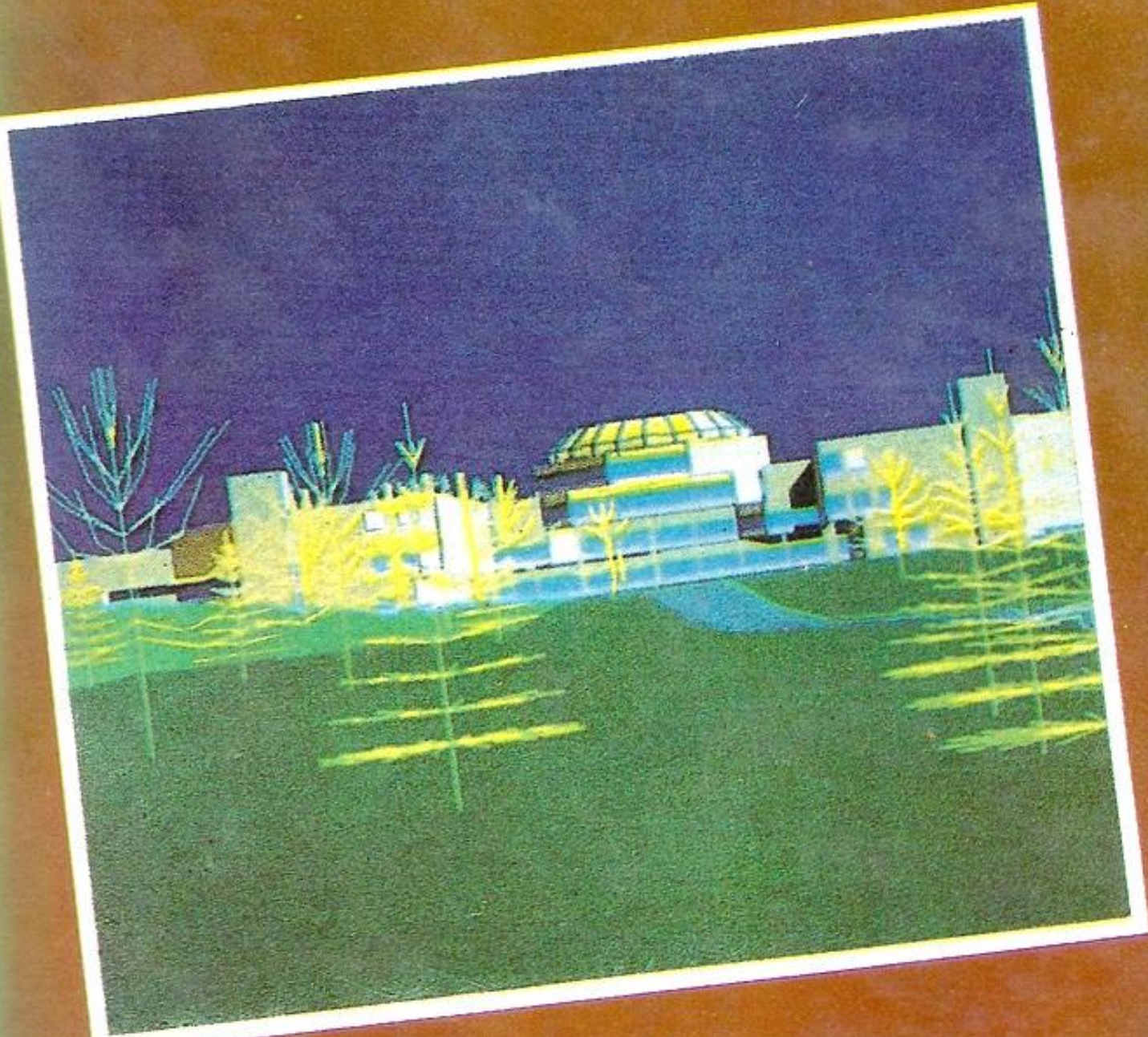


PROFESSIONAL PRACTICE FOR ARCHITECTS AND CONSULTING CIVIL ENGINEERS



C.H. GOPINATHA RAO

B.Sc., B.E., M.Sc. (Engg.), FIE.

C. Engg. (Ind.) MISE, FIV, FIJRA

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INTRODUCTION

The execution of any project involves the participation of many agencies, starting with a Consultant. The Consultant may be an Architect or Engineer or a Manager. The project may range from a small hutment to a complicated and massive tall structures.

The project can be taken up by an individual, self employed builder or well organised team or a Government Agency. The materials, design technology or method adopted could be conservative or modern and sophisticated. In case of projects undertaken by Government Departments, in most of the cases they have sufficient staff to prepare the project report and execution is normally done by engaging contractors.

For the last few years services of some of the specialists like architects, interior decorators, landscaping specialists are utilised depending upon the necessity. Sometimes the services of structural engineers are also utilised when their regular staff do not have sufficient time to complete the assignments in time. There are some works executed departmentally by Government Agencies. In case of public undertakings, services of the specialists are utilised on assignment basis.

Once a project is taken up, either an Architect may be appointed and other specialists can be appointed through the Architect or can be appointed by the owners themselves directly in which case the co-ordination among all the agencies should be ensured, so that work does neither suffer nor get delayed for lack of co-ordination.

The following chapters will deal with the forms of agreement between different agencies and the points to be considered in preparation of documents. The different types of contract, duties and liabilities of different parties, mode of measurements, etc. have been compiled from various sources and discussed under different chapters.

* * * * *

ABOUT THE AUTHOR

Mr.C.H.Gopinatha Rao is a Graduate in civil Engineering with Post Graduation in Structural Engineering.

He is presently practising as Registered Architect, Registered Valuer, Chartered Engineer and Arbitrator.

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He has contributed articles to leading Dailies and Weeklies and Professional Journals and participated in All India Radio and T.V. Programme.

He is associated and in many cases responsible for discussions and Seminars of a variety of subjects covering the entire gamut of Real Estate Activities.

He is known for his alertness in taking up public issues relating to Building Trade and bringing them to the attention of the authorities for redressal.

He is the recipient of 'For the Sake of Honour' award for the year 1983-84 bestowed by the Rotary Club of Madras West. He is the author of the Books.

- 1) The Agony and Ecstasy of House Building
- 2) Valuation Practice of Immovable Properties
- 3) Ownership of Flat
- 4) Astrology in House Buildings
- 5) Sketch Plans of Houses for Middle Classes
- 6) House Buildings - Inspection & Maintenance
- 7) House Site in Urban Areas
- 8) 36 PLANS - Flats, Twin Houses and Cottages
- 9) Professional Practice For Architects and Consulting Civil Engineers.

Prize was awarded for the Tamil Book by the Tamil Development Directorate, Government of Tamilnadu in January 1986 and for the Second time in 1988 for his another publication.

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Chapter I

TYPES OF CONSULTANCY AND DETAILS OF SERVICES

The Architects and/or consulting Engineers provide a wide and varied range of professional services for different types of clients.

The services may be advisory or specialised technical assistance involving at times only guidance or undertaking execution from the conception to completion. Sometimes the services of experts in various fields like structural, geological, chemical, economics, socialological, foundation field, airconditioning, interior decorations, landscaping and other fields are needed. The services provided can be broadly divided into (1) Counselling services (2) Studies before investment (3) Design and supervision services for execution of works (4) Specialised design and development services (5) Project management.

Counselling services may be of continuous nature or for particular projects/problems. This may be on the area of management or production or inspection or testing or quality control or preparation of plans or structural designs or interior decoration or preparation of tender documents, or fixation of rates or selecting contractor or settlement of bills. They also include services such as arbitration, appearance before court or board or other judicial bodies to give evidence or present professional opinions based on engineering background and experience, appraisals to establish values of various assets and other resources.

Studies before investments consist of investigations which normally precede decisions for the specific requirements project. These studies will help to formulate investment policies, to determine the basic requirements and feasibility of individual projects, for changing policy decisions and operations necessary for successful implementation of functioning of the projects. The studies include also resource inventories, alternate development patterns, socio-economic surveys, selections of site and physical lay-out of specific projects, preliminary engineering and cost estimates, economic and financial analysis required for project evaluation, administrative problems, planning, machinery, accounting and management systems, man- power resources and training requirements.

The design and supervision services for construction of works comprise the engineering portion of a construction project.

The engineering portion of design consists of engineering skills necessary to establish feasibility studies, surveys, soil investigations etc; Basic design comprises of preliminary design, detailed design and overall supervision during construction. The service also include tendering or bidding and award of contracts, preparation of drawings, specifications and other contract documents to ensure the planned method to satisfy the client's needs. Some projects need special services such as day to day supervision, special inspection, purchasing, testing, cost control etc.

Specialised and Development services are offered by some consultants. These may be development of inventions in their own laboratories or utilising the facilities available in the Research or Educational organisations.

Project Management is the consultancy offered from conception to completion. It is a method of project achievement involving the owner in a single contract with a firm which will handle project planning,

management, design services, procurement, construction management, commissioning feasibility analysis and arranging finance. Project Management involves increased management effort using multiple contracts for construction, materials and supply of equipment. In short the project management undertaken by the firm acts as the owner's agent.

The specific services can be broadly classified under different areas as follows:

Engineering :- Eg. Studies, preparing concept; cost benefit study(alterations); establishing design criteria; preliminary engineering for cost evaluation; detailed engineering; establishing equipment lists; preparing technical specifications; preparing technical drawings; technical analysis and comparison of tender data and its approval; inspection; progress reporting; controls performed; (manpower control, budgets control, progress schedules); continuous quality assurance, operating and maintenance manuals.

Procurement : Eg. Construction contracts; Purchasing; expediting; material control; inspection;

Technical surveillance (vigilant supervision) : Eg. Assessing field work for conformance to design, materials and workmanship.

Technical supervision : Eg. continuous examination of the field work (quality and quantity) and certification thereof.

Construction Management : Eg. Managing the work of others including contractors; quantity measurement; verification of progress, claims and payments; status of reporting; time and cost measurement and their forecast; inspection of work; manpower planning and materials control;

industrial relations; safety and security; recommendation for corrective action.

Commissioning : eg. training of operating personnel.

Details of services : The services can be classified in three stages.

The preliminary stage consists of (a) taking the clients' instructions regarding the requirements of the project as a whole; examining the legislation, code and standards and environmental factors as they affect project; Preparing a conceptual outline plan with sketches, and notes sufficient to explain his general understanding of his clients' requirements and, in particular, bringing out any foreseeable bottleneck in the form of procurement and specialised machinery, equipment and materials; Preparing an indication of cost and rough estimate of time required for completion of cost and rough estimate of time required for completion in the form of a brief PERT (Programme evaluation and review technic) chart; Advising client on the appointment of secondary consultants; Obtaining from the client (or preparing at the clients' expense) a detailed topographical and soil survey of the site as required for the development of the project; Preparing a preliminary project report with layouts, preliminary designs with an approximate estimate and obtaining the clients' approval thereto; Assisting the client in obtaining planning approvals from statutory and other regulatory bodies and also approval for procurement of any specialised machinery, equipment and materials from the competent authorities,

The Preliminary Stage is completed on obtaining the approval of the client to the consultants' proposals.

The design stage consists of providing Secondary Consultants with the necessary information to enable them to perform their services and co-ordinating their work; Preparing with the help of Secondary

Consultants as necessary the working drawing, schedules, specifications and bills of quantities to describe the whole project adequately for purposes of placing the contract by the approved method; advising the client and obtain approval on the method of placing the various contracts.

If required by the client or approving authorities at additional cost chargeable to the client, lodging of design calculations with the appropriate authority where required and any negotiations arising therefrom; Supplying the client or on his behalf to other parties, upto 8 copies of the documents prepared by the consulting Engineer for the communication of his design.

The Construction Stage consists of preparing advertisements and rendering advice on tenders or other means of arranging contracts, including advice on selection of suitable contractors; General observations of construction and or/erection; Instructing the contractor prior to and during construction; Assisting the contractor to prepare a work progress schedule for PERT diagram; Checking and approving of shop drawings submitted by contractor, if required by the client to do so. This will be at additional cost chargeable to the client; Providing periodical supervision as may be necessary to ensure that the works are being executed in general accordance with the contract and the quality called for in the drawings/specifications. (Constant supervision does not form part of the duties undertaken by him and Consultant's supervision alone cannot guarantee that the work is carried out strictly in accordance with the drawings and specifications); Direct the Clerks of works and other site supervisory staff, to provide constant superintendence so as to ensure that the work is carried out strictly in accordance with the working drawings and specifications; Submitting periodic progress reports to clients: Advising the client if the contract time or the total of authorised expenditure is likely to be exceeded; Issuing in writing variation Orders on behalf of the client if changes are necessary for technical reasons; Checking main contractor's application for payment

and issue certificate authorising payment; Certifying accounts; Certifying the final completion of the works and assisting in obtaining completion certificate when necessary; Rendering advice and assistance to clients whenever disputes arising out of contracts are referred to arbitration;

Duties of the Principal Consultants:

The Principal consultant will co-ordinate with the secondary consultant and shall provide complete relevant information and furnish him with plans, elevations and sections of all buildings. He will also furnish the secondary consultant with copies of correspondence, instructions, priced schedule of quantities and conditions of contract and other details which may affect the engineering works. The name of the secondary consultant should be shown on the title page of any schedule of quantities and specifications and other appropriate places to ensure that credits are given to him for the work done; If the secondary consultant is appointed and /or paid directly by the client, the principal consultant should review the accounts rendered by the secondary consultant.

Duties of secondary Consultant:

To consult with the principal consultant and the client, analyse the available data and information relating to the project; to collaborate in preparing preliminary designs and drawings whenever necessary to advise the requirements like investigation of soil, surveying and other tests necessary for completion of engineering works and advise at early stage the space requirements of mechanical, electrical and other allied services.

He should assist the principal consultant in calling tenders and scrutinising them, in making decisions in all matters relating to engineering works, examining the samples, carrying out periodical

supervision keep principal informed of the progress of work and other details necessary for proper execution of engineering works.

There should be a close liason between the Engineers and architects for proper planning to afford optimum utilisation of the facilities. The architect should have artistic talence with an Engineering background and should be familiar with construction of civil engineering works and also the availability of resources and labour, technics and materials so that the structure will be harmoneous, functional and durable.

The role of architect in a public agency contract is secondary when the Chief Engineer controls over the architects and contractors. However, the role of architect assumes prime importance in private buildings when the architect takes up the assignment right from planning upto completion. The architect utilises the services of engineers for design of structure, supervision of buildings and the like. The role played by the architecture and engineering are complimentary to each other to achieve structures with taste and optimum utility. The relative emphasis and importance of architecture and engineering, however, vary depending upon the type of structure. The construction of a temple, church or mosque will involve more architectural considerations while structures like hospitals and industries, the engineering consideration outweigh the other. A judicious application of the sciences of architecture and engineering is necessary in all aspects of a structure.

Prior to the enactment of the Architects' Act by the Parliament, there was no reservation to practise as architect by people who are not qualified with the formal degree or diploma in architecture. However, Professional Institutions like Indian Institute of Architects has evolved code of ethics to its members and of ethics to its members and only those with minimum qualification and experience had been admitted with the institute.

The Architects Act extends the whole of India and came into force from 1st September 1972. The details of definitions, recognition, registration, etc., have been furnished in the Act which has been reproduced in the following pages.

Duties & Liabilities : The contract document shall show in detail the duties and liabilities of each party to the contract between the architect and the owner. These may be in part or full of site location, soil conditions, preparation of plans, specifications, estimates tender documents, calling for tender, recommending a suitable contractor, checking of bills and passing them for payment.

Similarly, the owner has the duties and liabilities in appointing the consultants, his instructions to the architect indicating his requirements, make necessary payments to the contractor upon the certificate issued by the architect and make the payments to the architect as per the terms and conditions mentioned in the contract.

The architect should be conversant with the Development Control Rules of the planning authorities and the building rules and regulations of the locality where the project is contemplated. He should get/assist in getting the plans approved by the appropriate authorities, design and execute the work as per the rules, regulations and statutory requirements and refrain from executing works unauthorisedly or in deviation to sanctioned plan.

Section 45 of the Architects' Act provides power to the Council of Architecture to frame rules on various aspects of which the professional contract and the code of ethics form a part. The council will render the Architect unfit to practise if he is found guilty of professional misconduct.

The architect is not a party to the building contract and the contract will be between the owner and the contractor. The architect cannot incur any personal liability to the contractor.

The architect can modify the design but not to the extent as would change the original scheme. The change should not result in extra cost to the owner. In case the additional expenditure is essential, it should be brought to the notice of the owner and his consent obtained. The architect can order the contract to remove any defective work and have it to get it re-executed.

Estimate of the works : The estimates should be prepared with great care and should be realistic. Under normal circumstances, when prices of materials and labour do not increase steeply during the period of execution, requirements and instruction from the owner is complete. The actual cost should not exceed more than 15% of the estimate furnished. The architect should not mislead the owner by projecting a low estimate to secure the work. The architect should act in the interest of the owner by ensuring that the rates adopted are reasonable and workable and that a contractor will be available to do a proper job on the rates adopted by the architect. The architect should invite tenders for execution of works within a reasonable time from the date of receiving the requirements and instructions of the owner.

The architect should discharge his duties in a fair manner and it should be justified for both the owner and the contractor.

The architect should issue all necessary details from time to time and should see that delay is not caused on account of his not furnishing the Drawings or instructions to the contractor in time. The architect is responsible both for the materials and the workmanship. If the materials are of inferior quality, he should reject them at the proper stage. If the

work is found to be defective, he should reject the work and direct the contractor to re-do it.

The architect normally visits the sites only periodically to ensure that the execution of the work is done in accordance with the drawing. The detailed or day to day supervision is done by site Engineer who will be at the site. He will take the instructions from the architect but paid by the owner. The site engineer is known as "Clerk of Works" and is expected to be familiar in reading the drawings and building operations. Nevertheless the architect will be responsible for the works and he cannot absolve from his responsibility in case of any failure. Often, the architect engages the services of structural engineer for the structural designs. Even by delegating this part of the work, still the architect is responsible for the soundness of the design of the structure although he can sue the Engineer for the failure. In case of types of works with which the architect is not familiar, he has to ask the owner to engage the consultant by the owner directly.

When an architect contemplates of adopting new technics of construction or to use new materials, he should take care to study them in detail as he will be responsible for any failure and will be liable for damages.

Liability of the Architect :

The architect is liable if he fails to exercise all reasonable skill, care and diligence in the discharge of his duties under these conditions but the aforesaid liability shall be limited as stated hereunder :

(a) The liability of the architect does not cover cost other than those for the reinstatement of the works. All liability for consequential damages is excluded.

- (b) The liability of the architect expires after two years from the date of completion of relevant part of the work.
- (c) The architect does not guarantee the work of any contractor.
- (d) The architect has no liability whatsoever for any part of the works not designed by him or not under his responsibility or which have not been constructed under his supervision.
- (e) The architect has no liability whatsoever for any damage resulting from any act of contractors or suppliers which is not in accordance with the contract documents or the architects instructions.
- (f) The architect has no liability whatsoever for any part of the work for which the liability rests with the contractor or supplier.
- (g) The architect has no liability whatsoever for any violation of legal provisions or rights of third parties unless these provisions or rights have been specifically brought to the notice of the architect by the client in writing.

CHAPTER II

APPOINTMENT OF ARCHITECT

Different methods are followed in appointing an Architect for a particular project. One of the methods will be to invite tenders from reputed and experienced architects. Following is the illustration of inviting tender for appointment of architects.

Tenders are invited from reputed and experienced architects for preparing the plans, drawings and to supervise the construction of civil and allied works in connection with the proposed project (Specify the nature of the project such as shopping complex/theatre/hospital etc.). The total approximate cost of civil works is estimated to be around Rs. _____ (Specify amount). This is a time bound project and should be completed within _____ (Specify time limit) of the commencement of the work.

The Architect shall make site visit and will advise the client about the type of tests and investigations required after studying the site conditions. He will assist the client in appointing a suitable agency for conducting soil investigation, the cost of which will be met by the client.

The Architect shall prepare preliminary designs, drawings, specifications and preliminary estimates of quantities of civil and allied works involved and shall carry out necessary revisions till the designs and specifications are finally approved by the client's and/ or their financial consultant.

The Architect shall prepare and provide full and final lay-out and detailed drawings along with full architectural details for all the buildings and for every floor. He should also furnish structural designs, drawings and bills of quantities for various buildings including foundations for machineries where applicable. He should also furnish detailed shop/fabrication drawings for the steel structures, reinforcement details including bar bending schedules. He should also furnish drawings and specifications for the electrification, sewerage system connected with an incidental to the project. The Architect should indicate the number of copies of drawings he will supply to the client and contractor free of cost in addition to the copies to be supplied to the various authorities for getting their approval and financial institutions for purpose of availing loan facilities. He should also indicate the charges for the extra copies on the basis of sq.m or sheets as convenient to him.

The Architect shall prepare detailed tender documents along with specifications and schedule of quantities. The conditions of contract shall be specified in consultation with the client. The invitation of tender can be made either by the Architect or by the client. The proceeds of sale will go to the Architect if he undertakes to prepare the document and sell by himself. However, the cost of Advertisements to be released in the Press shall be borne by the clients. The Architect shall assist in awarding the works to the respective contractors.

The Architect shall prepare and submit drawings as per the rules and regulations of the various authorities and either submit himself or assist the clients to submit. He shall also furnish the detailed estimate of the cost of the project for the civil and allied works with necessary drawings for submission to financial institutions to avail the loan for the project. The Architect should also assist in discussions with the Representatives of the Financial Institutions if and whenever required.

The Architect shall prepare a comprehensive programme of construction of civil and allied works in consultation with the client, machinery suppliers, various contractors and others who are involved in the execution of the project. The Architect shall arrange and attend co-ordination meetings from time to time and ensure that the project is completed in time as per the schedule.

The Architect shall supervise all the civil and allied works, perform check measurement of work at site, scrutinise and verify the Bills of various contractors reconciling such bills with the actual work executed at site and shall issue periodical certificate for interim payments to such contractors. The Architect shall certify the completion and final bills of the contractors. For the purpose of detailed supervision, the architect should post a competent, qualified and experienced engineer at site of works during the period of execution. It is a normal practice that the salary for this engineer known as "Clerk of Works" is to be paid by the client. However, some of the public undertakings prefer that this payment to be made by the architect and include this expense in his quotation for his fees. In such a case the architect should indicate the additional charges to be paid if the stay of the Engineer is extended beyond the period of execution. The amount should be specified on per month basis. The arrangements of the boarding, lodging and conveyance of the site engineer and the cost towards the same should be decided before finalising the terms.

The architect shall engage or advise the client for utilising the services of the experts for design of foundations, structural designs, electrification, water supply and sanitation effluent treatment, landscaping and other allied activities in connection with the project and the payment to be made to these specialists and on whose account it should be paid has to be decided before signing the contract between the client and the architect.

The architect shall incorporate such changes, deviations, additions, alterations, omissions etc., from the approved drawings as may be desired by the client from time to time without additional charges for this work. In case the architect desires to specify or the limitations in respect of the above, he should also mention the additional fees he would like to charge and the basis for the same.

The architect shall furnish detailed requirements of steel and cement as also consumption certificate as may be required from time to time. He shall also furnish necessary stability certificate for the various structures and assist in obtaining necessary completion certificates and permission for use of the building from appropriate competent authorities. The Architect shall also furnish design calculations, if required by any competent authority who is vested with the power to permit to use the building.

The architect shall make periodical visits as and when necessary and atleast once in a fortnight to ensure that the intent of the drawings and designs is properly carried out and that the progress of works is maintained. He should also attend review meetings with representatives of various agencies involved in the execution of the project. Such review meetings shall be held as often as necessary to maintain the progress of works. The architect should indicate in the agreement as to whether the expenses towards the travelling and other out of pocket expenses has been included in his fees quoted; if not, the expenses he will claim towards the same (which should not exceed a specified amount until the completion of the project) should be indicated.

The client will reserve the right to delete one or more of the buildings or services from the scope of the work of the architect at anytime during the execution of work without assigning any reason; In case the services are terminated any time during the progress of

work, the architect shall be compensated towards the services rendered subject to a minimum of _____(specify amount).

The client reserves the right to divide the architectural work among different architects.

In case of calling the tenders for appointment of architects, the following points should also be mentioned.

The client reserves the right to reject all or any tender for architectural works without assigning any reason. The quotation should indicate the professional charges in terms of percentage of the cost of the project separately for designs and different assignments and the mode of payment. The Architect should also indicate his staff structure list of works executed and other relevant details. Sometimes an architect is selected by competition when the architects are asked to submit designs and drawings. The selection is made by a committee, the composition of which may be informed earlier. In this type of selection the client will reserve the right to engage other agency during the execution of works. However, the architect will be compensated for the designs submitted by him.

THE AGREEMENT BETWEEN THE OWNER AND THE ARCHITECT

Following is an illustration of an agreement made by the OWNER and the ARCHITECT.

The agreement made on _____ day of _____ in
the year _____ between _____
_____ residing at _____

herein after called the OWNER (which expression shall include his/its

successors, executors, administrators and assigns) on the one part and

_____ residing at

hereinafter called the ARCHITECT (which expression shall include his successors, executors, administrators and assigns) on the other part.

WHEREAS the OWNER is desirous of constructing a building at _____ in accordance with the plans and estimates prepared by the ARCHITECT as suggested and approved by the OWNER subject to such further variations and modifications as the OWNER may from time to time make or sanction.

AND WHEREAS the ARCHITECT has, after acquainting himself with the nature and extent of the work agreed to draw plans estimates etc., supervise the construction of the said building mentioned subject to the conditions hereinafter set out.

Now for the mutual considerations hereinafter appearing it is hereby agreed as follows:

1. The OWNER hereby engages the services of the said _____ as ARCHITECT for the designing and supervision of the construction of the building mentioned above which work shall include the preparation (subject to the approval of the OWNER) of the necessary designs , plans, detailed drawings, structural drawings, calculation and bills of quantities, estimates, specification, schedule of programme of works, tender notification, conditions of contracts with contractors and working drawing to be drawn, the revision of the same whenever called for by the exigencies of work or required by the OWNER after the scrutiny of the tenders , opening of the tenders in the presence of OWNER and tabulating the tenders, recommending successful tenderer, advising the

OWNER on tenders, the issue of necessary quality certificates, advising the OWNER on any technical matters connected with the construction of buildings or other works, or the installations (hereinafter called 'The Fittings') which may be entrusted to the ARCHITECT at the discretion of the OWNER, rendering generally as such ARCHITECT all professional service as may in any way relate to, or arise out of the construction of the said building or the installation of the said fittings, and when desired by the OWNER, scrutiny of Bills, measurements and rates and issue of necessary certificates.

2. The ARCHITECT agrees that he will be responsible in his capacity as ARCHITECT for the quality of work, the structural stability of the building and of every portion thereof and such fittings as entrusted to the ARCHITECT and the conformity of the building and the fittings to approved plans, designs and specifications and conditions of contract applicable to the work in question.

3. The work of construction of the building or the installation of the fittings shall in whole or in part as the OWNER may deem from time to time, be let out on contract after calling for open tenders. The OWNER will give the most careful consideration to the advice and recommendation of the ARCHITECT but shall have the absolute right to accept or reject any tender/estimates either in whole and/or in part.

All tender notices for the work shall be invited by the OWNER and all tender documents to prospective tenders shall be issued by the ARCHITECT

4. The ARCHITECT shall not be entitled to make any deviations or fix any new rate for any tendered item of work without the written sanction and approval of the OWNER. The rates for new items of work will be fixed by the ARCHITECT after approval in writing of the OWNER.

5. The ARCHITECT shall scrutinise and certify as to the correctness of the measurements, quantities and rates contained in all bills of the CONTRACTOR or CONTRACTORS and shall hold themselves responsible to the OWNER for the correctness of all bills, measurements and certificate scrutinised, checked or issued by them or got checked, scrutinised or issued by them.

6. The ARCHITECT agrees to perform his duties as ARCHITECT and will do everything in his power and authority to ensure that the contractor or contractors complete the construction of the buildings or installation of such fittings as may be entrusted to them by the OWNER according to the schedule of time given to them and that no unnecessary delay is caused by the reason of the ARCHITECT's not furnishing any details in regard to designs etc., to the contractors.

7. The ARCHITECT shall promptly notify the OWNER of any changes in the constitution of his firm. It shall be open to the OWNER to terminate this Agreement on the death, retirement, insanity or insolvency of any person being in charge of management in the said organisation subject to the availability of every right that has accrued due in favour of the OWNER for being enforced against in the event of any necessity or on the addition or introduction of a new partner without the previous approval in writing of the OWNER, but such option shall not be exercised or such approval withheld unreasonably. But, in the absence of and until its termination by the OWNER which it is clearly admitted by the ARCHITECT that the OWNER shall always have as aforesaid, this agreement shall continue to be full force and effect notwithstanding any change in the constitution of the organisation by the death, retirement, insanity or insolvency of any of its persons in charge of management.

8. The ARCHITECT shall make at his own expense and supply the OWNER _____ copies of all plans, structural drawings, estimates,

specification and working drawings necessary for the work of constructions, for incorporation in the contracts to be entered into by the OWNER and for record purpose of the OWNER. Contractors shall be entitled to _____ sets of all such plans, estimates, specifications and working drawings free of charge but except as aforesaid the ARCHITECT shall be at liberty to recover the cost of preparation of extra copies of plans from the contractors at Rs. _____ per sq.m or per sheet as is convenient.

9. The OWNER will inform the ARCHITECT as soon as possible with regard to decisions as to correctness or otherwise or advices concerning the work under contract which may from time to time become necessary.

10. The OWNER shall include in all contracts which may be entered into with a contractor or contractors such clauses as would provide for the payment to the OWNER by the contractor or contractors, of adequate damages for losses or delay on his/their part in carrying out the terms of the said contract and ARCHITECT shall take all necessary precautions and perform all their duties before or during the progress of the work to bring about the completion of the building and the installations by the scheduled date.

11. If the work of construction of any one or more of the floors or the installations of fittings therein be substantially interrupted by force majeure or by reason of any orders in writing issued by the OWNER stopping or suspending the work, construction or installation or by reasons of any undue or unreasonable delay on the part of the OWNER in the matter of approving the work done or in the matter of giving such sanction, or instruction as may be necessary for the further progress of the work, the ARCHITECT and contractors shall not be held liable in any way for the consequential delay in the completion of such work.

12. The ARCHITECT will visit the site atleast once in _____ days or according to the exigencies of the work which are highly essential. However, the clerk of works shall be always present at site during the progress of work and shall supervise and give right directions for the execution of the works.

13. The ARCHITECT should report to the OWNER once in _____ days the progress of the construction work and furnish to the OWNER the schedule of programme of works of the contractor.

Stages of Payment :

The ARCHITECT will be paid the fees as per the stages given in the following paragraphs :

- | | |
|--|--|
| a) After approval of the sketch designs by the OWNER | 10% of the fees based on agreed estimated cost subject to ceiling of Rs. _____ (mention amount). |
| b) Preparation of necessary drawings and submitting for sanction by the Municipal & other authorities. | 20% of the fees based on agreed estimated cost; less payments made earlier, subject to a ceiling of Rs. _____ (mention amount) for total payment for services against (a) and (b). |
| c) Preparation of detailed working drawings giving architectural details and structural details and obtaining approval of the OWNER and other concerned authorities. | 35% of the fees based on agreed estimated cost less payments made earlier. |

- | | |
|---|--|
| d) Preparation of Contract documents for various trades, inviting tenders in consultation with the OWNER, scrutiny and submission of recommendations on the tenders received. | 50% of the fees based on tender amount, less payments made earlier. |
| e) Supervision of construction and certifying of Contractors' Bills till the works are completed and final certificates are issued by the Architects. | 90% of the fees based on the value of the works executed less payments made earlier. |
| f) Obtaining completion certificates from Municipal and other Authorities. | 95% of the fees based on the value of works less payments made earlier. |
| g) Submission of 'As-made' drawings for records of the OWNER as specified | 100% of the fees based on the value of work-less payments made earlier. |

The OWNER at his cost shall furnish to the ARCHITECT a soil test report from a competent agency.

14. After the working drawings are delivered to the OWNER by the ARCHITECT, should the work be suspended on any account or for any reasons whatsoever for a period exceeding six months through causes beyond the control of OWNER, the ARCHITECT shall be at liberty to claim that the particular work as abandoned and notify the OWNER accordingly and thereupon such work shall be deemed to have been abandoned under the proceeding clauses.

15. It shall be open to the OWNER to terminate his agreement by notice in writing in the event of any act which is prejudicial to the interest of the OWNER or breach by ARCHITECT of all or any other terms of this agreement. The ARCHITECT shall not in the event of such termination being due to breach or act which is prejudicial to the interest of the OWNER, be entitled to any compensation or damages against the building, but shall be entitled to their fees earned upto that date.

16. The design submitted by the ARCHITECT in respect of the proposed building shall not be adopted by him in respect of any other construction that may be designed by him without the written consent of the OWNER therein.

17. The liabilities of the ARCHITECT expire after two years from the date of completion of the work.

18. In the event of any dispute, differences of question arising out of or touching or concerning of this Agreement the same shall be referred to the arbitration of two arbitrators one to be appointed by each party and in case of their disagreement to an umpire appointed by the said arbitrators or in case of their default by the parties.

IN WITNESS WHEREOF THE OWNER AND ARCHITECT has hereunto set their hand this _____ day of _____
_____ before the witness attesting below at _____

FOR OWNER

ARCHITECT

WITNESS:

CHAPTER III

CONTRACT & APPOINTMENT OF CONTRACTORS

The knowledge of simple proposition of law of contract and other relevant matters is necessary for an architect or consultant as it is time consuming for him to approach the advocate for advice on simple matters.

The building contract is an agreement between the two parties, may be an employer and employee or owner/client and contractor. It is an agreement under which a contractor undertakes to execute the construction work for certain payment from the owner or employer. The contract will be valid only if the offer is accepted by the party concerned and is communicated to the contractor in writing and should be executed in a stamp paper of the value as prescribed by the Indian Stamp Act. Unstamped documents cannot be admitted in the evidence before an arbitrator or court. In such cases the parties will be asked to get the documents duly stamped by paying stamp duty and the penalty as prescribed by the Stamp Act.

The Indian Contract Act defines the contract as only those agreement as contracts which are enforceable as such having been made by free consent of parties by persons competent to contract for lawful consideration and lawful object which are not expressly declared to be void by any statute.

TYPES OF CONTRACT:

Mainly there are two types of contract. In one type the quantities form part of the contract while in the other, it is a lumpsum contract.

Where quantities form part of the contract, the work is to be executed as per the drawings and as described in Bills of Quantities. The quantities of works may be subject to certain limitations, i.e. if the quantity executed is say $\pm 25\%$ than the quantity specified in the Bills of Quantities, the rates will be valid. In case the difference is higher the contractor may claim additional rate if this clause is not mentioned. The said 25% may also vary and in some cases it can be made binding that irrespective of the quantities the rate will remain unchanged. However, this should be specified in the terms of contract.

The works are measured itemwise and are paid as per the rates accepted by both the parties. For additional items of works, the contractor is bound by the rates as indicated in the Bills of Quantities.

In case of contract where quantities do not form part, the special conditions and specifications become more essential as every detail cannot be shown on the drawings. The contractor should furnish an itemwise estimate as to how the lumpsum amount for each item has been arrived, although this does not form part of the contract document.

In this type of contract, it is normal that extra items of works are involved and quite often ends in disputes. Where extra works can be measured, they will be priced on the rates submitted by the contractor before the commencement of the work.

The priced Bills of Quantities which do not form part of the document will be used as a Guide for making interim payment during the progress of works.

The contract document consists of article of agreement, specifications, and conditions of contract including the mode of payment, responsibilities and liabilities of both the parties.

In another type of contract, payment is made on the basis of actual cost plus a percentage of the cost or actual cost plus a lumpsum fee for completion; In this, the cost includes cost of materials, labour, hire charges, for tools plant and machinery transit charges etc., however, the cost should not include profits and overheads.

Draft Agreement between the OWNER and the CONTRACTOR when an Architect or Consultant is engaged. (materials supplied by OWNER)

This agreement made _____ between _____ aged about _____ s/o _____ residing at _____ hereinafter called the OWNER (which expressions shall include his successors, administrators and assigns) on one part and M/s _____ as represented by _____ hereinafter called the CONTRACTOR on the other part.

Whereas the OWNER is desirous of constructing a building at _____ and has applied/obtained necessary permission from the appropriate authorities.

And whereas the Contractor has been awarded the work to construct the building as per the plans and specifications prepared by the consultant.

The consultant means _____ residing at _____ who has been engaged by the OWNER or any other consultant appointed from time to time and notified by the owner.

Whereas the OWNER is desirous to get the above work executed and has accepted the tender by the CONTRACTOR for the construction,

completion and maintenance of structure. Now this agreement witnesseth as follows:

- 1) The CONTRACTOR will execute and complete the works for the building as per the drawings and specifications to the entire satisfaction of the Consultant and /or the OWNER.
- 2) It is a contract to carry out the construction of the same building to be paid for, according to the actual measured quantities and the rates indicated in the attached schedule are probable quantities. The quantities shown are only approximate and liable to variation without entitling the CONTRACTOR to any compensation whatsoever.
- 3) The CONTRACTOR hereby understands that time is the essence of the contract and agrees to complete the construction of the building within _____ months thereafter, unless such delays be caused by reasons beyond the control of the CONTRACTOR, the Consultant shall grant such extra time for the completion as may be necessary.
- 3A) Penalty clause for delay.
- 4) The contract being the Labour Contract, all consumable materials such as bricks, sand, jelly, cement and steel will be supplied by the OWNER free of cost at site of works, or paid separately if asked to arrange for himself. All the tools and plants including scaffolding Centering sheets etc., are to be arranged free of cost by the CONTRACTOR and hire charges, if any has to be included in the rates quoted. The empty cement bags will be property of the CONTRACTOR. In case of steel the overlap and wastage should not exceed 5% as otherwise the cost towards the excess will be debited to the CONTRACTOR. Binding wire will also be supplied by the OWNER.

5) The CONTRACTOR is responsible for the welfare of the labourers engaged by him and any compensation claimed by the labourers in case of any accident or otherwise is to be paid by the CONTRACTOR during the execution of the project.

6) The progress of the work shall be uniform throughout the period of works. If the quality of the work or the progress of the work is not satisfactory to the OWNER, he can terminate the contract and settle the CONTRACTOR without any extra payment for the works not executed. While efforts will be made to settle the bill for the works executed by the CONTRACTOR the OWNER reserves his right to appoint another agency and proceed with the work, irrespective of whether the bill is settled or not. In settling his bill, the OWNER reserves his rights to deduct part of the amount if the workmanship is inferior or suffered damage on account of the lapse of the CONTRACTOR.

7) The OWNER has the power to award some of the items or part of the items of works to other agencies.

8) The CONTRACTOR shall execute the works as per the plans approved by the OWNER and as per the specifications in their quotations and as given in the schedule attached. In case of any discrepancy or ambiguity the CONTRACTOR has to consult the OWNER before executing the work.

9) Water and Power will be supplied by the OWNER free of cost at the work site.

10) A sum of Rs. _____ will be paid as advance towards the mobilisation and subsequent payments will be made weekly/monthly on submission of the bill. 90% of the bill will be paid on the certificate issued by the Consultant or within _____ days from the date of submission of bill whichever is earlier. The balance 10% will be retained

as a deposit and this will be refunded in two equal instalments, one at the time of settling the final bill and the balance after _____ months of handing over the building. The second half will be treated as a deposit towards the Defects Liability Period during which period (agreed as _____ months after completion) any defects that will be observed has to be made good by the CONTRACTOR at his expense.

11) Any wastage of material due to lapse on the part of the CONTRACTOR shall be made good by him.

12) In case of any dispute, the decision by the consultant will be final and binding on both.

IN CASE OF CONTRACT BEING AWARDED INCLUDING MATERIALS

The Item (4) indicated in the above agreement to be substituted by the following. The CONTRACTOR should use only the best available materials and they should conform to Indian Standard Specifications. Where the specifications are not available, the sample should be approved by the Consultant before placing for the order.

The quantity of cement assumed for items of works has to be mentioned in the agreement and the Consultant will check the quantity consumed and at every stage.

On the theoretical quantity as accepted by the CONTRACTOR, a variation of lesser consumption of cement upto 3% will be allowed, however, the rate will be cut accordingly. If the consumption is less by more than 3% and if the work gets suffered on that account the OWNER reserves the right to reject the work.

The CONTRACTOR, at his expenses, shall arrange to get all materials and all parts of the work tested from time to time as per Indian Standard Specifications and submit the test report to the consultant.

All intermediate payments shall be treated as advance by way of payment against final payment only and not as payment for work actually done or completed.

The CONTRACTOR shall conform to and comply with the regulations and bye-laws of the State, Central Governments and the Department of Local Authorities and should indemnify the OWNER against any loss, cost and damage in the event of any action taken for contravention.

Illustration:

(This agreement is to be typed on Rs. _____ stamp paper)

ARTICLES OF AGREEMENT

This AGREEMENT made on _____ between _____ s/o _____ aged _____ years, residing at _____ hereinafter called the OWNER (which expressions shall include his successors, executors, administrators and assigns) on one part and _____, Son of _____ aged _____ years, residing at _____ hereinafter called the CONTRACTOR (which expressions shall include his successors, executors, administrators and assigns) on the other part.

WHEREAS the OWNER is desirous of constructing a residential building _____ at _____

WHEREAS the CONTRACTOR has agreed to execute and complete the works as per the drawings and specifications to the entire satisfaction of the OWNER/ARCHITECT.

It is a contract to carry out the construction of the building for which payment will be made according to the actual measured quantities and rates indicated in the attached schedule. The quantities mentioned in the attached schedule are only approximate and liable to variation.

1. The CONTRACTOR hereby understands that time is the essence of contract and agrees to complete the construction of the building within _____ months, since commencement/taking over of the site. If the delay is caused beyond the control of the CONTRACTOR, the OWNER/ARCHITECT shall grant such extra time as may be necessary for the completion.

2. Penalty clause for the delay will be levied at Rs. _____ per week or part thereof.

3. The CONTRACTOR is responsible for the welfare of the labourers engaged by him/or/and by his sub contractors and any damage claimed by the labourers in case of any accident or otherwise is to be paid by the CONTRACTOR.

4. The progress of the work should be uniform and if the quality of work or progress is not satisfactory, the OWNER can terminate the CONTRACTOR and settle his account for the work done. However, the CONTRACTOR is not eligible for any compensation for the unexecuted works.

5. The OWNER/ARCHITECT deserves right to appoint another agency and proceed with the work whether or not the amount due to the CONTRACTOR is settled immediately, provided the measurements have

been taken and accepted by both the parties. In settling the bill the OWNER deserves his right to deduct part of the above, if the workmanship is inferior or suffered damage on account of the lapse of the CONTRACTOR.

6. The OWNER has the power to award some of the items or part of the items of the works to other agencies.

7. The CONTRACTOR shall execute the works as per the plans approved by the OWNER/ARCHITECT and as per the specifications indicated in their quotations and in the schedule attached. In case of any discrepancy or ambiguity, the CONTRACTOR has to consult the OWNER/ARCHITECT before executing the work.

8. Water and power will be supplied by the OWNER free of cost at any work site.

9. Any wastage of materials due to lapse on the part of the CONTRACTOR shall be made good by him.

10. The CONTRACTOR should use only the best available materials and they should conform to Indian standard Specifications. Where these specifications are not available, the sample should be approved by the ARCHITECT before placing the order.

11. The quantity of cement assumed for items of works has to be mentioned in the agreement and the ARCHITECT will check the quantity consumed at every stage. In the theoretical quantity, as accepted by the CONTRACTOR the variation of lesser consumption of cement upto 3% will be allowed, however the rate will be cut accordingly. If the consumption is less by more than 3% and, if work gets suffered on that account, the OWNER deserves the right to reject the work.

11. (a) Following cement quantities have been assumed by the CONTRACTOR against the items mentioned below :
(One Bag of Cement - 50Kg)

- | | |
|---------------------------------------|----------------|
| 1. P.C.C.1:4:8 | - bags/100Cft. |
| 2. C.C.1:2:4 | - bags/100Cft. |
| 3. Brick Work in CM 1:5 | - bags/100Cft. |
| 4. Brick Work in CM 1:6 | - bags/100Cft. |
| 5. 4 1/2" thick wall in CM 1:4 | - bags/100Cft. |
| 6. Plastering in CM 1:4 | - bags/100Cft. |
| 7. Plastering in CM 1:3 | - bags/100Cft. |
| 8. Laying of Terrazo Tiles and Mosaic | - bags/100Cft. |

12. The CONTRACTOR shall indicate the financial commitment if any in case of any change in specifications or samples, and should bring to the notice of the OWNER/ARCHITECT and get his consent in writing.

13. The quantities included in the schedule are only approximate and no extra rates will be allowed due to any change in quantities.

14. The OWNER may arrange to supply the materials at site of works for which the cost will be recovered from the bills submitted by the CONTRACTOR at the following rates : (The rates assumed by the CONTRACTOR in submitting his tender)

Cement Rs. /-per bag ofKg.

Bricks Rs. /-perNos.

River sand Rs. /- perCft.

$\frac{3}{4}$ " Granite Jelly Rs. /-perCft.

1 $\frac{1}{2}$ " Granite Jelly ... Rs. /-perCft.

Steel Rs. /-perTonne.

15. The execution of works, form works, centering, period for removal of form work, period of curing and testing if needed, measurements, and all activities connected with building construction measurements will be as per the instructions of the ARCHITECT.

16. The CONTRACTOR has to appoint a watchman at his cost for the safety of the materials and the building. If the work is delayed, by more than _____ months, due to reasons other than the lapses on the part of the CONTRACTOR, then a sum of Rs. _____ per month will be paid to the CONTRACTOR towards the same for the period beyond _____ months.

17. Water and power will be supplied by the OWNER free of cost.

18. Mode of Payment : A sum of Rs. _____/- will be paid within a week of handing over the site. Subsequent payments will be paid on submission of bricks which can be made on completion of.

(a) Basement

(b) Superstructure upto lintel level

(c) Superstructure upto roof level

- (d) Completion of ground floor roof
- (e) Superstructure upto level of FF roof
- (f) Casting of FF roof
- (g) For every stage of completion of work to a value of Rs. _____
- (h) On completion of all other works.

19. Payment will be made within _____ days of submission of the bill and certified by the Architect. If the certificate is not issued by the Architect within _____ days a part amount _____% will be released. A sum equivalent to 5% of each bill will be deducted and the accumulated amount (subject to a maximum of Rs. _____) will be retained as deposit for the defects liability period which is taken at six months after the completion of the works. The payment of Rs. _____ made as advance will also be deducted in each bill proportionately. The deposit will be returned after six months and any defects observed during this period should be made good by the CONTRACTOR at his own cost.

OWNER

CONTRACTOR

WITNESS:

1.

2.

TENDERS :-

Before inviting the tenders , the architect should ensure that all plans, specifications and details are available without any ambiguity. The Bills of Quantities should be as accurate as possible.

There are different ways in which tenders can be invited viz. by issuing tender papers to a few selected contractors or by public notice releasing advertisements in the Press or by negotiations. The appropriate method of calling tender will depend upon the type and nature of work and its value.

By private invitation, the architect will invite the tender from selected contractors who have the experience and financial capacity to execute the particular job. For this purpose, often the architect invites tenders as pre-qualification tender with the object of only to ensure that the contractor has sufficient technical personal, sufficient tools and plants and enough resources to execute the job. By this method, the quotations of inexperienced and incapable as well as litigant contractors need not be entertained at the initial stage itself.

By Public Notice, advertisements are to be released in leading News Papers of atleast one in English and one in the regional language. All public works are required to invite the tender by public notice. By this method, it is possible that new and capable contractors may tender for the work or some new entrance may enter the field. However, it is likely that incapable and/or litigants may quote the lowest amount who will not only prolong the work but also a source of trouble to the architects and/or owner/employers.

The contractors who tender the work have to inspect the site, study the nature of works and take some efforts to quote the tender. It is likely that the owner may not take up the work in which case the efforts taken by the contractor is not compensated. In order that the compensation should not be claimed, as a means of caution, normally, the clause "the owner is not bound to accept the lowest or any tender" is added while calling for the tenders. However, in case the tender is invited through an architect, his position will be delicate and he should inform the tenderer that the rates quoted by him had been reasonable

and should thank him for having responded the tender and that the owner has dropped the proposal for the time being and that Architect will contact the contractor in future for some other works and for the work for which tender was called as and when the owner decides to execute the same.

In selecting a contractor, normally, the contractor who has given the lowest quotation has to be awarded the work. However, the architect should not object to some other contractor who has quoted higher, if he has been recommended by the owner. In such an event the architect should try to negotiate and reduce the rates to the reasonable amount which are workable, provided the quality and progress of works will not suffer. If the architect does not know the capacity of the contractor and awards the work to him on the recommendation of the owner, then the architect should impress upon the owner that he will not be responsible for the workmanship of the new contractor.

In calling for the tenders the invitor of tenders is not bound to accept the lowest tender. He can also reject all the tender without assigning any reason. There is no need for him to have negotiation or personal hearing before rejecting a tender. Against his decision, no writ can be filed in the court. The tenderers cannot claim any compensation for the efforts put in for tendering on his tender not being accepted or if the calling of tender is revoked.

In case of public bodies and Government Departments, where there are stipulations that either the lowest tender will be accepted or if rejected, reasons will be recorded, the court can look into the files on appeal by the affected parties.

If the lowest tender received by an invitor is not signed by the offeror, still it can be accepted, provided, all other aspects are in order and signature alone is missing.

Unless it is stipulated that written acceptance alone is valid, oral acceptance is quite sufficient and the conduct of the invitor will be a proof of acceptance.

The acceptance should not be conditional. If the conditions are stipulated it becomes a counter offer or negotiations and will not amount to absolute acceptance. Tender with conditions will be invalid in law.

Normally, time limit for acceptance of tender is specified in tender notice itself. If not, the reasonable time has to be decided based on the nature of work. The tenderer is at liberty to extend the time of validity on his own or on the owner's request. It cannot be extended beyond a reasonable time. If such extensions are to be had, there should be for some consideration only.

Before accepting the tender, if the tenderer dies, or becomes insanity, the proposal is revoked. In the case of the death of a invitor who is a private person, his heir cannot accept or reject the tenders if the tenders had neither accepted nor rejected before his death. However, if the invitor is a public undertaking or Government, the successor for the post can accept or reject the tenders as he deems fit.

A tenderer is at liberty to withdraw his tender after they are opened and before his decision taken on the acceptance unless statutory provision had been made in the terms while inviting the tender. Normally, such provisions is made by the governments.

In case there is stipulations in the tender notice that any breach of contract, it means that the tenderer should compensate the loss sustained by the invitor in calling for the second tender and deciding it. In such a case, the invitor should retain the earnest money deposit (EMD) with him and if the loss incurred is less than the EMD, the balance should be refunded.

If the contractor refuse to accept the work under the plea that the tender quoted by him is very low by mistake or cannot be completed within the financial limit or may not be able to cope up with the work on account of his having taken up some other work in the interim period, then, the deposit will be forfeited in favour of the owner and the owner can file a suit against the contractor to recover the difference in the cost of the work between the lowest and the second lowest tender.

The law is that the party who enters into a contract by mistake must be held to it unless the mistake was induced by the other party or was brought under the other party's notice before acceptance.

The tenders can be classified into 3 categories Viz. Public tender, selected tender and fixing a known contractor on negotiation.

In public tender atleast 15 days time should be given from the date of publication of notice and it is a must for public works. This is strenuous for the architects and they may have to deal with unknown persons whose financial stability and organisational capacity are not known which may lead to disputes. The plans, specifications and complete details are to be prepared prior to press Advertisement. The advantages are: there will be keen competition with opportunity for new entrants who may be more capable and the cost will be low. These type of tenders must be open in the presence of the tenderers or their representatives who choose to remain at the time of opening. However, this type is not suitable for specialised works.

Selected Tenders : In this type the tender papers are issued only to selected contractors either known to the architects or owner. In some cases advertisements calling for pre qualified tenderers will be released in the press to select contractors for the nature of works and to ensure their capacity to execute the work properly within the specified time.

The contractors will be screened at this stage and those who are selected will only be issued with tender documents. In this type, about 7 days may be enough to submit the tender and it is not necessary to open the tender papers in their presence. This is suitable for private works and the financial capacity of the contractors can be assessed with less chances of dispute. This is suitable for specialised works. Illustration for pre-qualification of Tender:

* * * * *

Pre-qualification Tender Notice for civil contractors to include electrical, plumbing and sanitation works.

_____ invites pre-qualification Tender for the construction of buildings at their proposed _____. The work is estimated to cost about _____ and the time allowed for completion will be approximately _____ months.

The proposed project will consist of either _____ storeyed or single storeyed with R.C.C framed structure and will have _____

The work has to be commenced sometime in _____ 19____

Contractors with sufficient financial support with the necessary _____

and who have executed works of such magnitude and nature will only be considered.

Contractors desirous of tendering for this work may send their credentials to the undersigned within 15 days of the publication of this advertisement.

No further tender notice will be published in the press at a later date. Issue of tenders will be restricted to those who pre-qualify themselves for this work and found to be suitable.

Name of the Architect :

Address :

NEGOTIATED TENDER : In this type, the contractor is selected and terms negotiated.

CLARIFICATION REGARDING SOME POINTS IN CONTRACT WORKS :-

Sometimes the contractor works without a proper agreement or a contract being made. This may happen when a work is to be executed urgently and the owner asks the contractor to proceed with the work prior to settling his rates, or to do some works connected with the main work but not covered in the main contract.

In such cases there will be no valid agreement between the two parties and the dispute will arise when the contractor quotes rates which may be felt as unreasonable by the owner. The owner cannot refuse payment on that score.

The Contract Act provides for the contractor to claim for the value of work done provided one should have a lawful act on behalf of another person and the other person who got the benefit of the work should enjoy the same and the Act done should be lawful, honest and sincere one and not a gift or gratis.

The above provision is applicable to both individual as well as Government.

COLLUSION AMONG CONTRACTORS : At times the intending tenders make an agreement among themselves do not submit the tenders in favour of one of them. There is no provision to consider this as illegal and no punishment can be imposed for collusion among themselves. In such an event the owner can exercise his right in rejecting all the tenders and going for calling afresh again.

Agreements for building and construction works ; This should be in writing only in case of public undertakings and Government Departments. Agreements for private works need not be in writing.

As per the law the following agreements should be in writing.

Agreements without consideration which are made out of natural love and affection.

Agreements containing Arbitration clause.

Memorandum of Association, Articles of Association and Company Contracts.

Trust Creation.

For transfer of property by sale or gift;

For mortgage or lease.

TYPES OF CONTRACT PREVAILING IN THE CONSTRUCTION INDUSTRY OR BETWEEN THE OWNER AND THE ARCHITECT/CONSULTANT, BETWEEN THE OWNER AND THE CONTRACTOR.

System of contracts for Governmental organisations :

In case of Government contracts public funds are handled by many persons with the possibility of clandestine contracts being made by some people. Hence, Government of India governs the Departmental contracts by Government in Article 299 of the Constitution of India. By this, all contracts made on behalf of the Government should be made by the President/Governor of the Country/State concerned. All contracts and assurances of property to be executed by such persons authorised by the President/Governor in such a manner as directed; neither the President/Governor nor the person authorised by them to execute contracts are personally liable in respect thereof.

The interpretation of the various clauses of the Article 299 of the Constitution of India can be summarised as follows:

A contract by correspondence or oral contract is not binding on the Government. There must be deed for a formal written contract; the executor of the deed must be a person authorised by President/Governor on behalf of the Government; the conferring of the Authority may be by General Order or by a special order; the deed should be executed by the authorised person "on behalf of the President/Governor"; Any contract which does not satisfy the Article as interrupted above becomes null and void; there is no implied contract between any party and the Government.

In Government contracts, the executive heads and the officials executing the contracts for and on behalf of the Government are not held personally liable under the contract.

During the performance of a contract, the contractor has an obligation to do extra work at the stipulated price. Any modification or deviations should be expressed in writing by the Engineer-in-Charge or his sub-ordinates for whom the power is delegated. In case of private contracts, extra works can be ordered orally also.

Completion Of Work In Time : In all contracts it is normal to mention the period of completion and signify that "Time is the essence" of contract. When the owner is prepared to extend the time of completion, he is eligible for compensation due to losses on account of the delay in completion of the project. The compensation should be indicated while sanctioning extension of time. If this is not indicated, it will be taken that the owner does not mind for timely completion and is not eligible for any compensation. However, if the work is not completed even during the extended period, then the owner is eligible for compensation.

The following causes of delay will be eligible to earn extension of time. Viz. Acts of God, Bad weather conditions, serious loss incurred by the contractor due to unforeseen circumstances like riot, strike by workmen or any such other Act affecting the work of contractor, delay by other contractors on whose work the contractor's progress depends, non-availability/non-supply of materials in time, break-down of tools and plants supplied by the Department or any other cause beyond the control of the contractor.

In case of delay in completion due to one or more of the reasons mentioned above, it does not mean that the extension time is automatically

granted. The contractor has to apply in writing indicating the reasons to establish and the extension time needed by him.

If extension of time is not granted the contractor, he should not stop the work but should proceed and complete the work as per his agreement unless he is prevented to do so.

The owner is entitled to liquidated damages from the time proposed to have been completed or subsequently extended upto the time of completion of job through some other agency. The owner should ensure that no unreasonable delay has been made in taking over the job and completing it without delay.

In case of any discrepancy between the drawing and the specifications, contractor should bring it to the notice of the owner/architect and have that clarifications in writing before execution, although the rule of interpretation is that specification get the predominance over the drawings.

Defects Liability Period : It is normal practice to include a clause in the agreement by which the contractor will be obliged to make good any defects that will appear during a certain period after completion of the building. This period is known as Defects Liability Period and this period varies from 6 months to one year. This is due to the defects not visible during the inspection immediately after the work but would show themselves in due course on account of inferior quality of materials or/and defective methods of work or the defects having been covered during the inspection.

However, this clause can be applied only when the deterioration is due to reasons other than "wear and tear" for period mentioned in the Agreement.

Such defects may result in entirely bad work which cannot be retained or that can be retained with rectifications. Depending upon the merits, the course of action should be decided. In case of sub-standard work, the payment can be reduced proportionately.

If the owner cancels the work after accepting the tender and issuing the work order, the contractor is entitled for compensation in respect of the costs incurred by him and the loss of the savings he expected on completion of the work. This profit content should be reasonable and convincing. He can initiate a suit against the owner to recover the above sum.

Once a contractor has entered into an agreement, he is not at liberty to abandon the work, although the events turn out to his disadvantage. He will not be discharged of his obligations on account of the unforeseen circumstances delaying the performance except and unless the terms have been mentioned in the agreement in his favour.

In case the work is abandoned by the contractor, the owner can terminate the contract and get the balance work executed through some other agency at the risk and cost of the original contractor.

It is necessary to include in the agreement the course of action to be taken on the death of contractor. Normally, the legal heirs are supposed to honour the commitment made by the contractor. However, it is possible that the legal heirs are not capable of carrying out and complete the contract. It is also likely that the owner may like to complete the job through some other agency and debit the amount to the legal heirs of the contractor, any loss incurred by the owner in entrusting the balance work to some other agency to avoid such situation later.

TENDER DOCUMENTS

The Tender documents consist of the tender notice, Invitation to tender, instructions to tenderers, form of tender, general conditions of contract, special conditions of contract, form of agreement, bills of quantities, plans and specifications.

An illustration is furnished below with most of the details which can be modified depending upon the type of works, mode of execution and other factors.

Tenders may be invited either by the architect or owner himself directly. Mostly, in private buildings the architect issues and invites tender papers. In case of companies, sometimes, the company invites tenders and issue of tender papers is done either by the company or by the architect.

Invitation to tender is done either by publishing in press or by sending circulars to selected contractors.

FORMAT OF TENDER NOTICE:

Sealed tenders are invited from reputed and experienced contractors for the following works.

Name of the work :

Earnest Money (EM) : Rs. _____ in the form of Demand
 Draft on any nationalised bank drawn
 in favour of " _____ " (normally
 the EM will be about 2 1/2% of the
 value of the works).

Sometimes bank guarantee can be accepted for the sum in lieu of Demand Draft.

Time of Completion : _____ months from the date of issue of letter of intent

Tenders may be purchased from the office of the architect or the owner situated at _____ on payment of Rs. _____. This amount is to be paid in the form of DD or Cash and not refundable. Tender papers will be available from _____ (Mention date), to _____ (Mention date) during the hours from _____ to _____.

The completed tender should be deposited in the office of _____ before _____ a.m/p.m on _____. The tenders shall be opened on the same day at _____ a.m/p.m in the presence of the tenderers or their authorised representatives who wish to be present.

INVITATION TO TENDER

Name of Work : _____

Approximate estimated
cost : _____

Period of completion : _____

1) Sealed tenders for the above work are invited from Contractors experienced in the execution of works of similar nature and magnitude. The Tender documents can be obtained from the office of _____ on any working day from _____ a.m/p.m to _____ a.m/p.m from _____ to _____ on payment of Rs. _____ in cash/D.D. in favour of " _____ "(non refundable).

2) Tenders should be sent to _____

as to reach him not later than _____ a.m./p.m on _____

The tenders will be opened by the EMPLOYER at _____ a.m./p.m on _____ in the presence of tenderes or their agents who may choose to attend. Tenderer should depute one person only at the time of opening the tender, when only the total amount will be read and no break up figures or other information will be given to the tenderers.

3) The tender documents shall be duly filled in and signed by the tender and shall be addressed in sealed cover to _____

The full name and address of the Tenderer and name of the work shall be written on the cover.

4) All entries in the tender documents shall be clearly written and shall be in ink and in English. Corrections, if any, shall be clearly made and duly signed and dated by the tenderer. Erasures and over-writings shall not be permitted and shall render the tender liable to rejection.

5) The tenderer shall sign each and every page of the tender documents including the Drawings attached hereto.

6) Unit rates shall be quoted in figures as well as in words with reference to each item and for all items shown in the attached Bills of Quantities. These rates shall be for the finished work at site.

7) Any error in description of terms in the Bills of quantities or any omission therefrom shall not vitiate the contract or release the contractor from his obligations of execution of the whole or any part of the works comprised therein or from any of his obligations under

the contract. Any error in the rates quoted in the Bills of Quantities shall be corrected in accordance with the following rules.

i) In case, the rate in words and figures differs, the low rate shall be taken as correct.

ii) All errors in totalling, in the amount, column and carrying forward, totals shall be corrected.

8) In quoting the rates, the tenderer is advised to take into account the sales tax, seignorage or quarry fees, octroi duty, terminal tax, customs duty, or any other duty or any charge levied by Central or State Government statutory or other public bodies. Authorised variation in the above bill will be allowed for and adjusted in the bills, provided, the contractor maintains a record showing the prevailing rates and authorised variations during the period of constructions. If any tax is levied on works, this will also be allowed provided documentary record is produced.

9) The tenderer shall quote separately the basic prices assumed for sand, bricks, jelly of all sizes, teak wood and marble. This information is only for comparing tender figures and not for any extra claims.

10) Before tendering, the tenderer is advised to inspect the site of works and its environments and be well acquainted with actual working and other prevalent conditions, position of materials and labour, General and Special conditions of contract, drawings and specifications and all other documents which form part of the agreement to be entered into. If the contract is inclusive of designs, the tenderer has to submit the design calculation for verification.

11) The contractor shall make his own arrangements to obtain all materials required for the work. The owner will only make the applications to fulfill the formalities, if necessary, in procurement of any

material for the work. The contractor will be responsible for collection of materials at his cost from dealers or suppliers against the release orders, if any, furnished by the employer to the contractor. No escalation will be allowed for labour and for materials except steel and cement. The price of the steel is assumed at Rs_____ per tonne and of cement at Rs_____ per tonne in pricing the schedule should be indicated.

NOTE : In case it is proposed to allow for escalation as is being done by some Government Departments, it can be mentioned. An extract of the method of calculation as followed by some Departments is furnished below.

Escalation payment for labour:

The escalation payment for labour will be made on the basis of the following formula for the increase in the labour wages on account of any legislation. If the increase in the labour wages is upto 10% the same shall be borne by the contractor and any increase in the labour wages over 10% would be paid by the owner. The formula to be adopted is

$$A = \frac{V \times (W1 - W0)}{W0} \times 20\% \text{ where}$$

A = Escalation in labour wages payable

V = Value of work done and billed for during the period under consideration.

W0 = Minimum labour basic wages in the construction industry as on the date of opening of the tender.

W1 = Increase in labour basic wages in the construction industry, on account of any legislation on the date of billing.

20% = labour component of the work.

Escalation payment for petroleum products :

The escalation payment for petroleum products shall be paid, adopting the formula:

$$B = \frac{V \times (D1 - D0)}{D0} \times 12 \%$$

Where

B = escalation in the prices of petroleum products payable

V = value of work done and billed for

D₀ = basic price of diesel in litre as on the date of award of work

D₁ = basic price of diesel in litre as on the date of billing

12% = component of the petroleum products.

12) The tender shall be valid for a period of months for acceptance from the date of opening of the tender.

13) Full information should also be given by the tenderers in respect of the following:

(a) IF AN INDIVIDUAL:

1) His full name, address and place of business

2) His financial status

3) His previous experience

4) He may specify a nominee who can complete the jobs under the same terms and conditions, in case of his

death,insanity,before the job is completed. For this the nominee's consent should also be obtained.

(b) IN CASE OF PARTNERSHIP FIRMS :

- 1) The names of all partners and their address
- 2) The financial status of the firm and its partners
- 3) Previous experience of the firm and its partners.

(c) IN CASE OF COMPANIES :

- 1) Date and place of registration including date of commencement certificate in case of Public Companies. Certified copies of memorandum and articles are also to be furnished.
- 2) Nature of business carried on by the Company and the provisions of its memorandum relating thereto.
- 3) Names and particulars including address of all the Directors
- 4) Previous experience
- 5) Its authorised,subscribed and paid up capital.

14) Each tender shall be signed by the tenderer with his usual signature. Tender by partnership or Hindu joint family firm may be signed in the firm's name by one of the partners or the Karta or Manager as the case may be or any other duly authorised representative followed by the names and designation of the person so signing. An attested copy of the Partnership Deed must accompany the tender of any partnership. Tender by a Company shall be signed with the name of Company by persons authorised in this behalf and a power of attorney or other satisfactory proof showing the persons signing the tender documents on behalf of the Company duly authorised to do so shall accompany the tender.

15) Tenderers shall along with their tender submit the following :

- (a) Certificate from a scheduled bank to prove their financial ability to undertake the work.
- (b) Proof for technical and organisational ability to execute the work in its various aspects.
- (c) The organisation patterns that will be employed and the names of the qualified Engineers who will be employed together with their qualifications and experience.
- (d) Income-tax Clearance Certificate.

16) The tenderer shall give his previous experience for having carried out works of similiar nature (in the last five years) details of plant and machinery available, details of technical staff and work in hand. These should be furnished in the proforma in separate sheet.

Appendix -I

Details of works of similar type and magnitude carried out by the tenderer

Sl. No.	Name of Work	Cost of work	Date of commencement	Stipulated date of completion	Actual date of completion	Name & address of authorities for whom work was carried out	Remarks if any
1	2	3	4	5	6	7	8

Signature of Tenderer

Appendix -II

Details of plant and machinery available which the tenderer proposes to use for this work.

Sl. No.	Name of equipment	No. of unit	Kind of make	Capacity condition	Age & Present location	Remarks if any
1	2	3	4	5	6	7

Signature of Tenderer

Appendix III

Details of Technical Staff

Sl. Number of personnel No. with	Technical designation	Experience Qualifications
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Signature of Tenderer

Appendix -IV

Work in Hand

Sl. No	Name of work	Date of commencement	location	Tendered cost	Value of completed work	Stipulated date of completion	Anticipated date of completion	Remarks if any
1	2	3	4	5	6	7	8	9

Signature of Tenderer.

17) Every tender shall be accompanied by a Demand Draft for Rs_____ as earnest money deposit drawn in any Nationalised Bank in favour of _____ failing which the tender shall be liable for rejection. This earnest money deposit will be refunded to the unsuccessful tenderer(s) without any interest after award of works. However not exceeding _____ months from the date of opening the tender.

18) In the case of the successful tenderer whose tender has been accepted, the tenderer shall furnish bank guarantee on a scheduled bank for a sum equivalent to $7\frac{1}{2}\%$ of the value of the works towards the security deposit for the due fulfilment of the conditions of contract. On furnishing the above, his earnest money deposit of Rs..... will be refunded. In addition to the above said $7\frac{1}{2}\%$, a further sum equivalent to $2\frac{1}{2}\%$ of the value of the bill will be deducted in the running bills, thus making the total security amount equivalent to 10% of the value of the works. No interest will be paid for the security deposit. The bank guarantee furnished and $2\frac{1}{2}\%$ of the value of the works retained will be refunded only on completion of the maintenance period. Maintenance period will be one year from the date of completion of works and handing over possession of the building to the employer.

19) The Earnest Money Deposit is liable to be forfeited without prejudice to any other right or remedy available to the Employer. In case the tenderer modified the terms and conditions of the tender which are not acceptable to the Employer or revokes his tender during the tender's validity period or upon acceptance of his tender, fails to start the work in accordance with the instructions of the Employer, the decision of the Employer in this regard shall be final and conclusive and is binding on the tenderer.

20) Quantities shown in the Bills of Materials are only approximate and are liable to variation without entitling the contractor to any compensation whatsoever.

21) Unsealed tenders, tenders not submitted on prescribed tender documents, conditional and unsigned tenders, tenders containing absurd rates and amounts, tenders which are incomplete or otherwise considered defective are liable to be rejected.

22) If a tenderer seeks to clarify his quotation or rates, this shall only be done in a separate covering letter accompanying his tender. Material modifications to the specification, Bills of Quantities or Contract Clauses will not be entertained. If the contents of the tenderer's covering letters are to be considered as part of his quotation, this shall be specifically mentioned by the tenderer.

23) The Employer does not bind himself to accept the lowest or any tender or to give any reasons for his decision. He further reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at his quoted rates. In the case of acceptance of a part of the tender, time for completion may also be reduced to the extent considered appropriate by the Employer.

24) The cost of stamping agreement must be borne by the successful tenderer.

25) In the event, there are two or more parties for whom the work has been split, the contractor carrying out the relevant work entrusted to him, shall work in close co-ordination without causing any delay or hindrance to other agencies. The employer has the right to omit at his discretion one or more items of works when placing the order.

26) The Contractor shall promptly notify the Employer of any changes in the constitution of his firm. It shall be open to the employer to terminate his agreement on the death, retirement, insanity or insolvency of any person being in charge of management in the said organisation subject to the availability of every right that has accrued due in favour

of the employer for being enforced against in the event of any necessity or on the addition or introduction of a new partner without the prior approval in writing to the employer. Such option shall not be exercised or such approval withheld unreasonably.

27) The work shall be taken to have commenced from the date on which the contractor takes over the site or _____th day of the intimation of acceptance of the tender whichever is earlier and that the site will be handed over only on the production of bank guarantee for a sum equivalent to _____% of the value of the works towards the security deposit. The contractor shall complete the work within _____ months from the date of commencement.

28) The contractor shall give a programme for the execution of the work during the total contract period and get it approved by the Architect/Employer. In case of delay in progress of work the architect shall issue the contractor a memo in writing pointing out the delay in progress and asking the contractor to explain the causes for the delay within 3 days of the receipt of the above. The employer reserves the right to terminate the contract and forfeit the Security Deposit of Rs. _____, if satisfactory explanation is not offered by the contractor for delay in execution of work. If the contractor fails to complete the works in time or within any extended time as approved by the employer, the contractor shall pay liquidated and ascertained damages for the period during which the works shall so remain or have remained incomplete and the employer may deduct such damages from any moneys otherwise payable to the contractor within this contract or recover the same otherwise. The liquidated and ascertained damages is fixed at the rate of 1% per week of the value of the work not completed, upto a maximum of 5% of the value of the whole work.

29) The rates specified in the schedule include provision for maintaining the work executed under this contract free from defects for

a period of 12 months from the date of completion of the work and handing over the building.

30) The employer reserves the right to terminate the contract if the quality of work is poor or for unsatisfactory progress in the work at any stage; In case of disputes, if any during the progress of work, the employer will reserve the right to continue the job by engaging another agency or otherwise; whether the contractor's bill is settled or not. The contractor should not insist on stopping the work until the bill is settled.

31) The contractor shall maintain at the site of work an inspection register which may be produced by the contractor whenever called upon during the inspection of the architect or employer or their representatives. If the rectification works to be done are not carried out within the time specified, the employer shall have the right to get such work done by any other agency and to recover the cost thereof from the contractor. The contractor shall not make any entry, of any kind in his register and this should be handed over to the employer on completion of the work.

32) With their quotations the Tenderer shall sign all the schedules, specifications, special conditions, etc., in token of acceptance thereof. The signature on the tender schedule alone shall also be deemed to be taken as acceptance of all these.

DEFINITIONS AND INTERPRETATIONS

in the contract (as herinafter defined) the following words and expressions shall have the meaning hereby assigned to them except where the context otherwise requires.

'EMPLOYER' means the OWNER or the person who awards the work and includes its/his successors and assignees.

'CONTRACTOR' means the person or persons, Firm or Company, whose tender has been accepted by the Employer and includes the Contractor's authorised representative, successors and permitted assignees.

'ARCHITECT' means _____
 having his office at _____ or any other Engineer/Consultant appointed from time to time and notified by the Employer.

Architect's 'Representative' means any resident Engineer or assistant of the Architect appointed from time to time by the Architect/Employer to perform the duties set forth and as stipulated in the General conditions of the Contract and whose authority shall be notified in writing to the contractor by the Architect/Employer.

"Work" means and include all works specified or set forth and required in and by the specifications, drawing and schedule hereto annexed to be implied therefrom or incidental there to or to be hereafter specified or required in such explanatory instruction and drawings (being in conformity with original specification, drawing and schedule) and also such additional instructions and drawings not in conformity as aforesaid as shall from time to time during the progress of the work hereby contracted for, be supplied by the Employer.

'Contracts' means Form of Tender, Invitation to Tender, Articles of Agreement, General conditions of contract with appendix, special conditions of contract specifications, Preamble to Bills of Quantities, Priced Bills of Quantities, Drawings, together with the Employer's Letter of Intent including correspondence entered into between the Tenderer and the Employer prior to the issue of the Intent Letter specifically mentioned in the Letter of Intent and any other documents specifically indicated in the Contract Agreement.

"Contract Price" means the sum named in the tender subject to such additions thereto or deductions therefrom as may be made under the provisions of the Contract.

"Constructional Plant" means all appliance or things or whatsoever nature required in or about the execution, completion or maintenance of the Works or Temporary Works (as hereafter defined) but does not include materials or other things intended to form or forming part of the permanent work or temporary housing, putting offices and stores etc

"Temporary Works" means all temporary works of every kind required in or about the execution, completion or maintenance of works.

"Drawings"+ means all drawings referred to in the specifications and any modification of such drawings approved in writing by the Architect and such other drawings as may from time to time be furnished or approved in writing by the Architect.

'Site' means the lands and other places on, under, in or through which the works are to be executed or carried out and any other lands or places provided by the Employer for the purpose of the contract.

'Virtual Completion' means that the works are in the opinion of the Architect, substantially completed and have satisfactorily passed any final test may be prescribed by the Contract.

'Letter of intent' means an intimation from the employer by a letter to the tenderer that his tender has been accepted in accordance with the provisions contained in that letter.

"Approved" means approved in writing, including subsequent written confirmation of previous verbal approval and 'Approval' means approval in writing including as aforesaid. Words imparting the singular only also

include the plural and vice versa where the context requires. Word imparting person include firm and Corporation and vice versa where the context requires.

The term 'Specifications' shall mean schedules, detailed designs, statements of technical data, performance characteristics and all such particulars mentioned as such in the contract. In the absence of any such specifications issued by the Employer, the specifications issued by the Public Works Department of the respective State Government in which the site of works is located or ISI shall apply.

GENERAL CONDITIONS OF CONTRACT

1. The Employer, the Contractor and the Architects are those mentioned as such in the Agreement and contract documents and shall include their legal representatives, assignees or successors.
2. All time limits stated in the documents are the essence of the contract.
3. The contract documents is complimentary, what is called for in any one shall be binding as if called for by all.
4. The contract is an item rate contract and the Contractor shall be paid for actual quantity of work done as measured at site as per I.S. and accepted at the rates quoted by him in Schedules.
5. Schedules provide quantities which are provisional. The Employer reserves the right to increase or decrease any of the quantities or to totally omit any item of work and the Contractor shall not claim any extras or damages on those grounds. Any error in description or in quantity or omission shall not vitiate the Contract.

6. The Contractor's work shall not deviate from the drawings and the specifications. The Architect's interpretation of the documents shall be final and binding on both parties to the agreement.

7. Errors or inconsistencies, if any, shall be brought to the notice of the Architect before taking up execution and proper instructions shall be sought. Any such work carried out without seeking clarification is liable to be rejected.

8. The Architect may issue from time to time details, drawings, instructions, clarification for proper execution of work collectively called architect's instruction. The contractor shall carry out and complete the work in accordance with such instructions.

9. All lines and levels shall be determined by the Architect and based on such data, the Contractor shall set out the work in a proper position. Setting out the work, and maintaining accuracy of the same is the full responsibility of the contractor and at his own cost. Any error found shall be made good by the Contractor at his own cost.

10. The Architect or his representatives and the Employer or their representatives shall be provided access to the works at all times.

11. The Contractor shall prepare a programme of work for the commencement and completion, within 10 days of the award of the contract. The same shall be implemented after approval thereof by the Architect.

12. A Clerk of Works approved by the Architect and appointed by the Architect and acting under the orders of the Architect will inspect the works in the absence of the Architect. He shall be afforded all facilities by the Contractor subject to the contractor shall take instructions from the Architect only.

13. The contractor shall employ atleast one qualified Engineer with enough experience to be at site for supervision of the day to day execution . In case, the contractor fails to employ the above Engineer, he shall be liable to pay a sum of Rs..... for each month of default regarding which the decision of the Employer will be final.
14. All equipments, ladders, scaffolding, tools, plants etc., necessary for the execution shall be provided by the Contractor at his own cost.
15. All labour, materials storage and their safe custody shall be arranged by the contractor himself at his own cost including amenities for housing, drinking water, health and insurance of workers employed on the work by him, against accidents etc., as per statutory bye-laws.
16. The Contractor shall not sub-let the work either wholly or partially without the written approval of the Employer.
17. The Employer reserves the right to let out other contracts in connection with this work under similar general conditions. The contractor shall afford necessary facilities to such contractors.
18. The Architect may issue instructions requiring a variation (alteration or modification) of the design, quality or quantity of work shown on drawings, additions, omissions, alteration or substitution of any work and such instructions shall not vitiate the contract and the contractor shall execute the work accordingly without claiming higher rates already agreed upon.
19. When any decision or instruction at site involves an extra work whereby the Contractor may plan to claim extra, it shall be the

responsibility of the Contractor to inform the Architect and get a written authorisation before proceeding with the work involved.

20. Work not conforming to standards is liable for rejection and the Contractor shall re-do the same at his cost.

21. When the contractor is not able to complete the job in time for reasons beyond his control (which is to be decided by the Architect) he shall apply for suitable extension of time which shall be granted by the Architect based on the reasons for delay. If the reasons are not satisfactory, the contractor is liable to be penalised.

22. All defects noticed during execution or during maintenance period shall be made good by the contractor at his own cost. Otherwise such work will be executed through other agencies and Contractor is liable to pay all expenses thereof which will be deducted from the amounts due to him.

23. The work as well as the labour and materials shall be insured and the Contractor shall indemnify the Employer against any injury or damages to any person or property.

24. The Contractor shall clear the site of all debris and rubbish before commencement and after completion of the work at his cost.

25. If the contractor is not able to complete the job in the time specified or as provided in clause or with extension of time, if any, due to neglect or incompetence or due to any reason which is not reasonable (in the opinion of the Architect) the Employer reserves the right to get the balance work executed departmentally or engaging other agencies, which the contractor shall not prevent. Any amount due to the contractor, if any, will be treated as a separate issue and the same

will be settled in accordance with the relevant clause of the conditions of contract.

26. The contractor shall immediately after signing the contract insure the works and keep them insured until the completion of the contract against loss or damage by fire in the joint names of the Employer and the Contractor, with the name of Employer being placed first in the policy for the full amount of contract plus 5% to cover Architect's Fees and other establishment charges. Such policy shall cover the property of the Employer only. The contractor shall deposit the policy and receipts for the premiums with the Employer within 21 days from signing the contract unless otherwise instructed by the Employer. In case of loss, the Contractor shall claim under the policy or the work reinstated by the insurance company. Should they elect to do so, proceed with all due diligence with the completion of the work in the same manner as though the fire had not occurred and in all respects under the same conditions of contract. The contractor in case of rebuilding or reinstalment after fire shall be entitled to such extension of time for completion as the Architect deems fit.

27. The contractor is responsible for the welfare of the labourers engaged by him and any compensation claimed by the labourers in case of any accident or otherwise is to be paid by the contractor.

28. When any old work is encountered, it is to be demolished by the contractor at no extra cost to the Employer and such material demolished will be the property of the Employer unless otherwise decided by the Employer.

29. In the case of any class of work for which there is no specification, such work shall be carried out in accordance with the Indian Standard specification and in the event of there being no specification in the

Indian Standard Code the works shall be carried out in all respects in accordance with the instructions and requirements of the Employer.

30. The Employer shall have the right to cause an audit and technical examination of the works and the final bills of the contractor including all supporting vouchers, abstract etc., to be made after payment of the final bill and if a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed by him to have been done by him under the contract and found to have been executed, the contractor shall be liable to refund the amount of overpayment and it will be lawful for the Employer to recover the same from him any manner legally permissible. If it is found that the contractor was paid less the amount of such underpayment shall be duly paid by the Employer.

31. The Employer may without prejudice to his right against the contractor in any respect of any delay or inferior workmanship or otherwise or to any claims for damage in respect of any breaches of the contract and without any prejudice to any rights or remedies under any of the provisions of this contract or otherwise and whether the date for completion has or has not elapsed by notice in writing, absolutely determine the contract in any of the following cases:

(i) If the contractor having been given by the Employer a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in any inefficient or otherwise improper or unworkmanlike manner shall omit to comply with the requirements of such notice for a period of----- days thereafter or if the contractor shall delay or suspend the execution of work so that either in the judgement of the Employer (which shall be final and binding) he will be unable to secure completion of the work by the date for completion or he has already failed to complete the work by that date.

(ii) If the contractor is a company it shall pass a resolution or the Court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of a creditor shall be appointed if circumstances shall arise which entitles the court or creditor to appoint a receiver or a manager or which entitle the court to make winding up order.

(iii) If the contractor commits breach of any of the terms and conditions of this contract.

32. When the contractor has made himself liable for action under any of the cases aforesaid, the Employer shall have powers:

(a). To determine or rescind the contract as aforesaid, (of which termination or rescission notice in writing to the contractor under the hand of the Employer shall be conclusive evidence). Upon such determination or rescission the security deposit of the contractor shall be liable to be forfeited and shall be absolutely at the disposal of the Employer.

(b) To employ labour paid by the Employer and to supply materials to carry out the works or any of the work debiting the contractor with the cost of the labour and the price of the materials (of the amount of which cost and price certified by the Employer shall be final and conclusive against the contractor) and crediting him with the value of the work done in all respects in the same manner and at the same rates as if it has been carried out by the contractor under the terms of this contract. The certificate of the Architect as to the value of the work done shall be final and conclusive against the contractor, provided always that action under the subclause shall only be taken after giving notice in writing to the contractor. Provided also that if the expenses incurred by the Employer are less than the amount payable to the contractor at his agreement rates, the difference should not be paid to the contractor.

(c) After giving notice to the contractor to measure the work of the contractor and to take such part thereof as shall be complete which case any expenses may be incurred in excess of sum which would have been paid to the original contractor if the whole work had been executed by him (of the amount of which excess the certificate in writing of the Employer shall be final and conclusive) shall be borne and paid by the original contractor and may be deducted from any money due to him by the Employer under this contract or any other account whatsoever or from his security deposit or the proceeds of sales thereof a sufficient part thereof as the case may be.

In the event of any one or more of the above course being adopted by the Employer, the Contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of contract. And in case, action is taken under any of the provisions aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereto for actually performed under this contract unless and until the Employer has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid for the value so certified.

SPECIAL CONDITIONS OF CONTRACT

1. The Contractor shall carefully go through all the clauses and conditions of contract and specifications and shall include in his rates in the Schedule, any sum he may consider necessary to cover the fulfilment of the aforesaid clauses. The unit rates stated in the schedules against the items of work shall be inclusive of everything necessary to complete the said items of work within the contemplation of the contract and no extra payment shall be made for incidental or contingent work, labour, materials or plant.

2. The Employer does not in any way assure the tenderer guarantee that the probable quantities indicated in the schedule or the quoted amount of contract are final or that the execution of work shall adhere to them.

3. No change in unit rate shall be admissible for any variation in quantity. Unless otherwise specified all measurements will be in metric units.

4. The rates in the schedule shall also include but not limited to the following:

(a) Cost of transport of constructional plant, personnel etc.to site and their withdrawal on completion of works.

(b) Storage of materials at site and hoisting and lowering to all levels.

(c) Supplying,transporting to site, unloading, protecting, handling and installation of materials in accordance with the contract.

(d) Accommodation of the contractor's staff and labour.

(e) All freights, taxes,levies, duties and royalties.

(f) Insurance of works, constructional plant, labour and material at site.

(g) Necessary care and protection against damage to all equipments including those supplied by the Employer and / or by other contractors, if any.

(h) All wastages.

5. All the materials and labour required for the proper execution of the work, shall be arranged by the Contractor himself and the Employer does not contemplate providing any of the same. The Contractor is deemed to have examined all the site conditions in advance of tendering for the work.
6. All items of work in respect of type, size and quality of materials, workmanship and mode of measurements shall be in strict conformity to the latest relevant Indian Standards Specification and or as noted in the drawings. Where such specifications are not available for any items work required to be done, the contractor shall seek and obtain necessary guidance from the Architect well in advance of proceeding with the work.
7. For items of work required to be done for which no specific rate is available, the contractor shall be paid as follows:
- a) A rate derived from any allied item of work in the Tender by suitable modification of rates of materials and or labour as decided by the Architect.
 - b) Where no allied item is available a data shall be prepared based on the market rate of materials and labour charges with 15 percent excess towards contractor's profit, supervision and overheads.
- In any case the Contractor shall get the rate approved by the Architect in writing before proceeding with the work.
8. Reinforced Steel should be purchased from M/s.Steel Authority of India (or)Hindustan Steels (or) Tata Iron and Steel Ltd., and conform to Indian Standard specification.

9. Required quantity and quality of cement shall be purchased by the contractor himself. For R.C.C. works, ordinary Portland cement conforming to relevant Indian Standard specifications shall be procured as far as possible. The employer shall assist the contractor in obtaining the permits whenever necessary but no guarantee is given that permits will be obtained by employer. Cement shall conform to relevant I.S. codes and testing if considered shall be done in accordance with I.S. code of practice at the expense of the contractor and the test results will be fully binding on the contractor.

ALTERNATE : to (8) and (9)

(In case cement and steel are supplied by the Employer)

Issue of cement and steel is subject to its availability. The contractor cannot claim compensation in the form of idle labour, machinery and equipment or any other form for non supply or delay in supply of cement and steel under any circumstances except for the period of extension of time of construction

The materials issued will be from ----- and should be cleared from railway waggons and the recovery cost will be inclusive of the transport and handling charges. The distance between the source of supply, and site of works will not exceed..... Km. The steel materials may be in random sizes. The cost of all cuttings, conversion and fabrication will have to be borne by the contractor. (In case of cement, specify whether jute bags includes the recovery rate or the jute bags are to be returned).

10) A deep bore well is proposed to be sunk and included in the items of work. If the water is suitable for construction consequent on the test results. (the contractor at his own expense shall have the samples examined by Government Agencies and shall submit the official report), the water can be used by the contractor. The necessary temporary

services with pipes,taps etc.are to be provided by the contractor at his own expense and shall remove them on completion of work. Recovery at the rate of 1/2% of the total gross value of the work executed shall be made from the running bills for supply of water by the employer. The employer does not guarantee the output of water supply and no compensation will be allowed for intermittent or for inadequate of water supply or breakdown in the supply; if at any time, due to inadequate water supply from the bore well or water is found to be unsuitable for construction purposes, the contractor shall arrange water suitable for construction from some other sources at his cost (If water is arranged by the Employer, it should be specified whether it is free of cost or on payment)

11. Power Supply: The power required for the works may be drawn from the existing supply. The contractor will lay cables at his cost with necessary connections and fittings, as per regulations laid down by the local electrical authority. He will be charged for the energy at the prevailing rate as stipulated by the local electrical authority from time to time based on the KWH meter recording. The Employer does not guarantee continuity of power supply, and no compensation whatsoever shall be allowed for supply becoming intermittent or for the break in the system. However, if the power supply is not made available by the Employer, the contractor shall make his own arrangements for the service. No claim in this regard will be entertained.

12. The contractor shall employ in and about the execution of works only such persons as are careful skill and experienced in their several trades. The employer shall be at liberty to object to and require the contractor to remove from the above works any person employed by the contractor who in the opinion of the Employer misconducts himself, incompetent or negligent in proper performance of duties, and such persons shall not be again employed without the written permission of the Employer.

13. The rates quoted in the schedule of rates accompanying the tender are deemed to fully cover royalty if any, of building materials, all Qlocal and Central Government taxes and also liability to pay compensation as per Labour Act, to any workmen that may sustain any injury or disability due to an accident during the execution of the works.

14. Likewise, suitable facilities and amenities shall be provided to the labour force, skilled and unskilled working at site.

15. The contractor shall at his own cost provide his labour with sufficient number of huts (hereinafter referred to as the camp) of the following specifications on a suitable plot of land to be approved by the Architect.

(1). (a) The minimum height of each hut at the eaves level shall be 2.13m(7') and the floor area to be provided will be at the rate of 2.8 Sq.m (30 Sq ft) for each member of the worker's family staying with the labourer.

(b) The contractor shall in addition construct suitable cooking places, having a minimum area of (1.83m x 1.52m) or (6' x 5') adjacent to the hut for each family.

(c) The contractor shall also construct temporary latrines and urinals for the use of the labourers each on the scale of not less than four per one hundred of the total strength, separate latrines and urinals being provided for women.

(d) The contractor shall construct sufficient number of bathing and washing places, one unit for every 25 persons residing in the camp. These bathing and washing place shall be suitably screened.

(2) (a) All the huts shall have walls of sun-dried or burnt bricks laid in mud mortar or other suitable local materials as may be approved by the Architect. In case of sun-dried bricks, the walls should be plastered with mud on both sides. The floor may be Katcha but plastered with mud and shall be at least 0.15m. or 6" above the surrounding ground. The roofs shall be laid with thatch or any other materials as may be approved by the Architect and the contractor shall ensure that throughout the period of their occupation the roofs remain watertight.

(b) The contractor shall provide each hut with proper ventilation.

(c) All doors, windows, and ventilators shall be provided with suitable leaves for security purposes.

(d) There shall be kept an open space of atleast 6m (20') between the rows of huts . Back to back construction will be allowed.

16. Water Supply for Labourers : The contractor shall provide adequate supply of water for the use of labourers. The provisions shall not be less than 10 liters (2 gallons) of pure and wholesome water per head per day for drinking purposes and 15 litres (3 gallons) of clean water per head per day for bathing and washing purposes. Where piped water supply shall be at stand post and where the supply is from wells or river, tanks, which may be of metal or masonry, shall be provided. The contractor shall also at his own cost make arrangement for water supply to his labour/Camp from the existing main wherever available, and shall pay all fees and charges therefor.

17. The site selected for the camp shall be high ground removed from jungle.

18. Disposal of Excreta : The contractor shall make necessary arrangements for the disposal of excreta from the latrines by trenching

or incineration which shall be according to the requirements laid down by the Local Health Authorities. If trenching or incineration is not allowed, the contractor shall make arrangements for the removal of the excreta through the Municipal Committee/authority and inform it about the number of labourers employed so that arrangements may be made by such committee/authority for the removal of the excreta. All charges on this account shall be borne by the contractor and paid direct by him to the Municipality/authority. The contractor shall provide one sweeper for every 8 seats in case of dry system.

19. Drainage : The contractor shall provide sufficient arrangement for draining away sullage water so as to keep the camp neat and tidy.

20. The contractor shall make necessary arrangements for keeping the camp area sufficiently lighted to avoid accidents to the workers.

21. Sanitation : The contractor shall make arrangements for conservancy and sanitation in the labour camps according to the rules of the Local Public Health and Medical Authorities.

22. A register for consumption of cement shall be maintained at the site and daily consumption of cement shall be recorded and counter signed by clerk of works. After completion of works theoretical quantity of cement to be used in the work shall be calculated on the basis of C.P.W.D.S.method. Over this theoretical quantity, a variation of lesser consumption of cement upto 3% will be allowed. The rate will be cut if the quality of work done has suffered on account of low consumption of cement upto allowable limit (i.e 3%) and thereafter work will be rejected. The rate to be cut will be Rs _____ per bag of 50Kg of cement, of lesser consumption. The decision of the employer on this shall be final and binding the contractor.

23. The contractor is bound for the rates quoted and accepted by the employer. The employer shall not entertain any request for escalation payment of any work (except for items indicated) under any circumstances at any time.

Alternate : In case employer allows escalation, the formula indicated in the foregoing pages should be adopted.

24. The contractor shall conform to and comply with the regulations and bye-laws of the State or Central Government or of the Board and of all other local authorities such as MMDA, Corporation of Madras, the TamilNadu Electricity Board, the Chief Electrical Inspector to Government of Tamilnadu, M.M.W.S.S.B. The Government Customs and Public Departments, Fire Service, the provisions contained in the various Labour Acts enacted by the State Legislature and Central Parliament in force and the rules made thereunder including those under Minimum Wages Act, Factories Act, the Indian Electricity Act, the Workmen Compensation Act, Provident Funds Regulations Act, Employees Provident Fund Act - 1961 and schemes made under the said Act, Health and Sanitary arrangement for workers etc., and contract labour (Regulation and Abolition) Act 1970 and the Contract (Regulation and Abolition) Central Rules 1971 etc., for welfare and protection of works, workers or for the safety of the public and other insurance provisions.

The Employer shall not be liable for the failure of the contractor in conforming to the above and in case of any contravention, the contractor shall keep the Employer indemnified against any loss, cost and damage in the extent of any action being taken for contravention.

25. All the cement concrete works should comprise of machine mixed and thoroughly compacted concrete.

26. During execution of work such gaps shall be left as may be required for water supply, sanitary and electrical lines and fittings. They shall be made good at the Contractor's own expenses.

27. Period of maintenance is twelve months from the date of issue of certificate by Architect that the work is complete as per tender documents.

28. The contractor shall submit a bill each month for all the works executed in the previous month duly certified by the Architect and Employer shall take or cause to be taken the requisite measurements for the purpose of having the same verified. If the contractor does not submit the bill no payment will be made. The contractor shall be entitled to receive monthly payment on the certificate of the Architect regarding the amount payable. All such intermediate payments are treated as advance by way of payment against final payment only and not as payment for work actually done or completed. The final bill shall be submitted within one month of the completion date and payment shall be made within three months. If there is any dispute about any item of work, then the undisputed item or items only shall be paid within the above said period. The contractor shall submit a list of the disputed items within 30 days from the disallowance thereof and if he fails to do so, the claims shall be deemed to have been waived and absolutely extinguished. On all payments made by the Employer against running bills and final bill, a sum of 2% of the value of the bill shall be deducted towards Income Tax and a certificate to that effect will be issued.

29. Boys/Girls below 12 years in age shall not be engaged in work. Also mothers with babies in arms are not to be allowed on work.

30. Final bill shall be deemed to be valid when accompanied by a certificate of completion issued by the Architect and thereafter submitted to the Employer.

31. The contractor shall employ technically qualified supervisor on site besides himself being present at site every working day.

32. The contractor, at his expense, shall arrange to get tested all materials and all parts of the works from time to time as per ISI specifications and submit the test reports to the Employer/Architect.

'EMPLOYER'

'CONTRACTOR'

CHAPTER IV

MEASUREMENT OF WORKS

The method of measurement introduced by Indian Standard Institution is basic document and most of the Government Departments adopt this method.

(A) In recording the dimensions, the order shall be in the sequence of (1) length (2) Breath or width and (3) height or depth or thickness.

(B) All works shall be measured net as fixed in position.

(C) Dimensions shall be measured to the nearest 0.01 metre ; areas 0.01 Sq m, volume to the nearest 0.01 Cu.m.in weight to the nearest 0.001 Tonne.

The Approximate Equivalent British and Metric Units of Measurements.

1 mm	= 1/25"	1"	= 25.4 mm.
1 cm	= 3/8"	1"	= 2.54 cm
1 m	= 3 1/4 ft.	1 ft.	= 0.305 m.
1 Sq.cm.	= 1/16 Sq.inch	1 Sq.inch.	= 6.45 Sq.cm.
1 Sq.m.	= 10-3/4 Sq.ft.	1 Sq.ft.	= 0.093Sq.m.
1 Cu.m.	= 35-1/3 Cu.ft.	1 Cu.ft.	= 0.028 Cu.m.
1 Quintal	= 2 Cwts.	1 Cwt.	= 0.508 Quintal
1 Litre	= 1/5 Gal.	1 Gal.	= 4.546 Litres.
1 Kg.	= 2-1/5 Lbs.	1 Lb	= 0.453 Kg.

1 Tonne = 0.98 Tonne.

1 Tonne = 1.02 Tonne.

1 Kilometer = 5/8 mile

1 mile = 1.61 Km.

D) Work to be measured separately.

(1) Work in or under water

(2) Work in or under liquid mud.

(3) Work under tides.

(4) Work in snow.

(E) Same work done under different conditions or stages shall be measured separately stating the conditions.

Units of Works : (a) Mass, voluminous works shall be taken in units of volume.

(b) Shallow or surface work shall be taken in area, however, the thickness shall be specified in the description of item. The measurement of length and projection shall be taken to calculate the area.

(c) Long and thin work shall be taken in linear measurement or running unit.

(d) Piece work shall be taken as number.

Earth Work : Earth work shall be measured separately for the following conditions : (a) Work in or under water.

(b) Work in or under foul position.

(c) Work under tiles and

(d) Work in snow.

No separate measurement and allowance shall be made for the following works. These shall be deemed to have been made in the description of main item.

- (a) Setting out works, profiles etc.
- (b) Site clearance which includes cleaning grass and vegetation before starting of a work.
- (c) Unauthorised battering or benching of excavation-
- (d) Leaving steps in sites of deep excavation and their removal after measurements.
- (e) Removing slips or falls in excavation - Unless specified.
- (f) Bailing out or pumping of water in excavation from rains.
- (g) In case the earth work in or under water is measured, then no further allowance and measurement shall be made for bailing out or pumping of water in excavation under sub-soil water.
- (h) Slings or supporting pipes, electric cables etc. met during excavation.

Special pumping and well - point dewatering where resorted to shall be measured separately, unless otherwise specified, the materials to be excavated shall be classified as follows:

- (a) Soft loose soil : This is the soil which yields to ordinary application of pick and shovel or to 'Phawra', rake or other ordinary digging implement . This will include vegetable or organic soil, turf, gravel, sand, silt, loam, clay etc.

(b) Hard or Dense soil : The soil which requires the close application of picks, or jumpers or scarifiers to loosen. This will include stiff clay, gravel etc.

(c) Mud : When soil is mixed with water and form a fluid or weak solid state.

(d) Soft or disintegrated Rock (not requiring Blasting): This is rock or boulders which may be quarried or split with crowbars.

(e) Hard Rock (Blasting prohibited) : Hard rock requiring blasting (but where blasting is prohibited for any reason) and the excavation has to be carried out by chiselling, wedging or any other agreed method.

Method of Measurement : The measurement of earthwork shall be done in cubic metres, unless otherwise mentioned. The measurements to be taken shall be those of the authorised dimensions from which soil has been taken out and shall be measured without allowance for increase in bulk.

The measurement of excavation in earthwork including rock cutting shall be made as follows:-

(1) Where the excavation is in trenches or from burrow pits in fairly uniform ground, the measurements of cutting in trenches or burrow pits shall be made after determining the average depth of excavation.

(2) Where the ground is not uniform, levels shall be taken before the start after site clearance and after the completion of the work at suitable intervals and the quantity of work shall be worked out from differences of levels.

(3) Where the excavation is made in mixed type of rock or soil then measurement for the total quantity shall be made by anyone of the above two methods whichever is applicable. From the total quantity, deduction of the volume of one type of rock or soil must be made. To arrive at such volume, the rock or soil shall be stacked and measured. The quantity stacked shall be arrived at by applying pre-accepted deductions for voids.

Wherever it is not possible or convenient to take measurements from burrow pit or cutting, excavation shall be worked out from filling after giving specific deductions for voids.

Dressing or trimming and levelling or grading and ramming of bottoms shall be described and included in the item.

Except hillside cutting where no lift is involved all excavation shall be measured in successive stages of 1.5 m. stating the commencing level.

Excavation shall include throwing the excavated earth at least one metre or 1/8 depth of excavation whichever is more clear to the edge of excavation. Disposal of surplus excavated material shall either be paid as a separate item or included with the item of excavation stating the lead.

Benching and battering (required for deep excavation) shall be specified and measured along with main item of excavation.

Lead and lift :

Lead : Lead shall be average horizontal straight practicable distance through which the earth can be carried from the sources to the place of spreading and not necessarily the route actually taken. For the purpose

of measurements of lead, the area excavated shall be divided into a number of blocks and for each block the lead shall be measured from the centre of the block to the centre of the soil heaped. The unit of lead is 50 m. for a distance upto 500 m. And shall be measured as a separate item for (a) 0 m to a distance not exceeding 250 m, (b) distance exceeding 250m but not exceeding 500m.

The unit of lead is 500m for a distance exceeding 500m upto 5 Km and shall be measured as a separate item with the following stages:- (a) lead exceeding 500m and not exceeding 1000m (b) lead exceeding 1000m to 1500 m (c) lead exceeding 1500 m to 2000 m . Such separate stages shall be provided for a distance upto 5 Km.

The unit of lead is 1Km. Where the lead exceeds 5Km., half or more than half Km shall be deemed as one km and less than half km shall be ignored.

Lift : Lift shall mean the average height through which the earth has to be lifted from the sources to the place of spreading . The unit of lift is 1.5m. measured from ground level in successive stages viz. (a) 0 m to 1.5m (b) 1.5 m to 3m and so on.

In case where excavated earth shall have to be carried over a bank and dumped on the top of bank, lift shall be measured as the difference in level between the centre of gravity of the excavated earth and the formation level of the bank in successive stages 1.5m stating commencing level.

The rate for excavation includes excavation to a depth 1.5 m, if depth is not specified, removal of the excavated material from the trends and refilling after the foundation has been laid including watering, ramming and consolidation, spreading the surplus excavated materials in the compound within a lead of 50 m. if not specified.

The excavation shall be measured as per the exact length,width and vertical height as given on the plan or as per the instructions if depth of foundation is not mentioned in plan. The excavation work will be found to be more than the specified lengths and widths. However,only the measurements shown on the plan should be taken for purpose of payment. If the excavation is for the purpose of basement the length and width can be increased by 60 Cms. Provided for working allowance towards provisions for waterproofing and plastering on the external surfaces of the walls. The excavation required for purpose of laying water pipes or drain pipes, cables,inspection chambers etc., are measured separately which include refilling after laying of pipes etc. The units of measurements for excavation for pipes and cables will be in the linear measure (per running metre) and for inspection chamber gulley trap chamber will be per number.

Concrete works : Lime concrete and mud concrete works shall be described fully and measured in unit of volume. Cement concrete may be either plain or reinforced or prestressed and shall be measured separately. The concrete may be either cast in situ or precast and these will be measured separately. The different categories under which concrete works can be measured are (1) bridges (2) buildings (3)canals (4) barrages (5) Dams (6)tunnels (7) power house (8) overhead reservoir (9) towers, shafts and other special structures (10) harbour, and marine works (11)other structures not covered by the above statement.

Normally, all concrete work shall be measured in cubic metre. However, roof slabs or floors,wall panels, jallies, can be measured in sq.m by stating the thickness ; Special items like copings can be measured in running metres when each item of work shall be fully described.

Form Work : Form work shall be measured separately in Sq.m as the actual surface in contact with concrete; However, in small works the

measurement of form work is not done separately and taken along with the concrete work. In this case, measurement of concrete will include all materials that are required to prepare the concrete viz. centering materials, form works, mixing, pouring in position, vibrating, consolidating and providing key for further concrete work. The hacking viz. prepare the surface to receive the plaster can be taken along with concrete work or measures separately and the method of measurement should be indicated in the specifications.

The form work includes the following items and none of them shall be measured separately unless otherwise specified.

Bolts, clamps, battens, strutting, nailing, allowance for overlaps and passings at angles, splayed edges, notchings, wedging, arrangement to support form work, ladder, gangways, working scaffolds, dressing with oil to prevent adhesion etc.

Unless otherwise specified form work can be classified and measured separately as follows:

- (1) Column bases, foundation, footings; (2) Roofs, soffits of floors, landing and such other flat surfaces. In cases the floors exceed 200mm in thickness the formwork shall be measured separately stating the thickness; (3) Sides of columns, piers and stanchions; (4) Sides and soffits of beams, lintels, haunchings of beam, cantilevers, girders. Heavy section beams and girders having depth of one metre and above shall be measured separately; (5) Walls, partitions and vertical surfaces; (6) Edges of slabs and breaks in floors and walls. In case, the width of the formwork be under 200 mm this shall be measured in running metre; (7) sloping or battering surfaces; (8) Cornices and mouldings; (9) staircases with sloping or stepped soffits including risers and stringers but excluding landing (10) Curved surface; (11) Cantilever ends, ends of steps, caps, brackets and such other small surface; (12) Chajjas, carbels, weather

shades, chulla hoods etc.; (13) Elevated water reservoirs; (14) Well Steining; (15) Shafts and chimneys; (16) Fins and sun breakers. For separate type of formwork (like sheathing having planned surfaces, formed from tongued and grooved boards, plywood lining, decorative surface, sheathing with steel sheets, sheathing of moulded plaster) separate items shall be provided.

Method of Measurement : The actual surfaces in contact with the concrete or any other material requiring formwork shall be measured and given in square metres.

In case, where formwork is lined with polythene sheet or paper lining or lined with wall board, hard board or to be coated with mould liquid with or limewhite such formwork shall be so described and measured separately.

No deduction shall be made for opening upto 0.4 Sq.m. Raking or circular cutting and rounded or moulded edges shall be measured in running metres. Moulded stooping shall be enumerated. Formwork of secondary beams shall be measured upto the sides of the main beams, but no deduction shall be made from the form work of the main beam where the secondary beam intersects it. No deduction shall be made from the formwork to stanchion or column castings at intersection of beam.

Reinforced cement concrete work is paid either as one unit inclusive of steel or steel is paid separately. The binding wires and overlaps are not paid separately although an allowance of 5% increment towards overlap and wastage, is given while measuring the steel. Steel is measured in premier measure while payment is made in weight. Sometimes the co-efficient indicating the weight of steel per metre, as indicated theoretically may not concur if actually weighed, especially if small diameter of rods are used. In such cases the Co-efficient should

be workedout by weighing number of lengths of rods and finding the actual co- efficient. The above procedure is necessary when the steel is supplied by the owner.

The measurement shall be taken to the nearest of centimetre by omitting those which are below 50mm and considering those above 50mm as 1cm. RCC columns and beams are to be paid in cubic metre only and not on the basis of running metre.

RCC slab is measured as per the surface area covered including the bearing in walls;beams are to be measured between the columns and depth of the same from bottom of the slab, columns are to be measured from top of the slab to bottom of the next upper slab.

RCC walls should be measured only in cubic metre if thickness is above 23 Cm; Arches should be measured in Sq.m.specifying its thickness. Encasement of R.S. joists,beams and stanchions should be measured in Cu.m. No deduction should be made for the volume occupied by the joints and beams except in case of boxed stanchions and girders. Concerte jallis, dampproof course and RCC sun breakers should be measured in Sq.m. In case of sun breakers, the extent of area is based on the superficial area of louvres;string courses, cornices and bands can be measured in running metre, specifying the sectional dimensions.

Precast cement concrete shall include use of mould, finishing faces, hoisting and setting in position. The proportion of mix and other details should be specified; for concerte posts used as fencing posts, corner posts as terminal posts, the average sectional area is taken. The item shall include forming of chamfered or rounded angles as per the instructions,expansion joints in roofs, walls and floors shall be measured in running metres specifying the depth and width of the joints.

the item shall include all form work and labour necessary to form joint.

Brick Work : Unless specified, brick work shall be of english bond. The item of brick work shall be deemed to include raking of joints requiring tops of existing walls and like for raising; leaving holes for pipes, plumbing to angles, building in ends of beams, slabs, lintels etc., rough cutting and waste for forming gables, splays at eaves, and all rough cutting in the body of brick work, forming and opening, flues where no deduction is made, leaving chases of sections not exceeding 50Cm. in girth, forming reveals to jams where face cutting on exposed faces is not involved etc. Brick work is generally measured in cubic metres unless specially mentioned. When the rate is for the finished brick work, it shall include cement plastering of specified thickness and if not specified, 18mm thickness with 3 coats of colour wash should be assumed. Brick work for arches except for 10Cm. brick wall is required to be paid as a separate item. Brick cornices and bands are to be paid per running metre with sectional dimensions fully specified and rates is for the finished items.

Brick work circular and plan to mean radius not exceeding 6m. shall be measured separately and shall include all cutting, waste and templates.

Honey-comb brick shall be measured in Sq.m. stating thickness and pattern of honey-combing. The opening to form honey-combing shall be deducted.

Reinforced brick work shall be taken in cubic metre and kept separate from general brick work unless mentioned in specifications that reinforcement shall be measured separately.

Brick edging for roads and footpaths shall be described and measured in running metre; Broken glass coping made along with the brick work shall be described and measured in Sq.m. stating thickness of mortar and weight of glass per Sq.m of coping.

Brick work in arches and staircases shall be measured separately in Cu.m; Encasing the brick work around steel joists or beams, steel stanchions shall be measured in Cu.m. The volume occupied by joists shall not be deducted except in case of boxed stanchions or girders in which case box portion only be deducted, extra labour in cutting and filling shall be measured separately in Sq.m. of finished surface.

Stone masonry : The rate should include stones to be supplied at site, materials for the mortar, setting the same depending upon the type of the masonry specified, raking out the joints for plastering or pointing and preparing the top of the existing walls for extension or splays or roundings. The stone masonry work is measured in Cu.m

Steel and Iron Work : In general, steel work is measured by weight. They can be classified as (1) RSJ joists, channel, angle (2) Bolts, grills, gratings, railing etc. (3) Clamps, hooks, straps etc. (4) Trusses (5) Plates (6) Girders (7) Compound lattice (8) Other various items.

Reinforcement shall be measured to the nearest 0.005m Dimensions excepting cross sections and thickness of plate shall be measured to the nearest 0.001m. Areas excluding cross section measurement shall be worked out to nearest 0.001 sq.m.

Unless otherwise specified, weight of cleats, brackets, packing pieces etc. shall be added to the weight of respective items. In rivetted work an addition of 2.5% of the weight of shop and site rivette heads. Deduction for rivette on bolt hole shall be made only if its area exceeds

0.02 Sq.m. In case of welding, no allowance shall be made for the weld metal.

Pipes for flues : Flue pipes shall be measured in running metre which will include short lengths, cutting, waste etc. Supports and specials like bends, elbows shall be measured separately.

Expanded metal works and weldmesh work shall be described including meshes, laps and the method of fixing. Measurement is done in Sq.m. without making deduction for opening upto 0.2 Sq.m. Wire netting required for encasing is inclusive of measures and measured in Sq.m. allowing for the overlaps, bolts, nuts and washers shall be described and measured in weight; Plain or barbed wire fencing shall be described and each line shall be measured in running metre.

Collapsible gates shall be measured in Sq.m as fixed describing the gate of its size, opening, pickets, pivoted flat bars and size of meshes formed by them when fully extended; Top and bottom runners, pullies, locking lugs and handles shall be described and included with them. The item of works shall also include erection in position and securing runners with holdfasts and brackets. Rolling shutters/grills shall be described and measured in Sq.m. The width is measured as the outer distance between the backs of two guide channels of rolling shutters. The height is the distance between the sill and centre of hood cover. The description shall include the gauge, type of the structure, distance between centres of interlock, bridge depth, the spring winding mechanism, method of operation, jamb guides, bottom rail, locking etc. Steel doors, windows, ventilators and glazed frames shall be measured in Sq.m.

Spiral staircase shall be described fully stating overall height, diameter, number of treads, raiser and sleeve, central shaft or pole including base plate, handrail balusters and other attachments.

Grills shall be measured in Sq.m. on the basis of overall area and they shall be described including size and weight of each piece.

Steel or wrought iron bars for window and ventilators are measured on the basis of weight worked out from actual measurement of the bars on site.

The ornamental grills, gratings, railings etc. are measured on the basis of area in Sq.m. of the dimensions that are visible and ignoring the portions that are embedded; The brackets of decorative nature can be measured on unit basis and paid per piece.

Wood Work : General rules for measurements. Length and width shall be measured to the nearest 1 Cm. Width of plank shall be measured to the nearest 2mm; thickness shall be measured to the nearest 2mm; area should be calculated to the nearest 0.01 Sq.m. and cubical contents to the nearest 0.001 Cu.m. The item of wood work shall be fully specified in respect of the material finished and also whether the surface is to be treated with paint or polish. All work shall be measured net as fixed and no extra measurement for shape, joints, chamfering shall be allowed. In case the scantlings, battens are other than rectangular shape in section; the measurement will be taken as the least rectangle from which the section can be obtained. In case of varying sections of members, the largest section shall be measured. While measuring framed timber, length of tenons and scarf shall be added to site length of framed member. Any extra length needed to embed in floors or walls, these shall be added to site lengths. The description of the item should include fixing the necessary keys, wedges, dowels, wood pins to tenon joints, type of fixing (secret fixed/fixed with screws/fixed with screws and cups/fixed with bolts and washers). All works shall include nails; screws required for fixing, fittings of hardware shall be measured separately along with that item.

Rebates, tongues and grooves, mouldings, beads, staff beads and flutes shall be measured in running metre specifying width or girth. Labour shall be measured separately for notching exceeding 15Cm. in girth, circular cutting and scribing; the items that can be measured separately in numbers or cutting of holes square in section (size and depth of holes to be specified) boring holes stating diameter and depth, ends splayed or rounded and wrought, notches not exceeding 15Cm. each in girth stating thickness, wrought pointed or rounded ends to posts, rafter feet projecting with splayed or moulded ends.

Doors and windows : The frames of doors and windows with jambs, sills etc. can be measured in Cu.m. while doors and windows with frames and shutters complete can be in Sq.m. In case there is a combination of 2 or more types of doors or windows, it should be either measured as a combined item or the different portions being measured separately, the dividing line being the centre of the rail separating different portions. No extra width or labour shall be measured for rebated or splayed meeting styles of doors and windows; boarding shall be measured in Sq.m. stating the finished thickness. The measurement shall be the net, ignoring extra width or debates, tongues, grooved and filtered and secret joint if any; battern work shall be described and measured in Sq.m;

In case of doors and windows, it is necessary to specify the type of shutters, thickness and size of panels and styles, if applicable; decorative features required on the panels like mouldings, quality of hinges whether brass or iron, quality and numbers of all the fixtures and fastenings, finished with paint or polish; decorative mouldings on doors or paid on per running metre.

Roof Covering : The commonly used roof coverings other than RCC slab are A.C.Sheets, corrugated iron sheets, Mangalore tiles and Madras terraced.

The schedule of quantities shall fully specify the material and workmanship. The superficial area of roof covering shall be measured on the flat in sq. m. without allowance for laps and corrugations, if any. No deduction is made for opening upto 0.4 sq.m. Beyond that the area will be deducted and cutting required shall be measured in running metres. Sheeting curved and supporting work shall be measured separately. The roof covering should indicate the type of sheeting, thickness side and end lapse, whether bolted or rivetted including their spacing, ridges, hips and valleys shall be measured along the central line in running metres specifying the girth and flashings in sq.m. The laps are not measured separately

A.C Sheet Roofing : The description should indicate the type of sheeting, thickness side and end laps and method of fixing; measurement is made in sq.m; Laps for ridges and hips should be stated and measurement will be in running metres along the centre line Barge boards; Eaves filler pieces, corner pieces, aprons, flushings, louvres, north light and ventilator curves, expansion joints for sheeting, Eaves and valley gutters shall be measured in running metres. Accessories such as drop ends, stop ends etc., shall be described and taken as extra on ordinary sheeting; union clips shall not be measured separately.

Mangalore Tiles : Measured in sq.m of sloping area, width being the distance between top of the ridge to extreme edge of tiles. The rate will include hip and ridge tiles, fillets and pointing. Only special finals, terminals and ventilating of glass tiles will be measured in number and paid separately.

Madras Terrace Roofing : This should be measured in sq.m. including plaster finish on the top and underside.

Jack arch roofing shall be measured flat overall in sq.m. which will include provision of centering. The clear span, rise, thickness, method of laying, jointing and pointing shall be described.

Lime concrete in terracing shall be measured in sq.m. stating the average thickness. Each type of waterproof treatment shall be fully described indicating the type, quality and quantity of materials, side and end lays where necessary, all cutting, waste, forming of openings, wedging and pointing edges in masonry work. Turn ups and turn downs and eve, verges, abutments etc., shall be included in the measurements.

The waterproofing treatment between lapse of corrugated sheeting will be measured in running metre stating the width. The treatment in flashings, rides, hips, etc., shall be measured in sq.m. rain water pipes, gutters shall be measured in running metres. The length of all fittings shall be included.

Plastering : It shall fully specify the proportion of sand and cement, number of coats, type of finish and its thickness; where thickness is not specified, it is assumed at 18 mm. Measurement is made in sq.m. and no extra is paid for chamfering and rounded edges. All openings shall be deducted from the plastered surface on both sides (except where the openings do not exceed 0.4 sq.m.); The jambs, soffits, sills and reveals and paid separately; no deduction shall be made for the ends of beam, posts etc., and no extra is paid for finishing plaster around the ends.

Rendering means one rough coat of plastering; Sand faced plastering shall include two coats of plaster, one will be the under coat of rendering and the other upper coat of smooth finishing to the required grade and colour;

Pointing is measured in sq.m. of the wall surface covered by the pointing. The pointing may be flush, tuck, keyed, struck etc., Deduction to be allowed are the same as for plastering work.

Ceiling and lining : These are measured as flat in sq.m; supporting members should be measured separately. Opening upto 0.4 sq.m. shall not be deducted and no extra measurement made for forming such openings. The cover pillars over joints shall be measured separately in running metres stating the width and thickness of fillet;

Floor Pavement and Dadoing : All works shall be measured in sq.m. No deduction shall be made for embedded areas of other articles not exceeding 0.1 sq.m. Isolated work not matching with the general finish shall be measured separately. The measurement will be in running metres for a width upto 30 cm., specifying the width. For width more than 30 cm this will be measured in sq.m; Expansion and dummy joints shall be measured separately in running metres stating depth, width and filler of joints. Curved and similar works shall be described and measured separately stating the radius; different kinds of finishes shall be measured separately according to the composition and mix, thickness, nature of treatment etc., No deduction shall be made for voids upto 0.2 cu.m.; Dividing strips shall be described and measured in running metres stating, the size and thickness method of fixing etc., moulding nosings shall be measured in running metres; Dadoos shall be measured in sq.m. while the skirting will be in running metres stating the height; All works in treads, rises and edges of landings shall be measured in sq.m

Whitewash, Colourwash and Distemper : The item should specify the materials to be used, number of coats, and is paid per Sq.m. of the work done. The deductions are similar as given for plastering. For the work on A.C and C.I sheets, the flat measurements will be increased by the following percentages ;

Corrugated Iron Sheets	- 14%
Corrugated A.C sheets	- 20%
Trafford Sheet	- 10%

Painting, Varnishing, Etc. Painting shall be measured in Sq.m. stating the number of coats. Preparatory work such as scrapping, rubbing etc, shall be stated.

Work on Different surfaces as absorbent surfaces (plaster concrete etc.) semi absorbent surfaces (wood) and non-absorbent surfaces, (steel) shall be stated and measured under separate item; No deduction shall be made for the opening upto 0.5 Sq.m. and no addition shall be made for painting to jambs, soffits, sill, edges, mouldings etc., of such openings.

Priming coat of paint for fabricated structural steel and iron work shall be included with fabrication. The subsequent coats shall be measured separately on the basis of weight or in Sq.m. Painting work on surfaces not exceeding 10 Cm. in width or in girth and not in conjunction with similar painted work shall be measured in running meters; Painting to rain water pipes, soil pipes etc., and eaves girders shall be measured in running metres stating the diameter. The pipe fittings are not measured separately and included in the length; painting in repair work not exceeding to 1 Sq.m shall be enumerative in the following categories.

- (1) Upto 0.1 Sq.m
- (2) More than 0.1 sq.m. but less than 0.5 sq.m
- (3) More than 0.5 sq.m. but less than 1 sq.m

Varnish Measurements : Same as painting.

In case uneven surfaces are painted or polished, the area should be measured as if flat and converted into equivalent plan area by multiplying

the measured flat area by a factor in accordance with the table given below:

<u>S.No.</u>	<u>Item</u>	<u>How measured</u>	<u>multiplying factor.</u>
1.	Panel doors-shutters complete with frame edged or braced	measured flat	2 .6 (for both sides)
2.	Door and flush shutter	" "	2.4 " "
3.	Fully glazed or gauged windows with frames	" "	1.6 " "
4.	Partly panelled and partly glazed or gauged joinery	" "	2 " "
5.	Fully venetioned or louvered joinery	" "	3.6 " "
6.	Grills and railings	" " overall; no deduction made for open spaces ; supporting member not measured separately.	1 for painting all (which includes two sides)

<u>S.No.</u>	<u>Item</u>	<u>How measured</u>	<u>multiplying factor.</u>
7.	Wooden joists and planks	Measured separately in Sq.m	1 1/2 times the flat measurements and painting to sides of choice not paid separately.
8.	Steel rolling shutters	Measured flat	1.25 times flat area
9.	Plain steel doors and windows	Measured flat	1.1 for each side
10.	Fully glazed or gauged steel doors and windows	" "	0.5 for each side.
11.	Partly panelled and partly glazed	" "	0.8 for each side.
12.	Collapsible gate	" "	1.5 all over

Notes:

(i) Where doors, windows etc., are of composite types than those included in this table different portions shall be measured separately with their appropriate co-efficients, centre line of common rail being taken as the dividing line between the two portions.

(ii) Measurement of painting of doors, windows, collapsible gates, rolling shutters, etc., as given in the table shall be deemed to include painting, if required, of all iron fittings in the same shade.

(iii) When two faces of a door, window, etc., are to be treated with different specific finishes, measurable under separate items, edges of frames and shutters shall be treated with one or other type of finish and measured thereof and shall be deemed to be included in the measurement of the face treated with that finish.

(iv) In case where shutters are fixed on both faces of a frame, measurement for the door frame and shutter on one face shall be taken in the manner already described, while the additional shutter on the other face shall be measured exclusive of the frame.

(v) Where shutter is provided with clearance exceeding 15cms at top and/or at bottom, such openings shall be deducted from the overall measurement and relevant co-efficient supplied.

Writing letters and figures : Letters, figures and similar items shall be enumerated describing height and form or style namely, block, italics, etc., commas, hyphens, stops and the like shall be deemed to be included in the item.

Glazing :

All Glazing shall be measured in sq.m stating the nominal thickness. Each pane of glass shall be measured to the nearest 0.5 Cms. both in width and height. Glazing in wood, metal or concrete shall be measured separately stating the type and patti.

Separate measurements shall be taken for (1) Squares not exceeding 0.5 sq.m. in each pane (2) squares exceeding 0.5 sq.m. in each pane but

in case of sheet glass not exceeding 0.75 Sq.m. (3) For glasses other than sheet glass, the further classifications are (a) Squares more than 0.75 Sq.m and below 1 Sq.m. (b) Squares exceeding 1 Sq.m and below 1.5 Sq.m. (c) Squares exceeding 1.5 Sq.m.

Frosted glass shall be measured separately and should be stated whether it is frosted on one side or on both sides.

Holes drilled in glass and sheet shall be in numbers, stating the diameter of the hole, type and thickness of glass, size of pane.

Grinding, polishing and rounding of glass shall be measured in running metre.

Road work : The materials for road work shall be measured with materials in bottomless or measuring boxes or in closely packed stacks prepared on level ground and measured in cu.m. When thickness is measured, it shall be minimum thickness after compaction.

Scarifying shall be measured in Sq.m stating the depth scarify and type of surface.

Soiling is measured in Sq.m.

The sub-ways shall be measured separately in Sq.m.

Edging shall be measured in running metre describing the material and method of placing.

Brems will be measured in running metres stating the average filling and width.

Dismantling and Demolishing : Dismantling implied carefully removing without damage while demolition means breaking up. The works demolition and dismantling should each be measured separately. Temporary shoring for safety of portions which are not to be pulled down or adjoining property or temporary enclosures etc., shall be included in the main item. Precautions shall be taken for protection of the properties not to be dismantled and to keep down the dust. The description shall include separation of serviceable material from the unserviceable, stocking within 100 metres and disposal of debris. Removal of materials beyond 100 m. shall be measured in Cu.m, while roof coverings in Sq.m, indicating the thickness; steel and iron work will be measured in kg. Doors, windows etc, shall be enumerated which will include removal of holdfasts and other attachments.

Plumbing, water supply & Drainage : Pipes shall be measured in running metres inclusive of all joints, with the measurement taken along the central line of the pipes, all fittings or specials may be enumerated separately as extra over the pipe or alternatively joints, fittings etc., shall be fully described and enumerated separately,; Cutting of pipes, through walls or clothes or making chases are not included in the rate unless otherwise specified; No extra payment allowed for testing of pipelines unless otherwise stated:

Taps, cocks etc. are priced per number, describing the make, quality, size and other details fully.

All cutting and waste of pipes, cutting threads, plumbing and testing of water supply, shall be included in the item. When fittings are of unequal diameter, it shall be designated by largest diameter; pipes laid are fixed in ducts, chases, trenches, embedded in floors, fixed to walls etc. shall be measured separately. The cutting of chase for concealed pipe work and making good thereafter shall be measured separately in running metres.

The item lead pipes shall specify internal diameter of pipes, weight per running metre and whether they are to be with or without cleaning eye and plug. It is paid per running metre of the extreme net length including solder joints and brass connecting pieces including labour. Lead traps shall be fully specified and paid per number.

Manholes and inspection chambers may be measured in detail under relevant items of works. Alternatively, they shall be described and enumerated. They are classified into different groups depending upon the depth which is measured as, the distance between the top of the manhole cover and invert of main drains.

Measurement of testing of sewers shall be in running metres between manholes. The sanitary fittings such as nanni trap, bends with or without plugs, waterclosets, urinals, washbasins, etc., shall be fully specified indicating their make, dimensions, materials, quality, method of fixing and priced per number.

STANDARD DATA FOR IMPORTANT ITEMS OF WORKS

Description of works	Material for 1 M ³				Labour for 1 M ³			
	Brick No.	Sand M ³	Cement Kg	Broken Rubble stone	Mason I class	Mason II class	Mazdoor I class	Mazdoor II class
1	2	3	4	5	6	7	8	9
Concrete 1:5:10(40mm metal)	-	0.45	130	0.90	-	0.18	1.77	1.41
Concrete 1:3:6 (20mm metal)	-	0.45	216	0.90	-	0.18	1.77	1.41
R.C.Concrete 1:2:4(20 mm metal)	-	0.45	323	0.90	-	0.35	2.12	3.53
R.C.Concrete 1 : 1 1/2 : 3 (20mm metal)	-	0.45	432	0.90	-	0.35	2.12	3.53
Stock bricks in cm 1:6 (I class bricks) 8 3/4" x 4 3/8" x 2 3/4"	459	0.25	60	-	0.35	1.06	0.71	2.12
Stock bricks in cm 1:5	459	0.25	72	-	0.35	1.06	0.71	2.12
Stock bricks in cm 1:3	459	0.25	120	-	0.35	1.06	0.71	2.12

Material for 1 M ³					Labour for 1 M ³			
Description of works	Brick No.	Sand M ³	Cement Kg	Broken Rubble stone	Mason I class	Mason II class	Mazdoor I class	Mazdoor II class
1	2	3	4	5	6	7	8	9
Matric bricks in cm 1:6 (I class Bricks 19x9x9 cm)	500	0.22	53	-	0.35	1.06	0.71	2.12
Metric Bricks in cm 1:5	500	0.22	63	-	0.35	1.06	0.71	2.12
Metric bricks in cm 1:3	500	0.22	106	-	0.35	1.06	0.71	2.12
Wirecut bricks in cm 1:6 9" x 4 1/2 " x 3"	425	0.20	48	-	0.35	1.06	0.71	2.12
Random Rubble in cm 1:5 add bond stone 0.1m	-	0.34	98	1.0	0.71	1.06	1.41	1.41
Coursed rubble (first sort) in cm 1:5	-	0.28	81	1.1	1.06	2.47	1.41	1.41

Material for 1 M ³					Labour for 1 M ³			
Description of works	Brick No.	Sand M ³	Cement Kg	Broken Rubble stone	Mason I class	Mason II class	Mazdoor I class	Mazdoor II class
1	2	3	4	5	6	7	8	9
(second sort) in cm 1:5 add rough- stone 0.5m ³	-	0.32	92	0.6	0.71	1.76	1.41	1.41
Damp proof course in cm 1:4 (20mm thick)	-	0.21	756	-	1.10	1.10	2.2	1.10
For load bearing wall structures only Graded chips of 10mm & below					0.50	-	1.19	4.30
Ellis pattern flooringq (20mm thick)	-	-	117	0.24m ³ stone chips				

Material for 1 M ³					Labour for 1 M ³			
Description of works	Brick No.	Sand M ³	Cement Kg	Broken Rubble stone	Mason I class	Mason II class	Mazdoor I class	Mazdoor II class
1	2	3	4	5	6	7	8	9
Plastering in cm 1:5 (12mm thick)	-	0.14	40	-	1.10	-	0.50	1.10
Plastering in cm 1:5 (20mm thick)	-	0.22	63	-	2.20	-	0.50	3.20
Plastering in cm 1:3 (12mm thick)	-	0.14	67	-	1.10	-	0.50	1.10
Plastering in cm 1:3 (20mm thick)	-	0.22	106	-	2.20	-	0.50	3.20
Finishing Rcc surface in cm 1:3 (10mm thick)	-	0.10	48	-	1.10	-	1.10	1.10

Description of works	Material for 1 M ³				Labour for 1 M ³			
	Brick No.	Sand M ³	Cement Kg	Broken Rubble stone	Mason I class	Mason II class	Mazdoor I class	Mazdoor II class
1	2	3	4	5	6	7	8	9
Madras terrace roofing (Brick 15 x 7 ¹ / ₂ x 2 ¹ / ₂ x cm) (Tile 15x15x2cm)	1640	0.98 Broken(lime) Brick + 0.44 m ³ Sand	0.67	1350 m ² Flat Tile	2.20	3.20	2.20	5.40
Weathering course in lime concrete lime	-	1.28m3 Brick Jelly of 20mm	0.5m3	-	0.10	-	1.77	1.41
Laying one course of pressed tiles in cm 1:3 & top pointed with cm 1:3 (Tile 20x20x2cm)	250	0.16	77	5.8kg Crude oil	1.10	2.10	2.20	1.10

Material for 1 M ³					Labour for 1 M ³			
Description of works	Brick No.	Sand M ³	Cement Kg	Broken Rubble stone	Mason I class	Mason II class	Mazdoor I class	Mazdoor II class
1	2	3	4	5	6	7	8	9
Flat Tiles one course in cm 1:3 (Tile 15x15x1.2cm)	450	0.15	72	5.3kg Crude oil	1.10	-	-	1.10
Flat Tiles two courses in cm 1:3 Tile (15x15x1.2cm)	900	0.31	149	13.0kg Crude oil	1.10	1.10	-	2.20

Chapter V

ARBITRATION

Arbitration is a process of mediation by a common person, in all disputes that arise out of a contract.

Arbitration is an easier and quicker process by which the parties can settle the dispute by appointing an arbitrator who will be a third uninterested party. Normally, in Engineering Contracts the arbitrator will be an Engineer who will decide the issues considering all technical and practical aspects. The process of appointing an arbitrator will help to solve the dispute which otherwise has to be settled in a court of law through suit. In case of arbitration there is no expenditure by way of court fees.

Only cases in which an agreement exists with an Arbitration clause can be referred to the arbitrator. In the absence of arbitration clause, the parties can appeal to a court which may nominate an arbitrator to decide the dispute. The award passed by an arbitrator has the same effect of the court's judgement, when the award gets decreed.

The difference between arbitration and mediation is that the former is a legal verdict binding on the parties while in the case of latter, it is for the parties to accept or ignore the decisions made.

Arbitration Clause is a part of contract. Only disputes where damages can be compensated by recoveries can be referred to arbitration. No criminal dispute can be referred. Matters other than a dispute cannot

be referred to arbitrator. Any arbitration agreement should be in writing only.

The arbitrator should hear the evidence of both the parties relevant to the subject of disputes he should follow what is done in a court. In case any party wants to amend the statement filed by it, it cannot allow them unless both the parties agree. The failure of a party to present during the enquiry should not make the arbitrator to pass an ex-party award. The party should be given an opportunity to appear for the next hearing and should intimate that an ex-party decision will be given if he absents himself; Even afterwards, the arbitrator should ensure that the party has avoided his presence intentionally with the object of deliberately keeping away.

When a party to the award passes away, during the enquiry no award can be given to bind the estate of the legal heirs unless they give their consent. On the death of the party the legal heirs should be made party to.

Duties of an arbitrator : Before the arbitrator enters into reference, he should examine his terms of appointment and should ensure that he has the competency to handle the same. He should then ask the parties to furnish the details of the case with necessary documents and list of exhibits and witness to study the case in detail.

He should then call for a preliminary meeting to discuss the mutually agreed procedure for hearing with dates, production of witnesses and their evidence, framing of broad issues mutually agreed on which the parties would argue, prepare a programme of hearing the evidence, arguments, site inspections and fix a date for the final hearing. If necessary, legal representations can also be heard by him.

Once an arbitrator is duly appointed, his authority shall not be revokable except with the leave of the court. Even the appointing authority has no powers to recall the arbitrator.

Setting aside an award : An award is filed before a court either by arbitrator or by a party. The court then gives notice to the parties. The party wishing to get the award set aside should apply to the court within 30 days. A plaint in the usual form as a suit will have to be presented before the court on required stamp papers, after having paid the court fees. Arguments and grounds on which the party wishes to set aside the award should be stated in detail with all supporting documents and copy of the award.

- 1) The award can be set aside if the arbitrator or umpire has misconducted himself on the proceedings (some instances which constitute a misconduct has been furnished in the following pages)
- 2) if the award has been made after proceedings have become invalid.
- 3) if it enforces illegal contract.

The word misconduct includes mishandling of arbitration proceedings, lapses of the duties on the part of the arbitrator, receiving inadmissible evidence, denying the party opportunity to tender evidence, damages assessed on wrong basis, deciding matters outside the scope of reference, showing special consideration to one party, taking bribes, unintended violation of established process of judicial enquiry against the principles of natural justice etc. The above are not exhaustive but only indications as to how the courts view any lapse on the part of an arbitrator.

Award : The arbitrator is to make the award before the expiry of the time stipulated. In exceptional circumstances the extension of time is

to be approved by both the parties or by the competent court as applicable. The arbitrator should verify the Stamp Duty based on the amount of the award. The stamp duty is based on the state court where the award is filed. Each state has its own tariff for stamp duty.

The award is a simple legal document on stamp paper original being retained with the arbitrator and copies to others as per terms of reference. Every word in the award will be scrutinised by a judicial authority and hence the statements should be clear with no wrong figures.

The arbitrator/umpire can demand payment towards his fees, expenses incurred in connection with the proceedings including stamp duty, registration and court charges in filing the award including incidental and travelling expenses.

If the reference is to give a separate award for each dispute, the arbitrator cannot give a consolidated award. When there are several references made at different points of time, the arbitrator cannot pass a single award for all the disputes put together. The court cannot interfere with the award when the arbitrator has not given reasons and not indicated any legal basis.

As award cannot be purely on moral consideration, the court cannot sit on appeal on the decision of the arbitrator and re-evaluate the evidences.

An award can be challenged before it is filed in a court for decreeing. The court has a constant jurisdiction over the proceedings though it cannot interfere.

The court has to examine and ensure about the validity of the arbitration agreement before accepting.

When the arbitrator has made the award, he shall sign it and give notice in writing to the parties of making and signing thereof and of the amount of fees and charges payable in respect of the arbitration and award. The party which intends to enforce the award should file it in the court and obtain a judgement in the terms of the award.

Litigation and Arbitration :

For qualifying to give evidence, settling proofs, conferences with solicitors, attendance in court or at arbitrations or before other tribunals, for services in connection with litigation and for arbitration, fees shall be on a time basis.

Time charges for principals time shall be Rs.75/- to Rs.100/- per hour with a minimum of Rs.500/- for acting as arbitrator.

Charging fee from one party or making an extravagant demand at times amount to misconduct. An arbitrator is entitled to his fees and charged before publishing his award or file it in the court. If fee demanded is excessive, the court has authority to reduce it to reasonable amount. The party who desires the fee to be reduced should deposit the full fee in the court before action taken by court.

The fees will depend upon the time and labour involved, any technical or special knowledge brought to bear upon the proceedings and nature of dispute.

CHAPTER VI

REGISTRATION OF ARCHITECTS

The Architects' Bill was passed in 1972 and came into force on 1.9.1972. With the passing of this legislation, it will be unlawful for any person to designate himself as "Architect", unless he has the requisite qualifications and experience and is registered under the Act. Under this Act, Architect means a person whose name is for the time being entered in the Register of Council of Architecture.

Preparation and Maintenance of register

- (1) The Central Government shall, as soon as may be, cause to be prepared in the manner hereinafter provided a register of architects for India.
- (2) The Council shall upon its constitution assume the duty of maintaining the register in accordance with the provisions of this Act.
- (3) The register shall include the following particulars, namely,
 - (a) the full name with date of birth, nationality and residential address of the architect.
 - (b) his qualification for registration, and the date on which he obtained that qualification and the authority which conferred it;

- (c) the date of his first admission to the register;
- (d) his professional address; and
- (e) such further particulars as may be prescribed by rules.

First preparation of register

(1) For the purposes of preparing the register of architects for the first time, the Central Government shall, by notification in the Official Gazette, constitute a Registration Tribunal consisting of three persons who have, in the opinion of the Central Government, the knowledge of, or experience in architecture; and the Registrar appointed shall act as Secretary of the Tribunal.

(2) The Central Government shall, by the same or a like notification, appoint a date on or before which application for registration, which shall be accompanied by such fee as may be prescribed by rules, shall be made to the Registration Tribunal (Government announced 27th of April, 1974 for application)

(3) The Registration Tribunal shall examine every application received on or before the appointed day and if it is satisfied that the applicant is qualified for registration shall direct the entry of the name of the applicant in the register.

(4) The first register so prepared shall thereafter be published in such manner as the Central Government may direct and any person aggrieved by a decision of the Registration Tribunal expressed or implied in the register so published may, within thirty days from the date of such publication, appeal against such decision to an authority appointed by the Central Government in the behalf by notification in the Official Gazette.

- (5) The authority appointed shall, after giving the person affected an opportunity of being heard and after calling for relevant records make such order as it may deem fit.
- (6) The Registrar shall amend, where necessary, the register in accordance with the decisions of the authority appointed.
- (7) Every person whose name is entered in the register shall be issued a certificate of registration in such form as may be prescribed by rules.
- (8) Upon the constitution of the Council, the register shall be given into its custody, and the Central Government may direct that the whole or any specified part of the application fees for registration in the first register shall be paid to the credit of the council.

Qualification for entry in register

A person shall be entitled on payment of such fee as may be prescribed by the rules to have his name entered in the register, if he resides or carries on the profession of architect in India and--

- (a) holds a recognised qualification, or
- (b) does not hold such a qualification but, being citizen of India, has been engaged in practice as an architect for a period of not less than five years prior to the date appointed or
- (c) possesses such other qualifications as may be prescribed by rules:

Provided that no person other than a citizen of India shall be entitled to registration by virtue of a qualification--

- (a) recognised unless by the law and practice of a country outside India to which such person belongs, citizens of India holding architectural qualification registrable in that country are permitted to enter and practice the profession of architect in such country, or
- (b) The Council may enter into negotiations with the authority in any State or country outside India, which by the law of such State or country is entrusted with the maintenance of a register of architects, for settling of a scheme of reciprocity for the recognition of architectural qualifications, and in pursuance of any such scheme, the Central Government may, by notification in the Official Gazette, direct that such architectural qualification as the Council has decided shall be recognised, shall be deemed to be a recognised qualification for the purposes of this Act, and any such notification may also direct that such architectural qualification shall be so recognised only when granted after a specified date or before a specified date.

Procedure for subsequent registration

- (1) After the date appointed for the receipt of applications for registration in the first register of architects, all applications for registration shall be addressed to the Registrar of the Council and shall be accompanied by such fee as may be prescribed by rules.
- (2) If upon such application the Registrar is of opinion that the applicant is entitled to have his name entered in the register he shall enter thereon the name of the applicant.

Provided that no person, whose name has under the provisions of this Act been removed from the register, shall be entitled to have his name re-entered in the register except with the approval of the Council.

(3) Any person whose application for registration is rejected by the Registrar may, within three months of the date of such rejection, appeal to the Council.

(4) Upon entry in the register of a name under this section, the Registrar shall issue a certificate of registration in such form as may be prescribed by rules.

Renewal fees:

(1) The Central Government may, by notification in the Official Gazette, direct that for the retention of a name in the register after the 31st day of December of the year following the year in which the name is first entered in the register, there shall be paid annually to the Council such renewal fee as may be prescribed by rules and where such direction has been made, such renewal fee shall be due to be paid before the first day of April of the year to which it relates.

(2) Where the renewal fee is not paid before the due date, the Registrar shall remove the name of the defaulter from the register:

Provided that a name so removed may be restored to the register on such conditions as may be prescribed by rules.

(3) On payment of the renewal fee, the Registrar shall, in such manner as may be prescribed by rules, endorse the certificate of registration accordingly.

Entry of additional qualification

An architect shall, on payment of such fee as may be prescribed by rules, be entitled to have entered in the register any further recognised qualification which he may obtain.

Removal from register

(1) The Council may, by order, remove from the register the name of any architect--

- (a) from whom a request has been received to that effect or
- (b) who has died since the last publication of the register.

(2) Subject to the provisions of this section, the Council may order that the name of any architect shall be removed from the register where it is satisfied, after giving him a reasonable opportunity of being heard and after such further inquiry, if any, as it may think fit to make,--

- (a) that his name has been entered in the register by error or on account of misrepresentation or suppression of a material fact; or
- (b) that he has been convicted of any offence which, in the opinion of the Council, involves moral turpitude; or
- (c) that he is an undischarged insolvent; or
- (d) that he has been adjudged by a competent court to be of unsound mind.

(3) An order may direct that any architect whose name is ordered to be removed from a register shall be ineligible for registration under this Act for such period as may be specified.

(4) An order shall not take effect until the expiry of three months from the date thereof.

Procedure in inquiries relating to misconduct

(1) When on receipt of a complaint made to it, the Council is of opinion that any architect has been guilty of professional misconduct which, if proved, will render him unfit to practice as an architect, the Council may hold an inquiry in such manner as may be prescribed by rules.

(2) After holding the inquiry and after hearing the architect, the Council may, by order, reprimand the said architect or suspend him from practice as an architect or remove his name from the register or pass such other order as it thinks fit.

Surrender of certificates

A person whose name has been removed from the register or where such person is dead, his legal representative, shall forthwith surrender his certificate of registration to the Registrar, and the name so removed shall be published in the official Gazette.

Restoration to register.

The Council may, at any time, for reasons appearing to it to be sufficient and subject to the approval of the Central Government, order that upon payment of such fee as may be prescribed by rules, the name of the person removed from the register shall be restored thereto.

Issue of duplicate certificates.

Where it is shown to the satisfaction of the Registrar that a certificate of registration has been lost or destroyed, the Registrar may, on payment of such fee as may be prescribed by rules, issue a duplicate certificate in the form prescribed by rules.

Printing of register.

As soon as may be after the 1st day of April in each year, the Registrar shall cause to be printed copies of the register as it stood on the said date and such copies shall be made available to persons applying therefor on payment of such fee as may be prescribed by rules and shall be evidence that on the said date the persons whose names are entered therein were architects.

Effect of registration:

(1) Any reference in any law for the time being in force to an architect shall be deemed to be a reference to an architect registered under this Act.

(2) After the expiry of two years from the date appointed, a person who is registered in the register shall get preference for appointment as an architect under the Central or State Government or in any other local body or institution which is supported or aided from the public or local funds or in any institution recognised by the Central or State Government.

Penalty for falsely claiming to be registered.

If any person whose name is not for the time being entered in the register falsely represents that it is so entered, or uses in connection with his name or title any words or letters reasonably calculated to suggest that his name is so entered, he shall be punishable with fine which may extend to one thousand rupees.

Prohibition against use of title

(1) After the expiry of one year from the date appointed no person other than a registered architect, or a firm of architects shall use the title and style of architect:

Provided that the provisions of this section shall not apply to

- (a) practice of the profession of an architect by a person designated as a "landscape architect" or "naval architect";
- (b) a person who carrying on the profession of an architect in any country outside India, undertakes the function as a consultant or designer in India for a specific project with the prior permission of the Central Government.

Explanation - For the purposes of clause (a)

- (i) "landscape architect" means a person who deals with the design of open spaces relating to plants, trees and landscape;
- (ii) "naval architect" means an architect who deals with design and construction of ships.

(2) If any person contravenes the provisions, he shall be punishable on first conviction with fine which may extend to five hundred rupees and on any subsequent conviction with imprisonment which may extend to six months or with fine not exceeding one thousand rupees or with both.

Failure to surrender certificate of registration.

If any person whose name has been removed from the register fails without sufficient cause forthwith to surrender his certificate of

registration, he shall be punishable with fine which may extend to one hundred rupees, and in the case of a continuing failure, with an additional fine which may extend to ten rupees for each day after the first during which he has persisted in the failure.

Cognizance of offences.

(1) No court shall take cognizance of any offence punishable under this Act, except upon complaint made by order of the Council or a person authorised in this behalf by the Council.

(2) No Magistrate other than a Presidency Magistrate or a Magistrate of the first class shall try any offence punishable under this Act.

Information to be furnished by Council and publication thereof

(1) The Council shall furnish such reports, copies of its minutes, and other information to the Central Government as that Government may require.

(2) The Central Government may publish, in such manner as it may think fit, any report, copy or other information furnished to it under this section.

Protection of action taken in good faith.

No suit, prosecution or other legal proceeding shall lie against the Central Government, the Council or any member of the Council, the Executive Committee or any other committee or officers and other employees of the Council for anything which is in good faith done or intended to be done under this Act or any rule or regulation made thereunder.

Members of Council and officers and other employees to be public servants.

The members of the Council and officers and other employees of the Council shall be deemed to be public servants within the meaning.

Power to remove difficulties.

(1) If any difficulty arises in giving effect to the provisions of this Act, the Central Government may, by order published in the Official Gazette, make such provisions, not inconsistent with the provisions of this Act, as appear to it to be necessary or expedient for removing the difficulty:

Provided that no such order shall be made under this section after the expiry of two years from the date of commencement of this Act.

(2) Every order made under this section shall, as soon as may be after it is made, be laid before each House of Parliament and shall apply in respect of such order as it applies in respect of a rule made under this Act.

Power of Central Government to make rules.

(1) The Central Government may, by notification in the Official Gazette, make rules to carry out the purposes of this Act

(2) In particular and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely-

- (a) the manner in which elections shall be conducted, the terms and conditions of service of the member of the Tribunal appointed and the procedure to be followed by the Tribunal;

- (b) the procedure to be followed by the expert committee constituted in the transaction of its business and the powers and duties of the expert committee and the travelling and daily allowances payable to the members thereof;
- (c) the particulars to be included in the register of architects;
- (d) the form in which a certificate of registration is to be issued;
- (e) the fee to be paid
- (f) the conditions on which name may be restored to the register;
- (g) the manner of endorsement;
- (h) the manner in which the Council shall hold an enquiry;
- (i) the fee for supplying printed copies of the register
- (j) any other matter which is to be or may be provided by rules.

(3) Every rule made shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the successive sessions aforesaid, both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form, or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done.

Power of Council to make regulations.

(1) The Council may, with the approval of the Central Government, make regulations not inconsistent with the provisions or the rules made thereunder to carry out the purposes.

(2) In particular and without prejudice to the generality of the foregoing power, such regulations may provide for--

- (a) the management of the property of the Council;
- (b) the powers and duties of the President and the Vice-President of the Council;
- (c) the summoning and holding of meetings of the Council and the Executive Committee or any other committee constituted, the times and places at which such meetings shall be held, the conduct of business there at and the number of persons necessary to constitute a quorum.
- (d) the functions of the Executive committee or of any other committee constituted.
- (e) the courses and period of study and of practical training, if and, to be undertaken, the subjects of examinations and standards of proficiency therein to be obtained in any college or institution for grant of recognised qualifications.
- (f) the appointment, powers and duties of inspector;
- (g) the standards of staff, equipment, accommodation, training and other facilities for architectural education;

- (h) the conduct of professional examinations, qualifications of examiners and the conditions of admission to such examinations;
- (i) the standards of professional conduct and etiquette and code of ethics to be observed by architects.
- (j) any other matter which is to be or may be provided by regulations and in respect of which no rules have been made.

QUALIFICATIONS

1. Bachelor Degree in Architecture awarded by Indian Universities established by an Act of the Central or State Legislature.
2. National Diploma (formerly All India Diploma) in Architecture awarded by the All India Council for Technical Education.
3. Degree of Bachelor of Architecture (B.Arch) awarded by the Indian Institute of Technology, Kharagpur.
4. Five-Year full-time diploma in Architecture of the Sir.J.J.School of Art, Bombay awarded after 1941.
5. Diploma in Architecture awarded by the State Board of Technical Education and Training of the Government of Andhra Pradesh with effect from 1960 (for the students trained at the Government College of Arts and Architecture, Hyderabad).
6. Diploma in Architecture awarded by the Government College of Arts and Architecture, Hyderabad, till 1959, subject to the condition that the candidates concerned have subsequently passed a special final

examination in architecture held by the State Board of Technical Education, Andhra Pradesh and obtained a special certificate.

7. Diploma in Architecture awarded by the University of Nagpur with effect from 1965 to the students trained at the Government Polytechnic, Nagpur.

8. Government Diploma in Architecture awarded by the Government of Maharashtra (or the former Government of Bombay).

9. Diploma in Architecture of Kalabhavan Technical Institute, Baroda.

10. Diploma in Architecture awarded by the School of Architecture, Ahmedabad.

11. Membership of the Indian Institute of Architects.

12. Diploma in Architecture awarded by the University of Nagpur during the period 1962 to 1964.

FORM NO.XI

(See rule 29)

Application for Registration of Architects.

To

The Secretary,
Council of Architecture,
Camp Office: 8B, Shankar Market,
Connaught Circus,
New Delhi 110 001.

1. Name in full (in block letters)

2. Father's name
3. Nationality
4. Date of Birth
5. Residential address
6. Professional address
7. Particulars of qualification
(Supported by attested copies)
8. Date of commencement of Profession/service
9. Whether practising independently/as partner/or employed
10. Period of residence in India
11. Present Address on which communication will be made
- 12 Any other particulars

I hereby undertake that if admitted as a registered architect, I will be bound by the provision of the Architects Act 1972 and the rules and regulations framed thereunder or that may hereafter from time to time be made pursuant to the said Act.

I also enclose a draft of Rs. _____ as registration fee for the year.....

Yours faithfully,

Encl: List of particulars enclosed.

True Copy
No. F. 17-1/83.T.13
Government of India
Ministry of Education and Culture
(Department of Education)

New Delhi,
Dated 28th May 1984

To

The Chief Secretaries of
State Governments.

Subject : Enforcement of the Architects Act 1972 (Act No.20 of 1972)-Charging of Fees by Local Bodies from registered Architects-Regarding.

Sir,

I am to invite your attention to this Ministry's letter number F.17-9/81.T.13 dated 19th Feb. 1982 (Copy enclosed) wherein, to safeguard the provisions of the Architects Act, all the State Governments were requested to issue instructions to all Municipal Corporations/Municipalities/ Improvements Trusts etc. under their control to issue licences only to those Architects who were registered with the Council of Architecture.

2. It has been brought to the notice of this Ministry that, some of the local bodies have been charging fees from the Architects already registered with the Council of Arch. for practising in their areas. This does not seem to be justified. In a recent case, where Municipal Corporation of Delhi had insisted on fresh registration with the local

body from the Architects registered with the Council of Architecture, the High Court of Delhi had given a judgement against the Municipal Corporation of Delhi. The latter went in for appeal to the Supreme Court, but the appeal has been dismissed by the Supreme Court on 22nd April 1983.

3. In view of the above, you are requested to advise all the local bodies viz. Municipal Corporations/Municipalities/Improvement

Trusts etc. under your control that no further registration or fees are asked from the Architects already registered with the Council of Architecture which is a statutory organisation set up under an Act of Parliament, for practising their profession in any part of the country.

4. A copy of Hindi version of this letter will follow.

Yours faithfully,

Sd./-

(M.S.SRINIVASAN)

JOINT EDUCATIONAL ADVISER (T)

TEL.No.384245

Copy forwarded for information to Shri H.R.Laroya, President, Council of Architecture, 8-B, Shankar Market, Connaught Place, New Delhi 110 001.

JOINT EDUCATIONAL ADVISER (T)

CHAPTER VII

Code of Professional conduct & Fees

A Registered Architect is governed by the regulations of the Council.

An architect is prohibited from accepting any position in which his interest may be in conflict with his profession; He should not accept any commission, discount or gift from contractors or traders; He is prohibited from advertising for work and should not attempt to oust another architect or compete in reducing the fees or by other means and influence the client; In case a client desires to change the architect employed by him, the other architect who is being approached by the client should insist upon to get a 'No Objection' Certificate from the architect previously employed;

Scale of Fees: The fees for an architect, depends upon the services utilised by the client. Normally, it is fixed on percentage of total cost of the project. The Institute has prescribed the scale of fees; However, the fees is fixed between the owner and the architect and if an agreement is made between the parties, the scale of fees prescribed by the Institute will not apply; when an architect proceeds with the work without fixing his fees, he will be entitled to reasonable remuneration on quantum basis; The court may adopt the scale of fees as prescribed by the Council or Institute, in case of dispute. Quantum Merit is a Latin word and means reasonable remuneration in proportion to the benefit received by the other party; This is applied in case of partial services or when the contract between the parties comes to an end. The fees on quantum

merit depends upon the architectural services rendered. It cannot be decided on scale of fees or time basis alone, although the scale of fees prescribed by the council of the Institute as the basis. In addition the architectural skill in the project, the standing and the experience of the architect and the nature of work done should be considered in fixing the fees payable.

The conditions of engagement and the architects fees fall into three main categories.

1) Normal Services: The minimum fees for all works shall be the percentage of the total costs of the total costs of the executed work in accordance with schedule (A) to (E) of this scale. The percentage varies with the overall size and complexity of the project.

The scale of charges show percentages under two columns. The percentage under the first column does not provide any remuneration for work performed by civil, structural, mechanical engineers and quantity surveyors or for any other work performed by Consultants. The percentage under the second column shall become applicable when all such services normally provided by other consultants are performed by Architect's own staff.

SCHEDULE A:

For structures of the simplest utilitarian character in design and detailing; also structures of normal complexity but containing extensive works of a simple repetitive character. In general, this schedule applies to:

i) Industrial buildings, factories not including layout of machinery. Work on the layout of machinery shall be charged on a time basis.

ii) Warehouses

iii) Public garages

iv) Agricultural buildings.

The charges shall be in accordance with the following schedule:

<u>Total cost of Executed works</u>		<u>Percentage fee</u>	
		(1)	(2)
On the first	Rs.5 Lacs	5%	6%
On the next	Rs.10 "	4 $\frac{1}{2}$ %	5 $\frac{1}{2}$ %
On the next	Rs.20 "	4%	5%
On the next	Rs.35 "	3 $\frac{1}{2}$ %	4 $\frac{1}{2}$ %
Above	Rs.70 "	3%	4%

SCHEDULE B

For structures of normal complexity in design and detailing. In general, this schedule applies to:

- i) Office buildings
- ii) Schools, Colleges and Hostels, not including items under Schedule C.
- iii) Public buildings, not including items under Schedule C.
- iv) Clubhouse, Auditoriums, Recreational buildings
- v) Commercial buildings
- vi) Communication buildings including bus sheds, terminals, airports, railways and marine structures.

- vii) Cold storage
- vii) Religious buildings
- ix) Monumental buildings
- x) Banks
- xi) Clinics, asylums and infirmaries
- xii) Libraries
- xiii) Art Galleries
- xiv) Court houses
- xv) Educational units such as Laboratories and Workshops
- xvi) Apartment Building.

The charges shall be in accordance with the following schedule:

<u>Total cost of Executed works</u>		<u>Percentage Fee</u>	
		(1)	(2)
On the first	Rs. 5 Lacs	6%	7 1/2%
On the next	Rs. 10 Lacs	5%	6 1/2%
On the next	Rs. 20 Lacs	4%	5 1/2%
On the next	Rs. 40 Lacs	3 1/2%	4 1/2%
Above	Rs. 75 Lacs	3%	4%

SCHEDULE C

- i) Hotels
- ii) Hospitals
- iii) Cinemas, Theatres and Concert Halls
- iv) Specialised laboratories
- v) Buildings where skill and study required is high in proportion to costs.

The charges shall be in accordance with the following schedule:

<u>Total cost of executed works</u>		<u>Percentage Fee</u>	
		(1)	(2)
On the first	Rs. 5 Lacs	7%	8½%
On the next	Rs. 10 Lacs	6%	7½%
On the next	Rs. 20 Lacs	5%	6½%
On the next	Rs. 40 Lacs	4%	5½%
Above	Rs. 75 Lacs	3½%	5%

SCHEDULE D

For Private Residences and individual Exhibition stalls and pavilions, the charges shall be in accordance with the following schedule:

<u>Total cost of executed works</u>		<u>Percentage Fee</u>	
		(1)	(2)
On the first	Rs. 50,000/-	10%	12%
On the next	Rs. 50,000/-	8%	10%
Above	Rs.1,00,000/-	7%	8%

SCHEDULE E

For House Schemes including Apartment Houses, the charge shall be as follows:

- i) For the design and working drawings of each house type the charge is three times the percentage fee listed under schedule D, based on the total cost of the works calculated as if only one structure will be built.
- ii) For the design and working drawings of each type of block of Flats the charge is the percentage fee listed in schedule B, based on the total cost of the works calculated as if only one structure will be built.
- iii) For repeating designs and working drawings the charge is a Royalty of 1/2% on the total cost of each additional house or apartment type.
- iv) For the design of site layout upto 100 acres, the charge is Rs. 500/- per acre. Above 100 acres, the Scale of Fees of the Town Planning Institute shall apply.
- v) For co-ordinating site works inclusive of roads, water mains, electrical system, sewers etc. the charge for design, working drawings and supervisions is 2% on the total cost of such works in addition to the fee charged for the Civil, Electrical, Sanitary, Mechanical and other consultants work.
- vi) For the Supervision of structures the charge shall be in accordance with the following schedule:

For the first	10 Units	2 %
For the next	90 Units	1 1/2 %
For the next	900 Units	1 %
Above	1000 Units	1/2 %

TOTAL CONSTRUCTION COSTS

The total construction cost will be based on the cost, as certified by the architect, of all works, including site works built in furniture, installation and equipment executed under his direction subject to the following conditions.

The total construction cost shall not include sub- contractor's design fee for work on which consultants would otherwise have been employed.

In addition to the cost of all works executed under the building contract the total construction cost shall include the cost of any work which is excluded from the contract but otherwise designed by the architect.

Where appropriate the cost of old materials used in the work will be calculated as if they were new.

Where any material, labour or carriage are supplied by a client who is not the builder, the cost shall be estimated by the architect as if they were supplied by the contractor and included in the total construction cost.

When the client is a builder, architects own estimate based upon current market rates shall be taken as the total cost of construction.

Where any material is supplied or any work is executed at special discount-- the current market value of such material or work shall be included in the total construction cost.

VARIATION OF FEES

Minor Works:

For works of a total cost of Rs. 1,25,000/- or less, the architect shall be entitled to make a charge, in addition to that set out in the scale of charges, in accordance with the following schedule:

<u>Total cost of executed works</u>		<u>Percentage Additional Fee</u>	
Upto		Rs. 15,000	4%
Rs. 15,000	to	Rs. 25,000	3%
Rs. 25,000	to	Rs. 50,000	2%
Rs. 50,000	to	Rs. 75,000	1 $\frac{1}{2}$ %
Rs. 75,000	to	Rs. 1,00,000	1%
Rs. 1,00,000	to	Rs. 1,25,000	1 $\frac{1}{2}$ %

Works to existing building

In case of Works of Alterations to Existing Building the charge shall be 1 $\frac{1}{2}$ times the appropriate schedule charges for New Works.

Works omitted after working drawings stage

In addition to a percentage on the total cost of executed works, the Architect is entitled to charge, in respect of all works included in the working drawings stage but subsequently omitted, two-thirds of the charge which would have been payable had they been executed.

Separate Contracts

The schedule of charges apply to work let under a single contract. For any portion of the work let under a separate contract, the Architect

is entitled to increase his charges by 50% in respect of the work so let. If substantially all the work is so let out the higher rate shall apply to the entire project.

ADDITIONAL SERVICES

This part covers services which although required in many building projects are not needed in all. The fee for the following additional services will be based on the time spent on the work by the architect and the staff, and charged in accordance with part. 10% of these conditions.

Advise on the selection and suitability of sites, conduct negotiations concerned with sites or buildings, make measured surveys, taking levels, and prepare plans of sites, sites and buildings or existing buildings.

Inspect, prepare reports or give general advice on the condition of premises.

Prepare schedule of dilapidations and negotiate them on behalf of landlords or tenants, take particulars on site, preparing specifications for repairs and supervise their execution.

Make structural investigations, the limits of which shall be clearly defined and agreed in writing such as are necessary to ascertain whether or not there are defects in the walls, roofs, floors and drains of a building which may materially affect its life and value.

Undertake a preliminary technical appraisal of a project sufficient to enable the client to decide whether and in what form to proceed, and make Town Planning enquiries or applications for outline Town Planning approval. Such an appraisal may include an approximation of

the cost of meeting the clients requirements, a statement upon the need for consultants, an outline time table and a suggested contract procedure.

For additional work to prepare Master Plans for the ultimate development of a site when the client proposes to undertake the development in two or more stages involving separate contracts.

Prepare for the use of the client special drawings, photographs, scale models, folders and reports;

Amending drawings and/or specifications or preparing new drawings and/or amending drawings, specifications to give effect to alterations of clients instructions, or to changes in design due to causes outside the architect's control.

Prepare and/or amend drawings, specifications and reports for purposes of obtaining statutory approvals and the approval of other interested persons; also for purposes of negotiating agreements including Party Walls, Rights of Light and other easements, reservations and restrictions.

Consult with outside authorities and persons having rights and powers in relation to the works or to the site; negotiate in connection with obtaining statutory approvals and agreements from Government Department or Public Authorities; also negotiate other agreements including Party Walls, Rights of Light and other easements, reservations and restrictions.

Arising out of litigation and arbitration.

Prepare development plans which will be carried out over a number of years for any large building or complex of buildings.

Fees for preparing development plans shall always be additional to percentage fees for normal services.

Where the architect is employed to prepare a layout only, or is employed to prepare a layout for a greater area than that which is to be developed immediately.

Arising from delay in building operations whether arising from bankruptcy or liquidation of the contractor or from any other cause beyond the control of the architect.

SPECIAL SERVICES

The services described under this head require the payment of Additional Fees.

TOWN PLANNING

Fees for town planning work shall be in accordance with the Professional charges of the Institute of Town Planners India, except that all layouts shall be charged on time basis.

Garden and Landscape Design

The cost of all site works designed under the direction of the architect under the same or separate building or landscape contracts shall be included in the total construction cost of the works and the architect shall be entitled to the appropriate percentage fees as under part 5 or part 13 of these conditions.

Specialist advice on the selection of plants and materials, visits to nurseries, and all other additional services shall be charged on a time basis.

Interior Decoration

Where special services, including the provision of special sketch studies, detailed advice on the selection of furniture, fittings and soft furnishings, and supervision of making up such furnishings are provided, the percentage fee for each stage of service shall be double that for new works.

Shop Fittings and exhibition work

For shop fittings, shop fronts and interiors, exhibition design and similiar works including both the remodelling of existing shops and the design of new units both independently and within the shell of an existing building, the percentage fee for each stage of the normal service shall be double that for new works.

Furniture and fittings

For advising on the selection and suitability of loose furniture, fittings and soft furnishings and supervision of their installation where not covered earlier fees shall be on a time basis.

For the design of special items of furniture and fittings for limited production only the percentage fee shall be 15% of the total production cost. Alternatively fees may be on a time basis.

For advising on the commissioning of special works of art, the selection of paintings and sculpture etc, and for supervising their installation, fees shall be on a time basis.

Building systems and components

For the development of building systems percentage fees on the total production cost may be agreed specially.

Time Charges

In cases where it is stated in the scale of charges that the fees are based upon a time basis; also in the case of any other work for which the charge cannot for practical reasons be based on a percentage of the total cost of the executed works; the charge shall be based upon time occupied in accordance with the following minimum scale of charges.

Partners Rs.100/- per hour.

Technical Staff; A charge per hour which takes into account:

- i) The individual's annual salary, bonus and allowance.
- ii) Proportion of non-productive time due to public holidays, vacation, sick leave etc., calculated at 30% on (i) above.
- iii) Cost of attendant overheads, calculated at 100% on (i) and (ii) above.
- iv) Profit calculated at 33 1/3 % on (i) (ii) and (iii) above.

On this basis the charges for technical staff shall be as follows;

<u>Annual salary etc.,</u>		<u>Scale of charges</u>
Under	Rs. 4,500/-	Rs.20/- per day
	Rs. 6,750/-	Rs.30/- per day
	Rs. 9,000/-	Rs.40/- per day
	Rs. 13,500/-	Rs.50/- per day

Time extended by clerical staff (unless otherwise agreed) shall not be chargeable as extra.

Time spent by partners and other technical staff in travelling, as well as professional expenses shall be chargeable as extra.

OUT OF POCKET EXPENSES

In addition to the fees under any other part of these conditions the client shall reimburse the architect for all reasonable out of pocket expenses actually and properly incurred in connection with the commission. Such expenses shall include:

Drawings and Documents:

Prints, (in addition to six copies of each drawing for the contract) reproduction of all drawings, maps, models, photographs and other records.

Hotel and travelling expenses

Hotel and travelling expenses, including mileage for cars at recognised rates and other similar disbursements.

Disbursements

Expenses incurred in respect of advertising for tenders, for clerk of works, including time and expenses of interviewers and reasonable expenses of interviewers and any other payments made on behalf of the client.

MODE AND TIME OF PAYMENT

The architect is entitled to payment in stages as follows, consistent with the work done plus any other fees or out of pocket expenses which have accrued. Payments made to the architects are on account and to be adjusted against the final fee payable.

On submitting drawings and indicating a general understanding of the clients requirements with a rough estimate of cost.

10% of the total fees payable.

The estimate of cost accompanying the sketch scheme shall be considered to be the total cost of executed works for the computing of fees due

On completion of the sketch stage the estimate of cost accompanying the sketch scheme shall be considered to be the total cost of executed works for the computing of fees due

20% of the total fees payable

On completion of the preliminary stage. The estimate of cost accompanying the sketch scheme shall be considered to be the total cost of executed works for computing the fees due.

35% of the total fees payable

During the preparation of the working drawing stage, instalments, consistent with the amount of work completed by the architect.

On completion of working drawings stage

65% of the total fees payable

Less the amounts of any payments already received by the architect pursuant to sub-clauses above. The last estimate of the cost submitted by the architect to the client shall be considered to be the total cost of works for computing the fees due.

On organising the site, placing all contracts, finalising specification and cost estimates and handing over constructional drawings to the contractor.

80% of the total fees payable

The estimate of cost shall be the total cost of executed works as per contract for computing of fees due.

The remaining 20% of the total fees to be paid by instalments as the supervision stage proceeds consistent with the value of the building work as certified by architect from time to time.

PARTIAL SERVICES

Where for any reason the architect performs part of the services only, including the abandonment, postponement, substitution or omission of any project and / or works, or part thereof, or if the services of the architect are terminated, the charges in respect of the services performed shall be as follows;

Sketch stage upto 20% of the fees due

If the work has not yet reached the stage of completing and submitting draft sketches and architect's estimate of cost to the client, the charge shall be on a time basis.

If draft sketches and architect's estimate of cost based upon covered areas have been submitted to the client, the charge shall be 10% of the architect's fee had the project been completed to the end of the construction stage. The estimate of cost submitted by the architect shall be considered to be the total cost of works for computing the fees due.

If the Sketch Scheme with estimate of cost has been accepted by the client, the charge shall be 20% of the Architect's fee had the project been completed to the end of the construction stage. The estimate of cost accompanying the Sketch Scheme shall be taken to be the total cost of works for computing the fees due.

Preliminary stage upto 35% of fees due

If the sketches have been modified to suit the clients, provisional sanctions and relevant details obtained the charge shall be 35% of the architect's fee. The estimate of cost submitted by the architect shall be considered to be the total cost of the executed work for computing the fees due.

Working drawings stage upto 65% of fees due

The charge shall be the percentage of the architect's total fee for this stage corresponding to the architect's of the percentage of his total service in this stage already rendered. (the total fee at the end of this stage is 65% of the architect's fee had the project been completed to the end of the construction stage); The last estimate of cost submitted to the client by the architect shall be taken to be the total cost of works for computing fees due.

Construction stage upto 80% of fees due

The charge shall be the percentage of the architect's total fee for this stage corresponding to the architect's estimate of the percentage of his total service in this stage already rendered. (the total fee for this stage is 80% of the architect's fee had the project been completed to the end of this stage)

Supervision stage upto 100% of fees due

The charge shall be 100% of the fees due to the architect on all works executed by contractors and certified by the architect's, and 80% on the balance of the estimated cost, as submitted by the architect.

Resuming abandoned work

If at a later date, the works which have been postponed, cancelled or abandoned or any part thereof are again proceeded with any payments made under this clause shall rank solely as payments on account towards

the total fee ultimately on such works and calculated on their actual costs.

If the whole or any part of the work is postponed and additional services by the architect are necessary in connection with the resumption of such works, the architect shall be entitled to charge for such additional work on a time basis.

THE UNDERLYING BASIS FOR THE CALCULATION OF FEES

The fees as mentioned above as published by Indian Institute of Architects are based on the following considerations:

1. The effort involved in preparing designs
2. The cost involved in making drawings
3. The Cost of supervision in terms of time.
4. Adequate compensation for responsibilities
5. A profit for the architect.

In a normal architectural practice, the balance sheet at the end of the year, is generally broken up as under.

- A) Salaries paid to the technical personnel.
- B) Overheads including the salaries of non-technical staff, rent and electricity, stationery and printing, and all other incidental expenses which normally work out at a 100% of (A) above.
- C) The income or profit of the architect.

In a well balanced architectural practice, the technical salaries would normally be 1/3 of the total gross income of the architect; the

overheads would be $\frac{1}{3}$;and the profit or income of the architect would be $\frac{1}{3}$ except for very particularised jobs where these figures may be slightly off the mark. In the aggregate it should work out in this fashion. Where the architect's expenses under item (A) are higher than under item (B), it implies that the architect is not providing adequate administrative service to his clients. Where the expenditure under item (B) is higher than in item (A), it implies that the architect is not turning out an adequate number of drawings necessary for the proper construction of the work. When the amount under item (C) is higher than either in item (A) or in item (B), it implies that the architect is providing inadequate administrative service and insufficient drawings.

Expenditure under (A) and (B) may be higher, provided that the extent to which it is higher is coming out of item (C). This implies that the architect is more conscientious and particular either about the administrative service or about the number of drawings that he turns out.

These fees have been arrived at through long experience in many architects offices, and the violation of these fees ultimately can only result in an inadequate service to the client.

The association of consulting civil engineers have indicated the structure of fees as follows:

Basis of Professional Charges:

Fees for counselling services are normally fixed on a lumpsum basis. In case of preinvestment studies cost plus fixed fees basis may be adopted . the cost part being derived from time basis. For design and supervision of works fees for basic services shall be charged as a percentage of the cost of works,unless otherwise agreed. Where some of the work to be done is outside the scope of the basic services the

Consulting Engineer should give early notification to the client on the extent of the work and the method of charging proposed. In case of specialised design and development services a lumpsum plus cost would appear to be the best method. This method is also applicable to Industrial Engineering projects.

In all cases it should be clearly stated that extra work, disbursements, travelling and other out-of-pocket expenses shall be paid for separately.

Fees as a percentage of the cost of the works:

For providing basic services the fees shall be a percentage of the cost of the works and the rates shall be determined according to the schedule of fees as indicated in the foregoing paragraphs. Where a Consulting Engineer is commissioned for more than one engineering service e.g. for electrical as well as civil work and/or contract shall be separately assessed and the fees for each service and/or contract computed separately and in accordance with the respective fee percentages. These separate percentage fees may be consolidated into one percentage fee to cover the whole of the work provided that the total fee will not be less than that payable if the fees were calculated separately.

Fees shall be charged on the actual cost of all works controlled by the Consulting Engineer.

Fees on a Time Basis.

Fees on a Time Basis apply to work other than that covered by the Basic Services and should be used for special services and for any work for which a percentage fee is not equitable. These fees are calculated on "Personnel time rates".

A comprehensive "personnel time rate" consists of the following:

- (a) Pay and allowance of the person plus charges paid in respect of perks, for example, housing, medical, transport, leave concession, provident fund, pension fund, bonus etc.
- (b) Add 200% of (a) above to cover overhead cost of the firm and an amount to cover risks and profits.

The most rational way of calculating the desired time rate is to compute initially on a yearly basis and subsequently divide by the number of time units worked in a year, according to the following standard:

Monthly rate - yearly rate divided by 10.5: applicable to number of months worked

Weekly rate - Yearly rate divided by 45: applicable to the number of weeks worked.

Daily rate - Yearly rate divided by 225: applicable to the number of days worked.

Hourly rate - yearly rate divided by 1800; applicable to the number of hours worked.

The owner/principal/partner of a firm shall assign a notional yearly rate of emoluments for himself to enable him to arrive at "personnel time rate" for his personal services.

Fees as a Fixed Lump Sum

This fees structure is in principle a conversion into an agreed fixed lumpsum of the total fees calculated according to fees structure on percentage and time basis. It should be used only when the services

of the Consulting Engineer can be well defined in advance and with the provision that extra work, disbursements and travelling expenses shall be paid for separately.

The payment should be made according to an agreed payment schedule fixing the amount and time of payment depending on the progress of the work.

Fees on a Cost plus Fixed Fee Basis:

This method may be used where the Consulting Engineer is required to start without the scope and probable cost of the works being known in other than general terms.

Fees estimated on the basis shall consist of fees on per time basis for staff employed plus an agreed fixed fee determined as described below:

(a) Per time costs

These are determined according to rates mentioned above.

(b) Fixed Fee

This shall be an amount based on the estimated cost of the project and may be in the range set out in the range of from 2% of the agreed cost of the project, reducing to 1% for project costing more than Rs. hundred million. Alternatively this may be indicated as a lumpsum.

Fees as a Retainer.

The amount of the retainer is a matter of individual negotiation between the Consulting Engineer and the client. It shall be used only to ensure that the client shall have the services of the Consulting Engineer available. All work done or time spent by the Consulting

Engineer on behalf of the client shall be charged for separately by one of the other methods for calculating fees.

Fees on per Time Basis

These services shall include:

- (a) Consultation, attendance and giving evidence in law courts, before tribunals or at official enquiries.
- (b) Service as a member of a commission.
- (c) Investigations, inspections, reports and other such services.

The per time rate shall be worked out as given in foregoing paragraphs.

Valuation of Real Estate, Plant and Machinery.

Scales for fees to be charged by a Registered Valuer should be in accordance with the Rule 8c of the Wealth Tax Act, 1957. viz.
 on the first Rs.50,000 of the asset as valued 1/2% of value;
 on the next Rs.1,00,000 of the asset as valued 1/4% of value;
 on the balance of the asset as valued 1/8% of value;

Arbitration

When appointed as an Arbitrator the fees to be charged should be determined as under:

- (a) A lumpsum amount for detailed study of the case.
- (b) A fee for each hearing. This may range from Rs.500/- to Rs.1,500/- per day (fixed on 1982) depending on the personal standing of the Arbitrator.
- (c) 10 per cent of the sum total of (a) & (b) as secretarial charges.

Disbursements and other costs.

In addition to the fees payable as mentioned above, the Consulting Engineer shall make separate charges for disbursements, special services and costs, travelling expenses etc. applicable to the work.

Disbursements:

- (a) Cost of copies of documents in excess of eight.
- (b) Additional administrative services beyond those contemplated normally such as may be called for when the work is on daily labour or a cost plus basis.
- (c) Special communication expenses e.g. trunk calls.
- (d) Advertising costs
- (e) Commercial printing and binding costs
- (f) Professional legal and accounting costs.

Special Services and Costs.

These may include:

- (a) Direct personal services such as attendance before official committees or as an expert witness.

Note : A Consultant has to attend some co-ordination conferences with the client, his staff and with other Consultants, contractors, suppliers involved in the project. These conferences should however be kept down to the minimum necessary. If his attendance is required at additional meetings or conference not strictly necessary for the tasks allotted to him, these shall qualify for additional charges on per time basis.

- (b) Investigations, reports, feasibility studies, the preparation of briefs, and preliminary designs, all prepared prior to receipt of instructions to proceed with the works to the extent

that such services would not normally have been required as part of the basic services for a specific design.

- (c) Financial appraisals,valuations,and rate studies.
- (d) Computer rental and programming costs other than those normally provided.
- (e) Model tests,laboratory charges and special costs in connection with inspection and testing of materials.
- (f) Checking or advising upon any part of the works other than those defined in foregoing paragraphs.
- (g) Advance ordering or reservation of materials and the obtaining of licences and permits and the submission of estimated or actual labour and material return etc.
- (h) Inspecting or testing of materials or machinery during manufacture,
- (i) Investigating or analysing the technical features of existing works.
- (j) Investigating or analysing operating costs other than those forming an integral part of the engineering works.
- (k) Preparation of shop details
- (l) Lodging of design calcuation,if required.
- (m) Services consequent upon the over-run of the specified contract completion date or upon the contractor failing to complete the works.
- (n) Services in connection with Arbitration and litigation.
- (o) Preparation of plans depicting the work "as built" including all work incidental thereto

The following special services and costs are more particularly applicable to civil and structural work

- (a) Town planning and change of zoning applications.
- (b) Land,aerial,topographical and hydrographical surveys, and

all engineering surveys other than those of a minor nature or where the survey is customarily a part of basic service. Extra cost in connection with surveys such as cutting of bush or the provision of special equipment or materials.

- (c) Site and soil investigations, other than simple inspections, including test borings, related analysis and recommendations.
- (d) Testing of foundations in situ or in laboratory i.e. other than simple inspections.

The following Special services and costs are more particularly applicable to mechanical and electrical work :

- (a) All investigations or work in connection with plant or associated equipment not included in the Consulting Engineer's specification but which is required to be connected, tested and commissioned as part of the design.
- (b) All investigations, design and supervision in connection with rented systems and equipment.
- (c) Any work in connection with building tenancy subdivision not defined when the design is prepared
- (d) Costs in connection with commissioning and operating services including the preparation of maintenance schedules and instructions.
- (e) Costs in connection with the appointment and instructions of the client's maintenance staff.
- (f) All investigations and advice in connection with the operation, connection and commissioning of services, plant and incidental items installed by other trades but not part of the consulting Engineer's specifications.
- (g) All costs in connection with investigation, design, manufacture, installation and testing of prototypes of plant and associated equipment.

- (h) Surveys of existing sites, plant and installations.
- (i) Negotiating with supply authorities for special tariffs or concessions.

Travelling Expenses and Travelling Time.

- (a) The actual and reasonable costs of travelling incurred by the Consulting Engineer or his employees in connection with the engagement and out-of-pocket hotel, sustenance and other expenses.
- (b) Travel by private car at the rate set out for tourist cars except when fees are being charged on a percentage basis and the distance is less than 10 kilometers from the Consulting Engineer's office. A special rate shall be arranged for special vehicles, trailers and the like.
- (c) Time spent in travelling shall be compensated on the basis of personnel time rates except when fees are being charged on a percentage basis and the time spent in travelling is less than one hour in total per visit. This time shall be counted from the time the technical personnel of the Consulting Engineers leave the office till they return to the office, it being understood that a day shall consist of a maximum of 8 hours.

Secondary Consultants.

When, with the approval of the client, the Principal Consultant obtains the services of additional or secondary professional consultants, such consultants should be paid preferably by the client. The fees shall be as prescribed by the recognised Institution of the respective secondary consultants and shall be computed on the cost of the delegated works.

The principal Consultant shall calculate his fee on the cost of the undelegated portion of the works and in addition shall be entitled to claim a co-ordinating fee of 1% of the cost of the delegated work.

Supervision

Where the Consulting Engineer considers more detailed checking to be necessary and frequent or daily checks of detail or measurements to be required, he shall recommend as early as possible one of the following options:

- (a) That the client engage and pay a suitable resident engineer who shall be a person approved by the Consulting Engineer, working under his control and reporting through him.
- (b) That the Consulting Engineer provide the additional detailed checking by deputing suitable member of his staff for which additional service the Consulting Engineer shall be entitled to charge on a time basis, preferably on monthly rates.
- (c) That the Consulting Engineer provide the additional day to day checking from his own staff, for which services the Consulting Engineer shall charge an additional fee of 11/2%.
- (d) A special arrangement to meet special cases.

Alterations and Repairs.

For services in connection with the alterations and repairs or additions to existing structures or installations fees may be either on a time basis or on a percentage basis.

Fees on a time basis and on a percentage basis shall be as indicated in the foregoing paragraph plus an additional percentage to be determined by negotiation.

Repetition

In case of repetition of works, whether this repetition has been declared or not in the contract, the tariff of fees for each of the works is calculated by :

$$T_n = T_1 \frac{n + 9}{10_n}$$

T_n being the tariff applicable to the work for n th time and T_1 for the first work.

By repetition of works, it must be understood complete works, strictly similar. This supposes that from one work to the next, there is no need of any new design nor any modification of the original design. In any case whatsoever, this rebate cannot be applied to repeated fractions of works as, for example, identical girders, identical floors, or even for portions between identical joints.

By using the above formula, the fraction of fees for repetitive works with respect to the first work ($=T$) will work out as follows:

$T_2 = \text{fee for second work or 1st repetition} = 0.55 \times T_1$
 $T_3 = \text{fee for the third work or 2nd repetition} = 0.40 \times T_1$
 $T_4 = \text{fee for the fourth work or 3rd repetition} = 0.323 \times T_1$
 $T_5 = \text{fee for fifth work or 4th repetition} = 0.28 \times T_1$
 and so on.....

Schedules of Quantities.

Where Schedule of Quantities are prepared in accordance with a recognised method of measurement, the Consulting Engineer may charge an additional fee assessed as a percentage of the value of that part of the work for which he supplies quantities. This percentage ranges from 1/2% to 1 %.

Where the Consulting engineer is required to re-measure work he shall charge additional fee of not less than 1/4% of the value of the work re-measured.

Bar bending schedules

Where detailed reinforcing bar bending schedules are prepared by the Consulting Engineer the Consulting Engineer shall charge an additional fee of not less than 1% of the value of the reinforcement fixed in place.

Modification to Designs

In the event of:

- (a) Circumstances arising which could not have been reasonably foreseen, or
- (b) the client ordering modifications to completed designs or to designs in progress; and where these circumstances or modifications require the alteration or remaking of any specification, drawing or other document prepared in whole or in part by the Consulting Engineer, the whole of the cost of revising, amending or reproducing documents shall be the subject of additional payment computed on a time basis.

Works Postponed, Cancelled or Abandoned

Works postponed, cancelled or abandoned shall include the following and fees shall be charged on time or percentage basis.

- (a) Where the works are not constructed.
- (b) Where the works are postponed, cancelled or abandoned because of variations in the client's instructions or requirements or because of variations in the requirements of a controlling authority.
- (c) Where the Consulting Engineer's engagement is cancelled before the works are completed.

Fees for works postponed, cancelled or abandoned shall be:

When fees are on a percentage basis

- (a) When a stage has been completed the Consulting Engineer shall charge the percentage of the full fee -Refer Payment of fees-Page 25
- (b) Should the engagement be cancelled before completion of a stage, the Consulting Engineer's fee shall be fixed either on a time basis or as a proportion of the percentage fee to which he would have been entitled if that stage had been completed.
- (c) Should the costs or liabilities incurred for such partly completed work be greater than the fee set out as above, the Consulting Engineer shall be entitled to additional reimbursement accordingly.

When fees are on a time basis

The Consulting Engineers shall charge the full fee earned at the time of postponement, cancellation or abandonment on the agreed time basis.

When fees are on a lump sum basis

The Consulting Engineer shall charge a proportion of the lump sum fee on a pro-rata basis as determined by the Consulting Engineer.

When fees are on a cost plus fixed fee basis

The Consulting Engineer shall charge the full fee earned on the cost basis plus proportion of the fixed fee on a pro-rata basis as determined by the Consulting Engineer.

When fees are on a per time basis

The consulting Engineer shall charge the full fee earned at the agreed per time rate,

Termination of Engagement

The Consulting Engineer's engagement may be terminated at any time by either party upon reasonable notice being given in writing and the consulting Engineer shall thereupon be paid such fees and expenses as are properly chargeable to the date of termination of the engagement. The termination of the consulting Engineer's appointment shall not prejudice or affect the accrued rights or claims of either party to the engagement.

No other Consulting Engineer shall be engaged for a particular commission, nor shall any Consulting Engineer accept an engagement, until the first Consulting Engineer has been paid off or satisfactory arrangements have been made to do so.

Cost of Works

For the purpose of determining the remuneration to be paid as explained above the actual cost of the works or any part thereof shall include the following items:

(a) The amount certified to the clients or the amount certified as the cost of the works if carried out by direct labour including administration, profit and overhead charges, of works designed, specified or observed by the Consulting Engineer before deduction of liquidated damages or penalties (if any). All amounts and costs shall be inclusive of the main contractor's overheads and profit.

(b) A fair commercial valuation of any labour, materials, manufactured goods or machinery included in the Consulting Engineer's design and provided by the client or others, and of the use and waste (including all costs of repairs) of constructional plant and equipment belonging to the client which he shall require to be used in the carrying out of the works.

(c) The commercial value as though they were purchased new, of any second-hand materials, manufactured goods and machinery, included in the consulting Engineer's design and incorporated in the works.

Note : Where the amount certified does not apply or is not available, the cost of ~~the~~ various items shall be taken from the schedules of quantities or from the tender, or, if these are not available, from the consulting Engineer's estimate which must include escalation as applicable due to fluctuation in prices.

The cost of the works shall not include the following items:

- (a) Administrative expenses incurred by the client.
- (b) Payments made to the Consulting Engineer
- (c) Salaries, travelling, out-of-pocket and office expenses of the Consulting Engineer's resident site staff.

- (d) Interest on capital during construction and the cost of raising moneys required for carrying out the construction of the works.
- (e) The cost of land.

Cost of works postponed, cancelled or abandoned

For the purpose of determining the remuneration due to the Consulting Engineer the cost of works postponed, cancelled or abandoned shall be estimated by the Consulting Engineer as explained above and as agreed by the client.

In case of Secondary Consultants for Civil and Structural Works, the costs shall include inter-alia:

- (a) The pro-rata proportion of the main contractor's preliminary and general charges, including profit and overheads.
- (b) Excavation and earthworks including dewatering and shoring.
- (c) Foundations
- (d) Formwork
- (e) Reinforcing Steel
- (f) Concrete
- (g) All masonry which functions as a structural element
- (h) Structural steel
- (i) Structural timber, including purlins

- (j) All other parts of the building which function as structural elements.
- (k) Site works such as roads, etc.
- (l) Any other items in proportion to the amount of engineering advice or services given and agreed with the Principal Consultant.

In case of Secondary Consultants for electrical and mechanical works, the costs shall include, inter-alia:

- (a) The pro-rata proportion of the main contractor's preliminary and general charges, including profit and overheads.
- (b) The value of the engineering installation including equipment and fittings.
- (c) Special provisions in the building construction formed as part of, or in connection with, the engineering services.
- (d) The value of plant and machinery as specified and installed.

Fees for project Management

These shall be negotiated based on the nature of work, its complexity, and the quantum of responsibilities taken over by the client's own organisation. A consulting engineer will have to make a careful estimate of the management costs involved in each project making necessary allowances for unforeseen delays and other contingencies. This may then be converted to a percentage of the total project cost or to a fixed fee plus cost basis.

Payment of Fees

When fees are on a percentage basis the quantum of fees payable at the end of each stage or stages depends on the nature and magnitude of the work. This quantum should be specified in the agreement between the client and the consulting engineer. Normally the quantum should be in the range given below:

(a) Advance payment

An advance of 10% on appointment of the consultant to meet his initial expenses. This shall be based on an indication of the cost of the project.

(b) End of Preliminary stage

Upto 30% of the total fees based on the preliminary estimate of the project (less amount already paid).

(c) Design Stage including Tender Stage

Upto 80% of the total fees due based on the detailed estimate of the project (less amount already paid).

(d) Construction or Commissioning Stage

100% of the total fees due based on actual completion cost of the project (less amount already paid).

When fees are on lumpsum basis these shall be paid in the following manner:

(a) An advance of 10% of the fees on appointment of the consultant to meet his initial expenses.

(b) 80% of the fees in equal monthly instalments over a period depending on the duration of engineering of the project by the

consulting engineer commensurate with the engineering progress.

- (c) 10% of the fees after completion of the work or on successful commissioning of the project.

When fees are on other than percentage or lumpsum basis an adhoc amount shall be paid on appointment of the consultant to meet his initial expenses. This adhoc amount shall be adjusted suitably from the monthly bills of the consulting engineer.

In the case of Pre-investment Studies, where a lumpsum amount has been agreed to, a good functional method of payment would be as given below:

- (a) 25% on appointment of the consultant
- (b) 50% Interim payment on monthly basis as mutually agreed.
- (c) 25% on submission of final report

In the case of Project Management, the method of payment will vary from project to project depending on the nature and scope of work. It should however be ensured that the method of payment is included in the agreement between the client and the consulting engineer.

Reimbursable costs shall be paid on monthly basis.

Accounts shall be due on the 20th of the month following presentation and the consulting engineer shall be entitled to recover interest on accounts not paid within 30 days of the due date.

Where a Secondary Consultant is paid by the Principal Consultant, the Principal Consultant shall be responsible for payments to the

Secondary Consultant whether or not he receives payment _____ the work from his client.

Collaboration with Architects

When an architect is appointed as a secondary adviser to a consulting engineer he shall be paid fees calculated on the cost of the part of work allotted to him in accordance with the "Conditions of Engagement and Scale of Charges" prescribed by the Council of Architecture. Conversely, when a consulting engineer is appointed as a secondary adviser to an architect he shall be paid fees calculated on the cost of his part of the work in accordance with the Structure of Fees and Schedule of Fees given in the foregoing paragraphs.

These fees shall be in addition to separate charges for disbursements, special services, travelling expenses, and other costs applicable to the work.

Chapter VIII

ISSUE OF STABILITY CERTIFICATES

I Stability Certificate:

If an engineer is asked to issue certificate of structural stability for a building, he has to inspect the foundation, basement, flooring, walls, lintels, brick piers, bed block, ceiling, plastering on walls and exposed surfaces, weathering course, tiles, parapet walls, joinery, steel trusses, gusset plates, bolts, nuts, welding, points, sunshades, fascia, coach, other decorative temporary erections, sign boards, commercial boards, water supply, sanitary and electrical installations and other relevant details.

If there are visible cracks in foundation, superstructure or walls, slab, flooring, weathering course, joinery, these defects should be indicated and the owner should be asked to rectify the defects; If larger cracks are seen in any portion of the structure especially in supports due to over loading, ageing or atmospheric conditions and if the cracks are beyond repair, the support should be replaced with proper technical supervision; any damage to joinery and those affected due to termites should also be made good. If there is any dampness in walls or load bearing members or ceiling, actions should be taken to find out the cause and rectify the defects.

In case of theatres, especially old theatres where steel trusses have been supported on pillars, provision of catwalks with handrails on both sides should be provided to inspect the condition of the trusses

and their joints in detail; Steel trusses should not have been rusted and should have been painted with anti-corrosive paint; If some members have been rusted too badly, the members should be replaced with new ones; The clamps, wooden frames and false ceiling boards should be thoroughly checked for their position and tightness. The damaged ones are to be replaced.

In case of RCC beams and slabs, the junction of beams and column should be inspected and they should be free from cracks and excessive deflection. If any reinforcement is corroded it should be replaced and original strength attained by guniting or other means; In case of A.C.Sheets or G.I.Sheets, any cracks, or broken sheets are to be replaced and make them leakproof.

If water over the roof is not properly drained, necessary arrangements should be made for proper flow. The parapet wall should be examined for its safety.

The flooring should be even and free from pot-holes and cracks. They should not be slippery, even if it is of glazed tiles or terrazo tiles; In case of staircase, the tread and raise should be of standard size, properly finished and with hand rails as per standards.

The water supply, sanitary and electrical installations should be as per norms of the National Building Code.

The finishing of walls/joinery with paints should be done periodically.

The other amenities such as ventilation, open space, fire protection appliances, provision for fire escape, and emergency exit should be as per the norms of the National Building Code.

Model Format:

It is certified that the Building (name and address of the property) _____ used for _____ purposes is structurally sound for the period from _____ to _____ subject to the rectification of the specific defects detailed as follows:

The list of defects found on inspection on _____ are as follows:

1)

2)

3)

The above defects should be rectified within a period of....months and should be reported to the undersigned for further inspection. If any sudden crack develops in walls or supporting structures and any apparent weakness or sagging is noticed in the roof and walls it is the responsibility of the person in charge of the building to report the same immediately to the undersigned for inspection and further actions:

Format to issue Certificate of structural soundness for Public Buildings:

(In Tamilnadu, for purpose of issuing certificates of structural soundness of the public buildings, an engineer should get his name registered in the panel list of private practising engineers maintained by the District Collector).

Form ACERTIFICATE OF STRUCTURAL SOUNDNESS

I certify that I have inspected the building of _____
 and I declare that the building _____ is
 structurally sound to be used as a public building _____
 (specify use).

SIGNATURE

Form B

1. Door Number of the building :
2. Location (Street, Ward of place
 i.e. Corporation/ Municipality/
 Panchayat Union/Township
 /Contonment) :
3. Year of construction :
4. Approximate cost of construction
 as per current rate. :
5. Purpose for which the building
 is used for proposed to be used :
6. Purpose for which the building
 has hitherto been used :

7. Details of construction of the building (particulars of the foundation, soil, specification of various parts) under :

1. Foundation

2. Basement

3. Superstructure (Floor and roof are to be given) :

8. Period for which licence is required :

9. Number of persons to be accommodated :

Signature of the
Owner of the building

Signature of the
Engineer

Date:

Place

Form C

(Form of certificate of structural soundness under Sub-section (4) of Section 4 of the Tamil Nadu Public Building (Licensing) Act, 1965 (Tamil Nadu Act 1 of 1965) referred to in Rule 4 of the Tamil Nadu Public (Licensing) Rules, 1966).

I certify that I have inspected the building mentioned in the statement and furnished below its salient technical features.

1. Foundation

- (i) Depth below ground level :
- (ii) Nature of soil set out in the foundation level :
- (iii) Pressure at foundation :
- (iv) Probable safe bearing capacity of the strata met with at foundation :

2. Superstructure

- (i) Maximum stress in the most critical section of masonry and concrete:
- (ii) Nature of masonry and concrete and its safe permissible stress :

The structural soundness of the building has been verified by me with reference to ISI loading standards 895 (latest version) and other relevant Indian Standard Code of practices and I declare that the building is structurally sound to be used as a public building for the purpose noted in the statement. A licence may be granted for the period from _____ to _____

Place:

Date:

Signature of the Engineer.

FORM - D

STATEMENT TO ACCOMPANY THE CERTIFICATE OF STRUCTURAL SOUNDNESS

Location of the building - Door No. Street Name and Name of the Place	Age of the Building	Value of the building at current rate	No. of Storeyes of structure	Short description of RCC framed or load bearing masonry	Purpose for which the building is certified for use	The period for which the building will be structurally sound	No. of persons to be accommodated	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Signature of the Engineer.

1. Name and address
(In block letters)

2. Engineering Qualification

3. Number of years of experience and nature thereof

II Certificate for Banks :

Normally a certificate is to be issued by the Architect/ Engineer along with the following drawings:

- (1) Site plan 1"=32' Scale, showing surrounding plots/buildings, plan of the building, marking position of currency chest, open spaces, roads and north point.
- (2) Basement plan 1"=8' scale showing the walls, currency chest, strong room and the staircase.

- (3) Ground Floor Plan 1" = 8' scale showing details of roads, boundary line on the site, open spaces, toilets, entrances, and the usage of the remaining portions in the building. The plan should show the currency chest and the strong room. The Guard's room and currency counting rooms should also be shown.
- (4) A detailed plan and cross section through the currency chest and strong room to 1" = 4' scale furnishing the thickness of flooring, ceiling slab, four side walls, their length, width and clear height.

The strong room/currency chest should be free from dampness and not susceptible to flooding or water logging.

Specifications for strong room and locker room:

The superstructure should be a combination of brick work in CM. and RCC 1:2:4- The outer shell should be 1'3" thick in brick work and the inner shell with 3" RCC. The reinforcement consists of 12mm dia. rods placed horizontally and vertically at 150mm c/c. Wall should be plastered with 1/2" cement plaster and whitewashed. Alternatively, wall should be of RCC 1:2:4, 30Cm. thick with 12mm dia. M.S. rods placed vertically and horizontally at 150mm c/c in 2 rows staggered centrally and placed along the two faces of the walls with a clear cover of 40mm on either side.

The floor should be of RCC 1:2:4, 200 mm thick laid on a lime/cement concrete 4" thick which in turn should be carried on well rammed dry brick filling of necessary depth to reach from foundation. The reinforcement should be of 12mm dia. placed both ways to form a 150mm mesh. The number and diameter of rods should vary if the span and thickness of floor is increased.

The roof should be of RCC 1:2:4, 300mm thick carried on beams

if necessary. The minimum reinforcement of 12mm rods at 150mm c/c both ways should be provided. Where it is not feasible to provide RCC slabs as specified, the ceiling may be fortified with MS grills consisting of 20mm rods spaced at 75mm c/c in angle iron frame work. Lime concrete of 110 mm thick should be laid over the concrete slab.

The strong room door will have the following specifications. There should be fire, burglar, hammer, drill and oxyacetylene flame and explosive resistant with bolt mechanism and safety device which will guard the locks against all forms of attack.

The jams and lintels of the door should be strongly reinforced and holdfasts of the door frame should be adequately held by the reinforcement bars. In order to enable the door to open to the fullest extent out side, the holdfasts should be set in the jams so that the finished face of the door will come with the finished face of the plaster.

Ventilators should consist of openings not larger than 200mm x 230mm. They should be placed high within the valves, strongly grated and to be covered with fine wire netting to keep birds, out. Iron shutters openable inside to be provided.

Racks : RCC unit in racks with weldmesh shutters and dual locking arrangements shall be provided.

Wiring : Open conduit wiring shall be provided. There should not be any live wire inside the strong room when the door is closed.

Form of Certificate:

1. Certified that the strongroom at the branch of...at....where it is proposed to set up a currency chest, has been constructed with the following specifications.

In case of 'A' Class Currency Chest:

Walls, roof and floor are 45cm (18") thick 1:11:3 RCC fortified with two rows of tangbars 23cms wide and 3cms thick and vault door slab is of 65mm thickness and fabricated with hammer and drill resisting alloy plates in one or more layers of total thickness not less than 16cms; any oxy-acetylene blow pipe resisting copper alloy plate not less than 10cms total thickness. The total thickness of door slab including cover shall be considered equivalent in strength to that of 45cms thick RCC walls fortified with two rows of tangbars.

In case of 'B' Class Currency Chest:

Walls and roof are 30cms (12") thick 1:2:4 RCC fortified with 20mm rods spaced 75mm centre to centre by ways of both faces (where roof is of less thickness and the additional grills fortifications provided should be indicated)

Floor is 15cms. (6") thick 1:2:4 RCC duly reinforced. The vault door is of improved Banker's quality having 28mm thick door slab including a drill resisting layer of 6mm and anti oxy-acetylene blow pipe layer of 3mm thick.

2. Certified that the premises at.... where the Bank's currency chest is proposed is free from dampness and is not susceptible to flooding or waterlogging.

3. Certified that the strongroom allotted for storing the currency chest balances at the Bank's is suitable and secure for storing of currency notes and coins.

Place :

Date :

Signature of the Architect/Engineer.

III Certificate for cold storage :

In case of issuing the above certificate, the registered architect has to ensure that the buildings have been constructed strictly in accordance with the sanctioned plans, approved by the competent authorities.

A 'No Objection' Certificate is to be obtained from the concerned Municipality/Corporation.

A specimen of the certificate has been illustrated below:

Strength & Stability Certificate

I, _____, Engineer/Architect registered under the Architects Act, 1972, with the Council of Architecture, Ministry of Education and Social welfare, Government of India, measured and inspected the cold storage belonging to _____

on this day, the _____ in the presence of _____ (Designation of the Officer representing the Company) as per the report narrated below:

(1) MACHINE ROOM :

Internal Measurement in Metres :

- (i) Length
- (ii) Breadth
- (iii) Height

Constructional Details with Material used and ratio etc.

- (i) Roof
- (ii) Wall
- (iii) Floor

(2) DRYING SHED/VERANDAH AND AIR LOCK :

	<u>Internal Dimensions</u>	<u>Drying shed/ Verandah</u>	<u>AirLock (Antiroom)</u>
(i) Length			
(ii) Breadth			
(iii) Height			

(3) COLD STORAGE CHAMBERS :

	<u>Length</u>	<u>Breadth</u>	<u>Height</u>	<u>No. of Storeys</u>
Chamber I (Ice Store)				
" II (Frozen Store)				
" III (Frozen Store)				

Constructional details with material used and ratio etc.in each chamber :

- (i) Roof
- (ii) Walls
- (iii) Floor

Insulation : (Material used _____)

		Ceiling	Walls	Floor
(i) Chamber	I (Thickness & material)	mm	mm	mm
(ii) Chamber	II "	mm	mm	mm
(iii) Chamber	III "	mm	mm	mm

Racking arrangements:

- (i) Material used for main structure :
(_____)
- (ii) Size of vertical members:
- (iii) Size of horizontal members :
- (iv) Centre to centre distance of vertical members length wise :
- (v) Centre to centre distance of vertical members widthwise :
- (vi) Storage area in each floor :
- (vii) Holding capacity of racks on each floor (in tonnes) :
- (viii) Load on each set of stanchion/pillar and horizontal beam:

(4) CONCLUSION :

It is certified that I have personally inspected and examined the construction details of the building and racking arrangements of this Cold Storage and am satisfied that the cold storage is safe and stable and the strength of various structures is adequate to hold _____ tonnes and _____ tonnes (gross) of food stuffs.

The drawings of the above mentioned cold storage duly signed by me and the proprietor are enclosed.

Enclosures: as above

Signature :

Stamp :

Name of the
Engineer/
Architect :

Govt. Registration No _____

Note : 1) This certificate should be filled in only after thorough inspection and all information given should be correct.

2) All measurement should be indicated in the metric system.

IV. STABILITY CERTIFICATE FOR FACTORIES
Standards for Industrial Buildings

(Parameters may vary from State to State; May also be modified depending upon development in Industrial sphere)

<u>Span</u>	<u>Height</u>
Upto 9 Mtr.	Minimum 3 Mtr.
9 Mtr. to 12 Mtr.	Minimum 3.5 Mtr.
12 Mtr. to 21 Mtr.	Minimum 4.25 Mtr.

Ventilation:

Upto 3.5 Mtr. height

For every 9.35 Sq.m. (100Sft.) of wall area, one window of 5'x3'(152.5Cm.x91.5Cm.)

For buildings over 3.5 Mtr. above floor level additional openings are required. Every 3.5 Mtr. height is considered as one floor for this purpose.

Sill level of window should not be more than one metre from the floor level and size of window should not be less than 5'x3'(152.5cm.x91.5Cm.) and spaced properly; Distance between centre to centre of windows should not exceed 8'(2.4m.) and shall be fully openable outside.

Weather Proof Verandah:

Minimum height of lean to roof of verandah	- Should not be less than the top window frame and minimum height of 2 Mtr. should be allowed.
--	--

Roof exhaust:

In single bay work hall, gable room with ridge roof ventilator should be minimum of 3'x11/2'(91.5Cm.x45.7Cm.) with sufficient overhang to prevent rain water splashing in. Circular type ventilator should also be provided at end gable on all types of roofs.

Floor area:

3.3 Sq.cm. for every worker in power factories and 16 to 25Sq.ft. in other cases (1.5 to 2.3 Sq.cm.)

Lighting:

25% of floor area by windows and northlight etc.

Doors:

Size of doors should not be less than 200 x 120cm. and should be so fitted to open outwards or to slide. Adequate number of exits should be provided depending on the dimensions of the room and the maximum number of persons to be employed in it so that each person will have free and unobstructed passage from his work place to exit. No part of a factory building should be farther than 4.7 metres from any fire escape.

Spacing of machinery:

Ordinarily a maximum of 3'(91.5cm.) distance is to be allowed in between machinery and fixtures.

FORM OF CERTIFICATE OF STABILITY

- 1) Name of the Factory :
- 2) Village/Town/District of
which the Factory is situated :
- 3) Full postal address of the Factory :
- 4) Name of the occupier/s of the Factory:
- 5) Name of manufacturing process to be
carried out in the factory :
- 6) Number of floors on which works
will be employed :

I have inspected the building in which _____
_____ is housed and examined the various parts including
the foundation as shown in the complete plans approved by _____
and the _____

I certify that the building has been constructed as per the plans
approved as _____ referred above.

The machinery has been installed as per the approved plans.

I am of the opinion that the building has been constructed in accordance with the plans approved by _____ and the Chief Inspector of Factories and that it is structurally sound and its stability will not be endangered by its use as a _____ for which machinery, plant etc. installed are intended.

Signature of Chartered Engineer

Station :

Date :

Name and address

(An Engineer can become a chartered Engineer by being a corporate member of Institution of Engineers (India) No.8 Gokhale Road, Calcutta - 700 008.)

Chapter IX

EASEMENT

An easement is a right which the owner or occupier of certain land possesses, as such, for the beneficial enjoyment of that land, to do and continue to do something or to prevent and continue to prevent something being done, in or upon, or in respect of, certain other land not his own.

Dominant and servient heritages & Owners:

The land for the beneficial enjoyment of which the right exists is called the dominant heritage, and the owner or occupier thereof the dominant owner; the land on which the liability is imposed is called the servient heritage, and the owner or occupier thereof the servient owner.

"Land" includes also things permanently attached to the earth; "Beneficial Enjoyment" includes also possible convenience, remote advantage and even a mere amenity;

"To do something" includes removal and appropriation by the dominant owner, for the beneficial enjoyment of the dominant heritage of any part of the soil of the servient heritage or anything growing or subsisting thereon.

Easements are either continuous or discontinuous, apparent or non apparent;

A continuous easement is one whose enjoyment is, or may be, continued without the act of man; A discontinuous easement is one that needs the act of man for its enjoyment; An apparent easement is one the existence of which is shown by some permanent sign which, upon careful inspection by a competent person, would be visible to him; A non-payment easement is one that has no such sign.

An easement may be permanent or for a term of years or other limited period, or subject to periodical interruption, or exercisable only at a certain place or at certain times, or between certain hours, or for a particular purpose, or on condition that shall commence or become void or voidable on the happening of a specified event or the performance or non- performance of a specified act.

Easements are restrictions of one or other of the following rights, viz. the exclusive right of every owner of immovable property (subject to any law for the time being in course) to enjoy and dispose of the same and all products thereof and all accessions thereto is known as Exclusive right to enjoy.

Rights to advantages arising from situation is the right of every owner of immovable property (subject to any law for the time being in force) to enjoy without disturbance by another the natural advantages arising from its situation.

The imposition, acquisition & Transfer of Easements:

An easement may be imposed by anyone in the circumstances, and to the extent in and to which he may transfer his interest in the heritage on which the liability is to be imposed; A lessor may impose, on the property leased any easement that does not derogate from the rights of the lessee as such and a mortgagor may impose, on the property mortgaged, any easement that does not render the security-

insufficient. But a lessor or mortgagor cannot without the consent of the lessee or mortgagee, impose any other easement on such property, unless it be to take effect on the termination of the lease or the redemption of the mortgage.

No lessee or other person having a derivative interest may impose on the property held by him as such an easement to take effect after the expiration of his own interest, or in derogation of the right of the lessor or the superior proprietor; An easement may be acquired by the owner of the immovable property for the beneficial enjoyment of which the right is created or on his behalf, by any person in possession of the same; One or two or more co-owners of immovable property may, as such with or without the consent of the other or others, acquire an easement for the beneficial enjoyment of such property; no lessee of immovable property can acquire, for the beneficial enjoyment of other immovable property of his own, an easement in or over the property comprised in his lease.

Easements of necessity & Quasi easements:

When one person transfers or bequeaths immovable property to another:

- (a) if an easement in other immovable property of the transferor or testator is necessary for enjoying the subject of the transfer or bequest, the transferee or legatee shall be entitled to such easement; or
- (b) if such an easement is apparent and continuous and necessary for enjoying the said subject as it was enjoyed when the transfer or bequest took effect, the transferee or legatee shall, unless a different intention is expressed or necessary implied, be entitled to such easement;

(c) if an easement in the subject of the transfer or bequest is necessary for enjoying other immovable property of the transferor or testator, the transferor or the legal representative of the testator shall be entitled to such easement; or

(d) if such an easement is apparent and continuous and necessary for enjoying the said property as it was enjoyed when the transfer or bequest took effect, the transferor or the legal representative of the testator, shall, unless a different intention is expressed or necessarily implied, be entitled to such easement.

Where the partition is made of the joint property of several persons--

(e) If an easement over the share of one of them is necessary for enjoying the share of another of them, the latter shall be entitled to such easement; or

(f) if such an easement is apparent and continuous and necessary for enjoying the share of the latter as it was enjoyed when the partition took effect, he shall, unless a different intention is expressed or necessarily implied be implied to such easement.

Direction of way of necessity:

When a right to a way of necessity is created, the transferor, the legal representative of the testator, or the owner of the share over which the right is exercised, as the case may be, is entitled to set out the way; but it must be reasonably convenient for the dominant owner.

When the person so entitled to set out the way refuses or neglects to do so, the dominant owner may set it out.

Acquisition by prescription:

Where the access and the use of light or air to and for any building have been peaceably enjoyed therewith, as an easement, without interruption, and for twenty years;

and where support from one person's land or things affixed thereto, has been peaceably received by another person's land subjected to artificial pressure or by thing affixed thereto, as an easement, without interruption, and for 20 years.

and where a right of way of any other easement has been peaceably and openly enjoyed by any person claiming title thereto, as an easement, and as of right, without interruption, and for 20 years;

the right to such access and use of light or air, support or other easement shall be absolute.

Each of the said periods of 20 years shall be taken to be a period ending within 2 years next before the institution of the suit wherein the claim to which such period relates is contested.

Exclusion in favour of reversioners of servient heritage:

Provided that, when any land upon, over or from which any easement has been enjoyed or derived has been held under or by virtue of any interest for life or any term of years exceeding three years from the granting thereof, the time of enjoyment of such easement during the continuance of such interest or term shall be excluded in the computation of the said last mentioned period of 20 years, in case the claim is, within three years next after the determination of such interest or term, resisted by the person entitled, on such determination, to the said land.

Rights which cannot be acquired by prescription:

None of the following rights can acquired:-

- (a) a right which would tend to the total destruction of the subject of the right ,or the property on which,if the acquisition were made,liability would be imposed;
- (b) a right to the free passage of light or air to an open space of ground;
- (c) a right to surface-water not flowing in a stream and not permanently collected in a pool,tank or otherwise;
- (d) a right to underground water not passing in a defined channel.

Customary easement:

Customary easement is an easement acquired in virtue of a local custom.

Where the dominant heritage is tranferred or devolves by act of parties or by operation of law,the transfer or devolution shall,unless a contrary intention appears,be deemed to pass the easement to the person in whose favour the transfer or devolution takes place.

Incidents of easements:

The rules contained or controlled by any contract between the dominant and servient owners relating to the servient heritage and by the provisions of the instrument or decree,if any by which the easement referred to was imposed;when any incident or any customary easement is inconsistent with such rules,nothing shall effect such incident;an easement must not be used for any purpose not connected with the enjoyment of document heritage.

The dominant owner must exercise his right in the mode which is least onerous to the servient owner; and, when the exercise of an easement can without detriment to the dominant owner be confined to a determinate part of the servient heritage, such exercise shall, at the request of the servient owner be so confined.

The dominant owner may, from time to time, alter the mode and place of enjoying the easement, provided that he does not thereby impose any additional burden on the servient heritage; The dominant owner of a right of way cannot vary his line of passage at pleasure, even though he does not thereby impose any additional burden on the servient heritage.

The dominant owner is entitled as against the servient owner, to do all acts necessary to secure the full enjoyment of the easement; but such acts must be done at such time and in such manner as, without detriment to the dominant owner, to cause the servient owner as little inconvenience as possible; and dominant owner must repair, as far as practicable, the damage (if any) caused by the act to the servient heritage. However, the dominant owner cannot himself abate a wrongful obstruction of an easement.

Rights to do acts necessary to secure the full enjoyment of an easement are called Accessory Rights.

The expenses incurred in constructing works, or making repairs or doing any other act necessary for the use or preservation of an easement, must be defrayed by the dominant owner. When an easement is enjoyed by means of an artificial work, the dominant owner is liable to make compensation for any damage to the servient heritage arising from want of repair of such work. The servient owner has no right to require that an easement be continued. He is not entitled to compensation for damage caused to the servient heritage in consequence of the extinguishment or suspension of the easement, if the dominant owner

has given to the servient owner such notice as will enable him, without unreasonable expense to protect the servient heritage from such damage. The servient owner is not bound to do anything for the benefit of the dominant heritage and he is entitled as against the dominant owner, to use the servient heritage in any way consistent with the enjoyment of the easement; but he must not do any act tending to restrict the easement or to render its exercise less convenient.

An easement of necessity is co-extensive with the necessity as it existed when the easement was imposed. The extent of any other easement and the mode of its enjoyment must be fixed with reference to the probable intention of the parties and the purpose for which the right was imposed or acquired; in the absence of evidence as to such intention and purpose—A right of way of any one kind does not include a right of way of any other kind; The extent of a right to the passage of light or air to a certain window, door or other opening imposed by a testamentary or non testamentary instrument, is the quantity of light or air that entered the opening at the time the testator died or the non testamentary instrument was made; The extent of a prescriptive right to the passage of light or air to a certain window, door or other opening is that quantity of light or air which has been accustomed to enter that opening during the whole of prescriptive period irrespectively of the purpose for which it has been used; The extent of the prescriptive right to pollute air or water is the extent of the pollution at the commencement of the period of user on completion of which the right arose: the extent of every other prescriptive right and the mode of its enjoyment must be determined by the accustomed user of the right.

The dominant owner cannot, by merely altering or adding to the document heritage, substantially, increase an easement, where an easement has been granted or bequeathed so that its extent shall be proportionate to the extent of the dominant heritage if the dominant heritage is increased by alluvion, the easement is proportionately increased

and, if the dominant heritage is diminished by diluvion, the easement is proportionately diminished; save as aforesaid, no easement is affected by any change in the extent of the dominant or the servient heritage.

Where a dominant heritage is divided between two or more persons, the easement becomes annexed to each of the shares but not so as to increase substantially the burden on the servient heritage; provided that such annexation is consistent with the terms of the instrument, decree or revenue-proceeding (if any) under which division was made, and in case of prescriptive rights, with the user during the prescriptive period.

In the case of excessive user of an easement the servient owner may, without prejudice to any other remedies to which he may be entitled, obstruct the user, but only on the servient heritage; provided that such user cannot be obstructed when the obstruction would interfere with the lawful enjoyment of the easement.

The owner or occupier of the dominant heritage is entitled to enjoy the easement without disturbance by any other person.

The owner of any interest in the dominant heritage, or the occupier of such heritage, may institute a suit for compensation for the disturbance of the easement or of any right accessory thereto; provided that the disturbance has actually caused substantial damage to the plaintiff;

An easement is extinguished when the dominant owner releases it, expressly or impliedly to the servient owner; Such release can be made only in the circumstances and to the extent in and to which the dominant owner can alienate the dominant heritage; An easement may be released as to part only of the servient heritage.

An easement is extinguished when the servient owner, in exercise of a power reserved in this behalf, revokes the easement.

An easement is extinguished where it has been imposed for a limited period, or acquired on condition that it shall become void on the performance or non-performance of a specified act, and the period expires or the condition is fulfilled.

An easement of necessity is extinguished when the necessity comes to an end.

An easement is extinguished when it becomes incapable of being at any time and under any circumstances beneficial to the dominant owner; where, by any permanent change in the dominant heritage, the burden on the servient heritage is materially increased and cannot be reduced by the servient owner without interfering with the lawful enjoyment of the easement, the easement is extinguished, unless - (a) it was intended¹ for the beneficial enjoyment of the dominant heritage, to whatever extent the easement should be used; or (b) the injury caused to the servient owner by the change is so light that no reasonable person would complain of it; or (c) the easement is an easement of necessity; Nothing in this section shall be deemed to apply an easement entitling the dominant owner to support of the dominant heritage; An easement is extinguished whether the servient heritage is by superior force so permanently altered that the dominant owner can no longer enjoy such easement; Provided that, where a way of necessity is destroyed by superior force, the dominant owner has a right to another way over the servient heritage;

A continuous easement is extinguished when it totally ceases to be enjoyed as such for an unbroken period of 20 years. A discontinuous easement is extinguished when, for a like period, it has not been enjoyed as such; Such period shall be reckoned, in the case of a continuous

easement, from the day on which its enjoyment was obstructed by the servient owner, or rendered impossible by the dominant owner; and in the case of a discontinuous easement, from the day on which it was last enjoyed by any person as dominant owner; Provided that if, in the case of a discontinuous easement, the dominant owner, within such period, registers, under the Indian Registration Act, 1908 a declaration of his intention to retain such easement, it shall not be extinguished until a period of 20 years has elapsed from the date of the registration; where an easement can be legally enjoyed only a certain place, or at certain times, or between certain hours, or for particular purpose, its enjoyment during the said period at another place, or at other times, or between other hours or for another purpose, does not prevent its extinction under this section; The circumstance that, during the said period, no one was in possession of the servient heritage, or that the easement could not be enjoyed or that a right accessory thereto was enjoyed, or that the dominant owner was not aware of its existence, or that he enjoyed it in ignorance of his right to do so, does not prevent its extinction under this section-An easement is not extinguished under the section-(a) where the cessation is in pursuance of a contract between the dominant and servient owners; (b) where the dominant heritage is held in co-ownership and one of the co-owners enjoys the easement within the said period; or (c) where the easement is a necessary easement; where several heritages are respectively subject to rights of way for the benefit of a single heritage, and the ways are continuous, such rights shall for the purposes of this section, be deemed to be a single easement.

When an easement is extinguished, the rights (if any) accessory thereto are also extinguished.

An easement is suspended when the dominant owner becomes entitled to possession of the servient heritage for a limited interest therein, or when the servient owner becomes entitled to possession of

the dominant heritage for a limited interest therein; The servient owner has no right to require that an easement be continued; He is not entitled to compensation for damage caused to the servient heritage in consequence of the extinguishment or suspension of the easement, if the dominant owner has given to the servient owner such notice as will enable him, without unreasonable expense, to protect the servient heritage from such damage; Where such notice has not been given, the servient owner is entitled to compensation for damage caused to the servient heritage in consequence of such extinguishment or suspension.

An easement extinguished revives (a) when the destroyed heritage is, before 20 years have expired, restored by the deposit of alluvion; (b) when the destroyed heritage is a servient building and before 20 years have expired such building is rebuilt upon the same site and (c) when the destroyed heritage is a dominant building and before 20 years have expired such building is rebuilt upon the same site and in such a manner as not to impose a greater burden on the servient heritage; An easement extinguished revives when the grant or bequest by which the unity of ownership was produced is set aside by the decree of a competent court. A necessary easement extinguished under the same section revives when the unity of ownership ceases from any other cause; A suspended easement revives if the cause of suspension is removed before the right is extinguished.

Where one person grants to another, or to a definite number of other persons, a right to do, or continue to do, in or upon the immovable property of the grantor, something which would, in the absence of such right, be unlawful, and such right does not amount to an easement or an interest in the property, the right is called a license; A license can be created by deed or by parole; A license may be granted by any one in the circumstances and to the extent in and to which he may transfer his interests in the property affected by the license; The grant of a license may be express or implied from the conduct of the grantor, and

an agreement which purports to create an easement, but is ineffectual for that purpose, may operate to create a license; All licenses necessary for the enjoyment of any interest or the exercise of any right, are implied in the constitution of such interest or right. Such licenses are called accessory licenses.

Unless a different intention is expressed or necessarily implied, a license to attend a place of public entertainment may be transferred by the licensee; but save as aforesaid, a license cannot be transferred by the licensee or exercised by his servants or agents.

The grantor of a license is bound to disclose to the licensee any defect in the property affected by the license, likely to be dangerous to the person or property of the licensee, of which the grantor is, and the licensee is not, aware; The grantor of a license, is bound not to do anything likely to render the property affected by the license dangerous to the person or property of the licensee; when the grantor of the licence transfers the property affected thereby, the transferee is not as such bound by the license; A license may be revoked by grantor unless (a) it is coupled with a transfer of property and such transfer is in force; (b) the licensee, acting upon the license, has executed a work of a permanent character and incurred expenses in the execution.

A license is deemed to be revoked - (a) when, from a cause preceding the grant of it, the grantor ceases to have any interest in the property affected by the license; (b) when the licensee releases it, expressly or impliedly, to the grantor or his representative; (c) where it has been granted for a limited period, or acquired on condition that it shall become void on the performance or non-performance of a specified act, and the period expires or the condition is fulfilled; (d) when the property affected by the license is destroyed or by superior force so permanently altered that the licensee can no longer exercise his right; (e) where the licensee becomes entitled to the absolute

ownership of the property affected by the license; (f) where the license is granted for a specified purpose and the purpose is attained, or abandoned, or becomes impracticable; (g) where the license is granted to the licensee as holding a particular office, employment or character ceases to exist; (h) where the license totally ceases to be used as such for an unbroken period of 20 years and such cessation is not in pursuance of a contract between the grantor and the licensee; (i) in the case of an accessory license, when the interest or right to which it is accessory ceases to exist;

Where a license is revoked, the licensee is entitled to a reasonable time to leave the property affected thereby and to remove any goods which he has been allowed to place on such property.

Where a license has been granted for a consideration, and the licensee, without any fault of his own, is evicted by the grantor before he has fully enjoyed, under the license, the right for which he contracted, he is entitled to recover compensation from the grantor.

Role of Architect in advising the clients to safeguard their interest in easement rights

Sometimes the neighbour of "A" may put up additional floors and open out windows to get maximum comforts for the rooms. If "A" does not object and windows remain unobstructed for 20 years, it will be difficult for "A" to develop his property as the neighbour may take objection, having acquired the easements.

To avoid this difficulty, either "A" should not allow his neighbour to have the windows to open out on his plot or to arrange for an agreement with the neighbour that no easement right can be claimed by the neighbour and on payment of a nominal fee the neighbour can be allowed to enjoy the air as a license. The agreement should also

include that the neighbour will not raise any objection when "A" wants to develop his property in future.

By mutual agreement "A" can have an arrangement with the neighbour such that construction will be done with provision for light and air for both the parties at different places.



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PROFESSIONAL PRACTICE FOR ARCHITECTS AND CIVIL ENGINEERS

This book deals with the methods of selection of Architects Consulting Engineers/Contractors for any project ranging from a small house to complicated and massive tall structures. The duties and responsibilities of the consultants, their fee structure, preparation of Tender documents for contracts have been explained.

Other materials include measurement of works, Arbitration, Easement Rights,

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