TENDER DOCUMENT

TENDER No: DLI / CON / 689 / 360

FOR

PRW Contract Works for Site clearance, Earthwork, PCC & RCC and other finishing works including material for Construction of New Building (G+3) FOR Chemical Sciences (Package-1) at IISC Campus, Bangalore

VOLUME – II

Additional Conditions of Contract
&
Tender Document of Client
&
Tender Drawings
ADDITIONAL CONDITIONS OF CONTRACT

The following Additional Conditions of Contract shall be read in conjunction with General Conditions of Contract of EPI. If there are any provisions in these Additional Conditions of Contract which are at variance with the provision of General Conditions of Contract of EPI, then provisions in these Additional Conditions of Contract shall take precedence over General Conditions of Contract of EPI.

1. Contractor has to carry out site barricading as per enclosed drawing, Survey works, temporary office for with a covered area of 1000 Sq.ft. with necessary furniture, Bore well with pump for water requirement, Lab equipments as per clause No. 52.6 of GCC and requisite toilets for client, labour& EPI and direction of EPI & Client. Any expenditure already incurred / to be incurred by EPI, shall be recovered from the contractor.

2. Similarly, any expenditure already incurred/to be incurred by EPI for temporary power connection work incl. cabling and panels etc from IISC located point to site area / batching plant area shall be recovered proportionately.

3. Mobilization advance (as applicable) will be payable as per Memorandum and General Condition Contract.

4. Clause No. 15.1 of EPI GCC amended as: The Price adjustment will be considered proportionate value of work as per clause no 3.9 GCC of the client tender documents.

5. Insurance charges for insurance which will be taken by EPI for the project as per contract with Client shall be borne by PARTY in proportion to value of their awarded work. The PARTY shall take insurance cover at its own cost towards Workman Compensation Act for its own workers, employees and for the Plant & Equipment deployed by the PARTY at the project site and shall furnish documentary proof of the same to EPI failing which no payments shall be released to the PARTY against work done. The PARTY shall assist EPI in follow up with insurance company in case of any claim related to PARTY’s scope of work. EPI is not liable to pay any claim of the PARTY if it is not paid by insurance company due to any reasons whatsoever.

Lands for the use of the Contractors Camp: The contractor shall have to make his own arrangements on his own cost for construction of living accommodation at the work spot. Land will be made available within the campus free of cost. The entire area of the labour camp shall be barricaded by the contractor. No trespassing of any sort into the main campus will be permitted. Labour camp shall be maintained clean with proper sanitation and the entire area shall be
made good before vacation of the site. Any expenditure already incurred / to be incurred by EPI, shall be recovered from the contractor.

The contractor shall also clear the labour camp of all types of permanent/temporary structures, soak pits, sump, septic tanks or any other such installations as identified by the SPE to the entire satisfaction of the Institute. The same should be carted out of the Institute at his own risk and cost.

6. Taxes & Duties:
All men, materials (except items RMC and reinforcement steel as in (Annexure – H), machinery, tools and plants, infra-structure, resources etc., as required for execution of “Works” shall be provided and arranged by PARTY for their portion of work. The amount/rate quoted in their offer by PARTY to EPI includes all charges, all direct and indirect cost of works, materials, labour, plant & equipment, all taxes, duties, levies, royalties, Octroi, entry tax, excise duty, sales tax, VAT, WCT/TOT, service tax, labour welfare cess etc., all transportation charges including for cartage of free issue and other material, electricity and water charges, site offices expenses, labour camp, bank guarantee charges, insurance charges, EPF/CPF/ Statutory contributions, preparation of all required design & detailed engineering and all required drawings etc., other expenses whatsoever, incurred on execution, completion and maintenance of the “Works” as per ‘Tender Documents’ and their own overheads and profit etc. No extra payment on this account will be made to the contractor. Any statutory levies imposed by the central Government/ state Government/ local body from time to time are to the contractors account only. All quarry fees, Octroi dues levied by the state or any local body or authority and ground rent, if any, charged by the Client/Special Project Engineer for stacking materials should be paid by the contractor. PARTY shall comply with all the requirements laid down as per ‘Tender Documents’ as per terms, conditions, specifications, drawings, documents etc. given in the ‘Tender Documents’, complete with all amendments/variations issued prior to issue of work order, for the completion, handing over, maintenance period etc. for the project.

RMC and reinforcement steel shall be procured by EPI directly from the Manufacturer / Dealer and shall be issued to the contractor free of cost. Permissible limit for wastage of Ready mix concrete shall be 1%( One percent only). Permissible limit for wastage of reinforcement steel shall be 0.5%(Zero point Five percent only) on the theoretical consumption. However excess consumption/wastage of RMC/Reinforcement steel beyond the maximum permissible limit shall be recovered at the penal rate which is double the
prevailing market rate. Unloading, proper storage of all the materials procured by EPI shall be the responsibility of the contractor. In case contractor fails to take action for unloading or proper storage of material brought to site by EPI, the same shall be arranged by EPI at the risk and cost of contractor. In case there is delay in supply of material by EPI, the contractor will have no claim on its account.

In case of non-supply of materials by EPI due to any reason, the party may be permitted to procure the materials with the prior approval from EPI without any claim on EPI. In such case payment for procurement of such quantum of RMC and reinforcement steel shall be released to the party on receipt of materials at site and against Indemnity Bond in the prescribed proforma.

The contractor shall submit RA Bills / Pre-Final / Final Bill along with the reconciliation statement of materials and no payment shall be released to the contractor in absence of such documents. Excess consumption shall be recovered at the rates mentioned elsewhere in the contract.

Consumption of materials shall be calculated as per the provision of contract / specification / standards and the contractor shall solely be responsible for any additional or less consumption of materials. In case material is consumed less than that calculated as per the co-efficient of consumption as per the contract / relevant specification / KPWD Norms, the contractor shall identify the portion of work / whole work where material consumed is less than that specified above and dismantle such work and redo the same at his own cost.

In case contractor fails to identify the work where material has been consumed less than that specified in the contract / relevant specification / KPWD Norms, EPI/Client shall take decision to identify the portion of work / whole work and it shall be the binding on the contractor to dismantle and redo the work as identified by EPI/Client. Failure on the part of contractor to take action in this regard, EPI/Client shall take action to dismantle such work and redo the same at the risk and cost of contractor.

Requisition for issue of material shall be submitted to EPI at least 15 (fifteen) days in advance and the contractor shall make close co-ordination with EPI officials in this regard till material is received at site. Non-issuance of material by EPI shall not be the reason for extension of time.
7. Clause no 28.3 of EPI GCC amended and the list of facilities to be provided is enclosed in the **Annexure - I**

8. The PARTY shall be fully responsible to complete the “Works” to the satisfaction of Client and EPI by maintaining high standard of quality and precision as per ‘Tender documents’, Agreements, Terms & Conditions, Specifications, Drawings etc., within the contractual completion period and within their quoted rates/amount.

9. The PARTY shall post following minimum competent engineers and supervisory staff at site for day-to-day execution and supervision of its works etc. during the entire duration of the contract including maintenance/defect liability period. The minimum number and level of engineers, supervisors and other personnel to be deployed by the PARTY should be as directed by EPI. In case the PARTY fails to deploy adequate number of personnel at site/office, EPI after giving seven days notice shall engage the required personnel solely at the risk and cost of the PARTY and debit the cost of the same to the account of PARTY. EPI shall exercise overall management, monitoring and coordination of project. EPI shall not post any staff during maintenance/defect liability period for which the PARTY shall make suitable arrangement to the satisfaction of EPI/Client.

### Minimum Requirement of Technical Staff for the work

<table>
<thead>
<tr>
<th>Cost of work (Rs.)</th>
<th>Contract period (Months)</th>
<th>Requirement of Technical Staff</th>
<th>Minimum experience (Years)</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 10Crs.</td>
<td>18</td>
<td>(i) Project Manager with degree in corresponding discipline of Engineering</td>
<td>1 10</td>
<td>Principal Technical Representative</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ii) Graduate Engineer</td>
<td>1 5</td>
<td>Technical Representative</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iii) Graduate Engineer</td>
<td>2 Nil</td>
<td>Technical Representative</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OR Diploma Engineer</td>
<td>2 5</td>
<td>Technical Representative</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iv) Planning / Quantity Surveyor</td>
<td>1 5</td>
<td>Technical Representative</td>
</tr>
</tbody>
</table>
Rate of recovery in case of non compliance of above be stipulated at following rates:-

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Qualification</th>
<th>Experience (years)</th>
<th>Rate of recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Project Manager with Degree</td>
<td>10</td>
<td>Rs. 25,000/-p.m.</td>
</tr>
<tr>
<td>(ii)</td>
<td>Graduate Engineer</td>
<td>5</td>
<td>Rs. 20,000/- p.m.</td>
</tr>
<tr>
<td>(iii)</td>
<td>Graduate Engineer or Diploma Engineer</td>
<td>NIL 5</td>
<td>Rs. 12,000/- p.m.</td>
</tr>
<tr>
<td>(iv)</td>
<td>Planning / Quantity Surveyor</td>
<td>5</td>
<td>Rs. 15,000/- p.m.</td>
</tr>
</tbody>
</table>

10. The PARTY shall be responsible for timely completion of the “Works” within the contractual completion period. Liquidated Damages shall be recovered at the rate of 0.5% of contract value of the balance work assessed for every week for a maximum of 10% of the contract value of the work, in proportion to EPI’s contract value with client for the work in the scope of contractor. Liquidated Damages / Compensation for delay or other dues, if any imposed / deducted from EPI’s bills by Client shall be recovered from PARTY’s bills in proportion to EPI’s contract value with client for the work in the scope of contractor.

11. If desired by EPI, PARTY shall be available/ associate with EPI in meetings/ negotiations with EPI/Client for its portion of work. PARTY shall furnish all information and clarifications as and when required by EPI/Client. The PARTY shall abide by any modifications/changes etc. in tender prices, terms & conditions as agreed by it during negotiations with Client/EPI.

12. The PARTY shall deploy sufficient plant & equipment of the required capacity and in good working condition for completion of the works in stipulated time with required quality. The equipment should either be owned by the PARTY or hired/leased. The deployment of equipment by PARTY shall be as decided by EPI and the same shall not be less than the minimum deployment stipulated by the Client, if any, for execution of “Works” and as per schedule agreed with EPI. The PARTY shall make arrangement for regular maintenance including preventive and breakdown maintenance and maintain stock of essential spares at site/near to site so as to ensure minimum breakdown time of equipment. The equipment once brought to site shall not be allowed to be removed without the consent of EPI. In case the PARTY fails to deploy sufficient equipment to the satisfaction of EPI or in case of prolonged breakdown of equipment, EPI at its sole discretion shall arrange the required equipment and debit all the related costs including ten percent overheads of EPI and shall recover the same from
the due payments of PARTY, including from its bank guarantees available with EPI.

13. EPI is an ISO-9001 and ISO-14001 Company. The conditions of the ISO as applicable should be followed by the PARTY for implementation & maintaining the established procedures of EPI for this purpose. Following documents have been provided by EPI to PARTY & PARTY confirms receipt of the same:

   a. Quality, Environmental, OH & safety policy
   b. Environmental, Objectives & Targets
   c. Operational control – Noise
   d. Operational control – wastage
   e. Operational control – energy
   f. Operational control – Deforestation
   g. Operational control – Plantation of trees
   h. OH & S. management objects & targets

14. The Works executed by PARTY shall be subject to audit and quality control checks from Quality Control Division & Technical Audit of EPI, Client, Inspecting Agency of the Client and Chief Technical Examiner of Central Vigilance Commission, Govt. Of India. In the eventuality of any defect/ sub-standard design as brought out in the report or noticed otherwise at any time during execution, maintenance period etc., the same shall be made good by the PARTY without any cost to EPI. In case PARTY fails to rectify the defect/sub-standard work within the time period stipulated by EPI, EPI shall get it rectified at the risk and cost of PARTY and shall recover the amount from the dues of the PARTY.

15. Supply & erection of project sign board at site office as per Annexure – J is in the scope of the party.

16. Quantity variation As per Client document

17. The bid should be submitted in original documents as issued by EPI or as downloaded from the website www.epi.gov.in or www.eprocure.gov.in. No alteration or correction should be made under any circumstances in the bid documents issued by EPI or as downloaded from the website.

18. All other terms and conditions shall be as per the Tender documents of Client and the same shall be applicable between EPI and the PARTY on mutatis mutandis basis. The terms and conditions of these ‘ACC’ shall supersede the terms and conditions contained in the Tender Documents of the Client in case of variance in any condition. However, if EPI is granted some concession or
exempted from certain obligations by Client, by virtue of EPI being a Public Sector Company, the same concessions / exemptions shall not be applicable to the PARTY. The decision of EPI in this regard including interpretation of terms & conditions shall be final & binding on PARTY.

19. Only approved makes for OPC and Steel etc., to be used as per the ‘Client List of Approved Makes’. In case of use of other makes in exceptional circumstances, that too after prior approval of EPI/ Client, the recovery at prevailing market rates shall be made.

20. Royalty on Materials - Rates quoted for items shall be inclusive of Royalty and all other taxes, which are in force or levied from time to time or become leviable / payable by him to any authority. Royalty will be deducted from the running account bills at the prescribed rates. However there will be no deduction towards royalty in the running account bills if the tenderer produces vouchers or bills for having paid to the authorities concerned, the royalty and other charges along with the running account bills.

21. It is not possible for the Institute to release any quarry (murrum, metal and sand etc.,) for this work. The contractor has to make his own arrangements. No claim regarding leads and lift will be accepted.

22. The contractor has to make his own arrangements in regard to power supply and water required for construction and drinking water facilities.

23. Toll Tax, Octroi, Royalty for collecting earth, gravel, sand, stone, excise duty, sales tax, labour cess or any other tax payable on account of this contract shall be met by Contractor.

24. After completion of the work, service drawings as per actual execution in Auto CAD should be submitted by the agency for services such as Electrical, Water supply and Sanitary before submission of final bill.

25. EXTRA ITEM:

Whenever the contractor is ordered by the Engineer-in-charge or the person duly authorized by him to execute any item of work, which is not in his tender, it shall be the contractors duty to see that the order is duly entered in the order book on the work, unless a separate communication to this effect is received by him, it shall be his duty to get the rates sanctioned for the item by the appropriate authority. For any extra item of work not thus ordered either by any entry in the
order book or separate communication, the contractor shall have no claim to payment.

26. For alternation in quantity of work, specifications and designs, Additional work, deletion of work, Clause No 3 of conditions of contract of client to be followed.
Sub: List of Free issue of Material

PRW contract Works for Site Clearance, Earthwork, PCC & RCC and other finishing works including material for Construction of New Building (G+3) for Chemical Sciences (Package – 1)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description of Item</th>
<th>Unit</th>
<th>Recovery Rate (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Readymade Cement concrete (RMC) M25 Grade</td>
<td>Cum</td>
<td>Free of cost</td>
</tr>
<tr>
<td>2</td>
<td>Reinforcement Steel (IS 1786)</td>
<td>MT</td>
<td>Free of cost</td>
</tr>
</tbody>
</table>

Notes:

i) Permissible limit for wastage of Ready mix concrete shall be 1% (One percent only). Permissible limit for wastage of reinforcement steel shall be 0.5% (Zero point Five percent only) on the theoretical consumption. However Excess consumption/wastage of RMC/Reinforcement steel beyond the maximum permissible limit shall be recovered at the penal rate which is double the prevailing market rate.
FACILITIES TO BE PROVIDED BY PARTY TO EPI

Immediately on placement of LOI/Work Order (whichever is earlier) by EPI on the PARTY, the PARTY at its own cost shall provide furnished office, facilities etc. exclusively for the use of personnel of EPI as per details given below. The PARTY shall make his rates in their offer sufficiently comprehensive to cover the cost of the facilities as per details shown below and the PARTY shall not be entitled for any extra payment for the same:

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>QUANTITY / AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) OFFICE ACCOMMODATION</td>
<td>1000 Sq Ft</td>
</tr>
<tr>
<td>Furnished Office accommodation at one or more locations as per direction of EPI with basic amenities like Toilets, Drinking water arrangement, lights, fans etc. for exclusive use of Client Engineers and maintenance of the same till Defect Liability Period. The Specifications and Design of accommodation shall be as approved by EPI. (pl. refer Pt. No. 1 of ACC)</td>
<td></td>
</tr>
<tr>
<td>B) FURNITURE OF TOTAL VALUE</td>
<td>Rs.1,00,000/-</td>
</tr>
<tr>
<td>The size, specification, design and numbers shall be finalized by EPI.(pl. refer Pt. No. 1 of ACC)</td>
<td></td>
</tr>
<tr>
<td>C) OFFICE EQUIPMENT</td>
<td>1 No</td>
</tr>
<tr>
<td>a) Fax cum scan Machine</td>
<td></td>
</tr>
<tr>
<td>b) Computer (i5 processor) with minimum 4GB RAM, 500 GB HDD along with UPS, Latest Version of Soft wares like MS project, windows, MS office, CAD, etc &amp; Operator for the computer (In case Computer Operator is not provided by the PARTY, recovery of Rs.8000/- per month / per computer shall be made from the PARTY’S bills in this regard)</td>
<td>1 No</td>
</tr>
<tr>
<td>c) Laser or any other Printer of equivalent amount of A3 size windows, MS Office, CAD, etc.</td>
<td>1 No</td>
</tr>
<tr>
<td>d) Internet Facilities (connection to all computers)</td>
<td>1 No</td>
</tr>
<tr>
<td>e) Aqua Guard (Drinking Water) or any other gadget of equivalent</td>
<td></td>
</tr>
<tr>
<td><strong>cost as decided by EPI</strong></td>
<td>1 No</td>
</tr>
<tr>
<td>---------------------------</td>
<td>------</td>
</tr>
<tr>
<td><strong>f) Photocopy Machine ((CANON NP 3050 or equivalent model) or any other gadget of equivalent cost as decided by EPI</strong></td>
<td>1 No</td>
</tr>
<tr>
<td><strong>g) Digital Camera of 10.1 pixel as above</strong></td>
<td>1 No</td>
</tr>
<tr>
<td><strong>h) Running &amp; Maintenance of the equipment mentioned above are to be done by the PARTY at his own cost.</strong></td>
<td>As per actual</td>
</tr>
</tbody>
</table>

**E) TELEPHONE WITH STD FACILITY AND INSTRUMENT**

| **a) office Telephone (Fixed Line)** | 1 No |
| **b) Mobile Phone** | 3 Nos |

Monthly operational expenditure on account of all telephones shall be restricted to:

The cost of each Mobile Phone Instrument shall be restricted to Rs.4500/- per month

| **F) VEHICLE (Brand New)** | 1 No |
| Brand New Four wheel drive Scorpio DX vehicle or equivalent with Driver and the accessories valuing Rs.30,000/- each vehicle | with Monthly running shall be restricted to 4000 KM per month | Rs.6,000/- |

| **G) OFFICE BOY CUM COOK on full time basis for EPI** | 1 No |

The vehicles shall be brand new and shall be provided with driver on full time basis. Consumables like diesel/petrol/oil lubricants and spare parts etc. shall be provided by the PARTY immediately. The cost of registration, transportation etc. shall be borne by the PARTY. **In case a vehicle is not required by EPI,** a recovery of Rs.50,000/- per month per vehicle shall be made from the PARTY for this purpose till the end of defect liability period. **In case Driver, POL, maintenance of any vehicle is not required by EPI for any vehicle,** a recovery of Rs.20,000.00 per month per vehicle shall be made from the PARTY for this purpose till the end of defect liability period. **In case the party do not provide vehicle or driver or POL or maintain vehicle,** EPI shall arrange the same on behalf of the party and the cost towards availing these facilities shall be deducted from RA bills.

The above gadgets and facilities should be brand new and of reputed make and all facilities shall be provided and maintained properly (including payment of water & electricity bills etc.) by the PARTY at Project site or at any other office related with execution of this project till completion of work, handing over, defect liability period in all respect at his own cost. The PARTY shall also make stand-by arrangement for water & electricity to ensure un-interrupted supply. The equipment/items shall be the property of PARTY at the end of contract. The PARTY shall be responsible for watch and ward of site office and other facilities etc. In case of theft/damage of any equipment/items, the PARTY shall immediately replace the same within a maximum period of two days.
The PARTY shall provide ‘Sign Board(s)’ as per design approved by EPI and/or Client.

In case the above facilities are not provided by the PARTY within 10 (ten) days of award of work or replacement is not provided within the specified period, EPI shall arrange the same at the risk and cost of the PARTY and make the recoveries from the bills of the PARTY for the same. The decision of EPI shall be final and binding on the PARTY in this regard.
INDIAN INSTITUTE OF SCIENCE
BANGALORE

Client Tender Documents

Construction of Chemical Science Dept.
at IISc campus, Bangalore.
1. GENERAL INSTRUCTIONS TO TENDERER

3.1 The tenderer must understand clearly that the rates quoted are for complete items of works including charges due to materials, labour, all lead and lift, HOM of plant and machineries, scaffolding, supervision, service works, power, all types of royalties, sales tax, labor cess, all types of taxes payable to the Govt and local bodies, over head charges, etc., and includes all extra to cover the cost of night work if and when required and no claim for additional payment beyond the prices or rates quoted will be entertained for payment subsequently towards any claims on the grounds of misrepresentation or on point that he was supplied with information given by promise or guarantee by the Institute, or by any person whether member of or employee in Institute will not be entertained. Failure on the contractor’s part to obtain all necessary information for the purpose of submitting his tender and quoting rates therein shall not absolve him of any risk or liability consequent upon the submission of tender.

3.2 The contractor should note that classifications of various floors of the main building will be strictly according to the approved plans and as shown on plan, one set of plans, are enclosed with tender form. The plan shall be signed and enclosed along with the tenders as token of acceptance. Excess excavated earth including debris etc., collected at site during and after completion of the work shall be carted out of the Institute premises by the contractor at his own risk and cost. No extra payment on this account is payable.

3.3 The tenderer may read carefully the specifications for the items TMT steel Tor-Steel and Mild Steel as the rates to be quoted for these items should be inclusive of all laps and wastages. Laps and wastages will not be measured and paid separately.

3.4 The successful tenderer shall submit for approval a P.E.R.T. chart (Programme Evaluation and Review Technique) from the date of commencement of the work to the date of completion as per agreement. The contractor is bound to adhere to the schedule. The PERT chart should be submitted within one week from the date of issue of work order or from the date of handing over site whichever is earlier. The contractor shall also submit a financial programme to match the P.E.R.T. chart within one week from the date of issue of work order or from the date of handing over site whichever is earlier.

3.5 Cement & Steel - The contractor has to make his own arrangements for the procurement of Cement & Steel of approved brand and make required for the Project. The cement to be used should be Ordinary Portland Cement (OPC) - 43 Grade of Coromandal / Vasavadatta / Ultratech / ACC The steel to be used shall be TMT Fe 500 of TATA/ SAIL/RINL (Primary plants only) Note: No blended cement will be permitted for use.

3.6 Water Supply - Contractor is permitted to dig bore wells required at RMC yard, work site and also at labour camp at his own cost. After the completion of work the agency has to hand over the bore well along with the pump and panel board in working condition to the Institute completely at free of cost and no extra charges can be claimed towards this. If sufficient quantity of water is not available then the water required for the Construction, RMC yard & labour camp shall be arranged by the contractor himself at his own risk and cost.

3.7 Supply of Electricity - Electricity required for construction shall be arranged by the contractor himself. Electricity if supplied to the contractor by the Institute will be metered and amount will be recovered in the Bills as per actual at rates fixed by
the Institute. Supply of electricity from the Institute is not mandatory. Non-supply of electricity by the Institute cannot be held as reason for shortfall in progress.

3.8 Royalty on Materials - Rates quoted for items shall be inclusive of Royalty and all other taxes, which are in force or levied from time to time or become leviable / payable by him to any authority. Royalty will be deducted from the running account bills at the prescribed rates. However there will be no deduction towards royalty in the running account bills if the tenderer produces vouchers or bills for having paid to the authorities concerned, the royalty and other charges along with the running account bills.

3.9 **Escalation of Rates** – Price adjustment for both escalation and reduction in prices shall be as per norms of KPWD.

**PRICE ADJUSTMENT FORMULA**

Contractor price shall be adjusted for increase or decrease in rates and prices of labour, materials, fuels and lubricants in accordance with the following principles and procedures and as per formulae given in the contract data.

An overall ceiling of price adjustment is limited to 10% of total contract value.

(a) The price adjustment shall apply for the work done from the date of commencement up to the end of original period of completion or extensions granted by employer and shall not apply to work carried out beyond the stipulated period of completion for reasons attributable to the Contractor.

(b) Price adjustment shall be admissible from the date of opening of tenders(Original or extended)

(c) Price adjustment shall be determined during each quarter from the formulae given in Contract data.

(d) Following expressions and meanings are assigned to the work done during the quarter:

\[ R = \text{Total value of work done during the quarter. It will be exclude value of works executed under variations for which price adjustment (if any) will be worked out separately based on the terms mutually agreed.} \]

**Adjustment for labour component:**

(i) Price adjustment for increase or decrease in the cost due to labour shall be paid in accordance with the following formula:

\[ V_L = 0.85 \times \frac{P_L}{100} \times R \times (L_1 - L_0) \times L_0 \]

Where,

- \( V_L \) = Increase or decrease in the cost of work during the quarter under consideration due to changes in rates for local labour:

- \( L_0 \) = The average consumer price index numbers are available in the web site [http://labourbureau.nic.in/indtab.html](http://labourbureau.nic.in/indtab.html) for industrial workers for Bangalore Centre for the quarter preceding the dated of opening of tenders as published by the Labour Bureau, Ministry of Labour, Govt. of India;
L₁ = The average consumer price index price index numbers are available in the website [http://labourbureau.nic.in/indtab.html](http://labourbureau.nic.in/indtab.html) for industrial workers for Bangalore Centre for the quarter under consideration as the Labour Bureau, Ministry of Labour, Govt. of India;

Pₜ = Percentage of labour component of the work

**Adjustment for Cement Component:**

(ii) Price adjustment for increase or decrease in the cost of cement component procured by the contractor shall be paid in accordance with the following formula.

\[ Vₜ = 0.85 \times \frac{P_c}{100} \times R \times \frac{(C₁ - C₀)}{C₀} \] Where,

\[ Vₜ = \text{Increase or decrease in the cost of work during the quarter under consideration due to changes in rates for cement;} \]

\[ C₀ = \text{The all India average wholesale price index number are available in the website [http://eaindustry.nic.in](http://eaindustry.nic.in) for cement (Ordinary Portland Cement) for the quarter preceding the date of opening of tenders as published by the Office Economic Advisor, Ministry of Commerce and Industry, Govt. of India, New Delhi;} \]

\[ C₁ = \text{The all India average wholesale price index number are available in the website [http://eaindustry.nic.in](http://eaindustry.nic.in) for cement (Ordinary Portland Cement) for the quarter under consideration as published by the Office Economic Advisor, Ministry of Commerce and Industry, Govt. of India, New Delhi;} \]

\[ P_c = \text{Percentage of cement component of the work} \]

Note: For the application of this clause index of Ordinary Portland Cement 42 has been chosen to represent Cement Group

**Adjustment for steel Component:**

(iii) Price adjustment for increase or decrease in the cost of steel component procured by the contractor shall be paid in accordance with the following formula.

\[ Vₕ = 0.85 \times \frac{P_s}{100} \times R \times \frac{(S₁ - S₀)}{S₀} \] Where,

\[ Vₕ = \text{Increase or decrease in the cost of work during the quarter under consideration due to changes in rates for steel;} \]

\[ S₀ = \text{The all India average wholesale price index for steel (MS Bars and rods) for the quarter preceding the date of opening of Bids as published by the Office of Economic Advisor, Ministry of Commerce and Industry, Govt. of India, New Delhi;} \]

\[ S₁ = \text{The all India average wholesale price index for steel (MS Bars and rods) for the quarter under consideration as published by the Office of Economic Advisor, Ministry of Commerce and Industry, Govt. of India, New Delhi;} \]

\[ P_s = \text{Percentage of steel component of the work} \]
Note: For the application of this clause, index of TMT Fe 500 bars 43 has been chosen to represent steel Group

**Adjustment for Fuel and Lubricant Component:**

(v) Price adjustment for increase or decrease in the cost of Fuel and Lubricants shall be paid in accordance with the following formula:

\[ V_T = 0.85 \times \frac{P_F}{100} \times R \times \frac{(F_1 - F_0)}{F_0} \]

Where,

- \( V_T \): Increase or decrease in the cost of work during the quarter under consideration due to changes in rates for Lubricant Component;
- \( F_0 \): The official retail price of High speed Diesel (HSD) at the IOC/HPCL/BPL or other consumer pump at Bangalore at site identified by the Engineer in charge on the day 30 days prior to the date of opening of Bids.
- \( F_1 \): The official retail price of HSD at the IOC/HPCL/BPL or other consumer pump at Bangalore at site identified by the Engineer in charge for 15th day of the middle calendar month of the quarter under consideration.
- \( P_F \): Percentage of Fuel and Lubricant component of the work

Note: For the application of this clause the price of HSD 46 has been chosen to represent Fuel and Lubricant Group

**Adjustment for Plant and Machinery Spares Component:**

(vi) Price adjustment for increase or decrease in the cost of Plant and Machinery Spares procured by the contractor shall be paid in accordance with the following formula:

\[ V_P = 0.85 \times \frac{P_P}{100} \times R \times \frac{(P_1 - P_0)}{P_0} \]

Where,

- \( V_P \): Increase or decrease in the cost of work during the quarter under consideration due to changes in rates for Plant and Machinery Spares;
- \( P_0 \): The all India average wholesale price index for Heavy Machinery and parts for the quarter preceding the date of opening of bids as published by the Office of Economic Advisor, Ministry of Commerce and Industry, Govt. of India, New Delhi;
- \( P_1 \): The all India average wholesale price index for Heavy Machinery and parts for the quarter under consideration as published by the Office of Economic Advisor, Ministry of Commerce and Industry, Govt. of India, New Delhi;
- \( P_B \): Percentage of Plant and Machinery spares component of the work

Note: For the application of this clause index of Heavy machinery and Parts 47 has been chosen to represent the Plant and Machinery Spares Group.

**Adjustment for other materials:**

(vii) Price adjustment for increase or decrease in the cost of other materials other than cement, steel, bitumen and Fuel and Lubricants, procured by the contractor shall be paid in accordance with the following formula:
\[ V_M = 0.85 \times P_M /100 \times R \times (M_1 - M_0)/M_0. \]

\( V_M = \) Increase or decrease in the cost of work during the quarter under consideration due to changes in rates for local materials other than cement, steel, bitumen and Fuel and Lubricants;

\( M_0 = \) The all India average wholesale price index for all commodities for the quarter preceding the dated of opening of bids as published by the Office of Economic Advisor, Ministry of Commerce and Industry, Govt. of India, New Delhi;

\( M_1 = \) The all India average wholesale price index for all commodities for the quarter under consideration as published by the Office of Economic Advisor, Ministry of Commerce and Industry, Govt. of India, New Delhi;

\( P_M = \) Percentage of other material component of the work (Other than cement, steel, bitumen and Fuel and Lubricants) of the work.

The following percentage will be governing the price adjustment for the entire contract:

1. Labour - \( P_L \) : 25%
2. Cement – \( P_C \) : 10%
3. Steel – \( P_S \) : 20%
4. Fuel and Lubricants – \( P_F \) : 05%
5. Plant and machinery spares - \( P_P \) : 15%
6. Other materials - \( P_M \) : 25%

Total : 100%

Even though the Tenderers meet the above criteria, they are subject to be disqualified if they have:

- made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.; and/or
- participated in the previous Tender for the same work and had quoted unreasonably high tender prices and could not furnish rational justification.

### 7. GENERAL CONDITIONS

#### 7.1 DEFINITIONS OF TERMS

In constituting these conditions and specifications, the following expressions shall have the meaning, therein assigned to them unless there is something repugnant in the subject of context in consisting with such meanings.

7.1.1 Institute shall mean the “Indian Institute of Science, Bangalore”.

7.1.2 “Office” shall refer to the Office of the Special Project Engineer.
7.1.3 “Contractors” shall mean the tenderer whether a firm, registered company, partnership or any individual whose tender has been accepted by Institute or by an Officer (duly authorized in this behalf) on behalf of the Institute and who has entered into agreement with Institute for due fulfillment of the contract and shall include the legal representatives, successors, heirs and assignees of the tenderer.

7.1.4 “Engineer” shall mean the “Special Project Engineer”, Indian Institute of Science, Bangalore or such other officer as may be appointed to call as the Special Project Engineer for the purpose of the contract and shall also mean and include other officers of equivalent rank directly in charge of the work or any part thereof under administrative control of the Director, IISc, Bangalore-12.

7.1.5 When the Engineer is named as final authority, it includes all the above mentioned officers and in such matters, the contractors shall have the right of appeal against the orders up to the Director, IISc, Bangalore, whose decision shall be final and legally binding on all the parties concerned.

7.1.6 The Special Project Engineer named as final authority for any decision taken, shall mean only the Director, IISc, Bangalore or his duly authorized assistant.

7.1.7 The Engineer in charge shall mean the Special Project Engineer directly in charge of the work or his duly authorized assistants.

7.1.8 Plant shall mean and include any or all plants, machinery, tools and other implements of all description necessary for the execution of the work in a safe and workmen like manner.

7.1.9 The expression “Works” where used in these conditions shall unless thereby something in the subject or contract repayment to such construction, be construed to mean the work or the works constructed to be executed under or virtue of the contract whether temporary or permanent and whether original, altered, substituted or additional.

7.1.10 “Contract and contract document” shall mean and include the notice inviting tenders, proceedings of the pre bid meeting, the stamped agreement, conditions of contract, specifications and Schedules ‘B’, drawings and all other connected documents with tender schedule.

7.1.11 “Specifications” shall mean the specifications annexed and where these are not specifically mentioned shall be as may be detailed and necessary due to particular nature of work as approved by the Special Project Engineer.

7.1.12 “Site” shall mean and include all the area in which operations in respect of the work are carried out. This shall also include materials stacking yards and the area where temporary structures are put up for installing any machinery etc.

7.1.13 “Tests” shall mean such tests as are required to be carried out either by the contractor or by the Special Project Engineer from time to time on completion as detailed in the specifications before the work is certified as being satisfactory and is taken over by the Special Project Engineer.

7.1.14 “Month” shall mean a Calendar month.

7.1.15 “Prime contractor” mean a firm that performs construction work itself and that the work is directly entrusted to the firm by the owner / Government / local body / Quasi Government / Government under taking.
Words used in singular shall also include the plural & vice-versa where the context so demands.

7.2 GENERAL NOTES & CONDITIONS

7.2.1 CONTRACTOR TO INSPECT SITE:

The contractor shall visit and examine the construction site and satisfy himself as to the nature of the existing roads or other means of communications, the character of the soil for the excavations, the extent and magnitude of the work and facilities for obtaining materials and shall obtain generally his own information on all matters affecting the execution of the work. No extra for charges made in consequence of any misunderstanding or incorrect information on any of these points or on the grounds of insufficient description will be allowed. All expenses incurred by the contractor in connection with obtaining information for submitting this tender including his visits to the site or efforts in compiling the tender shall be borne by the Tenderer and no claims for reimbursement thereof shall be entertained.

7.2.2 ACCESS TO SITE:

The Contractor is to include in his rates for forming access to the site, with all temporary roads and gangways required for the works.

7.2.3 SETTING OUT:

The Contractor shall set out the building in accordance with the plans. All grid/centre lines shall be pegged out to the satisfaction of the Engineer. The Contractor shall be responsible for the correctness of the lining out and any inaccuracies are to be rectified at his own expense. He will be responsible for taking ground levels of the site before setting out and recording them without any extra charge.

The Contractor shall construct and maintain proper bench mark at the intersection of all main walls, columns, etc., in order that the lines and levels may be accurately checked at all times.

7.2.4 TREASURE TROVE:

Should any treasure, fossils, minerals, or works of art of antique interest be found during excavation or while carrying out the works, the Contractor shall give immediate notice to the Engineer of any such discovery and shall make over such finds to the Institute.

7.2.5 ACCESS FOR INSPECTION:

The Contractor is to provide at all times during the progress of the works and the maintenance period proper means of access, with ladders, gangways etc., and the necessary attendants to move and adapt as directed for the inspection of measurement of the works by the Engineer or their representatives.

7.2.6 ATTENDANCE UPON ALL TRADERS:

The Contractor shall be required to permit tradesmen/ Specialized agencies appointed by the employer to execute works like water supply, Sanitary, Electrical installation, lifts, air conditioning, hardware and other specialized works.
The contractor shall also permit the above mentioned agencies to use his scaffolding and retain the scaffolding till such works are completed. The rates quoted by the contractor shall be inclusive of the above facility.

7.2.7 GATEKEEPER AND WATCHMAN:

The Contractor from the time of being placed in possession of the site must make arrangements for watching, lighting and protecting the work, all materials, workmen and the public by round the clock on all days including Sundays and holidays at his own cost.

7.2.8 STORAGE OF MATERIALS:

The Contractor shall provide for necessary sheds of adequate dimension for storage and protection of materials like cement, steel, lime, timber and such other materials including tools and equipment which are likely to deteriorate by the action of sun, wind, rain or other natural causes due to exposure in the open. The cement storage site shall be leak proof and shall hold at least 4 months requirement. All such sheds shall be cleared away and the whole area left in good order on completion of the contract to the satisfaction of the Engineer.

All materials which are stored on the site such as bricks, aggregates etc., shall be stacked in such a manner as to facilitate rapid and easy checking of quantities of such materials.

7.2.9 COST OF TRANSPORTING:

The Contractor shall allow in his cost for all transporting, unloading, stacking and storing of supplies of goods and materials for this work on the site and in the places approved from time to time by the Engineer. The Contractor shall allow in his price for transport of all materials controlled or otherwise to the site.

7.2.10 W.C. AND SANITARY ACCOMMODATION AND OFFICE ACCESSORIES AND ACCOMMODATION:

The contractor shall provide at his own cost and expense adequate closet and sanitary accommodation complying in every respect to the rules and regulations in force of the local authorities and other public bodies, for his workmen, for the workmen of nominated sub-contractors and other contractors / specified agencies working in the building, the Engineer-in-charge of works and other Institute agents connected with this building project and maintain the same in good working order.

The Contractor shall also provide at his own expense adequate office accommodation for the Engineer-in-charge of works preferably contiguous to his office and shall maintain the same in a satisfactory condition and shall provide light, fan and attendant etc., for the same and shall remove them after completion of the works. He shall arrange to provide latest survey Instruments and at all times maintain the same in good working order at site, to enable the Engineer-in-charge of works or other representative of Institute to check the lines and levels of the work.

7.2.11 MATERIALS:

Materials shall be of approved quality and the best of their kind available and shall conform to I.S. specifications. The Contractor shall order all the materials
required for the execution of work as early as necessary and ensure that such materials are on site well ahead of requirement for use in the work. The work-involved calls for high standard of workmanship combined with speed and to the entire satisfaction of the Engineer-in-charge.

7.2.12 **TO ASCERTAIN FROM CONTRACTORS FOR THE OTHER TRADES.**

The Contractor shall ascertain from all agencies / Sub-contractors all particulars relating to their work with regard to the order of its execution and the position in which chases, holes and similar items will be required; before the work is taken in hand as no patch works shall be allowed for cutting away work already executed in consequence of any neglect to ascertain these particulars before hand.

7.2.13 **SAMPLE APPROVAL:**

Before ordering materials, the Contractor shall get the samples approved from the Engineer well in time.

7.2.14 **TESTING OF WORK AND MATERIAL:**

The Contractor shall, if required by the Engineer arrange to test materials and/or portions of the works at his own cost in order to prove their soundness and efficiency. If after any such test the work or portion of works is found in the opinion of the Engineer to be defective or unsound, the Contractor shall pull down and redo the same at his own cost. Defective materials shall immediately be removed from the site at his own cost.

7.2.15 **MECHANICAL PLANT:**

The Contractor will be required to provide and maintain in working order the following power-driven equipments during the construction-work and number of equipments shall depend on the volume of work involved pertaining to this project as and when required.

1. Concrete batching plant of 30 Cum / hr capacity.
2. Concrete mixers of required capacity.
3. Concrete pumps.
4. Transit mixers.
5. Vibrators
6. Concrete testing equipment.
7. Stone cutting machines.
9. Pumps with required capacity.
10. Air compressors with required capacity.
11. Diesel Generators.
12. Welding, cutting and bending equipment.
15. Tractor with Trailer.
16. Tower crane
17. Mobile crane
18. Jeep
19. Earth Compactor.
20. Truck Mounted Excavator - Poclain or equivalent.
21. Earth rammer
25. Steel tubular scaffolding.
26. Slab shuttering
27. Floor polishing machines.
28. Surveying instruments with total station.
29. Any other machinery required during the execution of work.

7.2.16 **FOREMAN AND TRADESMEN:**

All Tradesmen shall be experienced men properly equipped with suitable tools for carrying out the work of carpentry and joinery and other specialist trades in a first class manner and where the Engineer deem necessary, the Contractor shall provide such tools which are considered necessary for carrying out of the work in a proper manner.

All such tradesmen shall work under an experienced and properly trained Foreman, who shall be capable of reading and understanding all drawings, pertaining to this work and the contractor shall also comply with other conditions set out in different clauses of the conditions of the contract.

7.2.17 **PROJECT PROGRAMME OF WORKS AND WEEKLY PROGRESS REPORT:**

a) **Organisation chart:**
The contractor should submit the proposed organization chart for the project including the details of staff to be deployed full time on site to the approval of Spl.Project Engineer, where the SPE raises any objection to either the qualification or experience or required professionalism of any of the staff deployed by the contractor, the same shall be replaced by suitably competent person to the approval of SPE within 7 days.

b) **Program chart:**
The Contractor shall furnish the detailed programme of execution for timely completion of the project within 24 months (inclusive of rainy season). Such a detailed program of works prepared using Industry Standard Scheduling Software like **MS Project 2000 or Primavera** shall be submitted by the Contractor within ten days after receiving communication of tender acceptance. As per the detailed drawings and schedule of quantities; the contractor shall work out concurrent activities with start and finish times, integrating of all tasks with interface and milestone event drawn and to evaluate for reduction in total project duration through improved over lapping of tasks and activities where feasible. The Contractor shall plan for improved planning and scheduling of activities and forecasting of resource requirements, ability to use the Computer effectively to produce timely valid information for Project Management purpose. Accordingly, PERT; CPM Net working shall be drawn. GANNT charts shall also be furnished. The Contractor shall also furnish necessary particulars to the Engineer-in-charge of works for compiling weekly progress reports in the form furnished by the Institute. A monthly financial programme shall also be submitted.

7.2.18 **CLEARING OF SITE:**

The contractor shall after completion of the work clear the site of all debris and left over materials at his own expense to the entire satisfaction of the Institute. The same should be carted out of the Institute at his own cost.

The contractor shall also clear the labour camp/RMC plant of all types of permanent/temporary structures, soak pits, sump, septic tanks or any other such installations as identified by the SPE to the entire satisfaction of the Institute. The debris/excess stuff shall be carted out of the Institute at his own risk and cost.
7.2.19 **PHOTOGRAPHS:**

The Contractor shall at his own expense supply to the Institute photographs in duplicate copies not less than 25 cm x 20 cm. (10" x 8") along with soft copy, of the works taken from all the portions of the building at intervals of not more than one week during the progress of the work, or at every important stage of construction, as directed by the Engineer-in-charge of work.

7.2.20 **PROTECTION:**

The contractor shall properly cover up and protect all work throughout the duration of work until completion, particularly masonry, moldings, steps, terrazzo or floor finishes, staircases and balustrades, doors and window frames, plaster angles corners lighting and sanitary fittings, glass, paint work and all finishing.

7.2.21 **PREPARATION OF BUILDING FOR OCCUPATION AND USE ON COMPLETION:**

The whole of the work shall be thoroughly inspected by the Contractors and all deficiencies and defects set right. On completion of such inspection, the Contractor shall inform the Engineer in writing that he has finished the work and it is ready for the Engineer's inspection.

On completion, the Contractor shall clean all windows and doors and all glass panes, including cleaning of all floors, staircases and every part of the building including oiling of all hardware. He will leave the entire building neat and clean and ready for immediate occupation and to the satisfaction of the Engineer.

7.2.22 **VACATING LABOUR CAMP:**

Labour camp shall be vacated within one month after virtual completion of the project.

7.3 **OTHER CONDITIONS**

7.3.1 The tenderer must understand clearly that the rates quoted are for complete items of works including charges due to materials, labour, all lead and lift, HOM of plant and machineries, scaffolding, supervision, service works, power, all types of royalties, sales tax, labor cess, all types of taxes payable to the Govt and local bodies, over head charges, etc., and includes all extra to cover the cost of night work if and when required and no claim for additional payment beyond the prices or rates quoted will be entertained for payment subsequently towards any claims on the grounds of misrepresentation or on point that he was supplied with information given by promise or guarantee by the Institute, or by any person whether member of or employee in Institute will not be entertained. Failure on the contractor's part to obtain all necessary information for the purpose of submitting his tender and quoting rates therein shall not absolve him of any risk or liability consequent upon the submission for tender.

7.3.2 All the works shall be carried out as per specifications prescribed by BIS, National Building code, KPWD specifications, relevant IS codes or as directed by the Engineer-in-charge in the absence thereof.

7.3.3 In case there is any conflict in the specifications and drawings the decision of the Special Project Engineer shall be final and binding on the contractor.
7.3.4 All the materials shall be got approved by the Special Project Engineer before use.

7.3.5 The rates quoted for in individual items shall include labour, cost of materials conveyance and lift charges for all materials required for successful completion of work and all taxes payable to any authority as per rules in vogue from time to time.

7.3.6 Necessary pillars shall be constructed by the Contractor for benchmark at no extra cost as directed by the Engineer-in-charge.

7.3.7 Site order book shall be maintained in the work spot and the contractor shall sign in the order book in token of having gone through the instructions issued by the inspecting officers and carry out the instructions promptly.

7.3.8 In the work spot the contractor shall provide suitable temporary office with a covered area of 1000 sft matching that of the Contractor’s office with necessary furniture for use of Institute as directed by the Engineer-in-charge for which no extra payment or compensation shall be claimed. The furniture however will after completion of the work, be the property of the contractor and shall remove them at the close of the contract.

7.3.9 The contractor shall take all precautions against damage from accident. No compensation will be allowed to the contractors for their tools and plant materials lost or damaged from any cause. The contractor is liable to make good the structure or plants damaged by any other cause at his own cost. The Institute will not pay the contractor for corrections or repairing any damaged portion of work done during construction.

7.3.10 **Storage of Cement:**

Large stocks of cement shall not be kept at the work spot. Only sufficient quantities to ensure continuity of the work shall be at stores. The contractor shall provide and maintain sufficient storage sheds for cement, steel etc., on the works. The cement shall be covered with tarpaulin or any other impervious materials in order to protect the cement bag from moisture.

Cement bags shall be neatly stacked in an orderly manner so as to admit to easy recount. A regular day to day account of Cement received and used on the work together with the mention the particular portion and the quantity of the work in which it was used shall be maintained and shown to the Special Project Engineer or his representative whenever he asks for it.

Cement that has been affected by the moisture shall be removed at once from the site.

Cement shall be used in order in which the consignments are received and not stored for unduly long period.

7.3.11 The contractor shall employ adequate no. of skilled & unskilled labours required for successful timely execution of work. He shall submit daily reports to the Engineer in charge regarding the strength of labour employed both skilled and unskilled.

7.3.12 The contractor shall furnish weekly medical report showing number of persons ill or incapacitated and nature of their illness, to the Engineer-in-charge.
7.3.13 The contractor shall furnish a report of any accident which may occur, within 24 hours of its occurrence to the Engineer-in-charge.

7.3.14 The contractor shall keep on site of work a qualified Engineer as required as per rules of registration as their authorized representative who will receive all instructions given from the Institute officers. The representative shall have permanent office at site of work where communications can be sent and notices can be served by the Engineer-in-charge through out the duration of work.

7.3.15 Prior approval should be obtained from the Engineer-in-charge for the construction and location of the temporary site office, store sheds and labour quarters, within the premises of the site, similarly the contractor shall get approval of the Engineer-in-charge regarding the areas to be utilized for stacking the materials etc., for the work.

7.3.16 Reference to detailed specifications are indicated against the items contained in the Schedule 'B', in case there is any item for which no detailed specifications is indicated, it shall be carried out as per specifications intimated by the Engineer-in-charge. The contractor shall not be entitled for any extra claims or compensation on this account. In case of additional or extra items not covered by the Schedule 'B', the contractor shall carry out the work as per specifications intimated by the Engineer-in-charge.

7.3.17 The Engineer shall have the right to direct the contractor to progress the various items of works in the manner prescribed by him.

7.3.18 Failure to adhere to any of the above will be sufficient cause for taking action under clause (2) or clause (3) or both along with their sub clauses of conditions of contract.

7.3.19 Contractor shall make arrangements at his own cost to construct approach road for conveyance of materials etc., preferably on the alignment accepted by the Institute to procure land etc. for housing, staff and workmen near the site of the work.

7.3.20 It is not possible for the Institute to release any quarry (murrum, metal and sand etc.,) for this work. The contractor has to make his own arrangements. No claim regarding leads and lift will be accepted.

7.3.21 The contractor has to make his own arrangements in regard to power supply and water required for construction and drinking water facilities.

7.3.22 Tool, Tax, Octroi, Royalty for collecting earth, gravel, sand, stone, excise duty, sales tax, labour cess or any other tax payable on account of this contract shall be met by Contractor.

7.3.23 The contractor shall be entirely responsible for sufficiency of the scaffolding, timbering, machinery, tools, implement and generally of all means used for fulfillment of the work. Whether such means may not be approved or recommended by the Engineer-in-charge, the contractor must accept at his own cost all risks of accidents or damages.

7.3.24 After completion of the work, service drawings as per actual execution in Auto CAD should be submitted by the agency for services such as Electrical, Water supply and Sanitary before submission of final bill.
7.4 GENERAL SPECIFICATIONS

7.4.1 EXCAVATION:

All specifications of various items of work pertain to Karnataka Public Works Department Handbook / CD, Bureau of Indian Standards (BIS) and National building Code (NBC). For the points not covered by these specifications for the portions thereof and if no mention be made there in, the written instruction of the Special Project Engineer shall be binding on the contractor.

Before starting the work the contractor or his duly authorized agents shall be present while taking ground levels, along and across the alignment of the various works, etc., and shall have to sign the field book, and also working plans showing working longitudinal and cross sections of their alignment in token of having accepted the ground levels without which they will not be allowed to start the work.

Excavation for foundation shall be done up to required depth and in steps with sides properly sloped as shown on plans, without any charges etc., except when instructed in writing by the Special Project Engineer. Only depths and widths according to plan or as per written orders of the Engineer-in-charge shall be measured and paid for.

Any damage done to the work due to the contractors operation beyond the excavation lines shall be repaired at the expense of the contractor. Any and all excess excavation or over breaking performed by the contractor for any purpose or reason except as may be ordered in writing by the Engineer-in-charge and whether or not due to the fault of the contractor shall be at the expense of the contractor. Cost of refilling for all such excavation with materials as specified by the Engineer-in-charge has to be done by the contractor at his expense.

7.4.2 WORKMANSHIP AND LABOUR:

The quality of all materials, tools, operators and labour used on the work shall be subject to the approval of the Special Project Engineer or his authorized agent who shall have power to order immediate removal by the contractor any of the above that may not meet with his approval.

In case of failure to carry out orders of removal within the time specified, the Engineer-in-charge or his authorized agents shall get the same removed at the contractor’s expense.

7.4.3 KEEPING DRY AND PUMPING:

7.4.3.1 Unless otherwise provided for in the contract, the contractor will at his own expense keep all portions of the work free from undue water, whether due to springs, soakage or inclement weather and will use his own implements and machinery for this purpose.

7.4.3.2 BAILING OUT OR DEWATERING:

Adequate arrangements shall be made by the contractor for dewatering the foundation trenches and excavation and keeping the same dry while the masonry or concrete work is in progress and till the Engineer-in-charge considers that the mortar is sufficiently set.
The rates for the various items include the cost of shoring, strutting, coffer dam, channels or other incidental devices necessary for diverting the water met within foundation. The cofferdam and the diversion channel shall, however, be maintained in good and working condition till the completion of the structure or until such time, as in the opinion of the Engineer-in-charge till the coffer dam or/and diversion channel is no longer necessary. Bailing out water necessitated by the failure to maintain the cofferdam and diversion channel will not be paid for separately under any conditions.

No extra rate shall be paid for removing any stuff outside, which might find excess due to rains or for reasons whatsoever from the sides or bottom of the foundation trenches and excavation or from also where when the dewatering operations are in progress.

The contractor must assure himself by making the necessary investigation regarding the depths to which foundations are likely to go. If any work is ordered to be done beyond dimensions or deviations marked in the drawings, no extra rate other than the rate for the Undertaking of work quoted by the contractor be paid.

The contractor will make himself arrangements for necessary plant such as Pump, engines, and other materials required in this connection.

7.4.4 **FACILITIES FOR INSPECTION:**

The work at all times be open for inspection by the Engineer-in-charge or his duly authorized Assistant and the contractor shall arrange easy access to every part of the work and shall provide such ladders, scaffolding and lifts for this purpose as necessary at his own cost.

7.4.5 **DELIVERY OF WORKS:**

The final bill will be prepared after the work is handed over to the Engineer-in-charge or his duly authorized representative in a thoroughly complete, clean, sound and workman like state.

7.4.6 **EXTRA ITEM:**

Whenever the contractor is ordered by the Engineer-in-charge or the person duly authorized by him to execute any item of work, which is not in his tender, it shall be the contractors duty to see that the order is duly entered in the order book on the work, unless a separate communication to this effect is received by him, it shall be his duty to get the rates sanctioned for the item by the appropriate authority. For any extra item of work not thus ordered either by any entry in the order book or separate communication, the contractor shall have no claim to payment.

7.4.7 **COMPLIANCE WITH BYELAWS AND PROTECTIONS AGAINST ACCIDENTS, ETC:**

Contractor is responsible for complying with all acts, bye-laws, Municipal and other regulations for the provision and maintenance of lights during nights, barricading, providing any other protection that may be necessary and will be liable for all claims that may arise from accidents of nuisance caused by works.

7.4.8 **DISPUTES:**
Disputes on the points between the Engineer-in-charge and the contractors shall be referred to the Project Management Group, whose decision shall be given in writing and shall be final and binding on the contractor.

7.4.9 **TOOLS ETC.,**

The contractor shall unless otherwise specially stated in the contract, be responsible for the payment of all import duties, octroi duties, sales tax, quarry fees etc., on all materials and articles brought to site.

7.4.10 **CLEARANCE OF SITE:**

The site described and shown on the plan is to be cleared of all obstruction, loose stones and materials, rubbish of all kinds of shrubs and brushwood, the roots being entirely removed.

The products of the cleaning to be stacked in such a place and manner as ordered by the Engineer-in-charge.

In jungle clearing all trees not marked for preservation, jungle wood and brushwood shall be cut down and their roots entirely removed up. All wood and materials from the clearings will be property of the Institute and should be stacked as the Engineer in charge directs. **Trees shall not be cut without prior permission of the Institute.**

All holes or hollow, whether originally existing or produced by digging up roots, shall be carefully filled up with earth well rammed to the required density and leveled off, as may be directed.

7.4.11 **LINE OUT:**

The contractor shall use necessary measuring instruments, theodolite, workstation and other materials like flags, strings, pegs, nails, pillars, paints, etc., and also Labour required for ascertaining of the initial ground levels at the different stages of excavation and construction of masonry or other structures at his own cost. Any dispute in regard to the accuracy of the measuring instruments and the device shall be subjected to the final decision of the Engineer-in-charge of the work.

7.4.12 **ALL MATERIALS SHALL CONFORM TO BIS SPECIFICATION**

7.4.12.1 **STONES:**

Except where otherwise stated the word “Stone” mentioned in these specifications means best granite stone obtained from approved quarries by the Engineer-in-charge. Stones obtained from unapproved quarries and inferior stones obtained from approved quarries will be rejected.

Stones having any skin or covers of earth shall not be used.

All stones shall be fine or medium grained bright in colour breaking with a clear structure making a ringing sound when struck with hammer.

7.4.12.2 **COARSE AGGREGATE:**
Coarse aggregate shall be as per BIS specifications. The coarse aggregate for concrete shall consist of hard, dense, durable, uncoated, coarse, rock fragment and shall be free from injurious amounts of friable, thin elongated or laminated process alkali, organic matter or other substances. Round pebbles, flaky and decayed stone shall not be used.

The broken stone shall be free from all dusts and dirt and washed if necessary, to ensure that all faces of the broken stones are perfectly clean.

7.4.12.3 **SAND:** The source and quality of the sand to be used shall have to be approved by the Engineer-in-charge. The sand shall be as per BIS specifications. The sand shall consist of hard, durable, dense uncoated rock fragments, and shall be free from impurities with dust lumps, soft or flaky particles of shales, alkali, organic material, and other deleterious substances. Filter sand shall not be used.

7.4.12.4 **WATER:** Water to be used for the work shall be clear and free from alkali, acid, oil or other deleterious substances and generally fit for drinking.

7.4.12.5 **CEMENT CONCRETE:**

The material used, i.e., water, cement and aggregate shall be of approved quality and the grading of the aggregate shall be as specified at the time of concreting.

The design of concrete mix shall be done by trial mix and testing. The same has to be approved by the Special Project Engineer before adopting at site.

7.4.12.5.1 **PLACING CONCRETE:**

Concrete shall be placed only in locations where authorized and no concrete or mortar shall be placed until formwork, installation of embedded parts, preparation of surface and necessary clean up has been done and checked to be in conformity with specification and drawings. Earth foundation, on which concrete is to be laid shall be firm, drained soil free from any soft and other objectionable materials and on which there is no standing or running water. Rock surface or rigid masonry or concrete surface upon or against which, concrete is to be placed, shall be prepared in the same manner as rock foundation or old masonry or concrete surface over old masonry. All concrete shall be placed directly in its final position within 30 minutes after it is mixed. Concrete shall not be dropped from excessive distance and the free fall should be kept to a minimum to avoid segregation, air entertainment and damage to form work.

7.4.12.5.2 **RATE OF PLACE:**

Concreting shall be continued without interruption when it is unavoidable until the structure or section is completed or until satisfactory construction joint can be made. Concrete shall not be placed faster than the placing crew can compact it properly. The difference in elevation between adjacent block shall not exceed 15” inches.

7.4.12.5.3 **CONSOLIDATION OF CONCRETE:**

Each layer of concrete, where smooth surface are required and for all surfaces which will be permanently exposed to the weather, and for all surface next to embedded metal work, the concrete shall be worked, or vibrated to obtain concrete of maximum density and imperviousness and to assure proper contact of
the concrete with the form and reinforcement bed. Ordinary hand methods consisting of ramming, tamping and skying with suitable tools and tamping shall be permitted only in situation where it is impracticable to use power vibrators. Excessive vibrations sufficient to cause segregation tending to bring in excess of finer particles to the surface shall be avoided. Vibrators shall be inserted to lower course that has commenced final set.

7.4.12.5.4 CHIPPING AND ROUGHENING CONCRETE SURFACE:

Surface upon or against which additional concrete is to be placed shall be chipped and roughened to a depth not greater than one inch on the surface. The roughening shall be performed by chipping or other satisfactory method and in such a manner as not to loosen, crack or shatter any part of the concrete beyond roughened surface. After being roughened the surface of concrete shall be cleaned well thoroughly of all loose fragments, dirt and other objectionable substances and shall be sound and hard and in such conditions as to ensure good mechanical bond between old and new concrete. The old prepared surface shall be treated with epoxy and cured before concreting.

7.4.12.5.5 CURING AND PROTECTION:

All concrete shall be protected against injury until final acceptance. Concrete shall be kept continuously moist for not less than 21 days. Construction joint shall be cured.

7.4.13 MACHINERY:

7.4.13.1 All the machinery that will be employed on the work shall be approved, efficient and thoroughly, complying with the specifications of each machine or parts and shall have been manufactured by reputed and qualified firms. All the machinery employed on the work shall be open to inspection at all working hours, by the Engineer-in-charge and any defect shall be rectified, repaired, replaced, renewed or remodeled so that its performance in the opinion of the Engineer-in-charge is satisfactory. Any defective part of the machine, which requires replacement, shall be promptly replaced, failing which the Engineer-in-charge, shall be at liberty to cause the defective fittings removed from site of work at the cost of the contractor.

7.4.13.2 OPERATORS:

The machines shall be in charge of efficient and trained operators, which terms shall include drivers, mechanics or other personnel who are actually operating the machines. The Engineer in-charge has the right to test operators, etc., as deemed necessary by him for the class of machinery, which he is to operate and shall drive out such of the operators who fail in the tests.

7.4.14 SAFETY PRECAUTION:

All reasonable safety precautions for the safety of workers shall be taken. The contractors shall be responsible for the maintenance of all regulations under the Factory Act, workmen’s compensation. Minimum wages act and other act for the safety and welfare of the workers employed by him. In addition, the contractors shall provide adequate protection to all workers employed by him against natural elements such as rain, sun, wind etc., during working hours and provide free, pure protected drinking water during working hours.
7.4.15 **NON-STOP OPERATION:**

In the continuous or non-stop operations suitable shifts or working hours for each shift shall be maintained. The contractor is liable for all reasonable extra payment for all extra hours of work done by the workers employed by him.

7.4.16 **TESTS:**

The Special Project Engineer or his authorized representatives shall have full scope and right of entry at all times to examine and test, measure, count, weigh, take bores, or in any manner satisfy himself that the work executed is according to the specifications and required strength. Any portion of work got disturbed, during such tests, shall be made good by the contractors, without extra cost. The Engineer in charge has the right to change the design proportions, mixes within reasonable limits to ensure requisite strength of the structure. **Laboratory for requisite tests shall be established by the Contractor at site only, at his own cost.**

7.4.17 **ADEQUATE ARRANGEMENTS TO ACHIEVE PROGRESS:**

The Engineer-in-charge shall have the right to advise the contractor on the strength, quality and nature of labour to be employed on work to maintain progress on the work, commensurate with the strength of structure. Similarly, he shall advise the contractor on the nature and adequacy of the machinery that are required on the work.

7.4.18 **MEASUREMENTS:**

Estimates of quantities contained in the attached schedule of work are based on the use of standard methods of measurements applicable to the various items. The methods of measurements for some items are briefly described below.

7.4.18.1 **EXCAVATION:** All excavation shall be measured as the original volume in undisturbed condition in site.

7.4.18.2 **DRILLING:** The drilling holes shall be measured as the actual number of linear feet of holes drilled including linear feet drilled through concrete or masonry. The drilling holes for blasting shall be considered as the part of the excavation operation and no separate measurements of such holes will be made.

7.4.18.3 **CONCRETE:** Concrete shall be measured as the volume of concrete in place of the structure. This item shall include all materials in all forms, form lining and fixture, framing and scaffolding and all operations in connection with mixing, conveying, placing and curing of concrete. It shall also include batching and finishing operations except where finishing as defined in the specifications is required. In measuring concrete the **volume of openings, embedded pipes and metal work except reinforced bars and anchor bolts and bars will be deducted.**

7.4.18.4 **REINFORCEMENT:** Reinforcement shall be linearly measured and paid in terms of weight of steel reinforcement placed in the structure calculated as per IS Standards. It shall also include weight of metal chair supporters, clips used to set and fix reinforcement in place. Laps and wastage shall not be measured and paid.
7.4.18.5 **CEMENT POINTING:** The exposed faces shall be measured in superficial area.

8 **CONDITIONS/INSTRUCTIONS TO BE NOTICED BY TENDERER BEFORE QUOTING FOR THE WORK**

8.1 It is the responsibility of the successful tenderer to ensure that the sub-agencies engaged in the work comply with all the clauses in the agreement between the Institute and the successful tender. It shall be responsibility of the successful tenderer to exercise first line supervision on the works executed by his sub-agencies including supervision on the quality of materials and workmanship and to ensure that the sub agencies comply with the technical specifications, drawings and bill of quantities. The successful tenderer shall also establish competent site organization technically and administratively to ensure that the works of various sub-agencies are supervised and well co-ordinated to ensure proper sequencing of construction, and finishing works and to ensure that the overall time schedule is fully complied with. The detailed construction programme schedule to be furnished by successful tenderer shall include action plan for procurement of materials and execution of works at site for each of the sub-agency and the detailed construction programme schedule shall reflect proper integration of each component of the building to ensure well coordinated execution so as to complete the project including services within the stipulated time schedule.

8.2 Dismantling/Demolition of existing buildings/structures shall be commenced in the order of preference as approved by the Institute whose discretion in this regard is final and binding on the contractor.

8.3 Pre-measurements of all items of work shall be taken before demolition or dismantling and specification for deduction for voids, openings etc., shall be on the same basis as that adopted for new construction of the work.

8.4 Existing service lines such as electrical, water supply, sewer lines, telephone lines etc., shall be carefully protected and preserved before commencement and during excavation, dismantling/demolition operations. Details of UG facilities shall be provided to the successful tenderer. Any damage caused to the aforesaid service lines, etc., during excavation, demolition/dismantling shall be made good at Contractor’s own expense/cost. Restoration of any service lines, which needs to be shifted and found in the proposed site, is the responsibility of the contractor and the agency shall carry out the work as per the direction of Engineer-in-charge the cost of such work will be borned by the Institute.

8.5 Dust nuisance to neighbor shall be minimized by providing and erecting screens to the required height as per direction of Special Project Engineer with Aluminum sheets or canvas or other suitable material before commencement of the work. The site shall be cleared off such protection arrangement after virtual completion of work. All the operations shall be carried out strictly in accordance to regulations of municipal and other local authorities and shall be restricted to normal working hours.

8.6 No debris or materials got from dismantlement/demolition the building(s) shall be thrown in the public road causing inconvenience to the traffic and any fine or penalty imposed by local authority for non-compliance of this provision shall be borne by the contractor.

8.7 **Excess excavated earth including debris etc., collected at site during and after completion of the work shall be carted out of the Institute premises**
by the contractor. The road used for transportation shall be kept clean without any spillages.

8.8 The Contractor shall be responsible for any injury to persons, animals, or things and for all structural damage to property which may arise from the operation or neglect of himself and or any nominated sub-contractors, contractor's Employees and or third party whether such injury or damage arising from carelessness, accident or any other cause whatsoever, in any way connected with the carrying out the construction/dismantling/demolition.

The contractor shall take required insurance cover with an approved insurance company as provided in the contract and deposit with the Institute well before commencement of construction/ demolition / dismantling.

8.9 The successful tenderers shall make own arrangements to obtain all materials required for the work including cement from approved vendors.

8.10 The Agency shall make necessary arrangements for installing tower cranes / Hoist as required and adequate during execution of work.

8.11 Preservation of trees: The contractor shall preserve all existing trees in and adjacent to the site which does not interfere with the construction as determined by the Engineer-in-charge.

8.12 Drawings and working Details: The work shall be carried out strictly in accordance with the approved plans and estimates and specifications and as per the instructions of the Engineer-in-charge, and no deviations or changes are permitted without the written order of the Engineer. The designs and drawings enclosed with the tender documents are only typical and tentative. The working drawings and the working details of the several components of works will be prepared and made available at the time of execution and the contractor shall carryout the work in accordance with such working drawings and working details.

8.13 Omissions and discrepancies in drawings and instructions:

8.13.1 In all cases of omissions, doubts or discrepancies in the dimensions or discrepancies in the drawings and item of work, a reference shall be made to the Special Project Engineer, whose elucidation and elaboration shall be considered as authorized. The Contractor shall be held responsible for any error that may occur in the work through lack of such reference and precautions.

8.13.2 The contractor shall be responsible for accuracy for all shapes, dimensions and Alignments both vertical and horizontal etc., of all the components of the work.

8.14 Lands for the use of the Contractors Camp:

The contractor shall have to make his own arrangements on his own cost for construction of living accommodation at the work spot. Land will be made available within the campus free of cost. The entire area of the labour camp shall be barricaded by the contractor. No trespassing of any sort into the main campus will be permitted. Labour camp shall be maintained clean with proper sanitation and the entire area shall be made good before vacation of the site.

The contractor shall also clear the labour camp of all types of permanent/temporary structures, soak pits, sump, septic tanks or any other such installations as identified by the SPE to the entire satisfaction of the Institute. The same should be carted out of the Institute at his own risk and cost.
8.15 **Undesirable Person to be removed from site:**

The contractor shall not employ on site any person who is undesirable, if in the opinion of the Engineer-in-charge the person or persons at site of work employed on behalf of the contractor is/are considered undesirable. The Engineer-in-charge shall notify the contractor to this effect and the contractor will be bound by the decision of the Engineer-in-charge to remove such person or persons from the site of work and from the labour camp. The contractor shall not be entitled to any damage or loss on this account. On the contrary, the contractor shall be liable to compensate the Institute for any loss or damage to the Institute property caused by the employment of such person.

8.16 **Labour Statistics:**

The contractor shall submit daily reports on the following:

a) Total No. of labour employed in the working area.
b) Total No. of labour living in the working area.

8.17 **Execution of work during night time:**

The work shall normally be carried out between 08.00 hours and 17.00 hours with a break of one hour and when permitted during night period, the second shift shall be between 17.00 hours and 00 hours with a break of half an hour during night. When ordered to work at night, adequate provision for lighting the working area should be made by the contractor at his cost and got approved by Engineer. The agency shall not be paid extra for the works executed during night.

8.18 **Safety code:**

8.18.1 The Contractor at a prominent place at work spot should bring these safety provisions to the notice of all concerned by display on notice board. The persons responsible for compliance of the safety code shall be named therein by the contractor.

8.18.2 To ensure effective enforcement of the rules relating to safety precautions, the arrangement made by the contractor shall be open to inspection by the Labour Officer, Engineer or his representatives.

8.18.3 All necessary personal safety equipments as considered adequate by the Engineer should be kept available for immediate use of persons employed at the site and maintained in the good condition and the contractor should take adequate steps to ensure proper use of equipment by those concerned.

8.18.3.1 Workers employed on mixing concrete, cement grout, cement mortar shall be provided with protective footwear protective goggles and protective gloves.

8.18.3.2 Those engaged in mixing or stacking cement or any materials injurious to the eye, nose and mouth shall be provided with a face mask and protective cover free of cost by the contractor.

8.18.3.3 Those engaged in welding work shall be provided with welder's protective eye Shield and gloves.

8.18.3.4 Stonebreakers shall be provided with protective goggle and protective clothing and seated at sufficiently safe intervals.
8.18.3.5 Those engaged in binding and fabricating steel shall be provided with protective
gloves.

8.18.3.6 Those engaged in deep cuts, large rock excavation shall be provided with
helmets.

8.18.3.7 All labour / persons at work shall wear helmet compulsorily

8.18.4 When the work is near any place where there is risk of drowning all necessary
equipments shall be kept ready for use and all necessary steps taken for prompt
rescue of any person in danger and adequate provisions should be made for
prompt first aid treatment of all injuries likely to be sustained during the course
of work.

8.18.4.1 Adequate and suitable caution and danger signal boards shall be prominently
exhibited at road/high tension over head line/where heavy electrical machines
are working where overhead cranes or hoist; derricks, winches are working
where blasting zone is demarcated. The content of the board shall be in English
and the local language for easy identification.

8.18.4.2 All scaffolding, ladder, stairways, gangways, staging, centering, form work and
temporary support and safety devices etc., shall be sound in strength and
constructed and maintained as such throughout its use. The agency shall
obtain approval from Special Project Engineer for scaffolding, formwork etc.,
before commencement of work.

8.18.4.3 No materials on any site of work shall be so stacked as to cause danger or
inconvenience to any persons or public.

8.18.4.4 The Contractor shall provide all necessary fencing and lighting to protect the
public/working men from accident and shall be bound to bear the expense of
defense of every suit action or other proceedings of law that may be brought by
any person for injury sustained owing to neglect of the above precautions and
to pay any damages and cost, which may be awarded in any such suit
action or proceedings to any such persons or which may with consent of the
contractor be paid to compensate any claims by any such person.

8.18.4.5 No electric cables or apparatus, which is liable to be a source of danger to
persons, employed shall remain electrically charged unless a caution Board is
put into that effect and close approach to the same is prohibited.

8.18.4.6 All practical steps shall be taken to prevent danger to persons employed from
risk of fire or explosives. No floor, roof or other portion of any building used for
residence shall be so over-loaded with debris or materials so as to render it
unsafe.

8.18.4.7 The final disposal of water used for work or removed from work spot as well as
the supply used for domestic consumption shall be as directed by the Engineer.
The contractor shall make his own arrangement for purification of domestic
water supply used by his staff and labour colony and used on the site of work to
the satisfaction of the Engineer.

8.18.4.8 The source of drinking water supply/distribution system in workers colony shall
be protected from chances of contamination by poisonous materials epidemic
causing infections bacteria etc., by maintaining the source and system under
adequate hygienic conditions.
Not withstanding the above clauses from 8.20 (1) to (4) there is nothing in this to exempt the contractor to exclude the operations of any other Act or Rules in force of the Central Govt., State Govt.

**9. CONTRACTOR’S LABOUR REGULATIONS**

9.1 **DEFINITION:**

In these regulations unless otherwise, expressed or indicated the following words and expressions shall have the meaning hereby assigned respectively that is to say:

9.1.1 Labour means workers employed by the contractor or the Institute directly or indirectly through sub-contractor or any other person, or any agent on his behalf on a payment as per prevailing Karnataka State labour regulations and will not include supervisory staff like overseers etc.

9.1.2 Fair wages means whether for item or place of work notified at the time of inviting tenders for the work and where such wages have not been so notified, the wages prescribed by the Karnataka Public Works Department for the district in which the work is done.

9.1.3 Contractors shall include every person whether a sub-contractor head or agent employing labour on the work taken contract.

9.1.4 The relevant orders of Govt.of Karnataka in regard to payment of wages as amended from time to time shall be followed by the contractor.

9.2 **WORKING HOURS:**

9.2.1 Normally working hours of a labour employed should not exceed 8 hours a day. The working day shall be so arranged that inclusive of interval for rest if any, it shall not spread over more than 12 hours on any day.

9.2.2 When a worker is made to work for more than 8 hours on a day or for more than 48 hours in any week, he is entitled to double the ordinary rate of wages. Children shall not be made to work.

9.2.3 Every worker shall be given a paid weekly holiday normally on Sunday.

9.3 **DISPLAY OF NOTICE REGARDING WAGES ETC.**

The contractor shall (a) before he commences his work on contract, display and correctly maintain in a clean legible condition in conspicuous places on the work, notices in English and in the local language spoken by the majority of the workers, giving the rate of wages which have been certified by the Regional Labour Commissioner, as fair wages and the hours of work which such wages are earned, and a copy of such notices shall be sent to the certifying officers.

9.4 **PAYMENT OF WAGES:**

Wages due to every worker shall be paid to him direct.

9.5 **FIXATION OF WAGES PERIODS:**

9.5.1 The contractor shall fix the wages period of which the wages shall be payable.
9.5.2 Wages of every worker employed on the contract shall be paid.

9.5.2.1 In case of establishments in which the wage period is one week, within three days from the end of the wage period wages shall be paid.

9.5.2.2 In the case of other establishment before the expiry of the 7th day or 10th day from the end of the wage period according to the numbers of the workers employed in such establishment does not exceed 100 or exceeds 1000.

9.5.3 When the employment of any workers is terminated by or on behalf of the contractor the wages earned by him shall be paid before the expiry of the days succeeding the one which his employment is terminated.

9.5.3.1 All payment of wages shall be made on a working day except when the work is completed before the expiry of the wages period in which case final payment shall be made within 48 hours of the last working day at work site and during the time.

NOTE: The term working day means a day on which the labour is employed and the work is in progress.

9.6 FINES AND DEDUCTIONS WHICH MAY BE MADE FROM WAGES:

The Wages of workers shall be paid to him without any deductions of any kind except the following:

9.6.1 Deductions:

9.6.1.1 Deductions for absence for duty i.e., from the place or the places where by the terms of his employment he is required to work. The amount of deductions shall be in proportion to the period for which he was absent.

9.6.1.2 Deductions for damage or loss of goods expressly entrusted to the employed person for custody or for loss of money or any other deduction which he is required to account, where such damage or loss is directly attributable to neglect or default.

9.6.1.3 Deduction for recovery of advance or for adjustment of over payment of wages, advance granted shall be entered in a register.

9.6.1.4 And other deductions which the Institute may from time to time allow.

9.6.2 Fines:

9.6.2.1 No fine shall be imposed on any worker save in respect of such acts and the Commissioner of Labour has approved omissions on his part as.

9.6.2.2 No fine shall be imposed on a worker and no deduction for damage or loss be made from his wages until the worker has been given an opportunity of showing cause against such fines or deductions.

9.6.2.3 The total amount of fines which may be imposed in any one wage period on a worker shall not exceed an amount equal to the wages payable to him in respect of that wage period.
9.6.2.4 No fine imposed on any worker shall be recovered from him by installments or after the expiry of sixty days from the date which it was imposed.

9.6.2.5 Every fine shall be deemed to have imposed on a day of the act or omission in respect of which it was imposed.

9.6.3 The contractor shall issue an employment card in Form III to each worker on the day of the worker's entry into the employment. If the worker has already any such card with him for the previous employment of contractor, he shall merely endorse that employment card with relevant entries. On termination of employment, the employment card shall again be endorsed by the contractor and returned to the worker.

9.7 REGISTER OF UNPAID WAGES:

The contractor should maintain a register of unpaid wages in such a form as may be convenient at the place of work but same shall include the following particulars:

9.8.1 Full particulars of the labourers whose wages have not been paid.
9.8.2 Reference number of the muster roll and wage register
9.8.3 Rate of wages
9.8.4 The period
9.8.5 Total amount not paid
9.8.6 Reasons for not making payment
9.8.7 How the amount of unpaid wages was utilized
9.8.8 Acquaintance with dates.

9.8 REGISTER OF ACCIDENTS:

The contractor shall maintain a register of accidents in such form as may be convenient at the work place but the same shall include the following particulars.

9.9.1 Full particulars of the laborers who met with accidents.
9.9.2 Rate of wages
9.9.3 Sex
9.9.4 Age
9.9.5 Nature of accidents and cause of accident
9.9.6 Time and date of accidents
9.9.7 Date and time when admitted in Hospital
9.9.8 Date of discharge from the Hospital.

9.9 REGISTER OF FINES ETC.

9.9.1 The contractor shall maintain a register of fines and a register of deductions for damages or loss in form Nos. I and II respectively which shall be kept at the place of work.

9.9.2 The contractor shall maintain both in English and local language a list approved by Commissioner for labour clearly stating the acts and commissions for which penalty or fine may be imposed on a workmen and display it in a good condition in conspicuous place on the work.

9.10 SUBMISSION OF RETURNS:

The contractor shall submit periodical returns as may be specified from time to time.
9.11 **AMENDMENTS:**

The Government of Karnataka may from time to time add to or amend the regulations and on may question as to the application interpretation on effect if these regulations the decision of the Commissioner of Labour or Deputy Commissioner for Labour to Govt. in that behalf shall be final.

**Labour Clause 9.12**

Clause 12 A No labourers below the age of 15 years shall be employed on the work.

Clause 12 B Payments of wages of labourers.

The contractor shall pay not less than fair wage of labourers engaged by him on the work.

**EXPLANATION:**

(a) The contractor shall notwithstanding the provision of any contract to the contrary cause to be paid wages to labourers indirectly engaged for the work including any labour engaged by his sub-contractors in connection with the same works if the labourers have been immediately employed by him.

(b) In respect of all labours directly or indirectly employed in the works for the performance of the contractor’s part of this agreement, the contractor shall comply with or cause to be complied with Karnataka Public Works Department Contractors Labour Regulations from time to time, in regard to payment of wages. Wage period, deductions from wages recovery of wages not paid and deductions unauthorized made, maintenance of wage book, wage slips, publication of scale of wage and other terms of employment, inspection and submission of periodical returns and all other matter of a like nature.

The Special Project Engineer or In-charge Engineer concerned shall have the right to deduct from the money due to the contractors any sum required for making good the loss suffered by a worker or workers by reason of non-fulfillment of the conditions of the contract for the benefit of the workers, non-payment of wages or of deductions made from his or her wages which are not justified by their terms of the contract or non-observance of the regulations.

(c) For payment of minimum wages the Contractor is bound to follow the relevant orders of Govt. of Karnataka from time to time.

(d) Vis-à-vis the Institute the contractor shall be primarily liable for all payments to be made under and for the observance of the regulations aforesaid without prejudice to his right to claim indemnity from his sub-contractors. The regulations aforesaid shall be deemed to be part of this contract, and any breach thereof shall be deemed to be a breach of this.

**Clause 12(C):** In respect of all labour directly or indirectly employed in the work for the performance of the contractor’s part of this agreements the contractor shall at his own expense arrange for the safety provisions as per Karnataka P.W.D. safety code framed from time to time and shall at his own expense provide for all facilities in arrangements and provide necessary facilities as aforesaid he shall be liable to pay penalty of Rs. 50/- for each default and in addition the Special Project Engineer in charge shall be at liberty to make arrangements and provide facilities as aforesaid, and recover the cost incurred in that behalf from the contractor.
Clause 12(d): The contractor shall submit by the 4th and 19th of every month to the Engineer-in-charge of true statement showing in respect of the second half of the preceding month and the first half of the current month respectively (1) the name of labourers employed by him on the work (2) their working hours, (3) the wages paid to them, (4) the accidents that occurred during the said fortnight showing the circumstances under which they happened and the extent of damage and injury caused to them and (5) the number of female workers who have been allowed, maternity benefit according to clause 19F and the amount paid to them, failing which the contractor shall be liable to pay the Institute a sum of not exceeding Rs. 50/- for each default or materially incorrect statement by deduction from any bill due to the contractor and amount levied as fine.

Clause 12(e): In respect of all labour directly or indirectly employed in the works for the performance of the contractor’s part of this agreement, the contractor shall comply with or cause to be complied with all the rules framed by Institute from time to time for the protection of health and sanitary arrangements for workers employed by the Indian Institute of Science and its contractors.

Clause 12(f): Maternity benefit rules for female workers employed by contractor, leave and pay during leave shall be regulated as follows:
(i) Leave in case of delivery: Leave during maternity leave not exceeding 8 weeks up to and including the day of delivery and 4 weeks following that day.
(ii) In case of miscarriage, up to 3 weeks from the date of miscarriage.

9.13 Pay:

i) In case of delivery: Leave pay during maternity leave will be at the rate of women’s average daily earning calculated on the total wages earned on the days when full time work was done during the period of three months immediately preceding the date on which she gives notice that she expects to be confined.

ii) In case of miscarriages: Leave pay at the rate of average daily earnings calculated on the total wages earned on the day’s full time works was due during a period of 3 months immediately preceding the date of miscarriage.

iii) Conditions for the grant of maternity leave: No maternity leave benefit shall be admissible to a woman unless she has been employed for a total period of not less than 6 months immediately preceding the date of delivery /miscarriage.

Model rules for the protection of Health and Sanitary arrangements for workers employed by the Indian Institute of Science or its contractors.

Applications: The rule shall apply to all building and construction work in charge of Indian Institute of Science.

Definition (i): Work place means a place at which on an average fifty or more workers are employed in connection with construction work.

9.14 First Aid:

(a) At every place, there shall be maintained in readily accessible place first aid appliance including the adequate supply sterilized dressing and sterilized cotton wool. The appliances shall be kept in good order and in large work places they
shall be placed under the charge of responsible person who shall be readily available during working hours.

(b) At large work place where hospital facilities are not available within easy distance of the works first aid posts shall be established and be run by a trained compounder with one bed for every 250 employers.

(c) Where large work places are situated in cities, town or in their suburbs and no beds are considered necessary due to proximity of city or town hospitals, suitable transport shall be provided to facilitate of urgent cases to these hospitals at the work places, some conveyance facilities such as a car should be kept readily available to take injured persons suddenly taken seriously ill, to the nearest hospital.

9.15 **DRINKING WATER:**

(a) In every work place there shall be provided and maintained at suitable places, easily accessible to labour, a sufficient supply of cold water fit for drinking.

(b) Where drinking water is obtained from an intermittent public water supply each work place shall be provided with storage tank for drinking water to be stored.

(c) Every drinking water supply storage tank shall be at distance not less than 50 ft. from any latrine, drain or other source of pollution. The tank shall be properly chlorinated before water is drawn from it for drinking. All such tanks shall be entirely closed with a trap door, which shall be dust and waterproof.

(d) A reliable pump shall be fitted to each covered well. The trap door shall be kept locked and opened only for cleanings or inspection, which shall be at least once a month.

9.16 **WASHING AND BATHING PLACES:**

(i) Adequate washing and bathing places shall be provided separately for men and women.

(ii) Such places shall be kept in clean and drained conditions.

9.17 **SCALE OF ACCOMMODATION TO LATRINES AND URINALS:**

There shall be provided within premises of every work place latrines and urinals in an accessible place, and the accommodation separately for each of them shall not be less than following scale:

Where the No of persons does not exceed 50 – 2 Nos.
Where the No of persons exceeds 50 but does not exceed 100 – 3 Nos.
For every additional 100 – 3 per100.

In particular cases the Special Project Engineer shall have the powers to vary the scale wherever necessary.

9.18 **LATRINES AND URINALS FOR WOMEN:**

If women are employed separate latrines and urinals screened from those for men, and marked in the vernacular conscious letter “For women only” shall be provided on the scale in rule 9.17. Those for men shall be similarly marked for men only. A poster showing figures of men and women shall also be exhibited at
the entrance of latrines for each sex. There shall be adequate supply of water closet for the urinals and latrines.

9.19 **LATRINES AND URINALS:**

Except in work provided with water flushed latrines connected with water borne sewerage all latrines shall be provided with receptacles on dry earth system which shall be cleaned at least four times daily and at least twice during working hours and kept in a strictly sanitary condition. The replaces shall be tarred inside and out side at least once a year.

9.20 **CONSTRUCTION OF LATRINES:**

The inside walls shall be constructed of masonry or some suitable heat resisting non-absorbent materials and shall be cement washing noted in a register maintained for this purpose and kept available for inspection. Latrines shall not be of a standard lower than borend other system and should have thatched roofs.

9.21 **PROVISIONS OF SHELTERS DURING REST:**

At every work place there shall be provided free of cost two suitable sheds one for meals and other for rest separately for men and women for use of labour. The height of the shelter shall not be less than 11 ft. from the floor level to the lowest part of the roof. The shed should be roofed with at least thatch and mud flooring will be provided with dwarf wall around not less than 2.5 feet. Sheds shall be kept clean and space shall be on the basis of at least 5 square feet per head.

9.22 **CRECHES:**

At every place, at which fifty or more women are ordinarily employed there shall be provided two huts for the use of children under the age 6 years belonging to such women. One hut shall be used for infant games place and the other as their bedroom. The huts shall not be constructed of a lower standard than the following:

(i) Thatched roofs
(ii) Mud floor and walls
(iii) Planks spread over the mud floor and covered with matting.

9.22.1 The huts shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the places clean; there shall be two boys in attendance. Sanitary utensils shall be provided to the satisfaction of the Health Officer of the area concerned. The use of the hut shall be restricted to children, their attendants and mother of the children.

9.22.2 Where the number of women workers is more than 35 but less than 50, the contractor shall provide at least one hut and one attendant to look after the children of women workers.

9.22.3 The crèche shall be properly maintained and necessary equipments like toys etc., shall be provided.

9.22.4 The size of the crèches shall vary according to the number of workers.
9.23 **CANTEENS:**

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

9.23 The above rules shall be incorporated in the contract and in notices inviting tenders, and shall form an integral part of the contract.

**10. CONDITIONS OF CONTRACT**

Clause 1. **PAYMENT PROPORTIONATE TO WORK APPROVED AND PASSED.**

Payment or intermediate certificates be regarded as advances:

All such intermediate payments shall be regarded as payments by way of advance against the final payments only and not as payments for work actually done and completed, and shall not preclude the Special Project Engineer or other competent authority from requiring any bad, unsound imperfect or unskillful work to be removed or taken away and reconstructed or re-erected nor shall any such payment be considered as an admission for the due performance of the Contract or any part thereof in any respect or the accruing of any claim, nor shall it conclude determine or affect in any other way the powers of the Special Project Engineer or other competent authority as to the final settlement and adjustment of the accounts, or otherwise or in any other way vary or affect the contract.

Submission of Final bill and its settlement

The contractor shall submit the final bill within one month from the date of actual completion of the work in all respects. His claims shall be settled within five months after the final bill is submitted in acceptable form.

Disputed items

*Note*: The contractor shall submit a list of the disputed items within 30 days from the disallowance thereof and if he fails to do this, his claim shall be deemed to have been fully waived and absolutely extinguished.

Clause 2. **Definition of Work**

(a) The expression 'Work' or 'Works' where used in these conditions, shall unless there be something in the subject or context repugnant to such construction, be construed to mean the work or works contracted to be executed under or in virtue of the contract, whether temporary or permanent and whether original, altered, substituted or additional.

(b) **Work to be executed in accordance with specifications, drawings, orders etc.**

The contractor shall execute the whole and every part of the work in the most sound and substantial and workmanlike manner, and in strict accordance with the specifications both as regards materials and workmanship. The contractor shall also conform exactly, fully and faithfully to the designs, drawings and instructions in writing relating to the work signed by the Special Project Engineer or other competent authority and lodged in his office and to which the contractor shall be entitled to have access at such office, or on the site of the work for the purpose of inspection during office hours. The contractor shall also be responsible for the
delivery of structure in sound conditions and the execution of the work strictly in accordance with the specifications of the work.

(c) **Action where there is no specification**

In the case of any class of work for which there is no such specification, then in such a case of the work shall be carried out in all respects in accordance with the instructions and requirements of the Special Project Engineer or other competent authority.

(d) **Work as per Specifications and IS Codes.**

The detailed specification, which forms a part of contract, accompanies the tender document. In carrying out the various items of work as described in Schedule B of the tender documents and the additional, substituted, altered items of work these detailed specification shall be strictly adhered to, supplemented by relevant provisions of the Indian standard specifications, the code of practice; etc., The Indian standard specification, National Building Code and the code of practice to be followed shall be the latest versions of those listed in the detailed technical specifications. Any class of work, not covered by the detailed technical specifications, shall be executed in accordance with the instructions and requirements of the Special Project Engineer and the relevant provisions of the Indian standard specifications.

Clause 3. **Alteration in quantity of work, specifications and designs, Additional work, deletion of work**

(i) The Special Project Engineer shall have power to make any alternations in, omissions from additions to or substitutions for the original specification, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work. 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 or all the following: -

(a) Increase or decrease the quantity of any work included in the contract.
(b) Omit any such work.
(c) Change the character or quality or kind of any such work,
(d) Change the levels, lines, positions and dimensions of any part of the work,
(e) Execute additional work of any kind necessary for the completion of the works and
(f) change in any specified sequence, methods or timing of construction of any part of the work.

**Contractor bound by Special Project Engineer’s instructions**

The Contractor shall be bound to carry out the work in accordance with any instructions in this connection which may be given to him in writing signed by the Special Project Engineer or other competent authority and such alteration shall not in any way vitiate or invalidate the contract.

**Orders for variations to be in writing**

(ii) No such variations shall be made by the Contractor without an order in writing of the Special Project Engineer; provided that no order in writing shall be required for increase or decrease in the quantity of any work where such increase or decrease is the result of the quantities exceeding or being less than those stated
in the ‘Schedule B’ provided also that if for any reason the Special Project Engineer shall consider it desirable to give any such order verbally, the Contractor shall comply with such order without any confirmation in writing of such verbal order given by the Special Project Engineer, whether before or after the carrying out of the order, shall be deemed to be an order in writing within the meaning of the clause; provided further that if the Contractor shall within seven days confirm in writing to the Special Project Engineer and if such confirmation is not contradicted in writing within fourteen days by the Special Project Engineer, it shall be deemed to be an order in writing by the Special Project Engineer.

(iii) a) Any additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the Contractor on same conditions in all respects on which he agreed to do the main work and same rates as are specified in the tender for the main work. However, change in the Undertaking rates tendered and accepted shall be considered in respect of items under which the quantity of work performed exceeds tendered quantity by more than 25 percent and this actual change in rate will be restricted only to such excess quantity (i.e. beyond 125 percent of the tendered quantity).

(b) Rate for excess quantity beyond 125 percent of tendered quantity

The Additional quantity which exceeds 125 percent of the tendered quantity shall be paid at the rates entered in or derived from Schedule of Rates prevalent at the time of executing additions and alterations plus or minus the overall percentage of the original tendered rates over the current Schedule of Rates (KPWD) of the year in which the tender is accepted (as per the comparative Statement prepared at the time of acceptance of the tender).

(c) Rates for additional, substituted, altered items of work

If the additional, substituted or altered work includes any class of work for which no rate is specified in the contract, then such work shall be carried out at the rates specified for or derived from similar item of work in the agreement. In the absence of similar items in agreement, rate shall be as specified for or derived from similar items in the schedule of rates of KPWD prevalent at the time of execution of such additional substituted or altered items of works, plus or minus the overall percentage of original tendered rates over the current schedule of rates of (KPWD) the year in which tender is accepted as mentioned in sub clause (b) above. With regard to the question whether the additional, substituted or altered item/items of work/works is / are similar or not, to that/those in the agreement / in the Schedule of Rates of KPWD and the decision of the Project Management Group shall be final and binding on the contractor.

(D) Determination of rates for items not found in Estimate or Schedule of Rates

If the rates for additional, substituted or altered work cannot be determined in the manner specified in sub clauses (b) and (c) above, then the contractor shall within 7 days of the date of receipt by him of the order to carry out the work, inform the Special Project Engineer of the rates which it is his intention to charge for such class or work, supported by analysis of the rate or rates claimed. Thereupon the Special Project Engineer shall determine the rate or rates on the basis of observed data and failing this, on the basis of prevailing market rates. Under no circumstances the contractor shall suspend the work on the plea of non-settlement of rates for items falling under this clause. In the event of any dispute regarding the rates for such items the decision of the Project Management group Committee shall be final.
Working out the data rates for non SR/ non tendered items shall be based on the procedures laid down in the standard rate analysis format of KPWD Bangalore circle Bangalore. The data rates shall be approved by the Project management group and shall be binding on the contractor.

Clause 4. **TIME LIMITS UNFORSEEN CLAIMS**

Under no circumstances whatever shall the contractor be entitled to any compensation from Institute on any account unless the contractor shall have submitted claim in writing to the Special Project Engineer or other competent authority within 30 days of the cause of such claim occurring.

Clause 5. **NO CLAIM TO ANY PAYMENT OR COMPENSATION FOR DELETION OF WHOLE OR PART OF WORK**

(a) If at any time after the execution of the contract documents, the Special Project Engineer or other competent authority shall, for any reason whatsoever, require the whole or any part of the work as specified in the tender, to be stopped for any period or require the whole or part of the work (i) not to be carried out at all or (ii) not to be carried out by the tendered contractor, he shall give notice in writing of the fact to the contractor who will thereupon suspend or stop the work totally or partially as the case may be. In any such case, except as provided hereunder, the contractor shall have no claim to any payment of compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not so derive in consequence of the full amount of the work not having been carried out, or on account of any loss that he may be put on account of materials purchased or agreed to be purchased, or for unemployment of labour recruited by him. He shall not also have any claim for compensation by reason of any alterations having been made in the original specifications, drawings, designs and instructions, which may involve any curtailment of the work, as originally contemplated.

(b) **Payment for materials already purchased or ordered by contractor.**

Where, however, materials have already been purchased or agreed to be purchased by the contractor before receipt by him the said notice the contractor shall be paid for such materials, at the rates determined by the Special Project Engineer or other competent authority provided they are not in excess of requirements and are of approved quality, and/or shall be compensated for the loss, if any, that he may be put to, in respect of materials agreed to be purchased by him, the amount of such compensation to be determined by the Special Project Engineer or other competent authority whose decision shall be final.

(c) **Labour charges during stoppage of work**

If the contractor suffers any loss on account of his having to pay labour charges during the period during which the stoppage of work has been ordered under this clause, the contractor shall on application, be entitled to such compensation on account of labour charges as the Special Project Engineer or other competent authority, whose decision shall be final, may consider reasonable. Provided that the contractor shall not be entitled to any compensation on account of labour charges if in the opinion of the Special Project Engineer or other competent authority, the labour could have been employed in the same locality by the contractor for the whole or part of the period during which the stoppage of the work has been ordered as aforesaid.
(d) **Time limit for stoppage of work**

The period of stoppage ordered by the Special Project Engineer or other competent authority should not ordinarily exceed six months. Thereafter the portion of works stopped may be treated as deleted from this agreement if a notice in writing to that effect is given to the Special Project Engineer or other competent authority by the contractor within seven days after the expiry of the above period.

**Execution of work deleted**

The portion of work thus deleted may be got executed from the same contractor on supplemental agreement on mutually agreed rates, which shall not exceed current Schedule of Rates plus or minus tender percentage.

Clause 6. **ACTION AND PENALTY IN CASE OF BAD WORK**

If at any time before the security deposit is refunded to the contractor, it shall appear to the Special Project Engineer or other competent authority that any work has been executed with unsound, imperfect or unskillful workmanship or with materials of inferior quality, or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that contracted for, or are otherwise not in accordance with the contract, it shall be lawful for the Special Project Engineer or other competent authority to intimate this fact in writing to the contractor and then notwithstanding the fact that the work, materials or articles complained of may have been paid for, the contractor shall be bound forthwith to rectify, or remove and reconstruct the work so specified on whole or in part as the case may require, or if, so required shall remove the materials or articles at his own charge and cost and in the event of his failing to do so within a period to be specified by the Special Project Engineer or the competent authority in the written intimation aforesaid, the contractor shall be liable to pay a penalty not exceeding one percent on the amount of the estimate for every day not exceeding ten days during which the failure, so continues and in the case of any such failure the Special Project Engineer or other competent authority may rectify or remove, and re-execute the work or remove and replace the materials or articles complained of, as the case may be at the risk and expense in all respects of the contractor should the Special Project Engineer or other competent authority for any valid reasons consider that any such inferior work or materials as described above is to be accepted or made use of, it shall be within his discretion to accept the same at such reduced rates he may fix thereof.

Clause 7. **WORK TO BE OPEN TO INSPECTION - CONTRACTOR OR RESPONSIBLE AGENT TO BE PRESENT**

(a) All works under or in course of execution or executed in pursuance of the contract shall at all time be open to the inspection and supervision of the Special Project Engineer or other competent authority and his Engineer-in-charge, and the contractor shall at all times during the usual working hours, and at all other times at which reasonable notice of the intention of the Special Project Engineer or other competent authority Engineer-in-charge to visit the work shall have been given to the contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing present for the purpose. Orders given to the contractor duly authorized agent shall be considered to have the same force and effect as if they had been given to the contractor himself.
(b) Employment of Minimum technical staff

The Contractor shall employ the following technical staff during execution of this work:

(i) One Graduate Engineer when the cost of the work to be executed is ‘Rs. 5 lakhs or more’,

(ii) One qualified Engineering Diploma Holder when the cost of work to be executed is more than Rs. 2 lakhs but less than Rs. 5 lakhs;

(iii) In addition to (i) and (ii) above, the contractor shall employ different types of such technical personnel as may be required and sufficient for execution of work and directed by the Special Project Engineer to ensure efficient execution of work.

The technical staff so employed, should be available at site whenever required by Engineer in-charge to take instructions.

(c) If the contractor fails to employ the technical staff as aforesaid, he shall be liable to pay a sum of Rs. 20000 (Rupees Twenty thousand only) for each month of default in the case of Graduate Engineers and Rs. 10000 (Rupees Ten thousand only) for each month of default in case of Diploma Holders.

(d) If the Contractor himself possesses the required qualification and is available at the site for receiving instructions from the Special Project Engineer and other competent authority vide sub-clause (a) above it will not be necessary for the technical staff to be available at site for receiving instructions.

Clause 8. NOTICE TO BE GIVEN BEFORE WORK IS COVERED UP

The contractor shall give not less than five days notice in writing to the Special Project Engineer or his Engineer-in-charge in charge of the work before covering up or otherwise placing beyond the reach of the measurement any work in order that the same may be measured; and correct dimensions thereof taken before the same is so covered up or placed beyond the reach of measurement, and shall not cover up or place beyond the reach of measurement, and work without the consent in writing of the Special Project Engineer or other competent authority or his Engineer-in-charge in charge of work; and if any work shall be covered up or placed beyond the reach of measurement, without such notice having been given or consent obtained, the same shall be uncovered at the contractor's expense, and in default thereof no payment or allowance shall be made for such work or for the materials with which the same was executed.

Clause 9. CONTRACTOR LIABLE FOR DAMAGE DONE, AND FOR IMPERFECTIONS FOR TWELVE MONTHS AFTER CERTIFICATE OF COMPLETION

If the Contractor or his workmen or servants shall break, deface, injure or destroy any part of a building in which they may be working, or any building, road fence, enclosure or grassland or cultivated ground contiguous to the premises on which the work or any part thereof is being executed, or if any damage shall be done to the work, while it is in progress from any cause whatever or if any imperfections become apparent in it within Twelve months of the grant of a certificate of completion, final or otherwise, by the Special Project Engineer or other competent authority the contractor shall make good the same at his own expenses, or in default the Special Project Engineer or other competent authority may cause the same to be made good by other workmen, and deduct the expenses (of which the certificate of the Special Project Engineer...
or other competent authority shall be final) from any sums that may be due or may thereafter become due to the contractor, or from his Security Deposit or the proceeds of sale thereof, or of a sufficient portion thereof.

The Defects liability period shall be extended for as long as defects remain to be corrected. Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Institute.

Clause 10. **CONTRACTOR TO SUPPLY PLANT, LADDERS, SCAFFOLDINGS, ETC., AND IS LIABLE FOR DAMAGES ARISING FROM NON-PROVISION OF LIGHT, FENCING ETC**

The contractor shall supply at his own cost all materials, plant, tools, appliance, implements, ladders, scaffolding, and temporary works required for the proper execution of the work whether in the original, altered or substituted form and whether included in the specification, or other documents forming part of the contract or referred to in these conditions or not, and which may be necessary for the purpose of satisfying or complying with the requirements of the Special Project Engineer or other competent authority as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage therefore, to and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials necessary for the purpose of setting out works, and counting, weighing and assisting in the measurement or examination at any time and from time to time of the work or the materials. Failing this, the same may be provided by the Special Project Engineer or other competent authority at the expense of the contractor and expense may be deducted from any money due to the contractor under the contract or from his security deposit or the proceeds of sale thereof, or of a sufficient portion thereof. The contractor shall provide necessary fencing and lights required to protect the public from accident, and shall also be bound to bear the expense of defense of every suit, action or other legal proceedings, that maybe brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and costs which may be awarded in any suit, action or proceedings to any person, or which may with the consent of the contractor be paid for compromising any claim by any such person.

Clause 11. **Measures for prevention of fire**

The contractor shall not set fire to any standing jungle, trees, brushwood or grass without a written permit from the Special Project Engineer. When such permission is given, and also in all cases when destroying cut or dug up trees, brushwood grass, etc., by fire the contractor shall take necessary measures to prevent such fire spreading to or otherwise damaging surrounding property.

Clause 12. **Liability of contractor for any damages done in or outside work Area.**

Compensation for all damages done by contractor or his men whether in or beyond the limits of Institute property including any damage caused by spreading of fire mentioned in Clause 18 shall be estimated by the Special Project Engineer and the estimate of the Special Project Engineer, subject to the decision of the Project management group on appeal shall be final and the contractor shall be bound to pay the amount of the assessed compensation on demand failing which the same will be recovered from the contractor as the damages in the manner prescribed in clause 1(c) or deducted by the Special Project Engineer or other
competent authority from any sums that may be due or become due from Institute to the contractor under this contract or otherwise.

The contractor shall bear the expenses of defending any action or other legal proceedings that may be brought by any person for injury sustained by him owing to neglect of precautions to prevent the spread of fire and shall pay any damages and cost that may be awarded by the court in consequence.

Clause 13. Work on Notified Holiday

No work shall be done on any notified holiday without the sanction in writing of the Special Project Engineer or other competent authority.

Clause 14. SUM PAYABLE BY WAY OF COMPENSATION TO BE CONSIDERED AS REASONABLE COMPENSATION WITHOUT REFERENCE TO ACTUAL LOSS.

All sums payable by a contractor by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied for the use of Institute without reference to the actual loss or damage sustained and whether any damage has or has not been sustained.

Clause 15. SETTLEMENT OF DISPUTES - TIME LIMIT FOR DECISION

(a) If any dispute or difference of any kind whatsoever were to arise between the Special Project Engineer and the contractor regarding the following matters namely,

(i) The meaning of the specifications, designs, drawings and instructions herein before mentioned,

(ii) The quality of workmanship or materials used on the work and

(iii) Any other question, claim right, matter, thing whatsoever, in any way arising out of or relating to the contract, designs, drawings, specification, estimates, instructions, or orders, or those conditions, failure to execute the same whether arising during the progress of the work, or after the completion, termination or abandonment thereof, the dispute shall, in the first place, be referred to the Project Management Group who have jurisdiction over the work specified in the contract. The Project Management Group shall within a period of fifteen days from the date of being requested by the Contractor to do so give written notice of its decision to the Contractor.

If the decision of the Project management group is not acceptable to the contractor he may approach the Director, IISc within a period of 15 days for settlement.

(b) Director's decision final.

Subject to other form of settlement hereafter provided, the Director's decision in respect of every dispute or difference so referred shall be final binding upon the contractor. The said decision shall forthwith be given effect to and contractor shall proceed with the execution of the work with all due diligence.

(c) Remedy when Director's decision is not acceptable to contractor
In case the decision of the Director is not acceptable to the contractor, he may approach the Law Court at Bangalore for settlement of dispute after giving due written notice in this regard to the Director within a period of ninety days from the date of receipt of the written notice of the decision of the Director. Further, the Bangalore courts alone shall have the exclusive jurisdiction.

(d) **Time limit for notice to approach Court of law by contractor**

If the Director has given written notice of his decision to the contractor and no written notice to approach the law court has been communicated to him by the contractor within a period of ninety days from receipt of such notice, the said decision of Director shall be final and binding upon the contractor.

(e) **Time limit for notice to approach law court by contractor when decision is not given by Director, IISc as at (b).**

If the Director fails to give notice of his decision within a period of ninety days from the receipt of the contractor's request in writing for settlement of any dispute or difference as aforesaid, the Contractor may within ninety days after the expiry of the first named period of ninety days approach the Law Courts at Bangalore giving due notice to the Director.

(f) **Contractor to execute and complete work pending settlement of dispute.**

Whether the claim is referred to the Director or to the Law Courts, as the case may be, the contractor shall proceed to execute and complete the works with all due diligence pending settlement of the said dispute or differences.

(g) **Obligations of the Special Project Engineer and contractor shall remain unsettled during considerations of dispute.**

The reference of any dispute or difference to the Director or the Law Court may proceed notwithstanding that the works shall then be or be alleged to be complete, provided always that the obligations of the Special Project Engineer and the contractor shall not be altered by reason of the said dispute or difference being referred to the Director or the Law Court during the progress of the works.

**Clause 16. CONTRACTOR TO PAY COMPENSATION UNDER WORKMEN’S COMPENSATION ACT.**

(a) The contractor shall be responsible for and shall pay any compensation to his own workmen payable under the relevant Workmen's Compensation Act for injuries caused to the workmen. If Institute pays such compensation on behalf of the contractor it shall be recoverable by Institute from the contractor under as per relevant clauses.

(b) **Contractor to pay expenses of providing medical aid to workmen.**

The contractor shall be responsible for and shall pay the expenses of providing medical aid to any workman who may suffer a bodily injury as a result of an accident. If Institute incurs such expenses, the same shall be recoverable from the contractor forthwith and be deducted without prejudice to any other remedy of Institute, from any amount due or that may become due to the contractor.
Clause 17. CONTRACTOR TO PROVIDE PERSONAL SAFETY EQUIPMENT FIRST AID APPARATUS, TREATMENT Etc

The contractor shall provide all necessary personal safety equipment and first aid apparatus for the use of the persons employed on the site and shall maintain the same in good condition suitable for immediate use, at any time and shall comply with the following regulations in connection therewith:

(i) The worker will be required to use the equipment so provided by the contractor and the contractor shall take adequate steps to ensure proper use of the equipment by those concerned.

(ii) When work is carried on in proximity to any place where there is a risk of drowning; all necessary steps shall be taken for the prompt rescue of any person in danger.

(iii) Adequate provision shall be made for prompt first-aid treatment of all injuries likely to be sustained during the course of the work.

Clause 18. Minimum age of persons employed by contractor

(a): No contractor shall employ

(i) Any person who is under age of 15 years.

(ii) Who does not produce a valid certificate of vaccination against epidemic deceases in respect of himself/herself as well as all the members of his/her family.

(b) The contractor shall provide potable water facilities to the workers. Similar amenities shall be provided to the workers engaged on large works in urban area.

(c) Removal of persons not satisfying conditions (a) (i) & (ii)

The Special Project Engineer or other authority is authorized to direct the removal or to remove through his own agency, from the work any person referred to in sub-clauses (a) above not satisfying these conditions and no responsibility shall be accepted by the Institute for any delay caused in the completion of the work by such directions for removal.

(d) Payment of fair and reasonable wages by contractor.

The contractor shall pay fair and reasonable wages, which shall not be less than the minimum wages fixed by Govt. of Karnataka from time to time to the workmen employed by him in the contract undertaken by him. In the event of any dispute arising between the contractor, and his workmen on the ground that the wages paid are not fair and reasonable the dispute shall be referred without delay to the Special Project Engineer or other competent authority, who shall decide the same. The decision shall not in any way affect the conditions in the contract regarding the payment to be made by Institute at the agreed tender rates.

Clause 19. CONTRACTOR NOT ENTITLED TO ANY CLAIM OR COMPENSATION FOR DELAY IN EXECUTION OF WORK IN BORROW PITS.

The contractor shall not be entitled to claim compensation if there is any delay in the execution of the work on account of water standing in borrow pits and Compartments. The rates are inclusive for hard or cracked soil, excavation in mud, sub-soil water or water standing in borrow pits and no claim for extra rate shall be entertained, unless otherwise specified.
Clause 20. **METHOD OF PAYMENT OF BILLS**

Payment to contractors shall be made by cheques drawn by the Institute.

Clause 21. **SET OFF AGAINST ANY CLAIM OF INSTITUTE**

Any sum of money due and payable to the contractor (including the security deposit refundable to him) under this contract may be appropriated by the Institute and set off against any claim of Institute in respect of a payment of a sum of money arising out of or under any other contract made by the contract with the Institute.

Clause 22. **RATES INCLUSIVE OF SALES TAX AND LABOUR CESS**

(a) *The rates to be quoted by the contractor shall be inclusive of all taxes like sales tax, VAT, Service tax, Labour cess etc., No extra payment on this account will be made to the contractor. Any statutory levies imposed by the central Government/ state Government/ local body from time to time are to the contractors account only.*

(b) All quarry fees, octroi dues levied by the state or any local body or authority and ground rent, if any, charged by the Special Project Engineer for stacking materials should be paid by the contractor.
TECHNICAL SPECIFICATIONS

CIVIL WORKS

1. CONTROLLED CONCRETE:

Controlled concrete shall be taken to mean that there shall be full field control of (1) predetermined grading of all aggregate that goes into concrete (2) predetermined proportion of course aggregate, fine aggregate, cement and water for the required strength.

Grade of Concrete: Compressive strength of 15 cm cube at 28 days after mixing conducted in accordance with relevant IS code.

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<td>M 20</td>
<td>260</td>
<td>200</td>
</tr>
<tr>
<td>M 25</td>
<td>320</td>
<td>250</td>
</tr>
<tr>
<td>M 30</td>
<td>380</td>
<td>300</td>
</tr>
<tr>
<td>M 35</td>
<td>440</td>
<td>350</td>
</tr>
<tr>
<td>M 40</td>
<td>500</td>
<td>400</td>
</tr>
</tbody>
</table>

To arrive at the proportion to be adopted to obtain the required grade of concrete the mix proportion should be designed based on laboratory tests conducted using the aggregates actually available at site and which would be used for making concrete. The design mix should give suitable work ability to enable it to be well consolidated to be worked into the corners of the shuttering and around the reinforcement.

Where difficulty is likely to be encountered in placing and compacting concrete and where there is crowding of reinforcements a separate mix is to be designed for required strength and used without extra cost the mix design along with the work ability obtainable with the designed mix should be furnished to the S.P.E. before hand and their approval obtained. A laboratory is to be established at the site to assess the moisture content of aggregate as frequently as necessary and as instructed by the Employer based on which correction is to be applied to the quantity of water to be used for mixing.

All aggregate are to conform strictly to IS specification IS- 383. The aggregate will be tested as frequently as directed by the S.P.E. to see that their specification is the same as adopted in the mix design. They must be stored on clean platform made for the purpose.

Concrete shall be weigh-batched. The details of weight batching unit to be used shall be checked with standard weights periodically. The Employer under special circumstances may allow the conversion of weights to volume. Despite the design
for several mixes the following quantities of cement are the minimum to be used for the different grades of the concrete:

<table>
<thead>
<tr>
<th>Grades of concrete</th>
<th>Cement in KGS per Cum</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 15</td>
<td>240 KGS.</td>
</tr>
<tr>
<td>M 20</td>
<td>320 KGS.</td>
</tr>
<tr>
<td>M 25</td>
<td>340 KGS.</td>
</tr>
<tr>
<td>M 30</td>
<td>350 KGS.</td>
</tr>
<tr>
<td>M 35</td>
<td>375 KGS.</td>
</tr>
<tr>
<td>M 40</td>
<td>400 KGS.</td>
</tr>
</tbody>
</table>

For pre-casting and other works of specified nature, which involve the use of design mixes, use of Grade 53 cement is allowed. The minimum quantity of cement allowed in controlled concrete should strictly confirm with SP 23 (Hand book on concrete mixes). Laboratory testing of content of cement in controlled concrete should conform to SP 23.

2. Aluminium Sub Frame for windows and Ventilators.

Aluminium sub frame of specified section shall be provided for all aluminium Doors, window, ventilators and fixed glazing all as shown on drawing and as specified.

2.1 Materials:

The members will be made out of aluminium alloy corresponding to IS 733 and will consists of extruded sections and of other sizes and gauges as shown in the drawings / described in accordance with the relevant IS Codes. The members shall be chosen to provide strength / stability and maximum resistance to wear and tear.

The IS specifications are to be strictly adhered. The alloy of extruded aluminium should be BS or IS 9 old HE9. Alcon 50 SWP To this effect test certificate has to be provided for the extruder.

Detailed fabrication drawings shall be furnished to suit the site installation for approval before taking up the work.

2.2 Finishing:

The extruded aluminium section has to be mechanically finished to remove all scratches, extrusion marks etc., and subsequently thoroughly cleared in an alkali bath prior to anodizing.

For anodizing IS 1868 would be strictly followed.

The anodizing finish should be in Black or Chocolate brown electro chemical process with minimum average thickness to 15 microns or other shade as required and to this effect the tenderer must have to produce test certificate from authorized institutions Bureau of Indian Standard.
The anodized material should be sealed properly and it should be wrapped in gummed tape before fabrication to avoid scratches during fabrication and erection and shall be kept protected till handing over.

2.3 Fabrication:

Before commencing the fabrication the contractor is required to submit to Engineer In charge for their approval detailed fabrication drawings, based on the Architects drawings and specifications and corresponding to the finished openings; left at site for Doors windows, ventilators, partitions. Fabrication is to be taken up only on approval of and in accordance with the approved drawings should there by any necessity. Architects may revise the sections and the same shall be followed for execution. However, the rate quoted for the relevant finished item shall be adjusted only for the difference in weight of Aluminium sections in KG between that specified by the tenderer at the time of tendering and that modified by the architect. All other elements of cost variation due to such modifications in the sections shall be deemed to have been included in the quoted rates.

Fabrication shall be done true to the drawings to correspond to the finished openings at the site, the sections cut to lengths to suit, mitred at the corners, to true right angles with joints made neatly to hair lines, with concealed fasteners, wherever possible joints shall be made in concealed locations.

All fabricated items shall be packed and carted properly before dispatch to site to prevent damage in transit. On receipt at site they shall be carefully stacked in protected storage to avoid distortion / damage. Such items shall also be in the safe custody of the contractor.

Field connections may be made with concealed screws, self tapping or other approved fasteners or may be made with weld due precautions being taken to avoid altogether distortion / discoloration of the finish.

Faces / Parts coming into account with masonry in the construction shall before shipment to the site be given a heavy coat of an alkali resistance bitumen paint. Aluminium coming in contact with other incompatible metals shall be given similarly a thick coat of Zinc chromate primer.

3. FLOORING WORKS:

NOTE: When the voids in the flooring cannot be filled with grout on detection of “hollow sound” when tapped, the slab shall be removed and reset to the complete satisfaction of the Engineer In-Charge.

3.1 GRANITE TILE FLOORING/SKIRTING:

Granite tile shall be mirror polished and shall be as specified for granite slab. Size of the tile shall be as specified in bill of quantities.

Before the operation for laying, the surface of base concrete shall be thoroughly cleaned of all dirt, loose particle, caked mortar droppings, by scrubbing with coir or
steel wire brushes. if so directed by the engineer in charge the surface shall then be cleaned with water and kept wet for 12 hours and surplus water shall be removed by mopping before the topping is laid. The tiles/slab should be laid over cement mortar as specified in the schedule of quantities.

3.1.1 Laying:

A bed of cement mortar consisting of one part of cement and four parts of sand shall be laid and properly leveled to an average thickness of 20 mm and the surface shall be kept slightly rough to have a satisfactory key for tiles. Neat cement paste of honey like consistency at the rate specified in the bill of quantities shall be spread over mortar bed, over such area at a time it would accommodate about 20 tiles. Tiles shall be soaked in water for at least 15 minutes and allowed to dry for the same duration. Tiles will then be fixed with a thin coat of cement pasted on back of each tile and then each tile is gently tapped with a wooden mallet so that it is properly bedded and in level with adjoining tile. Joint will be fine and as imperceptible as possible (not more than 1.5 mm thick).

After tiles have been laid for the day, surplus cement that may have come out of the tile edges may be wiped of gently and joints cleaned. A thick cement slurry colored with color pigment matching the color of tile shall be spread over and rubbed so as to seal even the thinnest joint and make it impervious. The flooring shall be cured for 14 days.

3.2 GRANITE FOR CILLS:

Granite slabs of approved shade, variety, size and thickness as specified in the item shall be used. They shall be of selected quality, dense, uniform and homogenous in texture and free from cracks or other structural defects. The exposed face shall have no veins or unsightly stains and defects. They shall have uniform coloured shade as specified/approved by Engineer-in-charge. Samples shall be got approved by Engineer-in-charge before ordering the slabs. The surface shall be fine polished and sides machine cut, true to square.

Granite shall be hard, sound, dense and homogenous in texture with crystalline and course grains. It shall be free from stains, cracks, decay and weathering. The place of quarrying, colour and quality and thickness should be as specified. Every stone must be machine cut to be minimum size of 58 cms (23 ½) in any direction and shape chisel dressed on all sides so as to be free from waviness and to give truly vertical, horizontal, radial and circular joints as required. Chisel dressing shall also be done on exposed faces to remove any waviness. The sides and top surfaces of Granite slabs shall be machine rubbed with course sand before using. Granite slabs in window cills shall be in full width and in single piece with rounded edges or angular edges as specified.

3.3 CEMENT TILE FLOORING

Before the operation for laying the floor is started, the surface of base concrete shall be thoroughly cleaned of all dirt, loose particle, caked mortar droppings, by scrubbing with coir or steel wire brushes. if so directed by the engineer in charge the
surface shall then be cleaned with water and kept wet for 12 hours and surplus water shall be removed by mopping before the topping is laid. The tiles/slab should be laid over cement mortar as specified in the schedule of quantities.

The tiles shall be of selected quality, hard sound dense, homogeneous in texture, free from cracks, decay weathering and flaws and of thickness as specified. The heavy duty tiles shall be of the approved make and shall bear a crushing strength of 200kgs/sqcm of M-20 grade of concrete and of approved size and color.

3.3.1 Laying:

A bed of cement mortar consisting of one part of cement and three parts of sand shall be laid and properly leveled to an average thickness of 25mm and the surface shall be kept slightly rough to have a satisfactory key for tiles. Neat cement paste of honey like consistency shall be spread over mortar bed, over such area at a time it would accommodate about 20 tiles. Tiles shall be soaked in water for at least 15 minutes and allowed to dry for the same duration. Tiles will then be fixed with a thin coat of cement pasted on back of each tile and then each tile is gently tapped with a wooden mallet so that it is properly bedded and in level with adjoining tile. Joint will be fine and as imperceptible as possible (not more than 1.5mm thick).

After tiles have been laid for the day, surplus cement that may have come out of the tile edges may be wiped of gently and joints cleaned. A thick cement slurry colored with color pigment matching the color of tile shall be spread over and rubbed so as to seal even the thinnest joint and make it impervious. The flooring shall be cured for 14 days.

3.4 KOTA FLOORING/SKIRTING

The slabs shall be of selected quality, hard sound, dense, homogenous in texture, free from cracks, decay, weathering and flaws and of thickness as specified. The top exposed faces should have been roughly polished before bringing it to site. Unless otherwise specified the slabs should be cut to the required shape and size, machine cut as specified. All pieces should be of minimum 55 cm size and uniform color and texture.

A bed of cement mortar 1:6 shall be laid and properly leveled to an average thickness of 25mm and the surface be slightly rough to form a satisfactory key for the tiles. Neat cement paste of honey like consistency shall be spread over mortar bed over such an area so that the paste will not harden before laying tiles. Slabs shall be soaked in water for 15 minutes and allowed to dry. The slabs shall then be fixed as per approved pattern with thin coat of cement paste on back of each slab. They will be tapped with a wooden mallet till it is properly bedded in level with adjoining slabs. Joints shall not be more than 1.5 mm wide. The surplus cement grout that may have come out of the joints has to be wiped of gently and joints cleaned. The joints shall be filled up with grey or white cement with an admixture of pigments to match the shade of the slab. The flooring shall be cured for 14 days.
3.5 GRANITE WORK:

The slabs must be of uniform thickness as specified the variation in the thickness not exceeding 2 mm and must be from the same source. They shall be of uniform texture and colour free of any veins and streaks. All the edge shall be machine true to line, square and shape. The brushes in the joints are not more than specified thickness. The surface should be rough dressed / one line dressed / two lines dressed / three line dressed pulmane finish / mirror polish as specified.

3.6 CLAY TILES:

Clay tiles shall be machined pressed well burnt, uniform in colour and texture. Shade shall be terracotta. The size & thickness of the tile shall be as specified in the bill of quantities. The tiles should be laid over cement mortar and jointed and pointed with cement mortar mixed with red oxide to match with the shade of the tile as specified in the schedule of quantities.

3.7 MODE OF MEASUREMENT: The method of measurement for various items in the tender shall be generally in accordance with the IS: 1200 subject to the following:

Flooring shall be measured from skirting and where the wall surfaces are plastered or provided with dado it shall be measured from plaster to plaster or dado-to-dado.

4. WALL CARE PUTTY

4.1 Provide wall care putty to the specification catered for in the bill of quantity. Approved make of putty shall only be used.

4.1.1 Surface preparation:
Remove all loosely adhering material with a help of emery stone, putty blade or wire brush and clean water. The substrata should be clean, free from dust, grease loose materials. Dry and absorbent surface should be moistened with sufficient quantity of clean water. Mixing of putty shall be done with 33-35% clean water slowly mixing to make a paste till a uniform paste is formed.

4.1.2 APPLICATION:
The first coat shall be applied on already moistened wall surface from bottom to upward direction uniformly with help of patty blade after drying of first coat of putty the surface will be gently rubbed with wet sponge or with putty blade in order to remove the loose particle. Allow the surface to dry for at least three hours before applying the second coat of putty after drying of second coat marks if any will be removed with the help of moist sponge or with the putty blade.

Total thickness of coat shall be limited to 1.5mm
5. POLISHED / TOOL FINISHED GRANITE STONE CLADDING:

The cladding/fascia stone / slab shall be MAGADI PINK / SIRA STONE as specified in bill of quantities and shall conform to the specification under ‘Materials’ and it shall be erected as shown on the drawing or as directed.

The stone or stone slab shall be of size as shown on the drawing or as directed by the Engineer. The exposed faces, full beds and joints shall be dressed / finished as directed. The joints shall be cut square to the face and shall be at right angles to each other or as directed. The facing shall be fixed in cement mortar truly in plumb and in perfect plane straight or curved as shown on the drawing, the bed being fully flushed with mortar. The joints shall be exactly vertical and horizontal. The joints shall not exceed 1 mm to 1.5 mm for machine polished slab. Fine tooled / close punched and chisel dressed granite slab cladding shall be with 12mmx10mm grooves. The grooves shall be finished with cement mortar 1:3 with matching pigment. The stones shall break joints for about half the height of the course. Course shall be as shown on the drawing or as directed. The gap between the facing stones and the wall shall be filled with cement mortar. Stainless steel/ copper pins and holdfasts shall be used as and wherever directed/indicated in drawing. Lead caulking shall be used for mixing holdfasts. The surface shall be protected from sun and rain and cured for ten days.

The face shall be finished as specified or directed after filling the joints with matching shade cement / mortar of 1:1 proportion mixed with approved water proofing material.

6.0 Ceramic Tiles:

Ceramic Tiles Shall be of approved colour, design and size approved by the engineer conforming to IS: 777-1988. Granite: Polished granite slab and tiles shall be of the kind specified in the schedule of quantities conforming to samples approved by the engineer for colour & texture. The slab shall be machine cut to required dimension and shall conform to IS Standards.

7.0 Plastic Emulsion Paint and Enamel Paint:

Plastic (Acrylic) Emulsion Paint and Enamel Paint: Plastic emulsion painting will be of approved brand of paint and colour conforming to IS: 5411-1991 & will be applied over a coat of primer (including preparation of wall surface). Painting for the doors will be carried out with synthetic enamel paint of approved brand and colour over one coat of primer, all of relevant IS specifications 4511-1993.

8.0 Solid Concrete Block: Shall be of 100 mm / 150mm / 200mm thick and strength of 35 kg/sqm. Conforming to IS: 2185-1992

Blocks shall be regular in size and shape and of the specified strength. They should be manufactured by an approved agency, having mechanized machinery. The Contractor shall supply samples for the approval of the Engineer and all blocks supplied shall conform strictly to the approved samples.
Each batch of blocks shall be marked in a distinguishing manner. Blocks shall be properly cured before being brought to Site and shall have a texture such that plaster and/or render will readily adhere to it. Half or three quarter size blocks may be used wherever required to make up lengths of walls but broken blocks shall not be used. All blocks shall be left with good sharp clean edges. All blocks not approved by the Engineer shall be immediately removed from the site at no cost to the employer and replaced by satisfactory blocks. Unload and handle blocks carefully without chipping or damaging.

The mortars for block masonry shall be as specified in the BOQ.

Block work shall be plumb, square and properly bonded with broken joints. The thickness of the courses shall be uniform with courses horizontal. All connected work shall be carried out at one level and no portion of the work shall be left more than one course lower than the adjacent work.

Blocks shall be laid so that all joints are well filled with mortar. Joined shall not be less than 6mm and not more than 8mm thick. Face joints shall be raked to a minimum depth of 10mm by raking tools during the progress of work when the mortar is still green so as to provide a proper key for pointing, plastering or rendering. When pointing, plastering or rendering is not required joints shall be struck flush.

For pointed block work or block work without plaster or render approved, smooth textured concrete blocks shall be used.

Faces of block work shall be cleaned daily and all mortar droppings cleaned off and removed. Top surfaces of each course shall be thoroughly cleaned before other courses are laid. If mortar in lower courses has begun to set joints shall be raked out to a depth of 12mm before laying is continued.

Where blocks are to be used for load bearing walls the uppermost course of blocks supporting slabs or other structural members shall be solid or treated as directed by the Engineer.

Openings, arches, chases, pockets and the like shall be provided as shown on the drawings to receive windows, louvers, doors frames and the like.

Wall ties and flashing shall be built into block work in accordance with the drawings and Specifications. It shall be clearly understood that the rates quoted by the Contractor shall be deemed to include for leaving openings, Forming arches, cutting chases pockets and the like in block work for various trades.

9. POLYCARBONATE SHEET WITH ALUMINIUM PROFILES FRAMEWORK WITH MILD STEEL TUBULAR STRUCTURAL SUPPORT FRAMEWORK SYSTEM

The item of work shall include designing providing, fixing and installing as per designs, drawings and details the following
(e) 10 mm thick multi wall polycarbonate sheet of GE make or equivalent

(f) Aluminum profile framework for fixing polycarbonate sheets

(g) Welded M.S. tube (square or rectangular) structural support framework to support the aluminium profile framework

The work of polycarbonate sheet with aluminium profile framework and the M.S. Tube structural support framework shall be got executed from specialized agency. The contractor shall submit names of at least three specialized agencies with details of their experience, capability etc. to the engineer-in-Charge who shall give the approval in writing. The work shall start only after approval of specialized agency.

The entire system shall be got designed from for wind loads, Dead & live loads, impact loads & deflection. The structural design calculations shall include calculations for aluminum profile framework including joints, M.S. Tube structural support framework, including welding, all M.S. brackets all fasteners and anchor bolts, screws for fixing polycarbonate sheet to aluminum frame work, screws for fixing aluminum framework to welded M.S. tube structural support framework etc.. The permissible bending stress in members of aluminum framework shall be 96 N/mm2 as specified in IS 8147176 and the permissible stress in the welded M.S. Tube structural support framework shall be as specified in relevant BIS codes.

The Contractor shall submit the design and drawing from approved institution to the engineer-in-Charge for approval. The contractor shall incorporate the modifications required and suggestions made by the engineer-in-charge on the structural design and drawings. After approval of design & drawings, the contractor shall be required to submit six fair sets of the same to the Engineer – in-Charge.

The contractor shall provide drawings of all the members of aluminum profile framework including joints & all members of welded M.S. tube structural support framework including welding-clearly indicating dimensions, wall thickness & weight (Kg/m). The minimum moment of inertia of members of aluminium profile frame work shall be 350 x 104mm4

The anchoring of the welded M.S. Tube framework to the RCC beams/walls shall be done with non corrosive galvanized M.S. brackets of approved design (galvanizing shall confirm to IS 475-16-8) microns thickness minimum Aluminum shins of various required thickness behind the brackets to Adjust to beam variations as per site requirements shall be provided and fixed HILTI/FISHER make flushed type fasteners of required size and length and 10 X 100 mm or more size stainless steel bolt shall be used for anchoring the brackets to provide minimum anchoring depth of 50 mm in the concrete to withstand the dead load & pressure/stresses due to wind. The contractor shall make arrangements with the fastener supplier- HILTI/FISHER to carry out random pull out tests at site of work to the satisfaction and director of Engineer-in-Charge.

EPDM gaskets of required thickness and width manufactured by Hanu Industries/Anand Lescuyer of equivalent shall be provided between aluminium – profile framework and the welded M.S. Tube structural support framework. EDPM
gaskets of suitable profiles as manufactured by Hanu Industries/Anand Lescuyer or equivalent shall be provided at all required positions to make the system airtight.

All screws, Bolts, Nuts and washers used shall be only of stainless steel as manufactured by KUNDAN/PUJA/ATUL or equivalent.

The peripheral gaps between the welded M.S. Tube structural support framework and the RCC beam/wall shall be sealed by providing and fixing of 1mm thick aluminium sheet flashing bent to required profile & application of weather silicon sealant of DOW CORNING/GE SILICON or equivalent to make the joint water & air tight.

Fabrication and installation of polycarbonate sheets shall be as specified in “Annex A- Code of good fabricating practices “of IS-01443-1997”.

The tolerances in the width, length & thickness of sheet shall be as specified in Note 2on page 3 of IS – 14443 –1997.

The M.S. Tube shall conform to relevant BIS standards and shall be of steel grade ST-32.

The polycarbonate sheet with aluminium profile framework and welded M.S. TUBE structural support framework system shall be in conformity to the panel widths and sizes shown in the architectural drawings as well as to shape/profile in plan and elevation.

Nothing extra shall whatsoever be payable on this account.

8.1 TESTS TO BE CARRIED OUT BY THE CONTRACTOR.

The contractor should also submit samples for Testing of Physical and Chemical Properties and provide the Test Certificate of Aluminium Alloy Composition Test House /National Physical Test Laboratory, conforming to Alloy 63400 WP.

The contractor should submit a certificate duly certified by HILTI/FISCHER Company for their Dash fasteners for Anti-pullout Test.

8.2 MEASUREMENTS:

Poly carbonate sheet roofing with aluminium profile shall be measured in Square meter for finished exposed surface of polycarbonate sheet.

9. Timber:

(a) Unless otherwise specified, all timber for frames and shutters for doors, windows, ventilator, cupboards etc. Shall be TEAK WOOD well seasoned, approved and/without any flaws, sun cracks and other defects. The planed surface shall be smooth and free from blemishes and discolourisations.
(b) All timber for carpentry and joinery in touch with masonry or concrete shall be coal tarred of creosoted before fixing. All rough frame work in partitions, suspended
ceiling and veneering to walls, etc. shall be treated with approved wood preservative/anti-termite treated as per manufacturer’s instructions and specifications. The rate quoted shall provide for such treatments.

(c) The timber members shall be fabricated out of well seasoned timber. The preparation of timber for joinery is to commence simultaneously with the be gaining of the project work generally and should proceed continuously until all the work is prepared and fixed/stacked on or the site as the case may be.

(d) Carpentry work:
The timber shall be properly planed and wrought in a workman like manner. Joints shall be true and fit properly, assembled, accurately and clamped together so as to square, flat and close jointed. The combed joints shall have two tongues on each member to be joined and shall be glued and jointed together with wooden pegs. Pegs shall engage on tongues and no tongue shall be less than 6 mm thick.

(e) In mortise and tenon joints all tendons shall not be less than 12 mm thick and shall be the full width of the members. Tendons shall be glued into the matrices. Through tendons shall in addition be pinned with wood dowels of not less than 6mm dia, or with non-ferrous metal dowels of not less than 6mm dia. alliteratively through tendons may be wedged if the notices are tapered. All the joints shall be coated with fevicol or equivalent jointing compound as per supplier’s instructions.

(f) All exposed faced of timber shall receive a primer coat of wood primer wherever required.

9.1 Holdfasts:
Six holdfasts shall be fixed to each post of the door frame. The M.S. hold fasts shall be of the size 300 mm x 40 mm x 6mm and shall be fixed to the frames by means of screws and / or bolts and nails. The other end of the holdfast shall be fixed into jambs with cement concrete blocks of dimension 22 cmx10 cmx15 cm or as directed. Horns in frames shall be cut and shall be used for Rough grounds framing, hangers etc.

12.03 Workmanship:
- A) The workmanship shall be first class and to the approval of Engineer. Scanting and boarding’s shall be accurately sawn and shall be of required width and thickness. All carpenter’s work shall be wrought except where otherwise described. The workmanship and joinery shall be accordance with the drawings and shall be framed together and accurately fixed in approved manner and with properly glued with approved glue / fevicol to the satisfaction of the engineers.
- a) Screws:
All screws to be used in woodwork and joinery shall be of brass or as specified or as directed by the engineer.
- b) Tolerances:
1.5mm will be allowed for each wrought face of the sizes specifications except were described as finished in which case they shall be hold to be full dimensions.
c) Protection:
   All wood work and joinery edges of timber frames etc shall be protected from being damaged during construction by providing rough timber casings securely fixed and with other adequate protective measures.

d) If decided by the owner to provide anti termite treatement, the contractor shall co-ordinate his work suitably as directed by the engineer.

e) Door window frames are fixed flush with plaster to wall, teak wood cover mould 40x12mm as per drawings shall be provided all round where the plaster is flush with the frame, pained or finished as in doors and rates quoted shall include for the same, unless otherwise specified.

9.2 Wooden flush door shutters (Solid core type):
Solid core flush shutters shall be as specified in the item of approved quality with ISI marking. An approved sample shall be deposited in the office of the engineer on site for reference. The shutters will be provided with T.W.lipping. Finished thickness of the shutter mentioned in the item. Flush doors shall be obtained as per approved makes annexure herewith and conform to IS 2202 Part I.

Teak Wood paneled shutters:

The thickness of styles and rails shall be as specified

Teak wood panels for shutters shall be of pattern and size as specified.

Whenever possible each panel shall be in a single width piece. But where two panel shall be in a single width place. But where two pieces are used, width of each piece should not be less than 12.5 cm. In order to avoid warping, splitting & cracking normally pieces not exceeding 20 cm in width should be used. When made from more than one pieces shall be joined with a continuous tongued and grooved joint and glued together and reinforced with metl dowels. The grains of solid panel shall run along the longer dimensions of the panel. Panels shall be framed into grooves to the full depth of the groove leaving an air.

9.3 Fixtures and fastenings:

Unless otherwise specified in the schedule of quantites each shutter shall be hung with four brass butt hinges of approved quality size and make with brass or other approved metal screws and the contractor’s rate jshall cover for providing and fixing hinges to the shutters. (As per ISI for hardware)

9.4 Fittings:
All hardware fittings and fixtures shall be supplied & the same need to be fixed at no extra costs.

9.5 Mode of measurement:

Timber doors / Windows shall be measured in Sq.M over door / window frames.

10 - **Double Skin metal roofing Panel**

The leak proof mechanically **prefabricated sandwich panel** shall comprise of following:

The outer sheet shall be profiled Zincalume steel sheet of 0.5mm (Total coated thickness), high-tensile steel 345 Mpa having a coating, mass of 150 gm/sqm (Zinc aluminium coating, total of both sides as per AS : 1397) and finished with 20 microns colour coating of super polyester colour bond XRW quality paint as per AS/NZS - 2728 : 1997 (Category 3) over a 5 microns primer on exposed side and a neutral alkyd back coat of 5 micron on inner side over a 5 micron primer. The depth shall be 29.5 mm at a pitch distance 200mm. The inner sheet shall be of 0.40 mm (Total coated thickness) galvanized steel sheet having minimum 175 gm/sqm Zinc coating mass (total of both sides) of 240 Mpa conforming to IS : 277 & IS : 513. The inner liner sheet shall be in the form of a tray, having small notches in between. The core between outer profile sheet and the inner liner tray shall be of CFC free close cell high density rigid polyurethane foam 40 - 45 kg/cum having a thermal conductivity value of 0.020 w/mk at 10 deg. C. mean temperature conforming to IS : 12436. The core shall be 50mm thick average polyurethane foam insulation (58mm insulation at the profiles).

The panels shall be of required length & width with male and female edges on sides and shall be fixed through specialised agency prescribed by the manufacturer directly to the purlins using hot dip zinc coated self drilling fasteners of required size at required spacing with neoprene washers, butyle rubber sealing tape mechanically with the help of machines etc. complete as per manufacturer's specifications and directions of Engineer-in-charge.

The rate shall include the cost of preparing of shop drawing and cost of all materials, labour and T&P required for all operations described above for proper execution of the item as per drawings and directions of Engineer-in-charge.

For payment purposes, the superficial area of prefabricated panel roof covering shall be measured on the flat without allowances for laps and currugation. Portion of roof covering over lapping the ridge or hip etc. shall be included in the measurements of the roof.

**10.1 GALVALUME SHEET** for Ridges - The material shall be cold rolled steel, 550Mpa yield stress (ASTM A446 Grade E) With hot dipped metallic coating
of aluminium Zink alloy (150gms/sqm total of both sides, AZ 150 as per ASTM A792 or AS per IS 1397), 0.5mm total coated thickness. The rate should be inclusive of laps, wastages, preparation of shop drawings, scaffoldings, screws, fasteners etc complete.

11. Hollow Tubular Truss

The hollow tubular truss shall be of medium and heavy section of different diameters confirming to IS 1161 (amended up to date) as indicated in drawings (in wind column, jack trusses, canopies, lattice girder, trusses, sub trusses, monitor roof, braces, ties, cladding posts, purlins connecting beams, of columns including anchor bolts, washer etc.) at all level and height the steel tubes when analysed in accordance with the method specified in IS 226-1975 shall show not less than .06 percent of sulphur, and not more than .06 percent of phosphors, tubes shall be cleaned, finished and free from scale cracks, surface flaws, laminations, and other defects and shall be cut clean and square with axis of tube.

The component part of structure shall be assembled in such a manner that they are neither twisted nor otherwise damaged and be so prepared that the specified chambers are maintained. All material before being assembled shall be straightened, if necessary, unless required to be of curvilinear form and shall be free from twist. Washer shall be specially shaped where necessary or other means used to give nuts and the heads of bolts a satisfactory bearing. For hoisting and erection proper equipments such as derricks, lifting tackles, winches, & ropes shall be used. The tubular steel work shall be painted with one coat of approved steel primer after fabrication but before erection. After erection the entire steel tubular steel surface shall be painted with two coats synthetic enamel paint of approved shade by sprayer and finished to matt finish. All fabrication and welding shall be done by the reputed fabrication. The profile cutting shall be employed for cutting and fabrication tubular section.

12. - Precast Cement Concrete Jali

The jali shall be of cement concrete 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 6mm nominal size) reinforced with 1.6 mm dia mild steel wire unless otherwise specified.

The jali shall be set in position true to plumb and level before the joints sills and soffits of the openings are plastered. It shall then be grouted with the cement mortar 1:3 (1 cement:3 coarse sand) and rechecked for levels. Finally the jambs, sills and soffits shall be plastered embedding the jail uniformly on the sides. The jali shall be measured for its gross superficial area. The length and breadth shall be measured correct to a cm. The thickness shall not be less than specified.

The rate shall be inclusive of materials and labor involved in all the operations described above except plastering of jambs, sills and soffits, which shall be paid for under relevant item of plastering.

Curing shall be done as per IS 456 latest. Pre cast work shall mature for at least 2 weeks before being incorporated into the Works.
The Contractor will be required to supply samples of all pre cast concrete units for the acceptance of the Engineer. Only when acceptance has been given may the supply of the units take place and any units supplied, which are inferior to the accepted sample, will be rejected and removed from Site.

A piece that is cracked or otherwise damaged during, before or after erection shall be removed and replaced by the Contractor at his own expense.

13. Urinal Partitions
The partitions shall be Grey Granite slab embedded in the wall. The size and shape of the granite shall be as per direction of Engineer in charge. The portion of the slab to be embedded in the masonry shall be rough dressed. Dressing and rubbing of the exposed portion shall be as described in the nomenclature of the item. The dressed slab shall be of the thickness as specified with a tolerance of +/- 1.5mm. The slab shall be got approved from engineer in charge before fixing. Fixing shall be as specified except that the recess shall be 7.5cm wide. Fixing shall be done by cutting chase with chase cutter / fine tools in a recess of 7.5cmx7.5cm filled with cement concrete 1:2:4 (1cement :2 coarse sand:4 graded stone aggregate 6mm nominal size). Fixing can be done by epoxy grout in chase of 2.0x7.5cm as per direction of Engineer in charge.

The length and breadth shall be measured correct to a cm. The rate shall include the cost of labor and material involved in all the operations described above including cutting of recess in the wall, curves, finishing and polishing as specified.
# LIST OF APPROVED MAKES FOR CIVIL WORKS

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description of materials</th>
<th>Approved Make</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cement Ordinary Portland - 43 Grade</td>
<td>Coromandel / Vasavadatta / Ultra tech / ACC</td>
</tr>
<tr>
<td>2</td>
<td>TMT Fe-500 steel</td>
<td>RINL / SAIL / TATA Steel</td>
</tr>
<tr>
<td>3</td>
<td>Aluminum Sections</td>
<td>Jindal/Hindalco/Bhoruka</td>
</tr>
<tr>
<td>4</td>
<td>Glass</td>
<td>Saint Gobain / Modi float/Asahi</td>
</tr>
<tr>
<td>5</td>
<td>Flush doors</td>
<td>Century / National / Archid ply / Greenply / Kutty</td>
</tr>
<tr>
<td>6</td>
<td>Marine Ply/Commercial ply /One Side Teak</td>
<td>Century / National / Kitply/ Archiid ply/ Greenply</td>
</tr>
<tr>
<td>7</td>
<td>Laminates</td>
<td>Formica / Archidply/Greenply/Merino</td>
</tr>
<tr>
<td>8</td>
<td>Block Boards</td>
<td>Greenply/Century/Archidply</td>
</tr>
<tr>
<td>9</td>
<td>Silicone Sealant</td>
<td>Dow Corning/Wacker/Mc Coy Soudal</td>
</tr>
<tr>
<td>10</td>
<td>Vitrified Tiles - Glossy</td>
<td>Johnson / Kajaria/Regent</td>
</tr>
<tr>
<td>11</td>
<td>Vitrified Tiles - Antiskid Matt Finish</td>
<td>Johnson/Kajaria/Nitco</td>
</tr>
<tr>
<td>12</td>
<td>Anti Skid Ceramic Tiles - Flooring</td>
<td>Johnson/Kajaria/Regent</td>
</tr>
<tr>
<td>13</td>
<td>Glazed Tiles - Dado</td>
<td>Johnson/Kajaria/Regent</td>
</tr>
<tr>
<td>14</td>
<td>Antitermite treatment</td>
<td>Pest Control India/Karnataka Wearhousing Corporation/Central Wearhousing Corporation</td>
</tr>
<tr>
<td>15</td>
<td>Construction Chemicals</td>
<td>Fosroc / Roffe / Sika</td>
</tr>
<tr>
<td>16</td>
<td>Plastic Emulsion Paint</td>
<td>Asian/Berger/Dulux</td>
</tr>
<tr>
<td>17</td>
<td>Enamel Paint</td>
<td>Asian/Berger/Dulux</td>
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<tr>
<td>18</td>
<td>Cement paint</td>
<td>Snowcem/Surfacoats</td>
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<tr>
<td>19</td>
<td>Putty for plaster finish</td>
<td>Birla white wall care/Asian wall putty</td>
</tr>
<tr>
<td>20</td>
<td>Melamine Polish</td>
<td>Asian/Berger/Sheenlac</td>
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<tr>
<td>21</td>
<td>Bitumen Impregnated Boards</td>
<td>Shalitex</td>
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<tr>
<td>22</td>
<td>Sandwich panel for Roofing (Polyurethane)</td>
<td>meTecno / Rinac/</td>
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<tr>
<td>23</td>
<td>Fire Door</td>
<td>Radiant / Kutty's</td>
</tr>
<tr>
<td>24</td>
<td>Elastomeric Bearing</td>
<td>Neoprene</td>
</tr>
<tr>
<td>25</td>
<td>Structural Steel</td>
<td>Tata / Jindal /</td>
</tr>
<tr>
<td>26</td>
<td>Polycarbonate sheet</td>
<td>Danpalon / Lexan / Tuflite</td>
</tr>
</tbody>
</table>

**Note:**
1. Samples along with test certificates must be produced and approval by the competent authority obtained before using on the works.

2. Selection of texture & colour will be at the discretion of the Architect and approved by the clients.

3. Non-availability of materials (approved) will not be entertained to change the brand and required quantity of materials should be procured well in advance.