



Government of Tamil Nadu
Rural Development and Panchayat Raj Department

RGRP Rajiv Gandhi Rehabilitation Package
(Basic Amenities)

Price Bid

Cover 2

Contract Package : CUD/BA/RGRP/010

District Implementation Unit (Tsunami)
Cuddalore District

GOVERNMENT OF TAMILNADU

RURAL DEVELOPMENT AND PANCHAYAT RAJ DEPARTMENT

TSUNAMI DISTRICT IMPLEMENTATION UNIT CUDDALORE DISTRICT.

- Name of Work** : **Construction of 56 Nos Stand alone toilet under Rajiv Gandhi Rehabilitation Package for Tsunami affected areas 45 nos @Samiyarpettai in parangipetai union , 8 Nos @Nayakarpettai &3 Nos @ Nanjalingampettai in Kurinjipadi union of Cuddalore District.**
- Last date of receipt of tender** : **27.07.07 Time 15.00 hours**
- E.M.D to be remitted** : **Rs.16,300/-**
- Mode of E.M.D to be remitted** : E.M.D will be accepted in the shape of Deposit at call receipt, Demand draft of the nationalized and scheduled Bank drawn in the name of the **Collector/Chirman** TDIU, Cuddalore and National Savings Scripts/Deposits/accounts of postal Department and Pledged in the name of the **Collector/Chirman** TDIU, Cuddalore. No other mode of payment will be accepted.

N.B: -Tenders not submitted in sealed cover will be summarily rejected.

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 & its validity :

6. Registered class of the Tenderer in
Tamil Nadu State with
Monetary limit
-Department in which registered
-Date of registration / renewal
:
7. Recent works executed (details
about name and place of work,
value of work etc., should be
furnished) :
8. Works under execution (details about
name and place of work, value of
work etc. should be furnished) :
9. Command of Labour in brief :
10. Turnover of previous years (particulars
for period of five consecutive years
to be furnished) :
11. Whether Income Tax clearance
Certificate for assessment year 2006-2007
is enclosed if not when it will be produced :
12. i Sales tax registration No.
ii Whether Sales Tax Verification
Certificate for assessment year 2005-2006
is enclosed. If not when it will be produced:
13. 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 :

14. Technical Assistant details

1. Name :
Qualification Certificate :
Experience Certificate :

2. Name :
Qualification Certificate :
Experience Certificate :
OR

Name

If retired Civil Engineer designation
and date of retirement (copy may be enclosed) :

15. If any other details :

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

Contractor

Project Co-ordinator,
Tsunami District Implementation Unit,
Cuddalore District.

FOR SPECIAL ATTENTION OF THE CONTRACTOR

1. Proof of registration in any of the Tamil Nadu State Government departments/undertakings like PWD, Highways Department, TWAD Board, TNHB and TNSCB etc., as a Class –II contractor shall be attached with the tender.
2. Current Income Tax clearance certificates for assessment year 2006-2007 shall be enclosed with the tender.
3. EMD will be received in the shape as detailed in Column No 8_of tender Notice.
4. Security should be in the form of National Savings Certificates/Deposits/Accounts of Postal Department Pledged in the name of **Collector / Chairman TDIU, Cuddalore District** concerned only.
No other form of EMD and security deposit will be accepted vide G.O.No.227 dt.13.4.82 and G.O.M.S.No283 Public Works (G2) Dept dt.21.05.99.
5. The following particulars shall be furnished by the contractor with the value.
 - a) List of details of works executed by the contractor with the value, during the last five years
 - b) Annual turn over of the contractor for the last five years shall be attached.
6. The tender document will be issued only to the class II contractors who have registered their names as contractors in any of the Tamil Nadu State Government departments/undertakings like PWD, Highways Department, TWAD Board, TNHB and TNSCB etc., in the appropriate class. In case of Pre- qualification tender, the tender document will be issued to the pre-qualified Contractors only.
7. The lower/lowest tenderer when informed that his tender is under consideration shall have to furnish Programmed for execution of works within a week from the date of receipt of this letter calling for Programme of work.

Project Co-Ordinator,
Tsunami District Implementation Unit,
Cuddalore District.

SPECIAL INSTURCTIONS TO THE TENDERERS:

1. The tenderer should carefully go through the schedules and quote their rates for all items.
2. The rate should be filled clearly in figures and words and taking into account the metric unit specified in the tender. Scribbling, over writing and erasing should be avoided as far as possible.
3. The amount of 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 tenders should be submitted along with a covering letter giving full details as stated in the tender notice, as given below:-
 - i. Details of the earnest money deposit as per details in Column No 8 **(Rs16,300/-)** of tender notice.
 - ii. Income tax clearance certificate for the Assessment year (2006-07) should be submitted along with the tender.
 - iii. Details of previous work done by the tenderer covering the cost of work, the agreement amount and date, the Department in which the work carried out etc.so as to asses the previous experience of the tender, and also make an easy reference to their record of work. Year wise details, for the last five years should be furnished so as to see that these tenderers have minimum experience of major buildings.
 - iv. List of various machineries and other equipments at the tenderers disposal for use in the execution of work
 - v. The tender forms should be filled in while submitting the tender. The tenders submitted without filling up the tender form are liable to be rejected.
 - vi. The tenders must be submitted in a full-scale cover there by duly signing all the conditions, plans and schedules issued as tender documents.

Contractor

Project Co-Ordinator,
Tsunami District Implementation Unit,
Cuddalore District.

TENDER NOTICE

1. On behalf of Governor of Tamil Nadu sealed tenders will be received by the **Project Co –Ordinator, Cuddalore.** at this office upto **3.00 p.m** on **27.07.07** for the work of Construction of 56 Nos Stand alone Toilet Under Rajiv Gandhi Rehabilitation Package for Tsunami affected areas 45 nos @ Samiyarpettai in parangipettai union,8 nos @Nayakarpettai &3 nos @Nanjalingampettai in Kurinjipadi union of Cuddalore District.

1-1 The tender should be in the prescribed form obtainable from the/office of the **Project Co –Ordinator,Cuddalore.**The tenders will be opened by the **Project Co –Ordinator,Cuddalore.**at the place and on the date before mentioned.

1-2 The tenderers or their agents 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 corrections there in and hand it over to the tenderer concerned and initial all such corrections in the presence of the tenderer. If any of the tenderers or their agents find 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 corrections and communicate it to him. The absentee tenderer shall then accept the statement of the corrections without any questions whatsoever.

2. Tenders may be submitted in sealed covers and should be addressed to **Project Co – Ordinator,Cuddalore.**..the name of the tenderer with their address and the name of the work being noted in the cover.

2-1 If the tender is made by an individual, it shall be signed with the full name and his address shall be given. If it is made by a firm, it shall be signed with the co-partnership name by a member of the firm who shall also sign his own name, and the name and address of each member of the firm shall be given. If the tender is made by a corporation, it shall be signed by a duly authorized officer who shall produce with this tender, satisfactory evidence of his authorization. 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 current certificate of Income Tax clearance for the Assessment year 2006-2007 from the appropriate income tax authority in the form prescribed therefore. The certificate will be valid for one year from the date of issue for all tenders submitted during the period.

3-1. In the case of proprietary or partnership firm, it will be necessary to produce the certificate afore mentioned for the proprietors and for each of the partner as the case may be.

3-2. The current certificate for Registration of contractor in any of the Tamil Nadu State Government Departments/Undertakings like PWD, Highways Department, TWAD Board, TNHB, TNPFC and TNSCB etc., is to be produced.

3-3. The tenders received without a certificate as afore mentioned will be summarily rejected.

Contractor

4. Each tenderer must pay as earnest money deposit a sum of Rs 16,300/- in any form of security deposit excluding bank guarantee inclusive of small savings scripts, Accounts, I.V.P., Deposits, NSC pledged in favour of the **Collector / Chairman** TDIU, Cuddalore District. The earnest money will be refunded to the unsuccessful tenderer on application after intimation is sent on rejection of the tender or at the expiration of **90 days** from the date of tender whichever is earlier. However the earnest money for the first three lowest tenderers will be authorized by the **Project Co-Ordinator, Cuddalore** by suitable endorsement. However refund to the first three lowest tender will be considered only by the tender accepting authority. If any additional EMD is required after tender, it should be paid before acceptance of agreement.

4-1. The EMD will also be accepted in the shape of deposit as call receipts and demand draft of the Nationalized and Scheduled Banks. The demand drafts of the Nationalized and Scheduled Banks furnished towards earnest money deposit should be drawn in favour of the **Collector / Chairman** TDIU, Cuddalore concerned.

5(i) The tender will remain valid for a period of ninety days from the scheduled date of opening of tender. The validity period can be extended further if the contractor gives his consent in writing, specifying the period of extension.

5(ii) Tenderer whose tender is under consideration shall attend the **TDIU** office before the end of the period specified on 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 intimation being sent to him of acceptance of his tender by the officer, duly authorized in this behalf, under article 229 (I) of the constitution hereinafter called the tender accepting authority, furnish security deposit of 2% of the value of contract, in one of the form prescribed by department (i.e.) by taking into account the amount of Earnest Money Deposit already deposited with the tender and 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 earnest money D.D has to be converted as National Savings Certificate scripts/deposits/accounts of postal department as per the form prescribed by the Deptt., by the successful tenderer on Intimation of acceptance of 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, which has to be remitted only in the shape of NSC/deposits/accounts of postal deptt. as per the form prescribed and the National savings scripts/deposits/accounts of postal account pledged to the District Collector concerned. The security deposit together with earnest money deposit and the deductions made at 5% of the value of each bill, towards with held amount vide clause 64(i) of General condition to contract will be retained as security for the fulfillment of contract, such deposit shall not bear any interest.

Contractor

5(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 back out from the tender, or withdraw his tender, the EMD shall be forfeited and credited to the Government account.

5(IV) If the contractor fails to carry out the contract after paying the requisite security deposit then he will be liable for the excess expenditure if any, incurred to complete the work, as contemplated in the general conditions of contract.

5(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 Govt. of TamilNadu and the tenderer for execution of the work without any separate written agreement. Hence for this purpose tender documents (i.e.) tender notice, tender offered by contractor, general condition to the contractor, special condition to the contract, negotiation correspondence written communication of acceptance of tender etc. shall constitute a valid contract and that will be a foundation of the rights of both the parties to the contract, provided that it shall be open to the accepting authority to insist execution of any written agreement by the tenderer, if administratively considered necessary or expedient.

6. The tenderer shall examine clearly the Tamil Nadu Buildings practice and also general condition of the contract contained therein and sign the divisional office copy of the TamilNadu Building practice and its addenda volume in token of such study before submitting his tender. Unit rate, shall be for finished work in situ. He shall also carefully study the drawings and additional specification and all the documents connected with the contract. The Tamil Nadu buildings practice and other documents connected with the contract such as specifications, plans, descriptive specifications sheet regarding materials etc can be seen at any time during office hours from 11.00 a.m to 5.00p.m in the office of the **TDIU, Cuddalore District**

7. The tenderers attention is directed to the requirements for materials under the building and workmanship in the General condition of the contract, materials conforming to the Indian Standard specification shall be used on the work and tender shall quote his rates accordingly.

8. Every tenderer is expected, before quoting his rates to inspect the sites of the proposed work. He should also inspect the quarries and satisfy himself about the quality and availability of materials. The best class of materials to be obtained from the quarries or other sources 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 Executive Engineer in any case shall be submitted to the Executive Engineer's approval before the supply to the site of work is begun.

Contractor

8.1 The Government will not however, after acceptance of contract, rate, pay any extra for lead or for any other reason in case, the contractor is found later on to have misjudged materials available. Attention of the contractors directed to the General condition of the contract regarding payment of Seigniorage, tolls etc.,

9. The tenderer's particular attention is drawn to the section and clauses in the general conditions to the contract dealing with

1. Testing, inspection and rejection of defective materials on work
2. Carriage
3. Construction point
4. Water and lighting
5. Cleaning up during progress and for delivery
6. Accidents
7. Delays
8. Particulars of payment

9.1 The contractor should closely pursue all the specification clauses for items of works for which he is tendering his rates.

10. A schedule of quantity accompanies this tender notice. It shall be definitely understood that, the Government does not accept any responsibility for the correctness or completeness of this schedule and that this schedule is liable to alteration by omissions, deductions or additions at the discretion of the **Collector / Chairman (or) Project Co –Ordinator, Cuddalore** or as set forth in the conditions or contract. The tenderer will however base his lumpsum tender on this schedule of quantities. In this schedule tender system, he should quote specific rates for each item in the schedule and the rates should be in rupees and in sum of five paise. The rate should be written both in words and figures and the units in words.

10 1) The tenderer should also show the total of each item and the grant total to the whole contract and quote in the tender a lumpsum for which he will undertake to do the whole work, subject to the condition of contract such lumpsum agreeing with the total amount of schedule (A). This schedule accompanying the lumpsum tender shall be written legibly and free from erasures, over writing or corrections of figures. Corrections where unavoidable should be made by crossing out, initialing, dating and rewriting.

Contractor

11.The tenderer offering a percentage deduction from or increase on the estimate amount, except in the case of tender for specifically under the percentage rate tender system and those not submitted in prescribed form in due time will be rejected. Rates or lump sum amounts for items not called for shall not be included in the tender. No alterations which are made by the tenderer in the contract from the conditions of contract, the drawings, specifications or quantities accompanying the 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 PWD current schedule rates or Estimates.

13.The price at which and the source from which the contractor shall obtain certain particular materials are given at the end of the schedule accompanying the tender form. Tenderers must accept the material at these prices and shall quote their price for finished work accordingly. Notwithstanding any subsequent change in the market value of these materials and change to the contractor will remain as originally entered in the written contract. No centage or incidental charges will be borne by Government in connection with this supply.

14.The attention of the tenderer is directed to the contract requirements at the time of beginning work, the rates of progress and the dates for the completion of the whole work and its several parts. The following rates of progress and of proportionate value of work done from time to time as to be indicated by the Collector,.....District and certificates of the 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 the date of Commencement (1)	Percentage of work to be complete based on contract lump sum amount (2)
1 st month	Basement Level
2 nd month	Roof Laid ,Septic tank &Soak pit works
3 rd month	Completion & all Respects

Contractor

Note: The periods to be entered in column for the purpose of defining the rates of progress may be fixed by the **Collector / Chairman ,Cuddalore District** to suit the requirements of each case.

15.No part of the contract shall be sub-let without written permission of the Collector/**Project Co-Ordinator Cuddalore District** nor shall transfer be made by power of attorney, authorizing others to receive payments on the contractor's behalf.

16.If further necessary information is required, the Collector / Project Officer of the **Cuddalore District** will furnish such information but it must be clearly understood, that, tenders must be submitted and according to instructions.

17.The District Collector or other sanctioning authority reserves the right to reject any tender or all the tenders without assigning any reason therefor.

18.The tenderers who are themselves not professionally qualified shall undertake to employ qualified men at their cost to look after the work. The tenderers should state in clear terms whether they are professionally qualified or whether they undertake to employ technical men required by the department, specified in the scheduled below for the work. In case the selected tenderer is professionally qualified or has undertaken to employ technical men under him, he should see that one of the technically qualified men is 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.) reinforcement concrete works etc.,

EMPLOYMENT OF TECHNICAL PROFESSIONAL

(Based on the value of contract)

1..Above Rs.50 Lakhs
upto Rs.100lakhs:

1. Two B.E. Civil (or) equivalent Degree holder with 3 Years experience (or) not less than two retired Sub-Divisional Officers(Assistant Executive Engineer or Assistant Divisional Engineer) plus
2. Four diploma holders in Civil Engineering (or) Four Retired Junior Engineers.
- 3.For every additional Rs.50lakhs value of work, one BE and two Diploma holder should be engaged by the contractor.

- a. A penalty of Rs 500/- per month for diploma holders and Rs.1000/- per month for degree holder will be levied in case of default on the part of contractors in following the norms laid down above.
- b. The employment of technical Assistants could be based only on 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. It will not be incumbent on the part of the contractor to employ technical assistants when the work is kept in abeyance due to valid reasons and if during such period in the opinion of the Executive Engineers, the employment of Technical assistance if required or the due fulfillment of the contract should be made.

Contractor.

- c. In case of the contractor who is professionally qualified is not in position to remain always at the site of the work during working hours personally checking all items of work and paying extra attention to the works as may demand special attention (e.g.) RCC work etc he should employ technically qualified person as prescribed for the work.
- d. The Contractors who possess a degree in Mechanical or Civil Engineering may also have to appoint Technical Assistants as in case of Registered Contractors with degree in Electrical Engineering when they are entrusted with civil works by the Department
- e. Engineers with Mechanical Engineering qualification and retired from Civil Engineering Department are also suitable for supervising the Civil Engineering works subject to condition that evidence for experience in Civil Engineering field is produced.
- f. One technical Assistant may be employed by the contractor for more than one work situated within one kilometer provided that monetary limit prescribed for the nature of technical assistants to be employed is adhered to by one and the same contractor.

19. A tenderer submitting a tender which the tender accepting authority considers excessive and or indicative of the insufficient knowledge of current prices of definite attempt at profiteering will tender himself liable to be debarred permanently from tendering or for such period as the tender accepting authority may decide. The tendered rates should be based on the controlled price for materials, if any, fixed by Govt. or the reasonable price permissible for the tenderer to charge a private purchaser under the provisions of clause 8 of the Hoarding profiteering Prevention ordinance 1943, as amended from time to time on similar principles in regard to labour and supervision in the construction.

20. The contractor should offer employment to ex-toddy tappers 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 agreement to offer such employment to such number.

21. The contractors 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 make breach 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 the 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.

Without prejudice to the above clause the contractor shall, during the period of the contract, when called upon by the Engineer, in charge engage and also ensure engagement by the sub-contractors and other employees by the contractor in connection with the work, such number of apprentices in all categories for such period as may be required by the Engineer-in-charge.

Contractor.

22. A movement register should be opened and maintained, for technical assistant by the contractor or for the technically qualified Contractor. The technical assistants or technically qualified contractor should note the arrival and the departure timing every day along with initials. Such register should be produced during inspection of the inspection officers.

23. The fact of submitting the tender implies that the tenderers have actually inspected the site of work and have examined before tendering the nature and extent of various kinds of soils at various depths and have based their tender in such examination by them and no future representation in this regard will be considered.

24. A statement giving brief particulars of equipment and resources that will be put at the disposal of the work under the following classifications should accompany the tender

- a. Equipment (Transport for material viz. Lorries and carts, concrete mixtures)
- b. Organization
 - i) Technical ii) Unskilled
- c. Resources of materials like teakwood etc. and extent to which dept. help is required for procurement of materials and transport of the same.
- d. Methods that will be adopted to speed up the work to ensure completion within or less than the time fixed for completion.

25. The tenderer of the contract who agrees to employ the maximum number of ex-service men (Number to be specified in the tender) will receive preferential consideration. The tenderers are requested to report this on their covering letter.

26. The registered contractors who had not already produced live certificates in the current year also should do so.

27. All rates quoted in the tender shall be inclusive of sales tax payable under the General Sales Tax Act as amended from time to time (including amendment Act 28/84) and that the contractor is responsible to file the sales tax return and pay the amount as amended by the C.T. Department. No request for payment of sales tax separately in addition to tendered rates due to any plea of subsequent levy or increase in tax will be entertained vide clause 38 (2) of General conditions to contract.

Contractor.

TENDER

To

His Excellency the Governor of
Tamil Nadu represented by the
**Project Co-Ordinator,
Cuddalore District**

Sir,

I/We do hereby tender and if this tender be accepted, undertake to execute the following work viz ...Construction of 56 Nos Stand alone Toilet Under Rajiv Gandhi Rehabilitation Package for Tsunami affected areas at 45 nos @ Samiyarpettai in parangipettai union ,8 nos @ Nayakarpettai &3 nos @ Nanjalingampettai in Kurinjipadi union of Cuddalore District as shown in the drawings and described in the specification deposited in the office of the **Project Co-Ordinator, Cuddalore District** with such variation by any of alterations or additions to and omissions from the said works and method of payment as are provided for in the “conditions of contract” for the sum of Rupees.....

Or such sums as may be arrived at under the clause of the General condition to contract relating to payment on lumpsum basis or by final measurements at unit prices.

- 1 (i) I/We have also completed the price of item 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 of the contract.
- 2 I/We do hereby distinctly and expressly declare and acknowledge that before the submission of my /our tender, I/We carefully followed the instructions in the tender notice and have read the Tamil Nadu Building Practice etc., and the General conditions to the contract therein and the Tamil Nadu Building Practice addenda volume etc., and that I/We have made such examinations of the contract documents and of the plans, specifications, quantities and of the location where the said work is to be done and such investigations of the work required to be done and in regard to the materials required to be furnished to enable me/us to thoroughly understand the intention of the 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 thereafter make any claim or demand upon the Government based upon or arising out of any alleged..... misunderstandings or misconception or mistakes or my/our part of the said requirements and covenants stipulations restrictions and conditions.

Contractor.

4. I/We enclose an income tax verification certificate. I/We being registered Public Works Department contractor, I/We have already produced an income tax verification certificate during the current year in respect of (here Particulars of the previous occasion on which the certificate was produced should be given). The legal address of the contractor for service of all letters of notices will be as follows.

5(i) (a) I/We enclose herewith for the payment ofthe sum of Rs..... as Earnest Money not to bear interest.

5(i) (b) In lieu of cash deposits, I/We.have enclosed a certificate bearing No.....Date.....issued byfor a value Rupees (.....only)’ drawn/endorsed/pledged in favour of the

5(1)© I am / we are

and hence exempted from payment of E.M.D

6. If my/our tender is not accepted this sum shall be returned to me/us on my/our application. When intimation sent to me/us of rejection or at the expiration of ninety days from the date of this tender whichever is earlier, if tender is accepted, the EMD shall be retained by the Government as security for the due fulfillment of the contract. If upon written intimation being given to me/us by the authority authorized by the Governor under the Article 299(1) of the constitution. (herein after called “the accepting authority”) of acceptance of tender I/We fail to make the additional security deposit then I/we agree to the forfeiture of the EMD. Any notice required to be served on me/us if delivered to me/us personally or forwarded to me/us by post (registered or ordinary) or left at my/our address given herein, such notice 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 Governor of Tamil Nadu and Tender Documents (i.e.) tender notice, tender with Schedule of General Condition to the contract, and special condition of the tender negotiation letter, communication of acceptance of tender shall constitute the contract for this purpose and be the foundation of rights as defined in tender notice, provided that it shall be open to the accepting authority to insist on execution of any written agreement by the tenderer, if administratively considered necessary or expedient.

Contractor

8. I/we have also signed the copy of Tamil Nadu Buildings Practice and National Building code and addenda volume ,NBC etc., they're to be maintained in the **TDIU** office of the **Cuddalore** District, in acknowledgement of being bound by all conditions of the clauses of the general conditions to the contract and all specifications for items of work described by the specification number in Schedule (A).

9. In consideration of the payments of Rs. or such sum as may be arrived at under the clause of the General condition to the contract relating to the payment on lump sum basis or by final measurements at unit prices, I/we agree subject to the said conditions to execute and complete the works shown upon the said drawing serially numbered from 1 to..... inclusive of (schedule B) and described in the specifications (Schedule C) and to the extent of probable quantities shown in (Schedule A) with such variation by way of additions or to alterations, deductions from the said work and method of payment therefore as are provided for in the said conditions.

10.The term..... in the said condition shall mean the Project Co-Ordinator officer in charge of Cuddalore District having jurisdiction for the time being over the work, who shall be competent to exercise all the powers and privileges reserved, herein, in favour of Government with the previous sanction of or subject to ratification by the competent authorities in cases, where such sanction or ratification may be necessary and who has been duly authorized under Article 299 (1) of the Constitution.

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 Tamil Nadu Building Practice etc., code and the site or premises is handed over to me/us as provided for in the said condition and agreed to complete and work within nine months from the date of such handing over of the site or premises and who shows progress as defined in the tabular statement. “Rate of progress” subject nevertheless to the provision for extension of time contained in clause 56 of the general conditions to the contract appendix to the Tamil Nadu Buildings practice.

12.I/we agree that upon the terms and conditions of this contract being fulfilled and performed to the satisfaction of the Executive Engineer, the security deposited by me/us herein before recited or such portion thereof as I/we be entitled to under the said conditions be paid back to me/us as provided in clause 64 of General condition to the contract.

Contractor.

13. I am/we are professionally qualified and my /our qualifications are given below:

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

Name of technical staff Proposed to be employed	Qualification and Experience
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Note: a. The last clauses should be scored out if the cost of the work involved is less than Rs.1. Lakh

b. The tenderers should score out the last clause if they themselves, are professionally qualified or undertake to employ technical staff under them

14. I/we agree that the arbitrators for fulfilling the duties set forth in the arbitration clause of the general conditions to contractor shall be.

- a.In case the value of claim does not exceed Rs.50, 000/- (Rupees Fifty thousand only)
- b. I/we agree that in case of the value of claim is over Rs.50, 000/- and above, the remedy will be through the competent civil court only.

Signature of the contractor
With full address with Name
In block letters

SCHEDULE 'A'

SCHEDULE OF RATES AND APPROXIMATE QUANTITIES

- (a) The quantities given here are those upon which the lumpsum tender cost of the work is based but they are subject to alterations, omissions, deductions 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 for extras or deductions or omissions according to the condition of the contract, as set forth in the preliminary specification of the TAMILNADU BUILDING PRACTICE, NBC and other conditions or specifications of the contract.
- (b) It is to be expressly understood that the measured work is to be taken not (not withstanding) any custom or practice the 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 Collector and the cost calculated by measurement or weight at the respective prices, without any additional change for any necessary or contingent works connected therewith. The rates quoted are for works in site and complete in every respect.

Item	Probable Quantity	Description of work	T.N.B.P No.	NBC No.	RATE in Words & Figures	UNIT in Words & Figures	Amount in figures

Vide separate sheet enclosed

Note: The second sub division of this column (i.e. column 3) is for entering description in words such as numbers, cubic meter running metre, square metre, kg etc.,

Issued to M/s./ Thiru,
.....Pages and with plans

Contractor

SCHEDULE 'A'

SCHEDULE OF RATES AND APPROXIMATE QUANTITIES

(c) The quantities given here are those upon which the lumpsum tender cost of the work is based but they are subject to alterations, omissions, deductions 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 for extras or deductions or omissions according to the condition of the contract, as set forth in the preliminary specification of the TAMILNADU BUILDING PRACTICE, NBC and other conditions or specifications of the contract.

It is to be expressly understood that the measured work is to be taken not (not withstanding) any custom or practice the 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 Collector and the cost calculated by measurement or weight at the respective prices, without any additional change for any necessary or contingent works connected therewith. The rates quoted are for works in site and complete in every respect

Name of Work : Constriction of Stand Alone Toilet / Septic Tank in the NGOs constructed houses under Rajiv Gandhi Rehabilitation package in Tsunami affected areas								
Sl. No	Probable Quantity	Description of work	T.N.B.P No.	NBC No.	Rate		Unit In figures & In words	Amount in figures
					In figures	In words		
1	648.256 Cum	Earth work excavation for foundation with all leads and lifts in all soils and sub-soils and to the required depth as may be directed except hard rock requiring blasting inclusive of shoring, strutting and bailing out water wherever necessary refilling the sides of foundation with excavated earth in layers of 150 mm thick well consolidated, depositing the surplus earth in places shown and leveling the site with all leads and lifts etc., complete in all respects	17,23 & 24				1 Cu.M (One Cubic metre)	

2	40.32 Cu.M	Filling in foundation and basement with filling sand in layers of not exceeding 15cm thick well watered, rammed and consolidated complying with relevant standard specification incl. the cost of filling sand.	24 & 25					1 Cu.M (One Cubic metre)	
3	29.456 Cu.M	Cement concrete 1:4:8 (One of cement four of sand and eight of hard broken stone jelly) using 40mm size hard broken granite stone jelly for foundation inclusive of shoring and strutting, bailing our water, ramming, curing etc., complete in all respects etc	28					1 Cu.M (One Cubic metre)	
4	250.544 Cu.M	Brick work in cement mortar 1:5(One of cement and five of sand) using country bricks of size 8 ¾"x 4 ¼"x 2 ¼" including proper setting, curing, shoring and strutting, bailing out water etc. complete in all respects.	31 & 31c					1 Cu.M (One Cubic metre)	
5	165.256 Cu.M	Brick work in cement mortar 1:6(One of cement and six of sand) using country bricks of size 8 ¾"x 4 ¼"x 2 ¼" including proper setting, curing, shoring and strutting, bailing out water etc. complete in all respects.	31 & 31c					1 Cu.M (One Cubic metre)	
6	141.008 Sq.M	Formwork for centering for soffits for R.C.C. slabs or plane surfaces including shuttering upto 3.0m height using M.S. sheets of size 90mmx60mm and HP 10 G stiffened with welded M.S. angle of size 25x25x3mm laid over silver Oak (country wood) joist 10cmx6.5 cm spaced at about 90 cm c/c and supported by casuarinas props 10 cm to 13 cm dia spaced at 75 cm c/c complying with standard specification etc., complete in all respects as directed by the departmental officers.	MOST 1500					1 Sq.M (One Square Metre)	

Contractor

7	35.056 Cu.M	Reinforced Cement concrete 1:1½ :3 (one of cement one and half of sand and three of hard broken stone jelly) using 20mm gauge hard broken granite stone jelly for all reinforced cement concrete works excluding cost and fabrication of reinforcement grills in position Centering and strutting but including laying, vibrating, curing, finishing etc., complete as directed by the departmental officers complying with relevant standard specification.	30				1 Cu.M (One Cubic metre)	
8	172.905Sq.M	Finishing the top of roof with one course of machine pressed tiles of size 20CMx20CMx20MM of approved quality laid in cement mortar 1:3 (one cement and three sand) 12mm thick mixed with water proofing compound by 2% weight of cement used and joint pointed neatly to full depth of tiles with the same water proofing compound mixed with cement mortar red oxide etc, complete complying with standard specification	44 H				1 Sq.M (One Square Metre)	
9	2073.568 Sq.M	Plastering in Cm 1:4, 12mm thick for inside and outside of all walls including cost and conveyance of all materials to worksite and all labour charges Finishing smooth, scaffolding curing etc. complete in all respects, as directed by the departmental officers etc.,	56 & 57				1 Sq.M (One Square Metre)	
10	67.200 Sq.M	Providing 20mm thickness of Granolithic pattern floor finish with plain cement concrete 1:2:4 mix using 10-12mm HBG stone jelly on top surface shall be rubbed smooth finishing, curing etc., complete	56 & 57				1 Sq.M (One Square Metre)	

Contractor

11	35.840 Qtl	Supplying, fabricating and placing in position of the following kinds of steel grills for reinforcement for all reinforced cement concrete works including cost of steel and fabricating the reinforcement grills in position etc. complete in all floors.(The rate to include the cost of binding wire also)	30 & 86				1 Qtl (One Quintal)	
12	1526.448 Sq.m	Colour washing two coats with shell lime, including cost and conveyance of all materials to worksite and all labour and all other incidental charges etc., complete S.D.No.335	64				1 Sq.M (One Square Metre)	
13		Supply and fixing of Doors and Windows with country wood Frames and planks and planks and shutters for Doors and windows and RCC Jalli for ventilator including cost and conveyance of all materials to worksite and all labour charges including painting two coats of enamel coat over one coat of primary coat etc complete (4-Doors and 3 windows)	Spe.Specification					
a	56 nos.	Door 0.75x2.10					1 No (Each	
b	56 nos.	RCC Jolly for ventilator					1 No (Each	
14	19.60 Cu.M	Cement concrete 1:1½ :3 (one of cement one and half of sand and three of hard broken stone jelly) using 20mm gauge hard broken granite stone jelly for all cement concrete works including laying, vibrating, curing, finishing etc., complete as directed by the departmental officers complying with relevant standard specification	28				1 Cu.M (One Cubic metre)	
15	224 Nos	Supply, delivery and laying of 90 cm dia concrete rings with holes	Spe.Specification				1 No (Each)	

16	22.96 Cu.M	Supply, delivery and filling of brick bat jelly in the annular space around the concrete rings $11/4 \times (1.20^2 - 1.00^2) \times 1.2 = 0.41$	Spe.Specification					1 Cu.M (One Cubic metre)	
17	56 No.	Provision for supply and fixing of water closet and PVC pipes including labour charges etc., complete	Spe.Specification					1 No (Each)	
		Grand Total							

LE-4										
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 for acceptance
7 days compressive Strength test as an optional test if desired	28 day compressive strength test			7 day compressive strength test as an optional test if desired	28 day compressive strength test	72 + or -2 hours test as an optional test if desired	7 day test as an optional test, if desired	In terms of the quantity of concrete	In terms of period	
5	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 or part there of	At such intervals as the Engineer-in-charge may decide. 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 one of average strength the specimen 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 to give a value less than the specified strength but this shall not be less than 90% of specified strength

...	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 shall be more than the specified compressive strength in Table 1 by at least the value of Standard deviation * of the series of test	5	5	5	5	For every 150 cubic meter of concrete or part there of	At such intervals as the Engineer-in-charge may decide, 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	Acceptance of average strength the specimen 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 give a value less than the specified strength
* Standard deviation										
		Where d = individual deviation from one average, and								
		n = Number of specimens tested								
Contractor										54

SCHEDULE 'B'

LIST OF DRAWINGS

Note: All drawings to be signed by the contractor as well as the officer entering in to contract

Supplemental list

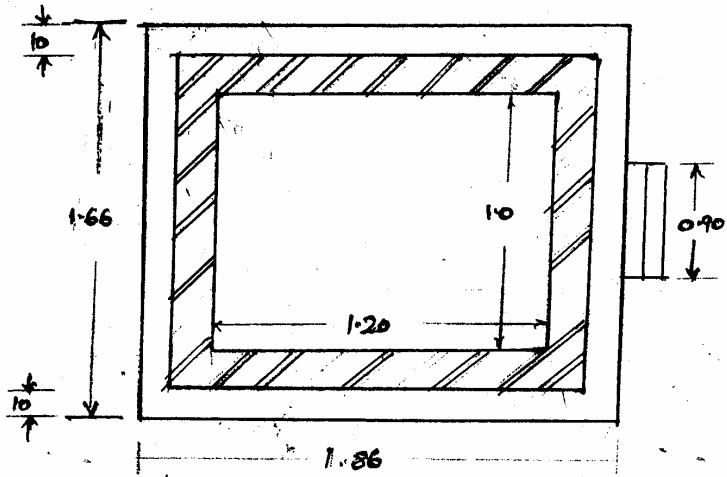
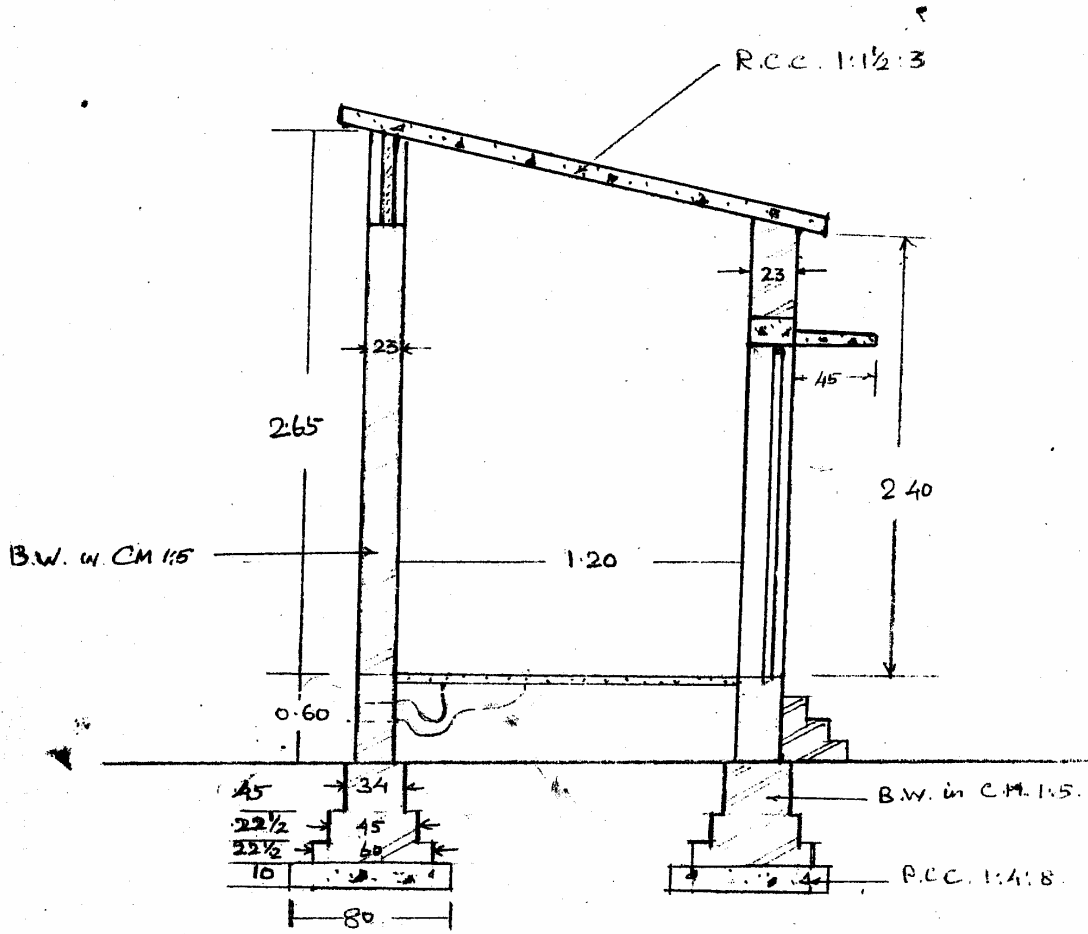
As entered to in the specification (including the preliminary specification of the TAMILNADU BUILDING PRACTICE, NBC and other conditions (or) specification of the contract

S.No	Drawing No	Description	Date on which drawing was approved
1	2	3	4

Contractor

Drawings

PLAN SHOWING THE DETAILS OF TOILET



PLAN

Not to Scale

SCHEDULE-C

1.SALES TAX REGISTRATION & DEDUCTION OF SALES TAX FROM BILLS

The Contractor should be required to indicate their registration number under the Tamil Nadu General Sales Tax Act 1959 in the tender form and produce sales tax clearance certificate issued by the Commercial tax department before final settlement of bills.

According to the notification issued by the Commissioner of sales tax, Chennai with regard to “Deduction of Sales tax at source in respect of works contract in the TAMIL NADU GOVERNMENT GAZETTE CHENNAI. Dt 31.05.99, a new provision under 7F for deduction of tax at Sources is introduced in the Tamil Nadu General Sales Tax Act 1959, by Tami Nadu Act 15 of 1999 with effect from 10.06.99. As per this new section, 7F of this act, at the time of payment of such sum deduction @ 2% [Two Percent] in respect of civil works and 4% [Four Percent] in respect of all other works contract from the total amount payable to the contractors and the amount so deducted shall be deposited to the Assessing officer concerned with in “SEVEN” days.

2.REVENUE RECOVERY ACT

(iv) Whenever any amount has to be paid by the contractor in lieu of determination of the contract by virtue of clause 57 (4) any amount that may be due or may become due from the contractor under the presence and the contractor is not responding to the demands for the payment of said amount, then the Government shall be entitled to recover the said amount under the provision of the Revenue Recovery Act.

In the event of the work being transferred to any other office, Executive Engineer/ Assistant Executive Engineer who is having jurisdiction over the work shall be competent to exercise all the powers and privileges reserved in favour of the Government.

3.RISK INSURANCE

14(v) The work executed by the contractor under this contract shall be maintained by the contractor’s risk until the work is taken over by the Collector.

The Government should not be liable to pay for any loss or damages occasioned by (or) arising out of fire, flood, volcanic eruptions, earth quake, other conclusion of nature and all other natural calamities risk arising out of act of God during such period and that the option whether to take insurance coverage (or) not to care such risks is left to the contractor.

The contractor shall not be liable for all or any loss of damages occasioned by or arising out of acts of foreign enemies’ invasions, hostilities or war like operations (before or after declaration of war) rebellion military.

Contractor

4.LIQUIDATED DAMAGES.

The Contractor shall pay liquidated damages to the Collector at the rate of Rs.2,000/per day or as specified by the Collector, if the completion date is later than the intended completion date. The total amount of Liquidated damages for the whole of the work is ten percent of the final contract value. The Collector may deduct liquidated damages from payments due to the Contractor.

5.ARBITRATION CLAUSE

14 (vi) In case any dispute or difference between the parties to the contract either during the progress or after the completion of the works or after determination, abandonment or breach of the contract or as to any other matter or thing arising there under except as to the matters left to the sole discretion of the Executive Engineers under clause 18, 20, 25-3, 27-1, 34, 35 and 37 of the general condition of the contractor as to the with holding by the Executive Engineer or the payment of any bill to which the contractor may claim to be entitled.

Then either party shall forth with give to the other notice of such dispute or difference and such dispute or difference shall be and is hereby referred to the arbitration of the (Mentioned in the “Articles of agreement” (here in after called the Arbitrator)) in case where the value of claim is less than and upto Rs.50,000/- (Rupees Fifty Thousand only).

In case where the value of the claim is more than Rs.50,000/- the parties will seek remedy through the competent civil Court. (G.O.Ms. No.253 P.W.D dt 24.2.1981).

14(vii) If at any subsequent to the execution of this arrangement, Government materials other than those specified in the agreement are supplied to the contractor for use of the work, they will be charged at the market value prevailing at the time of supply of stock or issue rates, whichever is higher. The contractor will be informed in writing of this charge and he should intimate in writing the rate, which he demands for finishing the work in view of the fact that he is to use Government materials. No centage of incidental charges will be borne by the Government in connection with the supply of the materials referred to in this paragraph.

6.CONDITION ON ENGAGING CHILD LABOUR

The work contract assigned to the contractor shall be cancelled if they engage child labour in executing works and such contractor will be black listed for three years

7. EXECUTION OF WORK

If at any time the Collector shall be of the opinion that the contractor is delaying commencement of the work or violating any of the progress of work as defined by the tabular statement rate of progress in the article of agreement, the Collector shall so advice the contractor in writing and at the same time demand compliance. If the contractor neglects to comply with such demand within seven days after the receipt of such notice it shall be at any time thereafter be lawful for the Collector 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 Collector.

Contractor

SCHEDULE 'D'

SPECIAL CONDITIONS

- 1.Clean river sand shall be used in all cases and as per IS No.2116.
- 2.Only clean fresh water shall be used for on the work. The Contractor shall make his own arrangements for water and shall meet all charges therefore. The special attention of the Contractor is drawn to clause 39 of preliminary specification of the T.N.B.P. regarding water and lighting.
- 3.The broken stone for concrete and RCC work shall be granite and approved by the Executive Engineer.
- 4.All Iron works or steel works of every kind such as to be embedded in concrete shall immediately on arrival at the site be properly scrapped and wire brushed and given priming coat of approved lead painting without any extra claims.
- 5.The Iron holdfasts shall be built upon the walls in cement mortar 1:3 at the time of construction of walls. No extra claim shall be due for the same wherever the holdfasts are to be provided to 9” thick wall. Those should be fixed with cement concrete 1:3:6 using 20mm gauge broken granite stone jelly for proper anchorage and proper binding. No separate rates for such pockets of concrete filling at masonry along with adjacent masonry.
- 6.The country wood shall be best quality country wood 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 ‘Karimarudhu’ or Kongu” for scantling “ Aiyini” for planks.
- 7.Holes for Electrical wiring, water supply and drainage etc., shall be provided as directed during progress of work without any extra claim.
- 8.The work will be carried out with the least hindrance to the adjoining building and the contractor will be responsible for the damages caused to the existing fixtures, electric fittings etc. the course of execution and the contractor shall make good any damages without any claim for extra.

Contractor

9. In the case of 'T' beams and 'L' beams the quantity given in the schedules is the quantity of rib portion only. The top flange portion will be always measured with the general slab portion and paid for at the slab rate only. For all RCC works; the rate shall include the treatment by curing as per TAMILNADU BUILDING PRACTICE

10. Concrete works: All exposed concrete surfaces will be required to be finished by cement plaster at contractor's cost for the relevant cement concrete items mentioned in schedule A.

11. Plastering all external corners, edges of beams, edges of doors and windows 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 extra cost for the corners, edges beams etc. shall be paid.

12. The projection if any to the masonry will be measured under the relevant items and no extra will be paid for finishing the same.

13. (i) The work in TDIU executed by the contractor under the contract shall be maintained by the contractor until the work is taken over by the Collector. The contractor shall accordingly arrange his own insurance against fire, flood, volcanic eruption, earth quake other convention of nature and all other natural calamities risks arising out of acts of God during such period and that the Government shall not be liable for any loss or damages occasioned by or arising out of any such acts of God.

(ii) Provided, however that the contractor shall not be liable for all or any loss or damages occasioned by or arising out of act of foreign enemies, invasion hostilities or war like operation (before or after declaration or war) rebellion military or usurped power.

Contractor

SCHEDULE 'E'

SECTION-I

GENERAL

- 1.The contractor shall be responsible for the safe custody and storage of the materials under dry conditions at the places of the work spot approved by the Executive Engineer.
- 2.No royalty shall be charged where due for materials quarried from the PWD or District Board or other Government Quarries. No plot rent shall be charged for materials stacked on the Government land during the course of construction, provided all such materials are removed within a month after the work is completed.
- 3.The contractor shall pay royalty or charges due for use of private quarries and private land.
- 4.The contractor shall form his own approach road to the work site for which no extra will be paid to him. On completion of work, the contractor shall not be permitted to remove the materials laid for formation of road. If the contractor is allowed to use the existing road, he shall maintain them in good condition at his own cost throughout the period of the contract.
- 5.The water for the works shall be as far as practicable free from earthing vegetable or organic matter and from salts or other substance likely to interface with the setting or mortar or otherwise prove harmful to the work.
- 6.All items of work shall be done in accordance with the relevant classes of TNDSS and TNBP and agenda volume to the TNDSS/TNBP or amendments from time to time.
- 7.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 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 with 5% storage charges and 10% centage charges.
- 8.For testing the concrete and aggregate the contractor must procure the following equipments and make them available at site: -
 - (a) Steel mould for making 15 cm cube of concrete (the mould will be in two halves for easy removal)
 - (b) Slump cone for testing consistency (slump test) the cone will be 30 cm height truncated cone with top and bottom diameters of 10 cm and 20 cm respectively. In addition a steel rod 15 mm dia and 50 cm in length and with tamping and round end is to be procured.
 - (c) For finding fineness modulus and coarse aggregate hand operated sieve over an apparatus may be procured along with weighing machine for weighing the aggregate and the sand.
 - (d) In the case of any breach in the terms, of the contract will be closed at the risk and the costs of the contractor in addition to the forfeiture of the EMD and Security Deposit.

Contractor

(e) The testing is to be done at the contractors cost for all building materials and also for concrete cubes.

(f) The works shall be executed and measured as per metric dimension given in the schedule of quantities drawings etc., (F.P. units where indicated are for guidance only)

(g) Unless otherwise specified all the rates quoted by the contractor shall be for works at all levels of the buildings.

(h) 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.

9. The surplus materials, which were originally issued to the contractor back to the department for use of the work, shall not be removed from the site of work without getting the written permission of the Executive Engineer.

11. If night work is required to fulfill the agreed rate of progress all arrangements shall be made by the contractor including of lighting without any claim for extra.

12. The contractor shall not employ the labours below the age of 12 years and shall also note that he must offer employment to ex-toddy tapers and unemployment agricultural labours as far as possible.

13. Any of the items in the schedule may be omitted or radically altered no variation in rates shall become payable to contractors on account of such omissions or variation in quantity.

14. Reference to TNBP in the schedule of quantities referred and agenda and corrigenda issued thereafter.

15. The construction of building will be deemed to be completed only, if all the items of work including finishing items contemplated herein after executed.

16. The contractor shall abide the contractor's labour regulation framed by the Tamil Nadu Government.

Contractor

SECTION-2

CONSTRUCTION MATERIALS

1.0 CEMENT

- 1.1. The Contractor has to be his own arrangements for procurement of cement of required specification
- 1.2. Ordinary or low heat Portland cement conforming to I.S.269-1989 I.S. specification for ordinary and low heat Portland cement third revision.
- 1.3. The provision of this paragraph apply to cement for use in cast-in-place concrete required for items such as concrete pipes pre-cast concrete structural members and other pre-cast concrete products for grout and mortar and for other items is provided for in the applicable paragraphs of these specifications covering the items for which such portland cement is required.
- 1.4. The Contractor shall make his own arrangements for the procurement of cement for the work either bagged or in bulk as required by specification of the works. Each shipment of bagged cement shall be stored separately so that it may readily be distinguished from other shipment and shall be stored in a dry enclosed area protected from moisture. Storage of materials shall be as described in I.S.4082-1977 (I.S. Recommendation on stacking and storage of construction materials at site). To prevent undue aging of bagged cement after delivery. The contractor shall use bags of cement in the chronological order in which they were delivered to the job site. All storage facilities shall be subject to approval of the Engineer Incharge and shall be constructed to prevent easy access for inspection, and identification.
- 1.5. Ordinary portland cement conforming to I.S. 269-1989 shall be used for Masonry work. Portland pozzolana cement conforming to I.S.1489-1991 may also be used for masonry work, in the event of non-availability of ordinary Portland cement with the approval of Engineer-in-charge.

Contractor.

2.0 STEEL

2.1.GENERAL.

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 affixing ISI test certificate issued by the Government approved laboratory certification marks and acceptable to the Engineer-in-charge. Necessary ISI test certifications are to be produced to Engineer-in-charge before use on works as per IS 226,2062 etc.,

The Diameters and weight of steel should be as follows: -

Sl.No.	Diameter of Rod	Sectional Weight in Kg per running meter both for plain & 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	2.09
8.	20 Millimeters	2.47
9.	22 Millimeters	2.98
10.	25 Millimeters	3.85

Note:- If any rods other than those specified above are used the weight shall be as per standard steel tables.

Contractor.

2.2. PLACING OF REINFORCEMENT

Reinforcement shall be bent and fixed in accordance with the procedure specified in I.S. 2502-1963 (code of practice for bending and fixing of bars for concrete reinforcement). All reinforcement shall be placed and maintained in the position shown in the drawings splices shall be located where shown in the drawings, provided that the location of the splices may be altered subject to the written approval of the Engineer-in-Charge.

Subject to the written approval of the Engineer-in-Charge, the contractor may for his convenience, splice bars at additional locations other than those shown on the drawings. All additional splices allowed shall be at the expense of the contractor. In order to meet design and space limitation on splicing, some bent bars may exceed usual clearance cutting and bending of such bars from select lengths may be required at the site.

Unless otherwise prescribed, placement dimensions shall be to the centre lines of the bars. Reinforcement will be inspected for compliance with requirements as to size, shape, length, splicing, position, and amount after it has been placed, but before being laid with concrete.

Before reinforcement is embedded in concrete the surface of the bars and the surfaces shall be cleaned of heavy flaky rust, loose mill scale, dirt, grease or other foreign substances which in the opinion of the Engineer-in-Charge are objectionable. Heavy flaky rust that can be removed by firm rubbing with burlap, or equivalent treatment is considered objectionable.

As specified in clause 11.3. of I.S. 456-2000 unless otherwise specified by the Engineer-in-Charge, reinforcement shall be placed with the following tolerances.

- a. For effective depth 200mm or less = ± 10 mm
- b. For effective depth more than 200mm = ± 15 mm
- c. The cover in no cases be reduced by more than one third of specified cover or 5mm which ever is less.

Reinforcement shall be securely held in position so that it will not be displaced during the placing of the concrete and special care shall be exercised to prevent any disturbances of the reinforcement in concrete that has already been placed. Welding of bars shall be done as directed by the Engineer-in-Charge and in conformity with the requirements of clause 11.4 of I.S. 456-2000. Chairs, hangers, spacers and other supports for reinforcement shall be of concrete, metal or other approved material. Concrete cover shall be as shown on the drawings.

Contractor

3.0. BRICK.

3.1.1. Specification for Building Bricks and classification are covered by I.S. 1077/1970 and 3102/1971.

Bricks are to be well soaked in water before use for a period sufficient for the water to penetrate the whole depth of the bricks. For further instructions regarding soaking and size of bricks to be used IS 2212/1962 and IS 1200 part 111/1970 shall apply. Wetting the bricks assists in removing the dirt, sand and dust from them and also it prevents the suction of water from the wet mortar, as otherwise the mortar is likely to dry out soon and crumble before attaining any strength. Bricks shall not be too wet at the time of use as they are likely to slip on the mortar and proper adhesion of bricks to mortar will not be possible.

3.1.3. Regarding making of bricks IS 2117/1967 shall apply. Specification for facing brick is covered by IS 2691/1972.

3.2. Handling of bricks:

Bricks shall not be handled in baskets or in other manner, which will destroy the sharpness of their edges.

3.3. Rounding corners

Corners of rooms or pillars whether interior (or) projecting shall not be rounded by in exceptional cases where it is so desired to round the corners shall be done in plaster for the reentrant corners but will require chiseling of projecting angles before plastering.

3.4. Bricks shall not be dumped at site. They shall be stacked in regular tiers as and when they are unloaded to minimize breakage and defacement of bricks.

3.4.1. In the case of bricks made from clays containing lime Kankar the bricks in stack should be thoroughly soaked in water (docked) to prevent lime plastering.

3.4.2. Brick stacks shall be placed close to the site of work so that least effort is required to unload and transport the bricks again by loading pallets or in barrows. Building bricks shall be loaded or unloaded a pair at a time unless palletised. Unloading of Building bricks or handling in any other way likely to damage the corners or edges or other parts of bricks shall not be permitted.

3.4.3. Bricks shall be stacked on dry firm ground. For proper inspection of quality and ease in counting the stacks shall be 50 bricks long and 10 bricks high, the bricks being placed on edge and preferably the width of each stack shall be two bricks. Clear distance between adjacent stacks shall not be less than 0.8m.

3.4.4. Specification for common burnt clay Building Bricks as per IS 1077:1970

Contractor.

3.4.5. The common burnt clay bricks shall be classified on the basis of their minimum compressive strength. The bricks of compressive strength 50Kg/cm² shall be classified as 50. The bricks of classification 50 shall have sub-classification 50A and 50B based on tolerances and shape.

3.5. Dimensions and tolerances

3.5.1. The standard size of common building bricks shall be as follows:

	Length cm	Width cm	Height cm
a) Metric bricks	19 19	9 9	9 4
b) For bricks other than Metric bricks	9"	4 ½"	2¼"

3.6. Tolerances.

The dimensions of bricks when tested in accordance within the following limits:

Sub Clause-A	(a) Length	368 to 392 cm
	(b) Width	174 to 186 cm
	(c) Height	174 to 186 cm (in the case 9 cm high bricks, 77 to 83 cm (in the case 4 cm high bricks)
Sub Clause B	(a) Length	350 to 410 cm
	(b) Width	165 to 195 cm (in the case 9 cm high bricks)
	(c) Height	74 to 86 cm (in the case 4 cm high bricks)

3.7. Physical properties:

3.7.1. Compressive strength: Common building bricks shall have a minimum compressive strength of 50 Kg/cm² when tested in accordance with procedure laid down in table 1 of IS: 3495 - 1966 (See also note under 1.1)

3.7.2. The compressive strength of any individual brick shall not fall below the average compressive strength specified for the corresponding class of bricks by more than 20 percent.

3.7.3. Water absorption: When tested in accordance with the procedure laid down in Table 2 of IS : 3495 - 1966 (method of sampling and testing of clay building bricks) the average water absorption of common building bricks shall not be more than 20 percent upto class 125 and 15 percent for higher class, by weight after immersion in cold water for 24 hours.

Contractor.

3.7.4. Efflorescent: When common building bricks are tested in accordance with the procedure laid down in Table 3 of IS: 3495 - 1966 (method of sampling and testing of clay building bricks) the rating of efflorescence shall not be more than "moderate" upto class 125 and "slight" for higher classes.

4.0. Water

The water used in making a curing of concrete, mortar and grout shall be free from objectionable quantities of silt, organic matter injurious amounts of oils, acids, salts and other impurities etc. as per I.S. specification No.456-2000.

The Engineer-in-charge will determine whether or not such quantities of impurities are objectionable.

Such determination will usually be made by comparison of compressive strength, water requirement, time of set and other properties of concrete made with distilled or very clean water concrete made with the water proposed for use. Permissible limits for solids when tested in accordance with I.S. 3025-1964 shall be as tabulated below.

PERMISSIBLE LIMITS FOR SOLIDS IN WATER

1. Organic	Maximum permissible limit 200 mg/ litre
2. Inorganic	300 mg/ litre
3. Sulphate (as So ₄)	500 mg/litre
4. Chlorides (as CL)	2000 mg/litre for plain concrete work and 1000 mg/litre for RCC work..
5. Suspended matter	2000 rmg/ litre

If any water to be used in concrete, mortar, or grout is suspected by the Engineer-in-charge of exceeding the permissible limits for solids, samples of water will be obtained and tested by the Engineer-in-charge in accordance with I.S. 3025-1964.

5.0. Sand (Fine Aggregate)

5.1. General

The term sand is used to designate aggregate most of which passes 4.75 millimeter I.S. sieve and contains only so much coarser materials as permitted in clause 4.3 of I.S.383-1970. Sand shall be predominantly natural sand, which may be supplemented with crushed sand to make up deficiencies in the natural sand grading.

All sand shall be furnished by the contractor from any approved sources specified in the contract.

Sand as delivered to the batching plant. Shall have a uniform and stable moisture content. Determination of moisture content shall be made as frequently as possible, the frequency for a given job being determined by the Engineer-in-charge according to weather conditions (I.S. 456-2000).

Contractor.

5.2. Quality

The sand shall consist of clean, dense, durable, uncoated rock fragments, as per I.S. 383-1979.

Sand may be rejected if it fails to meet any of the following quality requirements.

5.3. Organic Impurities in sand

Colour no darker than the specified standard in clause 6.2.2 of I.S. 23286 part 11 1963. (Indian Standard method of test for aggregates for concrete parts estimation of deleterious materials and organic impurities).

Sand shall be screened before use. If sand brought to site is not clean it must be washed clean in water. Fine drift sand or sea sand or sand containing saline impurities shall on no account to be used.

5.4. Sodium Sulphate Test for Soundness

The sand to be used shall pass a sodium or magnesium sulphate accelerated test as specified in I.S. 2386 (Part-V) 1963 for limiting loss of weight.

5.5. Specific Gravity: 2.6 Minimum

5.6. Deleterious substances

The amounts of deleterious substances in sand shall not exceed the maximum permissible limits prescribed in table 1 clause 3.2.1 of I.S.383-1970 and shall be described as fine aggregates, grading zones – I, II, III and IV, sand complying with the requirements of any of the four grading zones is suitable for concrete. But, sand conforming to the requirements of grading zone-IV shall not be used for reinforced cement concrete work.

6.0. Coarse Aggregate

6.1. General

For the purposes of these specifications the term "coarse Aggregate" designate clean well graded aggregate most of which is retained on 4.75 mm T.S. Sieve and containing only so such finer material as permitted for various types described under clause 2.2 of I.S. 383-1970. Coarse Aggregate for concrete shall consist of uncrushed stone, or crushed stone and partially uncrushed and crushed stone.

Contractor.

Coarse Aggregate for concrete shall be furnished by the Contractor from the approved quarries specified in the contract documents. The contractor shall unless otherwise specified in the tender notice and subsequently on this basis in contract be responsible for payment of seignorages, quarry fees etc., on all materials.

Coarse Aggregate as delivered to the building plant shall generally have uniform and stable moisture content. In case of variations, clause 9.2.3 of I.S. 456-2000 shall govern during batching.

6.2. Quality

The coarse aggregate shall consist of naturally occurring (crushed or uncrushed) stones, and shall be hard, strong, durable clear and free from veins and adherent coating, and free from injurious amounts of disintegrated pieces, alkali, vegetable matter and other deleterious materials. Coarse aggregate will be rejected if it fails to meet any of the following requirements.

6.2.1. Los-Angeles Abrasion Test

The abrasion value of Aggregates when tested in accordance with the method specified in I.S. 2386 (Part IV) using Los-Angles machine shall not exceed 30% for Aggregate to be used in concrete for wearing surface and 50% for aggregate to be used in other concrete.

6.2.2. Aggregate Crushing Strength Test

Aggregate crushing value, when determined in accordance with I.S. 2386 (Part IV) 1963. The aggregate impact value shall not exceed 45% by weight for aggregates used for concrete for other than wearing surfaces, and 30% by weight for concrete for wearing surfaces such as runways, roads and payments.

6.2.3. Soundness Test

The coarse aggregate to be used for all concrete works shall pass a sodium or magnesium sulphate accelerated soundness test specified in I.S. 2381 (Part V) 1963 and the average loss of weight after 5 cycles shall not exceed the limits specified in clause 3.6 of I.S. 383- 1970.

6.2.4. Specific Gravity: should be 2.60 Minimum

6.2.5. Deleterious Material

The maximum quantity of deleterious materials in coarse aggregates shall not exceed the limits specified in Table 1 of I.S. 383-1970 when tested in accordance with I.S. 2386-1963.

Contractor.

6.3. Separation

The coarse aggregate shall be separated into nominal sizes during production of the aggregate. Just prior to batching the coarse aggregate shall be rewashed by pressure spray and finish screened on multi-deck vibrating screen capable of simultaneously removing undersized and oversized aggregate from each of the nominal aggregates entering the batches occurred during intermittent and batching then a dewatering screen will be required after the finished screens to remove the excess free moisture. Finish screen shall be mounted over the batching plant or on the ground adjacent to the batching plant. Finished screen shall be so mounted that the vibration of this screen will not be transmitted to batching bins or scales and will not affect the accuracy of the weighing equipment in any other manner.

The method and rate of feed for finish screening shall be such that the screen will not be overloaded and will result in a finished product which meets the grading requirements of these specifications. Coarse aggregate shall be fed to the finished screen in a combination of alteration of nominal sizes, which will not cost noticeable accumulation of poorly graded coarse aggregate in any bin. The finish screened aggregate shall pass directly to the individual batching bin in such a manner as to minimize breakage. Below 2.36 mm materials passing through the finish screens, shall be wasted unless it is toted back through a sand classifier in a manner, which causes uniform blending with the natural sand being processed. Water from finish screening shall be drained in such a manner as to prevent aggregate wash water from enter in the batching bins and weighing hoppers. Washing and finish screening requirements shall be subject to approval by the Engineer-in- charge.

7.0. STEEL CENTERING SHEETS

The contractor should use steel centering sheets so as to obtain the required finish to the under/ side of the slab. Centering steel sheets must be made smooth and perfectly level and to give smooth and even finish to the RCC ceiling. Centering and formwork shall be provided to the area ordered by the Executive Engineer during execution.

Contractor.

SECTION-3

GUIDE LINES FOR ADOPTION OF STRENGTH GRADENING OF CONCRETE

3.1.1. Plain and reinforced concrete have been graded according to the cube compressive strength and designation as M10; M15; M20; M30; M35 and M40. In the designation of concrete the letter “M” refers to the mix and the ‘Number’ to the specified 28 days work cube compressive strength of that mix expressed in N/ Cm. sq.

3.1.2 Approximately the M10, M15, M20, M25 grades of concrete corresponds to 1:3:6, 1:2:4, 1:1¹/₂:3 and 1:1:2 nominal mixed of ordinary concrete currently used. The national building code gives necessary specification for strength grading of concrete, proportionately and works control and the same may be followed. The extract of the same is enclosed.

3.1.3. 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 maximum quantity of cements. However, the maximum total quantity of aggregate by weight per 50 Kg. of cement shall not normally exceed 450 kg.

3.1.4. 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 approved fine and coarse aggregate as specified in the condition shall be adopted.

3.1.5. Immediately upon the receipt of the award of contract, the contractor shall inform the Executive Engineer the exact location of the sources of the material which he proposes to use and get the materials approved. The mix with the actual approved material 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 aggregate for the purpose of promoting work ability provided the work tests also show the required strength.

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

Contractor.

3.2. PROPORTIONING OF MIX

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

3.3. MIXING

Mixing shall be done only by mechanical mixes The quantities of fine aggregate and water 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.

3.4. TESTS

All prescribed tests shall be got done in an approved laboratory at the cost of the contractor, as often as required and the results of such test should be kept in safe custody throughout the contract period.

3.5. PRELIMINARY TEST

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

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 of
- c) Verifying the strength of cement mix.

3.6. WORK TESTS

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

The samples shall be spread as evenly as possible throughout the day then wide changes of weather conditions occur during concrete 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 the 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 authorized agent.

Contractor.

All mix design and test date 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 Number
3. Date and time of sample taken
4. Sample Number
5. Number 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 Engineer and the contractor's authorized agent in whose presence the sample is taken.
10. Result of 7 days test
11. Result of 28 days test
12. Review and remarks by Executive Engineer.

3.7. Sample size and acceptance criteria.

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

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 4 for both ordinary concrete and controlled concrete. No preliminary tests are, however, necessary in the case of ordinary concrete.

- IS 199 – Methods of sampling and analysis of concrete.
- IS 2386 – Methods of test for aggregates for concrete. Specific gravity density, voids absorption and grading of aggregates impact value.
- IS 516 – Methods of tests for strength of concrete.
- IS 456 – Code of Practice for Plain and Reinforced concrete.

Contractor

TABLE: 1

STRENGTH REQUIREMENTS OF CONCRETE**(CLAUSE 4.2.2.1 AND 4.2.2.2)**

All values in Kgs. / Cm.Sq)

Grade concrete 1.	Compressive strength of 15 cm cubes at 28 days after mixing conducted in accordance with good practice VI 5 (4)	
	Preliminary tests Min 2.	Work test Min 3.
M10	135	100
M15	200	150
M20	260	200
M25	320	250
M30	350	300
M35	440	350
M40	500	400

Note1: Preliminary Test: - A 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 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

Contractor

Note2: Work 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.

Note3: Size of cubes: In the working test, with the approval of the Engineer – in – Charge 10cm 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 concrete's having a maximum nominal size of aggregate not exceeding 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 cm cubes are used the values obtained from the tests of 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 tests. In order to give the equivalent strength for 15 cm cubes, when cubes larger than 15 cm are adopted, generally on modification is necessary unless otherwise specified by the Engineer – in Charge.

Contractor

TABLE 2:

OPTIONAL WORKS TEST REQUIREMENTS OF CONCRETE

(Clause 4.2.2.2. (a))

(All values in Kg / sq.cm)

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

Grade of Concrete	Compressive strength of 15 cm cubes min 7 days	Modulus of rupture by beams test in	
		At 72 + or –2 Hours	At 7 days
1.	2.	3.	4.
M10	70	12	17
M15	100	15	21
M20	135	17	24
M25	170	19	27
M30	200	21	30
M35	235	23	32
M40	270	25	34

Note: notes 3 and 4 under Table I are also applicable to this table.

I.S. 510 – Methods of test for strength of concrete.

I.S. 261 – Specification for ordinary rapid hardening and best Portland cement.

Contractor

TABLE 3:

CONCRETE MIX PROPORTIONS
(CLAUSE 4.3.3)
ORDINARY CONCRETE

Grade of concrete	Total qty of dry aggregates by volume per 50 Kg of cement to be taken as the sum of the individual volumes of the fine and coarse aggregate max.	Proportion of fine aggregate to coarse aggregate	Qty of water per 50 Kgs. Of Cement Max.
M10	300 Litres	Generally 1:2 for fine aggregate to coarse aggregate by volume by subject to an upper limit of 1:1 ½ and a lower limit of 1:3	34 Litres
M15	220 Litres	...	32 Litres
M20	160 Litres	...	30 Litres
M25	100 Litres	...	27 Litres

Note: It may be noted for general guidance that M10.M15, M20 and M25 of ordinary concrete correspond approximately to 1:3:6, 1:2:4,1:11/2:3 and 1:1:2 nominal mixes of ordinary concrete currently used in the country.

The preparations of the aggregate should be adjusted from upper limit to lower limit progressively as the grading of the fine aggregate becomes finer and the maximum size of coarse aggregate becomes larger. Example, for an average grading of fine aggregate i.e. 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 aggregate 10mm, 20mm and 30mm respectively.

Contractor.

SECTION – 4

PLASTERING AND POINTING

4.1 Materials

4.2 Sand for Mortar for plastering and Pointing

4.2.1 General

Sand shall generally conform to specification given in paragraph 7.1.6 except that the sand for preparation of Mortar for plastering and pointing shall conform to the following gradation, shown in as per IS 1542-1977.

Table 4.1

Requirement of Grading for sands for External Plastering and Rendering

I.S.	Sieve Designation	Percentage by weight passing I.S. Sieve
	10.00 mm	100
	4.75 mm	95 to 100
	2.46 mm	95 to 100
	1.10 mm	90 to 100
	600 microns	80 to 100
	300 microns	20 to 65
	150 microns	0 to 50

The procurement of sand for mortar for plastering and pointing shall conform to the specifications given in paragraph 5.1 to 5.5

4.2.2 Cost

The cost of sand for mortar for plastering and pointing will not be measured and paid separately and the cost of sand including the cost of stripping and transporting and storing and royalty charges shall be included in the unit price per cu.m bid therefor in the relevant item of work in the bill of quantities for which this sand is required.

4.2.3 Water

The specification and condition specified for procurement of water in paragraph shall be applicable here also.

4.3 Mortar

4.3.1 Preparation of Mortar for plastering work

Unless otherwise specified the cement mortar used in plastering work shall be in cement mortar 1:3 (one cement, three sand by volume).

Contractor.

The other specifications and conditions enunciated in paragraph 5.2.1 shall apply for this mortar for plastering work also.

4.3.2 Preparation of Mortar For Pointing

The cement mortar used in pointing work shall be cement mortar mix 1:4 (one cement four sand by volume).

The other specifications and conditions enunciated in paragraph 4.2.1. shall apply for this mortar for pointing of work also.

4.4 Plastering with cement Mortar (1:4 One Cement three sand by volume) 20mm thick

4.4.1 Preparation of surface

The roughening of the background improves the bond of plaster. All joints shall be thoroughly raked. After roughening the surface, care shall be taken to moisten the surface sufficiently before plastering as otherwise freshly exposed surface may tend to absorb considerable amount of water from the plaster. The surfaces shall be wetted evenly before applying the plaster. Care shall be taken to see that the surface is not too dry as this may cause lack of adhesion or excessive suction of water from the plaster. A fog spray may be used for this work. As far as possible, the plaster work shall not be done under hot sun.

4.4.2 Laying,of plastering with cement mortar 1:3 (one cement three sand by volume) 20mm thick

The mortar used for plastering shall be stiff enough to cling and hold when laid. TO ensure even thickness and true surface, plaster shall be applied in patches of 150 mm x 150 mm of the required 20 mm thickness at not more than 2 metres intervals horizontally and vertically over the entire surface to serve as guides. The surface of these guides shall be truly in the plane of the to be finished plaster surface and truly plumb. The mortar shall then be applied to the surface to be plastered between the guides with a trowel. Each trowel full of mortar shall overlap and sufficient pressure shall be used to force it into thorough contact with the surface. On relatively smooth surfaces, the mortar shall be dashed on with the trowel to ensure adequate bond. The mortar shall be applied to a thickness slightly more than that specified, using a string, stretched out between the guides. This shall then be brought to a true surface by working with a long wooden float with small-motion. The surface shall be periodically checked with a string stretched across it. Finally the surface shall be rendered smooth with a small wooden float, over working shall be avoided. All corners arises and junctions shall be brought truly to a line with the necessary rounding or chambering.

If it is necessary to suspend the work at the end of the day it shall be left in a clean horizontal or vertical line not nearer than 150 mm from any corner or arises or on parapet tops or on cooings etc. when recommencing the work, the edges of the old work shall be scraped clean and treated with cement slurry before the new plaster is laid adjacent to it.
Contractor.

After the first coat is done it shall be kept undisturbed for the next 24 hours and thereafter kept moist and not to be permitted to dry until the final rendering is applied.

After the plaster has sufficiently hardened cement slurry with cream like consistency shall be applied as thinly and evenly and rubbed to a fine condition.

The finished surface shall be cured with water for a minimum period of 14 days.

Should the mortar crack or perish, the work shall be removed and redone at the contractor's expense or should the contractor fails to cure the work to the satisfaction of the Engineer-in-charge the latter may cure the work at the risk and cost of the contractor.

All portions which sound hollow when tapped or found to be soft or otherwise defective shall be cut out in regular shape and redone as directed by the Engineer in charge.

4.5 Measurement and payment

4.5.1 Plastering

The measurement of plastering will be in units of square metres and it shall be paid at the relevant unit prices bid per one square metres of plastering in the bill of quantities which unit price shall include the cost of materials, their conveyance, charges for preparation of mortar including mixing charges and charges for performing the plastering work as illustrated in this division including curing.

4.5.2 pointing

Unless specified in the contract document, no separate payment will be made for pointing random rubble masonry and coursed rubble masonry and the unit prices for the rubble masonry in the bill of quantities, shall include the cost of materials, their conveyance, charges for preparation of mortar including mixing charges and charges for performing the pointing work as illustrated in this division including curing.

Contractor.

SECTION-5

Rules for the provision of health and sanitary arrangements for workers employed by the Contractor.

The Contractor's Special attention is invited to clause 37, 38, 39 and 51 of the Tami Nadu Building Practice and he is requested to provide at his own expense the following amenities to the satisfaction of the Executive Engineer

5.1. FIRST AID

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

5.2.DRINKING WATER

- a) Water of good quality fit for drinking purposes shall be provided for the work people on a scale of not less than 10 litre per head per day.
- b) Where drinking water is obtained from intermittent Public Water
Supply each work place shall be provided with the storage tanks where such drinking water shall be stored.
- c) Every water supply and storage shall be at a distance not less than 50 feet 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 waterproof.
- d) A reliable pump shall be fitted to each covered well. The trap door shall be kept and opened only for cleaning or inspection, which shall be done at least once in a month.

5.3 WASHING AND BATHING PLACES

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

5.4. LATRINES AND URINALS

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

Contractor.

- | | |
|--|---------|
| a) Where the number of persons employed does not exceed 50- | 2 seats |
| b) Where the number of persons employed exceeds 50 but does not exceed 100 | 3 seats |
| c) 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 latrine connected with a water borne sewage system, all latrines shall be provided with acceptable dry earth system which will be cleared at least four times daily and at least twice during working hours and kept in a strictly sanitary condition. The latrines and urinals shall be tarred inside and outside at least once a year.

The excreta from the latrines shall be disposed off at the contractor's expense, 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 a clean condition.

5.5. SHELTER DURING REST

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

5.6. CRECHES

At every work place at which 50 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 bedroom. The huts shall not be constructed and a lower standard than the following:

1. Thatched roofs
2. Mud floors and walls
3. 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 huts shall be restricted to children and their attendants of the children.

Contractor

5.7. CANTEEN

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

5.8. SHEDS FOR WORKMEN

The contractor should provide at his own expenses 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 area accustomed to. A floor area of about 1.8 Meter X 1.5 Meters for 2 persons shall be provided. The sheds to be in rows with 1.3 Meters clear space between sheds and 9 Meters clear space between rows 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 12 meter around.

5.9. LABOUR WELFARE

The contractor shall at his own expense provide arrangements for this provision of footwear for any labour during cement mixing work, all other similar type of work involving the use of tar, mortar etc. to satisfaction of the Engineer-in-charge and on his failure to do so, the Government shall be entitled to provide same and recover the cost from the contractor. When there are complaints of non-payment of wages to the labourers, bills of the contractor may be with held pending a clearance of certificate from the labour department.

Contractor.

SECTION-6
SAFETY PROVISION

Safety provisions in the building industry conditions in addition to clause 36 preliminary specification of T.N.B.P as follows shall be followed throughout the construction period.

6.1. PART-1

- 6.1.1. Suitable scaffolds shall be provided for workmen for all work that cannot be safely done from ladder or by any other means.
- 6.1.2. 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
- 6.1.3 Scaffolds shall be so constructed that no part thereof can be displaced in consequent of normal use.
- 6.1.4 Scaffolds shall not be over loaded so far as practicable and shall be evenly distributed
- 6.1.5 Before installing lifting gear on scaffolds special precautions shall be taken to ensure the strength and stability of the scaffolds
- 6.1.6 A competent person shall periodically inspect scaffolds
- 6.1.7 Before allowing a scaffold to be used by his workmen every employer shall satisfy as to whether the scaffold has been executed by his workmen or not he should take step to ensure that it functions fully with the requirements of this article.
- 6.1.8 Working platform gangways and staircase shall be so constructed that no part there of can sag unduly or unequally
 - a) Be so constructed and maintained to obviate from risks of persons tripping or slipping and
 - b) Be kept free from any unnecessary obstruction.
 - c) Every working platform gangway working place and staircase shall be suitable forced.
- 6.1.9 opening in the 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.
- 6.1.10 When persons are employed on a roof where there is danger of falling from the height exceeding that to be prescribed by national laws of regulations, suitable precautions shall be taken to prevent the fall of persons or materials.
- 6.1.11 Suitable precautions shall be taken to prevent persons being struck by articles, which might fall from scaffolds or other working places.
- 6.1.12 Safe means of access shall be provided, to all working platforms and other working places.
- 6.1.13 Every ladder shall be securely fixed and of such length as to provide secure hand hold and foot hold at every position at which it is used.
- 6.1.14 every place where work is carried on and the means of approach there to shall be adequately lighted.

Contractor.

- 6.1.15 Adequate precautions shall be taken to prevent danger from electrical equipment.
- 6.1.16 No material on the site shall be so attached or placed as to cause danger to any person.

6.2. PART –II

GENERAL RULES AS TO HOISTING APPLIANCES

- 6.2.1 Hoisting machines and tackle including their attachments anchorages and supports shall
- a) Be of good mechanical conditions sound material and adequate strength and free from patent defects and
 - b) Be kept in good repair and in good working order.
- 6.2.2 Every rope used in hoisting or lowering materials or as a means of suspension shall be of suitable quality and adequate strength and free from patent defects.
- 6.2.3 Hoisting machines and tackle shall be examined and adequately tested after erection on the site and before use and be reexamined in position at intervals to be prescribed by national law or regulation.
- 6.2.4 Every chain ring, hook shackle, swivels and pulley block used in hoisting or lowering materials or as a means of suspension shall be periodically examined.
- 6.2.5 Every crane driver or hoisting appliance operator shall be properly qualified.
- 6.2.6 No persons under an age to be prescribed by national law regulations shall be in control of any hoisting machinery including any scaffold, which are gives signals to the operator.
- 6.2.7 In the case of every hoisting machine and every chain ring hook, shackle swivel and pulley block used in hoisting or lowering or as a means of suspension, the safe working load shall be ascertained by adequate means.
- 6.2.8 Every hoisting machine and all gear referred to in the preceding paragraphs shall be plainly marked with the safe working load.
- 6.2.9 In the case of hoisting machine having a variable safe working load, each safe working load and the conditions under which it is applicable shall be clearly indicated.
- 6.2.10 No part of any hoisting machine or of any gear referred to in the paragraph (1) of this articles shall be loaded beyond the safe working load except for the purpose of testing.
- 6.2.11 Motor gearing, transmission, electric wiring and other dangerous parts of hoisting appliances shall be provided with sufficient safeguards.
- 6.2.12 Hoisting appliances shall be provided with such means as well reduce the risk of the accident descent of the load.
- 6.2.13 Adequate precautions shall be taken to reduce the risk of any part of suspended load becoming accidentally displaced.

Contractor.

6.3. PART – III

GENERAL RULES TO SAFETY EQUIPMENT AND FIRST AID

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

Contractor

SECTION-7

7.1. Water and Lighting.

7.1.1. 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, meter etc) for the use of the works and workman unless otherwise arranged and decided as in writing with Collector.

7.1.2. The contractor shall ensure that no damage is caused to the existing structure / building whether it is Government owned or private owned etc. in the adjustments areas close preliminary to the proposed site and if any damage is caused due 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.

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

7.2. Electricity.

7.2.1. 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.,

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

Contractor.

SECTION-8

8.1. SPECIFICATION FOR SANITARY FITTINGS DRAINAGE AND WATER SUPPLY

- 8.1.1 Water closets basins urinals sinks and other sanitary ware shall be of approved make as required in the relevant items fixing of these shall be in accordance with the special specification.
- 8.1.2 The rates shall include all dismantling making holes in walls or slabs and restoring the structure to the original conditions after the completion of the work.
- 8.1.3 The work should be carried out with least hindrance to the adjoining buildings and the contractor shall be responsible for any damage caused to the existing fixtures, electric fittings etc. in the course of execution and the contractor shall make good any such damage without claims for extra.
- 8.1.4 The rate of laying stoneware pipes shall include necessary all incidental charges during execution of work and making good the damage to the roads and other structures.
- 8.1.5** 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
- 8.1.6** items of work.

8.2. SUPPLYING AND FIXING INDIAN TYPE WATER CLOSET.

8.2.1. 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 footrests should be fixed at an angle as per standards.

8.2.2. The fixing of water closet shall include the dismantling of existing floor wherever indicating making holes in necessary walls etc. and restoring structure to original condition after completion of the work.

Contractor.

Project Co-ordinator,
Tsunami Project Implementation Unit,
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