

# UNION CHRISTIAN COLLEGE, ALUVA

NO.UCC/Cent/AB/001/01

18/07/2021

## NOTICE INVITING TENDERS FOR CIVIL AND ALLIED WORKS

Sealed item rate tenders are invited in the prescribed form from pre-qualified bidders for carrying out the following civil and allied works at Union Christian College, Aluva, Ernakulam District, Kerala State.

Nature of the work	: Academic Block Building Extension - First floor
Time of Completion	: 4 months
Tender closing date	: <b>18<sup>th</sup> August 2021 at 15:00 Hrs</b>
Contract awarding	: The successful tenderer shall be informed by the Owner within 2 weeks after the Tender closing date.
Tender Fee	: <b>Rs.1500 + GST</b> as applicable

1. All tenders shall be in the 'Form of Tender' consisting of instruction to tenderes, Articles of agreement, various conditions of Contract, detailed specifications, special conditions and approximate schedule of quantities issued from the Office of Union Christian College, Aluva.
2. The duly stamped tenders are to be submitted in prescribed format (can be downloaded from the website <http://uccollege.edu.in/tenders/>) signed by authorized signatory (in every page). The envelope containing the tenders superscribed with "Extension work of Academic Block"
3. The site for work is situated at Union Christian College, Aluva, Academic block will be open for inspection between 10:00HRS and 16:00HRS on all working days up to the closing date of submission of Tender.
4. All tenders shall be valid for acceptance for three months after date of opening of the tenders.
5. All tenders must reach the College office of Union Christian College, Aluva by 15:00HRS on the closing date of 18<sup>th</sup> August 2021. Tenderer shall be informed by the College within period of 2 weeks. The college shall have unqualified and unrestricted right to reject all or any tenders and to accept any of them in whole or in part without assigning any reason whatsoever.
6. The Tender must sign and seal at the end of every page of the Tender documents as a token of acceptance that they have read, understood and accepted every condition and information mentioned there in

Union Christian College, Aluva

Sd/-  
Principal

**FORM OF TENDER**

PLACE:

DATE:

NAME OF THE WORK : CIVIL AND ALLIED WORKS FOR THE CONSTRUCTION OF FIRST FLOOR OF ACADEMIC BLOCK BUILDING AT UNION CHRISTIAN COLLEGE, ALUVA.

To,

**THE PRINCIPAL  
UNION CHRISTIAN COLLEGE  
ALUVA, ERNAKULAM.**

Dear Sir,

I/We.....

do here by tender to execute the work mentioned above and more particularly described in the design and plans detailed specifications and schedule of quantities within 4 months time from the 10<sup>th</sup> day of the Employers written order to commence work at the rates specified in accompanying schedule of quantities in accordance in all respects with the said plans, detailed specifications and schedule of quantities. It is hereby confirmed that the terms and conditions, Notice inviting tenders, instruction to tenders, Article of agreement, conditions of contract, special conditions, various specifications and site information have been read and understood by me/us are all inclusive covering in addition to all the operations contemplated in the plans, general and detailed specifications and schedule of quantities, all incidental work necessary for such operations and covering also the cost of expect those materials that are to be supplied by the Owner and expenses in respect of all goods, materials, labour and other services required for completion thereof and covering also all taxes duties and other levies. It is also understood by me/us that the designs and plans, detailed specifications and approximate schedule of quantities are liable to alteration by omissions, deductions or additions at your discretion.

The details of the work are given in following Memorandum:

**MEMORANDUM**

- a) Description of work : CIVIL AND ALLIED WORKS FOR THE CONSTRUCTION OF FIRST FLOOR OF ACADEMIC BLOCK BUILDING AT UNION CHRISTIAN COLLEGE, ALUVA.
- b) Retention percentage, if any to be deducted from the running bills : 5% of the contract value
- c) Income Tax/ Sales tax/Workers Welfare fund deducted at source : Necessary deductions for Income Tax, Sales Tax and Workers Welfare Fund shall be made from every running bill of the contractor subject to Laws and Acts of the Govt. prevailing at that period.
- d) Time allowed for completion of the works from the 10<sup>th</sup> day : 4 months

after the date of “Employers”  
written order to commence the work

I/We..... do here by agree that  
the Owner, UNION CHRISTIAN COLLGE shall be at liberty to cancel the notice of acceptance of the  
tender in whole or in part without assigning any reasons for the same and I/We shall not be eligible for  
any compensation or fee in this regard.

1) Signed copy of the detailed specifications, instructions to tenderers, conditions of contract,  
special conditions, detailed specifications and schedule of quantities are attached here to in  
token of my/our acceptance of all terms and conditions contained therein.

2) Our bankers are:

i)

ii)

3) The names of the partners of the firm authorised to sign are:

i)

ii)

Name of the partner of the firm authorised to sign

OR

Name of the person having power of  
Attorney to sign the contract  
(Certified copy of the power of  
Attorney should be attached)

Yours faithfully

SIGNATURE OF THE TENDERER (CONTRATOR)

Dated..... day of.....2021

Signature and address of the witnesses:

1) .....  
.....  
.....  
.....

2) .....  
.....  
.....  
.....

**UNION CHRISTION COLLEGE, ALUVA**

**GUIDE LINES FOR TENDER SUBMISSION**

**VERY IMPORTANT INFORMATION**

The tenderers are hereby informed that non-compliance of the following guide lines and instructions shall make their tenders invalid.

1. Owner address to which tender is : THE PRINCIPAL  
To be submitted UNION CHRISTIAN COLLEGE  
ALUVA, ERNAKULAM
2. Last date & time for receipt of tenders: **18<sup>th</sup>** August 2021.,15:00 HRS
3. The tenderer shall carefully read and go through all documents and rough brochure drawings and shall sign each page of the tender document as a proof for having examined the same. The tenderer shall enter the tender rates in figures and words. No alteration or mutilation other than filling in particulars where ever called for shall be made in the tender documents.
4. No derivations, additions or substitutions shall be made by the contractors in the text of the tender document or schedule. Violation of the above will lead to rejection of the tender in whole.
5. Tenders quoting conditions and derivations from the tender documents shall be summarily rejected.
6. The tender must be submitted in double covers. The inner cover should be sealed and marked with reference number of the notice inviting tenders, the general description of contract work and the name of the tenderer. It should be enclosed in an outer cover which should not carry any marking other than the address of the employers/owners. Both covers should be addressed to THE PRINCIPAL, UNION CHRISTIAN COLLEGE, ALUVA.
7. Tenders received after 15:00 Hrs on **18<sup>th</sup>** August 2021 shall be rejected. UNION CHRISTIAN COLLEGE do not under take any responsibility for loss, delay or non receipt of tenders sent by post/courier.
8. Bids of the tenders who in the opinion of UNION CHRISTIAN COLLEGE did not furnish the necessary details will be summarily rejected.
9. The contractor shall commence the work at site latest by 10<sup>th</sup> day of the receipt of the work order.
10. The offers submitted by the tenderers shall remain valid for a period of 3 months from the date of opening the tender.

## ABBREVIATIONS TERMS AND DEFINITIONS

In this tender and the subsequent contract with the successful Tenderer (Contractor) the following terms, words, abbreviations and expressions shall have the meaning hereby assigned to them except where in the context otherwise required.

1. Employer/Builder/Owner shall mean : UNION CHRISTIAN COLLEGE, ALUVA.
2. Architect shall mean : AMAL KRISHNA BABU  
Make in Experts  
Aluva
3. Structural Consultant/ Structural Engineer shall mean : MAKE IN EXPERTS  
ALUVA
4. Electrical Consultant shall mean :
5. Plumbing Consultant shall mean :
6. The project coordinator/Engineer shall mean : The senior most engineer  
: representing the owner at site who is in charge of the day to day supervision, management, quality control and preparation of bills.
7. Site engineer / site supervisor : The site engineers/ supervisors of Owner/Architect/Consultants
8. Tenderer shall mean : The individual / party / firm quoting against the civil works Tender invited by UNION CHRISTIAN COLLEGE for their proposed works
9. The contractor/civil contractor Shall mean : The successful tenderer whose tender has been finally selected by UNION CHRISTIAN COLLEGE and to whom a letter of intent or work order has been placed and shall include his legal representative & assigns.
10. The contract shall mean : The notice inviting the tenders, conditions of contract, general instructions to tenderers, contractors, articles of agreement, the special conditions, schedule of quantities and specifications, all technical drawings, work order and related correspondence.
11. The contract price shall mean : The prices referred to in the agreement or if there is no formal agreement the prices agreed to be the value of contract.
12. The site shall mean : The actual site of the contract

- contract works where the proposed work is to be executed under this contract including any buildings and erections there on and any other land (inclusively) as aforesaid allotted by the UNION CHRISTIAN COLLEGE the contractors use.
- for
13. The building/proposed building shall mean : The proposed buildings and ancillary structures to be constructed under the contract at the proposed site at UNION CHRISTIAN COLLEGE, ALUVA.
14. Work award/work order shall mean : The written acceptance of the tender by UNION CHRISTIAN COLLEGE given to successful tenderer.
15. Notice in writing shall mean : The notice written or typed by UNION CHRISTIAN COLLEGE to the contractor (unless delivered or proved to have been received) by the registered post to the last known private or business address of registered office of the contractor and shall be deemed to have been received when in the ordinary course of post it would have been delivered.
16. Retention amount shall mean : The amount deducted from the running bills i.e. 5% of the bill value.
17. Construction material shall mean : All material related to constructions work such as earth, steel, cement, bricks, river sand, aggregates, rubble, water all types of fittings etc.

## GENERAL INSTRUCTIONS TO TENDERERS (CONTRACTORS)

1. (a) Sealed Tenders super scribed Tender for the construction of the FIRST Floor of ACADEMIC BLOCK Building of UNION CHRISTIAN COLLEGE should reach the College not later than 15:00 Hrs on **18<sup>th</sup> August 2021**  
(b) Tenders received after 15:00 Hrs on **18<sup>th</sup> August 2021** will not be considered under any circumstances. Postal delays will not be accepted as a reason for not submitting the tender in time.
2. All Tenders received by 15:00 Hrs on the closing date and in conformity with notice inviting tenders and various instructions will be opened by the college and the successful tenderer shall be informed within two weeks from the date of receipt of Tender.  
All Tenders must be submitted in double covers, the inner cover should be sealed and marked with reference number of the notice inviting Tenders, the general description of the contract work tendered for and name of the tenderer. It should be enclosed in an outer cover which should not carry any marking other than the address of the Employers/Owners. Both the covers should be addressed to the owners in their following address.

**The Principal**  
**UNION CHRISTIAN COLLEGE**  
**Aluva**
3. Only the tender form issued by The Principal, UNION CHRISTIAN COLLEGE, Aluva be used by the tenderer to fill in the rates as well as the amount.
4. The tender form must be filled in English and all entries must be made by the hand and write in ink. If any of the documents is missing or unsigned, the tender may be considered invalid by the Employer/owner.
  - (a) Rates quoted should be both in figures and words, in column specified. All erasures and alterations made while filling the tender must be attested by initials of the tenderer. Over writing of figures is not permitted.  
Failure to comply with either of the above conditions will render the tender void at the clients option. No advice of any change in rate, quantity or conditions after opening of the tender will be examined. In case of any discrepancy in rate in figures and in words, the rates expressed in words shall be considered valid. When called for by Employer/ Architects/ Consultants the contractor should submit the cost analysis for any item quoted, to satisfy them that, the rate is reasonable as well as workable.
  - (b) All the tender document should be signed by the persons or persons submitting the tender in His/Her having acquainted himself/themselves with the General conditions of contract, specifications, special conditions etc. as laid down. Any tender with any of the documents not so signed will be rejected.
  - (c) The tender submitted on behalf of the firm shall be signed by all the partners of the firm or by a partner who has the necessary authority on behalf of the firm to enter into the proposed contract. Otherwise the tender may be rejected by UNION CHRISTIAN COLLEGE
5. (a) The UNION CHRISTIAN COLLEGE does not undertake to accept the lowest or any particular Tender, and reserve the right to accept the lowest or any particular Tender, and reserve the right to accept or to reject any or all the tenders either in whole or in part without assigning any reason for doing so. UNION CHRISTIAN COLLEGE will have no obligation to inform unsuccessful Tenderers.  
(b) UNION CHRISTIAN COLLEGE do not undertake to accept any extra claim arising out of the Deduction/addition in the total number of floors/construction area (Deduction or addition of F.A.R) or due to Government restrictions or due to any other cause. The same rates quoted in the Tender will be applicable in that case also.
6. On receipt of intimation from UNION CHRISTIAN COLLEGE of the acceptance of his/their Tender, successful tender will have to enter into contract with The Principal, UNION CHRISTIAN COLLEGE, for the proper execution and completion of the said work by signing an agreement in the prescribed form on the required stamp paper within 10 days from the date of intimation letter.
7. In addition to the security deposit, a further security for the due fulfilment of the contract, by the Contractor, 5% of the value of the work done, will be deducted by the employer from each

payment made to the contractor, until the retention money and security deposit together, shall amount to 5% of the total contract amount

While the amount collected as retention from the running bills will be retained until all the defects pointed out during the defects liability period of 6 months from the date of virtual completion of the building, are rectified to the satisfaction of the employer/owners the balance amount held if any by way of Guarantee will be released after obtaining the occupancy certificate from the Municipality/Corporation or on virtual completion of works at site whichever as later.

8. All compensation or other sums of money payable by the contractor to the UNION CHRISTIAN COLLEGE under their terms of this contract may be deducted from his security deposit if the amount so permits and contractor shall, unless such deposit has become otherwise payable, within 10 days after such deduction make good in cash the amount so deducted.
9. **NOTE:**
  - i) Retention money shall be 5% of the value of the part bills limited to a total of 5% of PAC (Probable Amount of Contract)
10. The contractor shall not assign the contract. He shall not sublet any portion of the contract except with the written consent of the Employer. In case of breach of these conditions, The Employer may serve a notice in writing on contractor rescinding the contract, whereupon, the Security Deposit shall stand forfeited to the Employer, without prejudice to his other remedies against the contractor. The contractor shall carry out all works strictly as per drawings, details and instruction of the Employer/Owner/Architect/Consultant or their authorised representatives, if in their opinion any changes have to be made in the design and with the approval of the Architect/Consultants as the case may be, the contractor shall carry out the same without any extra charge. The employer/owners decision in such cases shall not be open to arbitration. Any disputes arising shall be settled through negotiations only.
11. A schedule of approximate quantities for various items accompanies this tender. It shall be effectively understood that the Employer/Architect/Consultants do not accept any responsibility for correctness this schedule is liable to alteration by omissions, deductions or additions at the direction of the Employer without affecting the terms of the contract. The contractor is bound to do not accept any responsibility for the correctness or completeness of this schedule. In respect of the items and quantities this schedule is liable to alteration by omissions, deductions or additions at the direction of the Employer without affecting the terms of the contract. The contractor is bound to do additional/lesser quantities of work, if the found necessary at his quoted rates without claim for Extra compensation whatsoever.
12. The rates quoted in the tender shall include all charges for clearing of site before commencement as well as after completion. Fabricate and erect double scaffolding (no put logs will be allowed at any stage), centering, boxing staging, planking, timbering including fencing, hoarding, plant and equipment and material storage sheds including sheds for materials supplied by College and its unloading charges, watch and ward, lighting by night as well as day, including Sundays and holidays, temporary plumbing and electric supply, protection of public and all other erections, matters or things and the contractor shall take down and remove any or all other erections, matters or things, and the contractor shall take down and remove any or all such centering, scaffolding, staging, planking, timbering, strutting, shoring etc. as occasion shall require or when ordered to do so and fully reinstate and make good all matters and things disturbed during the execution of work and to satisfaction of the Employer/Owner. The offer shall be deemed to be for finished work to be measured at site. The offer shall also be firm and shall not subject to exchange variations whatsoever. Expense towards security and watch and ward shall be borne by the contractor. Tenderers must include in their rates, sales tax, Excise duty, and any other tax duty or other levy levied by the Central Government or any state governments or local authorities if applicable. No claim in respect to Sales Tax, including Works contract Tax, Excise duty, Octroi or other tax, duty or levy whether existing or future shall be entertained by the Employer. T.D.S shall be deducted as per laws prevailing during the construction period.
13. Time allowed for carrying out the work as mentioned in the Memorandum shall be strictly observed by the Contractor and it shall be reckoned from the 10<sup>th</sup> day of the date of acceptance of his tender by the Owner and the site in hand over to the contractor. The work shall throughout the stipulated period of the contract be preceded with all the due diligence and if the contractor fails to complete the work specified period shall be liable to pay compensation as defined in the Clause 17 of the condition

hereinafter referred to. The tenderer shall before commencing work a detailed work programme which shall be approved by the Employer/Architect/Consultant and the project Co-ordinator.

14. Tenderers shall note that the waterproofing treatment specified shall be got executed through recognised firms after getting prior approval of the Employer/Consultant and they will have to obtain guarantee for their treatment on stamp paper as required by the Employer.
15. It is clarified that for all authorised Extra/items where rates cannot be derived from the Tender, the contractor shall submit his rate analysis on the basis of actual market rate plus 15% towards supervision, contractors overheads and their profit. The rate for such extra items will be then finalised by the College in consultation with the Architect/Consultants/Project Co-ordinator which will be binding on the Contractor.
16. The contractor shall not be entitled to any compensation for any loss suffered by him on accounts of delays in commencing work, whatever the cause of delays may be, including delays arising out of modifications to the work entrusted to him or in any sub-contract connected therewith or delays in awarding contracts for other traders of the project or in commencement or completion of such works or in procuring Government controlled or other building materials or in obtaining water and power connections for construction purposes or for any claim in respect thereof. The Employer does not accept liability for any sum besides the tender amount.
17. The successful tender is bound to carry out any and all items necessary for the completion of the job even through such items are not included in the schedule contract. Schedule of instructions in respect of such additional items and their quantities, will be issued in writing by the Employer/project co-ordinator with the prior consent in writing of the Architect/Consultant, pending finalisation of rates for extra or variation items, the contractor shall proceed with the execution of extra or variation items with the diligence and complete the work to the entire satisfaction of the Employer/Owner. Under no circumstances the contractor shall stop the work or even slow down the tempo of work on the plea that the rates for extra or variation items are not settled and approved.  
In the event of stoppage of work-main as well as extra or variation work the Employer/Owner reserves the right to impose a penalty of .1% of the balance amount of contract to a minimum of Rs.2500/- for each day of delay, stoppage or part thereof for slowing down the tempo of work.
18. The successful tender (Civil Contractor) must co-operative and peacefully share the facilities at site like electricity, water, construction equipment, lift etc. with other contractors appointed by Employer for mechanical, electrical, plumbing, landscaping and any other specialised trade so that all the works shall proceed smoothly with the least possible delay and to the satisfaction of the Employer/Consultants/Architect. The civil contractor however may be reimbursed for the facilities provided by the sub contractors/other contractors by him at a rate and amount fixed by the project coordinator/owner if there is excess or continuous use in the opinion of the Owner/Employer.
19. The contractor must bear in mind that all the work shall be carried out strictly in accordance with the specifications made by the Architects/Consultant and also in compliance with the requirements of the local public authorities and no deviation on any account will be permitted.
20. The successful tenderer should make his own arrangements to obtain all materials required for the work except those that are to be supplied by the Owner as per detailed schedule and specification but also including binding wires required for typing reinforcements. Concrete cover blocks required for RCC works shall also be provided by the Contractor.
21. (a) The rate quoted by the Contractor shall include arrangement the supply of good quality water including, obtaining adequate supply and water for his labour as well as for construction purposes, and all charges for water used for making concrete and mortar, blocks, water for curing etc.  
(b) The rate quoted in the tender shall also include making arrangements for electrical connection charges, if power is not available at site the contractor shall have to make his own arrangements to obtain power connections or maintain generator and maintain at his own expense an efficient service of electric light and power and shall pay for the electricity consumed, the Owner/Employer shall give all possible assistance to the Contractor to obtain the requisite permission from various authorities, but the responsibility for obtaining the same shall be that of the Contractor. The electricity charges or fuel charges required for generator used for construction will be reimbursed to the contractor through running bills based on actuals.  
(c) for water and power required by the sub contractors for subsidiary trades, if appointed by the Employer, shall be allowed connection from temporary water and power supply arranged by the main contractor for Civil Works and for this facility the subsidiary trades will pay to the main contractor the charges based on actual consumption and as approved by the Employer/Project Coordinator in the

manner as already mentioned in Clause 18. The Sub Contractor shall install separate sub meters for measuring electric energy and water at their own cost and pay the consumption charges directly to the general contractor after the approval of the Employer/Project coordinator. If no such facility is available at the site of work and if availability is found inadequate, it shall be the responsibility of the Contractor to make his own arrangements for obtaining water and power at his cost.

22. All municipal and electric supply arrangements for temporary drainage, temporary water connection and temporary power supply for construction purpose shall be arranged by the contractor however the fees if any payable for permanent connections to KSEB etc. shall be paid by the Employer but the contractor shall do all help and liaison work to obtain the same and shall bear incidental expense for the same.

23. The Contractor shall strictly comply with various provision of safety code annexed hereto (refer page 22 clause 1-18)

24. Not with standing the other remedies available under this contract, the security deposit of the successful tenderer (Contractor) will be forfeited if he fails to comply with any of conditions of the contract.

25. **INSURANCE:**

The Contractor will take out the following insurance policies in th joint name of the Employer and the Contractor with the employers name appearing first, for all such risks as may be deemed necessary for indemnifying the clients of losses.

The Insurance Policies will be lodged with the Employer. The Insurance may be progressive as the work proceeds and along with every bill the Contractors will give an undertaking to the Employer/Owner that they have taken out Insurance and made it up to date.

The following Insurance to be taken:

- (i) Contractor all risk policy including all third party claims as in the various conditions of the contract and especially those mentioned in the safety code.
- (ii) Insurance as per workmen’s compensation act as per ESI as in the various conditions of contract and including various clauses of the safety code.
- (iii) Full Insurance for work and materials against any eventuality as per various conditions of contract.

26. Wherever BIS (ISI) codes are mentioned the latest version of particular number will be effective in reading this tender.

I/we hereby declare that I/we have read and understood the above instructions to the Contractors and special conditions and abide by the same.

Signature of the Tenderer

.....  
Address.....  
.....  
.....

Witness:

- 1)
- 2)

place.....  
Date.....

## **SAFETY CODE**

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

**ARTICLES OF AGREEMENT**

ARTICLES OF AGREEMENT made this.....day of .....between The PRINCIPAL, UNION CHRISTIAN COLLEGE, Aluva (hereinafter called the UNION CHRISTIAN COLLEGE/ EMPLOYER/ OWNER which expression shall include their successors in office, executors, administrators and assignees of the one part and .....whose registered office is situated at to a total (herein after called CONTRACTOR which shall include his/their heirs, executors, administrators and assignees) of the other part.

WHEREAS the EMPLOYER is desirous of constructing the proposed 2<sup>nd</sup> floor of ACADEMIC BLOCK Building for Union Christian College, Aluva and has caused drawings, specifications and schedule of quantities describing the works to be done and whereas the said drawings as issued from time to time, the notice of tender, general instructions to the contractors, the specifications and/or the schedule of quantities have been signed by or on behalf of the parties hereto AND WHEREAS the CONTRACTOR has agreed to execute upon and subject to the conditions and special conditions set forth herein (hereafter referred to as the said conditions ) the works shown upon the said drawing and/or described in the said specifications and included in the Schedule of Quantities at the rates therein set forth.

AND WHEREAS the contractor has agreed to undertake the work as per the specifications,, drawings etc. supplied from time to time and all the tender conditions, conditions of contract in the tender for the quoted rates and as per the various conditions mentioned here under.

As the security to be retained along with the excess retention amount collected from various running bills until the expiry of the defects liability period for the due observance and performance of the contract.

**NOW IT IS HEREBY AGREED AS FOLLOWS**

1. In consideration of the said Contract Amount to be paid at the times and in the manner set forth in the said condition the contractor shall upon and subject to the said conditions execute and complete the work shown upon the said drawings and described in the said specification and/or the schedule of the quantities.
2. The Employer shall pay the Contractor the said contract amount or such other sum as shall become payable at the times and in the manner hereinafter specified in the conditions.
3. Time shall be considered as the essence of the agreement and Contractor shall commence the work within 10 days of the acceptance of his tender by the Employer and site (or premises) is handed over to him, he shall complete the work within 4 months from the date of his tender and the date of such handing over the site (or premises) and shown comparative progress in work at all times.
4. The terms 'The Architects' in the said condition shall mean the said Ar. AMAL Krishna BABU, having office at Aluva.
5. The term "Project Coordinator" shall mean the senior most engineer appointed by the COLLEGE as their representative at the site for day to day supervision and to check that work proceeds according to the Architects deigns, details and specification within the time limits of the contract period. He shall be in charge of the day to day management, quality control and preparation of periodical bills and shall be custodian of the measurement books.
6. The plans, agreement and documents above mentioned shall form the basis of this contract and the decision of the Employer/Architect/Consultants in all matters of dispute regarding materials and workmanship and the decision of the Employer/Owner on all the matters of account shall be final and binding on the Contractor.
7. The Employer/Owner through the Architect/Consultants reserves to himself the right of altering the drawings and nature of the work and of adding to or omitting any items of work of having portions of the same carried by the employer or otherwise and such alterations or variations shall be carried out without prejudice to this contract.
8. The said contract comprises the work above mentioned and all the subsidiary works connected therewith within the same site as may be ordered to be done from time to time by the Employer even through such works may not be shown on the drawings or described in the said specifications or the priced schedule of quantities.
9. The said conditions and appendix thereto shall be read and constructed as forming part of this Agreements and the parties hereto and perform the agreements on their part respectively in said conditions contained.
10. All disputes arising out of or an any way connected with agreement shall be deemed to have arisen in Cochin and only the courts in Cochin shall have jurisdiction to determine the same.
11. All the samples of materials and fittings shall be approved by the Employer/Architect/ Consultants and shall be properly displayed at site.
12. The several parts of this contract have been fully read and understood by the contractor.

If the contractor is a Partnership : "In witness whereof the employer and the contractors have set their respective Hands to these presents and 2 duplicate Hereof the day and year herein".

If the Contractor is a company : "In witness whereof the employer has set its hands to these presents through its duly authorised official and the said duplicates hereof to be executed on its behalf, the day and year first herein above written.

**SIGNATURE CLAUSE**

Signed and Delivered by ..... by the head of  
Shri .....

(Name & Designation)

in the presence of

- 1) .....
- 2) .....

Witnesses:

IF the party is a partnership Firm or an individual should be signed by all or on behalf of all the partners.

Signed and delivered by

.....  
1).....  
.....

2).....  
.....

The common seal of ..... was here unto affixed pursuant to the resolutions passed by its.....

Meeting held on .....

in the presence of

- (i)
- (ii)

**CONDITIONS OF CONTRACT**

1) INTERPRETATION

In construing these conditions, and the interpretations, specifications, schedule of quantities and contract agreement, following, the following words shall have the meaning herein assigned to them except where the subject or context otherwise require.

a) 'UNION CHRISTIAN COLLEGE /OWNER/EMPLOYER' shall mean UNION CHRISTIAN COLLEGE ALUVA represented by its Manager and shall include their assignees or successor/s, administrators and executors.

b) The PROJECT COORDINATOR shall mean the senior most engineers representing the owner at site who is in charge of day to day management, quality control, supervision and preparation of bills.

c) CONTRACTOR shall mean .....  
In the case of partnership CONTRACTOR shall mean.....  
.....  
and.....trading as  
partners in the name and style of  
.....and shall  
include the partners for the time being  
of said firm and legal representatives of and deceased partner.  
CONTRACTOR shall mean.....  
..... trading in the  
name and style of  
..... and shall  
include his heirs, successors and legal representatives.

In case of individual

In case of company CONTRACTOR shall mean .....  
..... a company  
incorporated under .....  
..... and having  
registered office at .....

d) 'SITE' shall mean the actual site of the contract works where the proposed project is to be executed under this contract at Union Christian College Aluva including any building and erections thereon and any other land (inclusively) as aforesaid allotted by the Employer for Contractor use.

e) 'CONTRACT' shall mean the notice inviting tenders general instructions to tenderers/contractors, the article of agreement, the conditions. the appendix. the schedule of quantities, specifications, drawings, work order and correspondence.

f) 'NOTICE IN WRITING' or written notice shall mean a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received by registered post to last known private business address of registered office of the contractor and shall be deemed to have been received when in the ordinary course of post it would have been delivered.

g) 'ACT OF INSOLVENCY' shall mean any act of insolvency as defined by the presidency Towns insolvency Act, or the provisional Insolvency Act, or any act amending such originals.

h) 'NET PRICES' if in arriving the contract amount the contractor shall have added to or deducted from the total of the items in the tender any sum either as a percentage or otherwise, then the net price of any item quoted in tender shall be the sum arrived at by adding to or deducting from the actual figure appearing in the Tender as in price of that item a similar percentage or proportion of the sum so added or deducted by the contractor the total amount of any prime cost items and provisional sums of money shall be deducted from the total amount of the tender. The expression 'Net prices' when used with reference to the contract or accounts shall be held to mean rated or prices so arrived at.

i) 'THE WORKS' shall mean the Construction Work proposed 2<sup>nd</sup> Floor of MCA Building at Union Christian College, Aluva.

2 SCOPE OF CONTRACT:

It shall be clearly understood that the contractor has satisfied himself as to nature and location of the work, the general and local conditions including those bearing upon transportation, disposal, handling & storage of materials availability of water electricity etc. the configuration and conditions of the ground, the character, quantity, surface and sub surface material to be encountered, the character and capacity of the equipment and facilities needed, preliminary to and during execution of the waste and all other matters which can in any way affect the work or cost thereof under this contract. Any default or failure by the contractor to acquaint himself with all information concerning these conditions will not relieve him from the responsibility for the execution of the contract.

The Contractor shall carry out and complete the said work in every respect in accordance with this contract and with the Architect/Consultants drawings. The Owner/Architect/Consultants may in their absolute discretion and from time to time issue further drawings and/or specifications, details directions and explanations which are hereafter collectively referred to Owner/Architect/Consultants instructions regarding:

- a) The variation of the modification of the design, quality or quantity of work or the additions or omissions or substitution of any work.
- b) Any discrepancy in the Drawing or between the schedule and/or drawings and/ or specifications.
- c) The removal from the site of any material brought thereon by the contractor and the substitution of any other material thereof.
- e) The dismissal from the works of any persons employed there upon.
- f) The opening up for inspection of any work covered up.
- g) The Amending and making good of any defects thereof.

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

The contractor shall submit through the project Coordinator details of variations giving quantity and rates duly supported by analysis of rates, vouchers etc. The rates recommended by the Project Coordinator, approved by the Architects/Consultants and accepted by the Owner shall form a supplementary agreement. The Employer shall not be liable for the payment of such variations until these statements are sanctioned by it.

3. DRAWING AND SCHEDULE OF QUANTITIES

The contract document shall be executed in qua-duplicate and the Employer, the Architect, the Contractor, the Project Coordinator shall be entitled to one executed copy each for his use, additional copies may be given to Consultants limited to their scope of work. The contractor on the signing hereof, shall be furnished by the Owner/Architects, free of cost, two copies of each of the said drawings, two copies of such drawings issued during the progress of the works. Any further copies of such drawings required by the contractor shall be paid for by him. The contractor shall keep one copy of all drawings on the works and the Owner/Architect/Consultants or their representatives shall at all reasonable times have access to the same. Before the issue of the final certificate to the contractor he shall forth with return to the Owner/Architect/Consultants all drawings and specifications issued by them.

4. CONTRACTOR TO PROVIDE EVERYTHING NECESSARY

The contractor shall provide at his cost everything necessary for the proper execution of the work according to the intent and meaning of the drawings, Schedule and specification taken together. The same may not be particularly shown or described therein provided that the same can reasonably be inferred there from, and if the Contractor finds any discrepancy in the drawing or between the

drawings, schedule and specifications he shall immediately and in writing refer the same to Owner/Architect/Consultants who shall decide which is to be followed.

5. AUTHORITIES NOTICES AND PATENTS

The contractor shall conform to the provision of any Act of the Legislature relating to the works, and to the regulations and bye-laws of any authority, and of any water, electric supply and other companies and/ or authorities with whose system the structure is proposed to be connected, and shall before making any variation from the drawings or specifications that may be necessitated by so conforming, give to the Owner written notice proposed to be made and the reason for making it and apply for the instructions, or bye-laws in question and any variation so necessitated shall be properly incorporated.

The contractor shall bring to the attention of the Owner/Architect/Consultants all notice required by the said Acts, regulations or bye laws to be given to any authority and pay to such authority, or to any public office all fees that may be properly chargeable in respect of the works and lodge the receipt with the Owner.

The contractor shall indemnify the Employer/Architect/Consultants against all claims in respect of patent rights and shall defend all actions arising from such claims, and shall himself pay all charges of all and ever sort that may be legally incurred in respect thereof.

6. SETTING OUT WORKS:

The contractor shall set out the works and shall be responsible for the true and perfect setting out of the same and for the correctness of the positions, levels, dimensions and alignment of all part thereof. If at any time any error in this respect shall appear during the progress of the works or within a period of one year from the completion of the works, the Contractor, if so required at his own expense rectify such error to the satisfaction of the Owner.

7. MATERIALS AND WORKMANSHIP:

All materials and workmanship shall so far as procurable be of the respective kinds described in the schedule and/or specification and in accordance with the Owner/Architect/Consultants instructions and the contractor shall furnish the Project coordinator/Owner with all invoices, accounts, receipts and other vouchers to prove that the materials comply there with. The Contractor shall at his own cost arrange for and/or carry out any test of any materials which the Project Coordinator/Owner/Consultants may require.

8. CONTRACTOR'S SUPERINTENDENCE & REPRESENTATION ON THE WORKS:

The Contractor shall given all necessary personal superintendence during the execution of the works and as long thereafter as the Owner/Architect/ Consultants may consider necessary until the expiration of the 'Defects Liability Period' stated in the Appendix hereto. The Contractor shall also during the whole time the works in progress, employ 2 no's of the competent well experienced Engineer representative one of whom should be a Civil Engineer graduate with at least 5 years experience another Civil Diploma holder with at least 3 years experience who shall be constantly in-attendance at works while the men are at works. Any directions, explanations, instructions or notice given by Owner/Architect/Consultants to such Engineer representative shall be held to be given to the Contractor. The appointment of representative and their qualifications shall be subject to approval by the Employer.

9. DISMISSAL OF WORKMEN:

The Contractor shall on request of the Owner/Architect/Consultants/Project Coordinator immediately dismiss from the works any person employed thereon by him who may in the opinion of the Owner/Architect/Consultants be in competent or misconduct himself and such persons shall not be again employed on the works without the permission of the Owner.

10. ACCESS TO WORKS:

The Employer/Architect/Consultant and their respective representatives shall at all reasonable time have free access to the work and/or to the workshops, factories or their places where materials are lying or from which they are being obtained and the Contractor shall give every facility to the

Employer/Architect/ Consultants and their representatives necessary for inspections, examinations and test of materials and workmanship. No person not authorised by the Employer/Architect/Consultants expect the representatives of public authorities shall be allowed on the works at any time.

11. ASSIGNMENT & SUBLETING

The whole of the works included in the contract shall be executed by the contractor and the contractor shall not directly or indirectly transfer, assign or sub-let the Contract or any part share thereof any interest therein within the prior written consent of the Employer, and no undertaking shall relieve the Contractor from the full and entire responsibility of the contract or from active superintendence of the works during their progress.

12. VARIATION NOT TO VITIATE CONTRACT:

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

13. SCHEDULE OF QUANTITIES:

The schedule, unless otherwise stated shall be deemed to have been prepared in accordance with standard method of measurement wherever measurement is warranted and/or ordered.

Any error in description or in omissions of the items from the schedule shall not vitiate this contract and shall be rectified and the value thereof, as ascertained shall be added to or deducted from the contract amount (as the case may be) provided that no change shall be allowed in the contractor's schedule of rated.

The quantities given in the schedule approximate and are liable to variations. The Contractor shall do entire work as agreed rated irrespective of the variations in the quantities.

14. MEASUREMENT OF WORKS:

The Owner through the Project Coordinator may from time to intimate to the contractor that requires the work to be measured or assessed and the contractor shall forthwith attend or send a qualified agent to assist the project coordinator/ site engineer, in taking such measurements and calculations and to furnish all particulars or to give all assistance required by any of them.

Should the Contractor not attend or neglect or omit to send such agent to assist, then the measurement taken by the Project coordinator/Owner's representatives or a person approved by him shall be taken in accordance with the mode of measurements detailed in relevant IS/BIS and shall be final and accepted by the Contractor.

The Contractor or his Agent may at the time of measurements take such notes and measurements as he may require.

All authorised extra works, omissions and all variations made without the Owner/Architect/Consultants knowledge, if subsequently sanctioned by him in writing shall be included in such measurements.

15. PROCEDURE FOR EXTRAS ETC. ASCERTAINMENT OF:

The Contractor may, when, authorised, and shall, when directed in writing by the Owner with the approval of Architect/Consultants may add to, omit from, or vary the works shown upon the drawings or described in the specifications, or included in the schedule of quantities, but the contractor shall make no addition, omissions, or variations without such authorisation or direction. A verbal authority or direction by the Owner shall, if confirmed by them in writing within 7 days,

be deemed to have given in writing. No claim for an extra shall be allowed unless it shall have been executed under provisions of Clause 15 thereof or any by the authority of the Owner with the concurrence of the Architects/ Consultants as herein mentioned.

The rates for the extra item shall be worked out as below:

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

Note: The contractors profit in all the above cases shall be 15%. It must however be noted that Contractor profit will not be admissible on the value of materials supplied or agreed to be supplied by the Employer.

- c) Current market prices shall mean the rates for material and labour prevalent at the time of execution of the extra items. The Contractor may submit evidence as to the prevailing market prices, but the Employer/Architect/Consultants decisions shall be final in the matter.
- d) Tenders excess will not be applicable when the current market prices are considered in.
- e) If there is any dispute regarding the quantum of materials or labour given in the Contractors rate analysis, the same shall be decided on the basis of actual observations during execution. The measurements and valuations in respect of the contract shall be completed within the 'period of final measurements' stated in Appendix.

16. UNFIXED MATERIALS:

Where in any certificate (of which contractors has received payment) Owner has included the value of any unfixed materials shall become the property of the Employer and they shall not be removed except for use upon the works, without the written authority of the Owner. The contractor shall be liable for any loss of, or damage to such materials.

17. REMOVAL OF IMPROPER WORKS:

The Owner/Architect/Consultants/Project Coordinator shall, during the progress of the work have power to order in writing from time to time removal from the works within such reasonable time as may be specified in the order, if any material which in the opinion of the Owner/Architect/Consultant/Project Coordinator are not in accordance with the specifications or the instructions of the Owner/Architect/Consultants/Project Coordinator and the substitution of it by proper materials, and the removal and proper re-executions of any work executed with materials of workmanship not in accordance with the drawings and specifications or instructions and the contractor shall forthwith carry out such order, at his own cost. In case of default on the part of the contractor to carry out such order, the Employer shall have the power to employ and pay other persons to carry out the same and all expenses consequent there on, or incidental thereto as certified by the Project Coordinator and approved by the Architect/Consultants shall be borne by the contractor, or may be deducted by the Employer from any money due, or that may become due, to the contractor.

18. DEFECTS AFTER COMPLETION:

Any defects shrinkage, settlement or other faults which may appear within the 'Defects Liability Period' stated in the Appendix hereto or if none stated, then within 6 months after the virtual completion of the works, arising in the opinion of the Owner/Architect/Consultants from materials or workmanship not in accordance with the contract, shall upon the directions in writing of the owner and within such reasonable time as shall be specified therein, be amended and made good by the Contractor at his own cost and in case of default, the employer may employ and pay other persons to amend and make good such defects, shrinkage, settlements or other faults, and all damages, loss and expenses shall be recoverable from him by the Employer or may be deducted by the Employer, upon the Project Coordinator/Architect/Consultants Certificate in writing, from any money due to the Contractor a sum, to be determined by the Project Coordinator/Architect/Consultants equivalent to the cost of amending such work and in the event of the amount retained under Clause 32 here of being insufficient, recover the balance from the Contractor together with any expense the Employer may have incurred in connections therewith.

Should any defective work have been done or materials supplied by any sub-contractor, employed on the works, who has been nominated or approved by the Owner as provided in clause 11 and 20 hereof, the contractor shall be liable to make good in the same manner as if such work or materials have been done or supplied by the Contractor and been subject to the provisions of this Clause 2 hereof. The contractor shall remain liable under provisions of this Clause notwithstanding the signing of any certificate or passing of any accounts, by the Owner.

19. CERTIFICATE OF VIRTUAL COMPLETION:

The works shall not be considered as complete until the Architect and Consultants has certified in writing that they have been virtually completed. The defect liability period shall commence from the date of such certificate.

20. NOMINATED SUB-CONTRACTORS:

All specialists, merchants, tradesmen and others executing any work or supplying and fixing any goods for which prime cost prices or provisional sums are included in the schedule, and/or specifications who may be nominated or selected by the (main) Contractor with the Approval of Owner are hereby declared to be sub-contractors employed by the Contractors.

Nominated sub-contractors shall not be employed on or in connections with the works against whom the Owner shall make reasonable objections.

a) That the (main) Contractor shall indemnify the Owner against claims in respect of any negligence by the sub-contractors, his servants or agents or any misuse by him or them of any scaffolding or other plant, the property of the Contractor is under in respect of the contract.

b) That the (main) Contractor shall indemnify the Owner against claims in respect of any negligence by the sub-contractors, his servants or agents or any misuse by him or them of any scaffolding or other plant, the property of the Owner.

c) Payment shall be made to nominated sub contractors within 14 days of his receipt of the Owners Certificate provided that before any certificate is issued by the Contractor shall upon request furnish to the Owners proof that all nominated sub-contractors accounts included in previous certificate have been duly discharged, in default whereof the Employer may pay the same upon a certificate of the project coordinator with the approval of Architect/Consultants and deduct the amount thereof from any sums due to the Contractor. The exercise of this power shall not create any breach of contract between Employer and the Contractor.

21. OTHER PERSONS ENGAGED BY EMPLOYER:

The Employer reserves the right to use premises and any portions of the site for the execution of any other work not included in the contract which it may desire to have carried out by other persons, specialist Contractor's for example electrical, plumbing, sewage treatment plant, lifts etc and the contractor shall all reasonable facility for the execution of such work but shall not be required to provide any special arrangement with the Employer. Such work shall be carried out in such manner as not to impede the progress of the work included in the contract and the Owner shall not be responsible for any damage or delay which may happen to or occasioned by such work.

22. INSURANCE IN RESPECT OF DAMAGE TO PERSON AND PROPERTY:

The Contractor shall be responsible for all injury to persons, animals or thing and, for all structural and decorative damage to property which may arise from the operation of neglect of himself or of any nominated sub contractors or any employee of either, whether such injury or damages arises from carelessness, accident or any other cause whatever in any way connected with carrying out of the contract. This clause shall be held to include inter alia, any damage to buildings, whether immediately adjacent or otherwise, and any damage to roads, streets, footpaths, bridges or ways as well as all damage caused to the buildings and works forming the subject to this contract by frost, rain, wind or other inclemency of weather. The contractor shall indemnify the Employer and hold it harmless in respect of all and, any expense arising from any such injury or damages to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under any Acts of any legislation or otherwise and also in respect of any award of compensation or damage consequent upon such claim. The Contractor shall make good all damage of every sort mentioned in this Clause, so as to deliver up the whole of the contract works complete and perfect

in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.

The contractor shall indemnify UNION CHRISTIAN COLLEGE COMPANY/Employer against all claims which may be made against UNION CHRISTIAN COLLEGE COMPANY/ Employer by any member of the public or the third party in respect of any thing which may arise in respect of the works or in consequences thereof and shall at his own expenses arrange to effect and maintain, until the virtual completion of the Contract, with an approved office a policy of Insurance in the joint names of the UNION CHRISTIAN COLLEGE COMPANY and the Contractor against such risks and deposit such policy or policies with the clients from time to time during the currency of this contract. The contractor shall also similarly indemnify the UNION CHRISTIAN COLLEGE COMPANY/Employer against all claims which may be made upon the UNION CHRISTIAN COLLEGE COMPANY/Employer whether under the Workmen's Compensation Act or any other statute in force during the currency of this contract or a common Law in respect of any employee of the Contractor or any sub contractor and shall at his own expense effect and maintain, until the virtual completion of the contract, with an approved office a policy of Insurance in the joint names of the Employer and the Contractor against such risks and deposit such policy or policies with the Owner from time to time during the currency of the Contract.

The contractor shall be responsible for any liability which may be excluded from the Insurance policies above referred to and also for all other changes to any person, animal or property arising out of and incidental to the negligent or defective carrying out of this contract. He shall also indemnify the Employer in respect, of any cost, charge or expenses arising out of any claim or proceedings and also in respect of any award of compensation or damages arising there from.

The Employer shall with the concurrence of the Architect/Consultants will be entitled to deduct the amount of any damage, compensation, charges and expenses arising or occurring from, or in respect of any such claims or damage from any or shall sums due or to become due to the contractor , without prejudice to the employer's other remedies in respect thereof.

23. INSURANCE:

The contractor shall within 14 days from the commencement of the works, take the following insurance policies:

1. Contractors all risks policy including all third party claims as in the various conditions of contract and especially those mentioned in the safety code.
2. Insurance as per workmen's compensation act as per ESI as in the various conditions of contract and including various clauses of the safety code.
3. Full Insurance for work and materials against any eventuality as per various conditions of contract.

The Contractor shall deposit the policy and receipts for the premium with the Employer within 21 days from the commencement of the works, unless otherwise instructed by the Employer, in default of the contractor insuring as provided above, the Employer, on his behalf, may so insure the works and may deduct the premium paid from any money due to or may become due to the contractor without prejudice to other rights of the Employer in respect of such default.

24. DATE OF COMMENCEMENT AND COMPLETION:

The Contractor shall be allowed admittance to the site on the "Date of commencement: stated in the Appendix hereto, or such later date as may be specified by the Owner/Architect/Consultants and he shall there upon and forthwith begin the works and shall carefully proceed with and complete (except such painting or other decorating works as Owner/Architect/Consultants may desire to delay) on or before the "Date of Completion" stated in the Appendix subject nevertheless to the provision for extension of time hereinafter contained.

25. DAMAGES FOR NON COMPLETION

If the Contractor fails to complete the works within period stated in the Appendix or within any extended time under clause 26 hereof and on intimation from the Owner and the Architect/Consultants/Project Coordinator certifies in writing that in his opinion that the same ought reasonably to have been completed the Contractor shall pay the Employer the sum named in the Appendix as "Liquidated Damages" at the rate of 0.1% of the total value of the balance work per day subject to a minimum of Rs.2500/- per day for the period during which the said works shall

remain in complete and the Employer may deduct such damages from any money due to Contractor.

26. DELAY & EXTENSION OF TIME:

If in the opinion of the UNION CHRISTIAN COLLEGE COMPANY/Architect/Consultants the works be delayed

a) By force major or

b) By reason of exceptionally inclement weather or

c) By reason of proceeding taken or threatened by or dispute with adjoining or neighbouring owners or public authorities arising otherwise than through the Contractor's own default or

d) By the works or delay of other contractors or the Architect/Consultants and not referred to in the Schedule of Architect/Consultants instructions as per Clause 2 & 3 hereof or

e) By reason of civil connections, local combinations of workmen or strike or lock out effecting any of the building trades or

f) In consequences of the contractor not having received in due time necessary instructions from the Architect/Consultants for which he shall have specifically applied in writing or

g) From the other causes which the Architect/Consultants may certify as beyond the control of contractor or

h) In the event, the value of the work exceed the value of the agreed schedule of quantities owing to variation, the Architect/Consultants may with the previous request in writing of the Employer make a fair and reasonable extension of time for completion of contract works. In case of such strike or lock out the contractor shall as soon as possible give written notice thereof to the UNION CHRISTIAN COLLEGE COMPANY/Architect/Consultants, but the contractor shall prevent delay and shall do all that may reasonably be required to the satisfaction of the Owner to proceed with work.

It is to be clearly understood in this context that such extension of time will not make contractor eligible for any extra payments.

27. FAILURE BY CONTRACTOR TO COMPLY WITH OWNER/ARCHITECT/ CONSULTANTS INSTRUCTIONS:

If the Contractor after receipt of written notice from the Owner/Architect/ Consultants requiring compliance within 10 days fails to comply with such further drawings and/or Owner/Architect/Consultants instructions the Employer may employ and pay other persons to execute thereto and all costs incurred in connections there with shall be recoverable from the Contractor by the Employer on the Certificate of the Architect/Consultants as a debt or may be deducted by him from any money due to the Contractor.

28. TERMINATION OF CONTRACT BY THE EMPLOYER:

If the contractor being an individual or a firm commits any "acts of insolvency" or shall be adjusted as insolvent or being an incorporated company shall have an order for compulsory winding up made against it or pass an effective resolution for winding up voluntarily or subject to the supervision of the Court and the Official Assignee of the Liquidator in such acts of insolvency or winding up, as the case may be shall be unable within 7 days after notice to him requiring him to do so, to show to the reasonable satisfaction of the UNION CHRISTIAN COLLEGE COMPANY/Owner that he is able to carry out and fulfil the contract and to give security thereof, if so required by the UNION CHRISTIAN COLLEGE COMPANY/Owner.

Or shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the contractor.

Or shall assign or sublet this contract without the consent in writing of the UNION CHRISTIAN COLLEGE COMPANY/Employer first hand is obtained.

Or shall charge or encumber this contract or any payment due or which may become due to the contractor here under.

Or if the Architect/Consultants/Project Coordinator shall certify in writing to the Employer that the Contractor:

a) Has abandoned the contract, or

b) Has failed to commence the works, or has without any lawful excuse under these conditions suspended the progress of the works for 14 days after receiving from the UNITY BUIKDEERS COMPANY/Owner notice to proceed, or

- c) Has failed to proceed with the works with such due to diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or
- d) Has failed to remove materials from the site or to pull down and replace work for 7 days after receiving from the UNION CHRISTIAN COLLEGE COMPANY/Owner written notice that the said materials or work were condemned and rejected by the Architect/Consultants/Project Coordinator under these conditions, or
- e) Has neglected or failed persistently to observe and perform all or any of the acts, matters or things by this contract to be observed and performed by the contractor for 7 days after written notice is given to the Contractor requiring the contractor to observe or perform the same.

The end is any of the said cases the Employer may not withstanding any previous waiver, after giving seven days notice in writing to the contractor, determine the contract but without thereby affecting the powers of the Architect/Consultants or the obligations and liabilities of the contractor, the whole of which shall continue in force as fully as if the works subsequently executed has been executed by or on behalf of the contractor. And further, the Employer by his agents or servants may enter upon and take possession of the work and all plant, tools, scaffoldings, sheds, machinery, steam and other power utensils and material laying upon the premises or the adjoining lands, roads, and use the same as his own property or may employ same by means of his own servants and workmen in carrying on and completing the works or by employing any other contractor or other person or persons to complete the works, and the contractor shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other contractor or other person or persons employed for completing and finishing of using the materials and plant for the works. When the works shall be completed or as soon thereafter as convenient the Project Coordinator too shall give a notice in writing to the contractor to remove his surplus materials and plants, and should the contractor fail to do so within a period of 14 days after the receipt thereof by him, the Employer may sell the same by public action, and give credit to the contractor or certify in writing under his hand what (if anything) shall be due or payable to, or by the Employer, for the value of the said plant and materials so taken possession by the Employer and the expense or loss which the Employer shall have been put to in procuring the works to be completed, and the amount, if any, owing to the Contractor and the amount which shall be so certified shall thereupon be paid by the Employer to the Contractor or by the Contractor to the Employer, s the case may be and certificate of the Architect/Consultants shall be final and conclusive between parties.

29. TERMINATION OF CONTRACT BY THE CONTRACTOR:

If the works be stopped continuously for three months under the order of the Employer or by any injunctions or other order of any court of law, when and in any of the said cases the Contractor shall be at liberty of determine the contract by notice in writing to the Employer, and he shall be entitled to recover from the Employer, payment for all works executed by him till then.

30. CERTIFICATES AND PAYMENTS:

The Contractor shall be paid by the Employer on a monthly basis if the amount of Bill is not less than 5% of total P.A.C (Subject to a minimum of Rs.20 lakhs) by instalments under interim certificates to be issued by the Project Coordinator representing Employer to the Contractor on account of the work executed. However, a retention of the percentage of such value named in the Appendix hereto as “retention percentage shall be made from interim certificates” until the total amount retained shall reach the sum named in the Appendix as “total retention money”. The project Coordinator under the direction of the Owner may, in his description include the interim certificates, such works that has been virtually completed and the Project coordinator shall have certified in writing that they have been completed the contractor shall be paid by the Employer in accordance with the certificate to be issued by the Architect/Consultants/Project Coordinator. The Contractor shall be entitled to the payment of the Final Balance in accordance with the final certificate to be issued in writing by the Architect/Consultants at the expiration of the period referred to as “the defect liability period” in the Appendix here to from the date of virtual completion or on expiry of such period as the works shall have been finally completed and all defects made good according to the true intent and meaning hereto whichever shall last happen provided always that, the issue by the Architect/Consultants of any certificate during the progress of the works or at or after their completion shall not relieve the contractor from his liability under

clause 2 and 19 of his inability in cause, of fraud, dishonesty, or fraudulent concealment relating to the works or materials or to any matter dealt within the certificate in the case of all defects and insufficiencies in the works or materials which reasonable examination would not have disclosed. No certificate of the Architect/Consultants/Project Coordinator shall of itself be conclusive evidence that any works or materials to which it relates are in accordance with the contract either what the Contractor or Project coordinator might have certified in any interim bill and paid by the Employer and which might subsequently be discovered as not payable and in this respect the Employer's decision shall be final and binding.

The Owner/Architect/Consultants/Project coordinator shall have power to withhold any certificate if the works or any parts thereof are not being carried out to their satisfaction.

The Architect/Consultants/project Coordinator may by any certificate make any correction in any previous certificate which shall have been issued by them.

Certificate of payment shall be with held by the Owner if the contractor fails to insure the works and keep them insured till the issue of the virtual completion certificate.

31. MATTERS TO BE FINALLY DETERMINED BY THE OWNER/ ARCHITECT/ CONSULTANT:

The decisions, opinion, directions, certificate (except for payment) with respect to all or any of the matters under Clauses 2(a), 2(b), 7, 12, 19, 28,(a,b,c,d,e) hereof (which matters are in referred to as the expected matters) shall be final and conclusive and binding on the parties hereto and shall be without appeal.

32. RETENTION MONEY:

5% of the bill amount will be retained as Security Amount for rectifying defects noted during the defects liability period.

33. RIGHT OF TECHNICAL SCRUTINY OF THE FINAL BILL

The Employer shall have the right to cause a technical examination of the works and the final bill of the contractor including all supporting vouchers, abstracts etc, to be made at the time of payment of the final bill. If as a result of this examination or otherwise any sum is found to have been over paid or over certified it shall be lawful for the Employer to recover the sum.

34. EMPLOYER ENTITLED TO RECOVER COMPENSATION PAID TO WORKMEN:

If for any reason, the Employer is obliged, by virtue of the provision of the workman's compensation Act,1923 or any statutory modification or re-enactment thereof pay compensation so paid, and without prejudice to the rights of the Employer under the said Act, the Employer shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by the Employer to the Contractor under this contract or otherwise. The Employer shall not be bound to content any claim made against it under the said Act.

35. ABANDONMENT OF WORK BY OWNER:

It at any time after the acceptance of the tender, the Employer shall for any reasons whatsoever not require the whole or any part of the works to be carried out, the Owner/Employer shall give notice in writing to the Contractor who shall have no claim to any payment of compensation or otherwise whatsoever on account of any profit or advantage which he might have derived from the execution of the whole works.

36. RETURN OF SURPLUS MATERIALS:

Notwithstanding anything to the contrary contained in any or all the causes of this contract, where any materials for the execution of the contract is procured with the assistance of the Employer by purchases made under orders of permits or licenses issued by Governments, the Contractor shall hold the said materials solely for the purposes of the Contract and not dispose of them without the prior written permission of the Employer, at the prices to be determined by the Employer/Project coordinator. In the event of breach of the aforesaid condition, the Contractor shall, in addition to being liable to action for contravention of the terms or licences or permit and/or criminal breach

of trust, be liable to Employer for all money, advantages or profits resulting or which in the usual course would have resulted to him by reason of such breach.

37. RIGHT OF EMPLOYER TO TERMINATE CONTRACT IN THE EVENT OF DEATH OF CONTRACTOR IF INDIVIDUAL:

Without prejudice to any rights under this contract, if the contractor, being an individual dies, the Employer shall have the option of terminating the contract without incurring any liability for such termination.

38. The Marginal notes and in the catch lines hereto and in the annexure hereto are meant only for convenience of reference and shall not in any way be taken into account in the interpretation of these presents and the annexure hereto.

39. The rate of usage of cement for various items of work shall be actual as required subject to an upper limit as prescribed in the relevant IS/BIS code.

40. The technical specifications for the materials and workmanship shall be as laid down in the relevant Indian Standard Specification. In the event of that IS/BIS is not available in respect of any particular items, the specification in the KPWD/CPWD data and schedule shall be applicable as decided by the Architect/Consultants/Project Coordinator.

41. In the event of any dispute between the parties to this contract, such disputes shall be amicably settled by negotiations only.

42. WARRANTY, INDEMNITY, SECURITY:

a) The Contractor hereby warranties that the contract work and each item and sub item thereof shall be of sound and through construction of the highest standard and does hereby agree to indemnify and keep indemnified the Employer from and against all loss or damage that may be caused to the Employer on account of a breach of the Contractors warranty.

b) The Contractor shall ensure that all relevant laws and regulations are strictly complied with by the contractor, sub contractors, if any, and indemnified the Employer and their Architects, Consultants and Employees from and against all claims and proceedings in respect of any non-compliance with any such laws or regulations. The Contractor shall also indemnify and keep indemnified the Employer and its officers, Architects, Consultants and Employees from and against all claims and proceedings arising out of anything done or omitted to be done by the contractor, or sub-contractor, their respective agents or employees, in relation to the contract.

c) The security deposit of the Contractor together with the amounts retained by the Owner shall be treated as security for the proper and timely completion of the contract work and each item and sub item thereof and thereafter the said security deposit together with the amount retained by the Owner shall be treated as security to cover the contractors warranty and indemnify obligation under the contract till the end of defects liability period.

d) Any damages payable under the contract by the contractor shall be recoverable by the Owner by appropriation from such amounts or otherwise and in the event of such appropriation the contractor shall forthwith replace the amount so appropriated, in default whereof the contractor shall be treated as in breach of contract.

e) The Security deposit of the contractor and the amount retained by the owner as security as aforesaid, or such part thereof as may then retained outstanding shall be repaid to the Contractor, but without interest, after the expiry of 1 year from the date of issue of the certificate of completion by the Architect/Consultants/Project coordinator as herein provided.

43. PROVIDENT FUND:

(a) Liability on account of provident fund payable to workers/labours on contract labour employer shall be over by the contractor.

(b) The amount paid to work P.F can be reimbursed made from the employer.

(c) Proof of remittance of such contribution has to be produced for claiming refund from the Employer for the amount paid.

**APPENDIX HEREIN BEFORE REFERRED TO**

**CLAUSE**

- Defects liability period : 6 months from the date of virtual completion.
- Period of Final measurement : 1 month from date of virtual completion.
- Date of commencement : 10 days from the date of work order.
- Date of Completion : 4 months from the 10<sup>th</sup> day of the Employers issue of work order to the Contractor.
25. Liquidated Damages at the rate of: 0.1% per day of the value of balance work subject to a minimum of Rs.2,500/- per day.
32. Retention percentage : 5% (as per clause 9 of General instructions to Contractor and special conditions)

**NOTE:**

Income tax, Sales tax and workers welfare fund will be deducted at source from every payment to contractor subject to relevant Tax Acts & Laws prevailing at that period.

.....  
EMPLOYER

.....  
CONTRACTOR

**SPECIFICATION FOR CIVIL WORKS**  
**SECTION-A-GENERAL**

1. **Setting out:**  
The building shall be set out true to the dimensions shown in the plans. All grid/centre lines shall be marked to the specification of the Project Directors/Architects. The contractor shall be responsible for the correctness of the setting out and any inaccuracies noted shall be rectified at the contractors on expenses. He/She will be responsible for taking ground levels of the site before setting out and recording them with any extra charge. Proper bench marks shall be erected by the Contractor for inspection at the main walls, columns etc. in order to check the lines and levels accurately at all time.
2. **Contractors site visit prior to commencement of work:**  
The contractor shall visit the site prior to the commencement of the work to familiarise himself as to the nature of the existing roads or other means of communication, the character of the soil and he excavations, the extent and magnitude of work and facilities for obtaining materials and shall obtain generally his own information on all matters effecting the execution of the work. No extra charge, 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.
3. **Formation of Access Route to the site:**  
The contractor shall include his rates the forming of the access routes to the site with all temporary roads and gangways required for the works.
4. **Treasure Discovery:**  
All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site of the works shall be as between the employer and the contractor be deemed to be the absolute property of the Owner and the Contractor shall take reasonable precautions to prevent his workman or any other persons from removing or damaging any such article or thing and shall immediately upon his discovery and carry out at the expense of the contractor, the employers orders as to the disposal of the same.
5. **Figured Dimensions:**  
Figured dimensions shall be followed in all cases in reference to scaled sizes. Large scale details take precedence over small scale drawings. Details, specifications and description, given under bill of quantities shall have precedence over general specifications. In case of discrepancy the Contractor shall ask for clarification before proceeding with work.
6. **Water supply:**  
Adequate supply of good water will be supplied by the College to the contractor how ever the consumption will be monitored the Project Coordinator/Architect/ Owner. Misuse of the same to be avoided.
7. **Electric supply:**  
Electricity will be supplied by the College to the contractor how ever the consumption will be monitored the Project Coordinator/Architect/ Owner. Misuse of the same to be avoided.
8. **Coordinated among various Trades:**  
The main contractors shall coordinate their work and are required to attend on all specialists tradesmen or sub contractors appointed by the Employer for Electrical, Air conditioning, Telephone and other specialist contractors. The rate quoted shall be inclusive of all attendance and also allow the other contractors, appointed by the Employer, use of his scaffolding and retain it until such time the relevant sub contract works are completed.

9. **Inspection:**  
The works shall be open for the inspection at all times during the contract period. The contractor shall 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 attendance to move and adopt as directed for the inspection of measurement of the works by the Architect/Consultants/Owner or their representatives.
10. **Material storage:**  
a) The contractor shall stock all such materials and things as required for the proper and timely execution of the contract like cement, lime, timber and other materials including tools and equipment which are likely to deteriorate by the action of the sun, wind and rain or due to exposure in the open, improperly erected weather proof sheds. The contractor shall assume the responsibility of safe keeping of such things.  
b) All materials stored at site as brick, aggregate etc. shall be stocked in such a manner as to facilitate rapid and easy checking of quantities of such materials.  
c) The contractor shall on demand forthwith remove from the site all materials and things which in opinion of the Employer/Architect/Consultants is unsound or of bad or inferior quality or not fully in accordance with the detailed specifications and shall immediately provide replacements.  
d) All storage sheds shall be cleared away and the whole area left in good order on completion of the contract to the satisfactions of the Owner/ Architect/ Consultants.  
e) The location of storage sheds and stocking yards for materials, site for labour camp office etc. shall be worked on a drawing submitted to the Owner/Architect for the approval before proceeding with the work.
11. **Gatekeepers and Watchmen:**  
The Contractor from the day of being placed in possession of the site must make arrangement for the security and protection of the work, all materials, workmen and the public day and night on all days including Sundays and holidays at his own cost.
12. **Cost of transporting:**  
The contractor shall allow in his cost for all transporting, unloading, stacking and safe storage of supplies of goods and materials for this work on the site and in the places approved from time to time by the Owner.
13. **W.C and sanitary accommodation and office accessories and accommodation:**  
a) The Contractor shall provide at his own cost and expenses 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, of nominated sub-contractors and other contractors working in the building, the project coordinator and other Employer's agents connected with this building project and maintain the same in good working order.  
b) The contractor shall also provide at his own expense adequate office accommodation for the employers staff preferably continuous to his Office and shall maintain the same in a satisfactory conditions and shall provide light, fan and a computer (Pentium)for the same and remove them after completion of the works.
14. **Testing of works and Materials;**  
The Contractor shall, if required by the Employer/Architects/Consultants arrange to test materials and/or portions of the work 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 Consultants, to be defective of unsound the Contractor shall pull down and re-do the same at his own cost. Defective materials shall immediately be removed from the site.
15. **Mechanical Plant:**  
Besides the provisions made in Clause No:4 for the conditions of contract, the Contractor will be required to provide and maintain in working order the following power driven equipment during the construction work:

1. Concrete mixers of more than 200 litres capacity (7 cft.) in adequate numbers.
  2. Mechanically operated hoists to lift up materials to the highest level of the building of the capacity of 280 litres (10 cft.) per lift, powered by a suitable machinery capable of lifting the bucket with a speed of 25 metres per minute.
  3. Immersion type vibrators for consolidating concrete in R.C.C beams, columns and partition wall and surface type vibrators for consolidating concrete in slabs. Vibrators shall be adequate in slabs. A set of standby vibrators shall also be maintained on the site of work.
  4. Pumps of adequate capacity for watering and de-watering.
  5. Any other machinery rock etc. ordered by the Consultants, and found necessary for execution of the work.
  6. Steel moulds for taking out concrete cube.
16. Foremen and Tradesmen:  
All tradesmen shall be experienced men, properly equipped with suitable tools for carrying out all the work of carpentry and joinery and other specialist trades in a first class manner and where the Architects/Consultants deem necessary, the Contractor shall provide any such tools, special or ordinary, which are considered necessary for carrying out the work in a proper manner. All 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 let out in Clause 9 of the Condition of Contract.
17. Work programme/ Weekly Progress Report:  
The Contractor shall prepare and submit to Owner for approval, a CPM/PERT programme for complete project within 15 days of the communication of the acceptance of the tender. The programme shall be up dated periodically and resubmitted for monitoring the progress. The Contractor shall also furnish necessary particulars to Site Engineer for completing weekly progress reports in the form furnished by the Consultants.
18. Contractor to Provide etc.:  
The contractor shall provide a notice board as per Architects design on proper supports fixed in a position approved by the Architects. He shall allow for painting and lettering stating name of work, name of Architect, name of various Consultants, General Contractor and Sub contractor, all letters except that of the name of the work shall be in letters not exceeding 5cm in height and all to the Approval of the Architects.
19. Voucher:  
The Contractor shall furnish the Project Coordinator with Vouchers on request, to prove that the materials are as specified and to indicate the dates at which they are purchased, in order to work out the rate analysis of the non-tender items which he may be called upon to carry out thereafter.
20. Protection:  
The Contractor shall properly cover up and protect all work throughout the duration of work until completion, particularly masonry, arises, moulding, steps, terrace or special floor finishes, staircases and balustrades, doors and window frames, plaster angles, lighting and sanitary fittings, glass, paint work and all finishing.
21. Scaffolding  
All the scaffolding works are provided by the main civil contractor shall be double scaffolding (no put logs allowed) for doing the external works such as plastering, brick work etc. has to be made available for the other agencies which are doing the external finishes like ceramic tile fixing and painting etc. free of cost without any service charges.
22. Preparation of building for occupation and use on completion:  
The whole of the work shall be thoroughly inspected by the Contractor and all deficiencies and defects put right. On completion of such inspection, the Contractor shall inform the Project Coordinator in writing, that he has finished the work and it is ready for Architects/Consultants 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 Owner.

23. Clearing of Site:

The Contractor shall after completion of the work clear the site of all debris and left over materials at his own expenses to the entire satisfaction of the Owner/Architect and Municipal or other public authorities.

**SPECIFICATION FOR CIVIL WORK**  
**SECTION-B: MATERIALS**

1. Materials shall be of the best approved quality obtainable and they shall comply with the respective BIS (ISI).
2. Samples of all materials shall be got approved by the Architects/Consultants before placing order and the approved samples shall be deposited with the Owner/Project Coordinator/Displayed at the Site office.
3. In case of non availability of materials in metric sizes, the nearest if FPS units shall be provided with prior approval of the Architect/Consultants/Project coordinator for which neither extra will be paid nor, any rebate shall be recovered.
4. If directed, materials shall be tested in any approved testing laboratory and the test certificate in original shall be submitted to the Architects/Consultants/ Owner and the entire charges connected with the testing including charges for repeated tests, if ordered, shall be borne by the Contractors.
5. It shall be obligatory for the Contractor to furnish certificate. if demanded by the Architects/Consultants from manufacturer or the material supplier, that the work has been carried out by using their material and as per their recommendations.
6. All materials supplied by the Employer/any other specialist firms shall be properly stored and the Contractor shall be responsible for its safe custody until they are required on the works and till the completion of work.
7. Unless otherwise shown on the Drawings or mentioned in the “Schedule of Quantities” or special specifications, the quality of materials, workmanship, dimensions etc. shall be as specified here in under.
8. All equipment and facilities for carrying out field test on materials shall be provided by the Contractors without extra cost.
9. **a) Bricks:**  
Bricks shall generally comply with Is:1077 except in size which shall be conforming to the sizes locally available. Depending upon the quality of bricks they shall be classified as 1<sup>st</sup> and 2<sup>nd</sup> class.  
1<sup>st</sup> class bricks shall be the best quality locally available table moulded, well burnt but not over burnt, have plain rectangular faces with parallel sides and sharp right angled edges, have a fine compact, and uniform texture. The bricks shall be free from cracks, chips, flaws , stones or lumps of any kind and shall not show efflorescence or wither subsequent to soaking in water. It shall emit a clear ringing sound on being struck and shall have a minimum compressive strength of 35 Kg./4 sq.cm, unless otherwise specifically stated in the Schedule of Quantities.  
2<sup>nd</sup> class bricks shall be generally as specified above, except that they may be slightly over burnt, be slightly and have round edges. They shall have a fine compact uniform texture and shall not absorb water more than 22% by weight. The compressive strength shall be 10% less than that specified for 1<sup>st</sup> class brick.  
**b) Cement Mortar:**  
Cement Mortar shall be proportion specified for each type of work in the schedule. It shall be composed of Portland cement and sand. The ingredients shall be accurately gauged by measure and

shall be well and evenly mixed together in a mechanical pan mixer, care being taken not to add more water than is required. No mortar that has begun to set shall be used.

If the hand mixing is allowed only in the case of emergency and with the written permission of the Architects, then it shall be done on pucca water tight platform. The gauged materials shall be put on the platform and mixed dry. Water will then be added and the whole mixed again until it is homogeneous and of uniform colour, Not more than 1 bag of cement shall be mixed at 1 time and which can be consumed within half an hour of mixing.

c) Cement Concrete Solid Blocks:

Cement Concrete hollow blocks shall be of sizes, 20x20x30cm, 15x20x30cm and 10x20x30. The blocks should be plain free from flaws and cracks and should be manufactured by using 6mm granite metal. Blocks should be purchased from an approved manufacturer.

d) Aerocon Blocks:

Aerocon blocks shall be of size, 60x20x20cm, The blocks should be plain free from flaws and cracks. Blocks should be purchased from an approved manufacturer.

**SPECIFICATION FOR CIVIL WORK**  
**SECTION-C: WORKMANSHIP**

1. Clearing of Site Excavation and Earth Filling

General

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

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

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

Excavation in all stratus excluding in hard rock:

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

Earth filling:

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

a) Filling in basement structures:

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

b) Filling in outdoor portions and for site development:

Shall be done in layers of 15cm. Each layer shall be adequately watered. When filling reaches the required level the topmost layer shall be dressed to proper section, grade and camber and rolled by 8 to 10 power roller and adequately watered to aid compaction.

2. **Dry Rubble Packing:**  
Ground shall be first be levelled up and thoroughly consolidated by means of heavy log hammer or frog hammer. Rubble of specified thickness shall then be laid and set with hand. It shall be consolidated by either hand roller of wooden log hammer, use of sufficient water being shall be made during consolidation. All hallows and interstices after consolidation shall be filled up with quarry spalls, stone chips etc. and the packing blinded with stone grit and watered and consolidated by log hammer or by cement mortar mix of specified proportion.  
Rubble packing in Road and plot development work shall be thoroughly consolidated by means of power roller of 8 tone capacity instead of log hammers and the surface shall be brought to proper grade and camber. After checking then level, grade and camber the surface will again be watered and rolled to receive road structure.  
Levelling Course:  
It shall be plain cement concrete of leaner mix which shall be proportioned as stipulated in the relevant item and mixed and placed in position conforming to line and level shown on the drawing and compacted approved means and cured adequately.

## **SPECIFICATION FOR R.C.C. WORK**

### **SECTION D**

1. **PLAIN & REINFORCED CEMENT CONCRETE**  
General:  
Expect where they are by the requirements of this specification of this specification due provision of Indian Standard Specification IS-456-1978 for Plain & Reinforced concrete and IS-432, concrete and IS-432 Part I & Part II for mild and medium Tensile Steel bars and hard drawn steel wire for concrete reinforcement any other relevant ISS applicable together with the latest amendments shall be held to be incorporated in this specification. It shall be intent of these specifications to ensure that all concrete placed at various location of the job should be durable, strong enough to carry the design loads. It should be free of such defects as shrinkage, cracking and honeycombing.
2. **TESTING OF CONCRETE**  
In order to exercise the required degree of constant control over the ingredients of concrete and their proportions, the Contractor shall set up and maintain at his own expense a testing laboratory at site, the Contractor shall set up and maintain at his own expense a testing laboratory at site, manned by qualified and experienced technician. The Contractor shall provide all apparatus required for testing of concrete and its ingredients and in particular he must provide the following:
1. The Contractor to provide at site a Compression testing machine of minimum capacity of 200 tones.
  2. A set of standard sieves.
  3. Sieve vibrator.
  4. Slump cones.
  5. Adequate number of standard moulds for concrete.
  6. Weighing balance.
  7. Curing tank for cubes.
  8. Measuring cylinders.
- Any other apparatus deemed necessary by the Owner or its Consultants for proper control shall be provided by the Contractor at his own expenses.
3. **SPECIFICATION OF CONCRETE**  
Reinforcement:  
The steel to be used in reinforced concrete work shall comply with requirements of Indian Standard Specification Nos,226,432,1139 and 1786. Steel bars made by re-rolling pld rails, bars etc. will not be allowed to be used on any account and the Contractor must produced proof that such bars are not being used. Should the results of tests conducted through an approved laboratory at the Contractors expense made in accordance with the provisions of relevant Indian Standards specification, the Structural Engineer or his representatives mat at his discretion reject the lot or lots from which the sample or samples were taken and the same shall not be used in the works but shall be removed, there from and the work already executed with such bars may be ordered to be demolished at the

Contractors cost. The Contractor will not be paid for the demolished work nor will the completion time limit be extended.

All steel used for reinforcement shall be free from loose scale or rust which must be removed with stiff wire brush and coated with neat cements as directed. Bars must also be free from oil or paint.

All bending shall be done cold, gradually, evenly and without jerks. All protruding bars to which other bars are to be spliced later, must be protected from rusting by a coat of thin neat cement grout, and the Contractors rate shall be inclusive of this item.

The steel shall be properly braced, supported and otherwise held in position by plastic or concrete spacer blocks and steel chairs so as to prevent displacement while concrete is put in. Stone chips will not be permitted to be used as spacer blocks. The Correct number and size of reinforcing bars, stirrups and binders shall be provided and placed in position strictly according to the contract, drawings and instructions. This must be looked after with proper care and checked over by a competent foreman of the Contractor, personally and finally before pouring the concrete. A steel fixer should be in full time attendance while pouring concrete to adjust and fix the reinforcement.

The Contractors is to supply all reinforcing steel if, condition on the contrary is not given in the special conditions. Length measured for payment will be as shown in drawings plus authorised overlaps and hooks. No allowance will be made for rolling margin or wastage. Contractor is to use his own binding wire. Ties for form work, lifting hooks, spacers will not be measured for payment.

#### 4. SPECIFICATION FOR CONTROLLED CONCRETE

##### I. CEMENT:

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

If ordered by the Structural Engineer's certificates of tests from an approved Laboratory shall be obtained at the Contractors cost. Samples for test shall be extracted as in clause 5.5 IS: 3535-1966 within one week of delivery and the test shall be made within four weeks of delivery. All cement shall be stored in weatherproof structures or silos and prevented from, damage by moisture. These buildings or silos shall be provided by the Contractor at his own cost and placed in locations approved by the Structural Engineer.

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

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

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

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

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

##### II. ADMIXTURES:

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

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

### III. AGGREGATES:

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

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

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

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

### IV. MIXING WATER:

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

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

### V. FORMWORK & STAGING:

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

## VI. CONCRETE:

1) All concrete shall comply with the requirements of IS 456 in general and the following in particular.

Concrete shall be specified in various grades designated M 15, M 20, M 25 etc. The letter M refers to the mix and the number of the minimum compressive strength in  $N/mm^2$  to be established by 28-day 15cm works cubes tested with a probability of not more than one test out of twenty falling below the specified minimum.

### 2) Mix Design:

Concrete mixes shall be designed and the concrete so proportioned and produced as to provide an average compressive strength sufficiently high, restrict the probability of strength tests falling below the specified minimum to 1 in 20.

Initially, the required average values shall be calculated on an assumed value of the coefficient as determined from a set of minimum 30 site tests. For testing the initial mix, one sample shall be extracted from each of at least 4 separate batches. Two for every initial trial testing of 7 days and two for testing at 28 days. The average of all 4 tests shall be equal to or greater than the required coefficient of variations being 15%.

The proportions of ingredients for concrete shall be such that in addition to complying with the strength requirements for concrete shall be such that in addition to complying with the strength requirements as stated above, the concrete shall have adequate workability and proper consistency to permit it to be worked readily into placements to be employed without excessive segregation or bleeding.

The mix required to produce, place and compact the specified grade of concrete shall be designed by the Contractor and details thereof submitted to the Consulting Engineers for their record, along with results of sieve analysis and such other tests on cement, aggregates and water or on concrete as the consulting Structural Engineer, may require. No concreting shall be carried out at site till this is done. These details shall then be scrupulously followed for subsequent concreting operations at site till a variation in some characteristics of any ingredient is observed or till a characteristics of any ingredient is observed or till a variation in the degree of quality control necessitates a change in mix. Full details of all such changes shall be submitted to the consulting Structural Engineer for their record. All ingredients shall be proportioned and measured by weight, using approved weigh batching equipment. It is to be clearly understood that mix design shall be the Contractor's sole and ultimate responsibility.

Compression strength tests shall be conducted on 7 days and 28 days 15cm works cubes and results evaluated as hereinafter. The contractor shall prepare all calculations, tabulations, graphs etc. pertaining to the mix design and/or tests as required by the Project Coordinator and the consulting engineers. Copies of the same shall be submitted to the Structural Engineer and the Owner, one copy shall be available at site. Contractor's rate should include all these and no extra shall be entertained on this account.

### 3) Mixing:-

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

A mixing time of not less than 2 minutes after all materials, including water, have entered the mixing drum shall be considered as satisfactory period for mixers up to 1  $m^3$  capacity. A slightly longer mixing time may be required for mixers exceeding 1  $m^3$  capacity and for dry concrete mixes. Mixing times, however, vary according to the type of mixer and the above periods may be modified by the Engineer according to the observed mixing efficiency.

When the concrete is mixed, the complete contents of the drum shall be discharged in 1 operation into hopper or container. Mixing time is lost and risk of segregation occurs if the batch is discharged into a number of separate barrows or containers.

At the start of the day the first batch or 2 of the concrete will be harsh and stoney because some mortar will stick to the inside of the drum round blades. The proportions of coarse aggregate shall therefore be reduced for first mix or two.

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

### 4) Placing:-

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

The concrete shall normally be compacted in its final position within 30 minutes of leaving the mixer, and once compacted, it shall not be disturbed. Before the concrete is actually placed in position, the insides of the forms shall be inspected to see that they have been cleaned and oiled. Temporary openings shall be provided to facilitate expulsion especially of all sawdust, wood shavings, cigarette ends and dirt. Openings shall be so placed that the water used to flush the forms will be drained away. No water shall be left in the forms.

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

#### 5) Compacting:-

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

#### 6) Curing:-

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

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

#### 7) Testing:-

The method of sampling and testing shall be carried out as per IS 1199 and IS 516 and the test results evaluated as under compression tests shall be conducted on samples of concrete, each sample consisting of 3 specimens. The average strength of the 3 specimens in any 1 test shall constitute the result of that particular test. All specimens for any 1 test shall constitute the result of that particular test. All specimens for any one test shall consist of companion cubes of the same age, fabricated from a sample obtained from a single batch of concrete. Batches shall be sampled entirely at random so that all batches have an equal chance of being selected for a sampling. A sample shall not however be obtained from the first batch of concrete discharged from a clean mixer.

The frequency of testing shall be as follows:

At least 12 numbers of cube moulders should be kept at site during the execution of work.

4 samples made up of cubes shall be obtained per mix per 8-working hour day. Each sample shall consist of 6 cubes, half of which shall be tested at 7 days and the remaining half at 28 days. The consulting Structural Engineer may at their absolute discretion reduce the frequency of tests when extend control is ascertained and reaches an acceptable level. These tests shall be conducted in the site laboratory. As a check on the testing equipment at site, additional companion cubes shall be obtained for 5% of the

samples and these shall be tested at the corresponding ages in a laboratory nominated by the consulting engineer. If a significant difference is noticed between 2 corresponding results, all further tests shall be conducted in the nominated laboratory till the testing equipment at site is properly checked and rectified.

The criteria of acceptance shall be as per Clause 15 of IS 456-1978.

Concrete which does not meet the strength requirements specified in Clause 15.1 of IS 456 but has strength greater than that required by Clause 15.2 are at sole discretion of the consulting engineers, be either rejected or accepted at 5% less than the quoted rate for every 1% fraction short fall in the strength.

All Consequence of the rejected and reinstatement of concrete shall be totally at the contractor's expenses.

#### VII. CONSTRUCTION JOINTS:

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

#### VII. EXPANSION JOINT:

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

#### VIII. REMOVAL OF FORM WORK:

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

a)	walls, columns & vertical sides of beams	24 to 48 hours as may be directed by Architects
b)	Bottom of slab up to 4.5 m	7 days
c)	Bottom of slab up to 4.5 m span, bottom of beam & arch upto 6 m	14 days
d)	Bottom of beams and arch rib over 6 m	21 days

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

It directed, forms shall be given an upward chamber to ensure that the beams do not have any sag.

Surface that becomes exposed on removal of forms shall be carefully examined and any fins, burs, projections etc. that are detected shall be removed. Any honeycombing of miner nature shall be finished neatly with cement mortar.

#### X. COVER:

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

a) At each end of reinforcing bar not less than 25mm nor less than twice the diameter of such rod or bar.

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

**TABLE 'A'**

<b>Slno</b>	<b>Aggregate</b>	<b>Approximate quantity of surface in water (litre/Cum)</b>
1	very wet sand	20
2	moderately wet sand	80
3	Moist sand	40
4	Moist gravel or crushed rock	20 to 40
Coarser the aggregate, less the water it will carry		

**TABLE 'B'**

<b>Slno</b>	<b>Type of Work</b>	<b>When mechanically vibrated</b>	<b>Slumps when not vibrated but tamped and vibrated</b>
1	Mass concrete in RCC foundations, footings, retaining walls and road slabs	2.5cm (1")	5cm (2")
2	Beams, slabs, columns with simple reinforcement	2.5cm to 5cm (1" to 2")	5cm to 10 cm (2" to 4")
3	Thin sections with congested reinforcement	5cm to 10 cm (2" to 4")	10cm to 115 cm (4" to 6")
NOTE: Should conditions governing slump and workability charge pointing to advisability of an increased slump, this shall only done by decreasing the amount of water.			

**SECTION E**  
**MASONRY, FLOORING, PLASTERING AND PAINTING**  
**BRICK MASONRY**

**GENERAL:**

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

**I) BRICK WORK FIRST CLASS:**

Brick shall be thoroughly clean, well wetted and soaked for at least 12 hours in fresh water being used on the work. Bricks shall be locally available best quality.

Whole of the masonry work shall be brought up to 1 uniform level throughout the structure, but where breaks are unavoidable, joints shall be made in good long steps. All junctions of walls and cross walls shall be carefully bonded into the main walls.

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

**II) FLOORING, SKIRTING, DADOING ETC.**

Plain and coloured cement tiles, marbles, mosaic and Terrazzo tiles flooring:

The tiles shall conform to IS 1237 having the colour approved by the Architect and the rate shall include provision of border tiles and tiles of different colour in pattern is directed. The mosaic topping or lighter shade pigment and natural shade tiles shall be of white grey cement with an approved shade pigment. The type of tiles shall be as specified in respective in respective items.

The sub grade shall be thoroughly wetted after cleaning of all dirt, laitance and loose materials. A bed of lime mortar consisting of 1 part of lime and 2 parts of sand shall be laid and properly levelled to an average thickness of 25mm and the surface shall be kept slightly rough to form a satisfactory key for tiles. Net cement paste of honey like consistency shall be spread over mortar bed, over such area at a time would accommodate about 20 tiles. tiles shall be soaked in water for 15 minutes and allowed to dry for the same duration. Tiles shall then be fixed with a thin coat of cement paste on the back of each tile and then such tiles being gently tapped with a wooden mallet till it is properly bedded and in level with adjoining tiles. Joints shall be fine and as imperceptible as possible.

After tiles have been laid in a room or a day's fixing work is completed, surplus cement grout that may have come out of the joints may be wiped off gently and joints cleaned. A thin slurry of coloured cement matching to the colour of tiles shall be spread over it and rubbed so as to seal even a thinnest joint between tiles and make it impervious and the flooring cured for 7 days. The tiles shall be polished and finished according to is 1443.

Dado, skirting and Risers:

Tiles shall conform to IS 1237 and shall be of approved design. The tiles shall be fixed with neat cement grout on a backing coat consisting of 1:4 cement, sand plaster of 15mm to 20mm thick. The top and bottom junctions of tiles shall be rounded off neatly as directed. The joints shall be filled with matching shade coloured cement slurry. The surface shall be kept wet for 7 days and then polished with carborandum stone to obtain smooth surface and fine polish.

**III) WHITE GLAZED/CERAMIC TILES IN FLOORING AND DADO:**

White glazed/ceramic tiles from an approved manufacturer conforming to IS:777 shall be used. They shall be of specified sizes and thickness. 5/6/7mm all specials viz. Cover, internal and external angles, corners, beads etc. shall be laid as described in marble mosaic flooring. Tiles shall be washed clean and set in cement grout and each tile being gently tapped with a wooden mallet till it is properly bedded and in level with the adjoining tiles. The joints shall be kept as thin as possible and in straight lines or to suit the required pattern. After the tiles have been laid surplus cement grout shall be cleaned off.

The joints shall be cleaned off the grey/white cement grout with a wire brush or towel to a depth of 6mm (3/16") and all dust and loose mortar removed. Joints shall then be flush pointed with white cement. The

floor shall than be kept wet for 7 days. After curing, the surface shall be washed with mild tapped with a wooden mallet.

The facing shall be fixed truly in plumb and perfect line or curves as shown on the plain. The course and joints shall be as directed by Architects. The surface shall be protected from the sun and rain and cured for 10 days and shall be finally polished.

#### IV) PLASTERING:

##### a) Scaffolding:

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

##### b) Preparation of Surface:

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

The surface be scrubbed with wire brush/coir brush to remove dirt, dust etc. and the surface thoroughly washed with clean water to remove efflorescence grease and oil etc. and shall be kept wet for a minimum of 6 hours before application of plaster.

##### c) Cement plaster:

Cement mortar of specified proportion and thickness shall be prepared in small batches and applied to the wall surface/ceiling. To ensure proper thickness gauged patches shall be made at 1.5 to 2m apart and the surface plastered true to line level and plumb, taking special care to finish jambs of windows, doors, wall returns, corners, junctions etc. A thin layer of putty shall be applied and rubbed into surface by means of trowel until the surface is even and smooth. The surface shall be kept moist for 7 days and then give a coat white wash.

#### V) PAINTING:

##### General:

Whenever scaffolding shall be thoroughly brushed free from mortar dropping and foreign matter. All steel work shall be cleaned of loose rust mill scales etc. so as to expose the original surface. All broken edges, cracks, loose plaster of paris.

##### White washing:

White cement painting shall be prepared from white cement on spot, mixed and stirred with sufficient water to make a thin cream.

White cement wash shall be applied in specified coats by using flat brush or spray pumps. Each coat shall be allowed to dry before next coat is applied. If additional coats than what have been specified are necessary to obtain uniform and smooth finish, it shall be given at no extra cost.

The finished dry surface shall not show any signs of cracking and peeling or shall it come of readily on the hand when rubbed.

#### VI) SPECIFICATION FOR WATER PROFFING:

##### R.C.C Water Tanks/Septic Tanks:

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

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