

NIGHTINGALES MEDICAL TRUST

8P6, 3rd A Cross, Kasturinagar, Banaswadi, Bangalore – 560043
Phone: +91 8042426565 | **Email:** contact@nightingaleseldercare.com
Website: www.nightingaleseldercare.com

TENDER NOTIFICATION

Subject: Invitation for Tender – Construction of a 100-Bedded Eldercare Centre (Civil Works) at Thirumagondanahalli, Doddaballapur

Nightingales Medical Trust (NMT), Kasturinagar, Bangalore, invites sealed tenders from eligible and experienced contractors for the **construction of a 100-bedded eldercare centre at Thirumagondanahalli, Doddaballapur**. The project consists of **civil works for a built-up area of 33,000 square feet (G+1 structure)**.

Owner: Nightingales Medical Trust

Address: 8P6, 3rd A Cross, Kasturinagar, Banaswadi, Bangalore North, Karnataka

Project Consultants

Architects:

AUS Architecture

25, 80 Feet Road, HAL 3rd Stage, Indiranagar, Bangalore – 560075

Phone: 080-25284103, 080-41161794

Email: ausarchitecture@gmail.com

Structural Engineers:

Ashok Associates

#22, 1st A Cross, 2nd Main, Anubhava Nagar, Nagarbhavi Main Road, Bangalore – 560072

Phone: +91 99866 41217

Email: associates.ashok@gmail.com

A. INTRODUCTION

1. General Information

Nightingales Medical Trust (NMT) invites sealed tenders from eligible contractors for the construction of a 100-bedded Eldercare Centre at Smriti Gram, Thirumagondanahalli, Doddaballapur Taluk, Karnataka. The project includes civil works for a built-up area of **33,000 square feet (G+1 structure)**.

2. Eligibility Criteria

Tenderers must fulfil the following requirements:

- Must be a registered entity with a valid GST and PAN.
- Must have executed at least three similar large-scale civil construction projects in the last five years. Experience in construction of a Hospital or care facility is preferable.
- Must have an average annual turnover of INR 10 Crore in the last three financial years.
- Must provide audited financial statements for the last three years.

3. Tender Document Availability

The tender document can be obtained from the NMT website or requested via email. The document includes:

- Detailed scope of work
- Bill of Quantities (BOQ)
- Terms and Conditions
- Architectural & Structural Drawings are available at the office address mentioned below for viewing.

4. Submission Guidelines

- **Submission Deadline:** 15.02.2025 by 5:00 PM IST
- **Mode of Submission:** Sealed hard copies must be delivered to the following address:
Nightingales Medical Trust, 8P6, 3rd A Cross, Kasturinagar, Banaswadi, Bangalore – 560043
- The tender must include all required documents, duly signed and sealed.

5. Earnest Money Deposit (EMD)

- An EMD of INR 10,000.00 (Rupees Ten Lakhs only) must be submitted along with the tender.
- The EMD must be paid via Demand Draft in favour of **Nightingales Medical Trust**.
- The EMD will be refunded to unsuccessful bidders within 30 days of awarding the contract.

6. Tender Opening & Evaluation

- Tenders will be opened on **Friday, 21st February 2025, at 12:00 noon** in the presence of representatives of the Architect and the Board of Management.
- Evaluation will be based on compliance with eligibility criteria, technical specifications, and financial bid.
- The contract will be awarded to the **most responsive and lowest evaluated bidder**.

7. Contract Terms

- The selected contractor must sign a formal contract within **7 days** of award notification.
- The project must be completed within **12-15 (twelve to fifteen) months** from the date of commencement.
- Payment terms and milestones will be detailed in the contract.

8. Contact for Clarifications

For any clarifications, please contact: **Col. B.K. Singh**

Administrative Officer

Mobile: +91 7204461361

Email: admin@nightingaleseldercare.com

Note:

- Any deviations from the prescribed format will result in disqualification.
- NMT reserves the right to reject any or all tenders without assigning reasons.

B. INSTRUCTIONS TO TENDERERS

Submission of Tenders

1. Tenders must be submitted in double-sealed envelopes marked as “Tender Schedule for Architectural & Civil Works for the Proposed Building for Nightingales Medical Trust Smriti Gram, Doddaballapura.” Address the envelope to the Managing Trustee.
2. The deadline for submission is 15th February 2025 by 5:00 PM. Tenders can be sent by registered post or other methods, but late submissions will not be accepted.
3. Tenders will be opened on 21st February 2025 at 12:00 Noon in the presence of tenderers or their authorized representatives.

Filling of Tender Forms

1. Tender forms must be filled in English, using ink. All required documents must be signed and submitted. Missing or unsigned documents may render the tender invalid.
2. Site Inspection and Quoting Rates: Tenderers must inspect the site and account for all conditions and challenges before quoting rates. The rates must cover material costs (including taxes, duties, loading/unloading), labour, and all necessary charges for work completion.

Acceptance and Agreement

Acceptance of the tender will be communicated through a Work Order. The contractor must sign an agreement within the specified timeframe, failing which the EMD will be forfeited.

Execution of Work

No work may be carried out without a duly signed agreement or written authorization from the Employer.

Validity of Agreement

The agreement is valid only if signed by both the contractor (or authorized agent) and the Employer’s designated officers.

Prohibition of Canvassing

Canvassing in any form will result in disqualification.

Access to Drawings

Master Plan and basic drawings are available at the Head Office of Nightingales Medical Trust at the address mentioned earlier in this document. Additional drawings not provided with the tender documents can be viewed at the design office of M/s. Aus Architecture, Bangalore, during working hours.

Inclusions in Quoted Rates

Rates must include site clearing, water/electric supply arrangements, scaffolding, safety measures, and restoration work post-completion. Tenderers must also account for all applicable taxes and levies. Electricity and water charges will be reimbursed based on actuals upon submission of bills.

Project Timeline

Work must commence within 10 days of tender acceptance and site handover. Delays will attract penalties as determined by the Employer / Owner. Contractors must submit a detailed work program/plan for approval.

Extra/Variation Items

For authorized extra items, rates must be submitted with analysis. The Employer will finalize rates in consultation with the Architect.

No Compensation for Delays

Contractors are not entitled to compensation for delays due to modifications, procurement issues, or other unforeseen circumstances.

Execution of Additional Items

Contractors must proceed with additional items as instructed, once rates are finalized, to avoid work delays.

Penalties for Delays

Delays, including stoppage of work, will attract penalties of 0.1% of the remaining contract value per day, subject to a minimum of Rs. 2,500.

Coordination with Other Contractors

Contractors must cooperate with other specialists at the site. Reimbursements for extended use of shared facilities will be determined by the Employer.

Compliance with Specifications

All work must strictly adhere to the Architect/Consultant's specifications and local authority requirements.

Procurement of Materials

Contractors must arrange for all materials, except those supplied by the Employer.

In case some material is sourced by the owner / employer, the same may be deducted from the consideration.

Water Arrangements

Contractors are responsible for arranging potable and construction water. Employer-provided well water, if available, may be used at their discretion.

Power Supply

Contractors must arrange temporary power connections or generators and bear all associated costs. The Employer will assist with obtaining permissions but holds no responsibility for delays.

Insurance Requirements

Contractors must obtain the following insurance policies in joint names with the Employer:

1. Contractors All-Risk Policy, including third-party claims.
2. Insurance as per the Workmen's Compensation Act.
3. Full insurance for materials and work against all eventualities.

Proof of insurance must be submitted along with bills.

C. WORK CONDITIONS

1. THE ARCHITECTS

The Owner has assigned and appointed M/s. Aus Architecture, having their address at 25, 80 Feet Road, HAL 3rd Stage, Indiranagar, Bangalore – 560075, as their consultants to raise drawings and specifications for and to supervise the proposed construction. The Owner will act according to the advice of the Architect on all technical matter regarding construction, materials, workmanship, quality, rates and period of construction.

2. SCOPE OF CONTRACT

The Contractor shall carry out and complete the said work in every respect in accordance with this contract and with the directions of and to the satisfaction of the Architect. The Architect may in their absolute discretion issue further drawings and/or written instructions, details, directions and explanations from time to time, which are hereafter collectively referred to as Architect's instructions in regard to.

- a. Details, variations or modification of the design, quality or quantity of works or the addition, omission or substitution of any work.
- b. Any discrepancy in the drawings or between the schedule of quantities and/or drawings and/or specifications.
- c. The removal from the site of any materials brought thereon by the contractor and substitution of any other material thereof.
- d. The removal and /or re-execution of any works executed by the Contractor.
- e. The opening up for inspection of any work covered up.
- f. The Amending and making good of any defects thereof.

The contractor shall forthwith comply with and duly execute any work comprised in such Architects instructions provided always that verbal instructions, directions and explanations given to the contractor or his representative upon the works by the Architects shall if involving a variation, be confirmed in writing by the contractor within 7 days, and if not dissented from in writing within a further 7 days by the Architect such shall be deemed to be Architect's instructions within the scope of the contract.

3. DRAWINGS & SCHEDULE OF QUANTITIES

Drawings approved for construction will be issued to the Contractor progressively during the contract period and the contractor shall arrange for the execution of the works and the procurement of materials accordingly. The Contractor shall give adequate notice in writing to the Architects or his representative of any further drawings or specifications that may be required for the execution of the works or otherwise under the contract. The Architect shall have full power and authority to supply to the contractor from time to time through his representative, during the progress of the works such further drawings and instructions as shall be necessary for the purpose of proper and adequate execution and maintenance of the

works and the Contractor shall carryout and be bound by the same. The contractor shall be furnished by the Architects, free of cost, two copies of each of the said drawings, two copies of all further drawings, issued during the progress of the works. One copy of the drawings furnished to the Contractor as aforesaid shall be kept at the site and the same shall at all reasonable times be available for inspection and use by the Owners/Architect or his representative and by any other person authorized by the Architect in writing. The Contractor must not vary or deviate from the drawings in any respect while executing the work or executing any extra work of any kind whatsoever unless authorized by the Owner or the Architect.

The schedule, unless otherwise stated shall be deemed to have been prepared in accordance with the standard method of measurement wherever measurement is warranted and/or ordered. Any error in description or in omissions of items from the Schedule shall not vitiate this contract and shall be rectified and the value thereof, as ascertained shall be added to or deducted from the contract amount (as the case may be) provided that no change shall be allowed in the contractor's schedule of rates.

The quantities given in the schedule are based on preliminary designs and are liable for variations. The contractor shall do be entire work at the agreed rates irrespective of the variations in the quantities.

4. PROVISION OF MATERIALS:

The contractor shall provide at his cost everything necessary for the proper execution of the work according to the intent and meaning of the drawings, Schedule and specification taken together. The same may not be particularly shown or described therein provided that the same can reasonably be inferred there from, and if the Contractor finds any discrepancy in the Drawing or between the drawings, schedule and specifications he shall immediately and in writing refer the same to Architect who shall decide which is to be followed.

There may be cases where the Owner may provide part of the materials required for the project. In such situations, the cost of the materials may be deducted from the overall bill at the rates agreed.

5. DEFECTS LIABILITY PERIOD AND RELEASE OF RETENTION AMOUNT

The Contractor shall be responsible for the maintenance of the work executed by him for a period of 6 (Six) months 'Defects Liability Period' as specified elsewhere in this contract from the date of completion of works as certified by the Architect and any defects notified in the work / construction during this period will have to be rectified by the Contractor at his own cost.

The retention amount described in the Work order / Contract agreement shall be released to the Contractor only after satisfactory rectification of such defects noticed if any at the end of the Defects Liability Period.

6. MATERIALS AND WORKMANSHIP

All Materials and workmanship shall conform to their respective description and to the Architect's approval. All works shall be carried out as prescribed in the specifications and in accordance with the Architect's instruction and the Contractor shall upon the request of the Architect furnish all invoices, accounts, receipts and other vouchers to prove that the materials comply there with. The Contractor shall at his own cost arrange for and /or carry out tests of any materials which the Architect may require.

7. SCOPE OF WORK

The scope of work includes all the details given in the drawings and specification regarding the project and will be binding on the contractor in order to carry out all works as specified. The rates quoted by the Contractor are for works at the site to be completed for all materials, plant, labour, machinery and tools of every description necessary for executing and completing the work. Any materials brought on to the site by the Contractor and not approved by the Architect will be removed and replaced by materials acceptable to the Architect at the Contractor's own cost. A sample of all materials to be used shall have to be got approved by the Architect and the same kept at the site for verification. The rates quoted shall be for finishing the works in site and shall be inclusive of contingent expenses, such as scaffolding charges, form work, shed for storage of materials, field office, mortar mill, mixing platform, requisite machinery and cost of operating them, carriage of tools and plant and other appliance, fencing, lighting, and watching, tool charges, duties, sales tax on all materials and articles that may be necessary for the successful completion of the work and setting out and measuring up work etc. No claim for separate payment of any such item will be admitted on any account.

a) Water and Electricity

Water and electricity for the construction purposes will have to be arranged by the contractor at his own cost and risk and charges for its consumption if any, will have to be paid by the contractor. However, the Owner has the discretion to obtain a temporary Electrical connection to the site and make it available for the Contractor. In such case, all the charges for consumption whatsoever will be borne by the Contractor. The Contractor will be responsible of operating equipment whatsoever with electricity, and their upkeep and maintenance and he will enforce the code of safety while operating such equipment. The Owner at his discretion may grant permission to avail water from the existing open well for the purpose of construction. However, the arrangements to draw water from the open well should be made by the Contractor and he should bear whatever expenses incurred in regard of this.

b) Watching and Lighting

The Contractor shall provide and maintain at his own expense, all lights, guards, fencing and watching when and where necessary or required by the Owner / Architect for the protection of the works or for the safety and convenience of those employed on the works or the public.

c) Shed for Office, Materials Etc

The Contractor shall provide at his own cost necessary temporary sheds of adequate dimension constructed with side covering and locking for the usage of the Contractors as well as for the Owner / Architect and for storage and protection of materials like cement, timber and such other materials including tools and equipment which are likely to deteriorate by the action of sun, wind, rain or other natural causes due to exposure in the open. Size of shed so constructed for storage of cement, should be adequate enough to store a minimum of 100 bags of cement at a time. All such sheds shall be cleared away and the whole area left in good order on completion of the contract to the satisfaction of the Owner / Architect. All materials which are stored such as bricks aggregates etc. shall be stacked in such a manner as to facilitate rapid and easy checking of quantities of such materials.

e) Site Order Book

A Site Order Book must be maintained and always be available at site to record the instructions by the Architects or his representative. The contractor must see that the instructions noted therein are properly carried out.

8. CO-OPERATION WITH OTHER AGENCIES

The contractor shall co-operate with the work of other agencies or contractors that may be employed or engaged by the Owner and as far as it relates to the contractors' work. The sequence of work shall be so arranged that the work of other agencies also progress simultaneously.

9. QUANTITIES

The quantities in the schedule of quantities approximately indicate the total extent of work, but may vary to any extent and may even be omitted thus altering the aggregate value of the contract.

All the work shall be done according to the drawings and instruction of the Architect. Figures and dimensions shall be followed. Measurements of quantities shall be of the actual work done.

All measurements shall be in metric system. All works in progress will be measured by the contractor and the representative of the Architect jointly. The measurements will be recorded in the presence of the representative of the Architect who will check the measuring.

Mode of measurements will be as per I.S. 1200 or as per its latest revision. The contractor must ensure that all measurements below ground level or which would otherwise be covered up must be recorded prior to cover up.

10. ALTERATION

The Architect may, as per the advice of the Owner, at any time during the progress of the work, by an order in writing make any alteration in the original specification and drawings by way of addition thereto, or omission or other deviation thereof whereupon the contractor shall execute such additional work or omit, or deviate from such specification and drawings as may be ordered by the Architect in the same manner as if the same has been so provided in the original specification or drawings for the works. All alterations to the accepted tender given in writing by the Owner shall be proceeded with by the contractor.

11. VARIATION NOT TO VITIATE CONTRACT

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

12. PROCEDURE FOR EXTRAS ETC. ASCERTAINMENT OF

The contractor may, when, authorized, and shall, when directed in writing by the Architect with the approval of Owner may add to, omit from, or vary the works shown upon the drawings, or described in the specifications, or included in the schedule of quantities, but the contractor shall make no addition, omission, or variations without such authorization or direction. A verbal authority or direction by the Architect shall, if confirmed by them in writing within seven days, be deemed to have been given in writing.

No claim for an extra shall be allowed unless it shall have been executed under provisions this Clause hereof or any by the authority of the Architect with the concurrence of the Owner as herein mentioned.

The rates for the extra items shall be worked out as below.

- a) In the case of extra items for which similar items exist in the contract, the rates shall be worked out from the agreed rate for the latter with appropriate adjustment in code of the official components.
- b) In the case of the extra items for which similar items do not exist in the contract, the rates shall be worked out from the actual project prices for materials and labour and adding contractors profit.
- c) The contractors profit in all the above cases shall be 15%.

- d) Current project prices shall mean the rates for materials and labour prevalent at the time of execution of the extra items. The Contractor may submit evidence as to the prevailing project prices, but the Architects' decisions shall be final in the matter.
- e) If there is any dispute regarding the quantum of materials or labour given in the Contractors rate analysis, the same shall be decided on the basis of actual observations during execution.
- f) The Contractor shall give, as per the specifications provided by the Architect, Base Rates, based on project supply prices for Cement, Steel and All other finishing materials such as Tiles, Sanitary & Electrical Fixtures & Fittings and all other such supplies, as per the specifications given by the Architect. Such materials will be sourced for the construction at project pricing, by the Contractor. In such event where the Owner is able to identify sources to supply the same materials at lesser price, the Contractor shall be directed to purchase it from such sources for construction, and the difference in such price against the Base Rates provided will be adjusted against the item rates in the running bills submitted by the Contractor.

13. REMOVAL OF UNACCEPTABLE WORKS

The Contractor shall invariably execute all works in the most substantial and workman like manner and the materials used shall be of the best description. The Contractor shall also conform minutely to the drawings and specifications which form the basis of the accepted tender and other written instructions and drawings if any relating to the work which may from time to time be issued by the Architect. If it shall appear to the Owner that any work has been executed with unsound, imperfect or unskilful workmanship or with materials of an inferior description, the Contractor shall be instructed in writing forthwith to rectify, remove or reconstruct the same in whole or in part, as the case may require at his own proper charge and cost and in the event of his refusing to do so within a period to be specified by the Architect/Project management Consultants or if he should fail to remove from the site of work within a specified period, any materials or articles which are considered by the Architect/Project management Consultants to be unsound or of bad quality, or not agreeable to the terms of the contract and to provide immediately suitable materials or articles in lieu of those condemned then the Contractor shall be liable to pay liquidated damages at the rate of one percent of the amount of contract for every day, not exceeding 10 days, that he fails to comply with the written demand of the Architect/Project management Consultants . In case of default on the part of the Contractor to carry out such order, the Owner shall have the power to employ and pay other persons to carry out the same and all expenses consequent there on or incidental thereto, as certified by the Architect/Project management Consultants from any moneys due, or that may become due to the Contractor in addition to the penalty mentioned above.

14. SAFETY MEASURES AND ACCIDENTS

The Contractor shall provide at his own cost of all necessary safety measures required to protect the public (including their rights and property) as well as his own workmen from accidents arising out of and in consequence of the work under this contract. The Contractor shall be responsible for the safety of all employees or workmen, employed or engaged by him in connection with the work and in addition to the staff of the Architect employed at the site and that the Contractor shall forthwith report to the Owner about any accident and injuries sustained and shall make adequate arrangements for rendering all possible first aid or hospitalization as the case may be in respect of the victims of any accidents.

The Contractor shall be responsible for all injury to persons, animals or things, and for all structural damage to property which may arise from the operation or neglect of himself or of any nominated sub-contractor or any employee of either, whether such injury or damage arises from carelessness, accident or any other cause whatever in any way connected with the carrying out of this contract. This clause shall be held to include inter-alia any damage to buildings whether immediately adjacent or otherwise, and any damage to roads, streets, footpaths, bridges or ways as well as all damage caused to the buildings and works forming the subject of this contract by frost, rain, wind, or other inclemency of weather.

15. INDEMNIFYING THE OWNER BY THE CONTRACTOR.

The Contractor shall be liable for any claim or compensation, damages or expenses payable as a result of any accident or injury or loss sustained by any workmen engaged or employed by him or any member of the general public on account of the execution of the contract and the amount he is liable to pay in accordance with C.W.Act or any such legislation or rule or common law. The contractor indemnifies herewith the Owner for any such claim, compensation, damages etc.

16. SPECIFICATIONS

All specifications of work will be as per the IS codes and Bureau of Indian standards. The contractor has to follow all standard norms specified in the IS Codes for all works. In the event any special instruction to extend time with respect to de-shuttering etc. is given by the Architect/Project management Consultants, such instruction will supersede the standard norms.

D. SPECIAL CONDITIONS

1. The place of work is as noted in the schedule.
2. The Contractor shall abide by the conditions prescribed in the rules for instruction to the tenderer, general and special conditions of contract. The Contractor is requested to study and understand the terms and conditions before quoting their rates.
3. Time shall be considered the essence of the contract. If the completion of the contract is delayed the Owner reserves the right for imposing a penalty for the delayed work, delay being worked out with reference to the time schedule.
4. The various materials to be used on the work must comply with the relevant standard specifications given by the Architect and must be approved by the engineer-in-charge of the work before use in the work.
5. The contractor shall be responsible for payment of all import duties, octroi, taxes, duties, fees etc. whichever is payable in respect of all materials and articles supplied or procured by him. All materials supplied by the Contractor shall be stacked for pre-measurements if required. The responsibilities for supplying of materials supplied by the Contractor rests with him till they are used for work and the necessary measurements are recorded by the site engineer and the contractor signs the measurements book in token of acceptance of measurement.
6. The materials which are found to be of inferior quality and not conforming to the standards prescribed will be rejected by the site engineer and such materials should be removed from site within 24 hours of notice of such removal and on no account be used for the work. The engineer-in-charge will be the authority of passing of the materials prior to usage on works. Rejections can be made by the site engineer before or during use on work.
7. The direction and advice of the site engineer and his subordinate in all matters including technical matters shall be final and binding and the Contractor shall meticulously follow them.
8. The contractor shall be prepared to work in shifts if called for.
9. The Contractor shall begin to work immediately after the site is handed over and shall regularly and continuously can carry out the work to achieve the rate of progress as indicated in the schedule.
10. The Owner reserves the right to terminate the contract at any time if he finds that the Contractor is not able to carry out the work satisfactorily after issuing due notices.
11. All tools and plants, machinery etc. required for the work and specified in the schedule shall be provided by the Contractor at his cost.
12. The Contractor must arrange for sufficient materials and adequate supply of tools and tackles, form work, scaffolding materials and essential machinery to ensure that work may progress at the pre-defined rate.

13. The rates for the various items in the tender schedule shall be inclusive of all leads and lifts.
14. No residential accommodation shall be provided to the Contractor by the Owner.
15. The Contractor shall comply with the regulations of the payments of the wages act in respect of the workers employed by him and it shall be his obligation to pay compensation to any of his workers as per the Workman's compensation Act.
16. Mode of payment to the contractor shall be as per the agreed system with timely recording in stages completed in specified measurement books by the engineer of the Contractor and checking of the measurements by the Architect.
17. Income Tax at the current prescribed rate will be deducted against each bill in this contract unless a certificate from the income tax officer concerned to the effect that no tax may be deducted is produced before payment.
18. If chooses so, the Owner reserves the right to purchase materials for the construction. The contractor must fill the base rate for his calculations for rate analysis. In such a case, unloading charges at site will have to be borne by the Contractor. Further the Contractor has to inform his requirements for every month in advance. The materials are to be received and stored properly at the site by the contractor at his cost. The contractor will be responsible for the total quantity of materials issued by the Owner and any unaccounted material will be realized from the contractor at the issue rate or current market rate whichever is higher plus 20% penalty.
19. Binding wires used for binding reinforcement shall be procured by the Contractor at no extra cost and the rates for reinforcement laying should include this.
20. The cement store will be inspected by the Owner or his representative at frequent intervals. The contractor has to maintain a register showing a daily consumption of materials from his store and balance in hand. The consumption of cement will be limited to the requirement as per IS specifications for the said work. If any savings occurs it shall be the property of the Owner.
21. Roofing tiles, hip tiles, wire cut Bricks, Solid Cement Blocks etc. required for the work should be purchased from the suppliers approved by the Owner / Architect.
22. Course aggregate of the required size alone should be brought to the site of work.
23. Sand supplied should be clean sharp and gritty to the touch free from clay and other impurities and obtain from running water pools.
24. The Contractor will have to make his own arrangements to convey the materials and for stacking of materials and site shed etc. which are found necessary for the proper execution of the work. He will also be responsible for the safe custody of the materials till they are used on the works.
25. The payment of the earth work items will be made as per level measurements or tape measurements as per rules.

26. No escalation shall be paid to the contractor for variation in prices or change of labour charges or on any other account. The contractor shall quote his rate after giving due consideration to this special condition.
27. The work shall be completed in all respects and also at the rate of progress within the time limit and the stipulations in the tender notice inviting tender.
28. The defects liability period for the proposed project will be 6 months from the date of completion as certified by the Owner.
29. The Contractor should produce latest and relevant tax clearance certificates for receiving final payment. The rate of tax will be applicable as per government order or notification in the matter from time to time.
20. The Contractor shall be responsible for the payment of the sales tax and all other taxes and duties as per the rules in force in time-to-time and the rates quoted for the various items remain unaffected by any change that may be made from time to time in the rate at which such tax is levied.
31. The contractor may agree that before final payment shall be made on the contract he will sign and deliver to the site engineer either in the measurement book or otherwise as demanded a valid release and discharge from all claims and demands whatsoever for all matters arising or connected with the contractor, provided that nothing in the clause shall release the Contractor from his liabilities under the contract.
32. The date fixed by the Owner for the commencement and completion of the works as per the agreement shall be strictly observed by the Contractor.
33. All concrete should be machine mixed and vibrated. The Contractor must offer to inspect each portion of work before pouring concrete and will extend all assistance to the site engineer to check line, length, plumb, etc. before proceeding with the work. Only best quality material will be allowed as formwork for columns, beams and slabs. Curing is the responsibility of the Contractor and he must ensure that all RCC structures are kept wet for the period prescribed by the Architect.
34. The person whose tender may be accepted shall, before the date fixed for commencing the work, execute an agreement with the Owner and shall pay for all stamps and legal expenses incident thereto after depositing security for the due performance of his contract.
35. In every case in which under any clause of this contract the Contractor shall have rendered himself liable to damages amounting to the whole of his security deposit. The Owner, shall have the power to rescind the contract altogether or to have the work completed without further notice at the contractor's risk or expense, as the Owner may deem best suited to the interest of the Owner, and the Contractor shall have no claim to compensate for any loss that may accrue from any materials he may have collected or engagements he may have entered into, on account of this work and in the latter case the Owner shall have power to deduct whatever amount may be extended on the completion of the work, from any sums that may be due or become due from the Owner to the contractor on account of this or any other work or recover such sums from him and his assets, movable and immovable. And in case the contract shall be rescinded under the provisions aforesaid the contractor shall not be entitled

to recover or be paid any sum for any work there to for actually performed under this contract unless and until the Owner shall have certified the performance of such work and the value thereof, and he shall only be entitled to be paid the value so certified after deduction of any amounts due to the Owner.

36. If the contractor shall be hindered in the execution of his work or as to necessitate an extension of time allowed for its completion he shall apply in writing to the Owner who may, if reasonable grounds be shown, authorize such extension of time, if any, as may, in their opinion be necessary, and without such written authority of the Owner the Contractor shall not be exempted from the damages leviable if the work or any part or parts thereof be not completed within the prescribed time. The contractor shall also execute supplemental agreement with the Owner when such extension of time is authorized.

37. On completion of work, the Contractor shall be furnished with a certificate to that effect by the Owner but no work shall be considered as complete until the contractor shall have cleared the site of all his materials and equipment and demolished any temporary structures set up and removed all scaffolding, surplus materials and waste material in a neat and efficient manner.

38. No work will be paid for unless thoroughly good and fully in accordance with the specification and should through inadvertence bad work be passed and paid for, it will nevertheless be perfectly completed for the Owner to strike the same out of the account at any future time and recover the value and the contractor will be liable for the same.

39. The contractor shall invariably execute all works in the most substantial and workman like manner and the materials used shall be of the best description to the specification prescribed. The contractor shall also confirm minutely to the drawings, and specification which form the basis of the accepted tender and other written instructions and drawings, if any, relating to the work which may from time to time be issued by the Owner/Architect/Project Management Consultants/Structural Consultant. The Contractor shall adhere to good engineering practice at all times.

40. The Contractor shall give due notice in writing to the Owner to measure any work which is going to be covered up or otherwise placed beyond the reach of measurements, in order that the correct dimensions may be taken before being so covered.

41. The rates once agreed will not be revised on any account.

42. The Owner does not undertake to relieve the Contractor from any difficulties or penalties arising from interference with private property in carrying out his contract.

43. All materials brought to the site shall not be removed from the site without the prior approval of the Owner.

44. The Contractor shall comply with the provision of the contract labour (The Regulation and Abolition) Act, 1970 and the Rules thereon. The contractor is liable to pay compensation of the Owner for any loss caused to the Owner due to non-complains of any statutory provisions.

E. SAFETY CODE

1. There shall be maintained in a readily accessible place first aid appliances including adequate supply of sterilized dressings and cotton wool.
2. An injured person shall be given first aid and taken to a hospital without loss of time, in case where the injury necessitates hospitalization.
4. Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from ground.
5. No portable single ladder shall be over 8.00 metres in length. The width between the side rails shall not be less than 30cm (clear) and the distance between two adjacent rings shall not be more than 30cm. When a ladder is used an extra labourer shall be engaged for holding the ladder.
6. The excavated material shall not be placed within 1.5 metres of the edge of the trench or half of the depth of trench whichever is more. All trenches and excavations shall be provided with necessary fencing and lighting and shoring & strutting.
7. Every opening in the floor of a building or in a working platform be provided with a suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1.20 metre.
8. No floor, roof or other part of the structure shall be so overloaded with debris or materials as to render it unsafe.
9. Workers employed on mixing and handling materials such as asphalt cement and cement mortar or concrete and lime mortar shall be provided with protective foot-wear and rubber hand gloves and thin cloth for covering faces and head.
10. Those engaged in welding works shall be provided with welder's protective eye-shields and gloves.
11. No paint containing lead or lead products shall be used. Suitable facemasks should be supplied for use by the workers when the paint is applied in the form of spray or surface having lead paint dry dubbed and scraped.
12. Overalls shall be supplied by the contractor to the painters and adequate facilities shall be provided to enable the working painters to wash during the period of work.
13. Hoisting machines and tackle used in the works, including their attachments, anchorage and supports shall be in perfect condition. ropes used in hoisting or lowering material or as a means of suspension shall be of durable quality and adequate strength and free from defects.
14. The hoisting platforms/lifts used in the construction site shall not be used to transport any person/workman under any circumstances.
15. All electrical equipment and machinery used on site shall be properly earthed and safe for handling.
16. All safety rules to be observed while working on live electrical system on installation as stipulated in I.E rules shall be observed.
17. The Contractor shall be solely responsible for any mishaps or accidents occurring at site due to the failure to comply with the various conditions of safety code and shall indemnify the Owner against all claims arising out of them.
18. The directions and decisions of the Architect shall be considered final and binding on the Contractor in all aspects regarding Safety Code.

19. The contractor shall install a safety lift for the initial movement of all staff, engineers and supervisors etc. No materials shall be carried on this lift. The lift so erected shall conform to the passenger lift specifications and shall be approved by the owner.
20. No child labour should be used for any construction activities. No labourers below 15 years of age is permitted into the site and any such action otherwise will warrant legal action against the contractors.
21. Adequate washrooms and toilets should be provided for the workers and supervisors at the site by the contractor.

F. SPECIFICATIONS

SECTION A: MATERIALS

1. Materials shall be of the best approved quality obtainable and they shall comply with the respective BIS (ISI)
2. Samples of all materials shall be got approved by the Architects/Consultants before placing order and the approved sample shall be deposited with the Owner/Displayed at the Site Office for scrutiny.
3. In case of non-availability of materials in metric sizes, the nearest in FPS units shall be provided with the prior approval of the Architect/Consultants for which neither extra will be paid nor, any rebate shall be recovered.
4. If directed, materials shall be tested in any approved testing Laboratory and the test certificate in original shall be submitted to the Architects/ Consultants/Owner and the entire charges connected with testing including charges for repeated tests, if ordered, shall be borne by the Contractors.
5. It shall be obligatory for the Contractor to furnish performance certificates if demanded by the Architects/Consultants from manufacturer or the material supplier that the work has been carried out by using their material and as per their recommendations.
6. All materials supplied by the Owner/any other specialist firms shall be properly stored and the Contractor shall be responsible for its safe custody until they are required on the works and till the completion of work.
7. All equipment and facilities for carrying out field test (if required) on materials shall be provided by the Contractors without any extra cost.
8. Unless otherwise shown on the Drawings or mentioned in the “Schedule of Quantities” or special specifications, the quality of materials, workmanship, dimensions etc. shall be as specified here in under.
 - a) Bricks (wherever used): Bricks shall generally comply with IS:1077 except in size which shall be conforming to the sizes locally available. Depending upon the quality of bricks they shall be classified as 1st and 2nd class.

1st class bricks shall be the best quality locally available table moulded, well burnt but not over burnt, have plain rectangular faces with parallel sides and sharp right angled edges, have a fine compact, and uniform texture. The bricks shall be free from cracks, chips, flaws, stones or lumps of any kind and shall not show efflorescence or wither subsequent to soaking in water. It shall emit a clear ringing sound on being struck and shall not absorb water more than 20% by weight. Common building bricks shall have a minimum compressive strength of 35 Kgf/sqcm. cm, unless otherwise specifically stated.

2nd class bricks shall be generally as specified above, except that they may be slightly over burnt, be slightly distorted and have round edges. They shall have a fine compact uniform texture and shall not absorb water more than 22% by weight. The compressive strength shall be 10% less than that specified for 1st class bricks.

b) Cement Mortar: Cement Mortar shall be of proportions specified for each type of work in the schedule. It shall be composed of Ordinary Portland Cement and sand. The ingredients shall be accurately gauged by measure and shall be well and evenly mixed together in a mechanical pan mixer, care being taken not to add more water than is required. No mortar that has begun to set shall be used.

If hand mixing is allowed only in case of emergency and with the written permission of the Architects, then it shall be done on pucca watertight platform. The gauged materials shall be put on the platform and mixed dry. Water will then be added and the whole mixed again until it is homogenous and of uniform colour. Not more than one bag of cement shall be mixed at one time and which can be consumed within half an hour of its mixing.

c) Solid Cement Concrete Blocks: Solid Cement Concrete Blocks shall be of sizes, 20(w)x20(h)x38/40(l)cm, 15(w) x20(h)x38/40(l)cm, and 10(w)x20(h)x35/40(l)cm, The Blocks should be plain free from flaws and cracks and should be manufactured by using 6mm baby granite metal. Cement Blocks should be purchased from an approved manufacturer, who has obtained a test result from an authorised testing laboratory, preferably a Govt. Institution.

SECTION-B: WORKMANSHIP

1. CLEARING OF SITE, EXCAVATION AND EARTH FILLING

GENERAL

Trenches for building foundation, Water tanks cess pits, etc. shall be excavated to the exact length width and depth shown on figures on the drawing or as may be directed by the Architects/Consultants. If taken out to greater length, width or depth than shown or required the extra work occasioned thereby shall be brought up by plain cement concrete filling of 1:4:8 proportion and extra length and width filled in by rammed earth or murrum or if the Architects/Consultants thinks it necessary for the stability of the work by 1:4:8 concrete, as may be directed at the Contractor's cost.

Excavated materials shall be used for filling on each side of the foundation blocks or trenches or it shall be spread elsewhere on or near the site of work including watering, ramming and consolidating or carted away from site, free of charge as may be ordered. The Tender cost should include cost of back filling by murrum of approved quality brought from outside.

The Contractor shall at his own expense and without extra charge, make provision for supporting all utility services, lighting the trenches, separately and stacking serviceable materials neatly, shoring, timbering, strutting, bailing out water either sub-soil or rain water including pumping at any stage of the work. Trenches shall be kept free of water while masonry or concrete works are in progress and till the Architects/Consultants consider the concrete is sufficiently set.

EXCAVATION IN ALL STRATA EXCLUDING IN HARD ROCK.

Excavation shall be carried out in any type of soil murrum (soft or hard), soft rock, boulders, old foundations concrete, asphalt or stone paved surfaces, old masonry or concrete (plain or reinforced).

EARTH FILLING:

Filling shall be done with good earth, murrum, stone chips or disintegrated builders debris. It shall be free from salts, organic matter, black cotton or slushy earth and combustible materials. All clods shall be broken.

Filling in basement structures shall be done in layers not exceeding 15cm. amply watered and consolidated by ramming with iron or wooden rammers weighting 7 to 8 kgs. And having base 20 cm. Diameter. When the filling reaches the finished level, surface shall be flooded with water for at least 24 hours, allowed to dry and then rammed consolidated after making good any settlement in order to avoid settlement at a later stage. Finished level or filling shall be kept to a slope intended to be a given to the floor.

Filling in outdoor portions and for site development: shall be don in layers of 15cm. Each layer shall be adequately watered. When filling reaches the required level the topmost layer shall be dressed to proper section, grade and camber and rolled by 8 to 10 power roller and adequately watered to aid compaction.

2. DRY RUBBLE PACKING & LEVELING COURSE: (SIZED STONE)

The Rubble packing shall be void of all defects and should be laid in courses of height 0.45m at a time. Proper lap and bonding shall be maintained between boulders and dumping stones in the excavated pits and over the laid courses are not allowed. The vertical joints between coursed should be avoided. After each course of 0.45m the quarry dust should be laid and inserted into the voids within the masonry by the help of pressurized water jets.

SECTION C: SPECIFICATION FOR R.C.C. WORK, MASONRY WORK & PLASTERING WORKS

1. PLAIN & REINFORCED CEMENT CONCRETE

Except where they are varied by the requirements of this specification due provision of Indian Standard Specification IS – 456 – 1978 for Plain & Reinforced concrete and IS – 432, concrete and IS-432 Part I & II for Mild and medium Tensile Steel bars and hard drawn steel wire for concrete reinforcement and any other relevant ISS applicable together with the latest amendments shall be held to be incorporated in this specification. It shall be intent of these specifications to ensure that all concrete placed at various locations of the job should be durable, strong enough to carry the design loads. It should be free of such defects as shrinkage, cracking and honeycombing.

2. SPECIFICATION FOR CONTROLLED CONCRETE

I CEMENT:

Cement is used on the works shall comply with the requirements of IS 269-1976 for ordinary or low heat Portland cement. IS 8112-1976 for high strength ordinary Portland cement.

If ordered by the Structural Engineer's certificates of test from an approved Laboratory shall be obtained at the Contractor's cost. Samples for test shall be extracted as per IS: 3535-1966 within one week of delivery and the test shall be made within four weeks of delivery. All cement shall be stored in weatherproof structures or silos and prevented from, damage by moisture. These buildings or silos shall be provided by the Contractor at his own cost and placed in locations approved by the Structural Engineer.

Provision for storage shall be ample and shipments of cement as received shall be separately stored, so as to provide easy access for identification and inspection of each shipment. Storage buildings shall have a capacity for the storage of sufficient cement to allow sampling and testing at least 15 days before use.

Stored cement shall meet the test requirements at any time after storage when re-test is ordered by the Structural Engineer.

The Contractor shall keep an accurate record of the delivery of cement and its use in the work. Copies of this record shall be supplied to the Structural Engineer as required.

Cement shall be used in the sequence in which it is received. No cement shall be unnecessarily stored for a long period. If the cement becomes lumpy it shall be removed from the site immediately.

Any cement which has deteriorated or which has been damaged or contaminated, whether during transit to the site or at the site or otherwise, shall not be used and shall be immediately removed from the site and replaced at the expense of the Contractor.

II ADMIXTURES

The use of admixtures to improve workability is allowed only if there is proven evidence that neither the strength nor the other requisite qualities of concrete and/or steel, accessories, grout etc. are impaired by their use. The use of admixtures containing Calcium Chloride Fluorides, Nitrates and Sulphates is prohibited. The Structural Engineer/Project co-ordinator decision on all matters relating to the use of admixtures shall be final.

Admixtures shall be stored in a suitable weatherproof building. Any materials which has deteriorated or which has been contaminated or damaged whether during transit or at site shall not be used and shall be immediately removed from the site and replaced at the Contractor's own expense.

III AGGREGATES

All aggregates shall generally conform to the requirements of IS:383-1970. Materials shall be used only from sources of supply approved by the Engineer. Any materials which has deteriorated or been contaminated shall not be used for concrete. All aspects of aggregate handling and storage are subject to the approval of the Engineer and shall be such as to minimize segregation and breakage and prevent contamination by grass, soil, wood, sawdust, oil, aggregates of other sizes or other foreign materials and so that adequate supplies are available at site in advance of the requirements. Each size of aggregate shall be stored on a separate platform or stockpile at locations to be approved by the Engineer and such platform or stockpiles shall be sufficiently separate from each other to prevent the materials at the edges of the piles from becoming inter-mixed. If aggregates are stockpiled on the ground, the bottom portion of the stockpiles within one foot of the ground shall not be used.

For both fine and coarse aggregates, tests shall be carried out, for physical characteristics, limits of deleterious substances and soundness prior to use and also whenever the source of supply is changed. All tests will be conducted at the contractor's expense at a Laboratory or in facilities approved by the Engineer.

Sand shall be of approved quality, clean, sharp and free from injurious amount of dust, mica, shells, soft and flaky particles, shale alkali, organic matter, loam or other deleterious substances. The sand shall be from a source approved by the Engineer, and if required by him it shall be thoroughly washed, screened, and graded by the Contractor at his own expenses to the satisfaction of the Engineer, and he shall include in his rate the cost of washing. It shall be within the range of grading zone I and grading zone II of Table III of IS 383-1970. Stone dust or grit shall not be permitted.

Coarse aggregate shall be of crushed stone and gravel or shingle shall not be permitted. The whole of the ingredients of the coarse aggregate shall consist of hard stone free from deleterious substances and contain no soft or elongated pieces. If it is considered necessary the Engineer may instruct it to be washed, screened and graded at the Contractor's expense. The Contractor shall include in his price for concrete the cost of washing and screening the aggregate.

IV. MIXING WATER

The Water-Cement ratio for the various concrete mixes shall be as follows:

MIX	w/c Ratio	Water lit/bag of Cement
1:1:2 -	0.45	22.5 lit / Bag
1:1.5:3 -	0.50	25 lit / Bag
1:2:4 -	0.60	30 lit / Bag
1:3:6 -	0.75	37.5 lit / Bag
1:4:8 -	0.90	45 lit / Bag

The water for mixing concrete shall be first tested at the Contractors expense for its suitability by a Laboratory approved by the Engineer. It is usually required to be fit for drinking, or to be taken from an approved source. This is to ensure that the water is reasonably free from such impurities as suspended solids, organic matter and dissolved salts which may adversely affect the properties of the concrete, especially the setting and hardening.

If the quality of water to be used for mixing concrete is in doubt, it should be assessed by comparing the setting times of cement paste and the compressive strength of concrete made with it and with tap water under similar conditions. Sea water shall not be used for concrete work.

V. FORMWORK & STAGING

The formwork surface in contact with concrete shall be either steel plates not less than 12 G thick or plywood not less than 12mm thick, or timber planks not less than 25mm thick all with stiff steel and/or timber backing frame work. The form contact surface shall be oiled before positioning the reinforcement. Formwork shall be such that all joints are mortar tight and their removal is possible without jarring the concrete. The staging shall be of steel/timber props with steel timber headers, kickers, stiffeners, ledger, joists, shoring and bracing. Bamboos shall not be used anywhere in the already poured concrete to fix or support the staging of frame-work. The size number and disposition of props and other staging shall be such as to safely carry the full imposed operational loads including the effects of vibrations. Forms may be re-used but before each reuse they shall be thoroughly scraped and cleaned, joints repaired, and insides re-treated to prevent adhesion. The shape, strength, rigidity, mortar tightness and surface smoothness of form work and staging shall be maintained at all times to the satisfaction of the Engineer. It shall be the Contractors sole and ultimate responsibility to design, erect, maintain and remove the form work and staging safely and efficiently. The Engineer may however approve the system or instruct the contractors to make modifications therein. Such modifications shall be incorporated by the Contractors without claiming any extra cost.

VI CONCRETE:

(1) GENERAL:

All concrete shall comply with the requirements its of IS 456 in general and the following in particular. Concrete shall be specified in various grades designated as M 15, M 20, M 25 M30 etc. The letter M refers to the mix and the number to the minimum compressive strength in N/mm² .to be established by 28-day 15cm works cubes tested with a probability of not more than one test out of twenty falling below the specified minimum.

(2) MIXING:

Through mixing of the concrete using weigh batching is essential and mixers shall always be operated at the speed recommended by the makers.

A mixing time of not less than two minutes after all materials, including water, have entered the mixing drum shall be considered as satisfactory period for mixers up to 1 m³ capacity. A slightly longer mixing time may be required for mixers exceeding 1 m³ capacity and for dry concrete mixes. Mixing times, however, vary according to the type of mixer and the above periods may be modified by the Engineer according to the observed mixing efficiency.

When the concrete is mixed, the complete contents of the drum shall be discharged in one operation into hopper or container. Mixing time is lost and risk of segregation occurs if the batch is discharged into a number of separate barrows or containers.

At the start of the day the first batch or two of the concrete will be brash and stony because some mortar will stick to the inside of the drum round the blades. The proportion of coarse aggregate shall therefore be reduced for the first mix or two.

The mixer shall be thoroughly washed out and the blades cleaned after use. The inside of the drum shall be inspected regularly and any blades which are worn or broken shall be replaced.

(3) Ready Mix Concrete (RMC)

The use of Ready Mix Concrete (RMC) is permitted under the following conditions to ensure quality and efficiency in construction:

- a. Approval: RMC suppliers must be approved by the Architect/Consultant. The supplier's facilities should comply with industry standards for batching and quality control.
- b. Grade and Specifications: The RMC must conform to the specified grades and mix designs outlined in the tender document. Certificates of compliance with IS: 456 and other relevant BIS codes must be provided.
- c. Transportation: RMC must be transported to the site using transit mixers. The time between batching and pouring must not exceed 90 minutes to ensure the mix remains workable and uncompromised. Use of retarders or additives for extended workability must be pre-approved.
- d. Testing: Random samples of RMC shall be tested for compressive strength and other quality parameters at approved intervals. Testing frequency shall adhere to IS: 1199 and IS: 516 guidelines.
- e. On-Site Management: Adequate preparation must be made at the site to handle RMC deliveries, including clear access routes and appropriate equipment for pouring and compaction.
- f. Curing and Workmanship: RMC must be cured and handled as per the specifications outlined in the tender, ensuring that the finished work meets structural and aesthetic standards.

The decision to use RMC aims to streamline construction timelines, maintain consistency in quality, and reduce wastage. Any deviation from these conditions must receive prior written approval from the Architect/Consultant/Owners.

(4) PLACING

It is important that the concrete has to be placed in its final position before the cement reaches its initial set.

The concrete shall normally be compacted in its final position within 30 min. of leaving the mixer, and once compacted, it shall not be disturbed. Before the concrete is actually placed in position, the insides of the forms shall be inspected to see that they have been cleaned and oiled. Temporary

openings shall be provided to facilitate expulsion especially of all saw dust, wood shavings, cigarette ends and dirt. Openings, shall be so placed that the water used to flush the forms will be drained away. No water shall be left in the forms.

The concrete shall be spread evenly in the forms to avoid segregation and shall completely fill all corners of the formwork and space between the reinforcement. Vibrators shall not be used for spreading and spreading shall be carried on without interruption between predetermined construction joints.

(5) COMPACTING

The object of compacting concrete is to achieve maximum density. The concrete shall therefore be placed a little in excess of its specified depth, so that after proper compaction its final desired depth is obtained. Manually rodding and rapping the concrete and tapping the formwork on its external face, shall be continuously carried out at the actual pouring head, while compacting the concrete with mechanical vibrators shall be done sufficient distance away from the pouring head, so that the vibrator is utilized only to compact the concrete and not to spread it. Beams and columns shall be vibrated using immersion vibrators as per IS: 2505 and IS: 3558 : Thin sections like water than walls shall be vibrated using clamp on vibrators and slabs shall be vibrated using surface vibrators. The Contractor shall at all times have in reserve sufficient vibrators of each variety to guard against shut down of the work occasioned by the failure of the equipment in operation and to permit the equipment to be serviced and overhauled in rotation. No concreting will be permitted in the event of power failure or vibrator failure. The Engineer, may at his absolute discretion, permit concreting by increasing the slump and correspondingly increasing the cement contents at the contractors cost, but in that case the concrete compacted without mechanical vibration shall be paid for at a rate 10% less than contract rates, except for shallow or in accessible concrete the vibrator shall be penetrated vertically at a regular distance and interval, not at an angle nor at haphazard intervals. It is better to vibrate at smaller interval for shorter periods of time. At corners, obstructions, embedded fixtures and congested reinforcement areas, the vibrators shall be manipulated with the utmost care and handled only by the most experienced work men. All vibrating operations for entire duration of the job shall be carried out by the same set of workmen.

(6) CURING

All freshly placed concrete surfaces shall be protected from the climate and from defacement during building operations. The contractor shall provide and use, enough tarpaulins or other suitable materials to cover completely or enclose all freshly finished concrete. As soon as the concrete has hardened sufficiently to prevent damage it shall be cured by maintaining the concrete in a damp condition by application of wet sacking or other approved moisture retaining methods for a period of 28 days from placed in the concrete.

Extreme care shall be taken to ensure that all surfaces are kept in moist condition and no local area shall be allowed to dry out intermittently.

(7) TESTING:

The method of sampling and testing shall be carried out as per IS 1199 and IS 516 and the test results evaluated as under: Compression tests shall be conducted on samples of concrete, each sample consisting of three specimens. The average strength of the three specimens in any one test shall constitute the result of that particular test. All specimens for any one test shall consist of companion cubes of the same age, fabricated from a sample obtained from a single batch of concrete. Batches shall be sampled entirely at random so that all batches have an equal chance of being selected for a

sampling. A sample shall not however be obtained from the first batch of concrete discharged from a clean mixer.

The frequency of testing shall be as follows: At least 12 numbers of cube moulds should be kept at site during the execution of work. '4 samples made up of 24 cubes shall be obtained per mix per 8-working hour day. Each sample shall consist of 6 cubes, half of which shall be tested at 7 days and the remaining half at 28-days. The consulting Structural Engineer may at their absolute discretion reduce the frequency of tests when the extend of control is ascertained and reaches an acceptable level. These tests shall be conducted in the site laboratory. As a check on the testing equipment at site, additional companion cubes shall be obtained for 5% of the samples and these shall be tested at the corresponding ages in a laboratory nominated by the consulting engineer. If a significant difference is noticed between two corresponding results, all further tests shall be conducted in the nominated laboratory till the testing equipment at site is properly checked and rectified.

Concrete which does not meet the strength requirements of IS 456 but has strength greater than that required are at the sole discretion of the consulting engineers, be either rejected or accepted at 5% less than the quoted rate for every 1% fraction short fall in the strength.

All consequence of rejection and reinstatement of concrete shall be totally at the contractors expenses.

VII CONSTRUCTION JOINTS

Concreting shall be carried out end to end continuously as far as possible and when construction joints are totally unavoidable, it shall be located in a predetermined position approved by the Architects/Structural Consultant and shall be conform to the relevant Clauses of IS:456. The joints shall be kept at places where the shear force is the minimum and these shall be straight and at right angles to the direction of main reinforcement. When the work has to be resumed, on a surface which has hardened, such surfaces shall be roughened. It shall be swept clean, thoroughly wetted and covered with a 13mm thick layer of mortar composed of cement and sand 1:2 in the concrete mix. This 13mm layer of mortar shall be freshly mixed and placed immediately before the placing of concrete. Where the concrete has not fully hardened, all laitance shall be removed by scrubbing the with surface wit wire or bristle brushes are being taken to avoid dislodgement of particles of aggregate. The surface shall be thoroughly wetted and free water removed. The surface shall not exceed 15 cm. Thickness and shall be rammed against old work, particular attention being paid corners.

VIII EXPANSION JOINT

Expansion joint shall be provided where required as shown the drawings or as directed by the Structural Consultant. The joints shall be filled with approved quality filler as specified by the Structural Consultant.

IX. REMOVAL OF FORMWORK.

In the normal circumstances (generally where temperatures are above 21 degrees centigrade) and where ordinary Portland cement is used, forms may be struck after expiry of following periods.

- a) walls, columns & Vertical sides : 24 to 48 hours as may be
sides of beams. directed by Architects.
- b) Bottom of slab up to 4.5m span : 14 days
- c) Bottom of slab above 4.5m span, bottom of:
beam & arch rib up to 6m span 14 days

- d) Bottom of beams and arch rib over 6m span: 21 days

However, this period may be increased or decreased at the discretion of Structural Consultant at no extra cost. In case contractor decided to use cement other than Ordinary Portland Cement then stripping time will be decided by structural consultant and his decision will be binding on the Contractor. Special care shall be taken while striking the centering of cantilevered slab canopies, portal frames, folded plate construction and period of striking centering shall be as determined by the Structural Consultant.

If directed, forms shall be given an upward camber to ensure that the beams do not have any sag. Surface that becomes exposed on removal of forms shall be carefully examined and any fins, burrs, projections etc. that are detected shall be removed. Any honeycombing of minor nature shall be finished neatly with cement mortar 1:2.

X COVER

Reinforcement shall have cover as shown on the RCC drawings and where not specified the thickness of cover shall be as follows. PVC spaces (approved quality) shall be used as cover blocks as per their specification.

- a) At each end of reinforcing bar not less than 25mm nor less than twice the diameter of such rod or bar.
- b) For a longitudinal reinforcing bar in a column not less than 40mm, nor less than the diameter of such rod or bar.
- c) For longitude in all reinforcing bar in a beam not less than 25mm, nor less than the diameter if such rods or bars.
- d) For tensile, compressive, shear or other reinforcement in a slab not less than 13 mm, not less than the diameter of such reinforcement.

SECTION-D: MASONRY AND PLASTERING

GENERAL

All bricks/blocks work should be carried out as shown on the drawings with setbacks, projections, cuttings, toothings, etc. Wherever the proportion of cement mortar has not been specifically mentioned, cement mortar in the proportion of 1:6 shall be used. Flat brick arches shall be provided wherever required without any extra cost. Brick/blocks work shall be kept wet while in progress till mortar has properly set. On holidays or when work is stopped, top of all unfinished masonry shall be kept wet. Should the mortar become dry white or powdery, for want of curing, work shall be pulled down and rebuilt at the Contractor's expenses.

1 BRICK WORK FIRST CLASS (When used)

Bricks shall be thoroughly clean, well wetted and soaked for at least twelve hours in fresh water before being used on the work. Bricks shall be of locally available best quality.

Whole of the masonry work shall be brought up to one uniform level throughout the structure; but where breaks are unavoidable, joints shall be made in good long steps. All junctions of walls and cross walls shall be carefully bonded into the main walls.

During rains, the work shall be carefully covered to prevent mortar from being washed away. Should any mortar or cement be washed away the work shall be removed and rebuilt at the Contractors expense.

2. PLASTERING:

a) Scaffolding: Scaffolding for carrying out plastering work shall be double scaffolding having two sets of vertical supports so that the scaffolding is independent of walls. No put log support shall be allowed.

b) Preparation of Surface: All put log holes in brickwork and junction in between concrete and brickwork shall be properly filled in advance. Joints in brickwork shall be raked about 10mm and concrete surface hacked to provide the grill to the plaster. Projecting burrs of mortar formed due to gaps and joints in shuttering shall be removed.

The surface shall be scrubbed clean with wire brush/coir brush to remove dirt, dust etc. and the surface thoroughly washed with clean water to remove efflorescence grease and oil etc. and shall be kept wet for a minimum of six hours before application of plaster.

c) Cement Plaster: Cement mortar of specified proportion and thickness shall be prepared in small batches and applied to the wall surface/ceiling. To ensure proper thickness gauged patches shall be made at 1.5 to 2m apart and the surface plastered true to line level and plumb, taking special care to finish jambs of windows, doors, wall returns, corners, junctions etc. A thin layer of neeru shall than be applied and rubbed into surface and finished by means of trowel until the surface is even and smooth. The surface shall be kept moist for seven days and then given a coat white wash.

3. SPECIFICATION FOR WATER PROOFING:

R.C.C Water Tanks/Septic Tanks:

In case of new tanks after the plumbing work is completed and the normal plastering work is done the tank should be treated from inside with approved water proofing treatment. The inside should be finished smooth after the treatment. The plastering should be done after laying a layer of chicken mesh of approved quality.

It is essential in the interest of work at the tank should be filled with water by the main contractor after they have completed the waterproofing treatment in the presence of the Owner/Architects/Consultants or their representatives. Any defects noted shall be rectified to the satisfaction of the Owner.

SECTION-E: APPROVED MAKES

Cement	:	ACC / Ultratech / JSW / PPC
Steel	:	JSW/ Vishakh / Tata
Cement Blocks	:	As per Sample Approval
Laterite Blocks	:	As per Sample Approval
M Sand	:	As per Sample Approval
20 & 40mm Granite Broken Stone	:	As per Sample Approval