



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

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SCHOOL OF BUILDING AND ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

UNIT – I – PROFESSIONAL PRACTICE & ETHICS II – SAR 1504

I. ARCHITECTURAL COMPETITIONS

Architectural design competition guidelines

Architectural Competitions have a long history, and have produced many extremely successful buildings. They attract great public interest, and have led to the discovery of new talent and new ideas, that could only be found by throwing an architectural project wide open to competition. The Council of Architecture Competition Guidelines provide a new up-to-date code that safeguards the interests of promoters and of architects, and bring the system into line with present-day conditions.

The architectural competition is a balance of advantages.

Architects who would not have been considered in the normal way for an important commission, perhaps for a building of national importance have an opportunity to prove their talent and ability.

Many architects regard competitions as a valuable opportunity for research, perhaps for the study of a new building type, or for exploring the possibilities of new technical ideas and for gaining new experience. On the other hand, the profession's willingness to allow its members to compete without fee is a remarkable concession to the promoter without parallel in any other profession.

For the promoter also, there is balance of advantages.

He is making a public demonstration that he cares about architecture, and can take legitimate pride in his determination to find the best architect and the best design he can get. He will be rewarded with a greater public interest than is generally shown in new buildings.

Competition Guidelines as laid by the Council of Architecture protects and safeguards the interest of both the promoter and the competitors. While ensuring the promoter a design of high standard, it also ensures that each competitor competes on like conditions and within the same limitations.

One of the principals aims of the competition is to explore hidden talents among younger Architects. To many competitors, it often is the first step to a successful career. Adjudged as such by prominent Architects acting as Assessors, it also ensures that each competitor competes on like conditions and within the same limitations.

Both the promoter and the competitor are assured by these guidelines that the entries will be judged only by those who are qualified to interpret the competitors' presentations and to judge if the design selected meets with the promoter's requirements. The guidelines therefore lay considerable emphasis on the mandatory requirement of Assessors and the qualifications.

The appointment of the Assessors should therefore be the immediate and first step the moment the promoter decides to go in for a competition. The President of the Council of Architecture, if so

requested by the promoter, may suggest a panel of names experienced in this type of project proposed, for appointment as Assessors. Their responsibilities commence with the approval of the brief of the competition project. The Assessor may even help to prepare the brief.

For practical reasons, this responsibility is often taken by the Senior Assessor who would then be available to advise the promoter on all matters connected with the competition from the promoter's decision to hold the competition till the final award.

Role of Assessors (or the senior assessors)

- ☐ Assist in the preparation and approval of the brief.
- ☐ Study and understand the requirements of the Local Authorities
- ☐ Visit and examine the project site, if necessary.
- ☐ Advise on the appointment of the Technical Advisers, if necessary.
- ☐ Finalize the competition conditions.
- ☐ Prepare the final report/award.
- ☐ The project brief is the most important document. The success of the competition will depend upon the clarity and the completeness of the brief. This can be achieved by a very close cooperation between the Promoters and the Assessors (or the Senior Assessor) in the preparation and finalization of the brief.
- ☐ For complicated projects such as Hospitals, Airports etc. which are under constant development or projects encompassing highly technical elements, a Technical Adviser would be considered necessary in the initial stage to help the Promoter and the Assessors to draw up the brief and subsequently to advise the Assessors on the technical aspect of the competition entries.
- ☐ Once the promoter's requirements, the site conditions, the requirements of the local authorities etc. have been formulated into the competition brief, the Assessors (or the Senior Assessor) can advise the promoter on the type of competition that should be promoted.
- ☐ Response from well-established Architects as well as large number of young Architects to an open competition can best be assured by wide publicity. This is all the more essential for projects which are of public interest.
- ☐ Publicity could begin with the invitation of Architects to participate through widely read media. This could be followed by press conferences and finally by the publication of the Assessor's report and public exhibition of all the entries.

Purpose

- ☐ The purpose of these Guidelines is to explain the architectural competitions system, and to help the client who is thinking of promoting a competition to make up his mind whether a competition is the right answer to his architectural problem, and, if so, which kind of competition would be suitable. It also tells, a would-be promoter how competitions are organized, and what are the responsibilities of promoter.
- ☐ The purpose of these Guidelines is to indicate the principles upon which competitions will be conducted and the rules which must be observed by a promoter for conducting competitions.
- ☐ These guidelines have been drawn up in the interest of both the promoter and the competitor and to ensure that the architectural competitions are properly conducted and that selection of the design will be on merit alone and will satisfy the promoter's requirements.
- ☐ The Code of Professional Conduct of the Council of Architecture does not allow Architects to give unpaid services in competition with each other and competitive designs shall only be submitted through competition organized within the framework of these guidelines.

ARTICLE 1: ELIGIBILITY TO COMPETE:

- ☐ Participation in any and all competitions shall be open to:

- ❑ Architects i.e. those who are registered with the Council of Architecture under the Architects Act, 1972 on the date of announcement of the competition and thereafter.
- ❑ Firms in which all the partners shall be registered with the Council of Architecture under the Architects Act, 1972 on the date of announcement of the competition and thereafter.
- ❑ Students of a Teaching Institution, the qualifying examination of which is recognized by the Council of Architecture provided that no member of the staff of the said institution is the sole Assessor or in a jury of three or more Assessors, only one Assessor is from the staff of the said institution.
- ❑ Neither the Promoter of the competition, Assessor/s engaged for the competition nor any of their associate, partner or employee shall compete, assist a competitor or act as an architect or joint architect for the competition project.
- ❑ Competitor may be requested to submit a proof of qualification, copy of his valid Registration certificate issued by the Council of Architecture, and in case of a student, a certificate from the head of his institution.

ARTICLE 2: Competition

- ❑ The draft competition conditions including time table, registration fees, prize monies/honoraria, board of assessors, the programme etc. of competitions shall have been finalized within the framework of the guidelines prescribed by the Council of Architecture before any announcement is made by the promoter of the competition.
- ❑ The conditions of the competitions shall clearly give:
 Conditions based upon guidelines prescribed by the Council of Architecture.
 Type of Competition.
 Purpose of the competition and intentions of the promoter.
 Nature of the problem to be solved.
 All practical and mandatory requirements to be met by the competitors.
 Number, nature, scale and dimensions of the documents, plan and/or models.
 Estimates if required in standard form issued with the conditions.
 Nature of prizes.
 Names of Assessors.
 Necessary information required for conducting the competition.
- ❑ The competition shall be conducted in English.
- ❑ All competition designs shall be submitted anonymously.

ARTICLE 3: BOARD OF ASSESSORS:

The Board of Assessors shall at all times include Architects who are registered with the Council of Architecture and shall be in a majority of at least one.

ARTICLE 4: Prizes, Honoraria & Mentions:

No competition shall be conducted without adequate premium/honoraria and the competition conditions and the media announcements must state the amounts and number of prizes for the open competition and the amount of premium or honorarium to each competitor in a limited competition and in the second stage of a two-stage competition.

ARTICLE 5: Copyright & Right of ownership:

Each competitor shall retain Copyright in his own competition design.

Each competitor shall retain the right of reproduction of his own competition design.

ARTICLE 6:

All competition designs including those disqualified by the Board of Assessors shall be exhibited for at least one week, together with a copy of the signed report of the Board of Assessors. The exhibition shall be open to public free of charge.

REGISTRATION PROCESS

It is extremely important for competitors who may be asked to pay substantial registration fees to know exactly when they are registered and under what conditions the registration fee will be refunded. It is also important for intending competitors to receive sufficient information when they are invited to apply for the competition conditions to enable them to judge whether the competition falls within the guidelines for architectural competition of the Council of Architecture and whether they are capable of tackling the problem set by the competition.

The Council of Architecture recommends procedure:

- ☐ A descriptive leaflet and / or an advertisement in general and professional media. These should include the following information:
- ☐ Name of the Promoter
- ☐ Purpose and nature of the competition. This should be carefully worded to give a clear idea of the scope of the project whether it is a project or an ideas competition, single or 2 stage competition and the type of material that a competitor would be asked to submit.
- ☐ The prizes (or honoraria)
- ☐ Names of Assessors
- ☐ Persons eligible to compete
- ☐ An approximate time table

The procedure for registration, the last date for registration and the date by which the competition conditions would be made available by the promoter.

SCHEDULE 1

TYPES OF COMPETITIONS

PROJECT AND IDEAS COMPETITIONS

Competitions may be either

- ☐ **"Projects" or**
- ☐ **"Ideas" competitions**
- ☐ **or in certain circumstances a combination of both.**

The aim of a project competition is to find the best solution for an actual building project and to appoint its author to carry out the commission.

Competitions of Ideas are set as an exercise to explain certain aspects of architectural and town planning problems. The winner of such a competition may not be commissioned to carry out the project, and hence students of architecture may participate at the discretion of the promoter.

CLASSIFICATION OF COMPETITIONS

(I) OPEN COMPETITIONS

Competitions in which all Architects are invited to participate through an

announcement by advertisements in suitable media and through circulars which may be issued by the promoters.

- ☐ Open competitions for projects estimated at less than Rs. 10,00,000/- may be restricted to Architects who have their main or branch office in the State of the project site.

(II) LIMITED COMPETITIONS FOR COMPETITIONS BY INVITATION

- ☐ Competitions in which limited amount of Architects (approx. 5 to 8) selected by the promoter on the advice of the Senior Architect Assessor or Board of Assessors, are invited to participate. Each participant who submits his designs shall receive an honorarium.

(III) SPECIAL COMPETITIONS

- ☐ Besides competitions described in (i) and (ii) above a competition may also combine town planning as well as design problem, and may involve the use of industrial components or participation of developers. In such competition's participation may be required to be limited to professionals or group of professionals with certain definite expertise.
- ☐ In such cases the competition announcement shall clearly define the field of expertise.

COMPETITIONS MAY BE ORGANIZED IN ONE OR TWO STAGES.

(I) SINGLE STAGE COMPETITION

- ☐ In single stage competition the competition entries shall be fairly complete drawings i.e. plans, section, elevations, etc. to a suitable scale
- ☐ and sufficient to explain the scheme as set out in the competition conditions.
- ☐ The designs so submitted shall be assessed by the Assessors for the award of the prizes and the appointment of the architect.
- ☐ Such competitions are recommended for small and simple project.

(II) TWO STAGE COMPETITIONS

- ☐ In two stage competition, the first stage is for asking ideas and therefore the competition entries at this stage would be limited to planning on broad basis and drawings to a suitable scale sufficient to indicate the intentions of the competitor.
- ☐ Designs submitted in the first stage shall be assessed by the Assessors for selecting a small number of competitors (between 5 and 10). The author of these selected designs will be invited to take part in the second stage of the competition, and each architect so invited would be paid a specified sum.
- ☐ In order to maintain secrecy, each competitor will be informed individually whether he has been or has not been invited to participate in the second stage. Correspondence in this respect will be the responsibility of the Promoter or Professional Adviser, if appointed. It will also be his responsibility to ensure that the names of those invited and those rejected are not revealed either to the assessor or to any person.
- ☐ To ensure this anonymity the envelopes containing the names of the competitors shall be opened by the Promoter or Professional Adviser if appointed. After the intimation has been sent to each competitor they shall be revealed until the final award.
- ☐ After the end of the first stage, the Board of Assessors, may, if found necessary and with the approval of the Promoter, clarify or amplify points in the competition conditions for the benefit of the second stage competitors. Such clarification or

amplification shall not in any way disclose directly or indirectly or even inadvertently any of the designs submitted in the first stage to those invited for the second stage.

- ☐ The period between the Assessors award for the first stage and submission of designs for the second stage shall not exceed six months. Only under exceptional circumstances period may be extended.
- ☐ The second stage of the competition may be limited to only a part of the subject dealt with in the first stage.
- ☐ Members of the Board of Assessors shall be the same for first stage and second stage of the competition.
- ☐ The designs submitted for both the first stage and the second stage shall be exhibited and/or published only after the final award of the second stage competition.
- ☐ If any design selected for the second stage is published or exhibited before the final award of the second stage has been declared, it will be disqualified.
- ☐ Two stage competitions are recommended for town planning and for large scale or complex project.

III. REGIONAL SPECIAL CATEGORY COMPETITIONS

- ☐ This type of competition is intended for small projects of charitable organizations in which four to six local firms will compete for the appointment as the Architect.
No premiums are given and the winner shall be appointed to carry out the project.

SCHEDULE 2

ADVISERS

TECHNICAL ADVISER

- ☐ Where appropriate and necessary, the promoter shall in consultation with the Senior Architect Assessor/Board of Assessors appoint one or more technical advisers to assist in the preparation of the brief for the competition project and to advise the Board of Assessors, only when called upon to do so, on the competition design entries.
- ☐ The advice of the technical adviser will be limited to his expertise and he will have no voting rights.

(II) PROFESSIONAL ADVISER

- ☐ For a two-stage competition a Professional Adviser who shall be an Architect registered with the Council of Architecture may be appointed. He will not be connected with the Board of Assessors or attend any of its meetings.
- ☐ It will be the responsibility of the Professional Adviser to maintain the anonymity of each competitor and those selected for the second stage of the competition.
- ☐ On completion of the first stage of the competition the sealed envelopes containing the names of the competitors shall be opened only by the Promoter or Professional Adviser if appointed and he shall without disclosing any of the names to anyone inform each competitor individually whether he has or has not been invited for the second stage. All the envelopes shall then be resealed by the Professional Adviser/Promoter till the final award.
- ☐ If after the first stage, the Board of Assessors wish to clarify or amplify any aspect of the competition project, such clarification or amplification shall be conveyed to the competitors selected for the second stage only by the Professional Adviser/Promoter.

SCHEDULE 3

CONDITIONS FOR CONDUCTING ARCHITECTURAL COMPETITIONS

1. CONTRACTUAL OBLIGATION

- ☐ The publication of competition shall constitute an offer of a contract by the promoter, and, by submission of design for the competition, the competitor accepts this contract.
- ☐ The competition condition together with any replay to the competitor's questions constitute a legal basis for this contract which is legally binding on both the promoter and competitors.

2. GENERAL CONDITIONS

- ☐ The competition project brief and the conditions of the competition may be prepared by the promoter in consultation with the Senior Architect Assessor. They shall however be approved by the Senior Architect Assessor and the Board of Assessors before publication and issue to the competitors.
- ☐ The conditions including the programme of requirement of the competition shall be identical for all competitors. A copy of complete competition conditions shall be filed with the Council of Architecture. Answers to the competitor's questions shall also be sent to the Council of Architecture for their record.
- ☐ The conditions shall clearly indicate which of the requirements are mandatory and which could be freely interpreted by the competitor. The freedom in case of the latter shall be as wide as possible.
- ☐ The conditions of the competition shall indicate the promoter's priorities with reference to the solution of the problem (e.g. functional aspects, economy of construction or in use, solution to technical or circulation problems etc).
- ☐ The condition of the competition shall state the exact use to which the promoter will put the winning design. Designs shall not be put to any other use or altered in any way except by agreement with the author.
- ☐ Where a fixed amount is required to be remitted to with the promoters by the applicants for the 'Conditions of the Competition', it shall be refunded in full to the applicant if he decides not to compete and return the "Conditions of the Competition" in full within four weeks prior to the date of submission of the design. Submission of design in Competition shall imply acceptance, by the competitor, of the conditions of competition.

Each design shall be accompanied by a declaration on the prescribed form signed by the competitor in a properly sealed envelope that the design is his bonafide work and that the drawings have been prepared under his supervision and that he undertakes to accept the award of the Assessors as final and binding.

☐ In case two or more architects form an association for the purpose of the competition then there shall exist a partnership deed for the purpose of carrying out the project in the event the said association wins the competition. Reference to this partnership must be made in the form of declaration.

- ☐ The Board of Assessors must make awards which shall be final and binding and shall be made public by a date stated in the conditions.
- ☐ The Board of Assessors when making an award may at its discretion adopt "promoters' choice".
- ☐ In this procedure the Board of Assessors shall select not more than three designs which in their opinion are of equal merit and the selection of the winning design from the designs so selected by the Assessors could be made by the promoter.
- ☐ The promoter may for making the final selection discuss with the authors of the selected designs their respective entries.

3. PRIZE MONEY & HONORARIA

- ☐ The condition for any competition must state the number of prizes and the amount of each prize money. This must be related to the size of the project, the amount of work involved for the competitors and the expenses he would incur for the preparation for the competition.
- ☐ In Ideas competition and in competitions such as those for Town planning, where subsequently the work is generally carried out by official bodies, it is particularly important to allot adequate prize money to recompensate the competitors for the ideas and the work they have done.
- ☐ The promoter shall undertake to accept the decision of the Board of Assessors and to pay the prize monies within one month of the announcement of the competition results.
- ☐ Each participant in a limited competition (or competition by invitation) shall receive an honorarium.
- ☐ In a two stage competition a reasonable honorarium shall be paid to each of the competitors selected to take part in second stage. This sum which is intended to be reimbursed to them for the additional work carried out in the second stage shall be stated in the conditions for the competition.

COPYRIGHT & RIGHT OF OWNERSHIP

- ☐ Each competitor shall retain copyright in his own competition design.
The competition design awarded the first prize only shall be used by the promoter upon commissioning by him the author of the said design to render professional services to carry out the project.
- ☐ No other design whether permeated or not shall be used wholly or in part by the promoter.
- ☐ The promoter's right on the design awarded the first prize or the designs selected covers one execution only. The competition conditions however may provide for repetitive work and shall specify the terms thereof.
- ☐ Each competitor shall retain the right of reproduction of his design.

INSURANCE

- ☐ The promoter shall insure for damage or loss by fire, floods, or by any other reason Competitor's design drawings submitted in competition when he assumes responsibility for them and for the duration of his responsibility and also for loss during transit when the design drawings are being returned to the competitor. The amount of such insurance shall be stated in the competition conditions.

APPOINTMENT OF ARCHITECT

The award of the first prize to the competition design places the promoter under an obligation to appoint its author as the architect for the commissioning of the project.

If the Board of Assessors shall be satisfied that there is a valid objection to the appointment of the author of the winning design as the architect he may be required to associate with a senior architect or a firm of architects of his choice whose qualifications shall be approved by the Board of Assessors. Failing this the design placed next on merit shall be selected for commissioning and its author shall be appointed as the architect subject to similar conditions.

The award of the Board of Assessors shall not be varied for any reasons.

If no instructions are given to the author of the design selected by the Assessor to proceed within twelve months from the date of the award, then he shall receive payment for his services in connection with the preparation of the Competition drawings of a sum equal to 1.00 percent on the amount of the estimated cost. The first premium shall be deducted from the sum so paid. If the work is subsequently proceeded with, this sum shall from part of his ultimate fee.

If within twelve months of the award, the promoters shall decide to proceed with part of the work only, the author of the selected design shall be paid including the premium and in addition to the scale of fees on the work, which is being carried out a sum equal to 1.00 percent on the difference between the cost of the work carried out and his estimate of cost

of the total project which sum shall also merge into the commission when the remainder of the work is subsequently executed. The selected Architect having been appointed to carry out the work shall be paid in accordance with the Schedule of Charges determined and published by the Council of Architecture in consultation with the Promoters, and the premium already paid shall be deemed to be a payment on account.

EXHIBITION OF ENTRIES

- ☐ All competition designs including those disqualified by the Board of Assessors shall be exhibited for at least one week together with a copy of the signed report of the Board of Assessors. The exhibition shall be open to public free of charge.
- ☐ The promoter shall notify all the competitors and shall also announce in suitable media the days and place of the public exhibition of the competition.
- ☐ The promoters shall submit to the Council of Architecture a copy of the signed report of the jury and if requested photographs of the permeated designs for possible publication.

RETURN OF DESIGN DRAWINGS

- ☐ All drawings, plans, models etc. submitted by the competitor except those of the winning design shall be returned by the promoter at the end of the public exhibition at his own cost. The drawings, plans, models of the winning design shall be returned to its author on being appointed as the Architect for the Project or after six months from the date of announcement of the award by the Board of Assessors whichever is early.

SCHEDULE 4

THE BOARD OF ASSESSORS

- ☐ The Board of Assessors shall be set up before the promotion of the competition. Their names and those of the reserve members of the board, if any shall be stated in the competition conditions.
- ☐ The Board of Assessors shall be composed of a smallest reasonable number of assessors which number shall be an odd figure.
The size of the Board shall depend upon the size of the competition project and preferably the number of Assessors shall not exceed seven.
- ☐ Of the total number of Assessors the number of Assessors who shall be Architects and
- ☐ registered with the Council of Architecture shall be in a majority of at least one.
- ☐ The number of Assessors representing the promoters shall not exceed two.
- ☐ Each member of the Board shall examine and approve the competition conditions before they are made available to the competitors.
- ☐ The Board of Assessors may invite Technical Advisers as experts in specialized fields to assist in the assessment of competition entries. Such Technical Advisors shall not have any voting rights.
- ☐ It is essential that at least 2/3rd of the voting members of the Board shall be present at all meetings of the Board. The Board shall elect a Chairman from among its members.
- ☐ In the event of death of an Assessor before or during the assessment of the competition or his inability to continue to act on account of illness or any other cause, another Assessor shall be appointed in his place by the promoters without affecting the majority of at least one, of the Assessors who are Architects and registered with the Council of Architecture.
- ☐ No promoter of the competition and no assessors engaged upon it nor any partner, associate, or employee of either shall compete or assist a competitor, or act as architect or joint architect for the project
This regulation shall not be applicable to:
- ☐ Staff or present students of an Institution of which a member of the regular teaching staff is on the Board of Assessors provided he is not the sole Assessor and the Board consists of two or more Assessors of whom only one is a member of the teaching staff of this or any other Institution.
- ☐ Employees of a Government, Semi-Government or a Public Sector organization of which one of its employees is on the Board of Assessors provided he is not the sole Assessor and the Board consists of three or more Assessors of whom only one is such an employee.

- ❑ In two stage competitions, the same members of the Board shall judge both stages of the competition. In no case may a competition as a single stage competition proceed to a second stage except with knowledge of the Council of Architecture and arrangement for payment of appropriate honoraria to the competitors involved, over and above the prize money provided for in the original competition. In the event of such a secondary competition taking place, the Assessors appointed for the original competition must be reappointed by the promoters.
- ❑ Any drawings, photographs, models or other documents not required by the competition condition shall be excluded by the Assessors before examining the competitors' entries.
- ❑ The Assessors shall disqualify any design which does not conform to any of the conditions, instructions or requirements of the competition.
The Board of Assessors must make an award. The award shall be final and shall be made public in open competitions, and intimated individually to all those participating in limited competition, by a date stated in the conditions. The Board of Assessors when distributing the award money shall make full use of the amounts set aside for prizes in the competition conditions. In an idea's competition, a first prize shall be awarded.
- ❑ The decision of the Board of Assessors shall be taken by a majority vote with a separate vote on each entry. The award including the Assessors report to the promoter, shall be signed by all the members of the Board before they disperse.
- ❑ The decision of the Board of Assessors regarding selection and placement of competition design shall be final and binding on the promoter and all competitors and shall be reached by a majority.
- ❑ The Board of Assessors will make its award known to the promoter in a formal statement signed by atleast a simple majority of its members. The statement will indicate the number of designs examined and the order of the prizes awarded. This statement must be completed before the envelopes are opened and the Assessors disperse.
- ❑ The fees, travel expenses and out of pocket expenses of the members of the Board shall be paid by the promoter.

SCHEDULE 5

Prizes and honoraria

Award	Project upto built up area 5000 sq.m(Rs.)	Project with built up area above 5000 sq.m and upto 10000 sq. (Rs.)	Project with built up area above 10000 sq.m and upto 250000 sq.m(Rs.)	Project with built up area above 25000 sq.m(Rs.)
1. OPEN COMPETITION				
i. First prize (To be adjusted in professional fees)	125M	250 M	500 M	1000M
ii. Second prize	75 M	150 M	300 M	600 M
iii. Third prize	50 M	100 M	200 M	400 M
iv. Merit prizes upto 5 each	10 M each	20 M each	40 M each	80 M
2. LIMITED COMPETITION				
Minimum honoraria to be paid to each competitor	50 M	100 M	200 M	300 M

Note : The current value of M is 1000

Table 1

SCHEDULE 6

Cost of conducting Architectural Competitions

Description	Project with built-up area upto 10,000 Sq.m(Rs.)	Project with built-up area above 10,000 Sq.m.(Rs.)
i. Assessors' Fee	Pre-assessment 10 M and assessment 10 M per day or part thereof.	Pre-assessment 10 M and assessment 10 M per day or part thereof.
ii. Professional Advisor/ Project Coordinator's Fee	100 M	200 M
iii. Contingent Expenditure	As per estimate [™]	As per estimate [™]

Note 1: For a two stage competition, the above fees for Professional Advisor/Project Coordinator be increased by 50%.

Table 2

Sub-heads for contingent expenditure: Land Survey, Photographs of site, Printing of Brochure, Advertisement, Communication Expenses, Administrative and Legal Expenses, Exhibition, Publication of competition/select entries, Contingent travel, conveyance, boarding, lodging etc. for Professional Advisor / Project Coordinator, Assessors and others. Other incidental expenses.

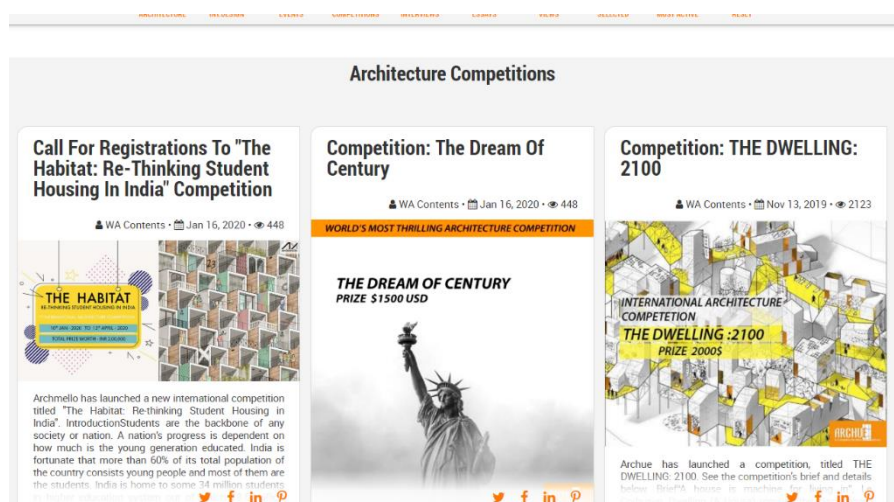


Figure 1

Reference

<https://www.coa.gov.in/index1.php?lang=1&level=1&sublinkid=260&lid=239>
<https://www.archdaily.com/search/competitions/country/india>



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SCHOOL OF BUILDING AND ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

UNIT – II – PROFESSIONAL PRACTICE & ETHICS II – SAR 1504

II. EASEMENTS AND TENDER

DEFINITION OF EASEMENTS

Easements as defined under Section 4 of the Indian Easement Act, 1882 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 prevent something being done, in or upon or in respect of, certain other land not his own.

DOMINANT AND SERVIENT HERITAGES AND 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 is called the servient owner.

As shown in Figure, X cannot access his land from the road without passing through Y's land (CDEF). ABCD is called dominant heritage. CDEF is called Servient heritage. This is an example of easement X is benefitted by the Indian Easement Act, 1882. Y sacrifices a part of his absolute right of enjoyment and ownership of his land CDEF.

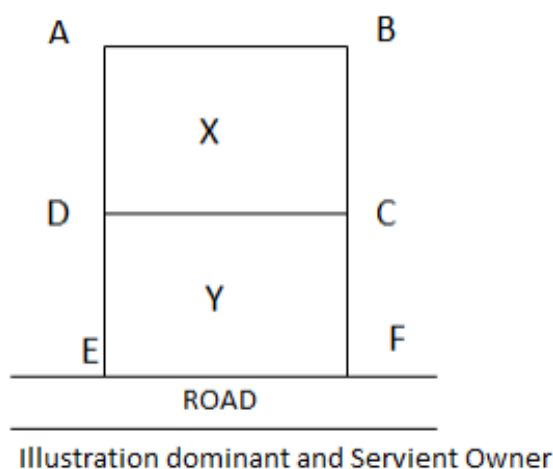


Figure 2

Example: X as the owner of certain house, has a right of way over his neighbour Y's land for purposes connected with the beneficial enjoyment of the house. This is an easement. X as the owner of a certain house has the right to go on his neighbour Y's land to take water for the purposes of his house hold out of a spring therein. This is an easement.

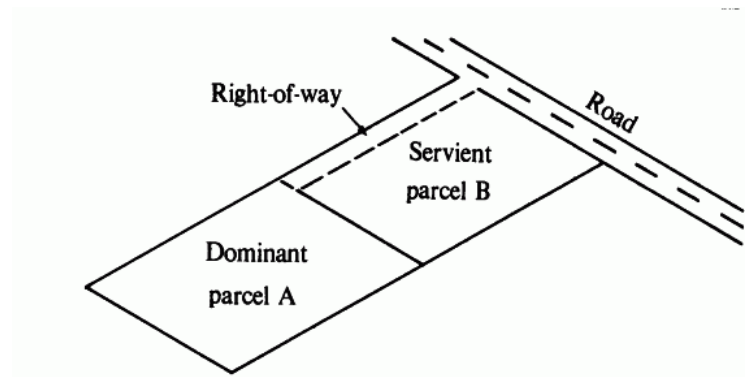


Figure 3

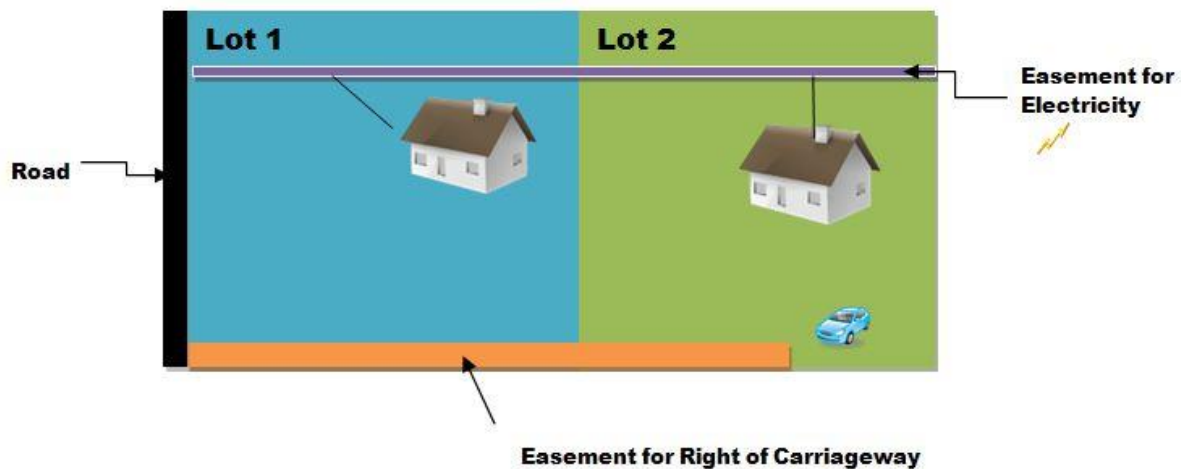


Figure 4

Characteristics of an Easement

The essential characteristics of an easement are:

1. There must be a dominant and servient tenement.
2. An easement accommodates the dominant tenement
3. The right of easement must be possessed for the beneficial enjoyment of dominant tenement.
4. Dominant and servient owners must be different persons.
5. The right should entitle the dominant owner to do and continue to do something or to prevent and continue to prevent something, being done in or upon or in respect of the servient tenement.
6. Something must be of a certain or well-defined character and be capable of forming the subject matter of a grant.
7. Easements are private rights belonging to particular persons.
8. Easement is a right which the owner/occupier of land possess on land not his own.

Natural Rights and Customary Rights

1. To receive light which falls vertically on the land
2. Right of support to land in its natural condition
3. Right to drain water from a land at a higher level to land at a lower level

4. No right to pollute air
5. No right to receive light through adjacent plot

Natural Rights with Restrictions

1. Development of a plot so as to conform to byelaws and regulations of local authority.
2. Right to so much of air and light which passes vertically.
3. No right to pollute air or water

Customary Rights

Customary rights are claimed for a large number of persons of a particular locality. These are public rights annexed to the place in general. These are not allowed if they are not reasonable.

Examples of customary rights are:

- Right to bury the dead at a particular place
- Right to use a particular property by fisherman
- Right of way in favour of large and fluctuating body of persons
- Rights to use a public place/ground for religious purposes by a community on certain occasions.

Disturbance of Easement

Any type of interference for peaceful enjoyment of the easement rights acquired by the owner of dominant tenement is called disturbance. This interference may be in the form of obstruction or threat of obstruction. In such a case court should be approached for an injunction to restrain the person causing disturbance.

Various Easement Rights

Easement of light

The right to have access of light to the property owned by the owner is a natural right, and such a right may be either a natural right or an easement. This right can be acquired in case of buildings and such a right is a species of a negative easement. The owner of the dominant tenements is entitled to the uninterrupted access through his ancient windows of a quantity of light required for inhabitancy or for his business.

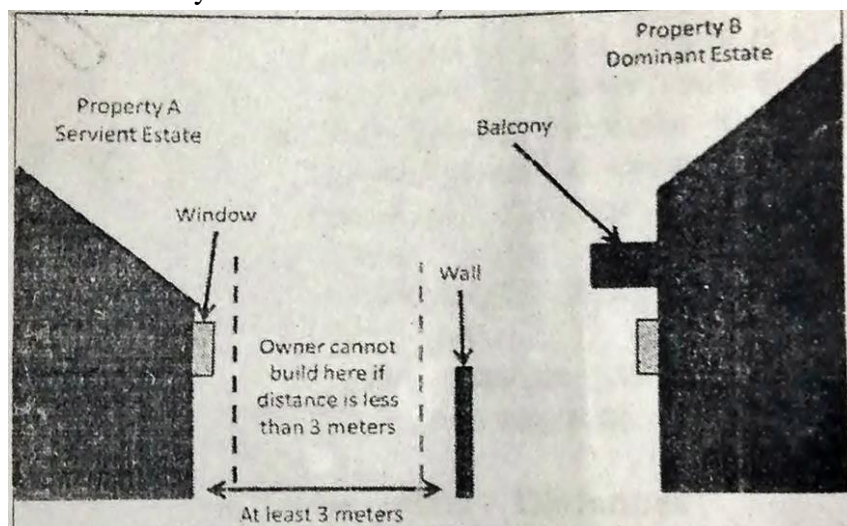


Figure 5

Easement of a right to free passage of light

Dominant Owner should prove that

- Light has been curtailed
- Consequently, dominant tenement has become inhabitable
- Disturbance has affected dominant owner

In case disturbance is not substantial, Court at its discretion may award monetary compensation as damages.

Easements of access to air

This is concerned with the volume of air which may be available through an opening. The right to have air also is a natural right and a person has a right to receive all the air that vertically passes to his land. Every owner has got the right to open apertures (openings) in his own wall and unless by doing so he invades the privacy of any other pre-existing and well-established right vested in his neighbour, the latter cannot force him to close the apertures and the remedy for the neighbour is to build on his own land or otherwise obstruct the apertures.

Easements relating to water

If there is a defined channel and the water can get through that channel, it must not be allowed to sprawl on the adjoining land. If there is no defined channel from which the water can flow, then the land at a lower level has to take the burden of the flow of that water. The right to flow of water or the right to discharge water by means of artificial water courses is not a natural right, but may be acquired by contract, prescription, grant or even arrangement rights of such nature too are to be established like other easementary rights.

Easements of support

Easements of support may arise in cases of the support of buildings by land or the support of buildings by buildings or easements to let down the surface as in the case of mining operations, etc. The real nature of this right is not that the adjacent soil should not be disturbed, but such disturbance should not be injurious to the dominant easement.

- If an adjoining building is endangered due to pile driving, the owner has a right for compensation.
- Partition wall between two buildings is another type of support
- Party wall, this applies to foundation too.

While laying of fresh foundation the existing foundation of the neighboring building should be adequately supported, i.e. dominant heritage.

The Creation of Easements

MODE OF ACQUIRING EASEMENTS


(i) **By grant:** An easement may be imposed by any one 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.

(ii) **By Necessity: When** a property is divided into two parts either by sale, mortgages, partition, etc. and they are so situated that one cannot be enjoyed without exercising a particular privilege in or upon the other.

(iii) **By Prescription:** It is acquisition of a right or title by constant use or possession for 20 years. If it is claimed against government it is 60 years. Mode of acquiring easement by this method is detailed in the Easement Act, 1882. A person should have enjoyed the right of way,

right to air, right to light and right of support continuously for a period of 20 years without interruption. It is necessary to obtain a declaratory order from the Court that dominant owner is entitled to the prescriptive easement rights. The suit should be filed within two years after the expiry of 20 years.

EASEMENT RIGHTS ARE ACQUIRED IN THE FOLLOWING WAYS	
1) EASEMENT BY PRESCRIPTION :	➤ It's a type of easement where Owner allows people to pass through his land without any objection or obstruction for a continuous period of 20 years or allows the neighbor to enjoy light and air from his property
2) EASEMENT BY EXPRESS GRANT (COVENANT) :	➤ It's a type of easement where Owner permits people to pass through his land with full knowledge and consent or creates some kind of right through a written agreement
3) EASEMENT BY IMPLIED GRANT :	➤ It's a type of easement where Owner does some kind of act which implies creation of certain right over his property ➤ For ex, when an owner sells a rear portion of the property which does not have an independent access it is implied that he will permit the purchaser to pass through his land
4) EASEMENT BY CUSTOM :	➤ It's a type of easement where people enjoy certain rights to make use of a piece of land for a social activity, year after year (20 years) as a custom



DUSSERA FESTIVAL GROUND

Figure 6

Extinction by dissolution of right of servient owner.

When, from a cause which preceded the imposition of an easement, the person by whom it was imposed stops to have any right in the servient heritage, the easement is extinguished

Extinction by release.

-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 separate the dominant heritage. An easement may be released as to part only of the servient heritage

SUMMARY

As defined under Indian Easement Act, 1882. It is a right possessed by the owner/occupier of a land to continue to enjoy or to continue to prevent something being done on own's land or other land. Dominant owner enjoys dominant heritage which is the right to enjoy certain benefit, while the servient owner and servient heritage owner are liable legally to extend enjoyment of benefit to dominant owner. Both dominant and servient tenements to be present and their owners are to be different. It should accommodate dominant heritage, right of

easement are favours dominant heritage/tenement, it provides the dominant owner to either continue to do or continue to prevent with respect to servient, owner, this something of enjoyment. This is to be clearly defined as a grant. Easement is a private right of particular individuals.

- Easement of light relating to natural light, can be also acquired in case of buildings entitled to continuous enjoyment of light through the idea of ancient windows concept—dominant owner should prove that this right has been disturbed, monetary compensation may be awarded in case such disturbance is not substantial
- Easement of access to air—natural right to air directly above the ground, existing apertures (openings) to be maintained.
- Easement relating to pollution—Pollution causing injury to property and health is/are not allowed.
- relating to water—flow or discharge of fluid/water to be properly channelled and not to spread arbitrarily—is not a natural right.
- Easement relating to support—relates to safety land or buildings e.g. mining, basement excavation, party wall etc., Adequate support to be provided. Introduction, Arbitration Agreement, Role of Arbitrators and Umpire, Arbitration Award.

What is Tender?

Tender means an offer to carry out work, that is pre-described or to supply or purchase goods of prefixed specifications at a price to be quoted the tenderer.

Essential qualities of a good tender:

1. Tender should be based upon definite and detailed information. The items of work described in bill of quantities included in the tender should be very clear and specific.
2. Drawing shall be supplied wherever details are involved. Wherever description is difficult, drawing should be given to complement description.
3. All factory-made products should be specified as far as possible with their trade name (close specifications). You may attach a list of approved makes or manufacturers to the tender document.
4. Avoid as far as possible the use of phrase “As approved by architect”, Instead spell out more in details your requirements and if needed, supplement the statement by a drawing.
5. Basic price of material shall be mentioned in the tender.
6. The basic concept of tendering is a competition on equal base. Therefore, it is essential that information given may be in the form of specifications, conditions of work, abstracts, quantities or drawings shall be same information to all the contractors who shall offer tenders.

Components of a tender: A checklist.

1. Instructions to contractor
 - 1.1 Type of tender (Item rate tender or lumps um tender).
 - 1.2 Location and brief description of work and name of owner. (Name of work, site address and owner’s name)

- 1.3 Price of Blank tender form.
- 1.4 Amount of Earnest Money Deposit (E.M.D) to be paid to whom and how.
- 1.5 Time and place of submitting filled in tender.
- 1.6 Note: Owner reserves right to reject any or all tenders without giving reasons. (This note is important and shall not be forgotten.)
2. General conditions and preliminaries: Prepared by the architect's office. In this, you should not forget to refer standard specifications, such as ISI or P.W.D. This should also include a list of Basic Rates of major building materials and a list of approved manufactures of materials.
3. LETTER OF OFFER: From contractor of Architect. This letter is prescribed by architect's office. (a specimen letter given in Appendix 14.I)
4. Copy of Articles of Agreement and General Conditions of contract. (Printed papers available with I.I.A)
5. Bill of Quantities (Contract Bill) only in case of an item rate tender.
6. Drawings (Contract Drawings) giving location, overall size, types of building construction etc. for an item rate tender. OR In case of lump sum tender, a complete set of working drawings including R.C.C. schedule or structural steel details etc.

Types of Client:

1. Private or an individual owner.
2. Semi-public organizations
3. Public Bodies such as Government Departments.

Different methods of calling tenders:

1. Invited Tender

A list of five or six contractors should be made by the architect in consultation with the owner. On behalf of the owner, the architect should write letters to the contractors inviting them to tender for the work.

A letter of invitation to a contractor shall cover the following points.

- (i) Name of the owner.
- (ii) Address of the site of proposed work and type of building.
- (iii) Estimated cost of work.
- (iv) Probable date of commencement of work on site.
- (v) Price of blank tender form and
- (vi) Date, time and place where from the tender copy would be available.

Each of the points has relevance in business. When you invite a contractor for tendering, he has a choice to accept or to refuse the invitation. For that he should know-

- i) Who is the owner, he may have earlier experience, either good or bad with the person. Contractor's decision to accept or to reject the invitation may depend on this
- ii) Each contractor has his area of operation in his mind. This depends on the size of his organization and his willingness to go far and the estimate of projects as well.
- iii) The estimate of work is also relevant.
- iv) The probable date of commencing work is relevant to know.

2. Public Tender

In case of projects owned by the semi public or the public bodies, in the procedure to be adopted, there should be no room for favoritism or a partiality. The competition should be open to all. Hence, a notice shall be published in a newspaper calling the contractors to fill in tender for a project. In such a notice, the following information shall be given:

1. Name of the client (Owner of the project)
2. Address of the proposed work site and name of the project.
3. Estimated cost of project.
4. Earnest money deposit.
5. Cost of blank tender form.
6. Time and place of issuing blank tender forms.
7. Time and place of submitting filled in tenders.

The biggest disadvantage in a public tender notice is that one does not know the abilities of contractors offering themselves to work for the project. To get the work, one may quote low rates. But often such a contractor is unable to carry out the work and to produce work of good standard. Realizing that he is not making enough profits or he is loosing on the job, the contractor looses an item even at the cost of quality. The contractor will try to raise claims for variation and extra items, arguing with an architect now and then on small matters. “The owner reserves the right to accept pr to reject any or All the Tenders without giving any Reasons”.

3. Pre-registration of contractors:

In this method, a notice is published in newspaper inviting the contractors to submit the information of their construction company. In the notice, it is necessary to publish i) Name of the owner and his address, ii) Name of the project and its estimated cost, iii) Address of construction site and iv) Probable date of starting construction. Reading this information, the contractor should decide whether he is interested in the work or not.

Further in the notice, the contractors are requested to submit the information on the following points:-

1. Name of the company and its Registered Address, names of partners/ Directors.
1. List of similar projects (similar to the project for which this advertisement is given) or list projects carried out during last three or five years, with their cost, name of the architect, name of the owner, etc.
2. List of the construction equipments possessed by the company and technically qualified persons employed with the company.
3. Income tax clearance certificate.
4. Solvency certificate from bankers.

On receiving the applications on the date given in the advertisement, scrutiny is made and a short list of five or seven contractors that is drawn out. A care should be taken while selecting the contractors that they are of more or less of equal standing from the point of view experience, establishment, financial strength etc. and each one of them should be acceptable to the owner.

Papers that are included in a Tender document.

1. Letter of Offer:

This letter is drafted by the architect's office. The contractor is supposed to read it carefully and sign it as a mark of total agreement to it. **The contractor shall make no change in the text of the letter.** This letter of offer is an important commitment by the contractor. A specimen letter is given in Appendix. Please read it carefully and understand its significance, point by point. There are FIVE clauses in the letter.

- (i) In the 1st clause, a reference is made to the tender notice or a letter of invitation as per the case. This reference has a legal significance.
- (ii) In second clause, the contractor commits that he has studied drawings, specifications, articles of agreement and conditions of contract. All these shall be included in the tender document by the architect's office, so that the contractor can carefully read them, before giving the tender offer. Drawings and specifications are prepared in the architect's office for each work. "Article of Agreement and Conditions" is a standard document used on every job. It is prepared by the Indian Institute of architects. We shall study this document in the following chapter. My remark for you is that, it is a very important and useful document, which you shall study carefully.
- (iii) In this clause, the contractor commits that he knows the situation at the work site and he is ready to work at the rates given by him, under the present site conditions.

These are the clauses, regarding E.M.D. It says that the deposit is without interest. It also gives period of deposit and further states authority to the architect to forfeit E.M.D. under certain conditions.

2. General Conditions and Special Requirements of the Work:

These general conditions are usually standardized in every office, as they are applicable to almost all the works. In addition, there could be some special requirement of a job. Such few conditions are added as special requirements of that job. For example, municipal tap water is available on all the sites in a city. But if a particular site has only well water supply or some other source, you shall write the conditions pertaining to that and add to the general conditions.

3. Specifications of Work and Materials

This also, you should standardize in your office so that it can be added to the tender document. We have discussed this in the previous chapter on specifications. In addition on a particular job, you may have an unusual item of work, such as exposed brick finish, from the finish concrete or the application of a material in an uncommon way or a new material in building. You should add the specification of such special items carefully to the text of the tender.

4. Bill of Quantities

This is an important core paper of a tender. Your quantity surveyor should work out correct quantities of all the items of work. I shall like to draw your attention here, that, to write an abstract of an item is an important matter. If you forget a word or a clause in the abstract, which in fact is required to complete that particular item, it becomes an extra claim or variation. The contractor can demand more money. So be careful! The client has to more for your inefficiency, which is not creditable to you.

5. Drawings

Drawings shall be added to the tender to give sufficiently a clear idea about the proposed building. The drawing shall explain the type and the extent of construction, i.e. overall dimensions and number of floors, height of floors etc. It is not necessary to supply R.C.C. detail drawings at this stage if in the Bill of Quantities item of reinforcement steel and concrete are separate. In the case of a structural steel work, the detailed fabrication drawings are not required to be given at this stage, if item of fabrication work is to be quoted on unit weight of structural steel. But details of items in the form of drawings should be given at this stage only which cannot be fully visualized only with description, such as decorative grilles etc.

6. Articles of Agreement & general Conditions of Contract

A reference to this document is made in the 'Letter of Offer' explained to you earlier in this chapter. A copy of this shall be added in the blank Tender Form, particularly when it is a public tender. This is a printed document available with the Indian Institute of Architects. We shall study more in detail about it in the following chapter.

Procedure of calling tender:

Tender document shall be prepared by the architect's office. All the copies prepared shall be serially numbered on the cover page. Copies of tender are sold to the contractors from the architect's office. The contractor goes through the tender papers and taking into consideration the specification and condition etc. given in the tender, fills in the rates of every item of work against the abstracts in the bill of quantities.

Multiplying by the unit rates to the quantity cost of each item is arrived at. The sum, total of cost of all items will give the amount of quotation of the tender.

There could be two or three schedules in a Tender. Such as civil work, plumbing work, site development etc. All these added together will give the final amount of tender offer. Filled in the tender is then put into an envelope and the envelope is sealed. This sealed envelope along with the Earnest money deposit Amount in the form of a Cheque or a demand Draft as per the instructions in the tender document is to be submitted on or before the time and the date given in the tender. These conditions are usually given on the cover page of the tender.

Earnest Money Deposit:

A contractor along with his tender quotation pays a certain amount as a deposit to show that the contractor is earnest and sincere about this business with the owner. Further it means, that when called upon to complete the business, he should not shirk or avoid. we define earnest money deposit as under.

A note on Earnest Money Deposit:

The amount of deposit asked along with the filled in tender or a rate quotation is called an earnest money deposit. This amount shall be placed with the office of the architect, without any interest payable on it. The deposit amount shall not be held for more than a month from the date of a receipt of the tender. The deposit shall be refunded in full to the unsuccessful contractors; no sooner the decision is made on the tenders received.

In case of successful contractor to whom the work is awarded, this earnest money deposit becomes a part of security deposit and continues to be with the architect's office till the virtual completion of the work.

On virtual completion of the work, the contractor shall apply to the architect's office for the refund of the amount. This amount is refunded in full by the architect's office directly to the contractor and intimation in writing is given to the owner.

In case of the contractor who is unable to commence the work when called upon to do so, this amount of E.M.D. is forfeited and is credited to the owner as a part of compensation for the hardship the owner has suffered.

How Much Time should be given to the Contractors to fill in the tenders?

Time and date for submission of filled in tenders shall be one and the same to all the contractors. A sufficient time shall be allotted to the contractors to fill in the rates. The contractor has to visit the site to study the site conditions under which he has to work. If the site is at a distance he has to make enquires for the availability of material and labour nearby. He has to discuss the rates with his sub-contractors and other agencies before he could arrive at the item rate.

Instruction on the Cover Page

On the cover page of the tender document, instructions shall be printed regarding – 1) the time, date and place where the filled in tender shall be submitted. 2) How much shall be the Earnest Money Deposit

Amount to be submitted along with the tender and in what form, that is by a cheque or a demand draft and payable to whom the architect or the owner.

Receiving of Filled in Tenders

As a good practice, the filled in tenders should be received in the office of the architect. In case of the institutional clients, as a matter of convenience, the filled in tenders may as well be received in the office of the client. But in either case, the decision shall be made well in advance, and accordingly, the instructions regarding the submission of tenders shall be printed in the tender notice and on the cover page of the tender form.

Opening of Tenders

The time and the place of opening of the tenders shall be informed to the contractors while receiving the tenders. The contractors or their representatives may as well remain present at the time of opening of the tenders. The architect SHALL NOT OPEN the tenders in the absence of the owner.

Scrutiny of Tenders

A detailed scrutiny of all the tenders received is done by the architect's office and a scrutiny report is submitted to the owner recommending a contractor for the work. In case of public tender, we have experienced as many as twenty-three tenders received for a project. It becomes a time taking task to scrutinize so many tenders. You should be methodical in your work.

- (i) Check whether the E.M.D. amount is submitted as per the conditions of tender. If NOT submitted, then the tender offer should be rejected forth with. If the deposit amount is asked by cheque then the cheques shall be deposited in the bank immediately. If the E.M.D. cheque is dishonored by the bank for any reason, such a contractor shall NOT be considered for the work. Furthermore, such a contractor shall not be considered for any work in future or should not be recommended to others. A specimen letter is given in the Appendix. (13J).

Covering letter

- a. Read carefully covering letter and other enclosures, if any. Often contractors in case of Public Tender are tempted to enclose business profile of their contracting company, particularly when the contracting company, particularly when the contracting company is stranger to owner/architect. It is worthwhile contracting owners or architects to crosscheck the information given in such a profile.
- b. The covering letter should have no conditions suggested in it, which will affect the work or the cost of work. Usually, these conditions or rebates are linked with the supply of building material or water for construction and supply of electricity for work by the owner on the site. Often contractors ask for advance against building material brought on the site. As a good practice, conditions regarding all these points should be mentioned very clearly by the architect himself in the text of the tender document.

- (ii) The next step in scrutiny of tenders is to check the calculations in the schedule of rates. These days, all the calculations are made by the calculators and therefore, there are hardly any mistakes in multiplication or totals. Even then, it will be proper for the architect's office to go through carefully through all the pages of the schedule of rates, which is also referred as contract bill. If arithmetical mistakes are noted, these should be corrected and the corrected total should be taken for the consideration for the choice of contract.

After when the tenders are opened, in any case contractor shall not be allowed to enter the missing item-rate. If selected for the work, the contractor shall carry out that particular item free of cost.

(iii)Rebate:

After arriving at the Total of Schedule of rates, sometimes a contractor offers a rebate at certain percent of the total amount by writing a note to that effect. If the rebate is offered without any condition, it should be considered and the total should be reduced accordingly. If there be any condition attached to the rebate, then such a rebate is unacceptable.

(iv)Comparative statement:

Having completed arithmetical check, correcting totals and applying rebate etc., a statement should be written, name of contractor and the corrected total of tender offer against the name in an ascending order of the tender offers, starting with the lowest offer in first place and the highest offer to the last place.

Scrutiny report of tenders

After a careful scrutiny of the tenders received, the next job for an architect is to recommend a suitable contractor to the owner for the work. This is called a 'Scrutiny Report'. Please bear in mind here, your role, as an architect is that of an advisor. You should be true to your conscience and recommend a contractor keeping the interest of the project uppermost in your mind. You should be impartial and your advice should not be influenced by any one from amongst the contractors or owners. Having **Scrutiny report of tenders** given a sincere advice, the owner, May he be an individual or an institution, may accept your advice totally or may think otherwise, you should not be disturbed. This is what is said "Disinterested Service" to be given by an architect. Your role or duty is to get the best possible work done from the contractor chosen and selected by the owner.

But remember, when an architect is knowledgeable and upright, a well-intentioned owner will always go by the advice of an architect.

On writing a scrutiny report

The architect shall give a report in writing to the client, on the scrutiny of the tenders received for the project. In his report, the architect should be logical in his statements. He should give step-by-step reasoning, for NOT considering offers of contractors that are NOT suitable. If the architect's office has worked out an estimate of cost of construction of the project, using the same BILL OF Quantities, then the tender quotations nearby the Estimate shall be given detailed consideration for selection.

The architect's scrutiny report shall be submitted to the client's office in an enclosed envelope. The envelope shall be opened by the Secretary or Chairman of the Committee only. The scrutiny report is a confidential document. It is expected to be discussed only in a committee meeting. Members of the committee, in good faith, are not supposed to make known the architect's remarks about the contractors to anyone outside the committee.

After receiving the owner's instructions regarding the choice of a contractor for the work, the Architect has to proceed further:-

1. During the process of selection of a contractor for the work, if certain points have come up, which need clarification from the contractor who is to be selected or his definite willingness to accept work etc. is required before he could be finally selected for the work; a letter is written
2. to the contractor by the architect, which is called a LETTER OF INTENT. In this letter, the architect on behalf of the owner informs the contractor the intention of the owner to give the work to him provided he is willing to do or accept in writing the verbal assurances that he might have given during the process of selection. The contractor is asked in the same letter to inform his acceptance by return post. On receiving an affirmative reply in writing from the contractor, the architect issues a WORK ORDER on behalf of the owner to the contractor.
3. It is not always necessary to issue a letter of intent. If there are no additional and important points that have come up during the process of selection of a contractor, it is also suitable to issue a WORK ORDER and letter of intent may not be issued. Minor conditions also can be included in the work order itself. A specimen of 'work order' is given in the Appendix.

4. The contractor shall accept the 'work order' and inform in writing his acceptance to the architect immediately by reply post.
5. Only on receipt of the "Letter of Acceptance" from the selected contractor, you may say the tendering process is complete. Only then the architect's office shall refund E.M.D. of the rest of the contractors.
6. A letter to unsuccessful contractors:
 - a. This kind of a letter helps create fair impression about your office amongst contractors
 - b. A person presenting 'your letter to contractor' helps you identify the contractor's man and your office can handover the cheque of refund of E.M.D safely to him.
 - c. If you have mentioned a time slot in your letter to collect the refund, it is convenient to all and more particularly to your office staff. Your office clerk should be ready with the cheque at the appointed time to hand them over, and the contractors need not bother your office all the time.
7. The process of selection of contractor. i.e. up to issuing and acceptance of work order shall be complete within one month from the date of submission of tenders.

Work order

A letter issued to a contractor selected for the work, asking him to take up the work, is called the work order.

1. On the instructions of the owner (Client), this letter is written by the architect, on behalf of the owner to the contractor.
2. There has to be a reference in this letter to the tender or quotation submitted by the contractor for the work.
3. The letter may contain a few additional conditions such as the date of commencement of a work on the site or such conditions arising out of the discussions with the contractor during the process of selection of a contractor.
4. The work order shall be included in the contract document and therefore conditions imposed in this letter (Work Order) become a part of the contract.

Letter of Acceptance

On receipt of the work order, the contractor should send a 'Letter of Acceptance' of the work order, immediately to the architect.

With this, the procedure of calling tenders can be said to be complete. Now the architect's office may refund the E.M.D of remaining contractors forthwith.

A tender offer becomes ineffective

It is also important for an architect to remember that the tender offer becomes NO MORE BINDING over the contractor under certain conditions.

1. Time period of the Tender Offer

This period is generally written as ONE MONTH from the date of submission of tenders. In some special case, it could be more. This may depend upon the magnitude of the project or technical intricacy involved in it, and also the reasonable time that may be required to study carefully the tender offer received. There has to be a clear mention

of this time period in the text of the tender. So that the contractor is aware of this time period before filling in the tender.

If the client is unable to take the decision within this time period, then thereafter, the contractor is not bound to accept the work order on the same tender offer. The contractor may come forward by his free will or may refuse or may ask certain changes in rates or other conditions of the tender, which will have to be discussed with him. Once the time limit is over, the owner/architect cannot withhold the E.M.D. and has to be refund in full to the contractors.

Therefore, it is important for architecture to make a clear mention of this time period in the text of the tender, and thereafter, observe this time period, and complete the process of scrutiny report earlier giving enough time to the owner to make up his mind and to choose the contractor within the time period. If your client is an institution, please remember, the decisions are not taken by an individual, but by a committee. Certain procedure may be required to be followed, which it may require time. Therefore, the timetable should be worked out properly before hand by the architect with the client so that the whole process of selection of contractor is completed within the time period.

2. Counter offer by owner

The tender itself is an offer given by the contractor to carry out a work, which is worded by the owner through his architect. During course of discussion if the owner puts forth another alternative method of contract for the same work, it is called a counter offer. This counter offer by the owner sets the contractor free from legal obligations of his earlier tender offer. The owner and the contractor may or may not agree on the counter offer, but the fact that an alternative is suggested, the contractor is no more bound by the legal binding of his earlier tender offer.

For example, a contractor filled in an item rate tender for a work. Later if the owner suggests carrying out the same work on cost plus percentage basis. This is a counter offer. The contractor has a liberty to refuse the counter offer, if he feels so. At the same time, he gets away from the legal binding of the earlier tender offer.

3. Death of a party

If the death occurs of either of the party before entering into a contract, then the tender offer is ineffective and not binding on the contractor.

For example, an individual owner passes away suddenly during the tendering process. The contractors who have filled in tenders are set free. But if death occurs of a Secretary or a Chairman or a Director of a company who has invited the tenders, this does not hold good. The tender process can continue and the contractors are not set free. Here, you have to understand and appreciate that the death of an individual office bearer, the existence of a Society or a Trust or a Company is not affected.

4. Withdrawal of Tender

Withdrawal of tender process can be from the owner or from the contractor. The owner can stop tender process any time before issue of 'Work order to Contractor'. We have discussed earlier in this chapter "Client's decision to abandon the work". From the beginning you shall take enough care so that in case of withdrawal of Tender process, no legal troubles shall start against your client and yourself as an architect. However, please remember, this is not a desirable situation.

Withdrawal by Contractor: Contractor on reading the tender notice or a letter of invitation to tender has all his freedom NOT to respond to the call. He can purchase a tender and may not submit it, if he is unwilling. This means he can withdraw from tendering process without any obligations or legal hassle. But after submitting filled in tender and the E.M.D., the contractor cannot withdraw from the process. If he does, he loses his E.M.D. and the owner may take him to the court of law for the compensation if he has not accepted the work order.



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SCHOOL OF BUILDING AND ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

UNIT – III– PROFESSIONAL PRACTICE & ETHICS II – SAR 1504

III. CONTRACT

Contract consists of the General Conditions, the Supplementary Conditions, the Specifications, the Drawings, the Bill of quantities, the Tender, the Letter of Acceptance, the Contract Agreement.

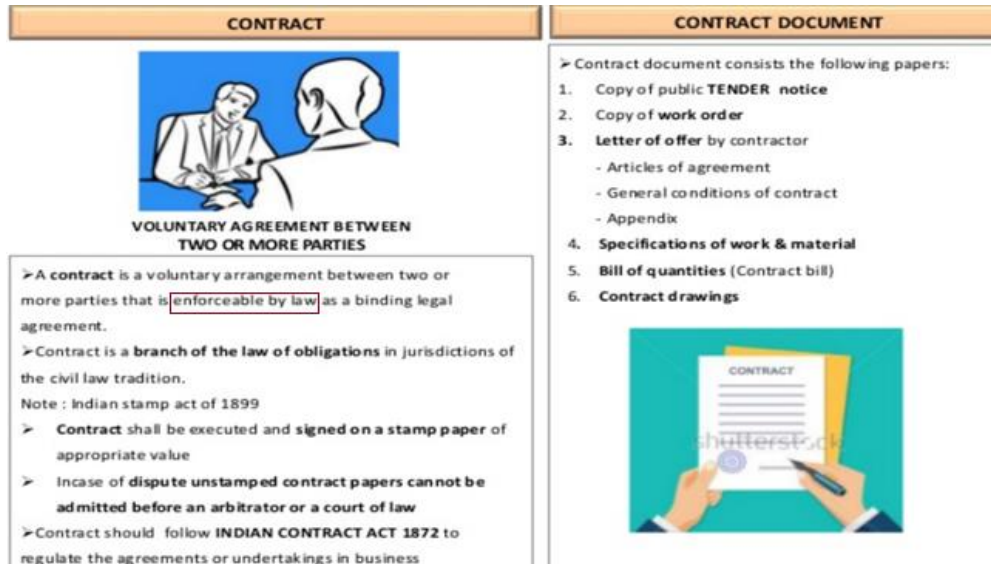


Figure 7

Contract document

A contract document is the most important in connection with carrying out of the building construction.

- It is necessary to have a contract in some form or other.
- The forms of contract in Government and Private will be different.
- It differs as per the conditions and requirements of each client.

Contents of contract documents

- Tender Notice or Letter of Invitation
- Copy of Work Order to the Contractor
- Letter of Offer (sent by the contractor / financial bid)
- Articles of Agreement
- General Conditions of Contract
- Appendix (forms & certificates)
- Specifications of Work and Material
- Bill of Quantities
- Contract Drawings

Tender Notice or Letter of Invitation- Tender means an offer to carry out work, that is pre-described or to supply or purchase goods of prefixed specifications at a price to be quoted the tenderer.

Letter of offer - This letter is drafted by the architect's office. The contractor is supposed to read it carefully and sign it as a mark of total agreement to it. **The contractor shall make no change in the text of the letter.** This letter of offer is an important commitment by the contractor. A specimen letter is given in Appendix. There are several clauses in the letter.

In the 1st clause, a reference is made to the tender notice or a letter of invitation as per the case. This reference has a legal significance.

In second clause, the contractor commits that he has studied drawings, specifications, articles of agreement and conditions of contract. All these shall be included in the tender document by the architect's office, so that the contractor can carefully read them, before giving the tender offer. Drawings and specifications are prepared in the architect's office for each work. "Article of Agreement and Conditions" is a standard document used on every job. It is prepared by the Indian Institute of architects. It is a very important and useful document, which is to be studied carefully.

In this clause, the contractor commits that he knows the situation at the work site and he is ready to work at the rates given by him, under the present site conditions.

There are other clauses, regarding E.M.D. It says that the deposit is without interest. It also gives period of deposit and further states authority to the architect to forfeit E.M.D. under certain conditions.

Articles of agreement

It is a written memorandum of the terms of an agreement between two parties – The Client and the Contractor.

It is a common practice for persons to enter into articles of agreement before starting construction at the site.

This article will be part of whole contract signed between the Client (or Architect) and Contractor. This Article will be considered as a preparatory to the execution of a formal action, whereby it is stipulated that one of the parties shall convey to the other certain expectations and standards - draft agreement to set mutual responsibilities and scope of association.



Figure 8

General conditions of contract

It may contain:

Payment Terms

Schedule of Payment

Project Time Line and Milestone chart

Electricity and Water supply to the site detail
Uncertain Items of Work

Payment terms

Detail out the total agreed amount of contract and stages of completion or milestone. Will emphasize the work load and penalties for and delays in completion of the project. The penalty could range from 2% to 10% depending upon the construction stage and time it has taken

Schedule of Payment

- This section would contain details about percentage of payment to be paid to the contractor on approval of their running-bills or stage completion bills.
- This section of the contract document would also contain the amount of payment would be released and percentage of amount that would be withheld as security-deposit or retention amount.
- The running bill would be checked and approved by the architect who would be the in-charge of the project and site. Hence the role of architect should be clearly mentioned in the contract and tender documents.

Project Time Line and Milestone chart

- The contractor's scope of work would be aligned with project management schedule or architect's construction management time frame.
- The contractor would abide by the schedule and specification mentioned in the drawings, BoQ(Bill of Quantity) and contract-document.
- This section would also contain PERT (program (or Project) Evaluation and Review Technique) and CPM (Critical Path Method) charts.

Electricity and Water supply to the site detail

- Most of the construction contract includes the provision of providing Electricity and Water Supply at one location at the project site to the contractor.
- These supplies would be chargeable or free-of-cost provided by the client. Particularly this particular item in the contract and tender document would make great difference project cost.

Uncertain Items of Work

- This particular provision on the contract document speaks about increase in quantities or any escalation due any uncontrollable situation.
- The items could be treatment of water or new material supply or even supply of sand.

Specifications of Work and Material

- Specifications describe the materials and workmanship required for a development of the construction project
- Specifications vary considerably depending on the stage to which the design has been developed when the project is tendered, ranging from performance specifications (open specifications) that require further design work to be carried out by the contractor, to prescriptive specifications (closed specification) where the design is already complete and no choices are left to the contractor.
- Prescriptive specifications give the client more certainty about the end product when they make their final investment decision (i.e. when they appoint the contractor),

whereas a performance specification gives the contractor more scope to innovate, and adopt cost effective methods of work, potentially offering better value for money.

- Most projects will involve a combination of performance and prescriptive specifications. Items crucial to the design will be specified prescriptively (such as external cladding) whilst less critical items are specified only by performance (such as service lifts).

Aspects of the works

- Products (by standards, IS Codes, a description of attributes, naming (perhaps allowing equivalent alternatives) or by nominating suppliers).
- Workmanship (by compliance with manufacturer's requirements, reference to a IS Code of Practice or standards, or by approval of samples or by testing).
- Specifications should be structured according to work packages mirroring the separation of the works into sub-contracts
- This makes it easier for the contractor to price and so may result in a more accurate tender

Bill of Quantities

- The bill of quantities (BoQ) is a document prepared by the Quantity Surveyor that provides project specific measured quantities of the items of work identified by the drawings and specifications in the tender documentation.
- The quantities may be measured in number, length, area, volume, weight or time.
- Preparing a bill of quantities requires that the design is complete and a specification has been prepared.
- The bill of quantities is issued to tenderers for them to prepare a price for carrying out the works.
- The bill of quantities assists tenderers in the calculation of construction costs for their tender, and, as it means all tendering contractors will be pricing the same quantities (rather than taking off quantities from the drawings and specifications themselves), it also provides a fair and accurate system for tendering.
- The contractor tenders against the bill of quantities, stating their price for each item.
- This priced bill of quantities constitutes the tenderer's offer.
- As the offer is built up of prescribed items, it is possible to compare both the overall price and individual items directly with other tenders offers, allowing a detailed assessment of which aspects of a tender may offer good or poor value.
- This information can assist with tender negotiations.
- The priced bill of quantities will also assist with the agreement of the contract sum with the successful tender. Provide a schedule of rates assisting with the valuation of variations. Provide a basis for the valuation of interim payments. Provide a basis for the preparation of the final account.

Types of Contracts

Classification of Building Contracts may be considered for proper modes of execution of the building works.

Broadly speaking there are two classifications of contract which are popular with the architects/engineers namely:

- i. Lump-sum contract including one with bonus.
- ii. Item rate contract including price rise and clauses.

Other classes of the contract

- i. Cost plus percentage or cost plus fee contract.
- ii. Cost plus fixed fee with or without bonus and penalty.
- iii. Labour contract.
- iv. Demolition work contract.

Method of execution of the work

- Day work: Refer clause 30(4)(c) of I.I.A. form of Contract.
- Piece work
- Daily labour.

Concept of entire contract

The concept of entire contract has got at its foundation on the premises that:

- Contract is indivisible.
- Consideration is one and it cannot be apportioned.
- No part payments can be recovered because of absence of such a provision.
- Obligation of the owner to make payment does not arise till the whole work is completed.
- Even if the contractor abandons the work and also due to incomplete performance of the work, it will not entitle the contractor to seek relief for work done on QUANTUM Merit basis.
- However, in practice one will not find such a form of contract as the contractors are not willing to do the job unless part payments are assured.

Lump sum contract

- It is an agreement creating an obligation on the contractor to complete the work as shown on the drawings and described by the specification and special conditions/specifications if any, subject to incidental variations, supplying all materials, labour and other implements necessary for a lump-sum **or** at unit rate per sq.m of plinth area.
- The above explanation of lump-sum contract creates two sub-classes of contract namely :
 - Lump-sum contract or fixed sum contract.
 - Area based contract.
- Lump sum amount is subject to adjustments and payable by the owner as a reciprocal obligation either in one payment or by installments as may have agreed.
- Involves a total fixed price for all construction related activities.
- Can include incentives or benefits for early termination, or can also have penalties, called liquidated damages, for a late termination.
- Preferred when a clear scope and a defined schedule has been reviewed and agreed upon.

Advantages and Disadvantages

Lump Sum Contract (Advantages)

- Low risk on the owner, Higher risk to the contractor
- Cost known at outset
- Contractor will assign best personnel

- Contractor selection is easy.

Lump Sum Contract (Disadvantages)

- Changes are difficult and costly.
- Contractor is free to use the lowest cost of material equipment, methods.
- The contractor carries much of the risks. The tendered price may include high risk contingency.
- Competent contractors may decide not to bid to avoid a high-risk lump sum contract.

Item Rate Contract –Suitability

- The item rate contract is most commonly used for all types of engineering works of the government undertakings including railway department.
- It is suitable for works which can be distinctly split into various items and quantities under each item can be estimated accurately.

Item rate contract is also known as unit price contract or schedule contract

- A contractor undertakes the execution of working on an item rate basis. He is required to quote rate for individual item of work on the basis of schedule of quantities (i.e., bill of quantities) furnished by the department.
- The amount to be received by the contractor, depends upon the quantities of work actually performed.
- The payment to the contractor is made on the basis of the detailed measurements of different items of work actually executed by him.
- This contract deals in measurement of each item of the work as given in the bill of quantities and sum to be paid is arrived at based on the rates quoted against each item. In the bill of quantities all the items are described in detail along with the quantities.
- Here the rates are the part of the contract and the quantities can carry the prefix “approximate”, do not form part of the contract in as much as variations in the quantities will not vitiate the contract.

Merits

- This method ensures a very detailed analysis of cost and payment to the contractor and also is based upon detailed measurements of each item actually done, so this method is more scientific.
- Changes in drawings and quantities of individual item can be made as per requirements within agreed limits.
- There is no urgency of providing detailed drawings at the time of awarding the contract. It can be prepared later on.
- A contractor is asked to write down the rate of individual item in figures and words both so it is not easy to form a cartel during the submission of tender.
- An engineer can compare the rates quoted by the contractor with that of schedule of rates prepared by the departments to find out whether the tender is unbalanced.

Demerits

- As by wise anticipation or perhaps outside information, a contractor may quote high for items that are likely to be increased and low rate for items likely to be decreased, making an unbalanced tender.
- Comparative statement of item rate tenders are more elaborate and comprehensive and intelligent scrutiny is required.
- A contractor may quote some items in words excluding paise intentionally in order to tamper in rates.

- The total cost of work can only be known after completion. As such the owner may face financial difficulty if the final cost is substantially high.
- The scope of saving with use of inferior quality may prompt the contractor to do so.

Cost Plus Percentage or Cost-Plus Fee Contract

- Though not in vogue, this contract creates an obligation on the contractor to supply all the materials, labour and implements for the execution of the work and the reciprocal obligation on the owner will be the reimbursement of such cost plus a specified percentage as profit for his services.
- Leaving aside the advantages and disadvantages of this form, fictitious bills of cement and steel creeping in, and the arguments being advanced that such materials have been subject to the process of pilferage, are not ruled out.
- “Whether specified percentage agreed relates to profit element only or also includes overhead charges”
- This situation will crop up when the contract is of ambiguous nature. If it is specific no difficulty will arise. The overhead charges and profit depend upon a number of factors like nature of work, site conditions, status of contractors, site establishment charges, office expenditure, etc., leaving aside the disputed point of wasteful expenditure.

Fixed Fee Contract

- A modified form of Cost Plus Percentage contract is cost plus fixed fee contract, the difference being that here the contractor is paid a fixed fee irrespective of the cost of labour, materials and other incidental cost.
- This fixed fee whether it covers only the profit or also overhead charges must be made clear in advance so as to avoid future litigations.
- Since it is irrespective of the cost, it takes the form of a specified sum of money (say Rs.2 lakhs instead of specified percentage) and usually paid in suitable installments.
- In this type of contract, the contractor is paid by the owner an agreed fixed lump-sum amount above the actual cost of the work. This fixed fee will include overhead and profit to the contractor.
- The fees does not vary with the actual cost of the work as in the case of cost plus percentage rate contract.

Merits

- Since the fixed fee covers the contractor’s overhead charges and profit, the contractor will try to finish the work as early as possible, so the owner gets the advantage of early completion.

Demerits

- The contractor is quite indifferent towards the quality of work, maybe he simply interested in its early completion,
- Close supervision and checking of delivery notes and invoices which it involves, makes it unsuitable for works where the necessary staff is not available.
- The cost of project is unnecessarily increased because of purchase of materials at higher prices and engaging costly labour in an attempt to reduce the project time.

Labour contract

- In labour contract, the contractor undertakes contract for the labour portion only excluding the materials which are arranged at the work site by the department/owner.
- The contractor engages the requisite labour and gets the work done as per drawings and specifications.

- It is an item rate basis for labour portion only and the contractor is paid for the quantities of work done on measurements of different items of work at the stipulated rate in the contract agreement.

Merits

- The materials stored by the departments are thus utilized.
- The work done through labour contract is of superior quality as better-quality materials are arranged by the owner,
- The overall cost of construction may be less, as no profit is paid on the cost of materials.
- This system is very convenient for private building construction.

Demerits

- The department will have to remain vigilant and watchful over the materials used, as the contractor may overlook the material wastage involved.
- A large storage area is required to store the various kinds of materials to be used in the construction under a constant guarding arrangement.
- This system is not suitable for government department.
- Because due to lengthy formalities in procurement of materials, it is very difficult to supply each material readily to the labour contractor.

Package deal or Turnkey contract

There is a third group of contract which can well be incorporated in the broad classification of lump-sum contract and that contract is known as package deal or turnkey contract

In this case the builder / developer contractor purchases the land, employs his own architect/engineer and agrees to hand over completed tenements to the employer (usually a society) against specified rate per sq.m of the area; of course subject to payments by installments as the work progresses.

This type of contract resembles the contract for sale of the flats/tenements, the only distinguishing feature between the two is that to come within the fold of building contract, the builder purchases the land in the name of the owner and enters the site as a licensee of the owner to execute the works, whereas in case of contract for sale of flats, the Developers enter the site without permission of the flat purchasers, may be an individual or a group. These types of contracts do create a lot of problems to be solved for architects/engineers or by arbitrators in case of disputes due to care not being taken in advance.

Contractor's bill

- The payment to the contractors for works or supply of material, road metal and plants etc. are made on the basis of measurements recorded in the measurement books.
- When the work or supply is completed or sufficiently progressed, the detailed measurements are taken usually by the section officer and recorded in the measurement book and an abstract of quantities are prepared and the cost is calculated at the rate of the contract agreement.
- From the abstract of quantity and the rate, a bill is prepared for payment.

Bill and Voucher

Bill: Bill is the account of work done or supply of materials made and includes the particulars and quantities of work done or material supplied and amount due. Reference to the agreement number, order number are also given in the bill.

Voucher: Voucher is a written document with details which is kept in record as a proof of payment. For any payment, a bill is prepared and payment is made on the bill, duly checked and acknowledged by the payee, by signature or revenue stamp as required and after payment is made, bill becomes voucher which is kept in record.

Types of Bills

- The various standard forms of bills and vouchers are used for payment, according to the nature of works.
- White forms are used for running bills and yellow forms are used for final bills. The following are the different types of bills.
- First and Final bill (No running account bill only final bill)
- Running account Bill (payment made in stages)
- Final Bill
- Lump sum contract Bill
- Hand receipt (Temporary)

Lump sum contract Bill & Hand receipt

Lump Sum Contract Bill: In the L.S. contract methods, a number of intermediate payments are made in L.S. contract running account bill form before final payment is made.

Intermediate payment is made for

- (i) value of measure up items of work executed forming part of the contract.
- (ii) value of authorized extra work done on account of additions or modifications in the work executed supported by details in either case.

In the final L.S. bill, the full amount as entered in the contract is paid adding the amount of authorized extras and deducting authorized omission and the intermediate payments already made.

Hand Receipt: Hand receipt is a simple form of voucher intended to be used for small miscellaneous payments and advances for which none of the above forms is suitable. The purpose of payment and the designation of the officer making payment duly supported by measurement book entry should be furnished on the hand receipt. No agreement is necessary for payments made through Hand receipt form.

Types of payment

- Payment to contractors are made in a variety of ways, as listed below:
- First and Final Payment
- Running on Interim or 'on account' payment.
- Final payment
- Advance payment
- Secured Advance payment

How and when to make payment-

- **First and Final Payment:** Single payment made for a job or contract on its completion. Payment finished by one payment after the completion of the work. Usually applicable for small work.

- **Running or interim ‘on account’ payment:** Payment made on a running account to a contractor for works done or supplies made, duly measured and entered in measurement book. Effected when only a part of the whole work or supply has been done and the work or supply is in progress. During the progress of the work, the contractor is paid from time to time.
- **Final Payment:** Last payment made to a contractor on a running account, on completion of this contract and the full settlement of the account.
- **Advance Payment:** Payment made on a running account to a contractor for work done by him but not measured. Advance payment is not generally made to the contractor, but may be made under special circumstances when the work is sufficiently progressed, but measurement cannot be taken for certain valid reasons. The value of work done shall not be less than the advance proposed. Detailed measurements shall be taken as soon as possible and advance payment adjusted in the final bill.
- **Secured Advance Payment:** Payment made on the security of materials brought by the contractor to the site of work, when the contract is for the completed items of work. This type of payment may be allowed by the Executive Engineer in the interest of work upto an amount not exceeding 75% of imperishable materials. Lime, sand, paint and varnishes are considered as perishable materials and no advance is permissible.

Preparation and Examination of Bills

- The bills for payment shall be prepared with respect to the measurements recorded in the measurement book.
- All entries in the measurement book with regard to the description and quantities of work or supplies made are checked.
- Arithmetical calculations of the contents or area are verified. When, the bill is on running account then it is compared with the quantities etc. with the previous bill.
- It is checked whether deduction in respect of the following have been properly made.
 - Recovery for advance payment
 - Recovery in respect of departmental materials issued to the contractors.
 - Hire charges for departmental materials issued to the contractors.
 - Amount to be withheld towards security deposit.
 - Recovery towards penalty for slow progress, non-return of empty gunny bags etc.

Payment of bills

- In case of final bills the field officers should certify about the due fulfillment of contract and satisfactory completion of work. The memorandum of payment is then made.
- The competent officer records a formal pay order specifying both in words and figures the net amount payable.
- However, the contractor is required to acknowledge the gross amount payable inclusive of recoveries proposed in the bill.

- When the bill is passed for payment, every page containing the detailed measurement will be scored out by a diagonal red ink line. The number and date of the voucher for payment will be entered in the measurement book.

CERTIFICATION OF CONTRACTOR BILLS		
S.NO	LEVEL OF WORK COMPLETED	AMOUNT PAYABLE OF TOTAL COST
1	All Foundation work including plinth	10-15%
2	Brick work	30-35%
3	Roof work	20%
4	Doors and windows	16%
5	Electrical installation excluding fittings like tube lights, fans etc	5-8%
6	Sanitary work & water supply	5-8%
7	Plastering & painting	10%
8	Flooring	6%
9	White wash & color wash	2%



Figure 9

Interim certificates in construction contracts

- Interim certificates provide a mechanism for the client to make payments to the contractor before the works are complete.
- Interim payments can be agreed in advance and paid at particular milestones, but they are more commonly, regular payments, the value of which is based on the value of work that has been completed (this is the actual value of the work completed, taking into account variations, etc.).
- The amount of these payments is entered onto an interim certificate (generally valued by the cost consultant, perhaps having taken advice from the Architect) and the client must honour the certificate within the period stipulated by the contract.
- If the client intends to pay a different amount from that shown on the interim certificate, then they must give notice to the contractor of the amount they intend to pay and the basis for its calculation.
- The value of interim certificates is the value of the work completed, less any amounts already paid, less retention.
- Half of this retention will be released on certification of practical completion and the other half upon issue of the certificate of making good defects.
- Interim certificates should make clear the amount of retention and a statement should also be prepared showing retention for nominated sub-contractors if there are any.
- The contract may require that retention is kept in a separate bank account and that this is certified.
- In this case, the client will generally keep any interest paid on the account.

- There may be particular provision to include the value of particularly costly materials that the contractor has not yet delivered to site. This allows the contractor to order items in good time, without incurring unnecessary long-term expense, but does put the client at some risk if the contractor becomes insolvent.

Final certificate

- Final Certificate is issued to the contractor after expiry of defect liability period calculated from date of virtual completion of work.
- On expiry of defects liability period plus one month for notice on rectification of defects or submission of all documents containing measurements and valuation within a reasonable time from the date of virtual completion of work whichever is later, contract can be rescinded.
- The Final certificate may also authorize release of balance retention money.

Defects Liability Period

- The defects liability period is the period of time within which the contractor is contractually obliged to return to the construction site to repair defects which have appeared in the contractor's works.
- The Contractor shall make good at his own cost and to the satisfaction of the architect all defects, shrinkages or small faults, arising in the opinion of architect from work or materials not being in accordance with drawings or specification or schedule of quantities or the instruction of the architects, which may appear within Defects Liability Period (12 months)

Duties of contractor for Defect Liability

- It is the duty of the contractor to remove the improper works executed due to defective workmanship or the materials.
- At times the architect or the engineer does not condemn such works during his inspection visit and the contractor treats the same as seal of approval.
- Subsequently when the defects develop, the contractor usually contends that the architect had seen the work and he not disapproved of the same at the proper time.
- Still the architect can hold him responsible under the clause of "Defect Liability Period".
-
- After all, the architects have also human limitations and they do not possess magic eyes which can penetrate right through the materials to find out their defects.
- Defects may be in the nature of faults, shrinkage or cracks which must have developed in the works due to materials or workmanship not in accordance with contract.

The Clerk of Works (or Clerk of the Works), often abbreviated CoW, is employed by an architect or a client on a construction site.

- The role is primarily to represent the interests of the client in regard to ensuring that the quality of both materials and workmanship are in accordance with the design information such as specification and engineering drawings, in addition to recognized quality standards. The role is defined in standard forms of contract such as those published by the Joint Contracts Tribunal. "Clerks of works" are also the most highly qualified non-commissioned tradesmen in the Royal Engineers.

- The qualification can be held in three specialisms: electrical, mechanical and construction.
- Historically the Clerk of Works was employed by the architect on behalf of a client, or by local authorities to oversee public works. The CoW can also be employed by the client (state body/local authority/private client) to monitor design and build projects where the traditional role of the architect is within the design and build project team.

Role

- The role, to this day, is based on the impartiality of the clerk of works in ensuring that value for money for the client - rather than the contractor - is achieved through rigorous and detailed inspection of materials and workmanship throughout the building process.
- In many cases, the traditional title has been discarded to comply with modern trends, such as site inspector, architectural inspector and quality inspector, but the requirement for the role remains unchanged since the origins of the title.
- The clerk of works is a very isolated profession on site.
- He/she is the person that must ensure quality of both materials and workmanship and, to this end, must be absolutely impartial and independent in decisions and judgments.
- He/she cannot normally, by virtue of the quality role, be employed by the contractor - only the client, normally by the architect on behalf of the client.
- His/her role is not to judge, but simply to report all occurrences that are relevant to the role.
- Clerks of Works are either on site all the time or make regular visits.

They must be vigilant in their inspections of a large range of technical aspects of the work. This involves:

- making sure that work is carried out to the client's standards, specification, correct materials, workmanship and schedule
- becoming familiar with all the relevant drawings and written instructions, checking them and using them as a reference when inspecting work making visual inspections
- taking measurements and samples on site to make sure that the work and the materials meet the specifications and quality standards.
- Being familiar with legal requirements and checking that the work complies with them.
- Having a working knowledge of health and safety legislation and bringing any shortfalls observed to the attention of the resident engineer.
- advising the contractor about certain aspects of the work, particularly when something has gone wrong, but this advice should not be interpreted as an instruction.

Agreed Liquidated Damages

- There is a penalty for the delay in completion of the work. The owner having invested in building, if he is not able to utilize the building on account of non-completion of work on time, he is losing his returns on his total investments.
- Loss per day - Annual interest on the contract amount at 70 % \div 365 days
- This amount shall be rounded off to a suitable higher figure and shall be written in Appendix. The per day amount shall not be too small; lest it will NOT serve the purpose. Often the owner is not happy with a small 'per day penalty', particularly in case of industrial or commercial projects. Then these calculations shall be made with higher rate of interest mutually agreed, say 18 % or more. But remember, to make it a balanced contract, you shall insist to apply the same rate of interest for the delayed

payment by the owner to the contractor. In that case, the architect shall correct the rate of interest printed on all the copies of the contract, with a mutual consent of both the parties. The architect shall put small signature there.

Damages for Non-completion on Time

- If the contractor fails to complete the work by the date specified in 'Appendix' or within extended time given by the architect, then the contractor shall pay the owner or allow to the owner to deduct the penalty from any amount due to the contractor. This amount of penalty shall be worked out at the rate of interest agreed upon and written in Appendix, on the contract amount for the period of 'Extra Time' taken by the contractor to complete the project.



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SCHOOL OF BUILDING AND ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

UNIT – IV– PROFESSIONAL PRACTICE & ETHICS II – SAR 1504

IV. LIABILITY, ARBITRATION AND NEW TRENDS IN PROJECT EXECUTION

Types of Liabilities

Professional Liabilities

Introduction

Professionals are required to discharge their obligations and commitments diligently and befitting with quality and standards of services. The laws of the land mandate that the professionals should provide services to the consumers in a required manner exercising duty of care and while doing so they should not commit any negligent act. In order to protect the interest of the consumers against the breach of duty, the deficient services have been defined by the statute and legal actions have been initiated on the erring professionals. The services rendered by architects have also been covered by the relevant laws of the country.

It has been often asked by the Architects why the legal action taken against architects whenever buildings or any other built form collapses of which they are the architects, without inquiring their faults and circumstances leading to the collapse. The action against architects have brought disrepute, embarrassment and mental agony to them, at a time, when they are unconnected with reasons responsible for the collapse of building.

What is the professional liability of architects for the buildings which have been designed and its construction and completion is supervised by them and thereafter, remain under the control and management of owners/ occupants, and not under the superintendence of an architect who was originally engaged for the design and supervision of construction. In reality, the longevity and stability of the building are dependent upon the observance of safety and maintenance norms.

Although Council of Architecture has prescribed the Conditions of Engagement and Scale of Charges, the question of professional liability of architects during the post completion period of the project remained a vexed question for many years.

It has been the constant desire and earnest request of the professionals that Council of Architecture being a statutory body regulating the Architectural Education and Profession throughout the country, it should formulate guidelines on architect's professional liability. Keeping this end in view, the Council has prescribed guidelines on "Architect's Professional Liability" to make aware of the architects and the owners and occupiers of the buildings in what manner and under which circumstances an architect should be held responsible for the negligent act/ deficient services and at the same time, it highlights the clients/ occupiers' duties and responsibilities to be undertaken by them to preserve the longevity of the building. This document has been approved by the Council of Architecture at its 40th meeting held on 12th & 13th April, 2002, vide Resolution No.302, as guidelines to the Architects and user organisations / individual clients.

Indemnity Insurance: The architect is required to indemnify the client against losses and damages incurred by the client through the acts of the Architect and shall take out and maintain a Professional Indemnity Insurance Policy, as may be mutually agreed between the Architect and the Client, with a Nationalised Insurance Company or any other recognized Insurance Company by paying a requisite premium.

Maintenance of Record: The architect is required to maintain all records related to the project for a minimum period of 4 years after the issuance of Certificate of Virtual Completion.

Duration: The architect's liability shall be limited to a maximum period of three years after the building is handed over to / occupied by the owner, whichever is earlier.

Nature of Liability:

An architect is liable for the negligent act which he committed in the performance of his duties. The action against an architect can be initiated by the Client on satisfying the following conditions :

- (a) There must exist a duty to take care, which is owed by an architect to his client.
- (b) There must be failure on the part of an architect to attain that standard of care prescribed by law, thereby committed breach of such duty
- (c) The client must have suffered damage due to such breach of duty.

Disciplinary action under the Architects Act, 1972

If an architect is found guilty of professional misconduct, he is liable for disciplinary action by the Council of Architecture under Section 30 of the Architects Act, 1972.

Civil and Criminal action in the Courts of Law

The disciplinary action taken by the Council of Architecture against the architect who has been found guilty of professional misconduct does not absolve him of his liabilities under the Code of Civil Procedure, 1908 and the Code of Criminal Procedure, 1973, if any.

Some of the relevant laws include, The Law of Torts, The Consumer Protection Act, 1986 and The Indian Penal Code 1860, etc.

* Prescribed under regulation 2(1)(xii) of the Architects Professional Conduct Regulations, 1989. This revised document was approved by the Council of Architecture at its 40th Meeting held on 12th and 13th April, 2002, vide Resolution No. 303.

Professional Duties of Architect:

Service: "Service", as defined under Section 2 (1) (o) of the Consumer Protection Act, 1986, means service of any description which is made available to potential users and includes the

provision of facilities in connection with banking, financing insurance, transport, processing, supply of electrical or other energy, board or lodging or both, housing construction, entertainment, amusement or the purveying of news or other information, but does not include the rendering of any service free of charge or under a contract of personal service. In other words, rendering professional service by an architect for "consideration" falls within the ambit of "service". The relationship between the Client

and the Architect is that of recipient and provider of service. The professional services rendered by the architect mean the services rendered pursuant to the Conditions of Engagement and Scale of Charges, entered into between the Client and the Architect.

Competence: An architect, being a professional, shall possess the required knowledge and skill i.e. proficiency and competence for discharging his professional duties and functions. These are governed under the provisions of the Architects Act, 1972 and the Architects (Professional Conduct) Regulations, 1989, framed thereunder.

Duty of care: It means duty to exercise utmost skill and care. When an architect offers professional advice/architectural services, implicitly undertakes that he is possessed of the knowledge and skill for the purpose. Thus, an architect shall bring to his task a reasonable degree of knowledge and skill and must exercise a reasonable degree of care.

Duties: The duties that are required to be performed by an architect for various types of projects have been prescribed by the Council of Architecture under the Conditions of Engagement and Scale of Charges for respective areas in the field of architecture. The documents stipulate the parameters within which the Architect is required to function. However, the Conditions of Engagement and matters related therewith for a given project shall be carried out in accordance with the terms and Conditions of Agreement executed between the Client and the Architect.

Professional Conduct:

An architect shall be required to comply with the standards of professional conduct and etiquette and a code of ethics set out in clauses (i) to (xxv), read with exceptions covered by sub-clauses (a) to (h) of sub-regulation (1) of Regulation 2 of the Architects (Professional Conduct) Regulations, 1989. Violation of any of the provisions of sub-regulation (1) shall constitute a professional misconduct.

Client's - Owner's/ Occupant's duties and responsibilities:

The Owner - Client shall discharge all his obligations connected with the project and engagement of the Architect in accordance with the Conditions of Agreement as agreed upon. Further, the Client(s)-Owner(s) / Occupant(s) upon completion of the building shall maintain it properly to safeguard and preserve the longevity of the building

Professional Negligence

Negligence: "Negligence" of an architect means failure to take reasonable degree of care in the course of his engagement for rendering professional services.

Deficient Service:

"Deficiency", as defined under Section 2(1)(g) of the Consumer Protection Act, 1986, means any fault, imperfection, shortcoming or inadequacy in the quality, nature and manner of performance which is required to be maintained by or under any law for the time being in force or has been undertaken to be performed by a person in pursuance of a contract or otherwise in relation to any service.

An architect is required to observe and uphold the Council's Conditions of Engagement and Scale of Charges while rendering architectural services in terms of Regulation 2 (1) (xii) of the Architects (Professional Conduct) Regulations, 1989. Thus, failure to provide any service/services that is/are necessary for discharge of his duties and functions for the project for which he has been engaged, amount to deficient service

Exceptions:

An architect is not liable for any liability, if the damage to the building has occasioned in the following circumstances: Use of building for the purposes other than for which it has been designed.

Any changes/ modifications to the building carried out by the owner(s)/occupant(s) without the consent or approval of the architect who designed and/ or supervised the construction of the building.

Any changes/alterations/modifications carried out by consulting another architect without the knowledge and consent of erstwhile architect or without obtaining No Objection Certificate from him. Illegal/unauthorised changes/alteration/ renovations / modifications carried out by the

owner(s)/occupant(s). Any compromise with the safety norms by the owner(s)/occupant(s). Distress due to leakage from terrace, toilets, water logging within the vicinity of the building and that would affect the strength/stability of the structure or general well-being. Lack of periodical maintenance or inadequate maintenance by the owner(s)/occupant(s). Damages caused due to any reasons arising out

of `specialised consultants' deficient services with regard to design and supervision of the work entrusted to them, who were appointed/ engaged in consultation with the Client. Damages caused to the building for the reasons beyond the control of the architect.

Professional Negligence and Deficiency in Services - Professional Misconduct :

Any person aggrieved by the professional negligence and/ or deficiency in services provided by the architect, the matter shall be referred to the Council of Architecture under Rule 35 of the Council of Architecture Rules, 1973, to adjudicate whether the architect is guilty of professional misconduct or not

ARBITRATION

Introduction

Arbitration is a process in which a disagreement between two or more parties is resolved by impartial individuals, called arbitrators, in order to avoid costly and lengthy litigation. It is a form of alternative dispute resolution (ADR), is a technique for the resolution of disputes outside the courts. The parties to a dispute refer it to arbitration by one or more persons, and agree to be bound by the arbitration decision (the "award"). A third party reviews the evidence in the case and imposes a decision that is legally binding on both sides and enforceable in the courts.

Arbitration is a private, contractual form of dispute resolution. Disputes are resolved on the basis of material facts, documents and relevant principles of Indian law (Arbitration and Conciliation Act, 1996). The arbitration process is administered by an appointed arbitrator subject to any relevant contractual rules and subject to the statutory regulatory framework applied by the domestic courts. There are only limited rights of appeal and legal costs are usually awarded to the successful party.

Advantages of Arbitration:

Proponents of arbitration cite a number of advantages when compared to filing a lawsuit in a court of law. In general, arbitration is more flexible than litigation. The parties are often encouraged to participate in the resolution process. Negotiating within the framework of a cooperative process may well lead to a mutually beneficial solution to a disagreement. Some other perceived benefits of arbitration are as follows:

- Arbitration is typically cheaper than traditional litigation. An arbitration case can also be resolved more quickly than a lawsuit.
- Arbitration hearings can be scheduled to meet the needs of busy participants, including evenings and weekends.
- Litigation in a public court of law is subject to the limitations of a rigid court calendar. Unlike traditional litigation, complex legal procedures and rules of evidence are not available in an arbitration case.
- Procedures such as discovery and depositions are often used to delay legal proceedings in a court of law.
- An arbitration case provides more privacy than litigation. Arbitration participants can agree to keep the final resolution and sensitive information completely private.
- Speedier resolution; however, there can be exceptions due to multiple parties, arbitrators, lawyers and litigation strategy.
- Less costly; however, there can be exceptions due to multiple parties, lawyers, arbitrators and litigation strategy.
- From defense point of view, there is less exposure to punitive damages and run away juries.

Sole and Joint Arbitrators:

There can be reference to arbitration only if there is an arbitration agreement between the parties – Client and Architect or Client and Contractor. The Act makes it clear that an arbitrator can be appointed under the Indian Act at the instance of a party to an arbitration agreement only in respect of disputes with another party to the arbitration agreement. If there is a dispute between a party to an arbitration agreement, with other parties to the arbitration agreement as also non-parties to the arbitration agreement, reference to arbitration or appointment of arbitrator can be only with respect to the parties to the arbitration agreement and not the non-parties. The Act provides that parties are free to determine the number of arbitrators which however, should not be an even number. Failing any determination by the parties, the arbitral tribunal shall consist of a sole arbitrator. The statutory requirement of odd numbers of arbitrators is a derogable provision. The Act recognizes the right of both parties to choose the number of arbitrators. If the party wishing to exercise the right fails to exercise such right within the time frame provided then he will be deemed to have waived his right to so object.

Arbitration Agreement - an agreement by the parties to submit to arbitration all or certain disputes which have arisen or which may arise between them in respect of a defined legal relationship, whether contractual or not.

Role of an Arbitrator

An arbitrator reviews testimony and evidence presented by the disputed parties at a hearing and resolves the dispute by issuing a decision that may include an award of money. You can think of an arbitrator as a private judge hired by the disputing parties to resolve their dispute. If the arbitration is binding, the parties cannot seek a reversal of the decision in court except under very limited circumstances. However, the successful party can seek help from a court in enforcing the arbitrator's decision.

An arbitrator serves as the decision-maker and 'referee' in an arbitration proceeding, much like a judge during court litigation. The arbitrator is bound by the rules outlined in the parties' **arbitration agreement**. If he is a member of a special arbitration organization, such as the American Arbitration Association, he will be bound by the rules of that organization as well, including a set of ethical rules.

An Arbitrator's Duties

An arbitrator has several duties. Among them are:

Interpreting and applying the rules and laws applicable to the arbitration. The applicable rules should be outlined in the arbitration agreement. The parties may also designate a particular state's law to govern the dispute in the arbitration agreement.

Managing the scope of discovery that can be undertaken by both parties. **Discovery** is a formal process of investigation to determine facts relevant to the dispute. The investigation can include taking witness statements and reviewing documents required to be disclosed by the other disputing party. Conducting the arbitration hearing in which both sides of the dispute may submit testimony, other evidence such as documents, and arguments. Each side's position may be summarized in a written document, often called a **statement of the case**, and be submitted to the arbitrator to review as part of the hearing process. Making a decision resolving the dispute based on the testimony, evidence and arguments submitted by both sides of the dispute. A decision may include granting an award of money.

Role of Umpires:

Where the tribunal consists of an odd number of arbitrators, one of them may be designated as the umpire. The selection of title actually carries some significance. When an arbitrator is "umpire", then they will not usually exercise any special or additional powers, and merely have a presidential function as the tribunal member who sets the agenda. Where a member of the tribunal is an umpire, they usually do not exercise any influence on proceedings, unless the other arbitrators are unable to agree — in such cases, then the umpire steps in and makes the decision alone.

Arbitration Award

The arbitral award is issued under the signature of all or majority of arbitrators on the basis of the decision or stating it as mutually agreed upon by the parties. Signed copy shall be delivered to all parties. The award is binding on all the parties. Award is enforceable as if it were a decree of the Court.

Conduct of Arbitration Proceedings:

All disputes or differences which may arise between the Client and the Architect under "Conditions of Engagement and Scale of Charges" with regard to the meaning or interpretation or matter or things done or to be done in pursuance hereof, such disputes and differences shall be referred for arbitration to the Council of Architecture. The arbitrator shall be appointed by the President, Council of Architecture. The arbitration shall be conducted as per the provisions of the Arbitration and Conciliation Act, 1996. The decision and award of the arbitrator shall be final and binding on the Architect and the Client.

Interim Measures by Court

- Appointment of a guardian for a minor or person of unsound mind for the purposes of arbitral proceedings.
- Protection in respect of preservation, interim custody or sale of any goods which are the subject-matter of the arbitration agreement
- Securing the amount in dispute
- The detention, preservation or inspection of any property or thing which is the subject-matter of the dispute
- Interim injunction or the appointment of a receiver;
- Any other interim measure of protection as may appear to the court to be just and convenient

In general, the arbitration agreement provides the basis for arbitration. It is defined as an agreement to submit present or future disputes to arbitration. This generic concept comprises two basic types:

- a) A clause in a contract, by which the parties to a contract undertake to submit to arbitration the disputes that may arise in relation to that contract (arbitration clause); or
- b) An agreement by which the parties to a dispute that has already arisen submit the dispute to arbitration (submission agreement).

The arbitration clause therefore refers to disputes not existing when the agreement is executed. Such disputes, it must be noted, might never arise. That is why the parties may define the subject matter of the arbitration by reference to the relationship out of which it derives. The submission agreement refers to conflicts that have already arisen. Hence, it can include an accurate description of the subject matters to be arbitrated. As we shall discuss later, some national laws require the execution of a submission agreement regardless of the existence of a previous arbitration clause. In such cases, one of the purposes of the submission agreement is to complement the generic reference to disputes by a detailed description of the issues to be resolved.

All disputes shall be referred to and settled by the architect who then states his decision in writing. Such decision may be in the form of a final certificate or otherwise. The decision of the architect with respect to any of the excepted matters shall be final and without appeal. If the decision of the architect is not acceptable to either party, a notice shall be given within 28 days after receiving the

notice of the decision. The disputes or differences shall be referred to sole arbitration of a fellow of Indian Institute of Architect mutually agreed by the parties. In case of disagreement, each party shall appoint one architect (Fellow of IIA) and both the arbitrators select an umpire. They shall have the power to open up, review, and revise any certificate, opinion, decision, requisition or notice excepted matters. The arbitration shall be conducted as per the Act in force. (The Arbitration and Conciliation Act 1996)

Arbitration is a popular form of alternative dispute resolution that is used by many individuals and businesses to resolve disagreements in place of pursuing a lawsuit. Knowing the role an arbitrator plays will help you understand the process and be more effective if you participate in arbitrations.

NEW TRENDS IN PROJECT EXECUTION

Construction Management:

The construction manager is responsible for coordinating the work of multiple prime construction contracts and for overseeing quality control. Construction management services may be handled by the architect of record or as a professional service by another architect. For architects seeking a way to control the construction process in order to maintain their professional relationships with their clients, providing construction management (CM) as an architectural service is a viable project delivery method.

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Why a Client May Need These Services

- To have single-point accountability
- To maximize return on capital investment
- To save time and money
- To increase project quality

Knowledge and Skills Required

- Strong administrative and management skills
- Knowledge of business and contracts

- Knowledge of construction materials and methods
- Field supervisory experience
- Good communication and negotiation skills
- Ability to prepare detailed cost estimates
- Ability to develop detailed schedules

Representative Process Tasks

- Review of project program
- Advising project architect on pertinent project issues
- Preparing time schedules
- Preparing budgets and cost estimates
- Oversee bidding and preparation of construction contracts
- Supervising construction phase of work
- Overseeing project closeout
- Coordinating work of project participants

Advantages of designer-led construction management:

When construction management is provided by an architecture firm, the client benefits from project leadership that is focused on ensuring the quality of the entire design and construction process. The

goal of designer-led construction management is seamless integration of the steps and processes that must occur to complete a project on time and within budget.

In a designer-led CM practice, the architecture firm designs a project, prepares construction documents, and, acting as the owner's advisor, actively solicits bids from a select group of contractors. Contractors are chosen based on past performance and a demonstrated ability to comprehend the project scope, perform the work contracted for, and minimize requests for additional information or increased compensation.

Rather than a single or a few contractors, a CM project generally employs 10 to 15 contractors who ordinarily are subcontractors (e.g., concrete, structural steel, masonry, drywall, painting, etc.). The architecture firm provides a construction manager to coordinate the work of prime contractors, while the project architect continues to provide architectural services, including construction-phase observation. The construction contractors remain under contract to the owner, and the architect–construction manager works as the owner's advisor and contract administrator. The client benefits from daily on-site representation and single-point accountability, and the architect benefits from increased compensation and responsibilities that result in higher-quality projects completed on time and on budget.

The strongest selling point for designer-led CM services is that it can save the client money. Many firms have documented that clients save from 7 to 15 percent of project construction cost by eliminating a general contractor's overhead and profit and the cost of a project superintendent employed by the general contractor. A portion of a general contractor's overhead and profit serves as a project management fee. When the architect provides CM services, much of the money that would have gone to pay that project management fee can be paid to the architect as compensation for performing the CM services.

PERT : Project Evaluation Review Technique

A PERT chart is a graphic representation of a project's schedule, showing the sequence of tasks, which tasks can be performed simultaneously, and the critical path of tasks that must be completed on time in order for the project to meet its completion deadline. The chart can be constructed with a variety of attributes, such as earliest and latest start dates for each task, earliest and latest finish dates for each task, and slack time between tasks. A PERT chart can document an entire project or a key phase of a project. The chart allows a team to avoid unrealistic timetables and schedule expectations, to help identify and shorten tasks that are bottlenecks, and to focus attention on most critical tasks.

When to use it:

Because it is primarily a project-management tool, a PERT chart is most useful for planning and tracking entire projects or for scheduling and tracking the implementation phase of a planning or improvement effort.

How to use it:

Identify all tasks or project components. Make sure the team includes people with firsthand knowledge of the project so that during the brainstorming session all component tasks needed to complete the project are captured. Document the tasks on small note cards.

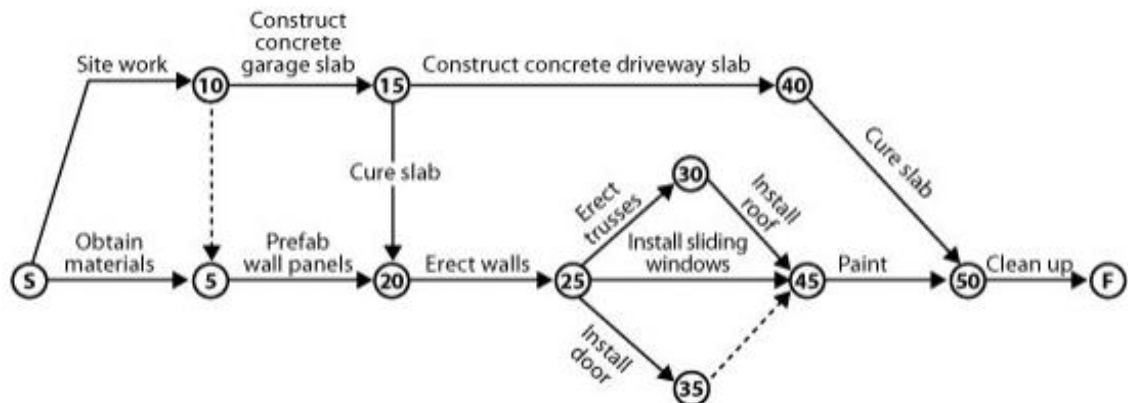
Identify the first task that must be completed. Place the appropriate card at the extreme left of the working surface. Identify any other tasks that can be started simultaneously with task #1. Align these tasks either above or below task #1 on the working surface. Identify the next task that must be completed. Select a task that must wait to begin until task #1 (or a task that starts simultaneously with task #1) is completed. Place the appropriate card to the right of the card showing the preceding task. Identify any other tasks that can be started simultaneously with task

#2. Align these tasks either above or below task #2 on the working surface. Continue this process until all component tasks are sequenced. Identify task durations. Using the knowledge of team members, reach a consensus on the most likely amount of time each task will require for completion. Duration time is usually considered to be elapsed time for the task, rather than actual number of hours/days spent doing the work. Document this duration time on the appropriate task cards. Construct the PERT chart. Number each task, draw connecting arrows, and add task characteristics such as duration, anticipated start date, and anticipated end date. Determine the critical path. The project's critical path includes those tasks that must be started

or completed on time to avoid delays to the total project. Critical paths are typically displayed in red.

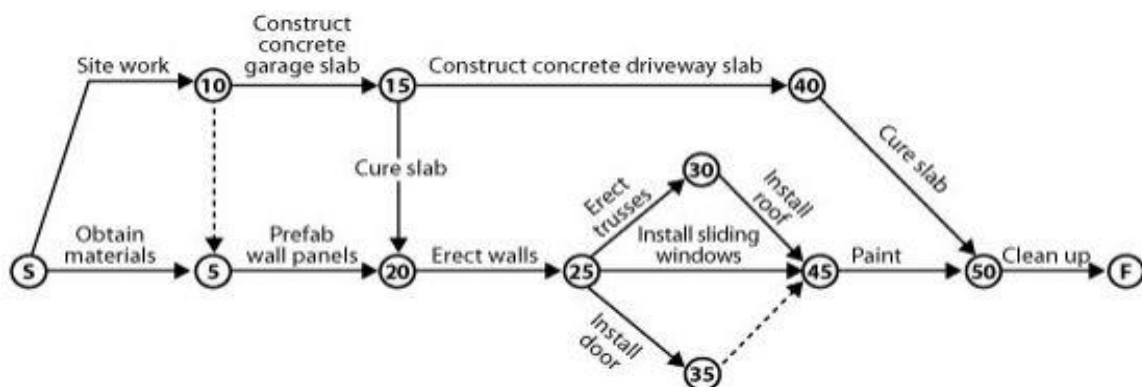
Method 1: Activity on the node

In this diagram the activities are written inside the boxes and are linked by arrows. These arrows may or may not have the number of days to complete the task written on them.



Method 2: Activity on the arrow

In this diagram the actual activities to be carried out are written on the arrows. The activities are set out numerically which allows for sub-events to happen in between. Gaps are left between the numbers in the nodes (circles) to allow the sub-events to fit in. On large building sites these numbers may count in 20s or 50s or even 100s, whilst on smaller jobs these could be actual days within the construction program. The more common method in use is method 2 - activity on the arrow. Each of the numbered nodes (the circles) represents an activity which has been completed while each arrow represents an activity that has taken place.



BOT (Build-Operate-Transfer):

A type of arrangement in which the private sector builds an infrastructure project, operates it and eventually transfers ownership of the project to the government. In many instances, the government becomes the firm's only customer and promises to purchase at least a predetermined amount of the project's output. This ensures that the firm recoups its initial investment in a reasonable time span.

This type of arrangement is used typically in complicated long-term projects as seen in power plants and water treatment facilities. In some arrangements, the government does not assume ownership of the project. In those cases, the company continues running the facility and the government acts as both the consumer and regulator.

Build–operate–transfer (BOT) is a form of project financing, wherein a private entity receives a concession from the private or public sector to finance, design, construct, and operate a facility stated in the concession contract. This enables the project proponent to recover its investment, operating and maintenance expenses in the project.

Due to the long-term nature of the arrangement, the fees are usually raised during the concession period. The rate of increase is often tied to a combination of internal and external variables, allowing the proponent to reach a satisfactory internal rate of return for its investment.

BOT finds extensive application in infrastructure projects and in public–private partnership. In the BOT framework a third party infrastructure and to operate and maintain these facilities for a certain period. During this period the private party has the responsibility to raise the finance for the project and is entitled to retain all revenues generated by the project and is the owner of the regarded facility. The facility will be then transferred to the public administration at the end of the concession agreement, without any remuneration of the private entity involved.

BOOT (Build–Own–Operate–Transfer)

A BOOT structure differs from BOT in that the private entity owns the works. During the concession period the private company owns and operates the facility with the prime goal to recover the costs of investment and maintenance while trying to achieve higher margin on project. The specific characteristics of BOOT make it suitable for infrastructure projects like highways, roads mass transit,

railway transport and power generation and as such they have political importance for the social welfare but are not attractive for other types of private investments. BOOT & BOT are methods which find very extensive application in countries which desire ownership transfer and operations including. Some advantages of BOOT projects are:

- Encourage private investment
- Inject new foreign capital to the country
- Transfer of technology and know-how
- Completing project within time frame and planned budget
- Providing additional financial source for other priority projects
- Releasing the burden on public budget for infrastructure development

BOO (Build–Own–Operate)

In a BOO project ownership of the project remains usually with the project company, such as a mobile phone network. Therefore, the private company gets the benefits of any residual value

of the project. This framework is used when the physical life of the project coincides with the concession period. A BOO scheme involves large amounts of finance and long payback period. Some examples of BOO projects come from the water treatment plants. These facilities run by private companies process raw water, provided by the public sector entity, into filtered water, which is then returned to the public sector utility to deliver to the customers.

BLT (Build–Lease–Transfer)

Under BLT a private entity builds a complete project and leases it to the government. On this way the control over the project is transferred from the project owner to a lessee. In other words, the ownership remains by the shareholders but operation purposes are leased. After the expiry of the leasing the ownership of the asset and the operational responsibility are transferred to the government at a previously agreed price. For foreign investors taking into account the country risk BLT provides good conditions because the project company maintains the property rights while avoiding operational risk.

DBOT (Design–Build–Operate–Transfer)

This funding option is common when the client has no knowledge of what the project entails. Hence he contracts the project to a company to design, build, operate and then transfer it. Examples of such projects are refinery constructions.

Role of Project Managers

Architectural project managers oversee architectural projects from the conception stage right down through construction and eventual completion of the project, making sure that project teams meet quality, schedule, contractual, and budget goals. Architectural project managers lead a team of designers and junior architects, oversee architectural projects, evaluate existing facilities and reformulate building programs. They establish and sustain client relations, participate in assessing and hiring architectural or engineering advisers, collaborate with governmental agencies and selected project architectural firms. Architectural project managers also adapt building codes, design and implement creative concepts of architectural layout and formulate and oversee project range, budgets, schedules and client expectations. They provide expert input in marketing, contractual, design, and production meetings; observe project performance and coordinate workload through the entire project to complete documents on schedule. Architectural project managers are also responsible for studying the financial aspect of projects; organizing construction documents and assuming responsibility for finished plans, specifications, and management approval of materials and construction. Some architectural project managers participate in mapping out program requirements, schematic drawings and preliminary cost estimates on large projects used in establishing guidelines for contract architects and engineers.

Education and Training Requirements

Architectural project engineers hold bachelor's degree in architecture, civil engineering or architectural and at least 5 years of relevant work experience. Some companies prefer individuals with a master's degree or PhD, plus 5 years architecture-related work experience.

Knowledge and Skills Requirements

To become a successful architectural project manager, one must have advanced knowledge of federal, state and local building administrative codes relating to building projects, knowledge of modern architectural methods and background on solving architectural design and construction problems. Important skills for this managerial position include good written and oral communication skills, decision-making and problem-solving skills, administrative and management skills; leadership and interpersonal skills, advanced computer knowledge, and the ability to work independently and as part of a team.