

**TENDER FOR RENOVATION/ UPGRADATION OF CORPORATION STADIUM AT
THRISSUR (ADDITIONAL WORKS)**

TENDER NO : 28/2014-15/NGS

Owner : The Chief Engineer
National Games Secretariat
Chandrasekhar Nair Stadium
Trivandrum 695 033
Tel: 0471 2302287

Consultants : KITCO LTD.

Accepting Authority : The Chief Engineer
National Games Secretariat
Chandrasekhar Nair Stadium
Trivandrum 695 033
Tel: 0471 2302287

Probable Amount of Contract : Rs.14,34,998/-

Cost of Tender Form : Rs. 2,200 + tax 5% VAT

Earnest Money Deposit : Rs.35,900/-in the form of crossed
demand draft from
Nationalised/Scheduled Bank drawn
in favour of The Chief Commissioner
and Principal Co-ordinator, National
Games Secretariat at Trivandrum.

Time of completion : Two months

Last Date of Receipt of Tender : 30/09/2014 AT 3.00 PM

Date of opening of Tender : 01/10/2014 AT 11.00 AM

Venue of Receipt/opening of Tender : The Chief Engineer
National Games Secretariat
Chandrasekhar Nair Stadium
Trivandrum 695 033
Tel: 0471 2302287

Issued by : The Chief Engineer
National Games Secretariat
Chandrasekhar Nair Stadium
Trivandrum 695 033
Tel: 0471 2302287

Issued to :

Tenderer

Chief Engineer

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1. NOTICE INVITING TENDER

1.0 NOTICE INVITING TENDER

- 1.01 Sealed percentage rate tenders are invited on behalf of National Games Secretariat, Trivandrum (hereinafter called the ACCEPTING AUTHORITY) for the Renovation/ Upgradation of Corporation Stadium at Thrissur (Additional Works) from eligible Contractors possessing appropriate class registration in CPWD, State PWDS, Government Undertakings for executing this work. A certified copy of the Contractor's License shall be enclosed with the Tender. Partnership firms shall furnish full names of all partners in the tender. It may, however, be signed in the partnership name by one of the partners or by a duly authorized representative, followed by the name and designation of the persons signing.

Eligibility Criteria

The tenderer should have valid Registration Certificate, PAN, Service Tax registration, VAT, ESI and PF Registration (A copy of the same shall be submitted along with the application for issue of tender document)

The schedule of quantities, tender drawings, specifications and commercial conditions of the Contract are appended.

- 1.02 The general information of the project is given in Annexure to this NIT. The information is only indicative. The tenderers are required to visit the site and familiarise themselves with the site conditions, nature of strata, availability of construction materials, etc., before quoting. The drawings, general & special conditions of Contract, schedule of quantities and the specifications may be carefully studied before they offer their quote. No claims for extra compensation over and above the quoted rates will be entertained by ACCEPTING AUTHORITY on the ground that the tenderer have misjudged site conditions, nature of strata, tender conditions or any item of tender. The tender documents can be obtained from the office of Chief Engineer, National Games Secretariat, Palayam, Thiruvananthapuram on cash payment of Rs.2200/- + tax 5% (Rupees Two thousand and Two Hundred Only + tax 5%) on any working days during office hours from 18/09/2014 up to 12 Noon 30/09/2014 or download from the official website of the National Games Secretariat, www.kerala2015.com. Those who download the bidding documents from the website shall enclose a separate Demand Draft along with the bidding document towards the cost of the tender form mentioned. This payment is not refundable.
- 1.03 The quoted tender documents signed and completed in all respects shall be forwarded so that it reaches the office of the Chief Engineer, National Games Secretariat, Palayam, Thiruvananthapuram on or before 3.00 PM on 30/09/2014 Any tender received after the due time on this date will be rejected.
- 1.04 Tender shall be deposited in a sealed envelope superscribing Tender No. and name of work and shall contain:
1. Earnest Money Deposit as specified
 2. Tender Drawings
 3. Tender documents

Tenderer

Chief Engineer

4. Preliminary agreement duly executed on non-judicial stamp paper of value not less than Rs.100/- as per proforma attached.
 5. Cost of tender documents in the form of DD.
- 1.05 Tender will be opened in the presence of tenderers or their authorized representatives who are present at 11.00 AM on 01/10/2014 at the venue specified. In the event of the specified date of Bid opening being declared a holiday for the ACCEPTING AUTHORITY, the tender will be opened at the same location at same time on the next working day.
- 1.06.01 After the public opening of the tenders, the information relating to the examination, clarification, evaluation and comparison of tenders and recommendations concerning the award of Contract shall not be disclosed to the tenderer and other persons not officially concerned with such process.
- .02 Subject to ACCEPTING AUTHORITY's right to accept any tender and reject any or all tenders; the work will be awarded to the tenderer whose bid has been determined to be substantially responsive to the tender documents and who has offered the lowest Evaluated Tender Price provided further that the tenderer has the capability and resources to carry out the Contract effectively.
- .03 Prior to the expiry of the period of validity of the tender ACCEPTING AUTHORITY will notify the successful tenderers in writing their name the sum which ACCEPTING AUTHORITY will pay to the Contractor in consideration of the execution, completion, operation, maintenance and guarantee of the work by the Contractor as specified by the Contract (hereinafter called the Contract price). This letter of acceptance will constitute the formation of a Contract.
- .04 Before commencing the work and within fourteen days after the letter of acceptance of the tender has been intimated to him, the tenderer shall make a security deposit as given in clause 1.10 of this notice and furnish the same for the proper fulfillment of the Contract and shall execute an agreement for the work in required non-judicial stamp paper of value not less than Rs.100 in the prescribed format.
- .05 If the tenderer fails to execute the agreement as stated above within the specified period, the earnest money deposit shall be forfeited to ACCEPTING AUTHORITY and fresh tenders called for or the matter otherwise disposed off. If as a result of such measures due to the default of the tenderer to pay the required deposit, execute the agreement or take possession of the work site, any loss to ACCEPTING AUTHORITY results, the same will be recovered from the tenderer by deducting from any amount due to him from other works or revenue recovery or by suitable course of action including legal proceedings.
- .06 Tenders not properly filled, mutilated with incorrect calculations or generally not complying with the conditions are susceptible to be rejected.
- 1.07 In the case of percentage rate Contract only a single rate as an overall percentage above or below or at par with the rate given in the schedule by a single entry at the bottom of the schedule under the head quoted rate, may be made. The overall

percentage rate accepted and specified in the agreement shall not be varied on any account whatever. The rate thus quoted will be deemed to include the cost of all materials, labour, hire charges for all machinery's, cost of fuel, power, all leads and lifts, taxes, levies, royalties all over heads contingencies, profits, etc. and the quoted price is all inclusive. The total Contract price shall also be worked out and entered in.

1.08 If the tender is made by an individual it shall be signed with his full name and his complete address shall be given. If it is made by partnership firm it shall be signed with the co-partnership name by a member of the firm who shall sign his own name and give the name and address of each partner of the firm and attach a copy of 'Power of Attorney' with the tender authorising him to sign on behalf of the other partners. A certified copy of the 'Registered Partnership Deed' shall also be submitted along with the tender. A certified copy of the registered deed shall also be submitted along with the tender. The tender should be in a sealed cover.

1.09 **EMD**

.01 Earnest Money Deposit is Rs.35,900/-. It shall be drawn from Nationalised/Scheduled bank in the form of crossed demand draft in favour of The Chief Commissioner and Principal Co-ordinator, National Games Secretariat, Trivandrum.

.02 EMD of the unsuccessful tenders will be refunded without any interest on finalisation of the Contract with the successful Tenderer or on the expiry of the validity period whichever is earlier.

.03 EMD deposited with ACCEPTING AUTHORITY will be forfeited,

i) if a bidder withdraws his bid during the period of validity specified.

ii) if the successful bidder fails within the time limit to sign the Contract document or fails to furnish the required security deposit.

1.10 **SECURITY DEPOSIT**

.01 The successful tenderer on receipt of the letter of acceptance will deposit an amount equal to 5% of the PAC subject to a maximum of Rs.2,00,000/- whichever is less, for the works upto Rs.2crore .PAC shall be in the form of a crossed demand draft\BG drawn in favour of National Games Secretariat payable at Trivandrum from Nationalised\Scheduled Bank. If the Probable Amount of Contract is more than Rs.2 crore the security deposit will be 10% of the PAC without any limit in the form of Bank Guarantee from Nationalised\Scheduled bank.

.02 EMD will be refunded to the contractor after remittance of the security and execution of the agreement.

1.11 **REFUND OF SECURITY DEPOSIT & RETENTION MONEY**

1.11.1 One satisfactory completion of the work and on recording of completion certificate, the retention money will be released based on the report from the Engineer-in-charge.

1.11.2 On expiry of the defects liability period or on payment of the amount of the Final Bill which ever is later, the Engineer-in-charge, shall recommend on demand from the contractor to refund to him the security deposit (i.e. amount retained as per clause 1.11 above) and the same will be refunded by the Accepting Authority provided that the Engineer-in-charge is satisfied that there is no demand outstanding against the Contractor.

1.12 STATUTORY DEDUCTIONS

1.12.1 Income-tax at the rate prevailing at the time of payment will be deducted from each running account bill and final bill.

1.12.2 All statutory payments in connection with the employment of the workmen for this work will be borne by the Contractor.

1.12.3 The Contractor is the employer of all the worker's engaged for this work and should therefore take all required registrations and pay premium correctly to labour welfare funds constituted by the Union Government and Government of Kerala from time to time as per the existing rules.

1.12.4 All statutory deductions shall be made from the amount eligible to the contractor in each part bill at current rates. The deduction towards the work contract tax shall be as per the prevailing rates of Kerala Government Sales Tax Rules. Any tax omitted, to be deducted in any part bill shall be deducted in the subsequent bills/final bill.

1.13 QUANTUM OF WORK

1.13.01A schedule of approximate quantities for various items accompanies this tender. It shall be definitely understood that ACCEPTING AUTHORITY do not accept any responsibility for the correctness or completeness of this schedule in respect of items and quantities and this schedule is liable to alteration by deletions, deductions or additions at the discretion of ACCEPTING AUTHORITY without affecting the terms of the contract.

1.13.02ACCEPTING AUTHORITY reserves the right to increase or decrease the quantum of work at site without assigning any reason.

1.13.03Variations in the quantities put to tender will not be the basis of any claim or disputes. The rates agreed by the contractor shall hold good for any amount of variation in the quantities and no claims whatsoever will be entertained on this amount. The contractor shall carry out all works as directed by ACCEPTING AUTHORITY at the same agreed rates.

1.14 ALL INCLUSIVE RATES

The contractor's rate must be firm and include the cost of transportation of material to the site, all taxes such as Sales Tax, Service tax, Excise and octroi, etc. and the fixing or placing in position for which the item of work is intended to be operated. The rates

quoted by the contractor shall be firm throughout the contract period and there shall be no upward revision of the rates quoted by the contractor for any reasons whatsoever. It should be clearly understood that any claims for extra Sales Tax, Excise duty, construction tax or any additional tax, etc., shall not be entertained in any case whatsoever once the tenders are opened.

1.15 INTERPRETING SPECIFICATIONS

1.15.01 In interpreting the specifications, the following order of decreasing importance shall be followed:

- a. Specification mentioned in Schedule of Quantities
- b. Special Conditions of Contract,
- c. Unit Rate Specifications and Technical Specifications,

1.15.02 Matters not covered by the specifications given in the contract, as a whole shall be covered by the relevant Indian Standard Codes. If such codes on a particular subject have not been framed, the decision of ACCEPTING AUTHORITY shall be final.

1.16 ALTERATIONS

No alterations shall be made by the tenderer in the Notice Inviting Tender, Instructions to the contractors, Contract form, general conditions of the contract, special conditions of contract, drawings and specifications and if any such alterations are made or any conditions attached, the tender is liable to be rejected.

1.17 ACCEPTANCE OF THE TENDER

1.17.01 The acceptance of a tender rests with the Authorized Representative of ACCEPTING AUTHORITY who does not bind himself to accept the lowest tender and reserves to himself the authority to reject any or all the tenders received without assigning any reason(s) whatsoever.

1.17.02 The authorised representative of ACCEPTING AUTHORITY reserves the right of accepting the whole or any of the tenders received and the tenderer shall be bound to perform the same at the rates quoted.

1.17.03 The work shall be carried out under the direction and supervision of ACCEPTING AUTHORITY or their representative at site. On acceptance of the tender, the contractor shall intimate the name of his accredited representative who would be supervising the construction and would be responsible for taking instructions for carrying out the work.

1.17.04 ACCEPTING AUTHORITY's decision with regard to the quality of the material and workmanship will be final and binding, any material rejected thus shall be immediately removed by the contractor and replaced by materials as per specifications and standards.

1.18 DEFECTS LIABILITY PERIOD

Defect Liability Period will be 12 months from the date of completion of work. Any defect developed within 'Defect Liability Period' will have to be rectified by the contractor at their own cost and in case the defects are not rectified by the contractor, ACCEPTING AUTHORITY or their representative shall get the work done at the risk and cost of the contractor.

1.19 DELAYS IN COMMENCEMENT

The contractor shall not be entitled to any compensation for any loss suffered by him on account of delays in commencing or executing the work, whatever the cause for such delays may be including delays in procuring Government Controlled or other materials.

1.20 OCCUPATION IN PART & CO-OPERATION

1.20.01 If ACCEPTING AUTHORITY wants to occupy areas in part, the contractor shall complete the work of these areas in conjunction with ACCEPTING AUTHORITY and hand over the same to ACCEPTING AUTHORITY without affecting any of the clause of contract agreement.

1.20.02 The contractor must co-operate and co-ordinate with other contractors involved in other works at the site. The contractor should also note that they shall have to clear the site of vegetation, debris, etc. before the commencement of the work and that no extra payment is permissible on this account.

1.21 ISSUE OF MATERIALS, TOOLS AND PLANT

1.21.01 The contractor should inspect the source of materials, their quality, quantity and availability. All materials must strictly comply with the relevant B.I.S. specifications.

1.21.02 ACCEPTING AUTHORITY shall issue the following material or Tools and Plants required for the execution of the works.

- a) Materials Nil
- b) Tools and Plants Nil

1.22 PERIOD OF CONSTRUCTION

Time is the essence of this contract. The construction period shall be One month.

1.23 INSURANCE

The successful tenderer shall take out Contractor's All Risk (CAR) insurance policy, jointly in the name of ACCEPTING AUTHORITY and the contractor, and the original policy shall be deposited with ACCEPTING AUTHORITY.

1.24 This Notice Inviting Tender will form part of the tender document and the agreement executed by the successful tenderer.

Chief Engineer
NATIONAL GAMES SECRETARIAT

ANNEXURE TO NIT

GENERAL INFORMATION OF THE PROJECT

1. Name of Project : Renovation/ Upgradation of Corporation Stadium at Thrissur (Additional Works)
2. Site and location : Thrissur
3. Nature/scope of work : Renovation/ Upgradation of Corporation Stadium at Thrissur (Additional Works) such as paving blocks, Repainting works etc.
4. Nearest Railway Station : Thrissur
5. Nearest Airport : Cochin
6. Owner/Client : The Chief Engineer
National Games Secretariat
Chandrasekhar Nair Stadium
Trivandrum 695 033
Tel: 0471 2302287
7. Consultants : KITCO Ltd.,
P.B.No. 4407,
Femith's, Puthiya Road,
NH By Pass, Kochi – 682 028.
8. Accepting Authority : The Chief Engineer
National Games Secretariat
Chandrasekhar Nair Stadium
Trivandrum 695 033
Tel: 0471 2302287
9. Payment Authority : The Chief Engineer
National Games Secretariat
Chandrasekhar Nair Stadium
Trivandrum 695 033
Tel: 0471 2302287
10. Period of completion of work : One month.
11. Schedule taken with Cost Index : DSR 2013 with Cost Index 126%

2. GENERAL CONDITIONS OF CONTRACT

2.00 GENERAL CONDITIONS OF CONTRACT

2.01.00 Definitions

- 2.01.01 In the contract (as hereinafter defined) the following words and expressions shall have the meaning hereby assigned to them except where the contract otherwise requires.
- 2.01.02 The “Client” shall mean the Corporation/Board/Department/Person for whom the work is being arranged.
- 2.01.03 The ACCEPTING AUTHORITY shall mean the Accepting Officer/Firm with whom the Contractor executes the Agreement and this shall be mentioned in NIT.
- 2.01.04 The “Contractor” shall mean person or persons, firm or company whose tender has been accepted and includes the contractor’s legal representatives, successors and permitted assigns.
- 2.01.05 The “Consultants” shall mean KITCO Ltd. who are consultants to the Owner for this project and having their office at P.B.No.4407, Femith’s, Puthiya Road, NH By Pass, Vennala, Kochi-28, for the present or any other competent agency duly appointed by CLIENT to act as consultants for the purpose of the contract. The words “Consultants” “Consulting Engineers” appearing elsewhere in the tender shall also mean consultants.
- 2.01.06 “Tender” shall mean the tender submitted by the contractor for acceptance before the ACCEPTING AUTHORITY.
- 2.01.07 The “work” shall mean and include all works to be executed in accordance with the contract or part thereof as the case may be and shall include all extras, additional, altered or substituted works required for the purpose of the contract.
- 2.01.08 The “Contract Document” shall mean the agreement between ACCEPTING AUTHORITY and the contractors for the execution of the work including therein all documents such as the Notice Inviting Tender, Tender Forms, General Conditions of Contract, Technical Specification, Schedule of Quantities, Special Conditions of Contract, Letter of Acceptance, Agreed variation if any, drawings, work orders, and / or any other / correspondences or negotiations, etc.
- 2.01.09 “Specifications” shall mean all directions, various technical specifications, provisions and requirements attached to the contract which pertain to the method and manner of performing the work, and the materials to be furnished under the contract for the work as may be amplified or modified by ACCEPTING AUTHORITY/Consultant, drawings for the performance of the contract in order to provide the unforeseen conditions or in the best interest of the work. It shall also include the latest revised version of the relevant B.I.S. specification and other relevant codes.

- 2.01.10 “Site” shall mean the land allotted by the Owner/Client under in or through which the work is to be carried out.
- 2.01.11 “Letter of Acceptance/Award of Work” shall mean an intimation by letter, telegram, telex or fax to the tenderer that the tender has been accepted in accordance with the provisions contained therein.
- 2.01.12 “Engineer” shall mean the Engineering Personnel representing ACCEPTING AUTHORITY/Consultant and entrusted with work of supervision of work at the site.
- 2.01.13 “Contract sum/price” shall mean the total sum referred to in the schedule of quantities and rates and accepted by ACCEPTING AUTHORITY.
- 2.01.14 The ‘Probable Amount of Contract’ (PAC) shall mean the Estimated amount/ Tendered amount of the work.
- 2.01.15 The “Payment Authority” shall mean the Officer/Firm who makes payments of the bills for the work done and this shall be mentioned in NIT.

2.02.00 **SITE**

- 2.02.01 Location and details of site are specified in NIT.
- 2.02.02. Entry into the project area will be restricted. Passes and permits will have to be obtained from Owners for entry of all persons and vehicles into the project area. During working, the contractor shall provide barricades and screens and working place shall be isolated from other places. Working place shall be visible from other areas.

2.03.00 **SCOPE OF WORK**

- 2.03.01 The scope of work is described in the NIT.
- 2.03.02 The scope of work further includes variation or modification of design, quantity or quality of work, addition, omissions or substitution of any work, under the instruction of ACCEPTING AUTHORITY/Consultant. Such instructions shall be complied forthwith.
- 2.03.03 The Contractor shall provide all necessary labour, materials, equipments and management and supervisory personnel to complete the works provided under this contract in time.

2.04.00 **ASSIGNMENT AND SUB-CONTRACTING**

2.04.01 **ASSIGNMENT**

The contractor shall not assign the contract or any part thereof or any benefit or interest therein or there under without the written permission of ACCEPTING

AUTHORITY; not shall transfers be made by Power of Attorney authorizing others to carry out the work or receive payment on behalf of the tenderer.

2.04.02 SUB-CONTRACTING

The contractor shall as soon as practicable, after signing the contract, notify to the Engineer-in-Charge, in writing, the names of the subcontractors proposed for the work.

The Contractor shall be fully responsible to ACCEPTING AUTHORITY for the acts and omissions of his subcontractors and of persons directly or indirectly employed by them, as he is for the acts and omissions of persons employed by him.

Nothing contained in the contractual documents shall create any contractual relation between any subcontractor and the ACCEPTING AUTHORITY.

Subcontracting shall be limited to NOT exceeding 40% of the total amount of contract. In case of specialised nature of work requiring very high quality stipulations, such works shall not be subcontracted unless:-

- a) The subcontractor firm has sufficient expertise, equipment/plant back up and experience in the similar nature of work.
- b) The subcontractor firm has sufficient financial background. The firm should have atleast 20% of the value of work to be sublet as net assets.
- c) The subcontractor firm has a track record of completing the works on time and to the quality stipulations.
- d) The subcontractor firm has not run into litigation/ arbitration in the past three years with the clients.

In no event can any delay or unsatisfactory work conducted by the subcontractor can either be accepted or can be contractor adduce such delay or unsatisfactory work attributable to subletting of work. The main contractor shall be fully responsible for the contract and Management of subcontractors.

2.05.00 DRAWING

2.05.01 ISSUE OF DRAWINGS

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 ACCEPTING AUTHORITY or his representative of any further drawings or specifications that may be required for the execution of the works or otherwise under the contract.

2.05.02 COPIES OF DRAWINGS TO BE KEPT AT SITE

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 ACCEPTING AUTHORITY or their representative and by any other person authorised by ACCEPTING AUTHORITY in writing.

2.05.03 ISSUE OF FURTHER DRAWINGS AND INSTRUCTIONS

ACCEPTING AUTHORITY 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 carry out and be bound by the same.

2.05.04 OWNERSHIP OF DRAWINGS

All drawings supplied to the Contractor are deemed to be the property of KITCO. The Contractor should not divulge or use, except for the purpose of this contract, any information contained in the drawings.

2.05.05 EXECUTION AS PER DRAWINGS

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 authorised by ACCEPTING AUTHORITY.

2.05.06 PLANS AND DRAWINGS TO BE SUBMITTED BY CONTRACTOR

The Contractor shall submit the following information in triplicate to ACCEPTING AUTHORITY for approval within the time stipulated: each item below:-

- a) A general tentative layout plan of construction plant and equipments for the execution of work within 7 days from the date of receipt of work order.
- b) Drawings or prints showing the location of major plants and other facilities which he proposes to put up at the site, including any changes in the general layout, at least 7 days prior to the commencement of the respective work.

Layout and details of temporary works that the contractor wants to carry out to fulfil his obligation under the contract. Within 15 days ACCEPTING AUTHORITY will give their approval/comments sufficient to proceed with the work or objections/instructions to the Contractor based on which the drawings shall be revised and submitted again for approval by the Contractor.

All these plans and drawings submitted by the Contractor and approved by ACCEPTING AUTHORITY shall become part of the contract.

2.05.07 ROYALTIES AND PATENT RIGHTS

All royalties or other sums payable in respect of the supply and use in carrying out the work as desired by or referred to in the schedule of quantities of any patented articles, process or inventions shall be deemed to have been included in the contract sum and the Contractor shall indemnify ACCEPTING AUTHORITY from and against all claims, proceedings, damages, costs and expenses which may be brought or made against ACCEPTING AUTHORITY or to which he may be put by reason of the Contractor infringing or being held to have infringed any patent rights in relation to any such articles, process and inventions.

2.06.00 GENERAL OBLIGATIONS

2.06.01 INSPECTION OF SITE ETC. BEFORE SUBMISSION OF TENDER

The Contractor shall inspect and examine the site and its surroundings, and shall satisfy himself before submitting his tender, as to the nature of the ground, form and nature of the site, the quantities and nature of work and materials and its availability required for the completion of the works, the means of access to the site, the local labour conditions, the accommodation he may require and in general shall obtain all necessary information as to the risks, contingencies and other circumstances which may influence or affect his tender. He must go through all the drawings, specifications and other tender documents. Any further clarifications in the drawings and documents can be had from ACCEPTING AUTHORITY at the above mentioned address.

2.06.02 SUFFICIENCY OF TENDER

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices stated in the priced bill of quantities and the schedule of rates and prices, if any, with tender rates and prices shall cover all his obligations under the contract and all matters and things necessary for the proper completion and maintenance of the work.

2.06.03 DISCREPANCY OR ERROR IN TENDER DOCUMENT

Should the Contractor notice any discrepancy or error in the tender document, in the statement made, or quantities or units shown against items, he shall immediately bring to the notice of ACCEPTING AUTHORITY and obtain the clarification before submitting the tender. The tender shall be based on such clarifications received and shall be recorded as such in the covering letter to the tender, failing which ACCEPTING AUTHORITY shall have the right to ask the Contractor to execute the work according to the corrected statement made or quantities or units shown in the tender, without any compensation; when the same has come to the notice of the ACCEPTING AUTHORITY.

2.06.04 **RATES QUOTED FOR FINISHED WORK**

The rates quoted in the tender by the Contractor must be for the finished work as per the drawings and specifications.

2.06.05 **LOCATION OF WORK**

Unless specifically mentioned in the item, the work described there-in may be at any location or elevation.

2.06.06 **FIRM PERIOD**

The tender shall remain open for acceptance for a period of **120 days** from the date of opening of the tender. If any tenderer withdraws his tender before the said period or makes any modifications in terms and conditions of the tender, then Accepting Authority has the liberty to forfeit the said Earnest Money Deposit.

2.06.07 **COMMENCEMENT OF WORK**

The Contractor shall commence the work at site, within 14 days from the date of receipt of letter of award of work or handing over of the site whichever is later and shall proceed with the same with due expedition.

2.06.08 **PROGRAMME OF WORK**

As per the clause in special conditions of contract.

2.06.09 **CONTRACTOR'S EMPLOYEES**

The Contractors shall provide and employ sufficient qualified personnel at site in connection with the project management.

Only such technical assistants as are skilled and experienced in their respective fields and such-agents, foreman and leading hands as are competent to give proper supervision to the work they are required to supervise and,

Such skilled, semi-skilled and un-skilled labour as is necessary for the proper and timely execution and maintenance of works.

2.06.10 **REMOVAL OF WORKMEN**

ACCEPTING AUTHORITY shall be at liberty to object to and require the Contractor to remove forthwith from the works any person employed by the Contractor in or about the execution or maintenance of the works who in the opinion of ACCEPTING AUTHORITY misconduct himself or is incompetent or negligent in the proper performance of his duties or whose employment is otherwise considered by ACCEPTING AUTHORITY to be undesirable and such person shall be replaced by the Contractor without delay by a competent substitute approved by ACCEPTING AUTHORITY.

2.06.11 COMMUNICATIONS TO BE IN WRITING

All references, communications, correspondences made by ACCEPTING AUTHORITY, ACCEPTING AUTHORITY's representative or the Contractor concerning the works shall be in writing and no reference, communication, or complaint which is not in writing, shall be recognised.

2.06.12 OCCUPATION AND USE OF LAND

No land, building belonging to or in the possession of the Owner/Client/ Consultant shall be occupied by the Contractor. The Contractor shall not use, or allow to be used, the site for any purpose other than that for executing the works.

2.06.13 CONTRACTOR'S STORE AND SITE OFFICE

Any site-shed, proposed to be temporarily constructed by the Contractor for his office work, storage of materials, etc. shall conform to the standard sketch, or to the plan approved by ACCEPTING AUTHORITY. Permission for the construction of such sheds shall be obtained in writing. Suitable area in the site of work shall be allowed to the contractor free of cost for constructing company structures for storing his tools and plants, materials site office and cement Godown. However, the structure will be provided by him at his own expense and he will be solely responsible for guarding his property with requisite insurance against theft, fire, etc. The contractor however will have to dismantle the sheds and vacate the land of all debris, etc. at his own expense after completion of work.

2.06.14 MATERIALS, TOOLS AND PLANT

All materials required for the execution of the works other than those mentioned in the Notice Inviting Tender shall be supplied by the Contractor. Materials so supplied shall have the approval of ACCEPTING AUTHORITY before using on the works. All the rejected materials shall be removed at once from the site of work at the Contractor's own cost.

2.06.15 TOLLAGES, ETC.

The Contractor shall pay all tollages and other royalties, rent and other payments or compensations, if any, for getting stone, gravel, sand, clay and all other materials required for the works.

2.06.16 SETTING OUT

The Contractor shall be responsible for the true and proper setting out of the works and for the correctness of the position, levels, dimensions and alignment of all parts of the works and for the provision of all necessary instruments, appliances and labour in connection therewith. If at any time during the progress of the works any error shall appear or arise in the position, level, dimensions or alignment of any part of the works, the Contractor on being required to do so by ACCEPTING AUTHORITY or

ACCEPTING AUTHORITY's representative, shall at his own cost rectify such error to the satisfaction of ACCEPTING AUTHORITY or his representative. The checking of any setting out or of any way relieve the Contractor from the responsibility of true and proper setting out of the works. The Contractor shall provide all necessary instruments, appliances and labour required by ACCEPTING AUTHORITY or his representative for checking if any, of the setting out. The Contractor shall carefully protect and observe all bench marks, site levels, pegs and other things used in setting out the works. The rates quoted for the work shall also include the cost of reference and level pillars and other dismantling, when no longer required.

2.06.17 DAMAGE TO PERSONS AND PROPERTY

The Contractor shall identify and keep indemnified ACCEPTING AUTHORITY against all losses and claims for injuries or damages to any person or property whatsoever which may arise out of or in consequence of the construction and maintenance of works and against all claims, demands proceedings, damages, costs, charges, expenses, whatsoever in respect thereof in relation thereto.

2.06.18 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 ACCEPTING AUTHORITY/ CONSULTANT and as far as it relates to the Contractor's work. The sequence of work shall be so arranged that the work of other agencies are also in progress simultaneously.

2.06.19 BARRICADING AROUND EXCAVATED TRENCHES, ETC.

The Contractor shall at his own cost provide around excavation, temporary barricading with bellies and bamboo with warning signals during day and night and shall maintain it so long as the trenches are not filled up. Similar barricades shall also be provided at all dismantling work, erection of structural, sheeting work, etc. No extra claim shall be entertained for providing, maintaining and removing such barricades.

2.06.20 FABRICATION DRAWINGS

Contractor shall prepare at his own cost all fabrication drawings of all structural steel works and bar bending schedule for R.C.C. works and submit them to ACCEPTING AUTHORITY for their approval at least before 15 days of commencing the fabrication. All the details like sizes, capacities, dimensions, arrangement of fabrication, etc. should be clearly indicated on these drawings.

2.06.21 PROTECTION OF UNDERGROUND SERVICES

The contractor must take precautionary measures to protect the underground and other services lines viz. Cables, water and sewer lines, etc. and observe any specific instructions which may be given in this regard by ACCEPTING AUTHORITY.

2.06.22 DEWATERING TRENCHES AND PITS

The tendered rates shall always be deemed to have taken into account the cost of removal of silt and materials that may slip in the trenches and pits and dewatering the trenches or pits of water accumulated or collected through seepage or subsoil water or rain water. The contractor shall in no case be entitled to claim any extra amount for the above work. The contractor shall remain prepared with necessary pumps and equipment for dewatering the trenches or pits so as to avoid unnecessary delay and possible damage to the property, etc.

2.06.23 WORK IN OR AROUND OPERATING PLANT OR OFFICES ETC.

Where the work is being carried out in or around an operating plant where the plant must run uninterrupted, the contractor shall work only at specified place and times as mutually arranged between the Contractor and ACCEPTING AUTHORITY. Similar arrangement must be made while executing works inside the offices, buildings, etc. without causing disturbance to the office work. For this the work may be required to be done during off-hours and Sundays. No extra will be allowed beyond the rates quoted for doing work in the manner described above.

2.06.24 WORK IN SHIFTS AND ON OFF-DAYS

The Contractor shall work in one or more shifts as also on Sundays and off days to complete the work on time, if so required by ACCEPTING AUTHORITY for which ACCEPTING AUTHORITY shall not be liable to pay any extra. If instructed by ACCEPTING AUTHORITY, the Contractor should carry out the work in the night also.

2.06.25 SITE ORDER BOOK AND CEMENT REGISTER

A site order book must be maintained and always be available at site to record the instructions by ACCEPTING AUTHORITY or their representative. The Contractor must see that the instructions noted therein are properly carried out.

A register showing the stock, receipts, daily issue/consumption of cement and balance quantity available etc. should be maintained at site and made available on demand by the ACCEPTING AUTHORITY.

2.06.26 DELAY IN OBTAINING MATERIALS SUPPLIED BY ACCEPTING AUTHORITY

If ACCEPTING AUTHORITY has undertaken to supply any material specified in the special conditions at rates and conditions cited therein, the contractor shall keep himself in touch with day-to-day position regarding the supply of materials from ACCEPTING AUTHORITY and so adjust the progress of the works that labour may not remain idle nor there by any other claim due to or arising from delay in obtaining the materials.

2.06.27 RECORD OF MATERIALS SUPPLIED BY ACCEPTING AUTHORITY

The contractor shall maintain an account of different materials obtained from ACCEPTING AUTHORITY for executing the works under the contract. ACCEPTING AUTHORITY shall have the right to check the position of materials at all times.

2.06.28 SAFE STORAGE OF MATERIALS

The contractor shall be responsible for the safe storage of materials supplied by ACCEPTING AUTHORITY for executing of the works. Surplus materials lost or damaged or unaccounted for or made unserviceable by the Contractor shall be charged at penal rates.

2.06.29 TRANSPORT OF MATERIALS

Unless otherwise specified, all the materials supplied by ACCEPTING AUTHORITY shall be transported by the Contractor from ACCEPTING AUTHORITY's store/yard, to the site of work at no extra cost.

2.06.30 SITE TO BE KEPT CLEAN

The surplus spoil and dismantled debris shall be removed to a place as directed by ACCEPTING AUTHORITY/CLIENT and stacked, levelled and dressed as directed. Rehandling charges will not be allowed.

2.06.31 CONFLICT IN MEANING BETWEEN SCHEDULE OF QUANTITIES AND SPECIFICATIONS

The schedule of quantities shall be read in conjunction with the specification, and in the event of conflict in meaning between the two the corresponding item in the unit rate specification shall always have precedence over the specifications.

2.07.00 LABOUR

2.07.01 LABOUR RULES

In respect of all labour directly or indirectly employed on the works by the Contractor, the Contractor shall comply with the provisions of the contract labour (Regulation and Abolition) Act 1970, Minimum Wages Act 1948, Payment of Wages Act 1936, Employees Provident Funds and Miscellaneous Provision Act 1952, The Employees State Insurance Act, 1948 and any amendments thereof and all legislation and rules of the State and/or Central Government or other local authorities, framed from time to time, governing the protection of health, sanitary arrangements, wages, welfare and safety for labour employed on building and construction works and for bonus, retirement benefits, retrenchment/lay off, compensation and all other matter liabilities of ACCEPTING AUTHORITY to employees. The rules and the other statutory obligations with regard to fair wages, welfare and safety measures, maintenance of register, etc. will be deemed to be part

of the contract. The contractor shall produce documentary evidence for compliance of above Acts.

2.07.02 REPORTING ACCIDENT OF LABOUR

The Contractor shall be responsible for the safety of all employees and/or workers employed or engaged by him on and in connection with the works and shall forthwith report all cases or accidents to any of them, however caused and whenever occurring, to ACCEPTING AUTHORITY or his representative and shall make every arrangement to render all possible assistance and aid to the victims of the accident.

2.07.03 PROVISION OF WORKMEN'S COMPENSATION ACT

The Contractor shall at all times indemnify and keep indemnified ACCEPTING AUTHORITY against all claims for compensation under the provisions of the workmen's Compensation Act 1923 or any other law for the time being in force by or in respect of any workmen employed by the Contractor in carrying out the contract and against all cost and expenses or penalties incurred by ACCEPTING AUTHORITY in connection therewith. In any case in which, by virtue of the provision of the said act, ACCEPTING AUTHORITY is obliged to pay compensation to a workman employed by the Contractor in executing the works, ACCEPTING AUTHORITY shall recover from the Contractor the amount of the compensation so paid and without prejudice to the rights of ACCEPTING AUTHORITY under the said Act. ACCEPTING AUTHORITY shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any amount due by ACCEPTING AUTHORITY to the Contractor, whether under this contract or otherwise without prejudice to any other remedy that may be available to ACCEPTING AUTHORITY, in law. ACCEPTING AUTHORITY shall not be bound to contest any claim made against it under the said Act, except on the written request of the Contractor and upon his giving to ACCEPTING AUTHORITY full security for all cost for which ACCEPTING AUTHORITY might become liable in consequence of contesting such claim.

2.07.04 ACCIDENT OR INJURY TO WORKMEN

ACCEPTING AUTHORITY shall not be liable for, in respect, or any damages or compensation payable as per regulations or in consequence of any accident or injury to any workmen or other person in the employment of the Contractor shall indemnify and keep indemnified ACCEPTING AUTHORITY against all such damages and compensation and against all claims, demands, proceedings costs, charges and expenses whatsoever in respect thereof or in relation thereto.

2.07.05 PRESERVATION OF PEACE

The Contractor shall take requisite precautions to prevent any riotous or unlawful behaviour by or amongst his workmen and/or others employed on the works by him, for the preservation of peace and protection of the inhabitants and security of property in the neighbourhood of the works.

2.07.06 AGE LIMIT OF LABOUR

The age limit for employment of labour shall be in strict accordance with the existing labour legislation.

2.07.07 RETURN OF LABOUR EMPLOYED

The Contractor, if required by ACCEPTING AUTHORITY, shall submit return in detail in such form and at such interval as ACCEPTING AUTHORITY may prescribe showing number of different classes of labour employed on the work from time to time by the Contractor.

2.07.08 OBSERVANCE BY SUB-CONTRACTOR

The Contractor shall be responsible for the observance of the provisions of aforesaid clauses by the sub-contractors employed by him in the execution of the contract.

2.08.00 MATERIAL TESTS AND WORKMANSHIP

2.08.01 QUALITY OF MATERIALS, WORKMANSHIP AND TESTS

All materials and workmanship shall be of the respective kinds described in the contract and in accordance with ACCEPTING AUTHORITY or their representative's instructions and shall be subject, from time to time, to such tests as ACCEPTING AUTHORITY or his representative may direct at the place or any of such places. The contractor shall provide such assistance instruments, machines, labour and materials, as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used and shall supply samples of materials before incorporation in the works for approval as may be required by ACCEPTING AUTHORITY.

2.08.02 CONSTRUCTION OF PROTOTYPES OR SAMPLES OF WORK

The Contractor shall construct prototypes or samples of work as laid down in the contract or as instructed by ACCEPTING AUTHORITY. Such prototypes or samples or work, after approval by ACCEPTING AUTHORITY, shall serve as the standards to be achieved in the final construction.

2.08.03 COST OF SAMPLES

All samples shall be supplied by the Contractor at his own cost.

2.08.04 COST OF TESTS

The cost of making any test as per specifications shall be borne by the Contractor, and the Contractor should arrange for all facilities like meters, instruments as required for carrying out such tests.

2.08.05 INSPECTION OF OPERATION

ACCEPTING AUTHORITY or their representative shall at all times have access to the works and to the site and to all workshops and places where materials, manufactured articles or machinery are being obtained for the works and the Contractor shall afford every facility for every assistance in obtaining the right to such access.

2.08.06 EXAMINATION OF WORK BEFORE COVERING UP

No work shall be covered up or put out of view without the approval of ACCEPTING AUTHORITY or ACCEPTING AUTHORITY's representative and the Contractor shall afford full opportunity to ACCEPTING AUTHORITY or ACCEPTING AUTHORITY's representative to examine and measure any work which is about to be covered up or put out of view and to examine foundations before permanent work is placed thereon. The contractor shall give due notice to ACCEPTING AUTHORITY's representative wherever any such work or foundations is or are ready or about to be ready for examination and ACCEPTING AUTHORITY's representative shall without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examining and measuring such work or of examining such foundations.

2.08.07 UNCOVERING AND MAKING OPENINGS

The Contractor shall uncover any part of parts of the works or make opening in or through the same as ACCEPTING AUTHORITY may, from time to time, direct and shall reinstate and make good such part of parts to the satisfaction of ACCEPTING AUTHORITY. If any such part of parts have been covered up or put out of view and found to be executed in accordance with the contract, the expenses of uncovering, making openings in or through, reinstating and making good the same shall be borne by ACCEPTING AUTHORITY but in any other case all such expenses shall be borne by the Contractor and shall be recoverable from him by ACCEPTING AUTHORITY and deducted by ACCEPTING AUTHORITY from any money due, which may become due to the Contractor, without prejudice to any other remedy that may be available to ACCEPTING AUTHORITY, by law.

2.08.08 REMOVAL OF IMPROPER WORK AND MATERIALS

ACCEPTING AUTHORITY or his representative shall during the progress of the works have power to order the following in writing from time to time of which no extra payment will be made to the Contractor.

- a) The removal from the site within such time or times as may be specified in the order of any materials which in the opinion of ACCEPTING AUTHORITY or his representative are not in accordance with the contract.
- b) The substitution of proper and suitable materials.

- c) The removal and proper re-execution notwithstanding a previous test thereof or interim payment thereof of a work which in respect of materials or workmanship is not in the opinion of ACCEPTING AUTHORITY or his representative in accordance with contract.

2.08.09 SUSPENSION OF WORK

The Contractor shall, on the written order by ACCEPTING AUTHORITY suspend the progress of the works or any part thereof for such time or times and in such manner as ACCEPTING AUTHORITY may consider necessary and shall during such suspension, properly protect and secure the work, so far as is necessary in the opinion of ACCEPTING AUTHORITY.

2.09.00 TIME OF COMPLETION AND TAKING OVER

2.09.01 POSSESSION OF SITE

Save in so far the contract may prescribe the extent of portions of the site of which ACCEPTING AUTHORITY is to be given possession from time to time and the order in which such portions will be available to him and subject to any such portions will be available to him and subject to any requirement in the contract as to the order in which the work shall be executed, ACCEPTING AUTHORITY shall give to the Contractor possession of so much of the site as may be required to enable the Contractor to commence with such reasonable proposals of the Contractor as he will make in writing to ACCEPTING AUTHORITY and shall, from time to time as the work proceeds give the Contractor possession of such further portions of the site as may be required to enable the Contractor to proceed with the construction of the works in accordance with the said programme or proposal.

2.9.02 TIME OF COMPLETION

Time is deemed to be the essence of this contract and the whole of the works shall be completed within the time stipulated or within such extended time as has been allowed under Clause 2.9.3 and 2.9.4.

2.9.03 EXTENSION OF TIME OF COMPLETION DUE TO EXTRA/ ADDITIONAL WORKS

Should the amount of extra or additional work of any kind or changes in scope of work or other special circumstances of any kind whatsoever which may occur, be such as fairly to justify the Contractor's request for extension of time for the completion of the works, the Consultants shall determine the amount of such extension and with the approval of the Client shall intimate the Contractor in writing provided that the Consultants is not bound to take into account any extra or additional work or other special circumstances unless the Contractor has within 28 days, after such work has been commenced or such circumstances have arisen, submit to the Consultants full and detailed particulars of any request for the extension of time to which he may consider to be justified. The Contractor is bound to complete the work at the same rates, terms and conditions.

2.9.04 **EXTENSION OF TIME OF COMPLETION DUE TO FORCE MAJEURE CONDITIONS**

If in the opinion of the Consultants the progress of the work has at any time been delayed due to force majeure conditions like strikes, fire, inclement weather, unavoidable casualties, acts of god or any cause whatsoever beyond the control of the Contractor, continuously for more than one month, then the time of completion of the work may be extended for such reasonable time as the Consultants may decide and this will be indicated in writing. The Contractor shall complete the work at the accepted rates, terms and conditions.

2.09.05 **LIQUIDATED DAMAGES**

If the contractor fails to complete the work within the period of completion or within any extended time allowed the contractor shall pay or allow to the ACCEPTING AUTHORITY the sum equivalent to 1% of the PAC per month of delay calculated on each day basis and upto a maximum of 10% of PAC as liquidated and ascertained damages for the period of stipulated completion or such extended time as the case may be during which the work shall remain unfinished. Such damages may be deducted by the ACCEPTING AUTHORITY from any money due or that may become due.

2.09.06 **WORK TREATED AS COMPLETE**

The works shall not be treated as complete until:

- i) The site is clear from all materials, site shed, etc. and ACCEPTING AUTHORITY is satisfied with the job done by the Contractor.
- ii) The Contractor has submitted the reconciliation statement regarding the stores received from ACCEPTING AUTHORITY, and all the surplus and salvaged materials are returned to the stores.
- iii) All equipment, tools, plant taken from ACCEPTING AUTHORITY have been returned by the Contractor.
- iv) Any other material, taken on loan/transfer from other agency have been returned by the Contractor.
- v) All power and water supply connections taken for the execution of the works have been disconnected by the Contractor.
- vi) Rectification of any damage done by the Contractor to the work executed have been completed by the Contractor.
- vii) The works shall not be considered as completed until ACCEPTING AUTHORITY has certified in writing that they have been virtually completed and the Defects Liability Period shall commence from the date of such certificate.

2.09.07 TAKING OVER

After completion of works or any substantial part of the works before the completion of the whole of the works, the Contractor shall notify ACCEPTING AUTHORITY in writing, who within 15 days of receipt of the said notice shall give such certificate with respect to any substantial part of the works which has been both completed to the satisfaction of ACCEPTING AUTHORITY and occupied or used by ACCEPTING AUTHORITY or refuse to issue the same stating the reasons thereof in writing. When any such certificate is given in respect of a part of the works, such part shall be considered as completed for the purpose of taking over and computation of the period of maintenance of such part, that is such period of the work as certified. The works in whole or part shall not however, be treated as completed for the purpose of other relevant clauses hereof unless and until the provision of clause 2.09.07 hereof are fully complied with.

2.09.08 MAINTENANCE

For a period of TWELVE MONTHS commencing immediately after taking over of the work by ACCEPTING AUTHORITY, the Contractors liability shall be to replace the defective parts, rectify/ reconstruct the defective work that may develop of his own construction or those of his sub-contractor approved by ACCEPTING AUTHORITY arising solely from faulty materials or workmanship.

If it is necessary for the Contractor to rectify/reconstruct any defective portions of the work under the contract, the provision of this condition shall apply to the portions of work so replaced or renewed until the expiration of three months from the date of such replacement or renewal or until the end of the above mentioned period of twelve months, whichever may be later. If any defects be not remedied within a reasonable time ACCEPTING AUTHORITY may proceed to do the work at Contractor's risk and expense, but without prejudice to any other rights which ACCEPTING AUTHORITY may have against the Contractor in respect of such defects.

The Contractor shall bear the cost of such repair/rectification carried out on his behalf at site. Immediately upon expiry of the maintenance period the Company shall issue a final certificate indicating that the Contractor has completed his obligation under the contract.

2.10 TERMINATION AND BACK CHARGING OF CONTRACT

2.10.01 TERMINATION

If the Contractor has abandoned the contract or has failed to proceed with the work due to negligence or the progress on any particular item, items is slow or has failed to execute the work in accordance with the terms and conditions of the contract, is persistently or frequently neglecting to carry out his obligation under the contract, then it shall be lawful for ACCEPTING AUTHORITY to terminate the contract forthwith under written notice and to proceed with the balance of the work through any other agencies. During the course of execution of the job, in case the Contractor

has done any substandard work, he shall be asked in writing to dismantle and redo the same at his own expenses. If the Contractor fails to comply with the above instructions immediately, then ACCEPTING AUTHORITY shall proceed with the above rectification work, through another agency or agencies. Similarly, if the Contractor goes slow on any particular item or items of work, ACCEPTING AUTHORITY shall have the right to execute this item or items through another agency or agencies, including its own department.

2.10.02 BACK CHARGING THE CONTRACTOR

Extra cost and expenses incurred for completing the work of balance work or carrying out the rectification of any work as mentioned above through another agency or agencies including its own department, shall be debited to Contractor's account and shall be recovered from any money due or that may become due to the contractor without prejudice to any other remedy that may be available to ACCEPTING AUTHORITY in law. If there is any savings in cost due to re-arrangement or supplementing through other agencies the original contractor will not have any claim on this.

2.11.00 ALTERATIONS, ADDITIONS AND OMISSIONS

2.11.01 VARIATION

CONSULTANT with the approval of ACCEPTING AUTHORITY/OWNER shall be entitled to make any variation of the quality or quantity of the works or any part thereof that may in his opinion, is necessary and for that purpose, or if for any other reason it shall, in his opinion be desirable, he shall have power to order the Contractor to do and the Contractor shall do any of the following:

- a) Increase or decrease the quantity of any work included in the contract.
- b) Omit any portion of work.
- c) Change the character or quality or kind of any such work.
- d) Change the levels, lines, position and dimensions of any part of the works and
- e) Execute additional work of any kind necessary for the completion of the works, and no such variation shall in any way vitiate or invalidate the contract by the value, if any, of all such variations shall be taken into account in ascertaining the amount of the contract price.

2.11.02 ORDER FOR VARIATIONS TO BE IN WRITING

No such variation shall be made by the Contractor without an order in writing of ACCEPTING AUTHORITY, provided that no order in writing shall be required for increase or decrease in the quantity of any item or work where such increase or decrease is the result of the actual quantities exceeding or being less than those stated in the bill of quantities which are estimates. In such cases, the Contractor shall be

paid only for the actual quantity of work done as certified by ACCEPTING AUTHORITY at the accepted unit item rate and no compensation shall be allowed. Provided also that if for any reason ACCEPTING AUTHORITY shall consider it desirable to give any such order verbally, the Contractor shall comply with such order but it must be followed by confirmation in writing of such verbal order given by ACCEPTING AUTHORITY, which shall be deemed to be an order writing within the meaning of this clause.

2.11.03 **EXTRA ITEMS**

- .01 Any item of work that do not find a place in the schedule of quantities, in the original tender or in the accepted tender or contract as has been directed by ACCEPTING AUTHORITY to execute is deemed as an extra item of work. All such works that are necessary to be carried out under the direction of ACCEPTING AUTHORITY shall be carried out by the contractor. No such variation will violate the Contract.
- .02 Extra items of work thus carried out by the contractor will be paid at the rates worked out by ACCEPTING AUTHORITY in the following manner.
- .03 In the case of all extra items whether additional, altered or substituted, if accepted rates for identical items are provided for in the contract such rates shall be applicable.
- .04 In the case of extra items whether altered or substituted, for which similar items exists in the contract, the rates shall be derived from the original item by appropriate adjustment of cost of affected components. The percentage excess or deduction of the contract rate for the original item with reference to the estimated rate shall be applied in deriving the rates for such items.
- .05 In the case of extra items, whether altered or substituted, for which similar items do not exist in the contract, the rates shall be arrived at on the basis of provisions of standard data book and schedule of rates followed in arriving rates in original work/ agreement. Tender excess/ deduction will also be applied.
- .06 In the case of extra items, whether additional altered or substituted, for which the rates cannot be derived from similar items in the contract, and only partly from similar items in the contract and only partly from the public work department rates, the rates for such part or parts of items as are not covered in the schedule of rates shall be determined by ACCEPTING AUTHORITY on the basis of the prevailing market rates giving due consideration to the analysis of the rate furnished by the contractor with supporting document including contractor's profit. No tender excess will be applied on market rates.
- .07 In the case of extra item whether additional, altered, substituted, for which the rates cannot be derived either from similar items of work in the contract or from the departmental schedule or rates, the contractor after execution of the work as mentioned in 2.11.03.01 above and shall within 14 days of the receipt of order to carry out the said extra item of work, communicate to the Engineer the rate which he proposes to claim for the item, supported by analysis of the rate claimed and

ACCEPTING AUTHORITY shall be within one month thereafter, determines, the rate on the basis of the market rate giving due consideration to the rate claimed by the Contractor.

2.11.04 REBATE/EXTRA OVER ORIGINAL ITEM

If there is a deviation in the specification of particular item of the tender, rebate/extra over the quoted rate shall be generally derived as follows:

- a) For items not covered in the schedule, rebate/extra shall be derived based on observation/ analysis of labour and materials involved in such items.

2.11.05 ITEMS OF AD-HOC NATURE

The Contractor shall procure necessary materials and carry out miscellaneous work of ad-hoc nature specifically provided with necessary tools and tackles as may arise during execution of the contract. The actual quantum of work shall be certified and settled by ACCEPTING AUTHORITY and payment for the same shall be fixed on the basis of actual cost plus overheads, profits and establishments taken at 15% of the cost.

2.11.06 CLAIMS

The contractor shall send to ACCEPTING AUTHORITY's representative an account, giving full and detailed particulars with proper analysis of all claims for any additional expenses to which the Contractor may consider himself entitled to authorise payment to be made for any such work notwithstanding the Contractor's failure to comply with this condition if the Contractor has at the earliest practicable opportunity notified ACCEPTING AUTHORITY in writing, that he intends to make a claim for such work.

2.12.00 MEASUREMENTS

2.12.01 QUANTITIES

The quantities set out in the bill of quantities are the estimated quantities of the work. They are not to be taken as the actual and correct quantities of the works, to be executed by the Contractor in fulfilment of his obligations under the contract.

2.12.02 WORKS TO BE MEASURED

- .01 ACCEPTING AUTHORITY or their Representative shall, except as otherwise stated, ascertain and determine by measurement the value in terms of the contract. He shall when he requires any part or parts of the works to be measured, give notice to the Contractor's authorised agent or representative, who shall forthwith attend or send a qualified agent to assist ACCEPTING AUTHORITY or his representative in making such measurement, and shall furnish all particulars required by either of them. Should the Contractor not attend or neglect or omit to send such agents, then the measurement made by ACCEPTING AUTHORITY or their representative and

approved by him, shall be taken to be the correct measurement of the work. For the purpose of measuring such permanent work as is to be measured by record and drawings, ACCEPTING AUTHORITY 's representative shall prepare records and drawings month by month and the Contractor, as and when called upon to do so in writing, shall within fourteen days, attend to examine and agree such records and drawings with ACCEPTING AUTHORITY's representative and shall sign the same when so agreed. If the Contractor does not so attend to examine and agree such records and drawings they shall be taken to be correct if, after examination of such records and drawings, the contractor does not agree to the same or does not sign the same as agreed, they shall nevertheless be taken to be correct, unless the Contractor shall, within fourteen days of such examination, lodge with ACCEPTING AUTHORITY 's representative for decision by ACCEPTING AUTHORITY, notice in writing of the respects in which such records and drawings are claimed by him to be incorrect.

- .02 The contractor shall raise bills once a month or for a minimum payment of 10% of contract amount, unless otherwise agreed by the Chief Engineer, National Games Secretariat.
- .03 Payment towards all interim bills will be made by ACCEPTING AUTHORITY within 21 days of presentation by the contractor.
- .04 Period of final measurement shall be three months from the time of completion of the project.

2.12.03 **METHOD OF MEASUREMENT**

The works shall be measured in accordance to relevant IS codes notwithstanding any general or local custom, except where otherwise specifically described or prescribed in the contract.

2.13.00 **PROVISIONAL SUMS**

- 2.13.01 "Provisional sum means a sum included in the contract and so designated in the bill of quantities for execution of works or the supply of goods, materials or services or for contingencies, which sum may be used, in whole, or in part or not at all, at the direction or discretion of ACCEPTING AUTHORITY. The contract price shall include only such amounts in respect of the work, supply or services to which provisional sums relate as ACCEPTING AUTHORITY shall approve or determine.
- 2.13.02 The contractor shall when required by ACCEPTING AUTHORITY, produce all quotations, invoices, vouchers and accounts or receipts in connection with expenditure in respect of provisional sums.

2.14.00 **FURTHER INSTRUCTIONS**

- 2.14.01 In this tender item specifications are given in the following sections:

A. TECHNICAL SPECIFICATIONS
B. SCHEDULE OF QUANTITIES
with Unit Rate Specifications

Technical specifications are the general instructions for carrying out the works.

- 2.14.02 The Contractor has to work out his rate as an overall percentage above or below or at the rate given in the Schedule by a single entry. The contractor's over all percentage shall be worked out based on the unit rate specification and rates provided against each specification.
- 2.14.03 The rate has to be entered by a single entry at the end the schedule both in words and in figures. Tender excess will not be applicable for items under Non-SOR items.
- 2.14.04 Every contractor should furnish along with his tender income-tax clearance certificate and information regarding the income-tax circle of Ward of the District in which he is assessed by income-tax, the reference No. of assessment and the assessment year.
- 2.14.05 The rates should be quoted in decimal coinage system.
- 2.14.06 Certified copies of Registration Certificate, Partnership Deed and Power of Attorney or Articles of Agreement in case of Limited companies will have to be furnished for considering the acceptance of the tender.
- 2.14.07 Should the contractor notice any discrepancy or error in the statement made, or quantities or units shown against items, he shall immediately bring it to the notice of ACCEPTING AUTHORITY and obtain the clarification before submitting the tender. The tender shall be based on such clarifications received and shall be recorded as such in the covering letter to the contractor to execute the work according to the corrected statement made for quantities or units shown in the tender, without any compensation.
- 2.14.08 The tender of the Contractor not complying with the above instructions may be rejected.
- 2.14.09 The tenderer should put the signature on all pages of the tender documents.
- 2.14.10 **MATERIALS OBTAINED FROM EXCAVATION**

The contractor shall treat all materials obtained during dismantling of a structure, excavation of the site for a work, etc. as property of the OWNER and such materials shall be disposed off to the best advantage of the OWNER according to the instructions issued by the Engineer-in-Charge.

2.14.11 TREASURE TROVE, FOSSILS, ETC.

All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the Site shall be the absolute property of the OWNER and the Contractor shall take reasonable precautions to prevent his workmen or any other person from removing or damaging any such article or thing. The Contractor shall immediately upon discovery thereof and before removal, acquaint the Engineer-in-Charge with such discovery and carry out the Engineer-in-Charge's directions as to the disposal of the same at the expense of the OWNER.

The Chief Engineer,
NATIONAL GAMES SECRETARIAT

I/We have carefully read the above said instructions and shall comply with the same.

Signature of the tenderer.

Place:

Date :

TENDER FORM

TENDER NO : 28/2014-15/NGS

To

The Chief Engineer,
National Games Secretariat,
Trivandrum.

Dear Sirs,

**Sub: TENDER FOR RENOVATION/ UPGRADATION OF CORPORATION
STADIUM AT THRISSUR (ADDITIONAL WORKS)**

With reference to the tender invited by you for the above proposed work, I/We do hereby Tender for the same after having:

- a) Examined the designs, drawings, details, specifications schedule of quantities, instructions to tenders, agreement and the conditions of contract annexed thereto (hereinafter called the Contract Documents).
- b) Visited the site of work, studied the site conditions, nature of strata, availability of construction materials etc., and
- c) Acquired the requisite information on all prevailing factors affecting the tender.

I/We undersigned hereby offer to construct the proposed work in strict accordance with the Contract document for the consideration to be calculated in terms of the priced schedule of quantities.

I/We have noted that time is the essence of the contract and ready to undertake and complete the whole of the works as per the attached schedule from the date of issue of an intimation by you that our tender has been accepted and upon receiving possession of site. I/We further undertake that on failure subject to the conditions of the contract relating to extension of time, I/We are willing to pay the agreed Liquidated Damages/Penalty for the period during which the work remains incomplete beyond the due date of completion.

I/We further agree to the deduction of retention money and security deposit amounting to a total of 10 percent of value of work which will be returned to me/us as per the relevant clauses in the agreement. The deduction will be as explained in clause 1.12.01 of Notice Inviting Tender.

Tenderer

Chief Engineer

I/We undertake to execute the work of electrification of various facilities if any, through a licensed electrical contractor of appropriate class as given in the tender condition. All the requirements of supervision, testing, commissioning and energizing will be fulfilled by us.

We have also executed the preliminary agreement as is enclosed.

Further we undertake to execute the works which will be entrusted to us in the most workman like manner within the stipulated completion period. If our Tender is found acceptable, we agree to enter into a contract as specified by you within one week of this receipt of intimation of acceptance of our tender.

Our Bankers are:

1.....

2.....

Place:

Date :

Signature of tenderer

Name of the partners of the firm

OR

Name of the person having power of Attorney to sign the contract.

Postal Address :

Telephone Number

i) Land :

ii) Mobile :

Email:

Income Tax PAN No. :

VAT TIN :

Service Tax Registration No. :

Tenderer

Chief Engineer

3. SPECIAL CONDITIONS OF CONTRACT

3.0 SPECIAL CONDITIONS OF CONTRACT

3.01 MOBILISATION ADVANCE

No mobilization will be paid to the Contractor

3.02 SECURED ADVANCE

No secured advance will be paid to the Contractor

3.03 BANK GUARANTEE

3.03.01 Additional bank guarantee as performance guarantee from a scheduled bank has to be remitted by the Contractor who quote very low rates as below:

- i. If the quoted amount is 50% below PAC, appropriate additional performance guarantee or any amount as decided by the Accepting Authority shall be submitted by the Contractor before executing the agreement and the same will be released after the satisfactory competition of work.
- ii. If the quoted amount is between 25% and 50% below PAC, the Contractor will remit performance guarantee equal to the difference between PAC and the quoted amount before executing the agreement and the same will be released after the satisfactory completion of the work.
- iii. Performance guarantee for specialized items of work like antitermite treatment, glass work etc. shall be retained by the Accepting Authority/Client at the rate of 10% of the value of such items, for a period of 5 years. No interest shall be paid for the security so retained.

3.04 WATER

Water required for the construction will have to be provided by the Contractors at their own cost. It will be the responsibility of the Contractor to make arrangements for drawing and bringing it to the various construction points. Non availability of water from the owner's property will not be ground for any delay in work or any claim for any compensation whatsoever.

3.05 ELECTRICITY

Electricity required for the construction and general lighting of the site will have to be provided by the Contractors at their own cost. Non availability of power from KSEB will not be a ground for any delay in work or any claims for any compensation whatsoever.

Temporary wiring/cabbling shall not be routed across floors, around doors. It shall be properly routed as directed by the Engineer-in-Charge. Temporary wiring shall be protected from sharp edges, heat and sunlight to avoid breakdown of the insulation.

3.06 DRAINAGE ARRANGEMENTS

The contractor shall control the grading in the vicinity of the buildings and trenches, so that surface water is prevented from running into excavated areas. The contractor shall also be responsible to see that no area around his works becomes flooded during the rainy season because of his piled up material, etc. and subsequently floor another buildings. At the discretion of the Engineer-in-charge the contractor shall take steps to prevent flooding. It shall be the contractor's responsibility to keep areas around his work dry. The cost of repairing flood damage shall be the sole responsibility of the contractor.

3.07 APPROACH ROAD

The contractor will be required to construct suitable approach roads leading to the construction site from the main road Engineer-in-Charge and shall maintain it at his own cost.

3.08 FABRICATION WORKS

The contractor shall furnish to the Engineer-in-Charge 3 copies of detailed fabrication/erection drawing showing clearly all the joint details, two weeks before the commencement of actual fabrication/erection works. The Engineer-in-charge will have the right to suggest such modification to these details as found necessary by them, which shall be duly incorporated in the works by the Contractor. For the purpose of this clause, the two weeks period shall be deemed to begin from the date of the said drawings are received in the Engineer-in-charge office.

3.09. TAXES & DUTIES

Royalty charges & taxes if any on account of supply of materials for all works shall be paid by the Contractor at his own cost. No extra claim in this regard shall be admissible.

3.10. TURNOVER TAXES/WORKS CONTRACT TAXES:

Deductions will be made from the bills towards Sales Tax, tax on Works contract as per relevant ST Act.

All fixtures & fittings (plumbing fixtures, sanitary materials, doors & window fixtures etc.) have to be got approved by the Engineer-in-charge in writing before fixing the same. However samples of all these fixtures & fittings have to be got approved well in advance of bulk procurement action.

3.11 SITE OFFICE

A site office of size 4mx3m to be provided by the Contractor for the use of Consultant. The Office should have with required furniture toilet facility, water and power.

The following minimum furniture / equipments shall be provided.

- a. Executive tables - 1 No
- b. Chairs - 3 Nos
- c. Steel Almirah - 1 No
- d. Ceiling/Wall/Pedestal fan - 1 No
- e. Fluorescent light fixtures - 2 Nos
- f. Power socket for laptop - 1 No

The Contractor has to dismantle and remove the temporary office after the completion of the Project.

3.12 SUPERVISORY STAFF

The Contractor shall appoint required number of experienced and qualified technical and supervisory staff at the site for supervising the work and shall see that all of them are always at the work spot during the working hours, personally checking all items of work. He shall take such orders as may be given to him by the Engineer-in-charge from time to time and shall be responsible to carry them out properly. In case Contractor fails to provide sufficient person as per terms given below, Owner/Client reserves the right to deduct a reasonable amount from the Contractor's bill, subject to a maximum of Rs.25,000/- for every month of absence.

3.13 PROGRAMME OF WORKS AND PROGRESS REPORTS

- a) The entire work is scheduled to be completed as stipulated in NIT. The Contractor shall programme the different items of work in accordance with the detailed time schedule approved by the Engineer-in-charge.
- b) **CONTRACTOR TO SUBMIT PROGRAMME**

After the acceptance of his Tender, the Contractor shall, within fifteen days, submit to the Engineer-in-Charge for his approval, a detailed programme taking into account the total time period stipulated in the contract showing the order, the procedure and method in which he proposes to carry out the works.

He shall furnish the particulars in writing of his arrangements of manpower, plant and machinery, shuttering and all other resources owned and dedicated to this work. Cash flow during the execution of project for procurement of materials and for carrying out of the works including temporary works which the Contractor intends to construct shall also be furnished.

In support of this programme, the Contractor shall submit a work schedule in the form of a CPM/PERT Chart. The Engineer-in-Charge shall if necessary modify the programme submitted by the Contractor and approval shall be given by the Engineer-in-Charge indicating the major milestones. The programme approved by the Engineer-in-Charge shall be final and binding on the Contractor. The approval by the Engineer-in-Charge of such programme, or

furnishing of such particulars shall not relieve the Contractor of any of his duties or responsibilities under the contract.

During the progress of work, the Contractor shall be required to furnish the resource mobilisation plan as required by Engineer-in-Charge to keep up the target date of completion.

This CPM/PERT programme will be required to be updated every three months or more frequently as directed by the Engineer-in-Charge, based on the actual progress, resource mobilisation and other field conditions actually prevailing.

c) **PROGRESS REPORTS AND SCHEDULES**

The Contractor shall submit to the Engineer-in-Charge by the third day of every fortnight, six (6) copies of a report in a duly approved format showing the progress made in construction of the works mobilisation of resources etc. during the previous fortnight.

d) The Contractor shall also submit by the end of every month his anticipated progress schedule for all items of work for the following month in six (6) copies in an approved proforma to the Engineer-in-Charge.

e) The Contractor shall also submit Photographs of completed works along with Monthly Progress Report (both soft copy & hard copy of approved size)

3.14 DOCUMENTATION

The Contractor shall prepare and submit the detailed documentation of all the structures by means of Photography (hard copy and soft copy), Video by a professional photographer covering various views of the project up to the satisfaction of the Consultant/Client and all as built drawings along with the final bill.

3.39 SETTLEMENT OF DISPUTES

3.39.01 Legal jurisdiction

All litigations relating to the subject matter of the agreement can only be filed before the appropriate courts having jurisdiction in the respective district of construction.

**The Chief Engineer
National Games Secretariat**

INFORMATION ABOUT THE TENDERER
(To be filled by the tenderer)

1	Name of Bidder		
2	Registered office with address for communication	Full postal address	
		Telephone No	
		Mobile No.	
		Fax.No.	
		Email Id	
3	Status of the bidder (individual / Partnership/Private Company/Public Limited Company)		
4.	Details of local office	Address	
		Contact Peron	
		Tele.No.	
		Mobile No.	
		Fax No.	
	Email Id		
5	Particulars of experience as Prime Contractor as per eligibility criteria mentioned in NIT		
6	Annual turnover for the last three years	2010-11	
		2011-12	
		2012-13	
7	Permanent Account Number (PAN)		
8	Service Tax Rate applicable to this particular job		
9	Service Tax Regn No.		
10	Excise Range Details		
11	Service Tax Category		
12	PF Reg.No		
13	ESI Reg No.		

(Attested copies to prove the above shall be submitted along with the tender document)

Signature & Seal of tenderer:
Date:

Name of Tenderer:
Address:

Tenderer

Chief Engineer

4. FORMS FOR DIFFERENT DEEDS

4. PROFORMA OF PRELIMINARY AGREEMENT

(To be executed on stamp paper of value Rs.100/- and submitted along with tender).

Preliminary agreement entered into on this day of
Between (name of Accepting Authority) (Hereinafter called ACCEPTING AUTHORITY on one part and Shri..... (name and address of the Contractor) (Hereinafter called the Contractor) on the other part for the execution of the agreement as well as the execution of the (NAME OF WORK) And where as the notice inviting tenders it is stated as follows. Before commencing the work of within a week of the date when the acceptance of tender has been intimated to him, the tenderer shall deposit a sum of Rs.....(as per NIT) which shall be treated as security for the proper fulfilment of the same and he shall execute an agreement for the work in the scheduled form of agreement. If he fails to do this or fail to maintain a specified rate of progress, the security deposit shall be forfeited to ACCEPTING AUTHORITY and fresh tenders shall be called for or the matter otherwise disposed. If as a result of such measures due to the default of the tender to pay the requisite deposit sign contracts to take possession of the work any loss to the ACCEPTING AUTHORITY results, the same will be recovered from him as arrears of revenue but should it be a saving to ACCEPTING AUTHORITY the original contractor shall have no claim whatever to the difference. Recoveries to this or any other account will be made from the sum that may be due to contractor on this or any other contracts or under the Revenue Recovery Act or otherwise as ACCEPTING AUTHORITY may decide.

Now therefore these present witness and it is mutually agreed as follows:

1. The terms and condition for the said contract having been stipulated in the said tender form to which the contractor has agreed, a copy of which is appended, and which forms part of this agreement, it is agreed that the terms and conditions stipulated there in shall bind the parties to this agreement, except to the extent to which they are abrogated or altered by express terms and conditions herein, agreed to and in which respect the express provisions herein shall supercede those of the said tender form.
2. The Contractor hereby agree and under take to perform and fulfil all the operation and obligations connected with the execution of the said contract work viz. – (NAME OF WORK)
3. If the Contractor does not come forward to execute the original agreement after the said work is awarded and letter of acceptance issued in his favour or commits breach of any of the conditions of the contract as stipulated in clause 1.06.4 of the Notice inviting Tenders as quoted above within the period stipulated, ACCEPTING AUTHORITY may rearrange the works otherwise or get it done otherwise at the risk and cost of the contractor and the loss so sustained by ACCEPTING AUTHORITY can be realising from the contractor under the Revenue Recovery Act as if arrears of land revenue as assessed, quantified and fixed by an adjudicating authority consisting of ACCEPTING AUTHORITY or any other officer or officers authorised by ACCEPTING AUTHORITY taking into consideration the prevailing rates and after giving due notice to the Contractor. The decision taken by such authorised officer or officers shall be final and conclusive and shall be binding on the contractor.

4. The contractor further agrees that any amount found due to ACCEPTING AUTHORITY under or by virtue of this agreement shall be recoverable from the Contractor from the Contractor from his EMD and his properties, movable and immovable as arrears of land revenue under the provision of the Revenue Recovery Act for the time being in force or in any other manner as ACCEPTING AUTHORITY may deem fit in this regard.

In witness where of Sri....., NAME OF ACCEPTING AUTHORITY and Sri.....

Contractor, have set their hands on the day and year first above written,

Signed by Sri..... NAME OF ACCEPTING AUTHORITY

In the presence of witness

1.

2.

Signed and delivered by Sri....., Contractor in the presence of witness.

1.....

2.....

FORM OF BANK GUARANTEE

(To be executed in non-judicial stamp paper)

1. In consideration of the Chief Engineer,(Name of accepting authority) (hereafter called ACCEPTING AUTHORITY) having demanded from Shri.....(here hereafter called "Contractor") the production of a Bank Guarantee for Rs.....(Rupees.....) as.....for the due fulfillment by the Contractor of the terms and conditions in clause of for the work of ".....) on demand by ACCEPTING AUTHORITY.

2. We.....do hereby undertake to pay
(indicate the name of Bank)

The amounts due and payable under this guarantee without any demure, merely on a demand from the ACCEPTING AUTHORITY stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor (s). Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.....

3. We undertake to pay to ACCEPTING AUTHORITY any money so demanded not withstanding any dispute or disputes raised by the contractor (s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal.

The payments so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor (s) shall have no claim against us for making such payment.

4. We(indicate the name of Bank.) further agree that the guarantee here in contained shall remain in full force and effect during the period that would be taking for the performance of the said agreement and that it shall continue to be enforceable till all the dues of ACCEPTING AUTHORITY under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till the ACCEPTING AUTHORITY certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor (s) and accordingly discharges this guarantee.

5. We(indicate the name of Bank) further agree with the ACCEPTING AUTHORITY that the ACCEPTING AUTHORITY shall have the fullest liberty without our consent and without affecting in any manner our obligations here under to vary any of the terms and conditions of the said contractor (s) from time to time or to postpone for any time or from time to time any of the powers exercisable by ACCEPTING AUTHORITY against the said contractor (s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said contractor (s) or for any forbearance, act or omission on the part of ACCEPTING AUTHORITY or any indulgence by ACCEPTING AUTHORITY to the said contractor (s) or by any such manner or

Tenderer

Chief Engineer

thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).
7. We.....(indicate the name of Bank) lastly undertake not to remove this guarantee except with the previous consent of ACCEPTING AUTHORITY in writing.
8. This guarantee shall be valid upto unless extended on demand by ACCEPTING AUTHORITY. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs.....(Rupeesonly and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

Dated the.....day of.....20.....

For.....

.....

(indicate the name of the Bank)

Seal and signature of the authorised signatories of the Bank.

THE KERALA VALUE ADDED TAX RULES, 2005

FORM NO.20

Declaration

(To be filed before the Awarder by Contractor)

(See Rule 42 (1))

Sl.No. DATE D D M M Y Y
TIN*
PIN*
CIN*

TO Status VAT Presumptive
Compounded Tax PayerPayer Tax
Payer

M/s..... (✓ as appropriate)

(Address of the Awarder)

Gentlemen,

I/We request you to kindly effect deduction of tax at source (TDS) in respect of the Works Contract executed/being executed by me/us as per particulars furnished hereunder:

1.	Work Order No. & date	:	
2.	Work site address	:	
3.	Gross value of contract	:	
4.	Payment relating to this declaration	:	
5.	Progressive payment already received including this declaration	:	
6.	Total assessable value of works contract relating to this declaration	:	
7.	Taxable value of works contract relating to this	:	

Tenderer

Chief Engineer

	declaration		
8.	VAT due @ 4%	:	Rs.
9.	VAT due @ 12.5%	:	Rs.
10.	Total VAT due and deductible as TDS	:	Rs.
11.	Total compounded tax @ 2% deductible on total assessable value	:	Rs.
12.	Total compounded tax @ 4% deductible on total assessable value	:	Rs.

DECLARATION

I/We S/o on behalf of M/s hereby affirm and declare that the particulars furnished herein are true, correct and complete to the best of my knowledge and belief and that nothing is concealed therein. I/We do hereby under take to obtain and provide to you the Quarterly Certificate in Form No.20A and Certificate in Form No.20B in relation to final payment promptly.

Signature of authorised person

5. TECHNICAL SPECIFICATION

TECHNICAL SPECIFICATIONS

1. The following technical specification, code of practice etc. referred herein is form a part of the Item Specification and work shall be executed accordingly. Items which are not covered under Technical Specification shall be carried out as per relevant IS Specification or as per manufactures specification or as directed by Engineer-in-charge.
2. In case of discrepancy between technical specification and item specification provided along with Bill of Quantities, the Item Specification shall prevail.
3. All the measurements shall be as per latest edition of B.I.S.

1.1.00 EARTH WORK

Applicable Codes

The following Indian Standard Codes, unless otherwise specified herein, shall be applicable. In all cases, the latest revision of the codes shall be referred to.

- a) IS - 4081 Safety code for blasting and related drilling operation.
- b) IS - 1200 Method of measurement of building works.
- c) IS - 3764 Safety code for excavation work.
- d) IS - 3385 Code of practice for measurement of Civil Engineering works.
- e) IS - 2720 Part II Determination of moisture content.

Part VIII Determination of moisture content dry density relation using light compaction.

Part XXVIII Determination of dry density of soils, in-place by the sand replacement method.

Part XXIX Determination of dry density of soils, in-place, by the core cutter method.

Filling excavated earth in ground for land development

No earthfill shall commence until surface water discharges and streams have been properly intercepted or otherwise dealt with as directed by Engineer-in-charge.

Filling shall be carried out as indicated in the drawings and as directed by Engineer-in-charge. If no compaction is called for, the fill may be deposited to the full height in one operation and levelled. If the fill has to be compacted, it shall be placed in layers not exceeding 600 mm and levelled uniformly and compacted before the next layer is deposited.

Field compaction is called for, test shall be carried out at different stages of filling and also after the fill to the entire height has been completed. This shall hold good for embankments as well. The tests for field compaction shall be specified by the Engineer and the Contractor shall arrange to carry out such tests to the satisfaction of the Engineer-in-charge.

Contractor shall protect the earthfill from being washed away by rain or damaged in any other way. Should any slip occur, Contractor shall remove the affected material and make good the slip at his own cost.

The fill shall be carried out to such dimension and levels as indicated on the drawings after the stipulated compaction. The fill shall be considered as incomplete if the desired compaction has not been obtained.

Filling in plinth and ground with earth brought from outside

Filling shall be carried out with approved material. The material and source shall be subject to prior approval of Engineer-in-charge. The approved area, from where the fill material is to be dug, shall be cleared of all bushes, roots plants, rubbish, etc., top soil containing salts, sulphate and other foreign material shall be removed. The materials so removed shall be burnt or disposed off as directed by Engineer-in-charge. The Contractor shall make necessary access roads to those areas and maintain the same, if such access road does not exist, at his cost.

If any material is rejected by Engineer-in-charge, Contractor shall remove the same forthwith from the site at no extra cost to the owner. Surplus fill material shall be disposed of by uniform spreading within the site as instructed by the Engineer-in-charge.

At places backfilling shall be carried out with local sand if directed by Engineer. The sand used shall be kept flooded with water for 24 hours to ensure maximum consolidation. Any temporary work required to contain sand under flooded condition shall be to Contractor's account. The surface of the consolidated sand shall be dressed to require level or slope. Construction of floors or other structures on sand fill shall not be started until Engineer has inspected and approved the fill.

1.2.00 CONCRETE AND ALLIED WORKS

Applicable Codes

The following codes and standards are made a part of the Specifications. All standards, codes of practices referred to herein shall be the latest edition including all applicable official amendments and revisions.

In case of discrepancy between this specification and those referred to herein, this specification shall prevail.

Materials

- 1) IS 269 : Specification for ordinary, rapid hardening and low heat portland cement
- 2) IS 455 : Specification for Portland blast furnace slag.
- 3) IS 1489 :Specification for Portland-pozalana cement
- 4) IS 4031 :Methods of physical tests for hydraulic cement
- 5) IS 650 :Specification for standard sand for testing of cement
- 6) IS 383 :Specification for coarse and fine aggregates from natural sources for concrete
- 7) IS 2386 (Parts I to VIII) : Methods of test for aggregates for concrete
- 8) IS 516 :Methods of test for strength of concrete
- 9) IS 1199 :Methods of sampling and analysis of concrete
- 10) IS 2396 (I) IS 5640 :Flakiness Index of aggregates
- 11) IS 3025 : Methods of sampling and test (physical and chemical water used in industry)

- 12) IS 432(Part I & II) :Specification for mild steel and medium tensile steel bars and hard drawn steel wire for concrete reinforcement
- 13) IS 1139 : Specification for hot rolled mild steel and medium tensile steel deformed bars for concrete reinforcement
- 14) IS 1566 :Specification for plain hard drawn steel wire fabric for concrete reinforcement
- 15) IS 1785 :Specification for plain hard drawn (Part I) steel wire for prestressed concrete
- 16) IS 1786 :Specification for cold twisted steel bars for concrete reinforcement
- 17) IS 2090 :Specification for high tensile steel bars used in prestressed concrete
- 18) IS 4990 :Specification for plywood for concrete shuttering work
- 19) IS 2645 :Specification for integral cement water-proofing compounds

Equipment

- 1) IS 1791 :Specification for batch type concrete mixers
- 2) IS 2438 :Specification for roller pan mixer
- 3) IS 2505 :Specification for concrete vibrators immersion type
- 4) IS 2506 :Specification for screed board concrete vibrators
- 5) IS 2514 :Specification for concrete vibrating tables
- 6) IS 3366 :Specification for pan vibrators
- 7) IS 4656 :Specification for form vibrators for concrete
- 8) IS 2722 :Specification for portable swing weigh-batchers for concrete (single and double bucket type)
- 9) IS 2750 : Specification for steel scaffoldings

Codes of Practice

- 1) IS 456 : Code of practice for plain and reinforced concrete
- 2) IS 1343 :Code of practice for prestressed concrete
- 3) IS 457 :Code of practice for general construction of plain and reinforced concrete for dams and other massive structures
- 4) IS 3370 (Part I to IV) :Code of practice for concrete structures for storage of liquids.
- 5) IS 3935 : Code of practice for composite construction
- 6) IS 3201 : Criteria for design and construction of precast concrete trusses
- 7) IS 2204 : Code of practice for construction of reinforced concrete shell roof
- 8) IS 2210 : Criteria for the design of RC shell structures and folded plates

- 9) IS 2751 : Code of practice for welding of mild steel bars used for reinforced concrete construction
- 10) IS 2502: Code of practice for bending and fixing of bars for concrete reinforcement
- 11) IS 3558: Code of practice for use of immersion vibrators for consolidating concrete
- 12) IS 3414: Code of practice for design and installation of joints in buildings
- 13) IS 4014 (Part I&II): Code of practice for steel tubular, scaffolding
- 14) IS 2571: Code of practice for laying insitu - cement concrete flooring

Construction Safety

- 1) IS 3696 : Safety code for scaffolds and ladders

Measurement

- 1) IS 1200 :Method of measurement of building works
IS 3385 :Code of practice for measurement of civil engineering works

General

The quality of materials, method and control of manufacture and transportation of all concrete work irrespective of mix, whether reinforced or otherwise shall conform to the applicable portions of this specification.

Materials

The ingredients to be used in the manufacture of standard concrete shall consist solely of standard type portland cement, clean sand, natural coarse aggregate, clean water and admixtures.

Cement

If the Contractor is instructed to supply cement, then the following points shall be applicable:

- a. The cement to be used shall be ordinary Portland/Portland Pozzolana cement conforming to IS: 8112-1989 & IS:1489 part I respectively for 43 Grade OPC/PPC unless otherwise mentioned. The cement procured should be of reputed brands such as Malabar Cements, ACC, L&T, Shankar Cement, etc. and as approved by the Engineer-in-Charge. As far as possible, all the cement shall be obtained from a single source throughout the contract. Cement of different types shall not be mixed together. Different brands of cements or same brand of cement from different sources shall not be used without prior approval of the Engineer-in-Charge.

The cement shall be delivered at site in original sealed bags which shall be labelled with the weight, date of manufacture, brand and type. Cement received in torn or hand-stitched bags shall not be used. For volumetric batching of, concrete, cement should be mixed only by box measurement. All cement should be fresh when delivered and shall be stored in an approved manner in stores built by the Contractor at his own cost. Set cement shall not be allowed to be used for any work.

- b. A certified report attesting to the conformance of the cement to IS specifications by the cement manufacturer's chemist shall be furnished to engineer if demanded.
- c. Cement held in storage for a period of sixty (60) days or longer shall be tested. Should at any time Engineer have reasons to consider that any cement is defective, then irrespective of its origin, and/or manufacturers test certificate, such cement shall be tested immediately at contractor's cost at an approved laboratory and until the results of such tests are found satisfactory, it shall not be used in any work. Contractor shall not be entitled to any claim of any nature on this account.
- d. Contractor will have to make his own arrangements for storage of adequate quantity of cement.
- e. The site engineer shall be regularly notified when supplies of cement are made to the site store. Copies of invoices shall be made available to the site engineer and a common cement register shall be kept at his office showing the supply stock and issue on a daily basis.
 - If the cement is supplied by the Client
 - a) Contractor will have to make his own arrangements for the storage of cement. If supplies are arranged by owner, cement will be issued in quantities to cover work requirements of one month or more, as deemed fit by Engineer and it will be the responsibility of contractor to ensure adequate and proper storage. The storage arrangements shall be such that there is no dead storage. The storage arrangement shall be approved by Engineer.

Aggregates

Aggregate in general designates both fine and coarse inert materials used in the manufacture of concrete. Fine aggregate is aggregate all of which passes through 4.75 mm IS sieve. Coarse aggregate is aggregate most of which is retained on 4.75 mm sieve. Specification mentioned against various item of work may also be followed.

All fine and coarse aggregates proposed for use in the work shall be subject to Engineer's approval and after specific materials have been accepted the source of supply of such materials should not be changed without prior approval of Engineer.

Aggregates shall, except as noted above, consist of natural sands, crushed stone and gravel from a source known to produce satisfactory aggregate for concrete and shall be chemically inert, strong, hard, durable against weathering, of limited porosity and free from deleterious materials that may cause corrosion of the reinforcement or may impair the strength and/or durability of concrete. The grading of aggregates shall be such as to produce a dense concrete of specified strength and consistency that will work readily into position without segregation and shall be based on the mix design and preliminary tests on concrete specified later.

Sampling and testing

Samples of the aggregates for mix design and determination of suitability shall be taken under the supervision of Engineer and delivered to the laboratory, well in advance of the scheduled placing of concrete. Records of tests which have been made on proposed aggregates and on concrete made from this source of aggregates shall be furnished to Engineer in advance of the work for use in determining aggregate suitability. The costs of all such tests, sampling, etc., shall be borne by contractor.

Storage of Aggregates

All coarse and fine aggregates shall be stacked in stock separately in stock piles in the materials yard near the work site or if instructed in bins properly constructed to avoid inter

mixing of different aggregates. Contamination with foreign materials and with earth during storage and while heaping the materials shall be avoided. The aggregate must be of specified quality not only at the time of receiving at site but more so at the time of loading into mixer.

Screening and Washing

- a) Sand shall be prepared for use for such screening or washing, or both, as necessary, to remove all objectionable foreign matter while separating the sand grains to the required size fractions.
- b) Natural gravel and crushed rock shall be screened and/or washed for the removal of dirt or dust coating, if so demanded by Engineer

Water

Water used for both mixing and curing shall be free from injurious amounts of deleterious materials. Potable waters are generally satisfactory for mixing and curing concrete.

In case of doubt, the suitability of water for making concrete shall be ascertained by the compressive strength and initial setting time test specified in IS-456. The sample of water taken for testing shall be typical of the water proposed to be used for concreting, due account being paid to seasonal variation. The sample shall not receive any treatment before testing other than that envisaged in the regular supply of water proposed for use in concrete. The sample shall be stored in a clean container previously rinsed out with similar water.

Brick aggregates

The brickbats shall be of new bricks well burnt, hard, durable and broken to sizes, well graded. It shall be free from dust, the size shall be of 37 mm and down. It shall be free from earth and other impurities.

Compaction

Concrete shall be compacted during placing with approved vibrating equipment until the concrete has been consolidated to the maximum practicable density, is free of pockets of coarse aggregate and fits tightly against all form surfaces, reinforcement and embedded fixtures. Particular care shall be taken to ensure that all concrete placed against the forms faces and into corners of forms or against hardened concrete at joints is free from voids or cavities. The use of vibrators shall be consistent with the concrete mix and caution exercised not to over-vibrate the concrete to the point that segregation results.

Vibrators shall conform to IS specifications. Type of vibrator to be used shall depend on the structure where concrete is to be placed. Shutter vibrators to be effective, shall be firmly secured to the formwork which must be sufficiently rigid to transmit the vibration and strong enough not to be damaged by it. Immersion vibrators shall have no load frequency, amplitude and acceleration as per IS 2505 depending on the size of vibrator. Immersion vibrators in sufficient numbers and each of adequate size shall be used to properly consolidate all concrete. Tapping or external vibrating of forms by hand tools or immersion vibrators will not be permitted.

The exact manner of application and the most suitable machines for the purpose must be carefully considered and operated by experienced men. Immersion vibrators shall be inserted vertically at points not more than 450 mm apart and withdrawn when air bubbles cease to come to the surface. Immersion vibrators shall be withdrawn very slowly. In no case shall immersion vibrators be used to transport concrete inside the forms. Particular attention shall be paid to vibration at the top of a lift e.g. in a column or wall.

When placing concrete in layers, which are advancing horizontally as the work progresses, great care shall be exercised to ensure adequate vibration, blending and mixing of the concrete between the succeeding layers.

The immersion vibrator shall penetrate the layer being placed and also penetrate the layer below with the underlayer is still plastic to ensure good bond and homogeneity between the two layers and prevent the formation of cold joints.

Care shall be taken to prevent contact of immersion vibrators against reinforcement steel. Immersion vibrators shall not be allowed to come in contact with reinforcement steel after start of initial set. They shall also not be allowed to come in contact with forms or finished surfaces.

Form attached vibrators shall be used only with specific authorisation of Engineer.

The surface vibrators will not be permitted under normal conditions. However for thin slabs vibration by specially designed vibrators may be permitted upon approval of Engineer.

The formation of stone pockets or mortar bondages in corner and against faces of forms shall not be permitted. Should these occur, they shall be dug out, reformed and refilled to sufficient depth and shape for through bonding, as directed by Engineer.

Placement interval

Except when placing with slip forms each placement of concrete in multiple lift work, shall be allowed to set for atleast 24 hours after the final set of concrete and before the start of a subsequent placement.

Special provision in placing

When placing concrete in walls with openings and in floors of integral slab and beam construction and other similar conditions, the placing shall stop when the concrete reaches the top of the opening in walls and bottom horizontal surface of the slab, as the case may be placing shall be resumed before the concrete in place takes initial set, but not until it has time to settle as determined by Engineer.

Placing concrete through reinforcement steel

When placing concrete through reinforced steel, care shall be taken to prevent segregation of the coarse aggregate. When the congestion of steel makes placing difficult it may be necessary to temporarily move the top steel aside to get proper placement and restore reinforcing steel to design position.

Bleeding

Bleeding of free water, on top of concrete being deposited, in to the forms shall be caused to stop the concrete pour. The conditions causing this defect corrected before any further concreting is resumed.

Curing, protecting, repairing and finishing

Curing

All concrete shall be cured by keeping it continuously damp for the period of time required for complete hydration and hardening to take place. Preference shall be given to the use of continuous sprays or ponded water continuously saturated covering of sacks, canvas, hessian, polythene sheets or other absorbent materials, or approved effective curing compounds applied with spraying equipment capable of producing a smooth, even textured coat. Extra precautions shall be exercised in curing concrete during cold and hot water as

outlined hereinafter. The quality of curing water shall be the same as that used for mixing concrete.

Certain types of finish or preparation for overlaying concrete must be done at certain stage of the curing process and special treatment may be required for specific concrete surface finish.

Curing of concrete made of high alumina cement and supersulphated cement shall be carried out as directed by Engineer.

Fresh concrete shall be kept continuously wet for a minimum period of 15 days from the date of placing of concrete following a lapse of 12 to 14 hours after laying of concrete. The curing of horizontal surfaces exposed to the drying winds shall however begin immediately the concrete has hardened. Water shall be applied uniformly to concrete surfaces within 1 hour after concrete has set. Water shall be applied to formed surfaces immediately upon removal of forms. Quantity of water applied shall be controlled so as to prevent erosion of freshly placed concrete.

Curing shall be assured by use of an ample water supply under pressure in pipes with all necessary appliance of hose, sprinklers and spraying devices. Continuous fine mist spraying or sprinkling shall be used, unless otherwise specified or approved by Engineer.

Whenever, by the judgement of Engineer, it may be necessary to omit the continuous spray method, a covering of clean sand or other approved means such as wet gunny bags which will prevent loss of moisture from the concrete, may be used. No type of covering will be approved which would stain or damage the concrete during or after the curing period. Covering shall be kept continuously wet during the curing period.

For curing of concrete in pavements, side-walks floors, flat roofs or other level surfaces, the ponding method of curing is preferred. The method of containing the ponded water shall be approved by Engineer. Special attention shall be given to edges and corners of the slabs to ensure proper protection to these area. The ponded area shall be kept continuously filled with water during the curing period.

Surface coating type compounds shall be used only by special permission of Engineer, curing compounds shall be liquid type white pigmented. Other curing compounds shall be used on surfaces where future blending with concrete, water or acid proof membrane or painting is specified.

All equipment and materials required for curing shall be on hand and ready for use before concrete is placed.

Protecting fresh concrete

Fresh concrete shall be protected from defacements and damage due to construction operation by leaving forms in place for an ample period as specified later in this specifications. Newly placed concrete shall be protected by approved means such as tarpaulins from rain, sun and winds. Steps as approved by Engineer shall also be taken to protect immature concrete from damage by debris, excessive loading, vibration, abrasion or contact with other materials, etc., that may impair the strength and/or durability of the concrete. Workmen shall be warned against and prevented from disturbing green concrete during its setting period. If it is necessary that workmen enter the area of freshly placed concrete, Engineer may require that bridges be placed over the area.

Repair and replacement of unsatisfactory concrete

Immediately after the shuttering is removed, the surface of concrete shall be very carefully inspected and all defective areas called to the attention of Engineer who may permit patching of the defective areas or also reject the concrete unit either partially or entirely. Rejected concrete shall be removed and replaced by contractor at no additional expense to

owner. Holes left by form bolts, etc., shall be filled up and made good with mortar composed of one part of cement to one and half parts of sand passing 2.36 mm IS sieve after removing any loose stones adhering to the concrete shall be finished as described under the particular items of work.

Superficial honeycombed surfaces and rough patches shall be similarly made good immediately after removal of shuttering in the presence of Engineer and superficial water and air holes shall be filled in. The mortar shall be well worked into the surface with a wooden float. Excess water shall be avoided. Unless instructed otherwise by Engineer the surface of the exposed concrete placed against shuttering shall be rubbed down immediately on removal of shuttering to remove fine or other irregularities and necessary care being taken to avoid damage to the surface. Surface irregularities shall be removed by grinding.

If reinforcement is exposed or the honey combing occurs at vulnerable positions eg. ends of beams or columns it may be necessary to cut out the member completely or in part and reconstruct. The decision of Engineer shall be final in this regard. If only patching is necessary, the defective concrete shall be cut out till solid concrete is reached (or to a minimum depth of 25 mm) the edges being cut perpendicular to the affected surface or with small under cut if possible. Achors, tees or dovetail slots shall be provided whenever necessary to attach the new concrete securely in place an area extending several centimetres beyond the edges and the surfaces of the prepared voids shall be saturated with water for 24 hours immediately before the patching material is placed.

The use of epoxy for bonding fresh concrete used for repairs will be permitted upon written approval of Engineer. Epoxy shall be applied in strict accordance with the instructions of the manufacturer.

Small size holes having surface dimensions about equal to the depth of the hole, holes left after removal of form bottom, grout insert holes and slots cut for repair of cracks shall be repaired as follows. The hole to be patched shall be roughened and thoroughly soaked with clean water until absorption stops.

A 5 mm thick layer of grout of equal parts of cement and sand shall be well brushed into the surface to be patched, followed immediately by the patching concrete which shall be well consolidated with a wooden float. The concrete patch shall be built up in 10 mm thick layers. After an hour or more, depending upon weather conditions, it shall be worked off flush with a wooden float and smooth finish obtained by wiping with hessian, a steel trowel shall be used for this purpose. The mix for patching shall be of same materials and in the same proportions as that used in the concrete being repaired, although some reduction in the maximum size of the coarse aggregates may be necessary and the mix shall be kept as dry as possible.

Mortar filling by air pressure (guniting) shall be used for repairing of areas too large and/or too shallow for patching with mortar. Patched surfaces shall be given a final treatment to match the colour and texture of the surrounding concrete. While cement shall be substituted for ordinary cement, if so directed by Engineer, to match the shade of the patch with original concrete.

The patched area shall be covered immediately with an approved non-staining water saturated material such as gunny bag which shall be kept continuously wet and protected against sun and wind for a period of 24 hours. Thereafter, the patched area shall be kept wet continuously by fine spray of sprinkling for not less than 10 days.

All materials, procedures and preparation used in the repairing of concrete and also the finished repair work shall be subject to the approval of Engineer. All fillings shall be tightly bonded to the concrete and shall be sound, free from shrinkage cracks after the fillings have been cured and finished.

Finishing

The type of finish for formed concrete surface shall be as follows, unless, otherwise specified by the Engineer.

For surfaces against which backfill or concrete is to be placed, no treatment is required except repairing of defective area.

For surface below grade which will receive waterproofing treatment the concrete shall be free of surface irregularities which would interfere with proper application of the waterproofing material which is specified for use.

Unless specified, surfaces which will be exposed when the structure is in service shall receive no special finish, except repairing of damage or defective concrete removal of fins and abrupt irregularities, fillings of holes let by form ties and rods and clean up of loose or adhering debris.

Surfaces which will be exposed to the weather and which would normally be level, shall be sloped for drainage. Unless the drawing specifies such as stair treads, walls shall be sloped across the width approximately 1 in 30 broader surface such as walkways, roads, parking areas and platforms shall be sloped about 1 in 50. Surfaces that will be covered by backfill or concrete subfloors to be covered either concrete topping, terrazzo or quarry tile and similar surfaces shall be smooth screeded and levelled to produce even surfaces. Surface irregularities shall not exceed 6 mm. Surfaces which will not be covered by backfill, concrete or tile toppings such as outside decks, floors of galleries and sumps, parapets, gutters, sidewall floors and slabs shall be consolidated, screeded and floated. Excess water and laitance shall be removed before finishing. Floating may be done with hand or power tools and started as the screeded surface has attained a stiffness to permit finishing operation and these shall be the minimum required to produce a surface uniform in texture and free from screed marks or other imperfections. Joints edges panels and forms linings shall be of uniform size and be as large as practicable and installed with closed joints. Upon removal of forms the joint marks shall be smoothed off and all blemishes, projections etc., removed leaving the surfaces reasonably smooth and unmarked.

Integral cement concrete finish

When specified on the drawings and integral cement concrete finish of specified thickness for floors and slabs shall be applied either monolithic or bonded as specified on the drawing as per IS 2571. The surface shall be compacted and then floated with a wood float or power floating machine. The surface shall be tested with a straight edge and any high and low spots eliminated. Floating or trowelling of finish shall be permitted only after all surface water has evaporated. Dry cement or a mixture of dry cement and sand shall not be sprinkled directly on the surface of the cement finish to absorb moisture or to stiffen the mix.

Exposed Concrete finish/Rendering

A rubbed finish shall be provided only on exposed concrete surfaces as specified on the drawings. Upon removal of forms, all fins and other projections on the surfaces shall be carefully removed, off-sets levelled and voids and damaged sections be immediately saturated with water and repaired by filling with a concrete or mortar of the same composition as was used in the surface. Then surface shall be thoroughly wetted and rubbed with carborundum or other abrassive. Cement mortar may be used in the rubbing, but the finished surface shall be brush coated with either cement grout after rubbing. The finished surfaces shall present a uniform and smooth appearance.

Form Work

The formwork shall consist of shores, bracings, sides of beams and columns, bottom of slabs, etc., including ties anchors, hangers inserts, etc., complete which shall be properly

designed and planned for the work. False work shall be so constructed that necessary adjustment can be made to compensate for take up and settlements. Wedge may be used at the top or bottom of timber shores but not at both ends to facilitate vertical adjustment or dismantling of the formwork.

Design of formwork

The design of the formwork as well as its construction shall be the responsibility of Contractor. If so instructed, the drawings and/or calculation for the design for the formwork shall be submitted to Engineer for approval before proceeding with work, at no extra cost. Engineer's approval shall not however relieve Contractor of the full responsibility for the design and construction of the formwork. The design shall take into account all the load vertical and lateral that the forms will be carrying live and vibration loadings.

Type of formwork

Formwork may be of timber, plywood, metal, plastic or concrete. For special finishes the formwork may be lined with plywood, steel, sheets, oil, tempered hard board, etc. Sliding forms and slip forms may be used with the approval of Engineer.

Form work requirements

Forms shall conform to the shapes, lines, grades and dimensions including camber of the concrete as called for on the drawings. Ample studs, braces, ties, straps, etc., shall be used to hold the forms in proper position without any distortion whatsoever until the concrete is set sufficiently to permit removal of forms. Forms shall be strong enough to permit the use of immersion vibrators. In special cases form vibrators may also be used. The shuttering shall be close boarded. Timber shall be well seasoned, free from sap, shakes, loose knots, worm holes, warps or other surface defects in contact with concrete. Faces coming in contact with the concrete shall be free from adhering grout, plaster, paint, projecting nails, splits or other defects. Joints shall be sufficiently tight splits or other defects. Joints shall be sufficiently tight to prevent loss of water or any fine material from concrete.

Plywood shall be used for exposed concrete surfaces; where called for. Sawn and wrought timber may be used for unexposed surfaces. Inside faces of forms for concrete surfaces which are to be rubbed finished shall be planed to remove irregularities or unevenness in the face. Formwork with linings shall be permitted.

All new and used form timber shall be maintained in a good condition with respect to shape, strength, rigidity, water tightness, smoothness and cleanliness of surfaces. Form timber unsatisfactory in any respect shall not be used and if rejected by Engineer shall be removed from the site.

Shores supporting successive members shall be placed directly over those below or be so designed and placed that the load will be transmitted directly to them. Trussed supports shall be provided for shores that cannot be secured on adequate foundations.

Formwork, during any stage of construction showing signs of distortion or distorted to such a degree that the intended concrete work will not conform to the exact contours indicated on the drawings, shall be repositioned and strengthened. Poured concrete affected by the faulty formwork, shall be removed completely and the formwork be corrected prior to placing of new concrete.

Excessive construction camber to compensate for shrinkage, settlement may impair the structural strength of members and shall not be permitted.

Forms shall be so designed that their removal will not damage the concrete. Face formwork shall provide true vertical and horizontal joints, conform to the architectural features of the structure as to location of joints and be as directed by engineer.

Where exposed smooth or rendered concrete finishes are required the forms shall be constructed with special care so that the resulting concrete surfaces require a minimum finish.

Reuse of forms

Before reuse, all forms shall be thoroughly scraped, cleaned, nails removed, holes that may leak suitably plugged and joints examined and when necessary, repaired and the inside retreated to prevent adhesion, to the satisfaction of Engineer. Warped timber shall be resized. Contractor shall equip himself with enough shuttering material to complete the job in the stipulated time.

Removal of forms

Contractor shall record on the drawings and in a special register the date upon which the concrete is placed in each part of the work and the date on which the shuttering is removed therefrom. The Contractor shall remove the shuttering after obtaining the approval of the Engineer.

In no circumstances shall forms be struck until the concrete reaches a strength of at least twice the stress due to self weight and any construction/erection loading to which the concrete may be subjected at the time of striking formwork.

In normal circumstances (generally where temperatures are above 20 Deg. Cent.) forms may be removed after expiry of the following periods:

		Ordinary portland cement concrete	Rapid hardening portland cement
a)	Walls columns and vertical sides of beams	24 to 48 hrs as directed by the Engineer	24 hrs.
b)	Slabs prods left under	3 days	2 days
c)	Beam soffits prods left under	7 days	4 days
d)	Removal of prods to slabs: i) Spanning upto 4.5m ii) Spanning over 4.5m.	7 days 14 days	4 days 8 days
e)	Removal of prods to beams & arches i) Spanning upto 6m ii) Spanning over 6m	14 days 21 days	8 days 12 days

Striking shall be done slowly with utmost care to avoid damage to arises and projections and without shock or vibration, by gently easing the wedges. If after removing the form work, it is found that timber has been embedded in the concrete, it shall be removed and made good as specified earlier.

Reinforced temporary openings shall be provided as directed by Engineer to facilitate removal of formwork which otherwise may be inaccessible.

Tie rods, clamps, form bolts etc., which must be entirely removed from walls or similar structures shall be loosened not sooner than 24 hours nor later than 40 hrs. after the concrete has been deposited. Ties, except those required to hold forms in place, may be removed at the same time, Ties, withdrawn from walls and grade beams shall be pulled towards the inside face cutting ties back from the faces of walls and grade beams will not be permitted.

For liquid retaining structures no sleeves for through bolts shall be used nor shall through bolts be removed as indicated above. The bolts, in this case, shall be cut at 25mm depth from the surface and then the hole shall be made good by sand, cement mortar of the same proportions as the concrete just after striking the formwork.

1.3.00 FLOORING

Applicable codes

- 1) IS:1443- Code of practice for laying and finishing of cement concrete flooring tiles.
- 2) IS:2114 -Code of practice for laying in situ terrazzo floor finish
- 3) IS: 777 - Glazed earthenware tiles

Factory made Cement Concrete Interlocking Paver Block

Base

Interlocking paver block to be fixed on the bed 50 mm or specified otherwise thick of coarse sand/6mm metal of approved specification and filling the joints with the sand of approved type and quality or as specified and as directed by Engineer-in-charge.

Interlocking Paver Block

Factory made precast paver block of M-30 or otherwise specified grade to be used. Paver blocks to be of approved brand and manufacturer and of approved quality. Minimum strength as prescribed by manufacturer and as per direction of Engineer-in-Charge for the grade specified to be tested as per method mentioned in specification

Measurement & Rates

Area provided with paver block to be measured in sqm. correct upto two places of decimal. The rate include the cost of the material, labour, tools etc. required in all the operations described above shall be made for making holes in angle and nothing shall be deducted on account of holes.

1.7.00 STEEL WORK

Providing and fixing steel doors/windows/ventilators

The steel doors, windows, ventilators shall conform to IS:7452 and 1036. All steel doors, windows, ventilators, louvres, etc. shall be of sizes as specified and conform to the description in the respective items of work. Whether or not specifically mentioned, all fixtures and fittings necessary for the satisfactory operation of the doors and windows shall be provided. Doors, windows and ventilators shall be obtained from an approved manufacturer. Specific approval for such purchase shall be obtained before hand. Sample shall also be got approved before further manufacture starts, unless this is waived in writing by the ENGINEER. All steel door shall be of pressed steel (18 gauge) flush type with or without removable transoms. All doors shall be provided with a three way bolting device and locking arrangement with duplicate keys and handles on both sides and operable from either side. The CONTRACTOR shall obtain windows with friction hinges in place of windows with pegstays if so directed by the ENGINEER. For centre hung and top hung ventilators suitable spring

catch/pulley and chord arrangement shall be provided for facility of opening. Whenever fly mesh over windows have been called for, they shall be fixed on the window and suitable lever type or rototype arrangement shall be provided for opening or closing of the glazed panels from inside. Prior approval of Engineer shall be taken before order is placed with the manufacturer.

Where specified, steel door supplied shall be airtight. For this purpose, the CONTRACTOR shall provide necessary padding material such as rubber, felt or any other approved material.

The rate quoted shall be inclusive of glazing with 4mm thick glass free from all blemishes. The workmanship shall conform to IS:1081. The rate quoted shall also be inclusive of fixing doors, windows, ventilators, louvres, etc. in brick work, steel framing, etc. by making holes/drilling holes in steel work where required complete.

The rate shall also include cost of painting two coats of approved enamel paint over two coat of approved zinc chromate primer.

Providing and fixing inserts in concrete works

Inserts are required to be fixed/embedded as indicated in construction drawings and/or as directed by Engineer-in-charge in foundations, columns and other miscellaneous concrete works. These inserts comprise plates, angles, pipe sleeves, anchor bolt assemblies, etc.

The rate quoted by the Tenderer shall hold good for accurately fixing the inserts at the correct levels/alignment and shall include for the cost of any temporary or permanent supports/anchors such as bars including cutting, bending, welding, etc. as required.

Steel templates shall be used by Contractor to locate and very accurately position bolts, group of bolts, inserts, embedded parts, etc. at his cost. Such templates shall be previously approved by the Engineer. Templates shall invariably be supported such that the same is not disturbed due to vibration, movement of labourers, materials, shuttering work, reinforcement, etc. while concreting. The Contractor will have to suitably bend, cut or otherwise adjust the reinforcement in concrete at the locations of inserts as directed by the Engineer at no extra cost to OWNER. If the Engineer so directs, the inserts will have to be welded to reinforcement to keep them in place. Contractor shall be responsible for the accuracy of dimensions, levels, alignments and centre lines of the inserts in accordance with the drawings and for maintenance of the same until the erection of equipment/structure or final acceptance by Owner.

Contractor shall ensure proper protection of all bolts, inserts, etc. from weather and other damages by greasing or other approved means such as applying white lead putty and wrapping them with gunny bags or canvas or by other means as directed by Engineer to avoid damage due to movement of his labourers, material, equipment, etc. No extra claim from the Contractor on this account shall be entertained. Contractor shall be solely responsible for all the damages caused to bolts, inserts, etc. due to his negligence and in case damages do occur, they shall be rectified to the satisfaction of Engineer at the Contractor's cost.

Providing and fixing in position grill, railing, steel ladder, etc.

This work shall be carried out as per the detailed drawings. The MS sections shall be of approved quality. The welding shall be perfect and the junctions shall be ground properly. The frames shall be provided with hold fasts and the same shall be grouted with CC blocks in brick work. It shall be painted with two coats of zinc chromate primer and two coats of synthetic enamel paint of approved make and colour.

Providing & Fixing MS holding down bolts

Tenderer

Chief Engineer

The MS holding down bolts of specified dia, length and shape shall be provided as per the drawings in line & level. These shall be fixed to RCC work or brick work by grouting it with concrete. The bolt shall be provided with nuts and washers. The grease shall be applied to the threaded portion with the help of templates. If the bolts need some adjustment it shall be provided with a wooden piece 75x75 mm or 50 mm dia GI pipe around bolt shall be provided at the time of concreting and shall be removed after initial set.

FINISHING WORKS

Applicable Codes

- 1) IS:2394- Code of practice for application of lime plaster finish
- 2) IS:1477- Code of practice for painting of ferrous metals in buildings and allied finishes (Part I & II)
- 3) IS: 427 - Distemper, dry colour as required
- 4) IS:2395 - Code of practice for painting concrete, masonry and plaster surfaces
- 5) IS: 428 - Distemper, oil emulsion, colour as required

Plastering

The surface to be plastered shall be washed with fresh clean water free from all dirt, loose material grease, etc., and thoroughly wetted for 6 hours before plastering work is commenced. Concrete surfaces to be plastered will however be kept dry. The wall should not be too wet but only damp at the time of plastering. The damping shall be uniform to get uniform bond between the plaster and the wall. The junction between the brick work and RCC should be fixed with chicken wire mesh/PVC strip as directed before plaster.

The proportion of the mortar shall be as specified under the respective items of work. Cement shall be mixed thoroughly in dry condition and then just enough water added to obtain a workable consistency. The quality of water, sand and cement shall be as mentioned in the Specifications for Concrete & allied works. The mortar thus mixed shall be used immediately and in no case shall the mortar be allowed to stand for more than 30 minutes after mixing with water. The plaster shall be laid in a single coat. The mortar shall be splashed on the prepared surface with a trowel and finished smooth by trowelling. The plastered surface shall be rubbed with iron plate till the surface shows cement paste. The work shall be in line and level. Curing of plaster shall be started as soon as the applied plaster has hardened enough so as not to be damaged. Curing shall be done by continuously applying water in a fine spray and shall be carried out for at least 7 days.

The plaster shall be carried out on jambs, lintel and sill faces top and undersides, etc., as shown in the drawing or as directed by the engineer.

Providing & Applying Cement paint

This may be "SNOWCEM" or of equivalent make. The surface shall be prepared as specified in the specification for white wash. This shall be applied with brush on the plastered wall. The strokes shall be even and it shall be cured atleast for 7 days. No patch or brush stroke shall be seen. Three coats shall be applied.

Providing & Fixing chicken wire mesh

The wire mesh shall be of 24 gauge and it shall be fixed with nails at the junction of brick masonry and RCC elements or as specified by the Engineer-in-charge. The chicken wire mesh shall not sag in between the nails. This shall be done before the application of plaster. It should be extended atleast 15 cm on both sides. The rate includes for carrying out the work at all heights.

Cement Plaster

The cement plaster shall be 12 mm, 15 mm or 20 mm thick as specified in the item.

Scaffolding

For all exposed brick work or tile work double scaffolding independent of the work having two sets of vertical supports shall be provided. The supports shall be sound and strong, tied together with horizontal pieces over which scaffolding planks shall be fixed. For all other work in buildings, single scaffolding shall be permitted. In such cases the inner end of the horizontal scaffolding pole shall rest in a hole provided only in the header course for the purpose. Only one header for each pole shall be left out. Such holes for scaffolding shall, however, not be allowed in pillars/columns less than one metre in width or immediately near the skew backs of arches. The holes left in masonry works for scaffolding purposes shall be filled and made good before plastering.

Note : In case of special type of brick work, scaffolding shall be got approved from Engineer-in-charge in advance.

Preparation of Surface

The joints shall be raked out properly. Dust and loose mortar shall be brushed out. Efflorescence if any shall be removed by brushing and scrapping. The surface shall then be thoroughly washed with water, cleaned and kept wet before plastering is commenced. In case of concrete surface if a chemical retarder has been applied to the form work, the surface shall be roughened by wire brushing and all the resulting dust and loose particles cleaned off and care shall be taken that none of the retarders is left on the surface.

Mortar

The mortar of the specified mix using the type of sand described in the item shall be used. It shall be as specified. For external work and under coat work, the fine aggregate shall conform to grading IV. For finishing coat work the fine aggregate conforming to grading zone V shall be used.

Application of Plaster

Ceiling plaster shall be completed before commencement of wall plaster.

Plastering shall be started from the top and worked down towards the floor. All putlog holes shall be properly filled in advance of the plastering as the scaffolding is being taken down. To ensure even thickness and a true surface, plaster about 15 × 15 cm shall be first

applied, horizontally and vertically, at not more than 2 metres intervals over the entire surface to serve as gauges. The surfaces of these gauged areas shall be truly in the plane of the finished plaster surface. The mortar shall then be laid on the wall, between the gauges with trowel. The mortar shall be applied in a uniform surface slightly more than the specified thickness. This shall be brought to a true surface, by working a wooden straight edge reaching across the gauges, with small upward and sideways movements at a time. Finally the surface shall be finished off true with trowel or wooden float according as a smooth or a sandy granular texture is required. Excessive troweling or over working the float shall be avoided.

All corners, arrises, angles and junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Rounding or chamfering corners, arrises, provision of grooves at junctions etc. where required shall be done without any extra payment. Such rounding, chamfering or grooving shall be carried out with proper templates or battens to the sizes required.

When suspending work at the end of the day, the plaster shall be left, cut clean to line both horizontally and vertically. When recommencing the plastering, the edge of the old work shall be scrapped cleaned and wetted with cement slurry before plaster is applied to the adjacent areas, to enable the two to properly join together. Plastering work shall be closed at the end of the day on the body of wall and not nearer than 15 cm to any corners or arrises. It shall not be closed on the body of the features such as plasters, bands and cornices, nor at the corners of arrises. Horizontal joints in plaster work shall not also occur on parapet tops and copings as these invariably lead to leakages. The plastering and finishing shall be completed within half an hour of adding water to the dry mortar. No portion of the surface shall be left out initially to be patched up later on. The plastering and finishing shall be completed within half an hour of adding water to the dry mortar.

Thickness

Where the thickness required as per description of the item is 20 mm the average thickness of the plaster shall not be less than 20 mm whether the wall treated is of brick or stone. In the case of brick work, the minimum thickness over any portion of the surface shall be not less than 15 mm while in case of stone work the minimum thickness over the bushings shall be not less than 12 mm.

Curing

Curing shall be started as soon as the plaster has hardened sufficiently not to be damaged when watered. The plaster shall be kept wet for a period of at least 7 days. During this period, it shall be suitably protected from all damages at the contractor's expense by such means as the Engineer-in-Charge may approve. The dates on which the plastering is done shall be legibly marked on the various sections plastered so that curing for the specified period thereafter can be watched.

Finish

The plaster shall be finished to a true and plumb surface and to the proper degree of smoothness as required. The work shall be tested frequently as the work proceeds with a true straight edge not less than 2.5 m long and with plumb bobs. All horizontal lines and surfaces shall be tested with a level and all jambs and corners with a plumb bob as the work proceeds.

Precaution

Any cracks which appear in the surface and all portions which sound hollow when tapped, or are found to be soft or otherwise defective, shall be cut out in rectangular shape and redone as directed by the Engineer-in-Charge.

- (i) When ceiling plaster is done, it shall be finished to chamfered edge at an angle at its junction with a suitable tool when plaster is being done. Similarly when the wall plaster is being done, it shall be kept separate from the ceiling plaster by a thin straight groove not deeper than 6 mm drawn with any suitable method with the wall while the plaster is green.
- (ii) To prevent surface cracks appearing between junctions of column/beam and walls, 150 mm wide chicken wire mesh should be fixed with U nails 150 mm centre to centre before plastering the junction. The plastering of walls and beam/column in one vertical plane should be carried out in one go. For providing and fixing chicken wire mesh with U nails payment shall be made separately.

Measurements

Length and breadth shall be measured correct to a cm and its area shall be calculated in square metres correct to two places of decimal.

Thickness of the plaster shall be exclusive of the thickness of the key i.e. grooves, or open joints in brick work.

The measurement of wall plaster shall be taken between the walls or partitions (the dimensions before the plaster shall be taken) for the length and from the top of the floor or skirting to the ceiling for the height. Depth of coves or cornices if any shall be deducted.

The following shall be measured separately from wall plaster.

- (a) Plaster bands 30 cm wide and under
- (b) Cornice beadings and architraves or architraves moulded wholly in plaster.
- (c) Circular work not exceeding 6 m in radius.

Plaster over masonry pilasters will be measured and paid for as plaster only.

A coefficient of 1.63 shall be adopted for the measurement of one side plastering on honey comb work having 6 x 10 cm. opening.

Moulded cornices and coves.

- (a) Length shall be measured at the centre of the girth.
- (b) Moulded cornices and coves shall be given in square metres the area being arrived at by multiplying length by the girth.
- (c) Flat or weathered top to cornices when exceeding 15 cm in width shall not be included in the girth but measured with the general plaster work.
- (d) Cornices which are curved in their length shall be measured separately.

Exterior plastering at a height greater than 10 m from average ground level shall be measured separately in each storey height. Patch plastering (in repairs) shall be measured as plastering new work, where the patch exceed 2.5 sqm. extra payment being made for preparing old wall, such as dismantling old plaster, raking out the joints and cleaning the surface. Where the patch does not exceed 2.5 sqm in area it shall be measured under the appropriate item under sub head 'Repairs to Buildings.'

Deductions in measurements, for opening etc. will be regulated as follows:

- (a) No deduction will be made for openings or ends of joists, beams, posts, girders, steps etc. upto 0.5 sqm in area and no additions shall be made either, for the jambs, soffits and sills of such openings. The above procedure will apply to both faces of wall.
- (b) Deduction for opening exceeding 0.5 sqm but not exceeding 3 sqm each shall be made for reveals, jambs, soffits sills, sills, etc. of these openings.
- (i) When both faces of walls are plastered with same plaster, deductions shall be made for one face only.
- (ii) When two faces of walls are plastered with different types of plaster or if one face is plastered and other is pointed or one face is plastered and other is unplastered, deduction shall be made from the plaster or pointing on the side of the frame for the doors, windows etc. on which width of reveals is less than that on the other side but no deduction shall be made on the other side.

Where width of reveals on both faces of wall are equal, deduction of 50% of area of opening on each face shall be made from area of plaster and/or pointing as the case may be.

- (iii) For opening having door frame equal to or projecting beyond thickness of wall, full deduction for opening shall be made from each plastered face of wall.
- (c) For opening exceeding 3 sqm in area, deduction will be made in the measurements for the full opening of the wall treatment on both faces, while at the same time, jambs, sills and soffits will be measured for

payment. In measuring jambs, sills and soffits, deduction shall not be made for the area in contact with the frame of doors, windows etc.

Rate

The rate shall include the cost of all labour and materials involved in all the operations described.

Cement Plaster with a Floating Coat of Neat Cement

When the plaster has been brought to a true surface with the wooden straight edge it shall be uniformly treated over its entire area with a paste of neat cement and rubbed smooth, so that the whole surface is covered with neat cement coating. The quantity of cement applied for floating coat shall be 1 kg per sqm. Smooth finishing shall be completed with trowel immediately and in no case later than half an hour of adding water to the plaster mix. The rest of the specifications described and shall apply.

18 MM CEMENT PLASTER (TWO COAT WORK)

The specification for scaffolding and preparation of surface shall be as described

Mortar

The mix and type of fine aggregate specified in the description of the item shall be used for the respective coats. Generally the mix of the finishing coat shall not be richer than the under coat unless otherwise described in item. Generally coarse sand shall be used for the under coat and fine sand for the finishing coat, unless otherwise specified for external work and under coat work, the fine aggregate shall conform to grading zone IV. For finishing coat work the fine aggregate conforming to grading zone V shall be used.

Application

The plaster shall be applied in two coats i.e. 12 mm under coat and then 6 mm finishing coat and shall have an average total thickness of not less than 18 mm.

12 mm Under Coat : This shall be applied as specified except that when the plaster has been brought to a true surface a wooden straight edge and the surface shall be left rough and furrowed 2 mm deep with a scratching tool diagonally both ways, to form key for the finishing coat. The surface shall be kept wet till the finishing coat is applied.

6 mm Finishing Coat : The finishing coat shall be applied after the under coat has sufficiently set but not dried and in any case within 48 hours and finished in the manner specified

Specifications for Curing, Finishing, Precautions, Measurements and Rate shall be as described

6mm Cement Plaster on Cement Concrete and Reinforced Cement

Concrete Work

Scaffolding

Stage scaffolding shall be provided for the work. This shall be independent of the walls.

Preparation of Surface

Projecting burrs of mortar formed due to the gaps at joints in shuttering shall be removed. The surface shall be scrubbed clean with wire brushes. In addition concrete surfaces to be plastered shall be pock marked with a pointed tool, at spacing of not more than 5 cm. Centres, the pock being made not less than 3 mm deep. This is to ensure a proper key for the plaster. The mortar shall be washed off and surface, cleaned off all oil, grease etc. and well wetted before the plaster is applied.

Mortars

Mortar of the specified mix using the types of sand described in the item shall be used. It shall be as specified .

Application

To ensure even thickness and a true surface, gauges of plaster 15 x 15 cm. shall be first applied at not more than 1.5 m intervals in both directions to serve as guides for the plastering. Surface of these gauged areas shall be truly in the plane of the finished plaster surface. The plaster shall be then applied in a uniform surface to a thickness slightly more than the specified thickness and shall then be brought to true and even surface by working a wooden straight edge reaching across the gauges. Finally the surface shall be finished true with a trowel or with wooden float to give a smooth or sandy granular texture as required. Excess troweling or over working of the floats shall be avoided. The plastering and finishing shall be completed within half an hour of adding water to the dry mortar. Plastering of ceiling shall not be commenced until the slab above has been finished and centring has been removed. In the case of ceiling of roof slabs, plaster shall not be commenced until the terrace work has been completed. These precautions are necessary in order that the ceiling plaster is not disturbed by the vibrations set up in the above operations.

Finish

The plaster shall be finished to a true and plumb surface and to the proper degree of smoothness as required. The work shall be tested frequently as the work proceeds with a true straight edge not less than 2.5 m long and with plumb bobs. All horizontal lines and surfaces shall be tested with a level and all jambs and corners with a plumb bob as the work proceeds.

Thickness

The average thickness of plaster shall not be less than 6 mm. The minimum thickness over any portion of the surface shall not be less than 5 mm.

Curing

The specifications shall be as detailed

Precautions

The specifications shall be as detailed

Measurements

Length and breadth shall be measured correct a cm. and its area shall be calculated in sqm. correct to two places of decimal. Dimensions before plastering shall be taken.

Thickness of plaster shall be exclusive of the thickness of the key i.e. depth or rock marks and hacking.

Plastering on ceiling at height greater than 5 m above the corresponding floor level shall be so described and shall be measured separately stating the height in stages of 1 m or part thereof.

Plastering on the sides and soffits of the projected beams of ceiling at a height greater than 5 m above the corresponding floor level shall be measured and added to the quantity measured. Plastering on spherical and groined ceiling and circular work not exceeding 6 m in radius, shall be measured and paid for separately.

Flowing soffits (*viz.* portion under spiral stair case etc.) shall be measured and paid for separately.

Ribs and mouldings on ceiling shall be measured as for cornices, deductions being made from the plastering on ceiling in case the width of the moulding exceed 15 cm.

Deduction shall not be made for openings or for ends of columns, or columns caps of 0.5 sqm each in area and under. No additions will be made either for the plastering of the sides of such openings. For openings etc. of areas exceeding 0.5 sqm deduction will be made for the full opening but the sides of such openings shall be measured for payment.

Rate

The rate shall include the cost of all labour and materials involved in all the operations described above.

Cement Water Proofing Compound

It shall be used for cement mortar for plastering or concrete work.

Water Proofing Compound

Integral cement water proofing compound conforming to IS 2645 and of approved brand and manufacture, enlisted by the Engineer-in-Charge from time to time shall be used.

The contractor shall bring the materials to the site in their original packing. The containers will be opened and the material mixed with dry cement in the proportion by weight, recommended by the manufacturers or as specifically described in the description of the item. Care shall be taken in mixing, to see that the water proofing material gets well and integrally mixed with the cement and does not run out separately when water is added.

It shall be measured by weight.

The rate shall include the cost of all labour and materials involved in all the operations described Above

Pointing on Brick work, Tile work and Stone work

Scaffolding

For all exposed brick work, tile work or stone work independent double scaffolding having two sets of vertical supports shall be provided. The supports shall be sound and strong tied together with horizontal pieces over which scaffolding planks shall be fixed. For all other work in building, single scaffolding shall be permitted. In such cases, the inner end of the horizontal scaffolding pole shall rest in a hole provided only in the header course for the purpose. Only one header for each pole shall be left out. Such holes for scaffolding shall, however, not be allowed in pillars/columns less than one metre in width, or immediately near the skew backs of arches. The holes left in masonry works for scaffolding purposes shall be filled and made good before plastering.

Note : In case of special type of work, scaffolding shall be got approved from Engineer-in-Charge in advance.

Preparation of surface

The joints shall be raked out properly. Dust and loose mortar shall be brushed out. Efflorescence if any shall be removed by brushing and scraping. The surface shall then be thoroughly washed with water, cleaned and kept wet before pointing is commenced. In case of concrete surface if a chemical retarder has been applied to the form work, the surface shall be roughened by wire brushing and all the resulting dust and loose particles cleaned off and care shall be taken that none of the retarders is left

on the surface. The joints shall be raked to such a depth that the minimum depth of the new mortar measured from either the sunk surface of the finished pointing or from the edge of the brick shall not be less than 12 mm.

Mortar

Mortar of specified mix shall be used.

Application and Finishing

The mortar shall be pressed into the raked out joints, with a pointing trowel, either flush, sunk or raised, according to the type of pointing required. The mortar shall not spread over the corner, edges or surface of the masonry. The pointing shall then be finished with the proper tool, in the manner described below:

Flush Pointing : The mortar shall be pressed into the joints and shall be finished off flush and level with the edges of the bricks, tiles or stones so as to give a smooth appearance. The edges shall be neatly trimmed with a trowel and straight edge.

Ruled Pointing : The joints shall be initially formed as for flush pointing and then while the mortar is still green, a groove of shape and size as shown in drawings or as instructed, shall be formed by running a forming tool, straight along the centre line of the joints. This operation shall be continued till a smooth and hard surface is obtained. The vertical joints shall also be finished in a similar way. The vertical lines shall make true right angles at their junctions with the horizontal lines and shall not project beyond the same.

Cut or Weather Struck Pointing : The mortar shall first be pressed into the joints. The top of the horizontal joints shall then be neatly pressed back about 3 mm or as directed, with the pointing tool so that the joints are sloping from top to bottom. The vertical joints shall be ruled pointed. The junctions of vertical joints with the horizontal joints shall be at true right angles.

Finishing

Raised and Cut Pointing : Raised and cut pointing shall project from the wall facing with its edges cut parallel so as to have a uniformly raised band about 6 mm raised and width 10 mm more as directed.

The superfluous mortar shall then be cut off from the edges of the lines and the surface of the masonry shall also be cleaned off all mortar. The finish shall be such that the pointing is to the exact size and shape required and the edges are straight, neat and clean.

Curing

The pointing shall be kept wet for seven days. During this period it shall be suitably protected from all damages. The pointing lines shall be truly horizontal and vertical except where the joints are slanting as in rubble random masonry. Lines of joints from different directions should meet neatly at the junctions instead of crossing beyond.

Measurements

Length and breadth shall be measured correct to a cm and its area shall be calculated in square metres upto two places of decimal.

The various types of pointing for example, struck, keyed, flush, tuck, etc. shall each be measured separately.

Pointing on different types of walls, floors, roofs etc. shall each be measured separately. The type and material of the surface to be pointed shall be described.

Pointing in a single detached joint as for flashing shall be given in running metres.

For jambs, soffits, sills etc. for opening not exceeding 0.5 sqm each in area, ends of joists, beams, posts, girders, steps etc. not exceeding 0.5 sqm each in area and opening not exceeding 3 sqm each deductions and additions shall be made in the following way, in case of pointing on external face only.

- (a) No deduction shall be made for ends of joists, beams, posts etc. and openings not exceeding 0.5 sqm each, and no addition shall be made for reveals, jambs, soffits, sills, etc. of these openings.
- (b) Deductions for openings exceeding 0.5 sqm but not exceeding 3 sqm each shall be made as follows and no additions shall be made for reveals, jambs, soffits, sills, etc. for these openings.
- (c) When both the faces of the wall are pointed with the same pointing deduction shall be made for one face only.
- (d) When two faces of wall are pointed with different pointings or if one face is plastered and other is pointed or plastered, deduction shall be made from the plaster or pointing on the side of frames for doors, windows, etc. on which the width of the reveal is less than that on the other side, but no deduction shall be made from the other side.
- (e) Where width of reveals on both faces of wall are equal, deduction of 50% of area of opening on each face shall be made from area of pointing or plaster as the case may be.
- (f) For opening having door frame equal to or projecting beyond thickness of wall, full deduction for opening shall be made from each pointed face of wall.

In case of openings of area above 3 sqm each, deduction shall be made for the openings, but jambs, soffits and sills shall be measured.

The following shall be measured separately.

- (a) Raking out joints for old work only shall be measured and given in square metres.
- (b) Raking out joints of old work built in mud mortar, lime mortar and cement mortar shall each be measured separately.
- (c) Raking out joints of different types of old walls, floors etc. shall each be measured separately.
- (d) Raking single detached joints as for flashing old work shall be given in running metres.

Rate

The rate shall include the cost of all materials and labour involved in all the operations described above.

White Washing with Lime

Scaffolding

Wherever scaffolding is necessary, it shall be erected on double supports tied together by horizontal pieces, over which scaffolding planks shall be fixed. No ballies, bamboos or planks shall rest on or touch the surface which is being white washed.

For all exposed brick work or tile work, double scaffolding having two sets of vertical supports shall be provided. The supports shall be sound and strong, tied together with horizontal pieces over which scaffolding planks shall be fixed.

Note : In case of special type of brick work, scaffolding shall be got approved from Engineer-in-Charge in advance.

Where ladders are used, pieces of old gunny bags shall be tied on their tops to avoid damage or scratches to walls.

For white washing the ceiling, proper stage scaffolding shall be erected.

Preparation of Surface

Before new work is white washed, the surface shall be thoroughly brushed free from mortar droppings and foreign matter. In case of old work, all loose particles and scales shall be scrapped off and holes in plaster as well as patches of less than 50 cm area shall

be filled up with mortar of the same mix. Where so specifically ordered by the Engineer-in-Charge, the entire surface of old white wash shall be thoroughly removed by scrapping and this shall be paid for separately. Where efflorescence is observed the deposits may be brushed clean and washed. The surface shall then be allowed to dry for atleast 48 hours before white washing is done.

Exterior Painting on Wall

Material

The paint shall be (Textured exterior paint/Acrylic smooth exterior paint/premium acrylic smooth exterior paint) of approved brand and manufacture. This paint shall be brought to the site of work by the contractor in its original containers in sealed condition. The material shall be brought in at a time in adequate quantities to suffice for the whole work or at least a fortnight's work. The materials shall be kept in the joint custody of the contractor and the Engineer-in-Charge. The empty containers shall not be removed from the site of work till the relevant item of work has been completed and permission obtained from the Engineer-in-Charge.

Preparation of Surface

For new work, the surface shall be thoroughly cleaned off all mortar dropping, dirt dust, algae, fungus or moth, grease and other foreign matter of brushing and washing, pitting in plaster shall make good, surface imperfections such as cracks, holes etc. should be repaired using white cement. The prepared surface shall have received the approval of the Engineer in charge after inspection before painting is commenced.

Application

Base coat of water proofing cement paint

Before pouring into smaller containers for use, the paint shall be stirred thoroughly in its container, when applying also the paint shall be continuously stirred in the smaller containers so that its consistency is kept uniform. Dilution ratio of paint with potable water can be altered taking into consideration the nature of surface climate and as per recommended dilution given by manufacturer. In all cases, the manufacturer's instructions & directions of the Engineer-in-charge shall be followed meticulously. The lids of paint drums shall be kept tightly closed when not in use as by exposure to atmosphere the paint may thicken and also be kept safe from dust.

Paint shall be applied with a brush on the cleaned and smooth surface. Horizontal strokes shall be given, First and vertical strokes shall be applied immediately afterwards. This entire operation will constitute one coat. The surface shall be finished as uniformly as possible leaving no brush marks.

ROLLING SHUTTERS

Rolling shutters shall conform to IS 6248. These shall include necessary locking arrangement and handles etc. These shall be suitable for fixing in the position as specified i.e. outside or inside on Or below lintel or between jambs of the opening. The door shall be either

push and pull type or operated with mechanical device supplied by the firm. Shutters upto 10 sq. metre shall be of push and pull type and shutters with an area of over 10 sq. metre shall generally be provided with reduction gear operated by mechanical device with chain or handle, if bearings are specified for each of operation, these shall be paid for separately.

Shutter :

The shutter be built up of inter locking lath section formed from cold rolled steel strips. The thickness of the sheets from which the lath sections have been rolled shall be not less than 0.90 mm for the shutters upto 3.5 m width and not less than 1.2mm for shutters above 3.5m width. Shutters above 9 metres width should be divided in 2 parts with provision of one middle fixed or movable guide channel or supported from the back side to resist wind pressure. The lath section shall be rolled so as to have interlocking curls at both edges and a deep corrugation at the centre with a bridge depth of not less than 12 mm to provide sufficient curtain of stiffness for resisting manual pressures and normal wind pressure. Each lath section shall be continuous single piece without any welded joint. When interlocked, the lath sections shall have a distance of 75 mm rolling centers. Each alternate lath section shall be fitted with malleable cast iron or mild steel clips securely riveted at either ends, thus locking in the lath section at both ends preventing lateral movement of the individual lath sections. The clips shall be so designed as to fit the contour of the lath sections.

Spring :

The spring shall be of coiled type. The spring shall be manufactured from high tensile spring steel wire or strips of adequate strength conforming to IS 4454- Part I .

Roller and Brackets :

The suspension shaft of the roller shall be made of steel pipe conforming to heavy duty as per IS 1161. For shutter upto 6 metre width and height not exceeding 5metre, steel pipes of 50 mm nominal bore shall be used. The shaft shall be supported on mild steel brackets of size 375 x 375 x 3.15 mm for shutters upto a clear height of 3.5 metre. The size of mild steel brackets shall be 500 x 500 x 10 mm for shutters of clear height above 3.5 m and upto 6.5 m. The suspension shaft clamped to the brackets shall be fitted with rotatable cast iron pulleys to which the shutter is attached. The pulleys and pipe shaft shall connected by means of pretensioned helical springs to counter balance the weight of the shutter and to keep the shutter in equilibrium in any partly open position.

When the width of the opening is greater than 3.5 mtr. The cast iron pulleys shall be interconnected with a cage formed out of mild steel flats of at least 32 x 6 mm and mild steel dummy rings made of similar flats to distribute the torque uniformly. Self aligning two row ball bearing with special cast iron casings shall be provided at the extreme pulley and caging rings shall have a minimum spacing of 15mm and at least 4 number flats running throughout length of roller shall be provided.

In case of shutters of large opening with mechanical device for opening the shutter the roller shall be fitted with a purion wheel at one end which in contact with a worm fitted to the bracket plate, caging and pulley with two ball bearing shall be provided.

Guide Channels

The guide channels shall be of mild steel deep channel section and of rolled, pressed or built up (fabricated) construction. The thickness of the sheet used shall not be less than 3.15 mm. The depth of the guide should be such that there is sufficient clearance between the curtain and the inner surface of the guide to avoid any rubbing or obstruction for free movement of the curtain. The curtain shall project into the guide at least 40 mm up to 3.5 m width and 60 mm for greater width and there shall be a clearance of 10 mm minimum between the guide wall and the end clips of the curtain to permit free movement of the curtain under normal wind pressure. **Where the shutter is installed in heavy windy zones special wind locking arrangements shall be provided to prevent the curtain coming out of the guide.**

The gap, on either side, between the edge of curtain and the inside edge of the guide channel shall be about 5 mm to allow for the free movement of the curtain and at the same time to prevent rattling of the curtain due to wind.

Size of the guide channel - The depth and width of the guide channel shall be as under:

<i>Min</i>	<i>a) Depth</i>	<i>Clear width of shutter</i>	<i>Depth of guide channel,</i>
	Up to 3.5 m		65 mm
	3.5 m up to 8 m		75 mm
	8 m and above		100 mm

b) Width of guide channel shall be 25 mm for lath sections with bridge depth of about 12 mm and 32 mm for lath sections with bridge depth of about 16 mm.

Each guide channel shall be provided with a minimum of three fixing cleats or supports for attachment to the walls or column-by means of bolts or screws. The spacing of cleats shall not exceed 0.75 m. Alternatively, the guide channels may also be provided with suitable dowels, hooks or pins for embedding in the walls.

The guide-channels shall be attached to the jambs, plumb and true, either in the overlapping fashion, projecting fashion or embedded in grooves, depending on the method of fixing.

Cover

Top cover shall be of mild steel sheets not less than 0.90 mm thick and stiffened with angle or flat stiffeners at top and bottom edges to retain shape.

Lock plates with sliding bolts, handles and anchoring rods shall be as per IS 6248.

Fixing

The arrangement for fixing in different situations in the opening shall be as per IS 6248.

Brackets shall be fixed on the lintel or under the lintel as specified with rawl. Plugs and screws bolts etc. The shaft along with the spring shall then be fixed on the brackets.

The lath portion (shutter) shall be laid on ground and the side guide channels shall be bound with ropes etc. The shutter shall then be placed in position and top fixed with pipe shaft with bolts and nuts. The side guide channels and cover frames shall then be fixed to the walls through the plate welded to the guides. These plates and bracket shall be fixed by means of steel screws bolts, and rawl plugs concealed in plaster to make their location invisible. Fixing shall be done accurately in a workmen like manner that the operation of the shutter is easy and smooth.

Measurements

Clear width and clear height of the opening for rolling shutter shall be measured correct to a mm. The clear distance between the two jambs of the opening shall be clear width and the clear distance between the sill and the soffit (bottom of lintel) of the opening shall be the clear height.

The area shall be calculated in square metres correct to two places of decimal.

Rate

The rate shall include the cost of materials and labour involved in all the operations described above including cost of top cover and spring except ball bearing and mechanical device of chain and crank operation, which shall be paid for separately.

LIST OF APPROVED MAKE

1	Cement	Malabar, Ultra Tech, Zuari, Ramco, ACC, India Cements , Dalmia or any other approved brand
2	Steel (TMT)	Tata, Vizag, SAIL, TISCO, IISCO or equivalent as approved
3	Cement Concrete floor tiles	Eurocon Tiles, Excello or equivalent as approved
4	Paint & Primer, Distemper	ICI (Akzonobel), Berger, Asian, Jotun or equivalent as approved
5	Ball bearings	SKF, FAG, KOYO or equivalent as approved
6	Welding rode	EFFAB, Adwani or equivalent as approved
7	Protective Paints	AkzoNobel, Jotun India Private Limited , Berger Paints India Limited , Asian Paints Ltd or equivalent as approved.
8	Admixtures	FOSROC, Pidilite, Polygon, STP, BASF, CERACHEM, Don Chemicals or equivalent as approved
9	Interior Textured Paint	Oikos, Spectrum,caprol,Jotun or equivalent as approved.
10	Concrete Paver Tiles	Basant Beton, Conwood, Automatic, Amcon, Sirex or equivalent as approved
11	Premium Textured Exterior Paint	Terraco India Ltd., Spectrum, Jotun or equivalent
12	Synthetic Enamel Paints & Primer	ICI (Akzonobel),Asian Paints,Berger,Jotun or equivalent as approved

6.0 SCHEDULE OF QUANTITIES