whole or any part of the contract which cannot be performed by reason of the failure to supply such materials, articles or things and the contractor shall not be entitled to claim any damages or compensation in respect of such determination. The contractor shall, however be paid the value of the work already done by him and the cost of materials, articles or things if any collected by him up to the date of such determination and left unused on the work-spot (which shall be taken over by the Executive Engineer) either at the contract rates or at the values deduced from the through rates included in the contract. When the contract is determined at the discretion of the Executive Engineer, he shall give notice in writing to the contractor and the decision of the Executive Engineer to determine the contract shall be final and binding on the contractor.

Explanation : The expression 'Through Rates' means the rate for the furnished of work or the all in rates, that is to say, the rates for the finished items of work inclusive of the cost of materials and labour.

CLAUSE 56-6

If, at any time after the acceptance of the tender, the Government shall; for any reason whatsoever not required the whole or any part of the works to be carried out, the Executive Engineer shall give notice in writing of the fact to the contractor, who shall have no claim to any compensation or other payments whatsoever on account of any profit or advantage he might have derived from the execution of the work in full but which he didn't derive in consequence of the termination of the works. He shall be paid at contract rates for the work executed by him including any additional works such as clearing of site etc, that may be rendered necessary by such termination. He shall also be allowed a reasonable payment as decided by the authority next higher in rank to the authority which accepted the tender, for

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any expense incurred by him on account of labour and materials, articles or things collected, but which could not be utilised on the works as verified by the Executive Engineer such decision shall be final and binding on both the parties and shall not be subject to arbitration under clause – 69.

EXTRACT OF AMENDMENT

Amendment to Clause 69.1 of General Conditions of Contract based on orders in G.O. Ms. No. 1152/PW/ dt. 19.06.1980.

MODIFICATION AND AMENDED IN G.O. Ms. No.

Clause – 69.1 of General conditions of Contract:

In case of any dispute or difference between the parties to the contract either during the progress or after the completion of the works or other determination, abandonment or breach of the contract or as to any sole discretion of the Executive Engineer under Clause 18, 20, 25-3, 27-1, 34, 35 and 37 of General conditions of contract or as to the withholding by the Executive Engineer of the payment of any bill to which the contractor may claim to be entitled, the either party shall forth with give to the other notice or such of difference and dispute or difference shall be and is hereby referred to the arbitration of the Managing Director, Tamil Nadu Warehousing Corporation or by the party nominated by the Managing Director mentioned in the articles of agreement or by mutual understanding between both the parties (herein after called the Arbitrator) in cases where the value of claim is less than or up to Rs. 50,000/-

In case where the value of claim is more than Rs. 50,000/- the parties will seek remedy through the competent civil court.

SPECIAL CONDITION FOR ERRADICATION OF CHILD LABOUR

G.O. Ms. No. 52 Labour and Employment (VII) Department dt. 12.05.2003.

The work contract assigned to the Contractor's shall be cancelled if they engage Child Labour in executing works and such Contractors should be black listed for three years.

Note:

1. The clauses were originally numbered as 59-A, 59-B and 59-C and approved in G.O.MS No: 564 PW dated 22.02.1960 but found to be omitted while approving over all amendments to general conditions to contract in G.O.MS No: 2659 PW dated 23.02.1970. The omission was brought to the notice of Government in CE (GI)'s letter dated: 07.04.1982 and the above clauses were ordered to be included as clause 56.4, 56.5, & 56.6 in Government's Letter No: 2163/Y2/95-4 PWD dated: 19.09.1996 communicated in CE (GI)'s Memo No: CTO/A/470.70 dated: 08.10.1996.

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2. The clauses as approved by the Government may be pasted as an amendment slip to the General conditions of the contract appended to T.N.B.P. Volume – II.
3. The above clauses may be added as special conditions while issuing Tender schedules for state Government funded or deposit works to avoid any objections from the contractor at a later stage.

ADDITIONAL GENERAL CONDITIONS TO CONTRACT

1) Security Deposit:

In case of L.S. Contracts the Security Deposit at 2% of the value of contract, less the EMD already remitted, should be remitted in one lumpsum for the due fulfillment of the contract. The Security Deposit will be refunded to the Contractor after six months of the completion of work. **The DD in favour of Tamil Nadu Warehousing Corporation, Chennai – 32 obtained from the Nationalised / Scheduled Banks. Irrevocable Bank Guarantee shall be accepted towards Security Deposit, Retention money only. (G.O. Ms. No. 283 / PW (G2) Dept. dt. 21.05.1999) valid for 17 months after the acceptance of tender.**

2) Goods and Service Tax and other Taxes.:-

All rates quoted in the tender shall be inclusive of all taxes and contribution amount towards Labour Welfare Fund at the rates fixed by the Government from time to time except GST. The GST alone will be provided by the Department at the rates as applicable.

The CGST and SGST each at 1% will be collected from the contractor in each intermediate bills and final bills. In addition to the above the Labour Welfare Fund at the rates as applicable will be recovered from the contractor for Intermediate and final bills.

3) Risk Insurance:

The work executed by the Contractor under this contract shall be maintained at the contractor's risk until the work is taken over by the Construction Engineer. The contractor shall accordingly arrange his own insurance against all natural calamities, fire and other acts of God during such period and the Corporation shall not be liable for any loss or damage.

4) Standard Specification:

For detailed description of various items of work to be executed in addition to the brief description given in the Schedule-A and for the rights and obligations of the contractors etc., the attention of the contractors is invited to the TNBP which should be followed in all respects both in letter and spirit. The materials used, the workmanship, the mode of execution of the work etc., should conform to relevant specification of TNBP or National Building Code for Indian Standard specifications as may be specified.

Signature of the
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5) Safety Code:

The safety measures and all amenities for the labour shall be made by the contractor at his cost as indicated in the safety code vide appendix to General Conditions to contract, and clause 34, 35 and 42-1 to 42-6 of General conditions to contract.

6. Retention of 2.5% for one year.

In case of contracts for construction of building either permanent or semi – permanent buildings, a sum equivalent to 2.5% of the value of work done will be retained with the Corporation for a period of one year reckoned from the date of completion of the work in order to enable the Corporation Officers to watch the effect of all seasons on the work done by the contractor. The amount to be retained with the Corporation will be refunded only on expiry of one year period referred to above and on execution of indemnity bond by the contractor for a further period of four years. The Contractor shall be liable to set right all defects arising out of his faulty execution or sub-standard work noticed during the above five years period at his own cost.

7. Recovery of dues under Revenue Recovery Act:

Any amount fallen due from the contractor on account of his contract even after recovering from the bills for this work and any other contract awarded to the contractor, then the amount is liable to be recovered under the provisions of Revenue Recovery Act.

8. Arbitration:

The arbitrator for fulfilling the duties in the arbitration clause of the General conditions to contract shall be the person so appointed by the Managing Director, Tamil Nadu Warehousing Corporation, Chennai – 32 or by the party nominated by the Managing Director mentioned in the articles of agreement or by mutual understanding between both the parties in his sole discretion.

9. In the event of work being transferred to any other Division / Sub division, the Executive Engineer / Assistant Executive Engineer who is incharge of Division / Subdivision having jurisdiction over the work shall be competent to exercise all powers and privileges reserved in favour of Corporation.

10. Construction materials:

7.1 Cement :

The contractor has to make his own arrangements for the procurement of cement to required specification for the works subject to the followings.

Signature of the
Contractor\Tenderer

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- a. The contractor shall procure cement required for the works only from reputed cement factories (Main producer or their authorized agents, manufacturing cement at I.S.I. standard) acceptable to the Engineer-in-charge. The contractor shall be required to furnish to the engineer – in- charge bills of payment and test certificates issued by the manufactures or their authorized agents to authenticate procurement of quality cement from the approved cement factory. The contractor shall make his own arrangements for safe haulage and adequate storage of cement.
- b. The contractor shall procure in standard packing of 50 kg per bag from the authorized manufacturers. The contractor shall make necessary arrangements at his own cost to the satisfaction of Engineer-in-charge for actual weight of random sample from the available stock and shall conform with the specification laid down by the Indian standards institution or other standard foreign in situation as the case may be cement shall be got tested for all the tests as directed by the Engineer-in-charge atleast one month on advance before the use of cement bags brought and kept on site godown.
- c. The employer will furnish air retraining agents and admixtures required to the contractor free of cost at the employer stores. The use of such admixtures and agents shall be made as per the instructions of the Engineer-in-charge. The cost of cartage / storage handling batching mixing shall be borne by the tendered for concrete.
- d. The contractor should store the cement of 60 days requirement atleast one in advance to ensure the quality of cement brought to site and shall not remove the same without the written permission of engineer-in-charge.
- e. The contractor shall forth with remove from the works area and cement that the Engineer-in-charge may disallow for use on account of failure to met with required quality and standard.
- f. The contractor will have to construct sheds for storing cement having capacity not less than the cement required for 90 days use at approved locations. The Engineer-in-Charge of the representative shall have free access to such store at all times.
- g. The contractor shall further at all times satisfy the Engineer-in-charge on demand by production of records and test books or by submission of returns and other proofs as directed that the cement is being used as tested and approved by Engineer-in-charge for the purpose and the contractor shall at all times, keeps his record upto so as to enable the Engineer-in-Charge to apply such checks as the may desire.
- h. Cement which has been unduly long in storage with the contractor or alternatively has deteriorated due to inadequate storage and thus become until for use on the works will be rejected by the Department and no claim will be entertained. The contractor shall forth with remove from the work area any cement the Engineer-in-charge may disallow for use of work and replace by cement complying with the relevant Indian standards.

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7.2 Steel

The contractor shall provide mild steel (MS) reinforcement basis, High yield strength deformed (HYSD bars, rods and structural steel etc., required for the works only from the main and secondary producers manufacturing steel or other authorized agents to the prescribed specifications Bureau of Indian standards requirements and licensed to affix I.S.I. test certificate issued by the Govt. approved laboratory certification marks and acceptable to the Engineer – in – Charges, necessary I.S.I. test certificate are to be produced to Engineer-in-charge before use on works.

The diameters and weight of steel should be as follows:

S. No.	Diameter of rod		Sectional weight in kg per running metres both for plan & HYSD steel
1.	6	Millimeters	0.22
2.	8	Millimeters	0.39
3.	10	Millimeters	0.62
4.	12	Millimeters	0.89
5.	14	Millimeters	1.21
6.	16	Millimeters	1.58
7.	18	Millimeters	2.00
8.	20	Millimeters	2.47
9.	22	Millimeters	2.98
10.	25	Millimeters	3.85
11.	28	Millimeters	4.83
12.	32	Millimeters	6.31
13.	36	Millimeters	7.99
14.	40	Millimeters	9.86

Note if any rods other those specified above are used the weight shall be as per standard steel tables.

Signature of the
Contractor/Tenderer

Construction Engineer,
TNWC, Chennai - 32

PART IV

FOR CONTRACTORS SPECIAL ATTENTION

1. Clean river sand shall be used in all cases.
2. Only clean fresh water shall be used on the work. The Contractor shall make his own arrangements for water and shall meet all charges there for. The special attention of the contractor is drawn to clause 36 of General conditions of contract regarding water and lighting.
3. The broken stone for concrete and RCC work should be of granite and passed by the Construction Engineer.
4. All iron work or steel work of every kind except such as to be embedded in concrete shall immediately on arrival at the site be properly scrapped and wire brushed and given a priming coat of approved lead painting without claim for extra.
5. The iron hold fasts shall be built up in walls with cement mortar 1:3 for that portion of fixing at the time of construction of walls. No extra claim shall be due for the same wherever hold fasts are to be provided to 9" thick walls. Those should be fixed with cement concrete 1: 3 : 6 using 20 mm gauge broken granite stone jelly for proper anchorage and proper binding. No separate rate for such pockets of concrete filling at holdfast points will be allowed and this will be measured as masonry along with adjacent masonry.
6. The teakwood shall be of best Indian teakwood only and shall be subject to inspection and approval by the Executive Engineer before use on the work. Country wood where specified shall be of Karimarudu or Kongu for scantling and Aiyini for planks as may be specified and approved by the Executive Engineer.
7. Holes for electric wiring, water supply and drainage etc. shall be provided as directed during progress of work without any claim for extra.
8. The work will be carried out without hinderance to the adjoining building and the contractor will be responsible for any damages, caused to the existing fixtures electric fittings etc., in the course of execution and the contractor shall make good any damage without any claim for extra.
9. Concrete Works: All exposed concrete surface will be required to be finished by cement plaster as detailed in Schedule' A'
10. Plastering: All external corners, edges of beams, edges of doors and window openings etc, shall be finished sharp using richer mortar and also finished truly vertical or horizontal as the case may be. The rate for plastering shall include the cost of finishing as above and no separate extra for the corners, edges, beams, etc, shall be paid.

Signature of the
Contractor\Tenderer

Construction Engineer,
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11. If rates are not separately called for, for similar items of works in different floors, the contractor should note that one rate is applicable for all floors indicated in the detailed plans. Any claim for extra for such items, floor war will not be entertained under any circumstances.
12. The Executive Engineer reserves the right, to split up the work and entrust the main work, internal water supply and sanitary arrangements to different contractors without assigning any reason therefor.
13. The projection if any to the masonry will be measured under the relevant items and no extra will be paid for finishing the same.
14. The arrangement of M.S. rods for all RCC works shall be in accordance with the working drawing supplied.
15. i) The planks for forms and centering for RCC works shall be of well seasoned timber approved by the Executive Engineer according to TNBP. They must be made smooth and perfectly level at top so as to give smooth and even finish to the RC ceilings. Alternatively, the contractor may use steel sheets over wooden forms provided the required finish to the underside of the slab is obtained. Mango planks shall not be used under any circumstances. Centering and form work shall be provided to the extent and area ordered by the Executive Engineer during execution.
- ii) Payments for centering works for all RCC items shall be made only after the concrete is laid, even though separate items for centering works are included in the schedule.
- iii) All cement concrete for RC works shall be machine mixed and vibrated.
- iv) All lime mortar shall be ground in mortar well as per TNBP.
16. No royalty shall be charged where due for materials quarried from the Public Works Department or District Board or other Government quarries. Necessary assistance will be given to the contractor by the Corporation to obtain access to quarries approved by Executive Engineer. No plot rent shall be charged for materials stacked on the Corporation land during the course of construction provided all such materials are removed within a month after the work is completed.
17. Royalty or charges due for use of private quarries and private land shall be paid by the contractor.
18. The contractor shall form his own approach road to the work site for which no extra will be due to him. On completion of work, the contractor shall not be permitted to remove the materials laid for formation road. If the contractor is allowed to use the existing roads, he shall maintain them in good condition at his own cost throughout the period of the contract.

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19. Any surplus material remaining at the site, will not generally be taken over by the Corporation whether before or after the completion or determination of contract. Such materials either which were originally produced by the contractors or were issued to them by the Corporation and charged to their accounts, are the property of the contractors and can however be taken over by the Corporation if required, for use on other works which are in progress only by special arrangements and at the prevailing market rates viz, the rates at which the articles of a similar description can be procured at a given time at the stores, godown from Public Market suitable to the division for obtaining supply thereof.

If the materials were originally used by the Corporation, the price allowed to the Contractor on re-acquisition shall not exceed the amount charged to the contractor excluding the element of storage Charge at 5% on the cost of the material.

The surplus materials which were originally issued to the contractor by the Corporation for use on the work shall not be removed from the site of work without getting the written permission of the Executive Engineer.

20. The contractor's special attention is invited to clause 35 and 36 of the General condition to contract of T.N.B.P. and he is requested to provided at his own expenses, shed, latrine and urinal for his workman.
21. If night work is required to fulfill the agreed rate of progress, all arrangements shall be made by the contractors inclusive of lighting without any claim for extra.
22. The contractor shall not employ the labour below the age of 12 years and shall also note that he must offer employment to ex-servicemen, Ex-toddy tappers and unemployed agricultural laborers as far as possible.
23. Any of the items in the schedule may be committed or radically altered. No variations in rate shall become payable to contractors on account of such omissions or variations in quantities.
24. The construction of the building will be deemed to be complete only if all the items of works including finishing items contemplated herein are executed.
25. The contractor shall abide by the contractor's labour regulation of the PW framed by the Tamil Nadu Government
26. The contractor shall at his own expense provide arrangements for the provisions of footwear for any labour doing cement mixing work and all other similar type of work involving the use of tar, mortar etc., to the satisfaction of the Engineer-in-charge and on his failure to do so, the Corporation shall be entitled to provide same and rec'over the cost from the contractor.

27. When there are complaints of non payment of wages to the labour, bills of the contractor may be withheld pending a clearance certificate from the Labour Department.

SCHEDULE - D

Rules of the provisions of health and Sanitary arrangements for workers employed by the Corporation and its Contractors:

The contractor's special attention is invited to clause 35,36,37 and 48 of the General Conditions of contract and he is requested to provide at his own expense, the following amenities to the satisfaction of the Executive Engineer.

First Aid :

1. At the work site, there shall be maintained in readily accessible place, first aid appliances and medicines including adequate supply of sterilised cotton wool. The appliances shall be kept in a good order. They shall be placed under the charge of a responsible person who shall be readily available during working hours.

Drinking Water:

2. a) Water of good quality fit for drinking purpose shall be provided for the work people on a scale of not less than three gallon per head per day.
- b) Where drinking water is obtained from an intermittent public water supply, each work place shall be provided with storage tank where such drinking water shall be stored.
- c) Every water supply and storage shall be at a distance not less than 15 m from any latrine drain or other existing well which is within such proximity of latrine, drain or any other source of pollution, the well shall be properly closed if water is drawn from it for drinking. All such wells shall be entirely closed and be provided with a trap door which shall be dust and water proof.

Washing and Bathing Places:

3. Adequate washing and bathing places shall be provided separately for men and women. Such places shall be kept in clear and drained condition bathing or washing should not be allowed in or near the drinking water well.

Latrines and Urinals:

4. These shall be provided within the premises of every work place, latrines and urinals in an accessible place and the accommodations separately for each of them, shall be on the following scale or on the scale so directed by the Executive Engineer in any particular case.

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- i) Where the number of persons employed does not exceed 50 - 2 seats
- ii) Where the number of persons employed exceed 50 but does not exceed 100 - 3 seats
- iii) For every additional 100 persons - 3 seats

If women are employed, separate latrines and urinals screened from those for men shall be provided on the same scale. Except in work places provided with water flushed latrines connected with a water borne sewage system, all latrines shall be provided with acceptable dry earth system which will be cleared atleast four times daily and atleast twice during working hours and kept in a strictly sanitary condition. The Latrine and Urinals shall be tarred inside atleast once a year.

The excrete from the latrines shall be disposed off at the contractor's expenses, in outside pits approved by the Local Public Health Authority. The contractor shall also employ adequate number of scavengers, conservancy staff to keep the latrines and urinals in clean condition.

Shelters During Rest :

- 5. At the work site, there shall be provided at free of cost, two suitable sheds one for meals and another for rest for the use of labourers.

Creches:

- 6. At every work place at which 25 or more women are working there shall be provided two huts of suitable size for the use of children under the age of 6 years belonging to such women. One hut shall be used for infants, games and play and the other as their bed, room. The huts shall not be constructed on a lower standard than the following.
 - i) Thatched roofs.
 - ii) Mud floors and walls.
 - iii) Planks spread over the mud floor and covered with matting.

The size of the crèche or crèches should vary according to the number of women workers. The crèches should be properly maintained and necessary equipment like toys etc, should be provided and huts shall be provided with suitable and sufficient sweepers to keep the place clean. There shall be two ayahs in

attendance. Sanitary utensils shall be provided to the satisfaction of the Health Officer of the area concerned. The number of the huts shall be restricted to children, their attendants and attendants of the children.

Canteen:

7. A cooked food canteen on a moderate scale shall be provided for benefits of the workers if it is considered expedient.

Ambulance facility:

- 8 Where large work places are situated in cities, towns or their suburbs and no beds are considered necessary owing to the proximity of city or town hospitals suitable transport shall be provided to facilitate removal of urgency cases to these hospitals. At other work places some conveyance facilities such as a car shall be kept readily available to take injured person or persons suddenly taken seriously ill, to the nearest hospitals.

Sheds for workmen:

9. The contractor should provide at his own expense, shed for housing the workmen. The sheds shall be on a standard not less than the cheap shelter type to live in which the work pertaining to locality are accustomed to. A floor area of about 6' x 5' for 2 persons shall be provided. The sheds are to be in row with 5' clear space between sheds and 80' clear space between row if conditions permit. The work people's camp shall be laid out in units of 400 persons each. Each unit to have clear space of 48' around.

Safety provision in the building industry - conditions in addition to clause 34 of General conditions of contract.**Scaffoldings:**

10. 1. Suitable scaffolds shall be provided for workmen for all work that cannot be safely done from a ladder or by other means.
2. A scaffold shall not be constructed, taken down or subsequently altered except.
 - a) under the supervision of a competent and responsible person and
 - b) by competent workers possessing adequate experience in this kind of work.
3. Scaffolds shall be so constructed that no part thereof can be displaced in consequence of normal use.
4. Scaffolds shall not be over loaded so far as practicable and shall be evenly distributed.
5. Before installing lifting gear on scaffolds special precautions shall be taken to ensure the strength and stability of the scaffolds.
6. Scaffolds shall be periodically inspected by a competent person.

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7. Before allowing a scaffold to be used by his workmen every employee shall, satisfy as to whether the scaffold has been executed by his workmen or not he should take steps to ensure that it functions fully with the requirements of this article.

Working Platform, Gangways and Staircase:

11. 1. Working platforms, gangways and staircase shall be so constructed that no part thereof can sag unduly or unequally.
 - a) be so constructed and maintained to obviate from risks of person tripping or slipping and
 - b) be kept free from any unnecessary obstruction.
 - c) Every working platform gangway working place and stair case shall be suitably reinforced.
12. 1. Every opening in the floor of a building or in a working platform shall except for the time and to the extent required to allow the excess of persons or the transport or shifting of materials be provided with suitable means to prevent the fall of persons or materials.
 2. When persons are employed on a roof where there is danger of falling from height exceeding that to be prescribed by national laws or regulations, suitable precautions shall be taken to prevent the fall of persons or materials.
 3. Suitable precautions shall be taken to prevent persons being struck by articles which might fall from scaffolds or other working places.
13. 1. Safe means of access shall be provided to all working platforms and other working places.
 2. Every ladder shall be securely fixed and of such length as to provide secure handhold and foothold at every position at which it is used.
 3. Every place where work is carried on and means of approach there to shall be adequately lighted.
 4. Adequate precautions shall be taken to prevent danger from electrical equipment.
 5. No material on the site shall be so attached or placed as to cause danger to any person.

SAFETY EQUIPMENT AND FIRST AID

14. 1. All necessary personal safety equipment shall be kept available for the use of the persons employed on the site and be maintained in a condition suitable for immediate use.
2. The workers shall be required to use the equipment thus provided and the employer shall take adequate steps to ensure proper use of the equipment by those concerned.
3. When work is carried on in proximity to any place where there is a risk of drawing, all necessary equipment shall be provided and kept ready for use and all necessary steps shall be taken for the prompt rescue of any persons in danger.
4. Adequate provision shall be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.

GUIDE LINES FOR ADOPTION OF STRENGTH GRADENING OF CONCRETE

Plain and reinforced concrete have been graded according to the cube compressive strength and designated as M 100, M 150, M 200, M 250, M 300, M 350 and M 400. In the designation of concrete the letter “M” refers to the mix and the ‘Number’ to the specified 28 day work cube compressive strength of that mix expressed in kg. per sq cm.

Approximately the M 100, M 150, M 200, M 250 grades of concrete corresponds to 1 : 3 : 6, 1 : 2 : 4, 1 : 1½ : 3 and 1 : 1 : 2 nominal mixes of ordinary concrete currently used. The National Building code gives necessary specification for strength gradening of concrete, proportionately and works control and the same may be followed the extract of the same is enclosed.

The proportion of aggregates, cement and water to be used for controlled ‘Concrete shall be designed by preliminary tests of the materials to be actually used to obtain the specified strength with the use of maximum quantity of cement. However, the maximum total quantity of aggregate by weight per 50 kg. of cement shall not normally exceed 450 kg.

For any particular item compressive strength required to be obtained by the concrete at 28 days in the preliminary and work tests on the 15 cm cubes, minimum cement content required to be used and the approximate proportions on approved fine and coarse aggregates shall be specified in the tender schedule. These particulars will be only for the guidance of the contractor for quoting rates. Immediately upon the receipt of the award of contract, the contractor shall inform the Executive Engineer the exact location of the sources of the materials which he propose to use and get the materials approved. The mix with the actual approved materials to be used shall be got designed in an approved laboratory by the contractor with minimum quantity of cement to give the specified strength in the preliminary tests and the proportions got approved from the Executive Engineer in writing. These proportions shall be used so long as the materials continue to be of the same quality and the same sources subject only to slight changes in the relative qualities of fine and coarse

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aggregate for the purpose of promoting workability, provided the works tests also show the required strengths.

If during the progress of work, the contractor wishes to change the materials, the proportions shall be fixed on the basis of fresh preliminary tests to give the required strength after the Executive Engineer is satisfied that the materials satisfy the specification. No adjustments of cost shall be made for change of proportions of cement fixed in the original preliminary tests.

Proportioning of mix:

Each batch of mix shall be proportioned by weight of cement fine aggregate and coarse aggregate. Water for each batch shall be added in quantity measured by volume or by weight. Where weight of cement determined by accepting the maker weight per bag, reasonable number of bag shall be weighed separately to check the net weight. Where the cement is weighed on the site and not in bags, it shall be weighed separately from the aggregate. All the weighing equipments shall be maintained in a clean and serviceable condition and their accuracy checked periodically.

Mixing:

Mixing shall be done only by mechanical mixers. The quantities of fine aggregate shall be adjusted duly in the field, to compensate for bulkage due to the quantity of moisture present in fine aggregate and free water in the coarse aggregate at the time of use.

Tests:

Tests shall be done in an approved laboratory, at the cost of the contractor.

A Preliminary test

If concrete mixes are specified by its strength then the mix needs be designed and preliminary test should be carried out.

A preliminary test is conducted in a laboratory on the trial mix of concrete produced in the laboratory with the object of :

- a. Designing a concrete mix before the actual concrete operation starts.
- b. Determining the adjustments required in the designed mix when there is a change in the materials used during the execution of works or.
- c. Verifying the strength of cement mix.

B. Works Tests :

The tests shall be conducted either in the field or in a laboratory on the samples made on the work spot of the concrete used on the works.

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The samples shall be spread as evenly as possible throughout the day then wide changes of weather conditions occur during concreting additional sample may be taken as desired by the Executive Engineer.

All expenses on the tests shall be borne by the contractor. Nothing extra shall be paid to contractor for carrying out the tests.

All samples or tests shall be taken in the presence of the Assistant Engineer concerned and the contractor or his authorised agent.

All mix design and test data and results shall be maintained as part of the record for the contract and shall be signed by the Assistant Executive Engineer and the contractor.

A register of cement concrete cubes cast and tested giving the following particulars shall be maintained at the site.

1. Name of work and reference to agreement.
2. Serial No.
3. Date and time of sample taken
4. Sample No.
5. No. of cube
6. Identification marks
7. Proportions of mix
8. Description of the portion of work represented by the sample and quantity of concrete represented by the sample.
9. Initials of Assistant Executive Engineer and contractor's authorised agent in whose presence the sample is taken.
10. Result of 7 day test.
11. Result of 28 day test.
12. Review and remarks by Executive Engineer.

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Extract of :**(NATIONAL BUILDING CODE OF INDIA 1970)****PART VI-SECTION 5A : PLAIN AND REINFORCED CONCRETE :****4.2 Grades of concrete****4.2.1 Plain and reinforced concrete shall be in seven grades designed as M100, M150, M200, M250, M300, M350 and M400.**

Note : In the designation of a concrete mix, letter 'M' refers to the mix and the number of the specified 28 days works cube compressive strength of that mix expressed in kg/sq/cm.

4.2.2.1 Where ordinary Portland cement or Portland blast furnace slag cement conforming to accepted standards VI-5 (2)* is used. The compressive strength requirements for various grades of concrete shall be given in TABLE1. Where rapid-hardening Portland cement is used, the 28 day compressive strength requirements specified in Table 1 shall be met at 7 days, Where other cements are used, the Engineer-in-charge shall specify the corresponding requirements preferably on the basis of preliminary tests.

* IS 269/1967 - Specification for ordinary, rapid hardening and low heat portland cement.

IS-455/1967 - Specification for portland and blast furnace slag cement.

4.2.2.2 The strength requirements specified in Table 1 shall apply to both controlled concrete and ordinary concrete (Sec 4.3.1) Preliminary tests need not, however, be made in the case of ordinary concrete :

- a) In order to get a relatively quicker idea of the quality of concrete, optional works tests on beams for modulus of rupture at 72 ± 2 hours or at 7 days, or compressive strength tests at days may be carried out in addition to 28 compressive strength tests. In all cases the 28 day compressive strength specified in table 1, shall alone be the criterion for acceptance or rejection of the concrete. If however from tests carried out in a particular job over a reasonably long period, it has been established to the satisfaction of the Engineer-in-charge that a suitable ratio between the 28 day compressive strength and the modulus of rupture at 72 ± 2 hours or at 7 days or compressive strength at 7 days may be accepted. The Engineer-in-charge may suitably relax the frequency of 28 day compressive strength test specified in Table 5 provided the expected strength values at the specified early age are consistently met. For this purpose the values given in Table 2 may be taken for general guidance in the case of concrete made with ordinary cement.

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- b) Where the strength of a concrete mix, as indicated by tests lies between the strengths for any two grades specified in Table 1, such concrete shall be classified for all purposes a concrete belonging to the lower of the two grades between which its strength lies.

4.3 Proportioning and works control :

4.3.1 Methods of proportioning - The determination of the proportions of cement aggregates and water to attain the required strength shall be made by one of the following.

- a) With Preliminary tests by designing the concrete mix. Such concrete shall be called “Controlled Concrete”.
- b) Without preliminary test by adopting nominal concrete mixes. Such concrete shall be “Ordinary concrete”.

4.3.2 Controlled Concrete :

- 4.3.2.1 As far as practicable, controlled concrete should be used on all concrete works.
- 4.3.2.2 Controlled concrete for use in plain and reinforced concrete structures shall be in grades M100, M150, M200, M250, M300, M350 and M400.
- 4.3.2.3 The concrete mix shall be designed to have an average strength corresponding to the values specified for preliminary tests in Table 1. The proportions chosen should be such that the concrete is of adequate workability for the conditions prevailing on the work in question, and may be properly compacted
- 4.3.2.4 with the means available.

The maximum total quantity of aggregate by weight per 50 kg of cement shall not exceed 450 kg where otherwise specifically permitted by the Engineering in-charge.

- 4.3.2.3 Except where it can be shown to the satisfaction of the Engineer-in-charge, that supply of properly graded Aggregate of Uniform quality may be maintained over the period of work, the grading of aggregate should be controlled by obtaining the coarse aggregate, in different sizes and blending them in the right proportion when required the different sizes being stacked in separate stack piles. The materials should be stack piled for several hours preferably a day before use. The grading of coarse and fine aggregate should be checked as frequently as possible, the frequency for a given job being determined by the Engineer-in-charge to ensure that the suppliers are maintaining the grading uniform with that of the samples used in the preliminary tests.

- 4.3.2.4 In proportioning concrete, the quantity of both cement and aggregate should be determined by weight. Where the weight of cement is determined by accepting the manufacturer's weight per bag, a reasonable number of bags should be weighed separately to check the net weight. Where the cement is weighed on the site and not in bags it should be weighed separately from the aggregates. Water should be either-measured by volume in calibrated tanks or weighed. All measuring conditions, and their accuracy may be periodically checked.
- 4.3.2.5 It is most important to maintain the water-cement ratio constant at its correct value. To this end, determination of moisture contents. in both fine and coarse aggregates should be made as frequently as possible, the frequency for given job being determined by the Engineer-in-charge according to weather conditions. The amount of the added water should be adjusted to compensate for any observed variations in the moisture contents. The determination of moisture content in the aggregate shall be carried out in accordance with good practice (VI-5-9) IS 2386 Part III-1963. To allow for the variation in weight of aggregates due to variation in their moisture content suitable adjustment in the weight of aggregate should also be made.
- 4.3.2.6 No substitution in materials used on the work or alteration in the established proportions except as permitted in 4.3.2.5. shall be made without additional tests to show that the quality and strength of concrete are satisfactory.
- 4.3.2.7 Workability of the concrete should be checked at frequent intervals.. The slump test or where facilities, exist the compacting factor test conducted in accordance with good practice (VI-5(10) may be adopted for this purpose.
- 4.3.2.8 A competent person should be employed whose first duty will be to supervise all stages in the preparation and placing of the concrete. All works test specimen should be made and site tests carried out under his direct supervision.

4.3.3. Ordinary Concrete:

- 4.3.3.1 Where it is considered not practicable to use controlled concrete, ordinary concrete may be used for concrete of grades M100, M150, M200, M250. The proportions of materials for nominal concrete mixes for ordinary concrete shall be in accordance with Table 3.
- 4.3.3.2 In proportioning concrete, the quantity of cement should be determined by weight. The quantities of fine and coarse aggregates may be determined by volume but these should also preferably be determined by weight. In the latter case, the weight should be determined from the volume specified in Table 3 and the weight per litre of dry aggregate. If fine aggregate, is moist and value

batching is adopted allowance shall be made for bulking in accordance with good practice (VI-5(9))*

- 4.3.3.3 The water cement ratio shall not be more those specified in Table 3. The cement of the mix specified in Table 3 for any nominal mix may be increased if the quantity of water in amix has to be increased to overcome the difficulties of placement and compaction, 'so that the water cement ratio specified in Table 3 is not exceeded.

Note: 1. In the case of vibrated concrete, the limit specified may be, suitably reduced to avoid segregation.

Note: 2 The quantity of water used in the concrete mix for reinforced concrete work should be sufficient, but should not be more than what is sufficient to produce a dense concrete of adequate, workability for the purpose, which will surround and properly grip, all the reinforcement, workability of the concrete should be controlled by maintaining a water cement ratio-that is found to give a concrete which is just sufficiently wet to be placed and compacted without difficulty with the means available.

- 4.3.3.4 Workability of the concrete should be controlled by direct measurement of water consent, making allowance for any surface water in the fine and coarse aggregates. The slump test may be conducted in accordance with good practice [VI-5-(10)].

- 4.3.3.5 Allowance should be made for surface water present in the aggregate when computing the water content. Surface water shall be determined by field methods in accordance with good practice (VI-5)(9)* In the absence of exact data, the amount of surface water may be estimated from the values given in Table 4.

- 4.3.3.6. If ordinary concrete made in accordance with the proportions given for a particular grade does not yield the specified strength due to proper qualities of materials not being available, such concrete shall be classified as belonging to the appropriate lower grade.

Ordinary concrete proportioned for a grade given in accordance with table 3 shall not however, be placed in higher grade on the ground that the test strengths are higher than the minimum specified. No interpolation shall be permissible.

4.4. Sample size and acceptance criteria.

- 4.4.1 All tests shall be carried out in accordance with good practice [VI-5(4)]

- 4.4.2. The number of test specimens required, the frequency of sampling and the criteria for acceptance of a concrete as conforming to the specified grade shall be in accordance with Table 5 for both ordinary concrete and controlled concrete. No preliminary tests are, however, necessary in the case of ordinary concrete.

ISI 199-1959-Methods of sampling, and analysis of concrete.

*IS 2386 (Part III) 1963 specific gravity, density, voids absorption and bulking-Methods of tests for aggregate for concrete.

*ISIS 23866-Method of test for aggregates for concrete. IS (Part III) 1963-Specific gravity, density, voids absorption and bulking.

IS-516-1959-Methods of test for strength of concrete.

TABLE I - STRENGTH REQUIREMENTS OF CONCRETE

(Clauses 4.2.2.1 and 4.2.2.2.)

(All Values in kg/cm²)

Compressive Strength of 15 cm cubes at 28 days after mixing,
conducted in accordance with good practice [VI-5-(4)*]

Grades of Concrete	Preliminary Min	Works Test Min
1.	2.	3.
M 100	135	100
M 150	200	150
M 200	260	200
M 250	320	250
M 300	380	300
M 350	440	350
M 400	500	400

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- Note 1 : **Preliminary Test** : A test conducted in a laboratory on the trial mix* of concrete produced in the laboratory with the object of
- (a) Designing a concrete mix before the actual concreting operation starts.
 - (b) Determining the adjustments required in the designed mix when there is a change in the materials used during the execution of work, or.
 - (c) Verifying the strength of concrete mix.
- Note 2 : **Works Test**: A test conducted either in the field or in laboratory on the specimens made on the works, out of the concrete being used on the works.
- Note 3 : **Size of Cubes**: In the working test, with the approval of the Engineer-in charge 10 cm cubes may be used in place of 15 cm cubes provided the maximum nominal size of aggregate does not exceed 20 mm. Even the use of 15 cm cubes should normally be restricted to concretes having maximum normal size of aggregate not exceeding 40 mm. Where concrete with aggregates larger than 40 mm size is required to be tested, the size of cubes should be specified by the Engineer-in-charge, keeping in view that generally the length of side of the cube should be about four times the maximum nominal size of aggregate in the concrete constituting the cube specimen.
- Note 4 : **Strength in Relation to size of the Cube** : Where 10 cms cubes are used the values obtained from tests on 10 cm cubes shall be reduced to the extent established by comparative preliminary tests with 10 and 15 cm cubes, or in the absence of such comparative tests, by 10 percent of the value determined from the tests, in order to give the equivalent strength for 15 cm cubes. Where 15 cm cubes are adopted, generally no modification is necessary unless otherwise specified by the Engineer-in-charge.

* IS 516-1959-Methods of test for strength of concrete.

- Note 5 : **Cylinder Strength** - Compressive strength test may, with the approval of the Engineer-in-charge, be conducted on 15 cm diameter and 30 cm high cylinders in accordance with good practice [V15(4)*] instead of one cube, where cylinder strength figures are adopted, the compressive strength figures given above shall be modified according to the formula. Minimum cylinder compressive strength requires, 0.8 compressive strength specified for 15 cm cubes.

The Central Road Research Institute, New Delhi has carried out tests with a view of establishing a relation between water-cement ratio and the compressive strength of concrete using ordinary Portland cements manufactured in the country conforming to accepted standards [VI-5-(2)].

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As a result of these, it has been considered advisable to give graphs showing the relationship between the compressive strength of concrete mixes with different water cement ratios and the 7 day compressive strength of cement tested in accordance with good practice [VI-5-(2)]. These graphs have been given in Appendix-A as they would be of some assistance in obtaining the water cement ratio for trial mixes of concrete.

TABLE 2 - OPTIONAL WORKS TEST REQUIREMENTS OF CONCRETE

(Clause 4.2.2.2. (a))

(All Values in kg/cm²)

All tests shall be conducted in accordance with good practice [VI-5-(4)*]

Grade of Concrete	Compressive strength on 15 cm cubes	Modulus scripture by beams test in	
	Min. 7 days	At 72± Hours	At 7 days
1.	2	3.	4.
M 100	70	12	17
M 150	100	15	21
M 200	135	17	24
M 250	170	19	27
M 300	200	21	30
M 350	235	23	32
M 400	270	25	34

Note : Notes 3 to 5 under Table 1 are also applicable to this table.

*LS 510-1959- Methods of test for strength of concrete.

*LS 261-1967- Specification for ordinary, rapid hardening and low heat portland cement.

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TABLE 3**CONCRETE MIX PROPORTIONS****(Clause 4.3.3.)****Ordinary concrete**

Grade of Concrete	Total quantity of dry aggregates by volume per 50 Kg. of cement to be taken as the sum of the individual volumes of fine and coarse aggregates	Proportion of fine aggregate to coarse aggregate	Quantity of water per 50 kg. of cement Max.
1.	Max.	3.	4.
M 100	2 Litres 300	- Generally 1:2 for fine aggregate to coarse aggregate by volume but subject to an upper limit of 1:1½ and a lower limit of 1:3*	Litres 3
M 150	220		32
M 200	160	-	30
M 250	100	-	27

Note : It may be noted for general guidance that M 100, M 150, M 200, and M 250 of ordinary concrete correspond approximately to 1:3:6, 1:2:4, 1:1½:3 and 1:1:2 nominal mixes of ordinary concrete currently used in the country.

- The proportions of the aggregates should be adjusted from upper limit to lower limit progressively as the grading of the fine aggregates become finer and the maximum size of coarse aggregate becomes larger. Example, For an average grading of the aggregate that is, Zone II in accordance with good practice [VI-5-(1)] the proportion shall be 1:1½, 1 : 2 and 1:3 for maximum size of aggregates 10 mm, 20 mm and 30 mm respectively.

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TABLE 4**SURFACE WATER CARRIED BY AVERAGED AGGREGATE**

Aggregate	Approximate quantity of surface water
(1)	(2) 1 m ³
Very wet and	120
Moderate wet sand	80
Moist and	40
* Moist gravel or crushed work 20 to 40	40
* Coarse aggregate, less the water it will carry	
IS 383-1963 Specification for coarse and fine aggregates for natural sources for concrete.	

LS. 516-1959 Specification for natural and manufactured aggregates for use in mass concrete.

TABLE.5.
ACCEPTANCE CRITERIA FOR CONCRETE (ALL GRADES)

Preliminary Test				Work test						
Minimum No. of specimens from each batch (cubes)		Minimum frequency	Criteria for acceptance	Minimum No. of specimen taken from the same day's Works				Minimum frequency		Criteria of acceptance
				(Cubes)		(Beam)				
7 days compressive strength test as on optional test if desired	28 days compressive strength test			7 days compressive strength test as on optional test if desired	28 days compressive strength test	72 + or – 2 hours test as on optional test, if desired	7 test as an optional test, if desired	In terms of period	In terms of period	
1.	2.	3.	4.	5.	6.	7.	8	9	10	11

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5	
For each batch with a minimum of three batches	
Accept if average compressive strength of the specimens tested is not less than the compressive strength specified in Table.1. (For optional tests, see Table.2.) subject to the conditional that only one out of five consecutive tests may give a value less than specified strength	
For every 150 cubic meter of concrete of part there of	
At such intervals as the Engineer – in – charge may diced however, in the case of controlled concrete, samples shall be drawn on each day for the first 4 days of concreting and there after atleast once in 7 days of concreting	
Accept of average strength of the specimens tested is not less than the strength specified in table.1. (for optional tests see table.2.) subject to the condition that only one out of 3 consecutive tests may give a value less than the specified strength but this shall not be less than 90% of specified strength	

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10	
For each batch with a minimum of three batches	
Accept if average compressive strength of the specimens tested is not less than the compressive strength specified in Table.1. subject to the condition that the average compressive strength in Table.1. by at least the value of Standard deviation * of the series of test.	
For every 150 cubic meter of concrete of part there of	
At such intervals as the Engineer – in – charge may dived however, in the case of controlled concrete, samples shall be drawn on each day for the first 4 days of concreting and there after atleast once in 7 days of concreting	
Accept of average strength of the specimens tested is not less than the strength specified in table1. (for optional tests see table.2.) subject to the condition that only one out of 5 consecutive tests may give a value less than the specified strength.	

* Standard

$$\frac{\sum d^2}{n - 1}$$

Where d = individual deviation form one average, and
n = number of specimens tested.

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SPECIFICATION FOR SANITARY FITTING SD DRAINAGE AND WATER SUPPLY

1. Water closets basins urinals sinks and other sanitary were shall be of approved make as required in the relevant items fixing of these shall be in accordance with the special specification.
2. The rates shall include the dismantling making holes in walls or slabs and restoring the structure to the original conditions after the completion of the work.
3. The work should be carried out with least hindrance to the adjoining building and the contractor shall be responsible for any damage caused to the existing fixture, electric fittings etc. in the course of execution and the contractor shall make good any such damage without claim for extra.
4. The rate for laying stone were pipes shall include necessary all incidental charges during execution of work and making good the damage to the roads and other structures.
5. The rates for laying G.I. pipes or PVC pipes shall include fixing with wooden plus G.I / C.I. clamps and brass screws where the pipes area fixed to wall. The rates for G.I. pipes shall also include wrapping them with tarred taps where they are buried in earth the portions embedded in masonry and painting with white lead two coats for portions above ground level.
6. The clamps for G.I. pipes fitting should not be spaced more than a part the wooden plugs for pipe and bracket fitting should be properly fixed in C.M. 1:3 in holder make in masonry with the wide and of wedge shaped plugs inside the walls. The size of plugs should not be less than 1 sq.m. inch at one end, ½ sq.m inch at the other end with depth of not less than 3".
7. Painting with two coats of best white paint or any other colour approved by the Executive Engineer over priming cot of red lead to all flushing tanks brackets claps used for fixing pipes and all other connection.
8. The contractor should employ sufficient number of qualified licensed plumber with necessary experience and skill in the trade to the satisfaction of the Executive Engineer concerned for execution of water supply and sanitary items of work.
9. The rate shall include all dismantling making holes in walls or slabs and testing the structure to the original condition after the completion of the work.
1. The water for works shall be as far as practicable free from earthling vegetable or organic matter and from salts or other substance likely to interface with the setting of mortar of otherwise prove harmful to the work
2. All items of work shall be done in accordance with the relevant classes of TNBP and agenda volume to the TNBP or amendments from time to time.
3. The contractor shall be responsible for the safe custody of all the departmental materials once they are handed over to the contractor at the departmental

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materials once they are handed over to the contractor at the departmental stores. The cost of any materials in the custody of the contractor stolen, lost, destroyed or damaged or if rendered unfit for the work will be recovered from the contractor at the issue rate.

4. For testing the concrete and aggregate the contractor must procure the following equipments and make them available at site.
 1. Steel mould for making 45cm cube of concrete (The mould will be in two halves for easy removal)
 2. Slumps cone for testing consistency (slump test) the cone will be 30cm height truss casted cone with top and bottom diameters of 10 cm and 20cm respectively. In addition a steel rod 15cm dia and 50cm in length and with tamping and rounded is to be procured.
 3. For finding fineness modules and coarse aggregate hand operated over a apparatus may be procured along with weighing machine for weighing the aggregate and the sand.
 4. In the case of any breach of the terms of the contract the contract will be closed at the risk and the cost of contractor in addition to the forfeiture of the EMD and security deposit.
 5. The testing is to be done at the contractor's cost for all building materials and also for concrete cubes.
 6. The work shall be executed and measured as per metric dimension given in the schedule of quantities drawing etc. (F.P. units where indicated are for guidance only)
 7. Unless otherwise specified all the rates quoted by the contractor shall be for works at all levels of the buildings.
 8. Rates for every item of work to be done under this contract shall be for all lifts and leads, heights, depths, lengths and widths

Except when specifically mentioned in the item, otherwise nothing extra will be paid on this account.

The rate for all item in which use of cement is involved is inclusive of charges for curing.

SUPPLYING AND FIXING INDIAN TYPE WATER CLOSET

1. The Indian type Water Closet shall be fixed in position at floor level in a bed of concrete brick jelly in lime mortar 1:2 so as to complete by embedding the closet trap and foot rests. The existing masonry structure after dismantling the floor, making the holes etc. shall be restored to its original condition after completion of work. The foot rests should be fixed at an angle as per Standard.
2. The PVC flushing tank shall be of three gallons capacity of Indian make confirming to ISI specification supported on C.I. Brackets with necessary C.I. chain and handle for pull float hell valve ½" PVC connections to the water main and closet including pier the white glazed paint 2 coats over a priming coat of red lead.
3. The fixing of water closet shall include the dismantling of existing floor however indicated making holes in necessary walls etc. and restoring structure to original condition after completion of the work. The flushing tank and accessories will be fixed to the walls with necessary clamps and brackets in C.M. 1:4.

ADDITIONAL CONDITION FOR CONTRACTOR'S SPECIAL ATTENTION

1. If at any time the Executive Engineer shall be of the opinion that the contractor is delaying commencement of the work or violating any of the progress of the site work as defined by the tabular statement rate of progress in the article of agreement, the Executive Engineer shall so advice the contractor in writing and at the same time demand complied. If the contractor neglects to comply with such demand within seven days after the receipt of such notice it shall these or at any time thereafter be lawful for the Executive Engineer to determine the contract which determination shall carry with the forfeiture of the security deposit and the total of the amount withheld from the final bill together with value of such works as may have been executed and not paid for such proportion of such total sums as shall be assessed by the Executive Engineer.

ADDITIONAL CONDITIONS

1. Water and lighting : The contractor shall pay all fees and provide water and light as required from Municipal main or other sources and shall pay all charges therefore (including storage tanks, metre etc.) for the use of the works and workman unless otherwise arranged and decided as in writing with Executive Engineer.

The tenderer shall ensure that no damage is caused to the existing structure / building whether it is Government owned or private owned etc. in the adjustment areas close preliminary to the proposed site and if any damage is caused doe to pipe driving etc. to the adjacent buildings it shall be rectified / compensated by the tenderer at his own cost of the satisfaction of departmental officers / owners of any private building affected (i.e) the contractor should indemnify the department against damages if any to adjacent building due to the driving.

The contractor has to make his own arrangements for procuring water for construction purpose construction and curing should be done with water free from injurious amounts of deletion materials portable water are generally considered satisfactory for curing and

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fixing concrete and masonry. However the water to be used should be periodically tested at contractors cost for its suitability for using the construction work and got approved from Department Engineers.

Electricity : The contractor should make his own arrangements for obtaining electricity for all types of his use like lighting, welding, pumping and mosaic and marble polishing etc.

Any damages to work resulting from rains or frame any other cause until these work is taken over by the department after completion will made good by the contractor at his own cost.

ADDITIONAL CONDITIONS

"On evaluation of tender if it is found that if the overall quoted amount of the tender is less than 5 to 15% of the value put to tender, the contractor shall pay and additional security at 2% of the estimated value. If the tender discount exceeds 15% to 20%, the contractor shall pay an additional security deposit of 50% of the difference between the quoted amount and estimated amount failure to furnish the additional security deposit within 15 days from the date of receipt of Acceptance order and execute the Agreement shall entail cancellation of award of contract and forfeiture of E.M.D. furnished."

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TAMIL NADU WAREHOUSING CORPORATION, CHENNAI -32

**CONSTRUCTION OF COMPUTER ROOM AND RECORD ROOM IN THIRD FLOOR OF TAMILNADU WAREHOUSING CORPORATION HEAD OFFICE BUILDING, NO.
82, ANNA SALAI, GUINDY, CHENNAI-32**

TENDER SCHEDULE

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
1	13.00	M ³ Dismantling , clearing away and carefully stacking materials usefull reuse of damaged RCC works etc.,complete complying with standard specifications and as directed by the departmental officers.		M ³	
2	5.00	M ³ Dismantling , clearing away the brick work as directed by the Deaprtmental officers Complying with standard specification		M ³	
3	330.00	M ² Dismantling , clearing away and Carefully stacking materials of Weathering Course and Pressed tiles as directed by the Deaprtmental officers Complying with standard specification		M ²	
4	25.00	M ² Dismantling, clearing away and carefully stacking materials AC sheet roof works etc.,.complete complying with standard specifications and as directed by the departmental officers.		M ²	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
5		Supplying and erecting centering for sides and soffits including necessary supports and strutting upto 3.29 M height for plane surfaces as detailed below in all floors with all cross bracings using Mild Steel sheets of size 90 x 60 cm and 10 BG stiffened with welded Mild Steel angle of size 25mm x 25mm x 3 mm for boarding laid over silver oak joists of size 10cm x 6.50 cm spaced at abote 90 cm centre to centre and supported by casurina props of 10cm to 13 cm dia spaced at not more than 75 cm centre to centre etc. complete complying with the standard specification. (Payment for centering shall be given after the concrete is laid)			
a	585.72	M ²		M ²	
		For plane surfaces such as RCC floor slab, roof slab, beams, lintels, bed blocks, landing slab, waist slab, portico slabs and beams, etc.			
b	165.00	M ²		M ²	
		For plane surfaces such as rectangular or square RCC columns, sunshades, top and bottom slab of RCC boxing, etc.			
6		Reinforced Cement Concrete 1:1-1/2:3 (One Cement, One and a half sand and Three hard broken stone jelly) using 20 mm gauge hard broken granite stone jelly for all RCC items of works excluding cost of reinforcement grill and fabricating charges centering and shuttering but including laying, vibrating with mechanical vibrators, finishing, curing, etc. and providing fixtures like fan clamps in the RCC floor / roof slabs wherever necessary and bearing surfaces of walls, beams etc. shall be finished smooth with Cement Mortar 1:3 (One Cement and Three Sand) and kraft paper laid over it without claiming extra, etc., complete complying with standard specification and as directed by the departmental officers			

Sl. No.	QTY	DESCRIPTION OF WORK		RATE	Per	AMOUNT Rs.
a	78.00	M ³	Third Floor		M ³	
b	2.50	M ³	Fourth Floor		M ³	
7	4.50	M ³	Cement Concrete 1:4:8 (One Cement, Four sand and Eight broken stone jelly) using 20mm size hard broken stone jelly for dummy columns, excluding cost of centering shuttering reinforcement grills and fabrication charges but including curing etc. complete. (4th Floor)		M ³	
8	103.20	Qtl	Supplying, fabricating and placing in position Mild Steel / Ribbed Tor Steel grills for all RCC works as per design given including cost of steel and G.I. binding wire in all floors etc. complete complying with standard specification. (Contractor has to make his own arrangements for the supply of steel and binding wire)		Qtl	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
9		Brick work in Cement Mortar 1:5 using best quality of Second Class Ground Moulded Chamber Burnt Bricks 9" x 4-3/8" x 2-3/4" for foundation and basement including curing, etc., complete complying with standard specification.			
a	16.00 M ³	Third Floor		M ³	
b	16.00 M ³	Fourth Floor		M ³	
10	460.00 M ²	Special ceiling plastering and finishing the exposed surface of all RCC items of work such as slabs, beams, sunshades, fascia, canopy slab, staircase waist slab, landing slab etc., with Cement Mortar 1:3 (One Cement and Three Sand) 10mm thick including hacking the surfaces, providing cement mortar nosing, beading for sunshades, staircases, steps, landing slabs and curing, etc., in all floors complying with standard specification and as directed by the departmental officers		M ²	
11	500.00 M ²	Plastering with Cement Mortar 1:5 (One cement and Five sand), 12mm thick in all floors including curing etc. complete complying with standard specification and as directed by the departmental officers.		M ²	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
12	55.00	M ² UPVC Window: Supplying and fixing UPVC (Un-Plasticized Polyvinyl Chloride) Windows of casement type (open) from the profile the size of outer frame 60mm x 58mm and shutter profile are reinforcement with GI/1mm 125GSM and 100% corrosion free, the profiles are multi chambered sections with wall thick of 2mm. The EPDM rubber (black colour) covered with over all the edges of frame and shutter the shutter will be provided with Espag multi power point locks and also it operates as handle. The corners and joints should be welded and cleaned. Radiations free pin headed plain or brown colour glass 4mm thick should be provided to the shutter and it should not allow leakage of water even at most ranging storms and should have key lockable action, security protective hinges, strong locking systems and as per size for arresting noise and energy loss. The connecting mechanism between sash and outer frame that enables opening of the window. The window should be fixed to the wall with 100% packing with screws and silicon packing all round the frames. The window should be got approved from the Engineer incharge before use on work.		M ²	
13	9.00	M ³ UPVC Ventilator: Supplying and fixing UPVC (Un-Plasticized Polyvinyl Chloride) Louvered Ventilators of from the profile the size of outer frame 60mm x 58mm and shutter profile size of 60 x 78mm both profiles are reinforced with GI/1mm 125GSM and 100% corrosion free, the profile are multi chambered sections with wall thick of 2mm. The EPDM rubber (black colour) covered with all over the edges of frame and shutter. The corners and joints should be welded and cleaned. Radiations pin headed glass 4mm thick should be provided in the louvers. The window should be fixed to the wall with 100% packing with screws and silicon packing all round the frames. The ventilator should be got approved from the Engineer incharge before use on work.		M ³	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
14	0.50	M ² Supplying and fixing the teak wood door frames using with teak wood scanteling upto 4.00m length and a size of 150X100mm to the repaired opening as per standard specification including cost of wood and all labour charges etc complete complying with standard specification.		M ²	
15	25.00	M ² Providing and fixing 35mm thick hot pressed flush door shutters of required size single or double leaf synthetic resin bound of block board construction solid core 4mm thick commercial ply on both sides with external liping of best indian teak wood battens 10mm thick single piece on all edges doors to be of approved make including l.S2202(part-1) 1980 fittings and hardware and locks as indicated in drawings.		M ²	
16	300.00	M ² Paving the floor with best quality Verified Tiles of size 600 x 600 x 8mm of approved colour, shade and quality laid in cement mortar 1:3 (one cement and three sand) 20mm thick in all floors and the top pointed with the white cement mixed same colour pigments etc., complete complying with standard specification. (The make and brand of the tiles should be got approved by Engineer incharge before use on works)		M ²	
17	14.00	M ² Flooring with ceramic tiles of size 305 x 305 x 6 mm laid over 20 mm thick cement mortar 1:3 (One Cement and Three Sand) base mortar over the existing slab / floor including cutting the tiles to the required size with special cutter wherever necessary, laying in position and pointing with white cement mixed with colouring pigment at the rate of 0.3 Kg. / sq.m. etc., complete complying with standard specification. (The make and brand of the tiles should be got approved by Engineer incharge before use on works)		M ²	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
18	100.00	M ² Dadoing walls with following best approved quality, white / colour glazed tiles of following sizes 450x300x6mm, set in Cement Mortar 1:2 (One Cement and Two sand) 10mm thick and pointing the joints with white cement mixed with colouring pigments at the rate of 0.40 Kg. / sq.m. neatly in all floors, curing, etc., complying with standard specification and as directed by the departmental officers.		M ²	
19	13.00	M ² Paving the floor with anti-skid step tiles of approved quality and colour laid in Cement Mortar 1:3 (One Cement and Three sand) 20mm thick and pointed with white cement mixed with colouring pigment at the rate of 0.40 Kg. / sq.m., curing, etc., complete complying with standard specification and as directed by the departmental officers.		M ²	
20	510.00	M ² Painting two coats of plastered wall surface (interior walls) with ready mixed plastic emulsion paint of first class quality and of approved colour over a priming coat including thorough scrapping, clean removal of dirt, and including necessary plaster of paris putty, wherever required etc., complete complying with standard specification.		M ²	
21	440.00	M ² Painting two coats of newly plastered wall surface with ready mixed Exterior plastic emulsion paint of first class quality and of approved colour over a priming coat including thorough scrapping, clean removal of dirt, and including necessary plaster of paris putty, wherever required etc., complete complying with standard specification.		M ²	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
22	60.00	M ² Painting new wood work with two finishing coats of synthetic enamel ready mixed paint of approved quality and colour over one coat priming coat in all floors including the cost of primer etc., complete complying with standard specification. (The make, quality and colour of paint should be got approved by the Engineer Incharge before use on works.)		M ²	
23	31.00	M ² Weathering course in brick jelly lime concrete using broken brick jelly of size 20mm uniform gauge in pure slaked lime (no sand to be used) to the proportion of brick jelly to lime being 32:12.5 by volume and laid over the RCC roof slab in a single layer of required slope and finished by beating the concrete with wooden beaters of approved pattern, keeping the surface constantly wet by sprinkling lime jaggerly water, etc., complete as per standard specification and as directed by the departmental officers.		M ²	
24	405.00	M ² Finishing the top of roof with one course of machine pressed tiles following size of size 23 x 23 x 2 cm of approved quality set in Cement Mortar 1:3 (One Cement and Three Sand) 12mm thick mixed with water proofing compound conforming to ISS at 2% by weight of cement used and the joints pointed neatly to full depth of tiles with the same cement mortar mixed with red oxide and water proofing compound including curing etc., complete complying with standard specification and as directed by the departmental officers. The pressed tiles should be got approved by the departmental officers before use on works.		M ²	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
25	2.00	Nos Supplying and fixing in position Indian Water Closet (Oriya type) of size 580 x 440mm colour glazed earthen ware of approved quality and brand with "P" or "S" trap conforming to BIS with sand cushion and forming flooring alround the closet using 40mm broken brick jelly in lime concrete 1:2:5 (One lime, Two sand and Five brick jelly) 100mm thick and finishing the top to the required slope and including giving necessary connection to CI soil pipes (including the cost of 100mm dia CI pipe for a length of 600mm) by dismantling brick masonry wall / reinforced cement concrete roof / floor slab and making good the dismantled portion to the original condition with leakages etc., complete complying with standard specifications and as directed by the departmental officers. (The water closet should be got approved by the Engineer incharge before use on works).		No	
26	3.00	Nos Supplying and fixing in position colour glazed European Water Closet of best quality and approved make with 100 mm "P" or "S" trap connecting with CI pipe of 100mm dia / PVC pipe of 110mm dia, double flapped rigid PVC black seat and seat cover with CP brass hinges including cost of white cement, cement for packing, spun yarn, teak wood plugs, brass screws, etc., including supplying and fixing 10 litres capacity PVC low level flushing tank with a pair of CI brackets, etc., complete with all fittings such as 15mm brass ball valve with polythene float with brass handle, union, coupling connected by means of 40mm white PVC flush hand using Indian adopter joint including all internal fittings such as 15mm brass connections, 15mm GM wheel valve, 15mm brass nipple (2 Nos.), 15mm nylon connection, TW plugs, screws and also giving necessary connection to the PVC pipe including cost of 600mm length of 110mm dia PVC pipe and painting the CI brackets with 2 coats of approved paint over one coat of red oxide primer, dismantling the masonry and re-doing the dismantled masonry to original condition etc. complete complying with standard specifications. (The EWC and flushing tank with all accessories should be got approved by the Engineer incharge before use on works)		Nos	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
27	2.00 Nos	Supplying and fixing in position best quality and approved make Indian made colour glazed earthenware Wash Hand Basin of size 550 x 400mm (without pedestal) with a pair of cast iron brackets, including cost 15mm dia brass CP pillar tap, 32mm dia "B" class GI waste pipe with rubber plug and chain, 15mm dia GM wheel valve, 15mm brass nipple, 15mm dia nylon connection, 32mm dia CP brass waste coupling including fixing of wash basin using CI brackets on to the wall in position with TW plugs and screws, rubber washers, white lead and giving necessary water supply connection and painting the brackets with two coat of painting over a priming coat of anti-corrosive paint including testing for leakages etc., complete complying with standard specification and as directed by the departmental officers. Supply and fixing in position of best Indian make colour glazed earthenware lipped mouth flat back urinal of best quality and approved make of size 430mm x 260mm x 350mm with GI pipe, 32mm dia bell mouth PVC connection and waste pipe, 15mm dia GI pipe of required length, 15mm dia GM wheel valve, 15mm dia brass nipple 2 Nos., and fixing the urinals in position with necessary TW plugs, clamps, screws, etc., including dismantling masonry and re-doing the same to the original condition, etc., including painting the pipe with two coats of best quality approved synthetic enamel paint over one coat of red oxide primer and checked without any leakage etc. complete complying with standard specifications and as directed by the departmental officers. (The urinal should be got approved by the Engineer in charge before use on works.)		Nos	
28	3.00 Nos	Supply and fixing in position of best Indian make colour glazed earthenware lipped mouth flat back urinal of best quality and approved make of size 430mm x 260mm x 350mm with GI pipe, 32mm dia bell mouth PVC connection and waste pipe, 15mm dia GI pipe of required length, 15mm dia GM wheel valve, 15mm dia brass nipple 2 Nos., and fixing the urinals in position with necessary TW plugs, clamps, screws, etc., including dismantling masonry and re-doing the same to the original condition, etc., including painting the pipe with two coats of best quality approved synthetic enamel paint over one coat of red oxide primer and checked without any leakage etc. complete complying with standard specifications and as directed by the departmental officers. (The urinal should be got approved by the Engineer in charge before use on works.)		No	
29	2.00 Nos	Supply and fixing in position of best Indian make whitemarble slab 18 to 20mm thick of size 4'0"x2'0"urinal partition of best quality and approved make of size 600mm x 450mm x 50mm including cost of necessary special clamps, brass screws, nails, etc., and fixing in position as directed by the departmental officers.		No	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
30	40.00 Rm	Supplying and fixing in position best approved of BIS quality PVC rain water down fall pipes 110 mm dia having a pressure of 4 kg. / sq.cm including cost of necessary PVC shoe, PVC bend, cast iron gratings of required diameter and special clamps, brass screws, nails, etc., and fixing of cast iron gratings at junction of parapet and the RCC roof slab including finishing neatly etc., complete. The rate shall be inclusive of cast of removable cast iron grating. The PVC pipe shall be fixed in wall with special type of "U" clamp at the centre of the pipe line in addition to those for more than 3.0 metre pipe length, etc., complete complying with standard specification.		Rm	
31		Supplying and fixing in position best quality PVC soil / waste pipes of various dia having 6 kg / sq.cm. pressure BIS mark and providing leak proof joints using PVC adhesives including fixing to the wall with special PVC / MS clamp, teak wood plugs, brass screws, etc., and making connection to all sanitary fittings, dismantling masonry / RCC works wherever found necessary and making the good dismantled portion to the original condition, including testing for any leakages, etc., complete complying with standard specifications. (The PVC pipes should be got approved by the Executive Engineer before use on works). The rate for earth work excavation will be measured and paid separately in the cases where the pipe lines are proposed to laid below around level			
a	27.00 Rm	75mm dia PVC soil / waste pipe		Rm	
b	15.00 Rm	110mm dia PVC soil / waste pipe		Rm	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
32		Supplying and fixing in position PVC specials of the following dia and types of approved quality confirming to BIS and providing leak proof joints including fixing to the walls and giving connection to the PVC soil stacks, dismantling the masonry or RCC works and re-doing the dismantled portion to original condition etc., complete complying with standard specifications. (The PVC specials should be got approved by the Engineer incharge before use on works).			
a		<u>PVC Elbow</u>			
i	5.00 Nos	110 mm Dia		No	
ii	4.00 Nos	75 mm Dia		No	
b		<u>PVC Elbow with Door</u>			
i	4.00 Nos	110 mm Dia		No	
ii	4.00 Nos	75 mm Dia		No	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
33		Supplying, laying and jointing PVC pipes (having working pressure 10 kg. / sq.cm) of approved quality and best variety conforming to BIS of the following dia including cutting, threading and fixing PVC specials using PVC adhesives (but excluding cost of such specials) and fixing into wall with teak wood plugs, PVC clamps and screws making holes on the wall (or) drilling holes in the roof and making good the dismantled portion to original condition with necessary brick work / cement concrete and plastering neatly wherever necessary with necessary scaffolding charges, etc., complete complying with standard specifications			
a	90.00 Rm	Laying PVC pipes of dia 32mm		Rm	
b	60.00 Rm	Laying PVC pipes of dia 25mm		Rm	
34		Supplying PVC Specials (with working pressure 10 kg. / sq.cm.) in water supply arrangements (both in internal and external water supply arrangements			
a		<u>Coupler</u>			
i	5.00 Nos	32 mm Dia		No	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
ii	4.00 Nos	25 mm Dia		No	
b		<u>Elbow</u>			
i	6.00 Nos	32 mm Dia		No	
ii	6.00 Nos	25 mm Dia		No	
c		<u>Tee</u>			
i	4.00 Nos	32 mm Dia		No	
ii	4.00 Nos	25 mm Dia		No	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
35	13.00 Nos	Supplying and fixing position CI Nahani Trap / Floor Trap of the following sizes with best stainless steel gratings of approved brand and quality, fixed over a bed of brick jelly lime concrete 1:2:5 (One part of lime, two part of sand and five part of 40mm gauge brick jelly) and finished with Cement Mortar 1:3 (One Cement, Three sand) including dismantling masonry works wherever found necessary and making good the dismantled portions to the original condition and giving connection to the CI / PVC pipes, etc., complete complying with standard specification.		No	
36	4.00 Nos	Supplying and fixing in position GI unions (32 mm Dia) of heavy duty of approved quality and good variety of various sizes including necessary cutting and threading of GI pipes for joining the union and providing two coats of painting with good variety and approved quality of synthetic enamel paint over one coat of primer in case of pipe line above ground level / one coat of tar in case of below ground level for both internal and external water supply arrangements, etc., complete complying with standard specifications.		No	
37	7.00 Nos	Supplying and fixing in position first quality and approved variety of Gun metal Gate Valve (32 mm Dia) with BIS make of the following dia including cost of shellac, thread balls, etc., complete complying with standard specifications (for both internal and external water supply arrangements). The valves to be used on work shall be got approved by the Executive Engineer before use on work.		No	
38	6.00 Nos	Supplying and fixing in position 15mm dia brass CP Pillar tap (heavy duty) of approved make conforming to BIS specifications and quality including cost of shellac, thread, etc., complete complying with standard specification and including cutting and threading wherever necessary.		No	

Sl. No.	QTY	DESCRIPTION OF WORK	RATE	Per	AMOUNT Rs.
39	5.00 Nos	Supplying and fixing in position Indian make bewelled edge mirror of approved quality and brand PVC / Fibre Glass framed 900 x 600 x 5.5mm thick mirror, shelf type with hard board backing of approved colour fixed with brass screws, rawl plug, etc., complete complying with standard specification.		No	
40	5.00 Nos	Supplying and fixing approved best quality brass CP towel rail 600mm long and 20mm dia with brackets of same materials including cost of teak wood plugs and CP screws, etc., complete complying with standard specifications.		No	
41	5.00 Nos	Supplying and fixing best approved best quality brass CP soap tray of size 150 x 100mm including cost of teak wood plugs, brass screws, etc., complete complying with standard specifications.		No	
42	100.00 Rm	Providing two legged scaffolding using 15 cm diameter casuarinas posts (or) best quality of bamboo posts of 4 M over all length (3.00m + 0.5 m Projection + 0.50 m up to ground) the distance between the two rows being 1.25m and the spacing of posts being 2m in both the rows with two horizontal posts with 0.50m overlap on either side and braces at 2m c/c including longitudinal and transverse middle braces to setup and providing a platform with country wood planks of 40mm thick and 1m width etc., in a complete form using coil and nails etc., complete complying with standard specifications and as directed by the departmental officers.		Rm	
TOTAL Rs.					

(The Rates quoted are excluding GST)

THIRD FLOOR PLAN

Column

Existing Record Room

Existing Lift

UP

Dimensions (m):

- Overall Width: 22.53
- Overall Depth: 19.25
- Room Widths (from left to right): 1.47, 2.45, 4.30, 4.90, 0.25, 9.49
- Room Depths (from top to bottom): 6.09, 0.25, 6.04, 0.25, 6.12

Other labels: W1, W2, W3, V, D, S, N